

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #27I-2213A
Company:	Whiting Petroleum Corporation	TVD Reference:	HZ @ 4773.3ft
Project:	Weld County, CO	MD Reference:	HZ @ 4773.3ft
Site:	S27-T10N-R58W	North Reference:	True
Well:	Razor #27I-2213A	Survey Calculation Method:	Minimum Curvature
Wellbore:	STK		
Design:	STK Plan #1		

Project	Weld County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		S27-T10N-R58W			
Site Position:		Northing:	1,541,650.73 ft	Latitude:	40° 48' 30.938 N
From:	Lat/Long	Easting:	3,455,691.89 ft	Longitude:	103° 51' 13.799 W
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	1.06 °

Well	Razor #27I-2213A					
Well Position	+N/-S	0.0 ft	Northing:	1,541,816.42 ft	Latitude:	40° 48' 32.090 N
	+E/-W	0.0 ft	Easting:	3,458,329.13 ft	Longitude:	103° 50' 39.469 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,756.5 ft

Wellbore	STK				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	11/26/2013	8.06	67.44	53,179

Design	STK Plan #1				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	5,053.0	
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	355.89	

Plan Sections										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Dogleg Rate	Build Rate	Turn Rate	TFO	Target
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(°/100ft)	(°/100ft)	(°/100ft)	(°)	
5,053.0	1.54	317.46	5,047.9	188.7	-25.1	0.00	0.00	0.00	0.00	
5,100.0	3.39	327.74	5,094.9	190.4	-26.3	4.03	3.94	21.87	18.61	
5,120.0	3.39	327.74	5,114.9	191.4	-26.9	0.00	0.00	0.00	0.00	
5,880.7	87.06	328.25	5,604.2	610.7	-286.7	11.00	11.00	0.07	0.51	
6,973.4	90.00	0.00	5,633.0	1,647.9	-581.5	2.92	0.27	2.91	85.26	2213A LP STK P1
13,427.1	90.00	0.00	5,633.0	8,101.6	-581.5	0.00	0.00	0.00	0.00	2213A PBHL STK P1

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Site:	S27-T10N-R58W	North Reference:	True
Well:	Razor #27I-2213A	Survey Calculation Method:	Minimum Curvature
Wellbore:	STK		
Design:	STK Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
172.0	0.44	251.07	172.0	-0.2	-0.6	-0.2	0.26	0.26	
263.0	0.70	272.99	263.0	-0.3	-1.5	-0.2	0.37	0.29	
720.0	0.57	249.10	720.0	-1.0	-6.4	-0.5	0.06	-0.03	
903.0	0.40	301.50	903.0	-1.0	-7.8	-0.4	0.25	-0.09	
994.0	0.97	312.58	994.0	-0.3	-8.7	0.4	0.64	0.63	
1,085.0	1.76	331.35	1,084.9	1.5	-9.9	2.2	0.99	0.87	
1,177.0	2.59	345.06	1,176.9	4.7	-11.1	5.5	1.06	0.90	
1,585.0	2.73	355.17	1,584.4	23.3	-14.3	24.3	0.12	0.03	
1,671.0	2.64	351.65	1,670.3	27.3	-14.8	28.3	0.22	-0.10	
1,762.0	2.59	345.77	1,761.2	31.4	-15.6	32.4	0.30	-0.05	
1,853.0	3.38	2.64	1,852.1	36.1	-16.0	37.1	1.29	0.87	
1,945.0	3.12	351.74	1,944.0	41.2	-16.2	42.3	0.73	-0.28	
2,037.0	3.47	352.97	2,035.8	46.5	-16.9	47.6	0.39	0.38	
2,128.0	3.34	343.66	2,126.7	51.8	-18.0	52.9	0.62	-0.14	
2,220.0	4.44	0.36	2,218.4	57.9	-18.7	59.1	1.70	1.20	
2,312.0	4.13	0.27	2,310.2	64.8	-18.7	65.9	0.34	-0.34	
2,403.0	3.91	0.80	2,401.0	71.1	-18.6	72.3	0.25	-0.24	
2,494.0	3.87	358.69	2,491.8	77.3	-18.6	78.5	0.16	-0.04	
2,585.0	3.65	359.92	2,582.6	83.3	-18.7	84.4	0.26	-0.24	
2,677.0	3.34	0.09	2,674.4	88.9	-18.7	90.0	0.34	-0.34	
2,769.0	3.34	358.51	2,766.2	94.3	-18.8	95.4	0.10	0.00	
2,859.0	3.16	0.09	2,856.1	99.4	-18.8	100.4	0.22	-0.20	
2,950.0	2.51	355.87	2,947.0	103.9	-19.0	104.9	0.75	-0.71	
3,041.0	2.11	345.94	3,037.9	107.5	-19.5	108.6	0.62	-0.44	
3,133.0	1.98	347.88	3,129.8	110.7	-20.3	111.8	0.16	-0.14	
3,224.0	3.69	2.73	3,220.7	115.1	-20.5	116.3	2.03	1.88	
3,316.0	3.56	351.65	3,312.5	120.9	-20.7	122.1	0.77	-0.14	
3,408.0	3.60	345.41	3,404.4	126.5	-21.9	127.8	0.43	0.04	
3,500.0	3.65	345.24	3,496.2	132.2	-23.4	133.5	0.06	0.05	
3,591.0	3.12	10.90	3,587.0	137.4	-23.6	138.7	1.75	-0.58	
3,683.0	2.46	17.93	3,678.9	141.7	-22.5	143.0	0.81	-0.72	
3,774.0	2.90	38.59	3,769.8	145.4	-20.5	146.5	1.16	0.48	
3,866.0	2.46	41.93	3,861.7	148.7	-17.7	149.6	0.51	-0.48	
3,958.0	2.42	350.95	3,953.6	152.1	-16.7	152.9	2.28	-0.04	
4,050.0	1.93	343.04	4,045.6	155.5	-17.5	156.3	0.62	-0.53	
4,141.0	1.36	352.71	4,136.5	158.0	-18.1	158.9	0.69	-0.63	
4,232.0	2.29	1.06	4,227.5	160.9	-18.2	161.8	1.06	1.02	
4,323.0	2.07	3.17	4,318.4	164.3	-18.0	165.2	0.26	-0.24	
4,414.0	1.80	349.11	4,409.4	167.4	-18.2	168.3	0.60	-0.30	
4,505.0	1.10	352.45	4,500.3	169.7	-18.6	170.6	0.77	-0.77	
4,596.0	2.29	357.46	4,591.3	172.3	-18.8	173.2	1.32	1.31	
4,688.0	1.76	9.14	4,683.2	175.6	-18.7	176.5	0.73	-0.58	
4,779.0	2.55	335.75	4,774.2	178.8	-19.3	179.7	1.59	0.87	
4,870.0	2.64	324.76	4,865.1	182.4	-21.3	183.4	0.55	0.10	
4,962.0	2.59	334.96	4,957.0	186.0	-23.4	187.2	0.51	-0.05	
5,053.0	1.54	317.46	5,047.9	188.7	-25.1	190.0	1.33	-1.15	Tie-In Survey @ 5,053' MD
5,100.0	3.39	327.74	5,094.9	190.4	-26.3	191.8	4.03	3.94	Sidetrack Point @ 5,100' MD
5,120.0	3.39	327.74	5,114.9	191.4	-26.9	192.8	0.00	0.00	Start 11° Build/Turn
5,150.0	6.69	327.99	5,144.7	193.6	-28.3	195.1	11.00	11.00	
5,200.0	12.19	328.11	5,194.0	200.6	-32.6	202.4	11.00	11.00	
5,250.0	17.69	328.15	5,242.3	211.5	-39.4	213.8	11.00	11.00	

