



Whiting Petroleum Corp.

Weld County, CO

Sec 7-T10N-R57W

Horsetail #07H-0615

Hz

APD

Anticollision Report

27 January, 2016



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #07H-0615
Project:	Weld County, CO	TVD Reference:	KBE @ 4933.00usft
Reference Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4933.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 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:	2.79 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	1/27/2016		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	13,347.11	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 7-T10N-R57W						
Horsetail #07H-0613 - Hz - Design #1	300.00	300.00	119.95	118.45	79.865	CC, ES
Horsetail #07H-0613 - Hz - Design #1	13,347.11	13,364.30	646.89	436.07	3.068	SF
Horsetail #07H-0614 - Hz - Design #1	300.00	300.00	59.97	58.47	39.932	CC, ES
Horsetail #07H-0614 - Hz - Design #1	13,347.11	13,431.62	330.45	125.01	1.609	SF
Horsetail #07H-0646 - Hz - Design #1	300.00	300.00	89.99	88.49	59.920	CC, ES
Horsetail #07H-0646 - Hz - Design #1	13,347.11	13,559.59	525.71	329.27	2.676	SF
Horsetail #07H-0647 - Hz - Design #1	300.00	300.00	29.99	28.48	19.966	CC
Horsetail #07H-0647 - Hz - Design #1	400.00	399.77	30.53	28.48	14.832	ES
Horsetail #07H-0647 - Hz - Design #1	13,347.11	13,624.03	320.88	197.06	2.591	SF
Horsetail #07H-1813 - Hz - Design #1	300.00	300.00	129.93	128.43	86.511	CC, ES
Horsetail #07H-1813 - Hz - Design #1	6,100.00	5,843.07	566.05	530.44	15.894	SF
Horsetail #07H-1814 - Hz - Design #1	300.00	300.00	77.93	76.43	51.889	CC, ES
Horsetail #07H-1814 - Hz - Design #1	6,130.22	5,842.02	236.78	200.88	6.595	SF
Horsetail #07H-1815 - Hz - Design #1	300.00	300.00	50.61	49.11	33.698	CC
Horsetail #07H-1815 - Hz - Design #1	5,953.48	5,946.62	76.91	41.64	2.180	ES, SF
Horsetail #07H-1816 - Hz - Design #1	300.00	300.00	78.38	76.88	52.185	CC, ES
Horsetail #07H-1816 - Hz - Design #1	6,200.00	5,789.61	364.31	328.10	10.062	SF
Horsetail #07H-1846 - Hz - Design #1	300.00	300.00	102.88	101.38	68.501	CC, ES
Horsetail #07H-1846 - Hz - Design #1	6,300.00	5,767.56	402.57	365.54	10.871	SF
Horsetail #07H-1847 - Hz - Design #1	300.00	300.00	58.92	57.41	39.227	CC
Horsetail #07H-1847 - Hz - Design #1	6,311.91	5,763.07	87.87	50.64	2.361	ES, SF
Horsetail #07H-1848 - Hz - Design #1	300.00	300.00	58.75	57.25	39.120	CC, ES
Horsetail #07H-1848 - Hz - Design #1	6,265.25	5,778.48	208.79	171.96	5.669	SF

Offset Design												Offset Site Error:	0.00 usft
Sec 7-T10N-R57W - Horsetail #07H-0613 - Hz - Design #1												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)	+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	-88.07	4.04	-119.88	119.95				
100.00	100.00	100.00	100.00	0.12	0.12	-88.07	4.04	-119.88	119.95	119.70	0.25	484.243	
200.00	200.00	200.00	200.00	0.44	0.44	-88.07	4.04	-119.88	119.95	119.07	0.87	137.116	
300.00	300.00	300.00	300.00	0.75	0.75	-88.07	4.04	-119.88	119.95	118.45	1.50	79.865	CC, ES
400.00	399.98	396.88	396.86	1.03	1.03	96.09	3.03	-121.17	121.42	119.33	2.09	58.059	

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



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Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 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		
500.00	499.84	493.61	493.46	1.31	1.31	96.85	-0.01	-125.01	125.84	123.14	2.70	46.643		
600.00	599.49	590.07	589.57	1.61	1.60	97.91	-5.05	-131.39	133.20	129.85	3.35	39.765		
700.00	699.10	686.17	685.00	1.90	1.90	98.21	-12.06	-140.28	143.12	139.09	4.03	35.535		
800.00	798.70	784.12	781.92	2.22	2.23	97.81	-20.84	-151.39	155.01	150.35	4.66	33.262		
900.00	898.31	883.38	880.11	2.55	2.59	97.41	-29.87	-162.82	167.08	161.81	5.28	31.658		
1,000.00	997.92	982.64	978.29	2.88	2.95	97.06	-38.91	-174.26	179.16	173.25	5.91	30.315		
1,100.00	1,097.53	1,081.90	1,076.48	3.21	3.31	96.76	-47.94	-185.70	191.25	184.70	6.55	29.189		
1,200.00	1,197.14	1,181.17	1,174.66	3.54	3.67	96.49	-56.97	-197.14	203.34	196.13	7.20	28.228		
1,300.00	1,296.75	1,280.43	1,272.85	3.88	4.04	96.25	-66.01	-208.58	215.43	207.57	7.86	27.408		
1,400.00	1,396.36	1,379.69	1,371.04	4.22	4.41	96.04	-75.04	-220.02	227.53	219.01	8.52	26.700		
1,500.00	1,495.97	1,478.95	1,469.22	4.55	4.78	95.85	-84.08	-231.45	239.63	230.44	9.19	26.084		
1,600.00	1,595.57	1,578.22	1,567.41	4.89	5.15	95.67	-93.11	-242.89	251.73	241.87	9.85	25.545		
1,700.00	1,695.18	1,677.48	1,665.60	5.23	5.52	95.52	-102.14	-254.33	263.83	253.31	10.52	25.069		
1,800.00	1,794.79	1,776.74	1,763.78	5.57	5.89	95.37	-111.18	-265.77	275.94	264.74	11.20	24.645		
1,900.00	1,894.40	1,876.00	1,861.97	5.91	6.27	95.24	-120.21	-277.21	288.05	276.18	11.87	24.267		
2,000.00	1,994.01	1,975.26	1,960.16	6.25	6.64	95.12	-129.25	-288.65	300.15	287.61	12.54	23.927		
2,100.00	2,093.62	2,074.53	2,058.34	6.59	7.01	95.01	-138.28	-300.08	312.26	299.04	13.22	23.620		
2,200.00	2,193.23	2,173.79	2,156.53	6.93	7.39	94.91	-147.31	-311.52	324.38	310.48	13.90	23.341		
2,300.00	2,292.84	2,273.05	2,254.71	7.27	7.76	94.81	-156.35	-322.96	336.49	321.91	14.57	23.087		
2,400.00	2,392.44	2,372.31	2,352.90	7.61	8.14	94.72	-165.38	-334.40	348.60	333.35	15.25	22.855		
2,500.00	2,492.05	2,471.58	2,451.09	7.95	8.51	94.64	-174.42	-345.84	360.71	344.78	15.93	22.641		
2,600.00	2,591.66	2,570.84	2,549.27	8.30	8.88	94.56	-183.45	-357.28	372.83	356.22	16.61	22.444		
2,700.00	2,691.27	2,670.10	2,647.46	8.64	9.26	94.49	-192.48	-368.71	384.94	367.65	17.29	22.263		
2,800.00	2,790.88	2,769.36	2,745.65	8.98	9.63	94.42	-201.52	-380.15	397.06	379.09	17.97	22.094		
2,900.00	2,890.49	2,868.63	2,843.83	9.32	10.01	94.36	-210.55	-391.59	409.17	390.52	18.65	21.938		
3,000.00	2,990.10	2,967.89	2,942.02	9.66	10.39	94.30	-219.59	-403.03	421.29	401.96	19.33	21.792		
3,100.00	3,089.71	3,067.15	3,040.21	10.00	10.76	94.24	-228.62	-414.47	433.41	413.39	20.01	21.655		
3,200.00	3,189.31	3,166.41	3,138.39	10.34	11.14	94.18	-237.65	-425.91	445.52	424.83	20.70	21.528		
3,300.00	3,288.92	3,265.67	3,236.58	10.69	11.51	94.13	-246.69	-437.34	457.64	436.26	21.38	21.408		
3,400.00	3,388.53	3,364.94	3,334.76	11.03	11.89	94.09	-255.72	-448.78	469.76	447.70	22.06	21.296		
3,500.00	3,488.14	3,464.20	3,432.95	11.37	12.26	94.04	-264.76	-460.22	481.88	459.14	22.74	21.190		
3,600.00	3,587.75	3,563.46	3,531.14	11.71	12.64	94.00	-273.79	-471.66	494.00	470.57	23.42	21.090		
3,700.00	3,687.36	3,662.72	3,629.32	12.05	13.01	93.95	-282.82	-483.10	506.11	482.01	24.11	20.995		
3,800.00	3,786.97	3,761.99	3,727.51	12.40	13.39	93.91	-291.86	-494.53	518.23	493.45	24.79	20.906		
3,900.00	3,886.57	3,861.25	3,825.70	12.74	13.77	93.88	-300.89	-505.97	530.35	504.88	25.47	20.822		
4,000.00	3,986.18	3,960.51	3,923.88	13.08	14.14	93.84	-309.93	-517.41	542.47	516.32	26.15	20.741		
4,100.00	4,085.79	4,059.77	4,022.07	13.42	14.52	93.80	-318.96	-528.85	554.59	527.76	26.84	20.665		
4,200.00	4,185.40	4,159.04	4,120.25	13.76	14.89	93.77	-327.99	-540.29	566.71	539.19	27.52	20.592		
4,300.00	4,285.01	4,258.30	4,218.44	14.11	15.27	93.74	-337.03	-551.73	578.83	550.63	28.20	20.523		
4,400.00	4,384.62	4,357.56	4,316.63	14.45	15.65	93.71	-346.06	-563.16	590.95	562.07	28.89	20.457		
4,500.00	4,484.23	4,456.82	4,414.81	14.79	16.02	93.68	-355.10	-574.60	603.07	573.50	29.57	20.394		
4,600.00	4,583.84	4,556.08	4,513.00	15.13	16.40	93.65	-364.13	-586.04	615.19	584.94	30.25	20.334		
4,700.00	4,683.44	4,655.67	4,614.48	15.47	16.77	93.63	-373.43	-597.81	627.27	596.32	30.95	20.269		
4,800.00	4,783.06	4,778.98	4,733.93	15.80	17.09	93.61	-382.32	-609.08	637.23	605.60	31.63	20.147		
4,900.00	4,882.85	4,899.91	4,854.48	16.03	17.37	94.11	-388.13	-616.43	643.74	611.59	32.15	20.021		
5,000.00	4,982.80	5,021.21	4,975.70	16.26	17.63	94.24	-390.78	-619.78	646.71	614.07	32.64	19.813		
5,100.00	5,082.80	5,128.32	5,082.80	16.52	17.88	-89.64	-390.95	-620.00	646.90	613.75	33.15	19.513		
5,200.00	5,182.80	5,228.32	5,182.80	16.74	18.11	-89.64	-390.95	-620.00	646.90	613.29	33.61	19.247		
5,300.00	5,282.62	5,327.80	5,282.11	16.96	18.32	-89.64	-386.74	-620.00	646.90	612.85	34.05	18.998		
5,400.00	5,379.97	5,427.05	5,378.77	17.14	18.50	-89.66	-364.87	-620.00	646.90	612.50	34.40	18.803		
5,500.00	5,471.29	5,526.35	5,469.58	17.28	18.63	-89.69	-325.08	-620.00	646.90	612.23	34.67	18.657		
5,600.00	5,553.24	5,625.71	5,551.25	17.41	18.72	-89.73	-268.76	-620.00	646.90	612.00	34.90	18.538		

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 #07H-0615
Project:	Weld County, CO	TVD Reference:	KBE @ 4933.00usft
Reference Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4933.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 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		
5,700.00	5,622.81	5,725.17	5,620.84	17.54	18.76	-89.78	-197.90	-620.00	646.89	611.78	35.11	18.423		
5,800.00	5,677.43	5,824.75	5,675.76	17.70	18.76	-89.83	-115.03	-620.00	646.89	611.51	35.38	18.284		
5,900.00	5,715.10	5,924.45	5,713.98	17.90	18.73	-89.90	-23.10	-620.00	646.89	611.16	35.73	18.103		
6,000.00	5,734.45	6,024.29	5,734.04	18.17	18.69	-89.96	74.55	-620.00	646.89	610.69	36.20	17.868		
6,100.00	5,737.00	6,124.27	5,737.00	18.49	18.64	-90.00	174.42	-620.00	646.89	610.08	36.81	17.575		
6,200.00	5,737.00	6,224.27	5,737.00	18.92	18.70	-90.00	274.42	-620.00	646.89	609.29	37.60	17.206		
6,300.00	5,737.00	6,324.27	5,737.00	19.43	19.14	-90.00	374.42	-620.00	646.89	608.32	38.56	16.774		
6,400.00	5,737.00	6,424.27	5,737.00	20.02	19.71	-90.00	474.42	-620.00	646.89	607.19	39.70	16.295		
6,500.00	5,737.00	6,524.27	5,737.00	20.68	20.36	-90.00	574.42	-620.00	646.89	605.90	40.98	15.784		
6,600.00	5,737.00	6,624.27	5,737.00	21.41	21.08	-90.00	674.42	-620.00	646.89	604.48	42.41	15.254		
6,700.00	5,737.00	6,724.27	5,737.00	22.21	21.85	-90.00	774.42	-620.00	646.88	602.93	43.96	14.717		
6,800.00	5,737.00	6,824.27	5,737.00	23.05	22.68	-90.00	874.42	-620.00	646.88	601.27	45.62	14.181		
6,900.00	5,737.00	6,924.27	5,737.00	23.95	23.56	-90.00	974.42	-620.00	646.88	599.51	47.38	13.654		
7,000.00	5,737.00	7,024.27	5,737.00	24.88	24.48	-90.00	1,074.42	-620.00	646.88	597.66	49.23	13.140		
7,100.00	5,737.00	7,124.27	5,737.00	25.86	25.45	-90.00	1,174.42	-619.99	646.88	595.72	51.16	12.645		
7,200.00	5,737.00	7,224.27	5,737.00	26.87	26.44	-90.00	1,274.42	-619.99	646.88	593.72	53.16	12.169		
7,300.00	5,737.00	7,324.27	5,737.00	27.91	27.47	-90.00	1,374.42	-619.99	646.88	591.66	55.22	11.714		
7,400.00	5,737.00	7,424.27	5,737.00	28.98	28.52	-90.00	1,474.42	-619.99	646.88	589.54	57.35	11.280		
7,500.00	5,737.00	7,524.27	5,737.00	30.08	29.60	-90.00	1,574.42	-619.99	646.88	587.36	59.52	10.869		
7,600.00	5,737.00	7,624.27	5,737.00	31.19	30.70	-90.00	1,674.42	-619.99	646.88	585.15	61.74	10.478		
7,700.00	5,737.00	7,724.27	5,737.00	32.33	31.83	-90.00	1,774.42	-619.99	646.88	582.89	63.99	10.109		
7,800.00	5,737.00	7,824.27	5,737.00	33.48	32.97	-90.00	1,874.42	-619.99	646.88	580.59	66.29	9.759		
7,900.00	5,737.00	7,924.27	5,737.00	34.65	34.12	-90.00	1,974.42	-619.99	646.88	578.27	68.61	9.428		
8,000.00	5,737.00	8,024.27	5,737.00	35.83	35.30	-90.00	2,074.42	-619.99	646.88	575.91	70.97	9.115		
8,100.00	5,737.00	8,124.27	5,737.00	37.03	36.48	-90.00	2,174.42	-619.99	646.88	573.53	73.35	8.819		
8,200.00	5,737.00	8,224.27	5,737.00	38.23	37.68	-90.00	2,274.42	-619.99	646.88	571.12	75.76	8.539		
8,300.00	5,737.00	8,324.27	5,737.00	39.45	38.89	-90.00	2,374.42	-619.99	646.88	568.69	78.19	8.273		
8,400.00	5,737.00	8,424.27	5,737.00	40.68	40.11	-90.00	2,474.42	-619.99	646.88	566.24	80.64	8.022		
8,500.00	5,737.00	8,524.27	5,737.00	41.91	41.34	-90.00	2,574.42	-619.99	646.88	563.77	83.10	7.784		
8,600.00	5,737.00	8,624.27	5,737.00	43.16	42.57	-90.00	2,674.42	-619.99	646.88	561.29	85.59	7.558		
8,700.00	5,737.00	8,724.27	5,737.00	44.41	43.82	-90.00	2,774.42	-619.99	646.88	558.79	88.08	7.344		
8,800.00	5,737.00	8,824.27	5,737.00	45.67	45.07	-90.00	2,874.42	-619.99	646.87	556.28	90.60	7.140		
8,900.00	5,737.00	8,924.27	5,737.00	46.93	46.33	-90.00	2,974.42	-619.99	646.87	553.75	93.12	6.947		
9,000.00	5,737.00	9,024.27	5,737.00	48.20	47.59	-90.00	3,074.42	-619.99	646.87	551.22	95.66	6.762		
9,100.00	5,737.00	9,124.27	5,737.00	49.48	48.86	-90.00	3,174.42	-619.98	646.87	548.67	98.21	6.587		
9,200.00	5,737.00	9,224.27	5,737.00	50.76	50.14	-90.00	3,274.42	-619.98	646.87	546.11	100.76	6.420		
9,300.00	5,737.00	9,324.27	5,737.00	52.04	51.42	-90.00	3,374.42	-619.98	646.87	543.54	103.33	6.260		
9,400.00	5,737.00	9,424.27	5,737.00	53.33	52.70	-90.00	3,474.42	-619.98	646.87	540.97	105.91	6.108		
9,500.00	5,737.00	9,524.27	5,737.00	54.63	53.99	-90.00	3,574.42	-619.98	646.87	538.38	108.49	5.962		
9,600.00	5,737.00	9,624.27	5,737.00	55.92	55.28	-90.00	3,674.42	-619.98	646.87	535.79	111.08	5.823		
9,700.00	5,737.00	9,724.27	5,737.00	57.22	56.58	-90.00	3,774.42	-619.98	646.87	533.19	113.68	5.690		
9,800.00	5,737.00	9,824.27	5,737.00	58.53	57.88	-90.00	3,874.42	-619.98	646.87	530.59	116.28	5.563		
9,900.00	5,737.00	9,924.27	5,737.00	59.83	59.18	-90.00	3,974.42	-619.98	646.87	527.97	118.89	5.441		
10,000.00	5,737.00	10,024.27	5,737.00	61.14	60.48	-90.00	4,074.42	-619.98	646.87	525.36	121.51	5.324		
10,100.00	5,737.00	10,124.27	5,737.00	62.46	61.79	-90.00	4,174.42	-619.98	646.87	522.74	124.13	5.211		
10,200.00	5,737.00	10,224.27	5,737.00	63.77	63.10	-90.00	4,274.42	-619.98	646.87	520.11	126.76	5.103		
10,300.00	5,737.00	10,324.27	5,737.00	65.09	64.41	-90.00	4,374.42	-619.98	646.87	517.48	129.39	4.999		
10,400.00	5,737.00	10,424.27	5,737.00	66.40	65.73	-90.00	4,474.42	-619.98	646.87	514.84	132.03	4.900		
10,500.00	5,737.00	10,524.27	5,737.00	67.73	67.05	-90.00	4,574.42	-619.98	646.87	512.20	134.67	4.804		
10,600.00	5,737.00	10,624.27	5,737.00	69.05	68.37	-90.00	4,674.42	-619.98	646.87	509.56	137.31	4.711		
10,700.00	5,737.00	10,724.27	5,737.00	70.37	69.69	-90.00	4,774.42	-619.98	646.87	506.91	139.96	4.622		
10,800.00	5,737.00	10,824.27	5,737.00	71.70	71.01	-90.00	4,874.42	-619.98	646.86	504.26	142.61	4.536		