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Well:	Razor #27I-2213A	Survey Calculation Method:	Minimum Curvature
Wellbore:	STK		
Design:	STK Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
5,300.0	23.19	328.18	5,289.2	226.3	-48.6	229.2	11.00	11.00	
5,350.0	28.69	328.19	5,334.1	244.9	-60.2	248.6	11.00	11.00	
5,400.0	34.19	328.20	5,376.8	267.1	-73.9	271.7	11.00	11.00	
5,450.0	39.69	328.21	5,416.7	292.6	-89.7	298.3	11.00	11.00	
5,500.0	45.19	328.22	5,453.6	321.3	-107.5	328.1	11.00	11.00	
5,550.0	50.69	328.22	5,487.1	352.8	-127.0	361.0	11.00	11.00	
5,600.0	56.19	328.23	5,516.8	386.9	-148.2	396.6	11.00	11.00	
5,650.0	61.69	328.23	5,542.6	423.3	-170.7	434.5	11.00	11.00	
5,700.0	67.19	328.24	5,564.2	461.7	-194.5	474.4	11.00	11.00	
5,750.0	72.69	328.24	5,581.3	501.6	-219.2	516.0	11.00	11.00	
5,800.0	78.19	328.24	5,593.9	542.7	-244.6	558.8	11.00	11.00	
5,850.0	83.69	328.24	5,601.8	584.7	-270.6	602.6	11.00	11.00	
5,880.7	87.06	328.25	5,604.2	610.7	-286.7	629.6	11.00	11.00	
5,900.0	87.11	328.81	5,605.2	627.1	-296.8	646.8	2.92	0.24	
6,000.0	87.35	331.72	5,610.1	713.9	-346.3	736.8	2.92	0.25	
6,100.0	87.61	334.63	5,614.5	803.0	-391.4	829.0	2.92	0.25	
6,200.0	87.87	337.54	5,618.4	894.3	-431.9	923.0	2.92	0.26	
6,300.0	88.13	340.44	5,621.9	987.6	-467.7	1,018.6	2.92	0.26	
6,400.0	88.40	343.35	5,624.9	1,082.6	-498.8	1,115.6	2.92	0.27	
6,500.0	88.67	346.25	5,627.5	1,179.1	-525.0	1,213.6	2.92	0.27	
6,600.0	88.95	349.16	5,629.6	1,276.8	-546.3	1,312.6	2.92	0.28	
6,700.0	89.23	352.06	5,631.2	1,375.4	-562.6	1,412.1	2.92	0.28	
6,800.0	89.51	354.97	5,632.3	1,474.7	-573.9	1,512.0	2.92	0.28	
6,900.0	89.79	357.87	5,632.9	1,574.5	-580.1	1,612.0	2.92	0.28	
6,973.4	90.00	0.00	5,633.0	1,647.9	-581.5	1,685.3	2.92	0.28	LP @ 5,633' TVD, 90° - 7" - 1241' FNL, 1273' F
7,000.0	90.00	0.00	5,633.0	1,674.5	-581.5	1,711.8	0.00	0.00	
7,100.0	90.00	0.00	5,633.0	1,774.5	-581.5	1,811.6	0.00	0.00	
7,200.0	90.00	0.00	5,633.0	1,874.5	-581.5	1,911.3	0.00	0.00	
7,300.0	90.00	0.00	5,633.0	1,974.5	-581.5	2,011.1	0.00	0.00	
7,400.0	90.00	0.00	5,633.0	2,074.5	-581.5	2,110.8	0.00	0.00	
7,500.0	90.00	0.00	5,633.0	2,174.5	-581.5	2,210.6	0.00	0.00	
7,600.0	90.00	0.00	5,633.0	2,274.5	-581.5	2,310.3	0.00	0.00	
7,700.0	90.00	0.00	5,633.0	2,374.5	-581.5	2,410.1	0.00	0.00	
7,800.0	90.00	0.00	5,633.0	2,474.5	-581.5	2,509.8	0.00	0.00	
7,900.0	90.00	0.00	5,633.0	2,574.5	-581.5	2,609.5	0.00	0.00	
8,000.0	90.00	0.00	5,633.0	2,674.5	-581.5	2,709.3	0.00	0.00	
8,100.0	90.00	0.00	5,633.0	2,774.5	-581.5	2,809.0	0.00	0.00	
8,200.0	90.00	0.00	5,633.0	2,874.5	-581.5	2,908.8	0.00	0.00	
8,300.0	90.00	0.00	5,633.0	2,974.5	-581.5	3,008.5	0.00	0.00	
8,400.0	90.00	0.00	5,633.0	3,074.5	-581.5	3,108.3	0.00	0.00	
8,500.0	90.00	0.00	5,633.0	3,174.5	-581.5	3,208.0	0.00	0.00	
8,600.0	90.00	0.00	5,633.0	3,274.5	-581.5	3,307.7	0.00	0.00	
8,700.0	90.00	0.00	5,633.0	3,374.5	-581.5	3,407.5	0.00	0.00	
8,800.0	90.00	0.00	5,633.0	3,474.5	-581.5	3,507.2	0.00	0.00	
8,900.0	90.00	0.00	5,633.0	3,574.5	-581.5	3,607.0	0.00	0.00	
9,000.0	90.00	0.00	5,633.0	3,674.5	-581.5	3,706.7	0.00	0.00	
9,100.0	90.00	0.00	5,633.0	3,774.5	-581.5	3,806.5	0.00	0.00	
9,200.0	90.00	0.00	5,633.0	3,874.5	-581.5	3,906.2	0.00	0.00	
9,300.0	90.00	0.00	5,633.0	3,974.5	-581.5	4,005.9	0.00	0.00	
9,400.0	90.00	0.00	5,633.0	4,074.5	-581.5	4,105.7	0.00	0.00	
9,500.0	90.00	0.00	5,633.0	4,174.5	-581.5	4,205.4	0.00	0.00	
9,600.0	90.00	0.00	5,633.0	4,274.5	-581.5	4,305.2	0.00	0.00	

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Wellbore:	STK		
Design:	STK Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
9,700.0	90.00	0.00	5,633.0	4,374.5	-581.5	4,404.9	0.00	0.00	
9,800.0	90.00	0.00	5,633.0	4,474.5	-581.5	4,504.7	0.00	0.00	
9,900.0	90.00	0.00	5,633.0	4,574.5	-581.5	4,604.4	0.00	0.00	
10,000.0	90.00	0.00	5,633.0	4,674.5	-581.5	4,704.2	0.00	0.00	
10,100.0	90.00	0.00	5,633.0	4,774.5	-581.5	4,803.9	0.00	0.00	
10,200.0	90.00	0.00	5,633.0	4,874.5	-581.5	4,903.6	0.00	0.00	
10,300.0	90.00	0.00	5,633.0	4,974.5	-581.5	5,003.4	0.00	0.00	
10,400.0	90.00	0.00	5,633.0	5,074.5	-581.5	5,103.1	0.00	0.00	
10,500.0	90.00	0.00	5,633.0	5,174.5	-581.5	5,202.9	0.00	0.00	
10,600.0	90.00	0.00	5,633.0	5,274.5	-581.5	5,302.6	0.00	0.00	
10,700.0	90.00	0.00	5,633.0	5,374.5	-581.5	5,402.4	0.00	0.00	
10,800.0	90.00	0.00	5,633.0	5,474.5	-581.5	5,502.1	0.00	0.00	
10,900.0	90.00	0.00	5,633.0	5,574.5	-581.5	5,601.8	0.00	0.00	
11,000.0	90.00	0.00	5,633.0	5,674.5	-581.5	5,701.6	0.00	0.00	
11,100.0	90.00	0.00	5,633.0	5,774.5	-581.5	5,801.3	0.00	0.00	
11,200.0	90.00	0.00	5,633.0	5,874.5	-581.5	5,901.1	0.00	0.00	
11,300.0	90.00	0.00	5,633.0	5,974.5	-581.5	6,000.8	0.00	0.00	
11,400.0	90.00	0.00	5,633.0	6,074.5	-581.5	6,100.6	0.00	0.00	
11,500.0	90.00	0.00	5,633.0	6,174.5	-581.5	6,200.3	0.00	0.00	
11,600.0	90.00	0.00	5,633.0	6,274.5	-581.5	6,300.0	0.00	0.00	
11,700.0	90.00	0.00	5,633.0	6,374.5	-581.5	6,399.8	0.00	0.00	
11,800.0	90.00	0.00	5,633.0	6,474.5	-581.5	6,499.5	0.00	0.00	
11,900.0	90.00	0.00	5,633.0	6,574.5	-581.5	6,599.3	0.00	0.00	
12,000.0	90.00	0.00	5,633.0	6,674.5	-581.5	6,699.0	0.00	0.00	
12,100.0	90.00	0.00	5,633.0	6,774.5	-581.5	6,798.8	0.00	0.00	
12,200.0	90.00	0.00	5,633.0	6,874.5	-581.5	6,898.5	0.00	0.00	
12,300.0	90.00	0.00	5,633.0	6,974.5	-581.5	6,998.2	0.00	0.00	
12,400.0	90.00	0.00	5,633.0	7,074.5	-581.5	7,098.0	0.00	0.00	
12,500.0	90.00	0.00	5,633.0	7,174.5	-581.5	7,197.7	0.00	0.00	
12,600.0	90.00	0.00	5,633.0	7,274.5	-581.5	7,297.5	0.00	0.00	
12,700.0	90.00	0.00	5,633.0	7,374.5	-581.5	7,397.2	0.00	0.00	
12,800.0	90.00	0.00	5,633.0	7,474.5	-581.5	7,497.0	0.00	0.00	
12,900.0	90.00	0.00	5,633.0	7,574.5	-581.5	7,596.7	0.00	0.00	
13,000.0	90.00	0.00	5,633.0	7,674.5	-581.5	7,696.5	0.00	0.00	
13,100.0	90.00	0.00	5,633.0	7,774.5	-581.5	7,796.2	0.00	0.00	
13,200.0	90.00	0.00	5,633.0	7,874.5	-581.5	7,895.9	0.00	0.00	
13,300.0	90.00	0.00	5,633.0	7,974.5	-581.5	7,995.7	0.00	0.00	
13,400.0	90.00	0.00	5,633.0	8,074.5	-581.5	8,095.4	0.00	0.00	
13,427.1	90.00	0.00	5,633.0	8,101.6	-581.5	8,122.4	0.00	0.00	TD @ 13,427.1' MD

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #27I-2213A
Company:	Whiting Petroleum Corporation	TVD Reference:	HZ @ 4773.3ft
Project:	Weld County, CO	MD Reference:	HZ @ 4773.3ft
Site:	S27-T10N-R58W	North Reference:	True
Well:	Razor #27I-2213A	Survey Calculation Method:	Minimum Curvature
Wellbore:	STK		
Design:	STK Plan #1		