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 #07H-0615
Project:	Weld County, CO	TVD Reference:	KBE @ 4933.00usft
Reference Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4933.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 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		
10,900.00	5,737.00	10,924.27	5,737.00	73.03	72.34	-90.00	4,974.42	-619.98	646.86	501.60	145.26	4.453		
11,000.00	5,737.00	11,024.27	5,737.00	74.36	73.66	-90.00	5,074.42	-619.98	646.86	498.95	147.92	4.373		
11,100.00	5,737.00	11,124.27	5,737.00	75.69	74.99	-90.00	5,174.42	-619.98	646.86	496.28	150.58	4.296		
11,200.00	5,737.00	11,224.27	5,737.00	77.02	76.32	-90.00	5,274.42	-619.97	646.86	493.62	153.24	4.221		
11,300.00	5,737.00	11,324.27	5,737.00	78.35	77.65	-90.00	5,374.42	-619.97	646.86	490.96	155.91	4.149		
11,400.00	5,737.00	11,424.27	5,737.00	79.69	78.98	-90.00	5,474.42	-619.97	646.86	488.29	158.57	4.079		
11,500.00	5,737.00	11,524.27	5,737.00	81.02	80.32	-90.00	5,574.42	-619.97	646.86	485.62	161.25	4.012		
11,600.00	5,737.00	11,624.27	5,737.00	82.36	81.65	-90.00	5,674.42	-619.97	646.86	482.94	163.92	3.946		
11,700.00	5,737.00	11,724.27	5,737.00	83.70	82.99	-90.00	5,774.42	-619.97	646.86	480.27	166.59	3.883		
11,800.00	5,737.00	11,824.27	5,737.00	85.04	84.32	-90.00	5,874.42	-619.97	646.86	477.59	169.27	3.821		
11,900.00	5,737.00	11,924.27	5,737.00	86.38	85.66	-90.00	5,974.42	-619.97	646.86	474.91	171.95	3.762		
12,000.00	5,737.00	12,024.27	5,737.00	87.72	87.00	-90.00	6,074.42	-619.97	646.86	472.23	174.63	3.704		
12,100.00	5,737.00	12,124.27	5,737.00	89.06	88.34	-90.00	6,174.42	-619.97	646.86	469.55	177.31	3.648		
12,200.00	5,737.00	12,224.27	5,737.00	90.40	89.68	-90.00	6,274.42	-619.97	646.86	466.86	180.00	3.594		
12,300.00	5,737.00	12,324.27	5,737.00	91.75	91.02	-90.00	6,374.42	-619.97	646.86	464.18	182.68	3.541		
12,400.00	5,737.00	12,424.27	5,737.00	93.09	92.36	-90.00	6,474.42	-619.97	646.86	461.49	185.37	3.490		
12,500.00	5,737.00	12,524.27	5,737.00	94.43	93.71	-90.00	6,574.42	-619.97	646.86	458.80	188.06	3.440		
12,600.00	5,737.00	12,624.27	5,737.00	95.78	95.05	-90.00	6,674.42	-619.97	646.86	456.11	190.75	3.391		
12,700.00	5,737.00	12,724.27	5,737.00	97.13	96.39	-90.00	6,774.42	-619.97	646.86	453.42	193.44	3.344		
12,800.00	5,737.00	12,824.27	5,737.00	98.47	97.74	-90.00	6,874.42	-619.97	646.85	450.72	196.13	3.298		
12,900.00	5,737.00	12,924.27	5,737.00	99.82	99.09	-90.00	6,974.42	-619.97	646.85	448.03	198.83	3.253		
13,000.00	5,737.00	13,024.27	5,737.00	101.17	100.43	-90.00	7,074.42	-619.97	646.85	445.33	201.52	3.210		
13,100.00	5,737.00	13,124.27	5,737.00	102.52	101.78	-90.00	7,174.42	-619.97	646.85	442.63	204.22	3.167		
13,200.00	5,737.00	13,224.27	5,737.00	103.87	103.13	-90.00	7,274.42	-619.96	646.85	439.94	206.92	3.126		
13,300.00	5,737.00	13,324.27	5,737.00	105.22	104.47	-90.00	7,374.42	-619.96	646.85	437.24	209.62	3.086		
13,340.03	5,737.00	13,364.30	5,737.00	105.76	105.01	-90.00	7,414.45	-619.96	646.85	436.16	210.70	3.070		
13,347.11	5,737.00	13,364.30	5,737.00	105.85	105.01	-90.00	7,414.45	-619.96	646.89	436.07	210.82	3.068 SF		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #07H-0615
Project:	Weld County, CO	TVD Reference:	KBE @ 4933.00usft
Reference Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4933.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 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	-88.08	2.01	-59.94	59.97					
100.00	100.00	100.00	100.00	0.12	0.12	-88.08	2.01	-59.94	59.97	59.73	0.25	242.120		
200.00	200.00	200.00	200.00	0.44	0.44	-88.08	2.01	-59.94	59.97	59.10	0.87	68.557		
300.00	300.00	300.00	300.00	0.75	0.75	-88.08	2.01	-59.94	59.97	58.47	1.50	39.932 CC, ES		
400.00	399.98	399.00	398.98	1.03	1.03	96.00	0.53	-60.81	60.98	58.91	2.07	29.448		
500.00	499.84	497.93	497.78	1.31	1.31	96.51	-3.88	-63.41	63.99	61.36	2.64	24.280		
600.00	599.49	596.82	596.29	1.61	1.61	97.01	-11.22	-67.74	68.97	65.72	3.25	21.235		
700.00	699.10	696.66	696.62	1.90	1.91	96.84	-19.92	-72.86	74.70	70.85	3.86	19.369		
800.00	798.70	796.49	794.94	2.22	2.23	96.70	-28.62	-77.99	80.43	75.95	4.49	17.924		
900.00	898.31	896.33	894.26	2.55	2.56	96.57	-37.32	-83.12	86.17	81.03	5.13	16.790		
1,000.00	997.92	996.16	993.59	2.88	2.90	96.46	-46.02	-88.24	91.90	86.11	5.79	15.883		
1,100.00	1,097.53	1,096.00	1,092.91	3.21	3.24	96.36	-54.72	-93.37	97.63	91.19	6.45	15.146		
1,200.00	1,197.14	1,195.84	1,192.23	3.54	3.58	96.27	-63.42	-98.50	103.37	96.25	7.11	14.535		
1,300.00	1,296.75	1,295.67	1,291.56	3.88	3.92	96.20	-72.12	-103.62	109.10	101.32	7.78	14.023		
1,400.00	1,396.36	1,395.51	1,390.88	4.22	4.26	96.13	-80.82	-108.75	114.83	106.38	8.45	13.588		
1,500.00	1,495.97	1,495.34	1,490.20	4.55	4.61	96.06	-89.52	-113.88	120.57	111.44	9.12	13.214		
1,600.00	1,595.57	1,595.18	1,589.53	4.89	4.95	96.01	-98.22	-119.01	126.30	116.50	9.80	12.890		
1,700.00	1,695.18	1,695.01	1,688.85	5.23	5.30	95.95	-106.92	-124.13	132.04	121.56	10.47	12.605		
1,800.00	1,794.79	1,794.85	1,788.17	5.57	5.64	95.91	-115.62	-129.26	137.77	126.62	11.15	12.354		
1,900.00	1,894.40	1,894.68	1,887.50	5.91	5.99	95.86	-124.32	-134.39	143.50	131.67	11.83	12.131		
2,000.00	1,994.01	1,994.52	1,986.82	6.25	6.34	95.82	-133.02	-139.51	149.24	136.73	12.51	11.931		
2,100.00	2,093.62	2,094.35	2,086.14	6.59	6.68	95.78	-141.72	-144.64	154.97	141.78	13.19	11.751		
2,200.00	2,193.23	2,194.19	2,185.47	6.93	7.03	95.75	-150.42	-149.77	160.71	146.84	13.87	11.588		
2,300.00	2,292.84	2,294.02	2,284.79	7.27	7.38	95.71	-159.12	-154.89	166.44	151.89	14.55	11.441		
2,400.00	2,392.44	2,393.86	2,384.11	7.61	7.72	95.68	-167.82	-160.02	172.18	156.95	15.23	11.306		
2,500.00	2,492.05	2,493.70	2,483.44	7.95	8.07	95.65	-176.52	-165.15	177.91	162.00	15.91	11.182		
2,600.00	2,591.66	2,593.53	2,582.76	8.30	8.42	95.63	-185.22	-170.27	183.65	167.05	16.59	11.068		
2,700.00	2,691.27	2,693.37	2,682.08	8.64	8.77	95.60	-193.92	-175.40	189.38	172.11	17.27	10.964		
2,800.00	2,790.88	2,793.20	2,781.41	8.98	9.11	95.58	-202.62	-180.53	195.12	177.16	17.96	10.867		
2,900.00	2,890.49	2,893.04	2,880.73	9.32	9.46	95.56	-211.32	-185.65	200.85	182.21	18.64	10.777		
3,000.00	2,990.10	2,992.87	2,980.05	9.66	9.81	95.54	-220.02	-190.78	206.59	187.27	19.32	10.693		
3,100.00	3,089.71	3,092.71	3,079.38	10.00	10.16	95.52	-228.72	-195.91	212.32	192.32	20.00	10.615		
3,200.00	3,189.31	3,192.54	3,178.70	10.34	10.51	95.50	-237.42	-201.04	218.06	197.37	20.69	10.542		
3,300.00	3,288.92	3,292.38	3,278.02	10.69	10.85	95.48	-246.12	-206.16	223.79	202.42	21.37	10.473		
3,400.00	3,388.53	3,392.21	3,377.35	11.03	11.20	95.46	-254.82	-211.29	229.53	207.47	22.05	10.409		
3,500.00	3,488.14	3,492.05	3,476.67	11.37	11.55	95.45	-263.52	-216.42	235.26	212.53	22.73	10.348		
3,600.00	3,587.75	3,591.88	3,575.99	11.71	11.90	95.43	-272.22	-221.54	241.00	217.58	23.42	10.291		
3,700.00	3,687.36	3,691.72	3,675.32	12.05	12.25	95.42	-280.92	-226.67	246.73	222.63	24.10	10.238		
3,800.00	3,786.97	3,791.56	3,774.64	12.40	12.60	95.40	-289.62	-231.80	252.47	227.68	24.78	10.187		
3,900.00	3,886.57	3,891.39	3,873.96	12.74	12.94	95.39	-298.32	-236.92	258.20	232.73	25.47	10.139		
4,000.00	3,986.18	3,991.23	3,973.29	13.08	13.29	95.37	-307.02	-242.05	263.94	237.79	26.15	10.093		
4,100.00	4,085.79	4,091.06	4,072.61	13.42	13.64	95.36	-315.72	-247.18	269.67	242.84	26.83	10.050		
4,200.00	4,185.40	4,190.90	4,171.93	13.76	13.99	95.35	-324.42	-252.30	275.41	247.89	27.52	10.008		
4,300.00	4,285.01	4,290.73	4,271.26	14.11	14.34	95.34	-333.12	-257.43	281.14	252.94	28.20	9.969		
4,400.00	4,384.62	4,390.57	4,370.58	14.45	14.69	95.33	-341.82	-262.56	286.88	257.99	28.88	9.932		
4,500.00	4,484.23	4,490.40	4,469.90	14.79	15.03	95.32	-350.52	-267.68	292.61	263.04	29.57	9.896		
4,600.00	4,583.84	4,590.24	4,569.23	15.13	15.38	95.31	-359.22	-272.81	298.35	268.09	30.25	9.862		
4,700.00	4,683.44	4,690.07	4,668.55	15.47	15.73	95.30	-367.92	-277.94	304.08	273.15	30.94	9.829		
4,800.00	4,783.06	4,789.91	4,767.87	15.80	16.08	95.30	-376.62	-283.07	309.81	278.20	31.61	9.801		
4,900.00	4,882.85	4,892.99	4,870.48	16.03	16.40	95.03	-385.06	-288.04	315.03	282.87	32.16	9.796		
5,000.00	4,982.80	4,998.67	4,975.96	16.26	16.65	94.62	-390.68	-291.35	318.32	285.70	32.63	9.756		
5,100.00	5,082.80	5,104.53	5,081.78	16.52	16.88	-89.63	-392.94	-292.68	319.58	286.46	33.11	9.651		

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 #07H-0615
Project:	Weld County, CO	TVD Reference:	KBE @ 4933.00usft
Reference Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4933.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 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	5,182.80	5,205.55	5,182.80	16.74	17.14	-89.64	-392.99	-292.71	319.61	286.01	33.60	9.513		
5,255.99	5,238.75	5,261.50	5,238.75	16.86	17.26	-90.00	-392.99	-292.71	319.60	285.76	33.84	9.445		
5,300.00	5,282.62	5,305.37	5,282.62	16.96	17.36	-90.40	-392.99	-292.71	319.61	285.58	34.03	9.393		
5,400.00	5,379.97	5,405.94	5,382.84	17.14	17.58	-93.19	-386.36	-292.71	320.11	285.75	34.36	9.317		
5,500.00	5,471.29	5,509.90	5,483.15	17.28	17.76	-95.95	-359.74	-292.71	321.37	286.79	34.58	9.293		
5,600.00	5,553.24	5,617.32	5,579.12	17.41	17.90	-98.51	-311.91	-292.71	323.23	288.53	34.70	9.316		
5,700.00	5,622.81	5,728.18	5,665.73	17.54	18.02	-100.76	-243.05	-292.71	325.40	290.68	34.71	9.374		
5,800.00	5,677.43	5,842.21	5,737.57	17.70	18.12	-102.58	-154.79	-292.71	327.52	292.81	34.71	9.436		
5,900.00	5,715.10	5,958.85	5,789.44	17.90	18.24	-103.88	-50.58	-292.71	329.25	294.43	34.82	9.457		
6,000.00	5,734.45	6,077.29	5,817.09	18.17	18.44	-104.60	64.32	-292.71	330.27	295.09	35.18	9.389		
6,100.00	5,737.00	6,187.54	5,821.00	18.49	18.72	-104.73	174.42	-292.71	330.45	294.64	35.81	9.228		
6,200.00	5,737.00	6,287.54	5,821.00	18.92	19.10	-104.73	274.42	-292.71	330.45	293.84	36.61	9.025		
6,300.00	5,737.00	6,387.54	5,821.00	19.43	19.58	-104.73	374.42	-292.71	330.45	292.86	37.59	8.791		
6,400.00	5,737.00	6,487.54	5,821.00	20.02	20.15	-104.73	474.42	-292.71	330.45	291.73	38.72	8.534		
6,500.00	5,737.00	6,587.54	5,821.00	20.68	20.79	-104.73	574.42	-292.71	330.45	290.45	40.00	8.261		
6,600.00	5,737.00	6,687.54	5,821.00	21.41	21.50	-104.73	674.42	-292.71	330.45	289.04	41.41	7.980		
6,700.00	5,737.00	6,787.54	5,821.00	22.21	22.28	-104.73	774.42	-292.71	330.45	287.51	42.94	7.696		
6,800.00	5,737.00	6,887.54	5,821.00	23.05	23.11	-104.73	874.42	-292.71	330.45	285.87	44.58	7.413		
6,900.00	5,737.00	6,987.54	5,821.00	23.95	23.99	-104.73	974.42	-292.71	330.45	284.14	46.31	7.136		
7,000.00	5,737.00	7,087.54	5,821.00	24.88	24.92	-104.73	1,074.42	-292.71	330.45	282.33	48.13	6.866		
7,100.00	5,737.00	7,187.54	5,821.00	25.86	25.88	-104.73	1,174.42	-292.71	330.45	280.43	50.02	6.607		
7,200.00	5,737.00	7,287.54	5,821.00	26.87	26.88	-104.73	1,274.42	-292.71	330.45	278.47	51.98	6.358		
7,300.00	5,737.00	7,387.54	5,821.00	27.91	27.91	-104.73	1,374.42	-292.71	330.45	276.45	54.00	6.120		
7,400.00	5,737.00	7,487.54	5,821.00	28.98	28.97	-104.73	1,474.42	-292.71	330.45	274.38	56.07	5.893		
7,500.00	5,737.00	7,587.54	5,821.00	30.08	30.05	-104.73	1,574.42	-292.71	330.45	272.26	58.19	5.678		
7,600.00	5,737.00	7,687.54	5,821.00	31.19	31.16	-104.73	1,674.42	-292.71	330.45	270.09	60.36	5.475		
7,700.00	5,737.00	7,787.54	5,821.00	32.33	32.29	-104.73	1,774.42	-292.71	330.45	267.89	62.56	5.282		
7,800.00	5,737.00	7,887.54	5,821.00	33.48	33.43	-104.73	1,874.42	-292.71	330.45	265.65	64.80	5.099		
7,900.00	5,737.00	7,987.54	5,821.00	34.65	34.59	-104.73	1,974.42	-292.71	330.45	263.38	67.07	4.927		
8,000.00	5,737.00	8,087.54	5,821.00	35.83	35.77	-104.73	2,074.42	-292.71	330.45	261.08	69.37	4.764		
8,100.00	5,737.00	8,187.54	5,821.00	37.03	36.95	-104.73	2,174.42	-292.71	330.45	258.76	71.69	4.609		
8,200.00	5,737.00	8,287.54	5,821.00	38.23	38.15	-104.73	2,274.42	-292.71	330.45	256.41	74.03	4.463		
8,300.00	5,737.00	8,387.54	5,821.00	39.45	39.37	-104.73	2,374.42	-292.71	330.45	254.05	76.40	4.325		
8,400.00	5,737.00	8,487.54	5,821.00	40.68	40.59	-104.73	2,474.42	-292.71	330.45	251.66	78.79	4.194		
8,500.00	5,737.00	8,587.54	5,821.00	41.91	41.82	-104.73	2,574.42	-292.71	330.45	249.26	81.19	4.070		
8,600.00	5,737.00	8,687.54	5,821.00	43.16	43.06	-104.73	2,674.42	-292.71	330.45	246.84	83.61	3.952		
8,700.00	5,737.00	8,787.54	5,821.00	44.41	44.30	-104.73	2,774.42	-292.71	330.45	244.41	86.04	3.841		
8,800.00	5,737.00	8,887.54	5,821.00	45.67	45.56	-104.73	2,874.42	-292.71	330.45	241.96	88.48	3.735		
8,900.00	5,737.00	8,987.54	5,821.00	46.93	46.82	-104.73	2,974.42	-292.71	330.45	239.51	90.94	3.634		
9,000.00	5,737.00	9,087.54	5,821.00	48.20	48.08	-104.73	3,074.42	-292.70	330.45	237.04	93.41	3.538		
9,100.00	5,737.00	9,187.54	5,821.00	49.48	49.36	-104.73	3,174.42	-292.70	330.45	234.56	95.89	3.446		
9,200.00	5,737.00	9,287.54	5,821.00	50.76	50.63	-104.73	3,274.42	-292.70	330.45	232.07	98.38	3.359		
9,300.00	5,737.00	9,387.54	5,821.00	52.04	51.91	-104.73	3,374.42	-292.70	330.45	229.57	100.88	3.276		
9,400.00	5,737.00	9,487.54	5,821.00	53.33	53.20	-104.73	3,474.42	-292.70	330.45	227.06	103.38	3.196		
9,500.00	5,737.00	9,587.54	5,821.00	54.63	54.49	-104.73	3,574.42	-292.70	330.45	224.55	105.90	3.120		
9,600.00	5,737.00	9,687.54	5,821.00	55.92	55.78	-104.73	3,674.42	-292.70	330.45	222.03	108.42	3.048		
9,700.00	5,737.00	9,787.54	5,821.00	57.22	57.08	-104.73	3,774.42	-292.70	330.45	219.50	110.95	2.978		
9,800.00	5,737.00	9,887.54	5,821.00	58.53	58.38	-104.73	3,874.42	-292.70	330.45	216.97	113.48	2.912		
9,900.00	5,737.00	9,987.54	5,821.00	59.83	59.68	-104.73	3,974.42	-292.70	330.45	214.43	116.02	2.848		
10,000.00	5,737.00	10,087.54	5,821.00	61.14	60.99	-104.73	4,074.42	-292.70	330.45	211.88	118.57	2.787		
10,100.00	5,737.00	10,187.54	5,821.00	62.46	62.30	-104.73	4,174.42	-292.70	330.45	209.33	121.12	2.728		
10,200.00	5,737.00	10,287.54	5,821.00	63.77	63.61	-104.73	4,274.42	-292.70	330.45	206.77	123.67	2.672		

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 #07H-0615
Project:	Weld County, CO	TVD Reference:	KBE @ 4933.00usft
Reference Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4933.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 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	5,737.00	10,387.54	5,821.00	65.09	64.93	-104.73	4,374.42	-292.70	330.45	204.22	126.23	2.618		
10,400.00	5,737.00	10,487.54	5,821.00	66.40	66.24	-104.73	4,474.42	-292.70	330.45	201.65	128.79	2.566		
10,500.00	5,737.00	10,587.54	5,821.00	67.73	67.56	-104.73	4,574.42	-292.70	330.45	199.08	131.36	2.516		
10,600.00	5,737.00	10,687.54	5,821.00	69.05	68.88	-104.73	4,674.42	-292.70	330.44	196.51	133.93	2.467		
10,700.00	5,737.00	10,787.54	5,821.00	70.37	70.20	-104.73	4,774.42	-292.70	330.44	193.94	136.51	2.421		
10,800.00	5,737.00	10,887.54	5,821.00	71.70	71.53	-104.73	4,874.42	-292.70	330.44	191.36	139.08	2.376		
10,900.00	5,737.00	10,987.54	5,821.00	73.03	72.85	-104.73	4,974.42	-292.70	330.44	188.78	141.67	2.333		
11,000.00	5,737.00	11,087.54	5,821.00	74.36	74.18	-104.73	5,074.42	-292.70	330.44	186.19	144.25	2.291		
11,100.00	5,737.00	11,187.54	5,821.00	75.69	75.51	-104.73	5,174.42	-292.70	330.44	183.61	146.84	2.250		
11,200.00	5,737.00	11,287.54	5,821.00	77.02	76.84	-104.73	5,274.42	-292.70	330.44	181.02	149.43	2.211		
11,300.00	5,737.00	11,387.54	5,821.00	78.35	78.17	-104.73	5,374.42	-292.70	330.44	178.42	152.02	2.174		
11,400.00	5,737.00	11,487.54	5,821.00	79.69	79.50	-104.73	5,474.42	-292.70	330.44	175.83	154.61	2.137		
11,500.00	5,737.00	11,587.54	5,821.00	81.02	80.84	-104.73	5,574.42	-292.70	330.44	173.23	157.21	2.102		
11,600.00	5,737.00	11,687.54	5,821.00	82.36	82.17	-104.73	5,674.42	-292.70	330.44	170.63	159.81	2.068		
11,700.00	5,737.00	11,787.54	5,821.00	83.70	83.51	-104.73	5,774.42	-292.70	330.44	168.03	162.41	2.035		
11,800.00	5,737.00	11,887.54	5,821.00	85.04	84.84	-104.73	5,874.42	-292.70	330.44	165.43	165.01	2.003		
11,900.00	5,737.00	11,987.54	5,821.00	86.38	86.18	-104.73	5,974.42	-292.70	330.44	162.82	167.62	1.971		
12,000.00	5,737.00	12,087.54	5,821.00	87.72	87.52	-104.73	6,074.42	-292.70	330.44	160.22	170.22	1.941		
12,100.00	5,737.00	12,187.54	5,821.00	89.06	88.86	-104.73	6,174.42	-292.70	330.44	157.61	172.83	1.912		
12,200.00	5,737.00	12,287.54	5,821.00	90.40	90.20	-104.73	6,274.42	-292.70	330.44	155.00	175.44	1.883		
12,300.00	5,737.00	12,387.54	5,821.00	91.75	91.55	-104.73	6,374.42	-292.70	330.44	152.39	178.06	1.856		
12,400.00	5,737.00	12,487.54	5,821.00	93.09	92.89	-104.73	6,474.42	-292.70	330.44	149.77	180.67	1.829		
12,500.00	5,737.00	12,587.54	5,821.00	94.43	94.23	-104.73	6,574.42	-292.70	330.44	147.16	183.28	1.803		
12,600.00	5,737.00	12,687.54	5,821.00	95.78	95.58	-104.73	6,674.42	-292.70	330.44	144.54	185.90	1.778		
12,700.00	5,737.00	12,787.54	5,821.00	97.13	96.92	-104.73	6,774.42	-292.70	330.44	141.93	188.52	1.753		
12,800.00	5,737.00	12,887.54	5,821.00	98.47	98.27	-104.73	6,874.42	-292.70	330.44	139.31	191.13	1.729		
12,900.00	5,737.00	12,987.54	5,821.00	99.82	99.61	-104.73	6,974.42	-292.70	330.44	136.69	193.75	1.705		
13,000.00	5,737.00	13,087.54	5,821.00	101.17	100.96	-104.73	7,074.42	-292.70	330.44	134.07	196.37	1.683		
13,100.00	5,737.00	13,187.54	5,821.00	102.52	102.31	-104.73	7,174.42	-292.70	330.44	131.44	199.00	1.661		
13,200.00	5,737.00	13,287.54	5,821.00	103.87	103.65	-104.73	7,274.42	-292.70	330.44	128.82	201.62	1.639		
13,300.00	5,737.00	13,387.54	5,821.00	105.22	105.00	-104.73	7,374.42	-292.70	330.44	126.20	204.24	1.618		
13,342.13	5,737.00	13,429.68	5,821.00	105.78	105.57	-104.73	7,416.55	-292.70	330.44	125.09	205.35	1.609		
13,347.11	5,737.00	13,431.62	5,821.00	105.85	105.60	-104.73	7,418.50	-292.70	330.45	125.01	205.44	1.609 SF		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #07H-0615
Project:	Weld County, CO	TVD Reference:	KBE @ 4933.00usft
Reference Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4933.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 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	-88.07	3.03	-89.94	89.99					
100.00	100.00	100.00	100.00	0.12	0.12	-88.07	3.03	-89.94	89.99	89.75	0.25	363.309		
200.00	200.00	200.00	200.00	0.44	0.44	-88.07	3.03	-89.94	89.99	89.12	0.87	102.873		
300.00	300.00	300.00	300.00	0.75	0.75	-88.07	3.03	-89.94	89.99	88.49	1.50	59.920 CC, ES		
400.00	399.98	397.97	397.95	1.03	1.03	96.07	1.80	-91.08	91.29	89.21	2.08	43.827		
500.00	499.84	495.82	495.67	1.31	1.31	96.77	-1.87	-94.49	95.19	92.52	2.67	35.623		
600.00	599.49	593.48	592.96	1.61	1.61	97.67	-7.98	-100.16	101.67	98.36	3.31	30.726		
700.00	699.10	692.19	691.04	1.90	1.91	97.62	-16.20	-107.78	110.01	106.07	3.93	27.975		
800.00	798.70	791.82	789.99	2.22	2.24	97.47	-24.72	-115.69	118.53	113.98	4.55	26.058		
900.00	898.31	891.46	888.95	2.55	2.58	97.34	-33.24	-123.59	127.06	121.88	5.18	24.516		
1,000.00	997.92	991.10	987.90	2.88	2.92	97.22	-41.76	-131.49	135.59	129.76	5.83	23.265		
1,100.00	1,097.53	1,090.73	1,086.86	3.21	3.27	97.12	-50.28	-139.40	144.12	137.64	6.48	22.237		
1,200.00	1,197.14	1,190.37	1,185.81	3.54	3.62	97.03	-58.80	-147.30	152.65	145.51	7.14	21.377		
1,300.00	1,296.75	1,290.00	1,284.77	3.88	3.97	96.94	-67.32	-155.21	161.19	153.38	7.80	20.652		
1,400.00	1,396.36	1,389.64	1,383.72	4.22	4.32	96.87	-75.84	-163.11	169.72	161.24	8.47	20.032		
1,500.00	1,495.97	1,489.27	1,482.68	4.55	4.67	96.80	-84.36	-171.01	178.25	169.11	9.14	19.498		
1,600.00	1,595.57	1,588.91	1,581.63	4.89	5.02	96.74	-92.88	-178.92	186.78	176.97	9.81	19.032		
1,700.00	1,695.18	1,688.54	1,680.59	5.23	5.37	96.69	-101.40	-186.82	195.31	184.82	10.49	18.623		
1,800.00	1,794.79	1,788.18	1,779.54	5.57	5.73	96.64	-109.92	-194.72	203.84	192.68	11.16	18.262		
1,900.00	1,894.40	1,887.81	1,878.50	5.91	6.08	96.59	-118.44	-202.63	212.38	200.54	11.84	17.940		
2,000.00	1,994.01	1,987.45	1,977.45	6.25	6.44	96.55	-126.96	-210.53	220.91	208.39	12.52	17.651		
2,100.00	2,093.62	2,087.08	2,076.41	6.59	6.79	96.51	-135.48	-218.43	229.44	216.25	13.19	17.391		
2,200.00	2,193.23	2,186.72	2,175.36	6.93	7.15	96.47	-144.00	-226.34	237.97	224.10	13.87	17.155		
2,300.00	2,292.84	2,286.35	2,274.32	7.27	7.50	96.44	-152.52	-234.24	246.51	231.96	14.55	16.941		
2,400.00	2,392.44	2,385.99	2,373.27	7.61	7.86	96.41	-161.04	-242.14	255.04	239.81	15.23	16.746		
2,500.00	2,492.05	2,485.62	2,472.23	7.95	8.21	96.38	-169.56	-250.05	263.57	247.66	15.91	16.566		
2,600.00	2,591.66	2,585.26	2,571.18	8.30	8.57	96.35	-178.08	-257.95	272.11	255.52	16.59	16.401		
2,700.00	2,691.27	2,684.89	2,670.14	8.64	8.93	96.32	-186.60	-265.86	280.64	263.37	17.27	16.249		
2,800.00	2,790.88	2,784.53	2,769.09	8.98	9.28	96.30	-195.12	-273.76	289.17	271.22	17.95	16.108		
2,900.00	2,890.49	2,884.16	2,868.05	9.32	9.64	96.28	-203.64	-281.66	297.71	279.07	18.63	15.977		
3,000.00	2,990.10	2,983.80	2,967.00	9.66	9.99	96.25	-212.16	-289.57	306.24	286.92	19.32	15.855		
3,100.00	3,089.71	3,083.43	3,065.96	10.00	10.35	96.23	-220.68	-297.47	314.77	294.78	20.00	15.741		
3,200.00	3,189.31	3,183.07	3,164.91	10.34	10.71	96.21	-229.20	-305.37	323.31	302.63	20.68	15.634		
3,300.00	3,288.92	3,282.70	3,263.87	10.69	11.06	96.19	-237.72	-313.28	331.84	310.48	21.36	15.535		
3,400.00	3,388.53	3,382.34	3,362.82	11.03	11.42	96.18	-246.24	-321.18	340.37	318.33	22.04	15.441		
3,500.00	3,488.14	3,481.97	3,461.78	11.37	11.78	96.16	-254.76	-329.08	348.91	326.18	22.73	15.353		
3,600.00	3,587.75	3,581.61	3,560.73	11.71	12.13	96.14	-263.28	-336.99	357.44	334.03	23.41	15.270		
3,700.00	3,687.36	3,681.25	3,659.69	12.05	12.49	96.13	-271.80	-344.89	365.97	341.88	24.09	15.191		
3,800.00	3,786.97	3,780.88	3,758.64	12.40	12.85	96.11	-280.32	-352.79	374.51	349.73	24.77	15.117		
3,900.00	3,886.57	3,880.52	3,857.60	12.74	13.20	96.10	-288.84	-360.70	383.04	357.58	25.46	15.047		
4,000.00	3,986.18	3,980.15	3,956.56	13.08	13.56	96.09	-297.36	-368.60	391.57	365.43	26.14	14.980		
4,100.00	4,085.79	4,079.79	4,055.51	13.42	13.92	96.07	-305.88	-376.51	400.11	373.28	26.82	14.916		
4,200.00	4,185.40	4,179.42	4,154.47	13.76	14.27	96.06	-314.40	-384.41	408.64	381.13	27.51	14.856		
4,300.00	4,285.01	4,279.06	4,253.42	14.11	14.63	96.05	-322.92	-392.31	417.17	388.98	28.19	14.799		
4,400.00	4,384.62	4,378.69	4,352.38	14.45	14.99	96.04	-331.44	-400.22	425.71	396.83	28.87	14.744		
4,500.00	4,484.23	4,478.33	4,451.33	14.79	15.34	96.03	-339.96	-408.12	434.24	404.69	29.56	14.692		
4,600.00	4,583.84	4,577.96	4,550.29	15.13	15.70	96.02	-348.48	-416.02	442.78	412.54	30.24	14.642		
4,700.00	4,683.44	4,677.60	4,649.24	15.47	16.06	96.01	-357.00	-423.93	451.31	420.39	30.92	14.594		
4,800.00	4,783.06	4,777.23	4,748.20	15.80	16.41	96.02	-365.52	-431.83	459.84	428.24	31.60	14.554		
4,900.00	4,882.65	4,876.85	4,847.14	16.03	16.77	95.88	-374.04	-439.73	468.12	435.96	32.16	14.556		
5,000.00	4,982.80	4,983.47	4,953.11	16.26	17.11	95.32	-382.62	-447.70	475.66	442.94	32.71	14.540		
5,100.00	5,082.80	5,095.70	5,065.01	16.52	17.38	-89.26	-388.77	-453.40	480.66	447.42	33.24	14.462		

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 #07H-0615
Project:	Weld County, CO	TVD Reference:	KBE @ 4933.00usft
Reference Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4933.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 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	5,182.80	5,208.40	5,177.64	16.74	17.63	-89.61	-391.70	-456.12	483.05	449.35	33.70	14.334		
5,300.00	5,282.62	5,313.38	5,282.62	16.96	17.88	-90.15	-391.97	-456.36	483.25	449.10	34.16	14.148		
5,400.00	5,379.97	5,410.73	5,379.97	17.14	18.11	-92.64	-391.97	-456.36	483.82	449.33	34.49	14.029		
5,500.00	5,471.29	5,508.59	5,477.73	17.28	18.32	-96.64	-389.08	-456.36	487.12	452.42	34.70	14.039		
5,600.00	5,553.24	5,617.71	5,584.25	17.41	18.52	-100.86	-366.39	-456.36	493.53	458.76	34.77	14.195		
5,700.00	5,622.81	5,738.45	5,693.72	17.54	18.69	-104.86	-316.11	-456.36	502.15	467.55	34.61	14.510		
5,800.00	5,677.43	5,872.84	5,798.33	17.70	18.81	-108.44	-232.31	-456.36	511.56	477.39	34.17	14.972		
5,900.00	5,715.10	6,021.49	5,884.86	17.90	18.88	-111.26	-112.07	-456.36	519.81	486.18	33.63	15.459		
6,000.00	5,734.45	6,181.85	5,936.19	18.17	18.94	-112.91	39.18	-456.36	524.86	491.36	33.50	15.668		
6,100.00	5,737.00	6,317.54	5,944.00	18.49	19.11	-113.19	174.42	-456.36	525.72	491.62	34.10	15.419		
6,200.00	5,737.00	6,417.54	5,944.00	18.92	19.41	-113.19	274.42	-456.36	525.72	490.87	34.85	15.087		
6,300.00	5,737.00	6,517.54	5,944.00	19.43	19.85	-113.19	374.42	-456.36	525.72	489.95	35.76	14.700		
6,400.00	5,737.00	6,617.54	5,944.00	20.02	20.40	-113.19	474.42	-456.36	525.72	488.88	36.83	14.273		
6,500.00	5,737.00	6,717.54	5,944.00	20.68	21.03	-113.19	574.42	-456.36	525.72	487.67	38.05	13.818		
6,600.00	5,737.00	6,817.54	5,944.00	21.41	21.72	-113.19	674.42	-456.36	525.72	486.33	39.38	13.348		
6,700.00	5,737.00	6,917.54	5,944.00	22.21	22.48	-113.19	774.42	-456.36	525.72	484.87	40.84	12.872		
6,800.00	5,737.00	7,017.54	5,944.00	23.05	23.30	-113.19	874.42	-456.36	525.71	483.32	42.40	12.399		
6,900.00	5,737.00	7,117.54	5,944.00	23.95	24.16	-113.19	974.42	-456.36	525.71	481.66	44.05	11.934		
7,000.00	5,737.00	7,217.54	5,944.00	24.88	25.07	-113.19	1,074.42	-456.36	525.71	479.93	45.79	11.482		
7,100.00	5,737.00	7,317.54	5,944.00	25.86	26.02	-113.19	1,174.42	-456.36	525.71	478.12	47.59	11.046		
7,200.00	5,737.00	7,417.54	5,944.00	26.87	27.01	-113.19	1,274.42	-456.36	525.71	476.25	49.47	10.628		
7,300.00	5,737.00	7,517.54	5,944.00	27.91	28.02	-113.19	1,374.42	-456.36	525.71	474.31	51.40	10.228		
7,400.00	5,737.00	7,617.54	5,944.00	28.98	29.07	-113.19	1,474.42	-456.36	525.71	472.33	53.38	9.848		
7,500.00	5,737.00	7,717.54	5,944.00	30.08	30.14	-113.19	1,574.42	-456.36	525.71	470.30	55.41	9.487		
7,600.00	5,737.00	7,817.54	5,944.00	31.19	31.23	-113.19	1,674.42	-456.36	525.71	468.23	57.48	9.145		
7,700.00	5,737.00	7,917.54	5,944.00	32.33	32.35	-113.19	1,774.42	-456.36	525.71	466.12	59.59	8.822		
7,800.00	5,737.00	8,017.54	5,944.00	33.48	33.48	-113.19	1,874.42	-456.36	525.71	463.98	61.74	8.516		
7,900.00	5,737.00	8,117.54	5,944.00	34.65	34.63	-113.19	1,974.42	-456.36	525.71	461.80	63.91	8.226		
8,000.00	5,737.00	8,217.54	5,944.00	35.83	35.80	-113.19	2,074.42	-456.36	525.71	459.60	66.11	7.952		
8,100.00	5,737.00	8,317.54	5,944.00	37.03	36.98	-113.19	2,174.42	-456.36	525.71	457.38	68.33	7.694		
8,200.00	5,737.00	8,417.54	5,944.00	38.23	38.17	-113.19	2,274.42	-456.36	525.71	455.13	70.58	7.449		
8,300.00	5,737.00	8,517.54	5,944.00	39.45	39.37	-113.19	2,374.42	-456.36	525.71	452.87	72.84	7.217		
8,400.00	5,737.00	8,617.54	5,944.00	40.68	40.59	-113.19	2,474.42	-456.36	525.71	450.58	75.13	6.998		
8,500.00	5,737.00	8,717.54	5,944.00	41.91	41.81	-113.19	2,574.42	-456.36	525.71	448.28	77.43	6.790		
8,600.00	5,737.00	8,817.54	5,944.00	43.16	43.04	-113.19	2,674.42	-456.36	525.71	445.96	79.74	6.592		
8,700.00	5,737.00	8,917.54	5,944.00	44.41	44.28	-113.19	2,774.42	-456.36	525.71	443.63	82.07	6.405		
8,800.00	5,737.00	9,017.54	5,944.00	45.67	45.53	-113.19	2,874.42	-456.36	525.71	441.29	84.42	6.227		
8,900.00	5,737.00	9,117.54	5,944.00	46.93	46.78	-113.19	2,974.42	-456.36	525.71	438.93	86.77	6.058		
9,000.00	5,737.00	9,217.54	5,944.00	48.20	48.04	-113.19	3,074.42	-456.36	525.71	436.57	89.14	5.898		
9,100.00	5,737.00	9,317.54	5,944.00	49.48	49.31	-113.19	3,174.42	-456.36	525.71	434.19	91.51	5.745		
9,200.00	5,737.00	9,417.54	5,944.00	50.76	50.58	-113.19	3,274.42	-456.36	525.71	431.81	93.90	5.599		
9,300.00	5,737.00	9,517.54	5,944.00	52.04	51.86	-113.19	3,374.42	-456.36	525.70	429.41	96.29	5.460		
9,400.00	5,737.00	9,617.54	5,944.00	53.33	53.14	-113.19	3,474.42	-456.36	525.70	427.01	98.69	5.327		
9,500.00	5,737.00	9,717.54	5,944.00	54.63	54.43	-113.19	3,574.42	-456.36	525.70	424.60	101.10	5.200		
9,600.00	5,737.00	9,817.54	5,944.00	55.92	55.71	-113.19	3,674.42	-456.36	525.70	422.19	103.52	5.079		
9,700.00	5,737.00	9,917.54	5,944.00	57.22	57.01	-113.19	3,774.42	-456.36	525.70	419.77	105.94	4.962		
9,800.00	5,737.00	10,017.54	5,944.00	58.53	58.30	-113.19	3,874.42	-456.36	525.70	417.34	108.36	4.851		
9,900.00	5,737.00	10,117.54	5,944.00	59.83	59.60	-113.19	3,974.42	-456.36	525.70	414.91	110.80	4.745		
10,000.00	5,737.00	10,217.54	5,944.00	61.14	60.91	-113.19	4,074.42	-456.36	525.70	412.47	113.24	4.643		
10,100.00	5,737.00	10,317.54	5,944.00	62.46	62.21	-113.19	4,174.42	-456.36	525.70	410.02	115.68	4.544		
10,200.00	5,737.00	10,417.54	5,944.00	63.77	63.52	-113.19	4,274.42	-456.36	525.70	407.58	118.13	4.450		
10,300.00	5,737.00	10,517.54	5,944.00	65.09	64.83	-113.19	4,374.42	-456.36	525.70	405.12	120.58	4.360		

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 #07H-0615
Project:	Weld County, CO	TVD Reference:	KBE @ 4933.00usft
Reference Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4933.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 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	5,737.00	10,617.54	5,944.00	66.40	66.14	-113.19	4,474.42	-456.34	525.70	402.67	123.03	4.273		
10,500.00	5,737.00	10,717.54	5,944.00	67.73	67.46	-113.19	4,574.42	-456.34	525.70	400.21	125.49	4.189		
10,600.00	5,737.00	10,817.54	5,944.00	69.05	68.78	-113.19	4,674.42	-456.34	525.70	397.74	127.96	4.108		
10,700.00	5,737.00	10,917.54	5,944.00	70.37	70.10	-113.19	4,774.42	-456.34	525.70	395.28	130.42	4.031		
10,800.00	5,737.00	11,017.54	5,944.00	71.70	71.42	-113.19	4,874.42	-456.34	525.70	392.81	132.89	3.956		
10,900.00	5,737.00	11,117.54	5,944.00	73.03	72.74	-113.19	4,974.42	-456.34	525.70	390.33	135.37	3.884		
11,000.00	5,737.00	11,217.54	5,944.00	74.36	74.07	-113.19	5,074.42	-456.34	525.70	387.86	137.84	3.814		
11,100.00	5,737.00	11,317.54	5,944.00	75.69	75.39	-113.19	5,174.42	-456.34	525.70	385.38	140.32	3.746		
11,200.00	5,737.00	11,417.54	5,944.00	77.02	76.72	-113.19	5,274.42	-456.34	525.70	382.90	142.80	3.681		
11,300.00	5,737.00	11,517.54	5,944.00	78.35	78.05	-113.19	5,374.42	-456.34	525.70	380.41	145.28	3.618		
11,400.00	5,737.00	11,617.54	5,944.00	79.69	79.38	-113.19	5,474.42	-456.34	525.70	377.93	147.77	3.558		
11,500.00	5,737.00	11,717.54	5,944.00	81.02	80.71	-113.19	5,574.42	-456.34	525.70	375.44	150.26	3.499		
11,600.00	5,737.00	11,817.54	5,944.00	82.36	82.05	-113.19	5,674.42	-456.34	525.70	372.95	152.75	3.442		
11,700.00	5,737.00	11,917.54	5,944.00	83.70	83.38	-113.19	5,774.42	-456.34	525.70	370.46	155.24	3.386		
11,800.00	5,737.00	12,017.54	5,944.00	85.04	84.72	-113.19	5,874.42	-456.34	525.70	367.96	157.73	3.333		
11,900.00	5,737.00	12,117.54	5,944.00	86.38	86.05	-113.19	5,974.42	-456.34	525.69	365.47	160.23	3.281		
12,000.00	5,737.00	12,217.54	5,944.00	87.72	87.39	-113.19	6,074.42	-456.34	525.69	362.97	162.73	3.231		
12,100.00	5,737.00	12,317.54	5,944.00	89.06	88.73	-113.19	6,174.42	-456.34	525.69	360.47	165.23	3.182		
12,200.00	5,737.00	12,417.54	5,944.00	90.40	90.07	-113.19	6,274.42	-456.34	525.69	357.97	167.73	3.134		
12,300.00	5,737.00	12,517.54	5,944.00	91.75	91.41	-113.19	6,374.42	-456.33	525.69	355.47	170.23	3.088		
12,400.00	5,737.00	12,617.54	5,944.00	93.09	92.75	-113.19	6,474.42	-456.33	525.69	352.96	172.73	3.043		
12,500.00	5,737.00	12,717.54	5,944.00	94.43	94.09	-113.19	6,574.42	-456.33	525.69	350.46	175.24	3.000		
12,600.00	5,737.00	12,817.54	5,944.00	95.78	95.43	-113.19	6,674.42	-456.33	525.69	347.95	177.74	2.958		
12,700.00	5,737.00	12,917.54	5,944.00	97.13	96.78	-113.19	6,774.42	-456.33	525.69	345.44	180.25	2.916		
12,800.00	5,737.00	13,017.54	5,944.00	98.47	98.12	-113.19	6,874.42	-456.33	525.69	342.93	182.76	2.876		
12,900.00	5,737.00	13,117.54	5,944.00	99.82	99.47	-113.19	6,974.42	-456.33	525.69	340.42	185.27	2.837		
13,000.00	5,737.00	13,217.54	5,944.00	101.17	100.81	-113.19	7,074.42	-456.33	525.69	337.91	187.78	2.800		
13,100.00	5,737.00	13,317.54	5,944.00	102.52	102.16	-113.19	7,174.42	-456.33	525.69	335.40	190.29	2.763		
13,200.00	5,737.00	13,417.54	5,944.00	103.87	103.50	-113.19	7,274.42	-456.33	525.69	332.89	192.80	2.727		
13,300.00	5,737.00	13,517.54	5,944.00	105.22	104.85	-113.19	7,374.42	-456.33	525.69	330.37	195.32	2.691		
13,341.33	5,737.00	13,558.87	5,944.00	105.77	105.41	-113.19	7,415.75	-456.33	525.69	329.33	196.35	2.677		
13,347.11	5,737.00	13,559.59	5,944.00	105.85	105.42	-113.19	7,416.47	-456.33	525.71	329.27	196.45	2.676 SF		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #07H-0615
Project:	Weld County, CO	TVD Reference:	KBE @ 4933.00usft
Reference Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4933.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 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	-88.09	1.00	-29.97	29.99					
100.00	100.00	100.00	100.00	0.12	0.12	-88.09	1.00	-29.97	29.99	29.74	0.25	121.059		
200.00	200.00	200.00	200.00	0.44	0.44	-88.09	1.00	-29.97	29.99	29.11	0.87	34.278		
300.00	300.00	300.00	300.00	0.75	0.75	-88.09	1.00	-29.97	29.99	28.48	1.50	19.966 CC		
400.00	399.98	399.77	399.75	1.03	1.03	95.86	-0.68	-30.40	30.53	28.48	2.06	14.832 ES		
500.00	499.84	499.53	499.37	1.31	1.31	96.01	-5.73	-31.67	32.17	29.57	2.60	12.375		
600.00	599.49	599.39	598.89	1.61	1.61	96.47	-13.66	-33.68	34.76	31.57	3.19	10.903		
700.00	699.10	699.35	698.49	1.90	1.90	97.09	-21.94	-35.77	37.48	33.67	3.81	9.848		
800.00	798.70	799.31	798.09	2.22	2.22	97.64	-30.22	-37.86	40.20	35.76	4.44	9.049		
900.00	898.31	899.28	897.68	2.55	2.54	98.11	-38.50	-39.96	42.92	37.83	5.09	8.431		
1,000.00	997.92	999.24	997.28	2.88	2.87	98.53	-46.78	-42.05	45.65	39.90	5.75	7.943		
1,100.00	1,097.53	1,099.20	1,096.88	3.21	3.20	98.90	-55.06	-44.14	48.38	41.97	6.41	7.548		
1,200.00	1,197.14	1,199.16	1,196.47	3.54	3.54	99.23	-63.34	-46.24	51.11	44.04	7.08	7.224		
1,300.00	1,296.75	1,299.13	1,296.07	3.88	3.87	99.53	-71.62	-48.33	53.85	46.10	7.74	6.953		
1,400.00	1,396.36	1,399.09	1,395.67	4.22	4.21	99.80	-79.90	-50.43	56.58	48.17	8.42	6.723		
1,500.00	1,495.97	1,499.05	1,495.26	4.55	4.54	100.04	-88.18	-52.52	59.32	50.23	9.09	6.527		
1,600.00	1,595.57	1,599.01	1,594.86	4.89	4.88	100.27	-96.47	-54.61	62.05	52.29	9.76	6.356		
1,700.00	1,695.18	1,698.98	1,694.46	5.23	5.22	100.47	-104.75	-56.71	64.79	54.35	10.44	6.207		
1,800.00	1,794.79	1,798.94	1,794.05	5.57	5.55	100.66	-113.03	-58.80	67.53	56.42	11.11	6.076		
1,900.00	1,894.40	1,898.90	1,893.65	5.91	5.89	100.83	-121.31	-60.89	70.27	58.48	11.79	5.960		
2,000.00	1,994.01	1,998.86	1,993.25	6.25	6.23	100.99	-129.59	-62.99	73.01	60.54	12.47	5.856		
2,100.00	2,093.62	2,098.82	2,092.84	6.59	6.57	101.14	-137.87	-65.08	75.75	62.60	13.15	5.762		
2,200.00	2,193.23	2,198.79	2,192.44	6.93	6.91	101.27	-146.15	-67.18	78.49	64.67	13.82	5.678		
2,300.00	2,292.84	2,298.75	2,292.04	7.27	7.25	101.40	-154.43	-69.27	81.23	66.73	14.50	5.601		
2,400.00	2,392.44	2,398.71	2,391.63	7.61	7.59	101.52	-162.71	-71.36	83.97	68.79	15.18	5.531		
2,500.00	2,492.05	2,498.67	2,491.23	7.95	7.93	101.64	-170.99	-73.46	86.71	70.85	15.86	5.467		
2,600.00	2,591.66	2,598.64	2,590.83	8.30	8.27	101.74	-179.27	-75.55	89.46	72.91	16.54	5.408		
2,700.00	2,691.27	2,698.60	2,690.42	8.64	8.61	101.84	-187.56	-77.64	92.20	74.98	17.22	5.354		
2,800.00	2,790.88	2,798.56	2,790.02	8.98	8.95	101.93	-195.84	-79.74	94.94	77.04	17.90	5.304		
2,900.00	2,890.49	2,898.52	2,889.62	9.32	9.29	102.02	-204.12	-81.83	97.68	79.10	18.58	5.257		
3,000.00	2,990.10	2,998.48	2,989.21	9.66	9.63	102.11	-212.40	-83.93	100.43	81.17	19.26	5.214		
3,100.00	3,089.71	3,098.45	3,088.81	10.00	9.97	102.18	-220.68	-86.02	103.17	83.23	19.94	5.174		
3,200.00	3,189.31	3,198.41	3,188.41	10.34	10.31	102.26	-228.96	-88.11	105.91	85.29	20.62	5.136		
3,300.00	3,288.92	3,298.37	3,288.00	10.69	10.65	102.33	-237.24	-90.21	108.66	87.35	21.30	5.101		
3,400.00	3,388.53	3,398.33	3,387.60	11.03	10.99	102.40	-245.52	-92.30	111.40	89.42	21.98	5.068		
3,500.00	3,488.14	3,498.30	3,487.20	11.37	11.33	102.46	-253.80	-94.39	114.14	91.48	22.66	5.037		
3,600.00	3,587.75	3,598.26	3,586.79	11.71	11.67	102.52	-262.08	-96.49	116.89	93.54	23.34	5.007		
3,700.00	3,687.36	3,698.22	3,686.39	12.05	12.01	102.58	-270.36	-98.58	119.63	95.61	24.02	4.980		
3,800.00	3,786.97	3,798.18	3,785.99	12.40	12.35	102.64	-278.65	-100.67	122.38	97.67	24.71	4.953		
3,900.00	3,886.57	3,898.15	3,885.58	12.74	12.69	102.69	-286.93	-102.77	125.12	99.73	25.39	4.929		
4,000.00	3,986.18	3,998.11	3,985.18	13.08	13.03	102.74	-295.21	-104.86	127.87	101.80	26.07	4.905		
4,100.00	4,085.79	4,098.07	4,084.78	13.42	13.37	102.79	-303.49	-106.96	130.61	103.86	26.75	4.883		
4,200.00	4,185.40	4,198.03	4,184.37	13.76	13.71	102.84	-311.77	-109.05	133.35	105.92	27.43	4.862		
4,300.00	4,285.01	4,297.99	4,283.97	14.11	14.05	102.88	-320.05	-111.14	136.10	107.99	28.11	4.841		
4,400.00	4,384.62	4,397.96	4,383.57	14.45	14.39	102.93	-328.33	-113.24	138.84	110.05	28.79	4.822		
4,500.00	4,484.23	4,497.92	4,483.16	14.79	14.73	102.97	-336.61	-115.33	141.59	112.12	29.47	4.804		
4,600.00	4,583.84	4,597.88	4,582.76	15.13	15.07	103.01	-344.89	-117.42	144.33	114.18	30.15	4.786		
4,700.00	4,683.44	4,697.84	4,682.36	15.47	15.41	103.05	-353.17	-119.52	147.08	116.24	30.84	4.770		
4,800.00	4,783.06	4,797.81	4,781.95	15.80	15.75	103.07	-361.45	-121.61	149.81	118.30	31.51	4.755		
4,900.00	4,882.65	4,897.75	4,881.53	16.03	16.09	102.25	-369.73	-123.71	152.02	119.94	32.08	4.739		
5,000.00	4,982.80	4,997.57	4,980.99	16.26	16.43	100.17	-378.00	-125.80	153.60	120.96	32.65	4.705		
5,100.00	5,082.80	5,097.53	5,080.59	16.52	16.76	-86.72	-386.14	-127.85	155.01	121.78	33.23	4.665		