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
2213A LP STK P1	0.00	0.00	5,633.0	1,647.9	-581.5	1,543,453.18	3,457,716.97	40° 48' 48.373 N	103° 50' 47.032 W
- plan hits target center									
- Point									
2213A PBHL STK P1(1,'	0.00	0.00	5,633.0	8,101.6	-581.5	1,549,905.75	3,457,596.47	40° 49' 52.141 N	103° 50' 47.034 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth	Vertical Depth	Name		Casing Diameter	Hole Diameter
(ft)	(ft)			(in)	(in)
6,973.4	5,633.0	7" - 1241' FNL, 1273' FEL		0.000	0.000

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)		
5,053.0	5,047.9	188.7	-25.1	Tie-In Survey @ 5,053' MD	
5,100.0	5,094.9	190.4	-26.3	Sidetrack Point @ 5,100' MD	
5,120.0	5,114.9	191.4	-26.9	Start 11° Build/Turn	
6,973.4	5,633.0	610.7	-286.7	LP @ 5,633' TVD, 90°	
13,427.1	5,633.0	1,647.9	-581.5	TD @ 13,427.1' MD	

Whiting Petroleum Corporation

Weld County, CO

S27-T10N-R58W

Razor #27I-2213A

STK

STK Plan #1

Anticollision Report

26 November, 2013

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #27I-2213A
Project:	Weld County, CO	TVD Reference:	HZ @ 4773.3ft
Reference Site:	S27-T10N-R58W	MD Reference:	HZ @ 4773.3ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #27I-2213A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	STK	Database:	USA EDM 5000 Multi Users DB
Reference Design:	STK Plan #1	Offset TVD Reference:	Offset Datum

Reference	STK Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	Systematic Ellipse
Depth Range:	5,053.0 to 99,999.0ft	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 500.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	11/26/2013	
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
172.0	5,053.0	Survey #1 (HZ)	ISCWSA MWD	MWD - ISCWSA
5,053.0	13,427.1	STK Plan #1 (STK)	ISCWSA MWD	MWD - ISCWSA

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #27I-2213A
Project:	Weld County, CO	TVD Reference:	HZ @ 4773.3ft
Reference Site:	S27-T10N-R58W	MD Reference:	HZ @ 4773.3ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #27I-2213A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	STK	Database:	USA EDM 5000 Multi Users DB
Reference Design:	STK Plan #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S10-T10N-R58W						
Razor #10F-1509A - HZ - Plan #1						Out of range
Razor #10F-1510B - HZ - Plan #1						Out of range
Razor #10F-1511A - HZ - Plan #1						Out of range
Razor #10F-1512B - HZ - Plan #1	13,353.0	14,155.5	442.9	146.4	1.494	Level 3, CC, ES, SF
Razor #10H-1513A - HZ - Plan #1	13,353.0	13,891.2	277.4	129.9	1.880	CC, ES, SF
Razor #10H-1514B - HZ - Plan #1	13,353.0	13,967.8	443.2	142.4	1.473	Level 3, CC, ES, SF
Razor #10H-1515A - HZ - Plan #1						Out of range
Razor #10H-1516B - HZ - Plan #1						Out of range
S11-T10N-R58W						
Razor #11E-1401A - HZ - Plan #1						Out of range
S26-T10N-R58W						
Razor Federal #26L-2301A - HZ - Plan #3						Out of range
S27-T10N-R58W						
Razor #27I-2213A - HZ - HZ	5,053.0	5,053.0	0.0	0.0	10,000.000	CC
Razor #27I-2213A - HZ - HZ	5,153.0	5,153.0	0.1	-0.3	0.300	Level 1, ES, SF
Razor #27I-2214B - Gyro Surveys - Gyro Surveys	5,777.9	5,905.0	81.8	62.0	4.144	CC, ES
Razor #27I-2214B - Gyro Surveys - Gyro Surveys	13,313.0	13,400.0	346.3	162.5	1.884	SF
Razor #27I-2214B - HZ - FINAL	5,753.0	5,867.6	76.8	63.0	5.594	ES
Razor #27I-2214B - HZ - FINAL	5,774.8	5,891.7	76.2	64.4	6.476	CC
Razor #27I-2214B - HZ - FINAL	13,353.0	13,449.7	343.9	63.2	1.225	Level 2, SF
Razor #27I-2215A - HZ - Plan #3	5,053.0	5,047.6	210.6	191.3	10.914	CC
Razor #27I-2215A - HZ - Plan #3	5,366.4	5,483.6	210.9	190.1	10.141	ES
Razor #27I-2215A - HZ - Plan #3	5,453.0	5,592.7	214.7	193.5	10.101	SF
Razor #27I-2216B - HZ - ORIGINAL HOLE	5,053.0	5,052.5	275.3	253.1	12.392	CC, ES, SF
Razor #27I-2216B - Stk #1 - SURVEYS	5,053.0	5,052.5	275.3	253.1	12.392	CC, ES, SF
Razor #27I-3413A - HZ - SURVEYS	5,053.0	5,044.9	191.2	170.3	9.165	CC, ES, SF
Razor #27I-3414B - HZ - FINAL	5,053.0	5,046.4	281.2	260.5	13.543	CC, ES, SF
Razor #27I-3415A - HZ - Plan #3	5,053.0	5,047.6	198.5	176.8	9.148	CC, ES, SF
Razor #27I-3416B - HZ - FINAL						Out of range
Razor #27I-3416B - HZ - FINAL						Out of range
Razor #27J-2209A - HZ - Plan #3						Out of range
Razor #27J-2210B - HZ - Plan #3						Out of range
Razor #27J-2211A - HZ - Plan #3						Out of range
Razor #27J-2212B - HZ - Plan #3	12,912.0	13,235.4	339.7	58.0	1.206	Level 2, CC, ES
Razor #27J-2212B - HZ - Plan #3	12,953.0	13,248.7	340.8	58.2	1.206	Level 2, SF