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 #07H-0615
Project:	Weld County, CO	TVD Reference:	KBE @ 4933.00usft
Reference Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4933.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 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	5,182.80	5,198.50	5,181.39	16.74	16.99	-88.82	-391.78	-129.28	156.21	122.53	33.68	4.638		
5,300.00	5,282.62	5,299.56	5,282.42	16.96	17.21	-91.17	-393.97	-129.83	156.75	122.65	34.10	4.596		
5,400.00	5,379.97	5,397.11	5,379.97	17.14	17.47	-98.77	-394.00	-129.84	158.79	124.35	34.43	4.612		
5,500.00	5,471.29	5,488.43	5,471.29	17.28	17.67	-110.11	-394.00	-129.84	169.99	135.51	34.48	4.930		
5,600.00	5,553.24	5,587.54	5,570.15	17.41	17.89	-122.68	-388.70	-129.84	196.65	162.49	34.16	5.756		
5,700.00	5,622.81	5,706.14	5,684.62	17.54	18.09	-133.30	-358.66	-129.84	231.77	198.91	32.86	7.054		
5,800.00	5,677.43	5,847.36	5,807.76	17.70	18.29	-141.42	-290.43	-129.84	268.34	238.57	29.76	9.016		
5,900.00	5,715.10	6,018.02	5,925.49	17.90	18.51	-147.18	-167.92	-129.84	299.50	274.97	24.53	12.211		
6,000.00	5,734.45	6,218.62	6,004.81	18.17	18.88	-150.31	14.98	-129.84	318.13	298.77	19.35	16.437		
6,100.00	5,737.00	6,378.94	6,017.00	18.49	19.34	-150.76	174.42	-129.84	320.88	301.69	19.19	16.724		
6,200.00	5,737.00	6,478.94	6,017.00	18.92	19.75	-150.76	274.42	-129.84	320.88	301.10	19.78	16.220		
6,300.00	5,737.00	6,578.94	6,017.00	19.43	20.23	-150.76	374.42	-129.84	320.88	300.39	20.49	15.664		
6,400.00	5,737.00	6,678.94	6,017.00	20.02	20.80	-150.76	474.42	-129.84	320.88	299.59	21.29	15.075		
6,500.00	5,737.00	6,778.94	6,017.00	20.68	21.44	-150.76	574.42	-129.84	320.88	298.71	22.17	14.471		
6,600.00	5,737.00	6,878.94	6,017.00	21.41	22.15	-150.76	674.42	-129.84	320.88	297.74	23.14	13.868		
6,700.00	5,737.00	6,978.94	6,017.00	22.21	22.92	-150.76	774.42	-129.84	320.88	296.71	24.17	13.276		
6,800.00	5,737.00	7,078.94	6,017.00	23.05	23.74	-150.76	874.42	-129.84	320.88	295.62	25.26	12.702		
6,900.00	5,737.00	7,178.94	6,017.00	23.95	24.61	-150.76	974.42	-129.84	320.88	294.47	26.41	12.152		
7,000.00	5,737.00	7,278.94	6,017.00	24.88	25.52	-150.76	1,074.42	-129.84	320.88	293.28	27.60	11.628		
7,100.00	5,737.00	7,378.94	6,017.00	25.86	26.48	-150.76	1,174.42	-129.84	320.88	292.05	28.83	11.132		
7,200.00	5,737.00	7,478.94	6,017.00	26.87	27.47	-150.76	1,274.42	-129.84	320.88	290.79	30.09	10.664		
7,300.00	5,737.00	7,578.94	6,017.00	27.91	28.49	-150.76	1,374.42	-129.84	320.88	289.49	31.39	10.224		
7,400.00	5,737.00	7,678.94	6,017.00	28.98	29.53	-150.76	1,474.42	-129.84	320.88	288.17	32.71	9.811		
7,500.00	5,737.00	7,778.94	6,017.00	30.08	30.61	-150.76	1,574.42	-129.84	320.88	286.82	34.05	9.423		
7,600.00	5,737.00	7,878.94	6,017.00	31.19	31.71	-150.76	1,674.42	-129.84	320.88	285.46	35.42	9.059		
7,700.00	5,737.00	7,978.94	6,017.00	32.33	32.82	-150.76	1,774.42	-129.84	320.88	284.07	36.81	8.718		
7,800.00	5,737.00	8,078.94	6,017.00	33.48	33.96	-150.76	1,874.42	-129.84	320.88	282.67	38.21	8.397		
7,900.00	5,737.00	8,178.94	6,017.00	34.65	35.11	-150.76	1,974.42	-129.84	320.88	281.25	39.63	8.097		
8,000.00	5,737.00	8,278.94	6,017.00	35.83	36.28	-150.76	2,074.42	-129.84	320.88	279.82	41.06	7.814		
8,100.00	5,737.00	8,378.94	6,017.00	37.03	37.46	-150.76	2,174.42	-129.84	320.88	278.37	42.51	7.549		
8,200.00	5,737.00	8,478.94	6,017.00	38.23	38.65	-150.76	2,274.42	-129.84	320.88	276.92	43.96	7.299		
8,300.00	5,737.00	8,578.94	6,017.00	39.45	39.86	-150.76	2,374.42	-129.84	320.88	275.45	45.43	7.064		
8,400.00	5,737.00	8,678.94	6,017.00	40.68	41.07	-150.76	2,474.42	-129.84	320.88	273.98	46.90	6.842		
8,500.00	5,737.00	8,778.94	6,017.00	41.91	42.30	-150.76	2,574.42	-129.84	320.88	272.50	48.38	6.632		
8,600.00	5,737.00	8,878.94	6,017.00	43.16	43.53	-150.76	2,674.42	-129.84	320.88	271.01	49.87	6.434		
8,700.00	5,737.00	8,978.94	6,017.00	44.41	44.77	-150.76	2,774.42	-129.84	320.88	269.51	51.37	6.247		
8,800.00	5,737.00	9,078.94	6,017.00	45.67	46.02	-150.76	2,874.42	-129.84	320.88	268.01	52.87	6.069		
8,900.00	5,737.00	9,178.94	6,017.00	46.93	47.28	-150.76	2,974.42	-129.84	320.88	266.50	54.38	5.901		
9,000.00	5,737.00	9,278.94	6,017.00	48.20	48.54	-150.76	3,074.42	-129.84	320.88	264.99	55.89	5.741		
9,100.00	5,737.00	9,378.94	6,017.00	49.48	49.80	-150.76	3,174.42	-129.84	320.88	263.47	57.41	5.589		
9,200.00	5,737.00	9,478.94	6,017.00	50.76	51.08	-150.76	3,274.42	-129.84	320.88	261.94	58.93	5.445		
9,300.00	5,737.00	9,578.94	6,017.00	52.04	52.35	-150.76	3,374.42	-129.84	320.88	260.42	60.46	5.307		
9,400.00	5,737.00	9,678.94	6,017.00	53.33	53.63	-150.76	3,474.42	-129.84	320.88	258.89	61.99	5.176		
9,500.00	5,737.00	9,778.94	6,017.00	54.63	54.92	-150.76	3,574.42	-129.84	320.88	257.35	63.52	5.051		
9,600.00	5,737.00	9,878.94	6,017.00	55.92	56.21	-150.76	3,674.42	-129.84	320.88	255.82	65.06	4.932		
9,700.00	5,737.00	9,978.94	6,017.00	57.22	57.50	-150.76	3,774.42	-129.84	320.88	254.28	66.60	4.818		
9,800.00	5,737.00	10,078.94	6,017.00	58.53	58.80	-150.76	3,874.42	-129.84	320.88	252.73	68.14	4.709		
9,900.00	5,737.00	10,178.94	6,017.00	59.83	60.10	-150.76	3,974.42	-129.84	320.88	251.19	69.69	4.604		
10,000.00	5,737.00	10,278.94	6,017.00	61.14	61.40	-150.76	4,074.42	-129.84	320.88	249.64	71.24	4.504		
10,100.00	5,737.00	10,378.94	6,017.00	62.46	62.71	-150.76	4,174.42	-129.84	320.88	248.09	72.79	4.408		
10,200.00	5,737.00	10,478.94	6,017.00	63.77	64.02	-150.76	4,274.42	-129.84	320.88	246.53	74.34	4.316		
10,300.00	5,737.00	10,578.94	6,017.00	65.09	65.33	-150.76	4,374.42	-129.83	320.88	244.98	75.90	4.228		

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 #07H-0615
Project:	Weld County, CO	TVD Reference:	KBE @ 4933.00usft
Reference Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4933.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 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	5,737.00	10,678.94	6,017.00	66.40	66.64	-150.76	4,474.42	-129.83	320.88	243.42	77.45	4.143		
10,500.00	5,737.00	10,778.94	6,017.00	67.73	67.96	-150.76	4,574.42	-129.83	320.88	241.86	79.01	4.061		
10,600.00	5,737.00	10,878.94	6,017.00	69.05	69.28	-150.76	4,674.42	-129.83	320.88	240.30	80.57	3.982		
10,700.00	5,737.00	10,978.94	6,017.00	70.37	70.60	-150.76	4,774.42	-129.83	320.88	238.74	82.13	3.907		
10,800.00	5,737.00	11,078.94	6,017.00	71.70	71.92	-150.76	4,874.42	-129.83	320.88	237.18	83.70	3.834		
10,900.00	5,737.00	11,178.94	6,017.00	73.03	73.24	-150.76	4,974.42	-129.83	320.88	235.61	85.26	3.763		
11,000.00	5,737.00	11,278.94	6,017.00	74.36	74.57	-150.76	5,074.42	-129.83	320.88	234.05	86.83	3.696		
11,100.00	5,737.00	11,378.94	6,017.00	75.69	75.89	-150.76	5,174.42	-129.83	320.88	232.48	88.40	3.630		
11,200.00	5,737.00	11,478.94	6,017.00	77.02	77.22	-150.76	5,274.42	-129.83	320.88	230.91	89.96	3.567		
11,300.00	5,737.00	11,578.94	6,017.00	78.35	78.55	-150.76	5,374.42	-129.83	320.88	229.34	91.53	3.506		
11,400.00	5,737.00	11,678.94	6,017.00	79.69	79.88	-150.76	5,474.42	-129.83	320.88	227.77	93.10	3.446		
11,500.00	5,737.00	11,778.94	6,017.00	81.02	81.21	-150.76	5,574.42	-129.83	320.88	226.20	94.68	3.389		
11,600.00	5,737.00	11,878.94	6,017.00	82.36	82.55	-150.76	5,674.42	-129.83	320.88	224.63	96.25	3.334		
11,700.00	5,737.00	11,978.94	6,017.00	83.70	83.88	-150.76	5,774.42	-129.83	320.88	223.05	97.82	3.280		
11,800.00	5,737.00	12,078.94	6,017.00	85.04	85.22	-150.76	5,874.42	-129.83	320.88	221.48	99.40	3.228		
11,900.00	5,737.00	12,178.94	6,017.00	86.38	86.55	-150.76	5,974.42	-129.83	320.88	219.90	100.97	3.178		
12,000.00	5,737.00	12,278.94	6,017.00	87.72	87.89	-150.76	6,074.42	-129.83	320.88	218.33	102.55	3.129		
12,100.00	5,737.00	12,378.94	6,017.00	89.06	89.23	-150.76	6,174.42	-129.83	320.88	216.75	104.13	3.082		
12,200.00	5,737.00	12,478.94	6,017.00	90.40	90.57	-150.76	6,274.42	-129.83	320.88	215.17	105.70	3.036		
12,300.00	5,737.00	12,578.94	6,017.00	91.75	91.91	-150.76	6,374.42	-129.83	320.88	213.59	107.28	2.991		
12,400.00	5,737.00	12,678.94	6,017.00	93.09	93.25	-150.76	6,474.42	-129.83	320.88	212.01	108.86	2.948		
12,500.00	5,737.00	12,778.94	6,017.00	94.43	94.59	-150.76	6,574.42	-129.83	320.88	210.43	110.44	2.905		
12,600.00	5,737.00	12,878.94	6,017.00	95.78	95.94	-150.76	6,674.42	-129.83	320.88	208.85	112.02	2.864		
12,700.00	5,737.00	12,978.94	6,017.00	97.13	97.28	-150.76	6,774.42	-129.83	320.88	207.27	113.60	2.825		
12,800.00	5,737.00	13,078.94	6,017.00	98.47	98.62	-150.76	6,874.42	-129.83	320.88	205.69	115.19	2.786		
12,900.00	5,737.00	13,178.94	6,017.00	99.82	99.97	-150.76	6,974.42	-129.83	320.88	204.11	116.77	2.748		
13,000.00	5,737.00	13,278.94	6,017.00	101.17	101.31	-150.76	7,074.42	-129.83	320.88	202.52	118.35	2.711		
13,100.00	5,737.00	13,378.94	6,017.00	102.52	102.66	-150.76	7,174.42	-129.83	320.88	200.94	119.93	2.675		
13,200.00	5,737.00	13,478.94	6,017.00	103.87	104.01	-150.76	7,274.42	-129.83	320.88	199.36	121.52	2.641		
13,300.00	5,737.00	13,578.94	6,017.00	105.22	105.35	-150.76	7,374.42	-129.83	320.88	197.77	123.10	2.607		
13,345.08	5,737.00	13,624.02	6,017.00	105.82	105.96	-150.76	7,419.49	-129.83	320.88	197.06	123.82	2.592		
13,347.11	5,737.00	13,624.03	6,017.00	105.85	105.96	-150.76	7,419.51	-129.83	320.88	197.06	123.82	2.591 SF		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #07H-0615
Project:	Weld County, CO	TVD Reference:	KBE @ 4933.00usft
Reference Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4933.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 sigma
Reference Wellbore	Hz	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Sec 7-T10N-R57W - Horsetail #07H-1813 - Hz - Design #1		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	-65.62	53.64	-118.34	129.93							
100.00	100.00	100.00	100.00	0.12	0.12	-65.62	53.64	-118.34	129.93	129.68	0.25	524.541				
200.00	200.00	200.00	200.00	0.44	0.44	-65.62	53.64	-118.34	129.93	129.06	0.87	148.526				
300.00	300.00	300.00	300.00	0.75	0.75	-65.62	53.64	-118.34	129.93	128.43	1.50	86.511	CC, ES			
400.00	399.98	395.79	395.77	1.03	1.05	119.09	54.73	-119.51	132.36	130.22	2.13	62.081				
500.00	499.84	491.00	490.86	1.31	1.35	121.36	57.99	-122.99	139.79	136.98	2.81	49.697				
600.00	599.49	585.14	584.67	1.61	1.66	124.60	63.34	-128.68	152.41	148.87	3.54	43.097				
700.00	699.10	678.20	677.11	1.90	1.97	127.71	70.69	-136.52	168.99	164.74	4.25	39.751				
800.00	798.70	776.09	774.15	2.22	2.28	130.46	79.51	-145.92	187.60	182.80	4.80	39.095				
900.00	898.31	873.98	871.18	2.55	2.61	132.72	88.32	-155.32	206.55	201.19	5.36	38.503				
1,000.00	997.92	971.88	968.22	2.88	2.95	134.59	97.14	-164.71	225.77	219.82	5.94	38.002				
1,100.00	1,097.53	1,069.77	1,065.26	3.21	3.28	136.18	105.95	-174.11	245.17	238.65	6.52	37.579				
1,200.00	1,197.14	1,167.66	1,162.30	3.54	3.62	137.53	114.77	-183.51	264.74	257.62	7.12	37.184				
1,300.00	1,296.75	1,265.55	1,259.34	3.88	3.96	138.69	123.58	-192.90	284.42	276.70	7.72	36.843				
1,400.00	1,396.36	1,363.44	1,356.38	4.22	4.31	139.70	132.40	-202.30	304.21	295.88	8.32	36.542				
1,500.00	1,495.97	1,461.33	1,453.42	4.55	4.65	140.59	141.21	-211.70	324.07	315.14	8.93	36.276				
1,600.00	1,595.57	1,559.22	1,550.46	4.89	4.99	141.38	150.03	-221.09	344.00	334.45	9.55	36.038				
1,700.00	1,695.18	1,657.11	1,647.50	5.23	5.33	142.08	158.84	-230.49	363.98	353.82	10.16	35.825				
1,800.00	1,794.79	1,755.00	1,744.53	5.57	5.68	142.71	167.66	-239.89	384.02	373.24	10.78	35.634				
1,900.00	1,894.40	1,852.89	1,841.57	5.91	6.02	143.27	176.47	-249.28	404.09	392.69	11.40	35.461				
2,000.00	1,994.01	1,950.78	1,938.61	6.25	6.37	143.78	185.29	-258.68	424.20	412.18	12.02	35.304				
2,100.00	2,093.62	2,048.67	2,035.65	6.59	6.71	144.25	194.10	-268.08	444.33	431.70	12.64	35.160				
2,200.00	2,193.23	2,146.56	2,132.69	6.93	7.05	144.68	202.92	-277.47	464.50	451.24	13.26	35.029				
2,300.00	2,292.84	2,244.45	2,229.73	7.27	7.40	145.07	211.73	-286.87	484.68	470.80	13.88	34.909				
2,400.00	2,392.44	2,342.34	2,326.77	7.61	7.74	145.42	220.55	-296.27	504.89	490.38	14.51	34.798				
2,500.00	2,492.05	2,440.23	2,423.81	7.95	8.09	145.76	229.36	-305.66	525.11	509.97	15.13	34.696				
2,600.00	2,591.66	2,538.12	2,520.85	8.30	8.43	146.06	238.18	-315.06	545.34	529.58	15.76	34.602				
2,700.00	2,691.27	2,636.01	2,617.89	8.64	8.78	146.35	246.99	-324.46	565.60	549.21	16.39	34.514				
2,800.00	2,790.88	2,733.91	2,714.92	8.98	9.12	146.61	255.81	-333.85	585.86	568.85	17.01	34.432				
2,900.00	2,890.49	2,831.80	2,811.96	9.32	9.47	146.86	264.62	-343.25	606.14	588.49	17.64	34.356				
3,000.00	2,990.10	2,929.69	2,909.00	9.66	9.81	147.09	273.44	-352.65	626.42	608.15	18.27	34.284				
3,100.00	3,089.71	3,027.58	3,006.04	10.00	10.16	147.31	282.25	-362.04	646.72	627.82	18.90	34.218				
3,200.00	3,189.31	3,125.47	3,103.08	10.34	10.50	147.51	291.07	-371.44	667.02	647.49	19.53	34.155				
3,300.00	3,288.92	3,223.36	3,200.12	10.69	10.85	147.70	299.88	-380.84	687.33	667.17	20.16	34.096				
3,400.00	3,388.53	3,321.25	3,297.16	11.03	11.19	147.88	308.70	-390.23	707.65	686.86	20.79	34.040				
3,500.00	3,488.14	3,419.14	3,394.20	11.37	11.54	148.05	317.51	-399.63	727.97	706.55	21.42	33.988				
3,600.00	3,587.75	3,517.03	3,491.24	11.71	11.89	148.22	326.33	-409.03	748.30	726.25	22.05	33.938				
3,700.00	3,687.36	3,614.92	3,588.27	12.05	12.23	148.37	335.14	-418.42	768.64	745.96	22.68	33.891				
3,800.00	3,786.97	3,712.81	3,685.31	12.40	12.58	148.51	343.96	-427.82	788.98	765.67	23.31	33.847				
3,900.00	3,886.57	3,810.70	3,782.35	12.74	12.92	148.65	352.77	-437.22	809.32	785.38	23.94	33.804				
4,000.00	3,986.18	3,908.59	3,879.39	13.08	13.27	148.78	361.59	-446.61	829.67	805.10	24.57	33.764				
4,100.00	4,085.79	4,006.48	3,976.43	13.42	13.61	148.91	370.40	-456.01	850.02	824.82	25.20	33.726				
4,200.00	4,185.40	4,104.37	4,073.47	13.76	13.96	149.02	379.22	-465.41	870.38	844.54	25.84	33.689				
4,300.00	4,285.01	4,202.26	4,170.51	14.11	14.30	149.14	388.03	-474.80	890.74	864.27	26.47	33.654				
4,400.00	4,384.62	4,300.15	4,267.55	14.45	14.65	149.25	396.85	-484.20	911.10	884.00	27.10	33.621				
4,500.00	4,484.23	4,398.04	4,364.59	14.79	15.00	149.35	405.66	-493.60	931.47	903.74	27.73	33.589				
4,600.00	4,583.84	4,495.94	4,461.63	15.13	15.34	149.45	414.48	-502.99	951.84	923.48	28.36	33.559				
4,700.00	4,683.44	4,593.83	4,558.66	15.47	15.69	149.54	423.29	-512.39	972.21	943.21	29.00	33.529				
4,800.00	4,783.06	4,700.36	4,664.28	15.80	16.05	149.68	432.81	-522.54	992.45	962.79	29.66	33.460				
4,900.00	4,882.85	4,850.22	4,813.43	16.03	16.44	149.93	442.73	-533.11	1,007.38	977.03	30.35	33.191				
5,000.00	4,982.80	4,939.46	4,902.00	16.26	16.67	150.18	452.65	-543.22	1,022.30	991.56	31.04	33.122				
5,100.00	5,082.80	5,039.65	5,002.00	16.52	16.93	150.43	462.57	-553.22	1,037.22	1,006.48	31.73	33.053				
5,200.00	5,182.80	5,139.65	5,102.00	16.78	17.19	150.68	472.49	-563.22	1,052.14	1,021.40	32.42	32.984				
5,300.00	5,282.80	5,239.65	5,202.00	17.04	17.45	150.93	482.41	-573.22	1,067.06	1,036.32	33.11	32.915				
5,400.00	5,382.80	5,339.65	5,302.00	17.30	17.81	151.18	492.33	-583.22	1,081.98	1,051.24	33.80	32.846				
5,500.00	5,482.80	5,439.65	5,402.00	17.56	18.17	151.43	502.25	-593.22	1,096.90	1,066.16	34.49	32.777				
5,600.00	5,582.80	5,539.65	5,502.00	17.82	18.53	151.68	512.17	-603.22	1,111.82	1,081.08	35.18	32.708				
5,700.00	5,682.80	5,639.65	5,602.00	18.08	18.89	151.93	522.09	-613.22	1,126.74	1,096.00	35.87	32.639				
5,800.00	5,782.80	5,739.65	5,702.00	18.34	19.25	152.18	532.01	-623.22	1,141.66	1,110.92	36.56	32.570				
5,900.00	5,882.80	5,839.65	5,802.00	18.60	19.61	152.43	541.93	-633.22	1,156.58	1,125.84	37.25	32.501				
6,000.00	5,982.80	5,939.65	5,902.00	18.86	19.97	152.68	551.85	-643.22	1,171.50	1,140.76	37.94	32.432				
6,100.00	6,082.80	6,039.65	6,002.00	19.12	20.33	152.93	561.77	-653.22	1,186.42	1,155.68	38.63	32.363				
6,200.00	6,182.80	6,139.65	6,102.00	19.38	20.69	153.18	571.69	-663.22	1,201.34	1,170.60	39.32	32.294				
6,300.00	6,282.80	6,239.65	6,202.00	19.64	21.05	153.43	581.61	-673.22	1,216.26	1,185.52	40.01	32.225				
6,400.00	6,382.80	6,339.65	6,302.00	19.90	21.41	153.68	591.53	-683.22	1,231.18	1,200.44	40.70	32.156				
6,500.00	6,482.80	6,439.65	6,402.00	20.16	21.77	153.93	601.45	-693.22	1,246.10	1,215.36	41.39	32.087				
6,600.00	6,582.80	6,539.65	6,502.00	20.42	22.13	154.18	611.37	-703.22	1,261.02	1,230.28	42.08	32.018				
6,700.00	6,682.80	6,639.65	6,602.00	20.68	22.49	154.43	621.29	-713.22	1,275.94	1,245.20	42.77	31.949				
6,800.00	6,782.80	6,739.65	6,702.00	20.94	22.85	154.68	631.21	-723.22	1,290.86	1,260.12	43.46	31.880				
6,900.00	6,882.80	6,839.65	6,802.00	21.20	23.21	154.93	641.13	-733.22	1,305.78	1,275.04	44.15	31.811				
7,000.00	6,982.80	6,939.65	6,902.00	21.46	23.57	155.18	651.05	-743.22	1,320.70	1,290.00	44.84	31.742				
7,100.00	7,082.80	7,039.65	7,002.00	21.72	23.93	155.43	660.97	-753.22	1,335.62	1,304.92	45.53	31.673				
7,200.00	7,182.80	7,139.65	7,102.00	21.98	24.29	155.68	670.89	-763.22	1,350.54	1,319.84	46.22	31.604				
7,300.00	7,282.80	7,239.65	7,202.00	22.24	24.65	155.93	680.81	-773.22	1,365.46	1,3						



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #07H-0615
Project:	Weld County, CO	TVD Reference:	KBE @ 4933.00usft
Reference Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4933.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 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	5,182.80	6,396.65	5,737.00	16.74	19.21	-90.37	-398.65	-532.82	787.67	762.90	24.77	31.801		
5,300.00	5,282.62	6,392.38	5,737.00	16.96	19.19	-96.29	-394.37	-532.85	720.96	693.77	27.19	26.520		
5,400.00	5,379.97	6,370.18	5,737.00	17.14	19.08	-101.69	-372.18	-533.00	664.05	634.45	29.59	22.438		
5,500.00	5,471.29	6,329.82	5,737.00	17.28	18.90	-103.39	-331.82	-533.26	619.98	588.25	31.73	19.540		
5,600.00	5,553.24	6,272.78	5,737.00	17.41	18.67	-102.25	-274.78	-533.63	589.88	556.52	33.36	17.682		
5,700.00	5,622.81	6,201.16	5,737.00	17.54	18.43	-99.26	-203.16	-534.10	572.50	538.12	34.39	16.649		
5,800.00	5,677.43	6,117.58	5,737.00	17.70	18.25	-95.54	-119.58	-534.64	564.69	529.76	34.93	16.166		
5,900.00	5,715.10	6,023.22	5,734.78	17.90	18.14	-91.97	-25.30	-535.26	562.49	527.29	35.20	15.979		
5,927.29	5,722.24	5,997.17	5,731.73	17.97	18.13	-90.99	0.57	-535.43	562.40	527.13	35.27	15.946		
6,000.00	5,734.45	5,930.02	5,717.95	18.17	18.10	-88.41	66.24	-535.85	563.05	527.63	35.41	15.899		
6,100.00	5,737.00	5,843.07	5,687.79	18.49	18.08	-85.01	147.69	-536.39	566.05	530.44	35.62	15.894 SF		
6,200.00	5,737.00	5,767.25	5,650.74	18.92	18.06	-81.30	213.77	-536.82	573.48	537.66	35.82	16.011		
6,300.00	5,737.00	5,700.00	5,610.17	19.43	18.04	-77.33	267.34	-537.17	587.97	552.02	35.95	16.354		
6,400.00	5,737.00	5,650.00	5,575.71	20.02	18.01	-74.05	303.54	-537.40	611.26	575.17	36.09	16.936		
6,500.00	5,737.00	5,600.00	5,537.94	20.68	17.98	-70.58	336.27	-537.62	644.21	608.09	36.12	17.837		
6,600.00	5,737.00	5,571.22	5,514.83	21.41	17.95	-68.52	353.42	-537.73	686.43	650.14	36.29	18.913		
6,700.00	5,737.00	5,550.00	5,497.20	22.21	17.94	-66.99	365.23	-537.80	737.43	700.94	36.50	20.206		
6,800.00	5,737.00	5,515.69	5,467.73	23.05	17.90	-64.51	382.79	-537.92	795.75	759.26	36.48	21.812		
6,900.00	5,737.00	5,500.00	5,453.88	23.95	17.89	-63.38	390.16	-537.97	860.56	823.93	36.63	23.491		
7,000.00	5,737.00	5,475.60	5,431.92	24.88	17.86	-61.63	400.79	-538.04	930.58	893.94	36.65	25.392		
7,100.00	5,737.00	5,450.00	5,408.37	25.86	17.83	-59.82	410.82	-538.10	1,005.13	968.50	36.63	27.441		
7,200.00	5,737.00	5,450.00	5,408.37	26.87	17.83	-59.82	410.82	-538.10	1,083.05	1,046.23	36.82	29.412		
7,300.00	5,737.00	5,433.36	5,392.81	27.91	17.80	-58.65	416.72	-538.14	1,164.01	1,127.16	36.84	31.595		
7,400.00	5,737.00	5,422.51	5,382.57	28.98	17.79	-57.90	420.29	-538.16	1,247.43	1,210.54	36.89	33.812		
7,500.00	5,737.00	5,400.00	5,361.09	30.08	17.76	-56.37	427.03	-538.21	1,333.10	1,296.24	36.85	36.175		
7,600.00	5,737.00	5,400.00	5,361.09	31.19	17.76	-56.37	427.03	-538.21	1,420.08	1,383.12	36.96	38.425		
7,700.00	5,737.00	5,400.00	5,361.09	32.33	17.76	-56.37	427.03	-538.21	1,508.67	1,471.63	37.05	40.725		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #07H-0615
Project:	Weld County, CO	TVD Reference:	KBE @ 4933.00usft
Reference Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4933.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 sigma
Reference Wellbore	Hz	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Sec 7-T10N-R57W - Horsetail #07H-1814 - Hz - Design #1		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			
0.00	0.00	0.00	0.00	0.00	0.00	-48.54	51.60	-58.40	77.93							
100.00	100.00	100.00	100.00	0.12	0.12	-48.54	51.60	-58.40	77.93	77.68	0.25	314.620				
200.00	200.00	200.00	200.00	0.44	0.44	-48.54	51.60	-58.40	77.93	77.06	0.87	89.086				
300.00	300.00	300.00	300.00	0.75	0.75	-48.54	51.60	-58.40	77.93	76.43	1.50	51.889	CC, ES			
400.00	399.98	397.53	397.51	1.03	1.06	136.71	53.15	-59.00	80.71	78.57	2.14	37.731				
500.00	499.84	494.38	494.23	1.31	1.37	140.23	57.74	-60.79	89.28	86.45	2.83	31.514				
600.00	599.49	590.79	590.30	1.61	1.69	144.73	65.25	-63.70	103.74	100.21	3.53	29.392				
700.00	699.10	689.19	688.27	1.90	2.00	148.51	73.76	-67.01	120.03	115.94	4.09	29.345				
800.00	798.70	787.58	786.24	2.22	2.31	151.37	82.28	-70.32	136.71	132.04	4.67	29.305				
900.00	898.31	885.98	884.22	2.55	2.62	153.61	90.79	-73.62	153.65	148.40	5.25	29.279				
1,000.00	997.92	984.37	982.19	2.88	2.94	155.41	99.31	-76.93	170.78	164.94	5.84	29.247				
1,100.00	1,097.53	1,082.77	1,080.16	3.21	3.26	156.88	107.82	-80.24	188.03	181.60	6.43	29.223				
1,200.00	1,197.14	1,181.17	1,178.13	3.54	3.58	158.10	116.34	-83.54	205.39	198.36	7.04	29.191				
1,300.00	1,296.75	1,279.56	1,276.10	3.88	3.90	159.13	124.85	-86.85	222.83	215.19	7.64	29.163				
1,400.00	1,396.36	1,377.96	1,374.07	4.22	4.22	160.01	133.36	-90.15	240.32	232.07	8.25	29.136				
1,500.00	1,495.97	1,476.35	1,472.04	4.55	4.55	160.77	141.88	-93.46	257.86	249.01	8.86	29.110				
1,600.00	1,595.57	1,574.75	1,570.01	4.89	4.87	161.43	150.39	-96.77	275.44	265.97	9.47	29.086				
1,700.00	1,695.18	1,673.14	1,667.98	5.23	5.19	162.02	158.91	-100.07	293.06	282.97	10.08	29.064				
1,800.00	1,794.79	1,771.54	1,765.95	5.57	5.52	162.54	167.42	-103.38	310.69	300.00	10.70	29.043				
1,900.00	1,894.40	1,869.93	1,863.92	5.91	5.84	163.00	175.94	-106.69	328.35	317.04	11.31	29.024				
2,000.00	1,994.01	1,968.33	1,961.89	6.25	6.16	163.42	184.45	-109.99	346.03	334.10	11.93	29.006				
2,100.00	2,093.62	2,066.72	2,059.86	6.59	6.49	163.79	192.97	-113.30	363.73	351.18	12.55	28.989				
2,200.00	2,193.23	2,165.12	2,157.83	6.93	6.81	164.13	201.48	-116.61	381.44	368.27	13.17	28.973				
2,300.00	2,292.84	2,263.52	2,255.80	7.27	7.13	164.44	210.00	-119.91	399.16	385.37	13.78	28.959				
2,400.00	2,392.44	2,361.91	2,353.77	7.61	7.46	164.72	218.51	-123.22	416.89	402.49	14.40	28.945				
2,500.00	2,492.05	2,460.31	2,451.74	7.95	7.78	164.98	227.02	-126.52	434.63	419.61	15.02	28.932				
2,600.00	2,591.66	2,558.70	2,549.72	8.30	8.11	165.22	235.54	-129.83	452.38	436.73	15.64	28.920				
2,700.00	2,691.27	2,657.10	2,647.69	8.64	8.43	165.45	244.05	-133.14	470.13	453.87	16.26	28.908				
2,800.00	2,790.88	2,755.49	2,745.66	8.98	8.75	165.65	252.57	-136.44	487.89	471.01	16.88	28.897				
2,900.00	2,890.49	2,853.89	2,843.63	9.32	9.08	165.84	261.08	-139.75	505.66	488.16	17.50	28.887				
3,000.00	2,990.10	2,952.28	2,941.60	9.66	9.40	166.02	269.60	-143.06	523.43	505.31	18.13	28.878				
3,100.00	3,089.71	3,050.68	3,039.57	10.00	9.72	166.19	278.11	-146.36	541.21	522.46	18.75	28.869				
3,200.00	3,189.31	3,149.07	3,137.54	10.34	10.05	166.35	286.63	-149.67	558.99	539.62	19.37	28.860				
3,300.00	3,288.92	3,247.47	3,235.51	10.69	10.37	166.49	295.14	-152.98	576.77	556.78	19.99	28.852				
3,400.00	3,388.53	3,345.87	3,333.48	11.03	10.70	166.63	303.66	-156.28	594.56	573.95	20.61	28.844				
3,500.00	3,488.14	3,444.26	3,431.45	11.37	11.02	166.76	312.17	-159.59	612.35	591.12	21.24	28.837				
3,600.00	3,587.75	3,542.66	3,529.42	11.71	11.34	166.88	320.68	-162.89	630.15	608.29	21.86	28.830				
3,700.00	3,687.36	3,641.05	3,627.39	12.05	11.67	167.00	329.20	-166.20	647.94	625.46	22.48	28.823				
3,800.00	3,786.97	3,739.45	3,725.36	12.40	11.99	167.11	337.71	-169.51	665.74	642.64	23.10	28.816				
3,900.00	3,886.57	3,837.84	3,823.33	12.74	12.32	167.21	346.23	-172.81	683.54	659.82	23.73	28.810				
4,000.00	3,986.18	3,936.24	3,921.30	13.08	12.64	167.31	354.74	-176.12	701.35	677.00	24.35	28.805				
4,100.00	4,085.79	4,034.63	4,019.27	13.42	12.97	167.40	363.26	-179.43	719.15	694.18	24.97	28.799				
4,200.00	4,185.40	4,133.03	4,117.24	13.76	13.29	167.49	371.77	-182.73	736.96	711.37	25.59	28.793				
4,300.00	4,285.01	4,231.42	4,215.22	14.11	13.61	167.58	380.29	-186.04	754.77	728.55	26.22	28.788				
4,400.00	4,384.62	4,329.82	4,313.19	14.45	13.94	167.66	388.80	-189.35	772.58	745.74	26.84	28.783				
4,500.00	4,484.23	4,428.22	4,411.16	14.79	14.26	167.73	397.31	-192.65	790.39	762.93	27.46	28.779				
4,600.00	4,583.84	4,526.61	4,509.13	15.13	14.59	167.81	405.83	-195.96	808.20	780.12	28.09	28.774				
4,700.00	4,683.44	4,625.01	4,607.10	15.47	14.91	167.88	414.34	-199.26	826.02	797.31	28.71	28.769				
4,800.00	4,783.06	4,723.41	4,705.08	15.80	15.23	167.96	422.86	-202.57	843.77	814.44	29.33	28.770				
4,900.00	4,882.85	4,822.21	4,803.45	16.03	15.56	168.06	431.41	-205.89	859.21	829.34	29.88	28.758				
5,000.00	4,982.80	4,921.56	4,902.00	16.26	15.90	95.91	-396.28	-206.09	869.97	858.25	11.72	74.204				
5,100.00	5,082.80	5,021.56	5,002.00	16.52	16.01	-90.36	-396.47	-206.09	774.09	761.43	12.66	61.121				