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #27I-2213A
Project:	Weld County, CO	TVD Reference:	HZ @ 4773.3ft
Reference Site:	S27-T10N-R58W	MD Reference:	HZ @ 4773.3ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #27I-2213A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	STK	Database:	USA EDM 5000 Multi Users DB
Reference Design:	STK Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-1512B - HZ - Plan #1												Offset Site Error:	0.0 ft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre +N/-S	+E/-W	Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor	Warning
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)			
13,353.0	5,633.0	14,155.5	6,013.0	153.4	158.5	-108.18	8,298.9	-914.1	442.9	146.4	296.50	1.494	Level 3, CC, ES, SF

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #27I-2213A
Project:	Weld County, CO	TVD Reference:	HZ @ 4773.3ft
Reference Site:	S27-T10N-R58W	MD Reference:	HZ @ 4773.3ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #27I-2213A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	STK	Database:	USA EDM 5000 Multi Users DB
Reference Design:	STK Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S10-T10N-R58W - Razor #10H-1513A - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre +N/-S	+E/-W	Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)				
13,153.0	5,633.0	13,891.2	5,912.0	149.6	157.9	-17.38	8,304.8	-584.2	477.4	331.7	145.71	3.276		
13,253.0	5,633.0	13,891.2	5,912.0	151.5	157.9	-17.38	8,304.8	-584.2	377.4	230.8	146.64	2.574		
13,353.0	5,633.0	13,891.2	5,912.0	153.4	157.9	-17.38	8,304.8	-584.2	277.4	129.9	147.56	1.880 CC, ES, SF		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #27I-2213A
Project:	Weld County, CO	TVD Reference:	HZ @ 4773.3ft
Reference Site:	S27-T10N-R58W	MD Reference:	HZ @ 4773.3ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #27I-2213A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	STK	Database:	USA EDM 5000 Multi Users DB
Reference Design:	STK Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S10-T10N-R58W - Razor #10H-1514B - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning	
13,353.0	5,633.0	13,967.8	6,013.0	153.4	157.6	105.78	8,312.1	-254.6	443.2	142.4	300.76	1.473	Level 3, CC, ES, SF	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #27I-2213A
Project:	Weld County, CO	TVD Reference:	HZ @ 4773.3ft
Reference Site:	S27-T10N-R58W	MD Reference:	HZ @ 4773.3ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #27I-2213A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	STK	Database:	USA EDM 5000 Multi Users DB
Reference Design:	STK Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2213A - HZ - HZ												Offset Site Error:	0.0 ft
Survey Program: 172-ISCWSA MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance					Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	
5,053.0	5,047.9	5,053.0	5,047.9	0.0	0.0	0.00	188.7	-25.1	0.0	0.0	0.00	N/A CC	
5,119.5	5,114.3	5,119.5	5,114.3	0.2	0.2	170.40	191.5	-26.9	0.6	0.3	0.27	2.190	
5,153.0	5,147.7	5,153.0	5,147.7	0.2	0.2	102.63	194.0	-28.4	0.1	-0.3	0.48	0.300 Level 1, ES, SF	
5,253.0	5,245.2	5,253.1	5,245.7	0.6	0.6	136.50	211.6	-37.2	2.9	1.9	0.91	3.134	
5,353.0	5,336.7	5,353.3	5,339.7	1.2	1.1	141.11	243.1	-51.4	10.4	9.0	1.35	7.687	
5,453.0	5,419.0	5,453.8	5,429.3	2.0	1.7	151.68	284.1	-71.0	24.5	23.3	1.22	20.041	
5,553.0	5,489.0	5,556.6	5,513.0	3.2	2.6	152.93	338.4	-94.9	44.3	42.3	1.93	22.909	
5,653.0	5,544.0	5,664.8	5,588.8	4.5	3.7	153.50	408.0	-127.5	65.6	62.4	3.26	20.153	
5,753.0	5,582.2	5,785.1	5,648.0	6.1	5.4	152.83	500.4	-175.7	79.8	74.6	5.16	15.459	
5,853.0	5,602.1	5,838.0	5,666.6	7.9	6.3	151.40	544.0	-199.3	106.5	99.7	6.83	15.596	
5,953.0	5,607.8	5,838.0	5,666.6	9.6	6.3	146.53	544.0	-199.3	188.4	179.6	8.79	21.427	
6,053.0	5,612.4	5,838.0	5,666.6	11.4	6.3	139.87	544.0	-199.3	281.7	270.4	11.27	24.993	
6,153.0	5,616.6	5,838.0	5,666.6	13.1	6.3	131.89	544.0	-199.3	377.8	363.7	14.12	26.762	
6,253.0	5,620.3	5,838.0	5,666.6	14.8	6.3	123.87	544.0	-199.3	474.8	457.9	16.91	28.077	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #271-2213A