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #07H-0615
Project:	Weld County, CO	TVD Reference:	KBE @ 4933.00usft
Reference Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4933.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 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	5,182.80	6,458.75	5,821.00	16.74	18.91	-90.36	-396.47	-206.09	679.40	665.49	13.91	48.851		
5,300.00	5,282.62	6,454.47	5,821.00	16.96	18.88	-106.79	-392.19	-206.12	586.64	571.07	15.57	37.678		
5,400.00	5,379.97	6,432.27	5,821.00	17.14	18.77	-121.02	-370.00	-206.26	498.87	481.16	17.71	28.169		
5,500.00	5,471.29	6,391.92	5,821.00	17.28	18.57	-126.49	-329.64	-206.51	420.44	400.01	20.43	20.579		
5,600.00	5,553.24	6,334.88	5,821.00	17.41	18.33	-126.73	-272.60	-206.87	355.44	331.74	23.70	14.996		
5,700.00	5,622.81	6,263.25	5,821.00	17.54	18.06	-123.61	-200.98	-207.32	306.82	279.66	27.16	11.296		
5,800.00	5,677.43	6,179.67	5,821.00	17.70	17.80	-118.57	-117.40	-207.85	275.17	245.00	30.17	9.120		
5,900.00	5,715.10	6,074.65	5,817.19	17.90	17.63	-111.91	-12.53	-208.51	256.82	224.39	32.43	7.919		
6,000.00	5,734.45	5,966.17	5,793.03	18.17	17.60	-103.45	93.02	-209.18	243.93	209.50	34.43	7.085		
6,100.00	5,737.00	5,868.44	5,752.98	18.49	17.55	-93.86	182.00	-209.74	237.29	201.60	35.68	6.650		
6,130.22	5,737.00	5,842.02	5,739.34	18.62	17.54	-90.57	204.64	-209.88	236.78	200.88	35.90	6.595 SF		
6,200.00	5,737.00	5,787.06	5,707.42	18.92	17.50	-82.89	249.34	-210.16	240.20	204.25	35.95	6.681		
6,300.00	5,737.00	5,721.81	5,663.66	19.43	17.45	-72.83	297.68	-210.47	260.01	224.85	35.16	7.395		
6,400.00	5,737.00	5,669.86	5,624.72	20.02	17.41	-64.70	332.03	-210.69	298.87	264.79	34.07	8.771		
6,500.00	5,737.00	5,628.28	5,591.21	20.68	17.37	-58.48	356.62	-210.84	353.85	320.50	33.34	10.613		
6,600.00	5,737.00	5,600.00	5,567.34	21.41	17.35	-54.50	371.78	-210.94	420.63	387.45	33.19	12.675		
6,700.00	5,737.00	5,567.11	5,538.59	22.21	17.31	-50.18	387.76	-211.04	495.46	462.48	32.98	15.024		
6,800.00	5,737.00	5,550.00	5,523.26	23.05	17.30	-48.07	395.34	-211.09	576.05	542.87	33.18	17.362		
6,900.00	5,737.00	5,525.05	5,500.47	23.95	17.27	-45.18	405.49	-211.15	660.52	627.33	33.19	19.903		
7,000.00	5,737.00	5,500.00	5,477.12	24.88	17.24	-42.50	414.57	-211.21	748.08	714.88	33.20	22.535		
7,100.00	5,737.00	5,500.00	5,477.12	25.86	17.24	-42.50	414.57	-211.21	837.61	804.07	33.54	24.973		
7,200.00	5,737.00	5,482.57	5,460.64	26.87	17.21	-40.75	420.22	-211.24	928.84	895.23	33.60	27.640		
7,300.00	5,737.00	5,471.95	5,450.50	27.91	17.20	-39.73	423.39	-211.26	1,021.40	987.67	33.73	30.284		
7,400.00	5,737.00	5,450.00	5,429.36	28.98	17.16	-37.75	429.29	-211.30	1,115.20	1,081.47	33.73	33.065		
7,500.00	5,737.00	5,450.00	5,429.36	30.08	17.16	-37.75	429.29	-211.30	1,209.42	1,175.51	33.91	35.666		
7,600.00	5,737.00	5,450.00	5,429.36	31.19	17.16	-37.75	429.29	-211.30	1,304.50	1,270.44	34.06	38.298		
7,700.00	5,737.00	5,450.00	5,429.36	32.33	17.16	-37.75	429.29	-211.30	1,400.27	1,366.08	34.19	40.953		
7,800.00	5,737.00	5,450.00	5,429.36	33.48	17.16	-37.75	429.29	-211.30	1,496.59	1,462.28	34.31	43.623		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #07H-0615
Project:	Weld County, CO	TVD Reference:	KBE @ 4933.00usft
Reference Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4933.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 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	1.74	50.59	1.54	50.61					
100.00	100.00	100.00	100.00	0.12	0.12	1.74	50.59	1.54	50.61	50.36	0.25	204.321		
200.00	200.00	200.00	200.00	0.44	0.44	1.74	50.59	1.54	50.61	49.74	0.87	57.854		
300.00	300.00	300.00	300.00	0.75	0.75	1.74	50.59	1.54	50.61	49.11	1.50	33.698 CC		
400.00	399.98	398.19	398.17	1.03	1.06	-174.15	52.22	1.95	54.02	51.87	2.16	25.058		
500.00	499.84	495.70	495.54	1.31	1.38	-173.65	57.07	3.17	64.23	61.36	2.87	22.364		
600.00	599.49	592.80	592.30	1.61	1.70	-173.10	64.91	5.14	80.62	77.06	3.56	22.674		
700.00	699.10	691.23	690.33	1.90	2.00	-172.70	73.58	7.31	98.24	94.13	4.10	23.953		
800.00	798.70	789.66	788.36	2.22	2.31	-172.41	82.25	9.49	115.86	111.19	4.67	24.829		
900.00	898.31	888.10	886.39	2.55	2.62	-172.21	90.92	11.67	133.48	128.23	5.24	25.451		
1,000.00	997.92	986.53	984.41	2.88	2.93	-172.05	99.59	13.85	151.10	145.27	5.83	25.907		
1,100.00	1,097.53	1,084.97	1,082.44	3.21	3.25	-171.92	108.26	16.03	168.73	162.30	6.43	26.255		
1,200.00	1,197.14	1,183.40	1,180.47	3.54	3.57	-171.82	116.92	18.21	186.35	179.33	7.03	26.522		
1,300.00	1,296.75	1,281.83	1,278.50	3.88	3.89	-171.73	125.59	20.38	203.98	196.35	7.63	26.733		
1,400.00	1,396.36	1,380.27	1,376.52	4.22	4.21	-171.66	134.26	22.56	221.61	213.37	8.24	26.904		
1,500.00	1,495.97	1,478.70	1,474.55	4.55	4.53	-171.60	142.93	24.74	239.23	230.39	8.85	27.044		
1,600.00	1,595.57	1,577.14	1,572.58	4.89	4.85	-171.55	151.60	26.92	256.86	247.40	9.46	27.160		
1,700.00	1,695.18	1,675.57	1,670.60	5.23	5.17	-171.50	160.27	29.10	274.49	264.42	10.07	27.258		
1,800.00	1,794.79	1,774.00	1,768.63	5.57	5.49	-171.46	168.94	31.27	292.11	281.43	10.68	27.342		
1,900.00	1,894.40	1,872.44	1,866.66	5.91	5.81	-171.43	177.61	33.45	309.74	298.44	11.30	27.413		
2,000.00	1,994.01	1,970.87	1,964.69	6.25	6.14	-171.40	186.28	35.63	327.37	315.45	11.91	27.475		
2,100.00	2,093.62	2,069.31	2,062.71	6.59	6.46	-171.37	194.94	37.81	345.00	332.46	12.53	27.530		
2,200.00	2,193.23	2,167.74	2,160.74	6.93	6.78	-171.34	203.61	39.99	362.62	349.47	13.15	27.578		
2,300.00	2,292.84	2,266.17	2,258.77	7.27	7.10	-171.32	212.28	42.17	380.25	366.48	13.77	27.620		
2,400.00	2,392.44	2,364.61	2,356.80	7.61	7.42	-171.30	220.95	44.34	397.88	383.49	14.39	27.658		
2,500.00	2,492.05	2,463.04	2,454.82	7.95	7.74	-171.28	229.62	46.52	415.51	400.50	15.00	27.692		
2,600.00	2,591.66	2,561.48	2,552.85	8.30	8.06	-171.26	238.29	48.70	433.14	417.51	15.62	27.722		
2,700.00	2,691.27	2,659.91	2,650.88	8.64	8.39	-171.25	246.96	50.88	450.76	434.52	16.24	27.750		
2,800.00	2,790.88	2,758.34	2,748.90	8.98	8.71	-171.23	255.63	53.06	468.39	451.53	16.86	27.775		
2,900.00	2,890.49	2,856.78	2,846.93	9.32	9.03	-171.22	264.30	55.24	486.02	468.53	17.48	27.797		
3,000.00	2,990.10	2,955.21	2,944.96	9.66	9.35	-171.20	272.96	57.41	503.65	485.54	18.10	27.818		
3,100.00	3,089.71	3,053.65	3,042.99	10.00	9.67	-171.19	281.63	59.59	521.27	502.55	18.73	27.838		
3,200.00	3,189.31	3,152.08	3,141.01	10.34	9.99	-171.18	290.30	61.77	538.90	519.56	19.35	27.855		
3,300.00	3,288.92	3,250.51	3,239.04	10.69	10.32	-171.17	298.97	63.95	556.53	536.56	19.97	27.871		
3,400.00	3,388.53	3,348.95	3,337.07	11.03	10.64	-171.16	307.64	66.13	574.16	553.57	20.59	27.887		
3,500.00	3,488.14	3,447.38	3,435.10	11.37	10.96	-171.15	316.31	68.30	591.79	570.58	21.21	27.901		
3,600.00	3,587.75	3,545.82	3,533.12	11.71	11.28	-171.14	324.98	70.48	609.41	587.58	21.83	27.914		
3,700.00	3,687.36	3,644.25	3,631.15	12.05	11.60	-171.13	333.65	72.66	627.04	604.59	22.45	27.926		
3,800.00	3,786.97	3,742.68	3,729.18	12.40	11.93	-171.12	342.32	74.84	644.67	621.60	23.08	27.937		
3,900.00	3,886.57	3,841.12	3,827.21	12.74	12.25	-171.12	350.98	77.02	662.30	638.60	23.70	27.948		
4,000.00	3,986.18	3,939.55	3,925.23	13.08	12.57	-171.11	359.65	79.20	679.93	655.61	24.32	27.957		
4,100.00	4,085.79	4,037.99	4,023.26	13.42	12.89	-171.10	368.32	81.37	697.56	672.61	24.94	27.967		
4,200.00	4,185.40	4,136.42	4,121.29	13.76	13.21	-171.10	376.99	83.55	715.18	689.62	25.56	27.976		
4,300.00	4,285.01	4,234.85	4,219.31	14.11	13.54	-171.09	385.66	85.73	732.81	706.62	26.19	27.984		
4,400.00	4,384.62	4,333.29	4,317.34	14.45	13.86	-171.08	394.33	87.91	750.44	723.63	26.81	27.992		
4,500.00	4,484.23	4,431.72	4,415.37	14.79	14.18	-171.08	403.00	90.09	768.07	740.64	27.43	27.999		
4,600.00	4,583.84	4,530.16	4,513.40	15.13	14.50	-171.07	411.67	92.26	785.70	757.64	28.05	28.006		
4,700.00	4,683.44	4,628.59	4,611.42	15.47	14.82	-171.07	420.34	94.44	803.32	774.65	28.68	28.012		
4,800.00	4,783.06	4,727.04	4,709.46	15.80	15.15	-171.07	429.01	96.62	820.88	791.59	29.29	28.023		
4,900.00	4,882.85	4,846.99	4,829.00	16.03	15.50	-171.09	438.66	99.05	835.46	805.54	29.92	27.925		
5,000.00	4,982.80	6,370.30	5,737.00	16.26	18.67	-92.80	-394.18	107.09	758.45	750.10	8.36	90.777		
5,100.00	5,082.80	6,370.50	5,737.00	16.52	18.67	89.55	-394.37	107.09	659.10	650.50	8.60	76.655		

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 #07H-0615
Project:	Weld County, CO	TVD Reference:	KBE @ 4933.00usft
Reference Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4933.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 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	5,182.80	6,370.50	5,737.00	16.74	18.67	89.55	-394.37	107.09	559.97	551.00	8.98	62.390		
5,300.00	5,282.62	6,366.22	5,737.00	16.96	18.65	125.64	-390.10	107.06	461.40	451.84	9.56	48.255		
5,400.00	5,379.97	6,344.02	5,737.00	17.14	18.54	144.41	-367.90	106.88	365.89	355.45	10.44	35.051		
5,500.00	5,471.29	6,303.66	5,737.00	17.28	18.34	148.43	-327.54	106.57	277.40	265.40	12.00	23.123		
5,600.00	5,553.24	6,246.62	5,737.00	17.41	18.10	146.23	-270.51	106.12	200.11	185.14	14.97	13.368		
5,700.00	5,622.81	6,175.00	5,737.00	17.54	17.82	138.45	-198.88	105.56	138.67	118.37	20.31	6.829		
5,800.00	5,677.43	6,091.42	5,737.00	17.70	17.57	123.92	-115.31	104.91	98.17	70.26	27.91	3.517		
5,900.00	5,715.10	5,996.82	5,734.03	17.90	17.38	102.67	-20.82	104.17	79.61	45.49	34.12	2.333		
5,953.48	5,727.79	5,946.62	5,726.28	18.04	17.31	88.85	28.76	103.79	76.91	41.64	35.27	2.180 ES, SF		
6,000.00	5,734.45	5,904.39	5,716.09	18.17	17.26	76.91	69.73	103.47	78.89	44.40	34.49	2.287		
6,100.00	5,737.00	5,818.27	5,685.22	18.49	17.19	55.72	150.02	102.84	95.10	65.01	30.09	3.161		
6,200.00	5,737.00	5,743.35	5,647.93	18.92	17.12	40.27	214.93	102.33	131.01	104.70	26.31	4.979		
6,300.00	5,737.00	5,680.54	5,609.76	19.43	17.07	30.53	264.76	101.94	183.98	158.40	25.58	7.193		
6,400.00	5,737.00	5,628.55	5,573.81	20.02	17.03	24.61	302.29	101.65	248.69	222.31	26.38	9.428		
6,500.00	5,737.00	5,585.60	5,541.42	20.68	17.00	20.86	330.46	101.43	321.44	293.94	27.50	11.688		
6,600.00	5,737.00	5,550.00	5,512.88	21.41	16.98	18.36	351.73	101.26	399.86	371.32	28.54	14.009		
6,700.00	5,737.00	5,520.23	5,487.94	22.21	16.95	16.60	367.99	101.14	482.42	453.01	29.41	16.401		
6,800.00	5,737.00	5,500.00	5,470.49	23.05	16.94	15.55	378.21	101.06	568.11	537.86	30.26	18.776		
6,900.00	5,737.00	5,473.82	5,447.33	23.95	16.91	14.34	390.42	100.96	656.09	625.39	30.70	21.372		
7,000.00	5,737.00	5,450.00	5,425.75	24.88	16.89	13.37	400.50	100.88	746.00	714.93	31.06	24.014		
7,100.00	5,737.00	5,450.00	5,425.75	25.86	16.89	13.37	400.50	100.88	837.43	805.72	31.72	26.404		
7,200.00	5,737.00	5,425.84	5,403.42	26.87	16.87	12.49	409.71	100.81	929.76	897.88	31.88	29.165		
7,300.00	5,737.00	5,400.00	5,379.09	27.91	16.84	11.66	418.40	100.74	1,023.48	991.49	31.99	31.991		
7,400.00	5,737.00	5,400.00	5,379.09	28.98	16.84	11.66	418.40	100.74	1,117.46	1,085.10	32.36	34.532		
7,500.00	5,737.00	5,400.00	5,379.09	30.08	16.84	11.66	418.40	100.74	1,212.40	1,179.75	32.66	37.127		
7,600.00	5,737.00	5,400.00	5,379.09	31.19	16.84	11.66	418.40	100.74	1,308.10	1,275.20	32.90	39.762		
7,700.00	5,737.00	5,377.04	5,357.13	32.33	16.80	10.99	425.11	100.69	1,403.70	1,370.76	32.94	42.615		
7,800.00	5,737.00	5,370.06	5,350.40	33.48	16.79	10.81	426.96	100.67	1,500.02	1,466.93	33.09	45.337		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #07H-0615
Project:	Weld County, CO	TVD Reference:	KBE @ 4933.00usft
Reference Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4933.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 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	51.70	48.58	61.51	78.38					
100.00	100.00	100.00	100.00	0.12	0.12	51.70	48.58	61.51	78.38	78.13	0.25	316.414		
200.00	200.00	200.00	200.00	0.44	0.44	51.70	48.58	61.51	78.38	77.50	0.87	89.594		
300.00	300.00	300.00	300.00	0.75	0.75	51.70	48.58	61.51	78.38	76.88	1.50	52.185 CC, ES		
400.00	399.98	397.30	397.28	1.03	1.05	-125.60	49.85	62.56	81.04	78.90	2.14	37.788		
500.00	499.84	494.00	493.85	1.31	1.37	-128.73	53.64	65.68	89.23	86.38	2.84	31.366		
600.00	599.49	589.60	589.10	1.61	1.68	-132.74	59.86	70.81	103.07	99.48	3.58	28.765		
700.00	699.10	686.54	685.45	1.90	1.99	-136.11	68.17	77.67	120.33	116.14	4.19	28.716		
800.00	798.70	784.78	783.05	2.22	2.30	-138.66	76.77	84.76	138.14	133.40	4.75	29.109		
900.00	898.31	883.02	880.66	2.55	2.62	-140.63	85.36	91.85	156.16	150.84	5.32	29.362		
1,000.00	997.92	981.25	978.26	2.88	2.94	-142.19	93.96	98.94	174.32	168.42	5.90	29.537		
1,100.00	1,097.53	1,079.49	1,075.86	3.21	3.27	-143.45	102.55	106.03	192.58	186.09	6.49	29.667		
1,200.00	1,197.14	1,177.73	1,173.47	3.54	3.60	-144.50	111.15	113.12	210.92	203.83	7.09	29.741		
1,300.00	1,296.75	1,275.97	1,271.07	3.88	3.93	-145.38	119.74	120.21	229.31	221.62	7.70	29.796		
1,400.00	1,396.36	1,374.21	1,368.67	4.22	4.26	-146.13	128.34	127.30	247.75	239.45	8.30	29.835		
1,500.00	1,495.97	1,472.44	1,466.28	4.55	4.59	-146.77	136.93	134.39	266.23	257.31	8.92	29.861		
1,600.00	1,595.57	1,570.68	1,563.88	4.89	4.92	-147.33	145.53	141.48	284.73	275.20	9.53	29.878		
1,700.00	1,695.18	1,668.92	1,661.49	5.23	5.25	-147.82	154.12	148.57	303.25	293.11	10.15	29.889		
1,800.00	1,794.79	1,767.16	1,759.09	5.57	5.58	-148.26	162.72	155.66	321.80	311.03	10.76	29.896		
1,900.00	1,894.40	1,865.40	1,856.69	5.91	5.92	-148.65	171.31	162.75	340.36	328.97	11.38	29.899		
2,000.00	1,994.01	1,963.63	1,954.30	6.25	6.25	-149.00	179.91	169.84	358.93	346.93	12.00	29.901		
2,100.00	2,093.62	2,061.87	2,051.90	6.59	6.58	-149.31	188.51	176.93	377.52	364.89	12.63	29.900		
2,200.00	2,193.23	2,160.11	2,149.51	6.93	6.91	-149.59	197.10	184.02	396.11	382.86	13.25	29.898		
2,300.00	2,292.84	2,258.35	2,247.11	7.27	7.24	-149.85	205.70	191.11	414.71	400.84	13.87	29.895		
2,400.00	2,392.44	2,356.58	2,344.71	7.61	7.58	-150.09	214.29	198.20	433.33	418.83	14.50	29.892		
2,500.00	2,492.05	2,454.82	2,442.32	7.95	7.91	-150.31	222.89	205.29	451.94	436.82	15.12	29.888		
2,600.00	2,591.66	2,553.06	2,539.92	8.30	8.24	-150.51	231.48	212.38	470.57	454.82	15.75	29.884		
2,700.00	2,691.27	2,651.30	2,637.52	8.64	8.57	-150.69	240.08	219.47	489.20	472.82	16.37	29.879		
2,800.00	2,790.88	2,749.54	2,735.13	8.98	8.91	-150.86	248.67	226.56	507.83	490.83	17.00	29.874		
2,900.00	2,890.49	2,847.77	2,832.73	9.32	9.24	-151.02	257.27	233.65	526.47	508.84	17.63	29.870		
3,000.00	2,990.10	2,946.01	2,930.34	9.66	9.57	-151.17	265.86	240.74	545.11	526.85	18.25	29.865		
3,100.00	3,089.71	3,044.25	3,027.94	10.00	9.91	-151.31	274.46	247.83	563.75	544.87	18.88	29.860		
3,200.00	3,189.31	3,142.49	3,125.54	10.34	10.24	-151.44	283.05	254.92	582.40	562.89	19.51	29.856		
3,300.00	3,288.92	3,240.72	3,223.15	10.69	10.57	-151.56	291.65	262.01	601.05	580.91	20.13	29.851		
3,400.00	3,388.53	3,338.96	3,320.75	11.03	10.91	-151.68	300.25	269.10	619.70	598.94	20.76	29.846		
3,500.00	3,488.14	3,437.20	3,418.36	11.37	11.24	-151.78	308.84	276.19	638.35	616.96	21.39	29.842		
3,600.00	3,587.75	3,535.44	3,515.96	11.71	11.57	-151.88	317.44	283.28	657.01	634.99	22.02	29.837		
3,700.00	3,687.36	3,633.68	3,613.56	12.05	11.90	-151.98	326.03	290.37	675.67	653.02	22.65	29.833		
3,800.00	3,786.97	3,731.91	3,711.17	12.40	12.24	-152.07	334.63	297.46	694.33	671.05	23.28	29.829		
3,900.00	3,886.57	3,830.15	3,808.77	12.74	12.57	-152.16	343.22	304.55	712.99	689.09	23.91	29.825		
4,000.00	3,986.18	3,928.39	3,906.37	13.08	12.90	-152.24	351.82	311.64	731.66	707.12	24.54	29.821		
4,100.00	4,085.79	4,026.63	4,003.98	13.42	13.24	-152.32	360.41	318.73	750.32	725.16	25.16	29.817		
4,200.00	4,185.40	4,124.86	4,101.58	13.76	13.57	-152.39	369.01	325.82	768.99	743.19	25.79	29.813		
4,300.00	4,285.01	4,223.10	4,199.19	14.11	13.90	-152.46	377.60	332.91	787.65	761.23	26.42	29.809		
4,400.00	4,384.62	4,321.34	4,296.79	14.45	14.24	-152.53	386.20	340.00	806.32	779.27	27.05	29.806		
4,500.00	4,484.23	4,419.58	4,394.39	14.79	14.57	-152.59	394.80	347.09	824.99	797.31	27.68	29.802		
4,600.00	4,583.84	4,517.82	4,492.00	15.13	14.90	-152.65	403.39	354.18	843.66	815.35	28.31	29.799		
4,700.00	4,683.44	4,616.05	4,589.60	15.47	15.24	-152.71	411.99	361.27	862.33	833.39	28.94	29.795		
4,800.00	4,783.06	4,714.30	4,687.22	15.80	15.57	-152.80	420.58	368.36	880.94	851.38	29.56	29.798		
4,900.00	4,882.85	4,817.30	4,789.56	16.03	15.91	-152.93	429.57	375.77	897.44	867.30	30.14	29.778		
5,000.00	4,982.80	4,959.83	4,931.57	16.26	16.31	-152.93	438.76	383.35	908.04	877.20	30.84	29.446		
5,100.00	5,082.80	5,058.74	5,021.00	16.52	16.27	89.28	-390.36	396.96	825.78	809.49	16.28	50.718		

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 #07H-0615
Project:	Weld County, CO	TVD Reference:	KBE @ 4933.00usft
Reference Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4933.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 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	5,182.80	6,458.74	5,821.00	16.74	19.27	89.28	-390.36	396.96	737.75	719.68	18.07	40.832		
5,300.00	5,282.62	6,454.47	5,821.00	16.96	19.25	99.85	-386.08	396.90	653.29	633.01	20.27	32.223		
5,400.00	5,379.97	6,432.27	5,821.00	17.14	19.14	109.98	-363.89	396.62	575.53	552.70	22.83	25.208		
5,500.00	5,471.29	6,391.92	5,821.00	17.28	18.95	114.38	-323.53	396.12	508.57	482.94	25.63	19.842		
5,600.00	5,553.24	6,334.88	5,821.00	17.41	18.71	114.74	-266.50	395.40	455.54	427.10	28.44	16.019		
5,700.00	5,622.81	6,263.26	5,821.00	17.54	18.45	112.45	-194.89	394.50	417.66	386.79	30.88	13.527		
5,800.00	5,677.43	6,179.69	5,821.00	17.70	18.22	108.83	-111.32	393.45	393.71	361.03	32.67	12.050		
5,900.00	5,715.10	6,072.55	5,815.73	17.90	18.04	103.98	-4.44	392.11	379.31	345.37	33.94	11.176		
6,000.00	5,734.45	5,965.58	5,789.82	18.17	17.96	98.23	99.14	390.81	368.94	333.90	35.04	10.530		
6,100.00	5,737.00	5,869.44	5,748.93	18.49	17.91	91.88	185.99	389.72	363.22	327.43	35.79	10.149		
6,140.87	5,737.00	5,834.74	5,730.34	18.67	17.89	88.95	215.28	389.36	362.53	326.51	36.02	10.064		
6,200.00	5,737.00	5,789.61	5,703.31	18.92	17.87	84.68	251.41	388.90	364.31	328.10	36.21	10.062 SF		
6,300.00	5,737.00	5,725.69	5,659.93	19.43	17.83	77.96	298.28	388.32	377.32	341.11	36.20	10.422		
6,400.00	5,737.00	5,674.80	5,621.47	20.02	17.79	72.25	331.59	387.90	405.06	369.13	35.94	11.271		
6,500.00	5,737.00	5,634.03	5,588.44	20.68	17.75	67.62	355.46	387.60	447.35	411.73	35.62	12.559		
6,600.00	5,737.00	5,600.00	5,559.50	21.41	17.72	63.79	373.36	387.37	502.09	466.73	35.36	14.200		
6,700.00	5,737.00	5,573.96	5,536.60	22.21	17.69	60.92	385.76	387.22	566.61	531.38	35.24	16.080		
6,800.00	5,737.00	5,550.00	5,515.02	23.05	17.67	58.36	396.14	387.09	638.56	603.41	35.15	18.166		
6,900.00	5,737.00	5,532.55	5,499.01	23.95	17.64	56.54	403.08	387.00	716.07	680.90	35.16	20.364		
7,000.00	5,737.00	5,516.46	5,484.05	24.88	17.62	54.91	408.99	386.93	797.75	762.57	35.18	22.676		
7,100.00	5,737.00	5,500.00	5,468.56	25.86	17.60	53.29	414.56	386.86	882.62	847.44	35.18	25.086		
7,200.00	5,737.00	5,500.00	5,468.56	26.87	17.60	53.29	414.56	386.86	970.05	934.70	35.35	27.444		
7,300.00	5,737.00	5,480.15	5,449.65	27.91	17.57	51.40	420.63	386.78	1,059.15	1,023.86	35.30	30.005		
7,400.00	5,737.00	5,470.89	5,440.77	28.98	17.55	50.54	423.21	386.75	1,149.91	1,114.57	35.35	32.534		
7,500.00	5,737.00	5,450.00	5,420.54	30.08	17.52	48.67	428.44	386.68	1,242.12	1,206.81	35.30	35.187		
7,600.00	5,737.00	5,450.00	5,420.54	31.19	17.52	48.67	428.44	386.68	1,334.93	1,299.53	35.41	37.704		
7,700.00	5,737.00	5,450.00	5,420.54	32.33	17.52	48.67	428.44	386.68	1,428.72	1,393.22	35.50	40.250		
7,800.00	5,737.00	5,450.00	5,420.54	33.48	17.52	48.67	428.44	386.68	1,523.30	1,487.72	35.58	42.818		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #07H-0615
Project:	Weld County, CO	TVD Reference:	KBE @ 4933.00usft
Reference Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4933.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 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	-59.24	52.62	-88.40	102.88					
100.00	100.00	100.00	100.00	0.12	0.12	-59.24	52.62	-88.40	102.88	102.63	0.25	415.339		
200.00	200.00	200.00	200.00	0.44	0.44	-59.24	52.62	-88.40	102.88	102.01	0.87	117.605		
300.00	300.00	300.00	300.00	0.75	0.75	-59.24	52.62	-88.40	102.88	101.38	1.50	68.501 CC, ES		
400.00	399.98	396.70	396.68	1.03	1.05	125.72	53.94	-89.36	105.45	103.31	2.14	49.376		
500.00	499.84	492.77	492.63	1.31	1.36	128.59	57.86	-92.22	113.34	110.52	2.82	40.156		
600.00	599.49	587.68	587.20	1.61	1.67	132.51	64.29	-96.90	126.79	123.23	3.55	35.678		
700.00	699.10	685.38	684.36	1.90	1.99	136.17	72.55	-102.92	143.14	139.01	4.13	34.655		
800.00	798.70	783.66	782.10	2.22	2.30	139.09	80.88	-108.99	159.99	155.29	4.70	34.036		
900.00	898.31	881.93	879.83	2.55	2.62	141.46	89.21	-115.05	177.17	171.89	5.28	33.555		
1,000.00	997.92	980.21	977.56	2.88	2.94	143.40	97.54	-121.12	194.58	188.71	5.87	33.153		
1,100.00	1,097.53	1,078.48	1,075.29	3.21	3.27	145.03	105.87	-127.19	212.18	205.72	6.46	32.833		
1,200.00	1,197.14	1,176.76	1,173.03	3.54	3.60	146.40	114.21	-133.26	229.93	222.86	7.06	32.545		
1,300.00	1,296.75	1,275.03	1,270.76	3.88	3.92	147.58	122.54	-139.33	247.78	240.11	7.67	32.304		
1,400.00	1,396.36	1,373.31	1,368.49	4.22	4.25	148.60	130.87	-145.40	265.72	257.44	8.28	32.097		
1,500.00	1,495.97	1,471.58	1,466.22	4.55	4.58	149.49	139.20	-151.47	283.73	274.84	8.89	31.916		
1,600.00	1,595.57	1,569.86	1,563.96	4.89	4.91	150.28	147.53	-157.54	301.80	292.29	9.50	31.757		
1,700.00	1,695.18	1,668.13	1,661.69	5.23	5.24	150.98	155.86	-163.61	319.92	309.80	10.12	31.617		
1,800.00	1,794.79	1,766.40	1,759.42	5.57	5.57	151.60	164.20	-169.68	338.07	327.34	10.74	31.492		
1,900.00	1,894.40	1,864.68	1,857.16	5.91	5.90	152.16	172.53	-175.74	356.27	344.92	11.35	31.380		
2,000.00	1,994.01	1,962.95	1,954.89	6.25	6.23	152.66	180.86	-181.81	374.49	362.52	11.97	31.279		
2,100.00	2,093.62	2,061.23	2,052.62	6.59	6.56	153.12	189.19	-187.88	392.74	380.15	12.59	31.188		
2,200.00	2,193.23	2,159.50	2,150.35	6.93	6.89	153.53	197.52	-193.95	411.01	397.80	13.21	31.105		
2,300.00	2,292.84	2,257.78	2,248.09	7.27	7.22	153.91	205.86	-200.02	429.30	415.47	13.84	31.030		
2,400.00	2,392.44	2,356.05	2,345.82	7.61	7.55	154.27	214.19	-206.09	447.61	433.15	14.46	30.960		
2,500.00	2,492.05	2,454.33	2,443.55	7.95	7.88	154.59	222.52	-212.16	465.93	450.85	15.08	30.897		
2,600.00	2,591.66	2,552.60	2,541.28	8.30	8.21	154.89	230.85	-218.23	484.27	468.56	15.70	30.838		
2,700.00	2,691.27	2,650.88	2,639.02	8.64	8.54	155.16	239.18	-224.30	502.61	486.29	16.33	30.784		
2,800.00	2,790.88	2,749.15	2,736.75	8.98	8.87	155.42	247.51	-230.37	520.97	504.02	16.95	30.733		
2,900.00	2,890.49	2,847.43	2,834.48	9.32	9.20	155.66	255.85	-236.44	539.34	521.76	17.58	30.686		
3,000.00	2,990.10	2,945.70	2,932.21	9.66	9.53	155.88	264.18	-242.50	557.71	539.51	18.20	30.643		
3,100.00	3,089.71	3,043.98	3,029.95	10.00	9.86	156.09	272.51	-248.57	576.09	557.27	18.83	30.602		
3,200.00	3,189.31	3,142.25	3,127.68	10.34	10.19	156.29	280.84	-254.64	594.48	575.03	19.45	30.563		
3,300.00	3,288.92	3,240.52	3,225.41	10.69	10.52	156.47	289.17	-260.71	612.88	592.80	20.08	30.528		
3,400.00	3,388.53	3,338.80	3,323.14	11.03	10.85	156.65	297.50	-266.78	631.28	610.58	20.70	30.494		
3,500.00	3,488.14	3,437.07	3,420.88	11.37	11.19	156.81	305.84	-272.85	649.69	628.36	21.33	30.462		
3,600.00	3,587.75	3,535.35	3,518.61	11.71	11.52	156.97	314.17	-278.92	668.10	646.15	21.95	30.432		
3,700.00	3,687.36	3,633.62	3,616.34	12.05	11.85	157.11	322.50	-284.99	686.52	663.94	22.58	30.403		
3,800.00	3,786.97	3,731.90	3,714.07	12.40	12.18	157.25	330.83	-291.06	704.94	681.73	23.21	30.376		
3,900.00	3,886.57	3,830.17	3,811.81	12.74	12.51	157.38	339.16	-297.13	723.37	699.53	23.83	30.351		
4,000.00	3,986.18	3,928.45	3,909.54	13.08	12.84	157.51	347.50	-303.19	741.79	717.33	24.46	30.327		
4,100.00	4,085.79	4,026.72	4,007.27	13.42	13.17	157.63	355.83	-309.26	760.23	735.14	25.09	30.304		
4,200.00	4,185.40	4,125.00	4,105.01	13.76	13.50	157.74	364.16	-315.33	778.66	752.95	25.71	30.282		
4,300.00	4,285.01	4,223.27	4,202.74	14.11	13.83	157.85	372.49	-321.40	797.10	770.76	26.34	30.261		
4,400.00	4,384.62	4,321.55	4,300.47	14.45	14.16	157.95	380.82	-327.47	815.54	788.57	26.97	30.241		
4,500.00	4,484.23	4,419.82	4,398.20	14.79	14.49	158.05	389.15	-333.54	833.98	806.38	27.60	30.222		
4,600.00	4,583.84	4,518.10	4,495.94	15.13	14.82	158.15	397.49	-339.61	852.42	824.20	28.22	30.203		
4,700.00	4,683.44	4,616.37	4,593.67	15.47	15.16	158.24	405.82	-345.68	870.87	842.02	28.85	30.186		
4,800.00	4,783.06	4,714.66	4,691.41	15.80	15.49	158.35	414.15	-351.75	889.25	859.79	29.47	30.175		
4,900.00	4,882.85	4,813.33	4,789.54	16.03	15.82	158.50	422.52	-357.84	905.46	875.44	30.02	30.163		
5,000.00	4,982.80	4,912.47	4,888.14	16.26	16.15	158.54	430.92	-363.96	918.45	887.88	30.57	30.044		
5,100.00	5,082.80	5,042.22	5,017.32	16.52	16.53	-25.46	440.65	-371.05	927.87	896.60	31.27	29.671		

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 #07H-0615
Project:	Weld County, CO	TVD Reference:	KBE @ 4933.00usft
Reference Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4933.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 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	5,182.80	6,589.66	5,944.00	16.74	19.45	-90.37	-397.55	-369.97	858.44	841.14	17.30	49.621		
5,300.00	5,282.62	6,585.38	5,944.00	16.96	19.43	-102.38	-393.28	-370.00	771.33	752.27	19.06	40.473		
5,400.00	5,379.97	6,563.19	5,944.00	17.14	19.32	-114.38	-371.08	-370.14	689.76	668.70	21.06	32.745		
5,500.00	5,471.29	6,522.83	5,944.00	17.28	19.13	-120.48	-330.72	-370.40	617.49	594.23	23.26	26.544		
5,600.00	5,553.24	6,465.79	5,944.00	17.41	18.90	-122.66	-273.68	-370.77	557.52	531.98	25.54	21.831		
5,700.00	5,622.81	6,394.16	5,944.00	17.54	18.64	-122.37	-202.06	-371.23	511.54	483.86	27.67	18.484		
5,800.00	5,677.43	6,310.58	5,944.00	17.70	18.44	-120.76	-118.48	-371.77	479.58	450.10	29.48	16.271		
5,900.00	5,715.10	6,181.01	5,937.01	17.90	18.29	-116.91	10.70	-372.60	458.26	427.24	31.01	14.776		
6,000.00	5,734.45	6,037.67	5,894.57	18.17	18.24	-110.81	147.14	-373.48	437.27	404.19	33.09	13.216		
6,100.00	5,737.00	5,920.01	5,832.99	18.49	18.19	-103.46	247.11	-374.12	418.69	383.79	34.90	11.997		
6,200.00	5,737.00	5,831.88	5,773.01	18.92	18.14	-95.13	311.54	-374.53	404.74	368.49	36.25	11.167		
6,265.46	5,737.00	5,787.57	5,738.97	19.25	18.10	-90.28	339.88	-374.72	401.61	364.78	36.83	10.904		
6,300.00	5,737.00	5,767.56	5,722.83	19.43	18.08	-87.98	351.70	-374.79	402.57	365.54	37.03	10.871 SF		
6,400.00	5,737.00	5,719.91	5,682.66	20.02	18.04	-82.30	377.31	-374.96	416.97	379.62	37.34	11.166		
6,500.00	5,737.00	5,683.74	5,650.70	20.68	18.00	-77.88	394.23	-375.07	448.87	411.53	37.34	12.022		
6,600.00	5,737.00	5,650.00	5,619.90	21.41	17.96	-73.76	407.98	-375.15	496.32	459.22	37.10	13.377		
6,700.00	5,737.00	5,633.20	5,604.25	22.21	17.93	-71.73	414.08	-375.19	556.00	519.01	36.98	15.033		
6,800.00	5,737.00	5,615.02	5,587.10	23.05	17.91	-69.56	420.11	-375.23	624.95	588.15	36.81	16.980		
6,900.00	5,737.00	5,600.00	5,572.78	23.95	17.88	-67.79	424.63	-375.26	700.68	664.02	36.66	19.113		
7,000.00	5,737.00	5,600.00	5,572.78	24.88	17.88	-67.79	424.63	-375.26	781.61	744.94	36.67	21.317		
7,100.00	5,737.00	5,576.68	5,550.30	25.86	17.84	-65.10	430.83	-375.30	865.75	829.30	36.46	23.747		
7,200.00	5,737.00	5,567.47	5,541.35	26.87	17.83	-64.06	433.01	-375.31	952.90	916.51	36.39	26.184		
7,300.00	5,737.00	5,550.00	5,524.27	27.91	17.80	-62.13	436.69	-375.34	1,042.29	1,006.02	36.28	28.732		
7,400.00	5,737.00	5,550.00	5,524.27	28.98	17.80	-62.13	436.69	-375.34	1,133.10	1,096.81	36.30	31.219		
7,500.00	5,737.00	5,550.00	5,524.27	30.08	17.80	-62.13	436.69	-375.34	1,225.34	1,189.03	36.31	33.745		
7,600.00	5,737.00	5,550.00	5,524.27	31.19	17.80	-62.13	436.69	-375.34	1,318.72	1,282.39	36.33	36.302		
7,700.00	5,737.00	5,550.00	5,524.27	32.33	17.80	-62.13	436.69	-375.34	1,413.00	1,376.65	36.34	38.881		
7,800.00	5,737.00	5,531.42	5,505.99	33.48	17.76	-60.13	439.97	-375.36	1,507.58	1,471.31	36.28	41.559		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #07H-0615
Project:	Weld County, CO	TVD Reference:	KBE @ 4933.00usft
Reference Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4933.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 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	-28.86	51.60	-28.43	58.92					
100.00	100.00	100.00	100.00	0.12	0.12	-28.86	51.60	-28.43	58.92	58.67	0.25	237.845		
200.00	200.00	200.00	200.00	0.44	0.44	-28.86	51.60	-28.43	58.92	58.04	0.87	67.347		
300.00	300.00	300.00	300.00	0.75	0.75	-28.86	51.60	-28.43	58.92	57.41	1.50	39.227 CC		
400.00	399.98	398.04	398.02	1.03	1.06	156.31	53.27	-28.57	62.08	59.93	2.15	28.909		
500.00	499.84	495.38	495.23	1.31	1.38	159.44	58.24	-28.99	71.70	68.84	2.85	25.120		
600.00	599.49	593.01	592.55	1.61	1.70	163.03	65.98	-29.64	87.14	83.64	3.50	24.874		
700.00	699.10	691.54	690.74	1.90	2.00	165.71	74.12	-30.32	103.62	99.56	4.06	25.501		
800.00	798.70	790.08	788.94	2.22	2.31	167.66	82.25	-31.00	120.26	115.62	4.64	25.932		
900.00	898.31	888.61	887.14	2.55	2.62	169.13	90.38	-31.68	137.00	131.78	5.22	26.235		
1,000.00	997.92	987.15	985.33	2.88	2.93	170.28	98.51	-32.36	153.82	148.00	5.81	26.455		
1,100.00	1,097.53	1,085.68	1,083.53	3.21	3.25	171.20	106.64	-33.04	170.68	164.26	6.41	26.620		
1,200.00	1,197.14	1,184.22	1,181.72	3.54	3.56	171.96	114.77	-33.72	187.57	180.56	7.01	26.743		
1,300.00	1,296.75	1,282.75	1,279.92	3.88	3.88	172.59	122.90	-34.40	204.49	196.87	7.62	26.839		
1,400.00	1,396.36	1,381.29	1,378.12	4.22	4.20	173.13	131.03	-35.09	221.43	213.21	8.23	26.915		
1,500.00	1,495.97	1,479.82	1,476.31	4.55	4.52	173.59	139.16	-35.77	238.39	229.55	8.84	26.976		
1,600.00	1,595.57	1,578.36	1,574.51	4.89	4.84	173.99	147.29	-36.45	255.36	245.91	9.45	27.025		
1,700.00	1,695.18	1,676.89	1,672.71	5.23	5.16	174.34	155.42	-37.13	272.34	262.28	10.06	27.066		
1,800.00	1,794.79	1,775.43	1,770.90	5.57	5.48	174.64	163.55	-37.81	289.33	278.66	10.68	27.100		
1,900.00	1,894.40	1,873.96	1,869.10	5.91	5.79	174.92	171.69	-38.49	306.33	295.04	11.29	27.128		
2,000.00	1,994.01	1,972.50	1,967.30	6.25	6.11	175.16	179.82	-39.17	323.33	311.43	11.91	27.153		
2,100.00	2,093.62	2,071.03	2,065.49	6.59	6.43	175.38	187.95	-39.85	340.34	327.82	12.52	27.173		
2,200.00	2,193.23	2,169.57	2,163.69	6.93	6.75	175.58	196.08	-40.53	357.36	344.21	13.14	27.191		
2,300.00	2,292.84	2,268.10	2,261.89	7.27	7.07	175.76	204.21	-41.21	374.37	360.61	13.76	27.207		
2,400.00	2,392.44	2,366.64	2,360.08	7.61	7.39	175.93	212.34	-41.90	391.39	377.01	14.38	27.220		
2,500.00	2,492.05	2,465.17	2,458.28	7.95	7.71	176.08	220.47	-42.58	408.42	393.42	15.00	27.232		
2,600.00	2,591.66	2,563.71	2,556.48	8.30	8.03	176.22	228.60	-43.26	425.44	409.82	15.62	27.243		
2,700.00	2,691.27	2,662.24	2,654.67	8.64	8.35	176.35	236.73	-43.94	442.47	426.23	16.24	27.252		
2,800.00	2,790.88	2,760.78	2,752.87	8.98	8.67	176.47	244.86	-44.62	459.50	442.64	16.86	27.261		
2,900.00	2,890.49	2,859.31	2,851.07	9.32	8.99	176.58	252.99	-45.30	476.53	459.06	17.48	27.268		
3,000.00	2,990.10	2,957.85	2,949.26	9.66	9.31	176.68	261.12	-45.98	493.56	475.47	18.10	27.275		
3,100.00	3,089.71	3,056.38	3,047.46	10.00	9.63	176.78	269.26	-46.66	510.60	491.88	18.72	27.281		
3,200.00	3,189.31	3,154.92	3,145.65	10.34	9.95	176.87	277.39	-47.34	527.63	508.30	19.34	27.286		
3,300.00	3,288.92	3,253.45	3,243.85	10.69	10.27	176.95	285.52	-48.02	544.67	524.71	19.96	27.291		
3,400.00	3,388.53	3,351.99	3,342.05	11.03	10.59	177.03	293.65	-48.71	561.71	541.13	20.58	27.296		
3,500.00	3,488.14	3,450.52	3,440.24	11.37	10.91	177.11	301.78	-49.39	578.75	557.55	21.20	27.300		
3,600.00	3,587.75	3,549.06	3,538.44	11.71	11.22	177.18	309.91	-50.07	595.79	573.97	21.82	27.304		
3,700.00	3,687.36	3,647.59	3,636.64	12.05	11.54	177.24	318.04	-50.75	612.83	590.39	22.44	27.307		
3,800.00	3,786.97	3,746.13	3,734.83	12.40	11.86	177.31	326.17	-51.43	629.87	606.81	23.06	27.310		
3,900.00	3,886.57	3,844.66	3,833.03	12.74	12.18	177.37	334.30	-52.11	646.92	623.23	23.69	27.313		
4,000.00	3,986.18	3,943.19	3,931.23	13.08	12.50	177.42	342.43	-52.79	663.96	639.65	24.31	27.316		
4,100.00	4,085.79	4,041.73	4,029.42	13.42	12.82	177.48	350.56	-53.47	681.00	656.07	24.93	27.318		
4,200.00	4,185.40	4,140.26	4,127.62	13.76	13.14	177.53	358.69	-54.15	698.05	672.50	25.55	27.320		
4,300.00	4,285.01	4,238.80	4,225.82	14.11	13.46	177.58	366.83	-54.83	715.09	688.92	26.17	27.322		
4,400.00	4,384.62	4,337.33	4,324.01	14.45	13.78	177.62	374.96	-55.52	732.14	705.34	26.79	27.324		
4,500.00	4,484.23	4,435.87	4,422.21	14.79	14.10	177.67	383.09	-56.20	749.18	721.77	27.42	27.326		
4,600.00	4,583.84	4,534.40	4,520.41	15.13	14.42	177.71	391.22	-56.88	766.23	738.19	28.04	27.328		
4,700.00	4,683.44	4,632.94	4,618.60	15.47	14.74	177.75	399.35	-57.56	783.27	754.61	28.66	27.329		
4,800.00	4,783.06	4,731.49	4,716.81	15.80	15.06	177.79	407.48	-58.24	800.25	770.98	29.28	27.335		
4,900.00	4,882.65	4,830.41	4,815.39	16.03	15.38	177.83	415.64	-58.92	814.88	785.05	29.83	27.321		
5,000.00	4,982.80	4,929.77	4,914.42	16.26	15.70	177.86	423.84	-59.61	826.04	795.66	30.38	27.191		
5,100.00	5,082.80	5,029.41	5,013.72	16.52	16.03	-6.02	432.06	-60.30	834.51	803.54	30.97	26.948		

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 #07H-0615
Project:	Weld County, CO	TVD Reference:	KBE @ 4933.00usft
Reference Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4933.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 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	5,182.80	6,650.77	6,017.00	16.74	19.38	-90.44	-395.63	-54.96	838.20	829.46	8.74	95.857	
5,300.00	5,282.62	6,646.49	6,017.00	16.96	19.36	-139.10	-391.35	-55.00	738.93	729.99	8.95	82.601	
5,400.00	5,379.97	6,624.29	6,017.00	17.14	19.25	-157.80	-369.16	-55.17	642.30	633.20	9.09	70.637	
5,500.00	5,471.29	6,583.93	6,017.00	17.28	19.06	-162.91	-328.80	-55.48	551.89	542.65	9.24	59.756	
5,600.00	5,553.24	6,526.89	6,017.00	17.41	18.82	-164.60	-271.76	-55.92	471.09	461.62	9.47	49.727	
5,700.00	5,622.81	6,455.27	6,017.00	17.54	18.57	-164.87	-200.14	-56.47	402.91	393.01	9.90	40.700	
5,800.00	5,677.43	6,371.69	6,017.00	17.70	18.33	-164.41	-116.56	-57.11	349.81	339.27	10.53	33.212	
5,900.00	5,715.10	6,210.73	6,003.29	17.90	18.11	-161.65	43.34	-58.34	307.86	294.28	13.58	22.668	
6,000.00	5,734.45	6,039.16	5,937.64	18.17	18.00	-155.50	201.01	-59.55	254.48	232.97	21.51	11.832	
6,100.00	5,737.00	5,912.66	5,858.23	18.49	17.87	-144.27	299.08	-60.31	194.52	166.93	27.59	7.050	
6,200.00	5,737.00	5,826.89	5,791.97	18.92	17.80	-122.10	353.37	-60.72	130.12	97.73	32.39	4.018	
6,300.00	5,737.00	5,768.71	5,742.34	19.43	17.75	-93.48	383.69	-60.96	88.49	51.44	37.05	2.388	
6,311.91	5,737.00	5,763.07	5,737.35	19.50	17.74	-90.23	386.33	-60.98	87.87	50.64	37.22	2.361 ES, SF	
6,400.00	5,737.00	5,727.59	5,705.38	20.02	17.71	-70.23	401.68	-61.09	118.46	83.32	35.14	3.371	
6,500.00	5,737.00	5,700.00	5,679.83	20.68	17.68	-57.01	412.09	-61.17	193.32	159.52	33.80	5.719	
6,600.00	5,737.00	5,674.29	5,655.56	21.41	17.65	-47.26	420.57	-61.24	280.78	247.33	33.45	8.394	
6,700.00	5,737.00	5,650.00	5,632.27	22.21	17.61	-40.10	427.46	-61.29	372.99	339.63	33.36	11.182	
6,800.00	5,737.00	5,650.00	5,632.27	23.05	17.61	-40.10	427.46	-61.29	467.45	433.66	33.79	13.834	
6,900.00	5,737.00	5,629.77	5,612.64	23.95	17.58	-35.35	432.37	-61.33	563.08	529.32	33.76	16.681	
7,000.00	5,737.00	5,619.83	5,602.94	24.88	17.57	-33.35	434.51	-61.35	659.73	625.87	33.86	19.482	
7,100.00	5,737.00	5,600.00	5,583.46	25.86	17.53	-29.89	438.21	-61.38	757.21	723.37	33.84	22.375	
7,200.00	5,737.00	5,600.00	5,583.46	26.87	17.53	-29.89	438.21	-61.38	854.76	820.75	34.01	25.133	
7,300.00	5,737.00	5,600.00	5,583.46	27.91	17.53	-29.89	438.21	-61.38	952.81	918.68	34.14	27.910	
7,400.00	5,737.00	5,600.00	5,583.46	28.98	17.53	-29.89	438.21	-61.38	1,051.24	1,016.99	34.25	30.697	
7,500.00	5,737.00	5,600.00	5,583.46	30.08	17.53	-29.89	438.21	-61.38	1,149.93	1,115.59	34.34	33.491	
7,600.00	5,737.00	5,600.00	5,583.46	31.19	17.53	-29.89	438.21	-61.38	1,248.83	1,214.42	34.42	36.286	
7,700.00	5,737.00	5,579.65	5,563.33	32.33	17.49	-26.95	441.23	-61.40	1,347.35	1,312.95	34.39	39.173	
7,800.00	5,737.00	5,576.22	5,559.93	33.48	17.49	-26.50	441.66	-61.40	1,446.35	1,411.90	34.46	41.976	
7,900.00	5,737.00	5,573.12	5,556.86	34.65	17.48	-26.11	442.03	-61.41	1,545.46	1,510.94	34.52	44.772	