Project:	Weld County, CO	TVD Reference:	HZ @ 4773.3ft
Reference Site:	S27-T10N-R58W	MD Reference:	HZ @ 4773.3ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #271-2213A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	STK	Database:	USA EDM 5000 Multi Users DB
Reference Design:	STK Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #271-2214B - Gyro Surveys - Gyro Surveys													Offset Site Error: 0.0 ft	
Survey Program: 100- GyroFlex													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,053.0	5,047.9	5,049.9	5,041.6	10.9	1.8	-82.59	30.1	-250.3	275.5	263.1	12.36	22.281		
5,153.0	5,147.7	5,210.3	5,200.9	11.1	1.8	-95.05	38.5	-245.0	271.8	259.2	12.61	21.558		
5,253.0	5,245.2	5,351.4	5,333.4	11.5	1.8	-99.04	83.3	-229.4	245.6	232.5	13.08	18.777		
5,353.0	5,336.7	5,470.2	5,433.1	11.9	1.9	-105.01	146.1	-216.2	208.3	194.3	14.04	14.840		
5,453.0	5,419.0	5,576.6	5,510.5	12.5	2.1	-113.24	218.5	-209.1	167.7	151.9	15.72	10.666		
5,553.0	5,489.0	5,676.9	5,570.3	13.3	2.4	-123.77	298.9	-209.9	128.1	110.0	18.03	7.104		
5,653.0	5,544.0	5,772.8	5,617.5	14.3	2.7	-139.43	382.1	-216.8	96.3	76.0	20.31	4.744		
5,753.0	5,582.2	5,878.5	5,660.4	15.6	3.1	-167.10	478.1	-226.3	82.5	62.4	20.15	4.096		
5,777.9	5,588.9	5,905.0	5,667.8	16.0	3.2	-174.77	503.3	-229.0	81.8	62.0	19.73	4.144	CC, ES	
5,853.0	5,602.1	5,975.1	5,685.5	17.1	3.5	166.33	570.7	-237.2	92.0	71.7	20.29	4.532		
5,953.0	5,607.8	6,074.0	5,704.4	18.7	4.0	147.35	667.0	-247.7	122.9	99.8	23.15	5.309		
6,053.0	5,612.4	6,170.7	5,709.4	20.3	4.5	132.65	763.6	-251.7	153.6	128.4	25.15	6.107		
6,153.0	5,616.6	6,260.5	5,709.6	22.0	5.0	123.07	853.2	-254.2	184.4	157.8	26.58	6.936		
6,253.0	5,620.3	6,354.8	5,710.1	23.7	5.5	116.48	947.6	-255.3	215.8	187.3	28.56	7.557		
6,353.0	5,623.6	6,450.9	5,708.1	25.5	6.0	111.63	1,043.7	-257.3	242.7	212.0	30.75	7.894		
6,453.0	5,626.3	6,544.4	5,708.1	27.2	6.5	108.69	1,137.1	-259.1	267.1	234.2	32.85	8.129		
6,553.0	5,628.6	6,642.9	5,708.1	29.0	7.0	106.53	1,235.6	-260.3	287.8	252.8	34.95	8.234		
6,653.0	5,630.5	6,743.9	5,707.6	30.7	7.6	105.00	1,336.6	-262.6	303.0	266.0	37.00	8.190		
6,753.0	5,631.8	6,843.4	5,710.0	32.4	8.1	104.56	1,436.0	-265.8	313.4	274.5	38.91	8.055		
6,853.0	5,632.6	6,942.9	5,714.0	34.1	8.7	104.81	1,535.3	-269.5	319.0	278.3	40.68	7.841		
6,953.0	5,633.0	7,037.7	5,717.6	35.7	9.2	105.32	1,630.1	-272.4	320.4	278.1	42.30	7.574		
7,053.0	5,633.0	7,131.1	5,721.1	37.3	9.8	105.93	1,723.4	-272.8	321.1	276.9	44.24	7.257		
7,153.0	5,633.0	7,230.3	5,724.5	39.0	10.3	106.50	1,822.5	-272.5	322.3	276.0	46.32	6.959		
7,253.0	5,633.0	7,324.8	5,726.3	40.6	10.9	106.71	1,917.0	-270.7	324.6	276.2	48.44	6.702		
7,353.0	5,633.0	7,418.9	5,727.2	42.2	11.4	106.67	2,011.0	-266.7	329.0	278.4	50.61	6.500		
7,453.0	5,633.0	7,521.3	5,727.5	43.9	12.0	106.47	2,113.3	-261.8	333.7	280.8	52.88	6.310		
7,553.0	5,633.0	7,622.5	5,727.9	45.6	12.5	106.35	2,214.4	-257.9	337.5	282.3	55.15	6.120		
7,653.0	5,633.0	7,717.6	5,728.0	47.3	13.1	106.14	2,309.4	-253.1	342.3	284.9	57.42	5.962		
7,753.0	5,633.0	7,821.8	5,728.5	49.1	13.7	105.98	2,413.4	-248.2	347.0	287.2	59.74	5.808		
7,853.0	5,633.0	7,927.4	5,729.5	50.8	14.3	105.99	2,519.0	-244.7	350.4	288.4	62.06	5.647		
7,953.0	5,633.0	8,036.1	5,728.6	52.6	14.9	105.79	2,627.7	-243.4	351.3	286.9	64.44	5.452		
8,053.0	5,633.0	8,140.7	5,727.4	54.3	15.5	105.62	2,732.3	-243.7	350.8	284.0	66.81	5.250		
8,153.0	5,633.0	8,247.9	5,726.7	56.1	16.2	105.61	2,839.4	-246.1	348.4	279.2	69.17	5.037		
8,253.0	5,633.0	8,356.5	5,726.1	57.9	16.8	105.73	2,947.9	-251.1	343.8	272.3	71.51	4.808		
8,353.0	5,633.0	8,456.3	5,723.5	59.7	17.4	105.59	3,047.4	-257.1	337.3	263.4	73.88	4.566		
8,453.0	5,633.0	8,551.1	5,721.0	61.5	17.9	105.37	3,142.2	-261.4	332.3	256.0	76.25	4.358		
8,553.0	5,633.0	8,642.9	5,719.9	63.3	18.5	105.33	3,233.9	-264.5	328.8	250.2	78.56	4.185		
8,603.4	5,633.0	8,687.0	5,720.3	64.2	18.7	105.41	3,278.0	-265.0	328.3	248.6	79.69	4.119		
8,653.0	5,633.0	8,734.5	5,721.0	65.1	19.0	105.55	3,325.5	-265.0	328.5	247.7	80.81	4.065		
8,753.0	5,633.0	8,837.9	5,721.6	66.9	19.6	105.63	3,428.9	-264.7	329.0	245.8	83.16	3.956		
8,853.0	5,633.0	8,944.7	5,722.8	68.8	20.3	105.94	3,535.7	-267.0	327.2	241.7	85.46	3.829		