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #07H-0615
Project:	Weld County, CO	TVD Reference:	KBE @ 4933.00usft
Reference Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4933.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 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	32.43	49.59	31.51	58.75					
100.00	100.00	100.00	100.00	0.12	0.12	32.43	49.59	31.51	58.75	58.51	0.25	237.193		
200.00	200.00	200.00	200.00	0.44	0.44	32.43	49.59	31.51	58.75	57.88	0.87	67.162		
300.00	300.00	300.00	300.00	0.75	0.75	32.43	49.59	31.51	58.75	57.25	1.50	39.120 CC, ES		
400.00	399.98	397.89	397.87	1.03	1.06	-144.72	51.08	32.27	61.87	59.72	2.15	28.729		
500.00	499.84	495.14	494.99	1.31	1.37	-147.28	55.50	34.55	71.32	68.45	2.87	24.876		
600.00	599.49	591.75	591.25	1.61	1.69	-150.25	62.73	38.27	86.83	83.26	3.57	24.305		
700.00	699.10	690.19	689.25	1.90	2.00	-152.52	71.03	42.55	104.02	99.90	4.12	25.268		
800.00	798.70	788.63	787.25	2.22	2.30	-154.14	79.33	46.83	121.32	116.64	4.68	25.918		
900.00	898.31	887.08	885.25	2.55	2.62	-155.36	87.63	51.11	138.70	133.44	5.26	26.370		
1,000.00	997.92	985.52	983.24	2.88	2.94	-156.31	95.94	55.39	156.12	150.27	5.85	26.695		
1,100.00	1,097.53	1,083.96	1,081.24	3.21	3.26	-157.06	104.24	59.66	173.57	167.13	6.44	26.941		
1,200.00	1,197.14	1,182.40	1,179.24	3.54	3.58	-157.68	112.54	63.94	191.05	184.00	7.04	27.122		
1,300.00	1,296.75	1,280.84	1,277.24	3.88	3.90	-158.19	120.84	68.22	208.54	200.89	7.65	27.263		
1,400.00	1,396.36	1,379.29	1,375.24	4.22	4.22	-158.63	129.15	72.50	226.05	217.79	8.26	27.375		
1,500.00	1,495.97	1,477.73	1,473.23	4.55	4.54	-159.00	137.45	76.77	243.57	234.70	8.87	27.464		
1,600.00	1,595.57	1,576.17	1,571.23	4.89	4.87	-159.32	145.75	81.05	261.10	251.62	9.48	27.537		
1,700.00	1,695.18	1,674.61	1,669.23	5.23	5.19	-159.61	154.05	85.33	278.64	268.54	10.10	27.597		
1,800.00	1,794.79	1,773.05	1,767.23	5.57	5.51	-159.85	162.36	89.61	296.18	285.47	10.71	27.647		
1,900.00	1,894.40	1,871.49	1,865.22	5.91	5.84	-160.07	170.66	93.88	313.72	302.39	11.33	27.689		
2,000.00	1,994.01	1,969.94	1,963.22	6.25	6.16	-160.27	178.96	98.16	331.27	319.33	11.95	27.725		
2,100.00	2,093.62	2,068.38	2,061.22	6.59	6.48	-160.45	187.26	102.44	348.83	336.26	12.57	27.756		
2,200.00	2,193.23	2,166.82	2,159.22	6.93	6.81	-160.61	195.57	106.72	366.38	353.20	13.19	27.782		
2,300.00	2,292.84	2,265.26	2,257.22	7.27	7.13	-160.76	203.87	110.99	383.94	370.14	13.81	27.805		
2,400.00	2,392.44	2,363.70	2,355.21	7.61	7.45	-160.89	212.17	115.27	401.50	387.08	14.43	27.826		
2,500.00	2,492.05	2,462.15	2,453.21	7.95	7.78	-161.01	220.47	119.55	419.07	404.02	15.05	27.844		
2,600.00	2,591.66	2,560.59	2,551.21	8.30	8.10	-161.12	228.78	123.83	436.63	420.96	15.67	27.859		
2,700.00	2,691.27	2,659.03	2,649.21	8.64	8.43	-161.23	237.08	128.11	454.20	437.90	16.29	27.874		
2,800.00	2,790.88	2,757.47	2,747.20	8.98	8.75	-161.32	245.38	132.38	471.77	454.85	16.92	27.886		
2,900.00	2,890.49	2,855.91	2,845.20	9.32	9.07	-161.41	253.68	136.66	489.34	471.80	17.54	27.898		
3,000.00	2,990.10	2,954.36	2,943.20	9.66	9.40	-161.49	261.99	140.94	506.91	488.74	18.16	27.908		
3,100.00	3,089.71	3,052.80	3,041.20	10.00	9.72	-161.57	270.29	145.22	524.48	505.69	18.79	27.917		
3,200.00	3,189.31	3,151.24	3,139.20	10.34	10.05	-161.64	278.59	149.49	542.05	522.64	19.41	27.925		
3,300.00	3,288.92	3,249.68	3,237.19	10.69	10.37	-161.71	286.89	153.77	559.62	539.59	20.03	27.933		
3,400.00	3,388.53	3,348.12	3,335.19	11.03	10.69	-161.77	295.19	158.05	577.19	556.54	20.66	27.940		
3,500.00	3,488.14	3,446.56	3,433.19	11.37	11.02	-161.83	303.50	162.33	594.77	573.49	21.28	27.946		
3,600.00	3,587.75	3,545.01	3,531.19	11.71	11.34	-161.89	311.80	166.60	612.34	590.44	21.91	27.952		
3,700.00	3,687.36	3,643.45	3,629.19	12.05	11.67	-161.94	320.10	170.88	629.92	607.39	22.53	27.957		
3,800.00	3,786.97	3,741.89	3,727.18	12.40	11.99	-161.99	328.40	175.16	647.49	624.34	23.16	27.962		
3,900.00	3,886.57	3,840.33	3,825.18	12.74	12.31	-162.04	336.71	179.44	665.07	641.29	23.78	27.967		
4,000.00	3,986.18	3,938.77	3,923.18	13.08	12.64	-162.08	345.01	183.71	682.65	658.24	24.41	27.971		
4,100.00	4,085.79	4,037.22	4,021.18	13.42	12.96	-162.13	353.31	187.99	700.22	675.19	25.03	27.975		
4,200.00	4,185.40	4,135.66	4,119.17	13.76	13.29	-162.17	361.61	192.27	717.80	692.14	25.66	27.979		
4,300.00	4,285.01	4,234.10	4,217.17	14.11	13.61	-162.21	369.92	196.55	735.38	709.10	26.28	27.982		
4,400.00	4,384.62	4,332.54	4,315.17	14.45	13.94	-162.24	378.22	200.82	752.95	726.05	26.91	27.985		
4,500.00	4,484.23	4,430.98	4,413.17	14.79	14.26	-162.28	386.52	205.10	770.53	743.00	27.53	27.988		
4,600.00	4,583.84	4,529.42	4,511.17	15.13	14.58	-162.31	394.82	209.38	788.11	759.95	28.16	27.991		
4,700.00	4,683.44	4,627.87	4,609.16	15.47	14.91	-162.35	403.13	213.66	805.69	776.91	28.78	27.993		
4,800.00	4,783.06	4,726.32	4,707.17	15.80	15.23	-162.40	411.43	217.94	823.20	793.80	29.40	28.001		
4,900.00	4,882.65	4,825.14	4,805.55	16.03	15.56	-162.47	419.76	222.23	838.47	808.52	29.95	27.994		
5,000.00	4,982.80	4,924.41	4,904.37	16.26	15.89	-162.45	428.14	226.54	850.45	819.94	30.51	27.878		
5,100.00	5,082.80	5,045.56	5,025.06	16.52	16.24	13.80	437.51	231.37	859.19	828.02	31.17	27.564		

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 #07H-0615
Project:	Weld County, CO	TVD Reference:	KBE @ 4933.00usft
Reference Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4933.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #07H-0615	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.79 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	5,182.80	6,577.26	5,944.00	16.74	19.37	89.36	-392.57	243.89	791.53	779.69	11.84	66.848		
5,300.00	5,282.62	6,572.98	5,944.00	16.96	19.35	110.74	-388.29	243.84	696.06	683.16	12.90	53.959		
5,400.00	5,379.97	6,550.78	5,944.00	17.14	19.24	128.96	-366.09	243.59	604.23	590.04	14.19	42.569		
5,500.00	5,471.29	6,510.43	5,944.00	17.28	19.05	136.70	-325.74	243.14	519.83	504.03	15.80	32.907		
5,600.00	5,553.24	6,453.39	5,944.00	17.41	18.82	139.35	-268.71	242.50	446.30	428.54	17.76	25.124		
5,700.00	5,622.81	6,381.77	5,944.00	17.54	18.56	139.25	-197.09	241.70	386.41	366.41	20.00	19.318		
5,800.00	5,677.43	6,298.19	5,944.00	17.70	18.32	137.69	-113.52	240.76	341.77	319.51	22.26	15.353		
5,900.00	5,715.10	6,162.82	5,934.58	17.90	18.09	132.91	21.24	239.25	308.65	283.75	24.90	12.395		
6,000.00	5,734.45	6,022.45	5,889.87	18.17	17.97	124.85	153.85	237.76	273.71	244.59	29.12	9.398		
6,100.00	5,737.00	5,907.51	5,827.96	18.49	17.89	113.44	250.40	236.67	240.95	207.95	33.00	7.301		
6,200.00	5,737.00	5,821.57	5,768.63	18.92	17.83	98.60	312.44	235.98	214.86	178.97	35.89	5.987		
6,265.25	5,737.00	5,778.48	5,735.25	19.25	17.80	89.52	339.66	235.67	208.79	171.96	36.83	5.669 SF		
6,300.00	5,737.00	5,758.83	5,719.29	19.43	17.78	85.15	351.14	235.54	210.70	173.75	36.94	5.704		
6,400.00	5,737.00	5,712.25	5,679.85	20.02	17.74	74.66	375.88	235.27	237.48	201.20	36.28	6.546		
6,500.00	5,737.00	5,676.83	5,648.46	20.68	17.70	66.96	392.29	235.08	290.44	255.12	35.32	8.222		
6,600.00	5,737.00	5,650.00	5,623.99	21.41	17.67	61.49	403.27	234.96	359.98	325.21	34.77	10.353		
6,700.00	5,737.00	5,627.20	5,602.77	22.21	17.64	57.16	411.60	234.87	439.22	404.73	34.49	12.734		
6,800.00	5,737.00	5,600.00	5,577.00	23.05	17.60	52.42	420.31	234.77	524.43	490.20	34.22	15.324		
6,900.00	5,737.00	5,600.00	5,577.00	23.95	17.60	52.42	420.31	234.77	613.06	578.59	34.47	17.785		
7,000.00	5,737.00	5,582.06	5,559.78	24.88	17.57	49.54	425.32	234.71	704.22	669.81	34.41	20.464		
7,100.00	5,737.00	5,571.48	5,549.54	25.86	17.55	47.94	427.99	234.68	797.16	762.71	34.45	23.137		
7,200.00	5,737.00	5,550.00	5,528.60	26.87	17.52	44.91	432.78	234.63	891.60	857.21	34.38	25.931		
7,300.00	5,737.00	5,550.00	5,528.60	27.91	17.52	44.91	432.78	234.63	986.54	952.03	34.52	28.583		
7,400.00	5,737.00	5,550.00	5,528.60	28.98	17.52	44.91	432.78	234.63	1,082.40	1,047.78	34.62	31.263		
7,500.00	5,737.00	5,550.00	5,528.60	30.08	17.52	44.91	432.78	234.63	1,178.95	1,144.24	34.71	33.964		
7,600.00	5,737.00	5,550.00	5,528.60	31.19	17.52	44.91	432.78	234.63	1,276.03	1,241.24	34.79	36.678		
7,700.00	5,737.00	5,531.07	5,510.00	32.33	17.48	42.46	436.28	234.59	1,373.06	1,338.30	34.76	39.499		
7,800.00	5,737.00	5,526.67	5,505.66	33.48	17.48	41.92	436.99	234.58	1,470.66	1,435.85	34.81	42.243		



WOG
Anticollision Report

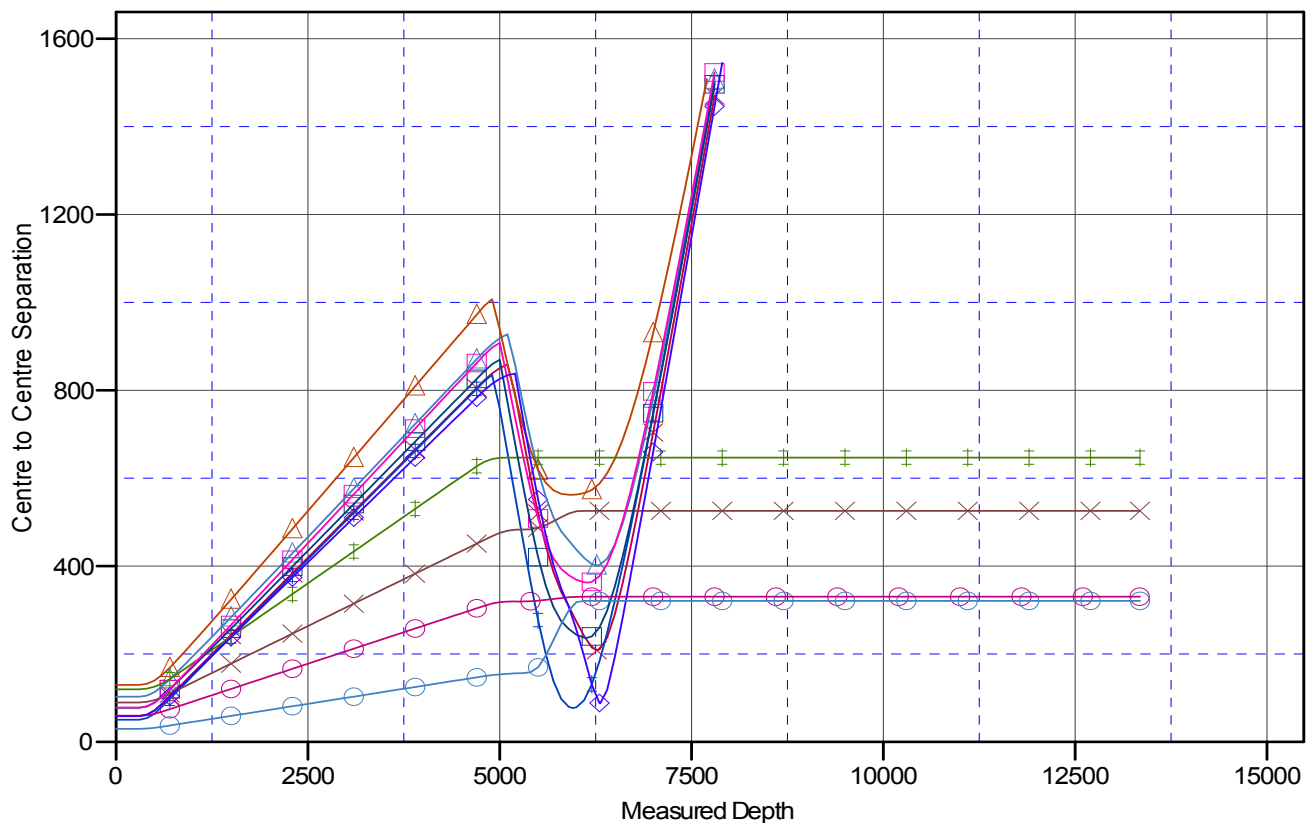
Company: Whiting Petroleum Corp.
Project: Weld County, CO
Reference Site: Sec 7-T10N-R57W
Site Error: 0.00 usft
Reference Well: Horsetail #07H-0615
Well Error: 0.00 usft
Reference Wellbore: Hz
Reference Design: APD

Local Co-ordinate Reference: Well Horsetail #07H-0615
TVD Reference: KBE @ 4933.00usft
MD Reference: KBE @ 4933.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.79 sigma
Database: LandmarkEDM
Offset TVD Reference: Offset Datum

Reference Depths are relative to KBE @ 4933.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: Horsetail #07H-0615
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.11°

Ladder Plot



LEGEND

- ✕ Horsetail #07H-1848, Hz, Design #1 V0
- △ Horsetail #07H-1813, Hz, Design #1 V0
- ✱ Horsetail #07H-1816, Hz, Design #1 V0
- △ Horsetail #07H-1846, Hz, Design #1 V0
- ✱ Horsetail #07H-0613, Hz, Design #1 V0
- ✱ Horsetail #07H-1847, Hz, Design #1 V0
- ✱ Horsetail #07H-1815, Hz, Design #1 V0
- ✱ Horsetail #07H-1814, Hz, Design #1 V0
- ✱ Horsetail #07H-0647, Hz, Design #1 V0
- ✕ Horsetail #07H-0646, Hz, Design #1 V0
- ✱ Horsetail #07H-0614, Hz, Design #1 V0



WOG

Anticollision Report

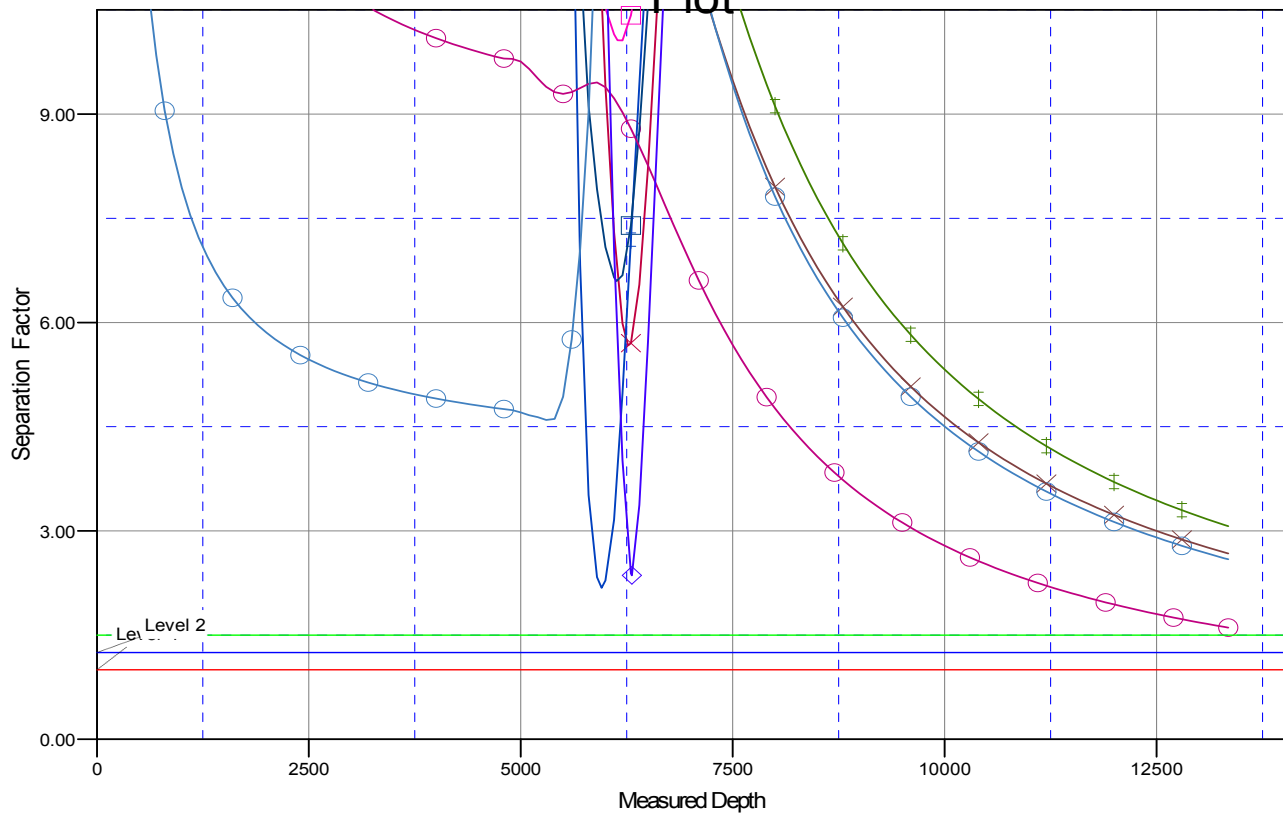
Company: Whiting Petroleum Corp.
Project: Weld County, CO
Reference Site: Sec 7-T10N-R57W
Site Error: 0.00 usft
Reference Well: Horsetail #07H-0615
Well Error: 0.00 usft
Reference Wellbore: Hz
Reference Design: APD

Local Co-ordinate Reference: Well Horsetail #07H-0615
TVD Reference: KBE @ 4933.00usft
MD Reference: KBE @ 4933.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.79 sigma
Database: LandmarkEDM
Offset TVD Reference: Offset Datum

Reference Depths are relative to KBE @ 4933.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: Horsetail #07H-0615
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.11°

Separation Factor Plot



LEGEND

- ✕ Horsetail #07H-1848, Hz, Design #1 V0
- △ Horsetail #07H-1813, Hz, Design #1 V0
- ⊞ Horsetail #07H-1816, Hz, Design #1 V0
- △ Horsetail #07H-1846, Hz, Design #1 V0
- ⊞ Horsetail #07H-0613, Hz, Design #1 V0
- ⊞ Horsetail #07H-1847, Hz, Design #1 V0
- ⊞ Horsetail #07H-1815, Hz, Design #1 V0
- ⊞ Horsetail #07H-1814, Hz, Design #1 V0
- ⊞ Horsetail #07H-0647, Hz, Design #1 V0
- ✕ Horsetail #07H-0646, Hz, Design #1 V0
- ⊞ Horsetail #07H-0614, Hz, Design #1 V0