8,953.0	5,633.0	9,043.0	5,724.3	70.6	20.8	106.34	3,633.9	-270.0	324.7	237.0	87.68	3.703		
9,053.0	5,633.0	9,140.6	5,725.4	72.4	21.4	106.61	3,731.4	-271.6	323.4	233.5	89.93	3.596		
9,153.0	5,633.0	9,243.4	5,724.8	74.3	22.0	106.57	3,834.3	-273.1	321.8	229.5	92.33	3.485		
9,253.0	5,633.0	9,343.4	5,725.3	76.1	22.6	106.79	3,934.2	-275.8	319.4	224.8	94.61	3.376		
9,348.9	5,633.0	9,432.7	5,725.8	77.9	23.2	106.96	4,023.5	-277.2	318.1	221.4	96.78	3.287		
9,353.0	5,633.0	9,436.2	5,725.8	78.0	23.2	106.96	4,027.0	-277.2	318.1	221.3	96.88	3.284		
9,453.0	5,633.0	9,528.0	5,725.3	79.8	23.7	106.77	4,118.7	-275.2	320.0	220.7	99.29	3.223		
9,553.0	5,633.0	9,631.1	5,724.5	81.7	24.4	106.48	4,221.8	-272.3	322.5	220.6	101.81	3.167		
9,653.0	5,633.0	9,735.3	5,723.7	83.5	25.0	106.30	4,326.0	-271.2	323.3	219.0	104.30	3.100		
9,753.0	5,633.0	9,838.0	5,723.3	85.4	25.6	106.21	4,428.7	-270.7	323.7	217.0	106.75	3.032		
9,853.0	5,633.0	9,940.1	5,722.2	87.3	26.2	106.06	4,530.8	-271.7	322.4	213.1	109.22	2.951		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #27I-2213A
Project:	Weld County, CO	TVD Reference:	HZ @ 4773.3ft
Reference Site:	S27-T10N-R58W	MD Reference:	HZ @ 4773.3ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #27I-2213A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	STK	Database:	USA EDM 5000 Multi Users DB
Reference Design:	STK Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2214B - Gyro Surveys - Gyro Surveys												Offset Site Error: 0.0 ft	
Survey Program: 100- GyroFlex												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance					Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis		Separation Factor
9,897.5	5,633.0	9,981.3	5,721.8	88.1	26.5	106.00	4,572.0	-271.8	322.1	211.8	110.30	2.920	
9,953.0	5,633.0	10,032.1	5,721.4	89.1	26.8	105.92	4,622.8	-271.4	322.5	210.9	111.64	2.889	
10,053.0	5,633.0	10,126.5	5,721.7	91.0	27.4	105.84	4,717.2	-268.8	325.2	211.2	114.05	2.852	
10,153.0	5,633.0	10,229.9	5,720.6	92.9	28.0	105.50	4,820.5	-265.7	327.8	211.1	116.64	2.810	
10,253.0	5,633.0	10,329.5	5,720.4	94.7	28.6	105.36	4,920.0	-263.5	329.9	210.8	119.12	2.769	
10,353.0	5,633.0	10,428.6	5,723.3	96.6	29.2	105.77	5,019.1	-261.7	332.4	211.1	121.34	2.739	
10,453.0	5,633.0	10,530.5	5,727.3	98.5	29.8	106.38	5,120.9	-260.5	334.7	211.2	123.47	2.710	
10,553.0	5,633.0	10,634.7	5,732.5	100.4	30.5	107.22	5,224.9	-260.3	336.3	210.8	125.45	2.681	
10,653.0	5,633.0	10,739.6	5,738.6	102.2	31.1	108.32	5,329.7	-262.6	335.9	208.7	127.25	2.640	
10,753.0	5,633.0	10,840.9	5,742.9	104.1	31.7	109.14	5,430.9	-264.6	335.4	206.3	129.14	2.597	
10,853.0	5,633.0	10,948.2	5,745.5	106.0	32.4	109.73	5,538.1	-267.8	333.4	202.2	131.18	2.541	
10,953.0	5,633.0	11,046.9	5,744.3	107.9	33.0	109.74	5,636.7	-271.3	329.7	196.2	133.55	2.469	
11,041.4	5,633.0	11,126.1	5,744.1	109.6	33.5	109.76	5,715.9	-272.4	328.4	192.8	135.60	2.422	
11,053.0	5,633.0	11,136.4	5,744.1	109.8	33.6	109.77	5,726.2	-272.4	328.5	192.6	135.86	2.418	
11,153.0	5,633.0	11,226.4	5,745.1	111.7	34.1	109.84	5,816.2	-270.8	330.5	192.4	138.14	2.393	
11,253.0	5,633.0	11,319.8	5,746.6	113.6	34.7	109.85	5,909.5	-266.9	335.0	194.5	140.49	2.385	
11,353.0	5,633.0	11,416.9	5,748.0	115.4	35.3	109.76	6,006.4	-261.3	340.9	198.0	142.93	2.385	
11,453.0	5,633.0	11,520.5	5,751.4	117.3	36.0	109.99	6,109.9	-256.1	346.7	201.5	145.17	2.388	
11,553.0	5,633.0	11,627.1	5,754.8	119.2	36.7	110.33	6,216.3	-252.9	350.6	203.3	147.34	2.380	
11,653.0	5,633.0	11,732.2	5,760.2	121.1	37.3	111.10	6,321.3	-251.8	353.4	204.3	149.14	2.370	
11,753.0	5,633.0	11,843.2	5,767.8	123.0	38.0	112.41	6,431.9	-254.7	353.5	203.0	150.45	2.350	
11,853.0	5,633.0	11,949.0	5,773.9	124.9	38.7	113.65	6,537.5	-259.8	351.3	199.6	151.71	2.316	
11,953.0	5,633.0	12,047.1	5,776.9	126.8	39.3	114.41	6,635.4	-264.4	348.4	195.1	153.30	2.272	
12,053.0	5,633.0	12,141.0	5,779.5	128.7	39.9	114.97	6,729.3	-266.8	347.1	192.1	155.03	2.239	
12,097.8	5,633.0	12,184.2	5,781.1	129.5	40.2	115.27	6,772.4	-267.7	347.0	191.3	155.75	2.228	
12,153.0	5,633.0	12,236.0	5,783.3	130.6	40.5	115.65	6,824.1	-268.5	347.2	190.6	156.61	2.217	
12,253.0	5,633.0	12,330.0	5,786.7	132.5	41.1	116.13	6,918.0	-268.1	349.2	190.8	158.37	2.205	
12,353.0	5,633.0	12,431.0	5,791.5	134.4	41.8	116.74	7,018.9	-267.0	352.3	192.3	160.00	2.202	
12,453.0	5,633.0	12,541.2	5,793.9	136.3	42.5	117.13	7,129.1	-267.5	352.9	191.0	161.91	2.179	
12,546.6	5,633.0	12,633.2	5,794.3	138.1	43.1	117.24	7,221.1	-268.3	352.3	188.4	163.92	2.149	
12,553.0	5,633.0	12,639.0	5,794.3	138.2	43.1	117.25	7,226.9	-268.3	352.3	188.2	164.06	2.147	
12,653.0	5,633.0	12,733.9	5,795.8	140.1	43.7	117.42	7,321.8	-267.7	353.6	187.4	166.13	2.128	
12,753.0	5,633.0	12,837.5	5,797.8	142.0	44.4	117.68	7,425.4	-267.4	354.8	186.6	168.12	2.110	
12,853.0	5,633.0	12,943.4	5,798.5	143.9	45.1	117.82	7,531.3	-267.9	354.6	184.3	170.28	2.082	
12,953.0	5,633.0	13,043.7	5,796.6	145.8	45.8	117.60	7,631.5	-268.7	353.0	180.1	172.86	2.042	
13,053.0	5,633.0	13,139.9	5,793.6	147.7	46.4	117.09	7,727.7	-267.5	352.7	176.8	175.81	2.006	
13,153.0	5,633.0	13,245.9	5,790.4	149.6	47.1	116.55	7,833.6	-266.5	352.2	173.3	178.87	1.969	
13,253.0	5,633.0	13,355.8	5,785.3	151.5	47.8	115.91	7,943.4	-268.1	348.8	166.7	182.08	1.916	
13,313.0	5,633.0	13,400.0	5,782.5	152.6	48.1	115.57	7,987.5	-269.2	346.3	162.5	183.81	1.884 SF	
13,353.0	5,633.0	13,400.0	5,782.5	153.4	48.1	115.57	7,987.5	-269.2	348.6	164.1	184.51	1.889	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #271-2213A
Project:	Weld County, CO	TVD Reference:	HZ @ 4773.3ft
Reference Site:	S27-T10N-R58W	MD Reference:	HZ @ 4773.3ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #271-2213A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	STK	Database:	USA EDM 5000 Multi Users DB
Reference Design:	STK Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #271-2214B - HZ - FINAL													Offset Site Error: 0.0 ft	
Survey Program: 138-ISCWSA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,053.0	5,047.9	5,056.7	5,048.0	10.9	11.3	-81.54	32.0	-256.8	279.7	257.7	21.96	12.736		
5,153.0	5,147.7	5,210.5	5,200.8	11.1	11.6	-93.22	44.3	-251.6	273.8	251.3	22.53	12.152		
5,253.0	5,245.2	5,355.7	5,336.3	11.5	12.0	-96.86	92.4	-234.4	246.0	222.7	23.27	10.571		
5,353.0	5,336.7	5,476.9	5,435.6	11.9	12.4	-102.60	159.3	-218.1	205.0	180.9	24.03	8.529		
5,453.0	5,419.0	5,570.2	5,502.3	12.5	13.0	-110.03	224.1	-211.0	162.2	137.6	24.67	6.576		
5,553.0	5,489.0	5,669.3	5,562.2	13.3	13.7	-119.79	302.7	-212.7	123.3	98.6	24.76	4.981		
5,653.0	5,544.0	5,765.9	5,610.2	14.3	14.7	-136.19	386.4	-218.5	89.8	67.4	22.37	4.013		
5,753.0	5,582.2	5,867.6	5,654.0	15.6	15.8	-165.08	477.6	-227.6	76.8	63.0	13.72	5.594 ES		
5,774.8	5,588.2	5,891.7	5,661.3	15.9	16.1	-172.38	500.4	-230.3	76.2	64.4	11.77	6.476 CC		
5,853.0	5,602.1	5,965.6	5,680.3	17.1	17.1	166.74	571.2	-239.8	86.2	74.1	12.10	7.121		
5,953.0	5,607.8	6,062.2	5,701.6	18.7	18.4	148.77	664.5	-252.1	118.1	97.4	20.74	5.695		
6,053.0	5,612.4	6,163.5	5,707.6	20.3	19.9	133.28	765.4	-257.6	147.9	118.0	29.95	4.940		
6,153.0	5,616.6	6,252.7	5,706.3	22.0	21.2	123.07	854.5	-260.5	177.3	140.8	36.53	4.855		
6,253.0	5,620.3	6,342.4	5,706.8	23.7	22.5	116.48	944.2	-260.9	209.3	167.8	41.55	5.037		
6,353.0	5,623.6	6,439.3	5,705.4	25.5	24.0	111.47	1,041.1	-261.8	237.5	191.4	46.09	5.154		
6,453.0	5,626.3	6,533.1	5,705.2	27.2	25.4	108.36	1,134.9	-262.5	262.9	213.1	49.87	5.273		
6,553.0	5,628.6	6,630.4	5,705.4	29.0	26.8	106.22	1,232.2	-263.1	284.4	231.0	53.37	5.329		
6,653.0	5,630.5	6,727.9	5,705.5	30.7	28.3	104.71	1,329.7	-263.5	301.5	244.8	56.70	5.318		
6,753.0	5,631.8	6,828.2	5,707.1	32.4	29.9	104.01	1,429.9	-264.2	314.2	254.4	59.78	5.256		
6,853.0	5,632.6	6,930.0	5,709.5	34.1	31.6	103.87	1,531.6	-265.8	321.4	258.7	62.70	5.125		
6,953.0	5,633.0	7,028.9	5,712.1	35.7	33.2	104.16	1,630.5	-267.7	323.5	258.2	65.37	4.949		
7,036.4	5,633.0	7,108.7	5,715.5	37.1	34.5	104.76	1,710.3	-269.0	323.6	255.8	67.77	4.775		
7,053.0	5,633.0	7,124.4	5,716.0	37.3	34.8	104.87	1,725.9	-269.0	323.3	255.0	68.24	4.737		
7,153.0	5,633.0	7,222.6	5,718.6	39.0	36.4	105.30	1,824.1	-268.7	324.3	252.9	71.35	4.545		
7,253.0	5,633.0	7,322.3	5,721.3	40.6	38.1	105.75	1,923.8	-268.4	325.4	250.8	74.51	4.367		
7,353.0	5,633.0	7,413.0	5,722.1	42.2	39.6	105.79	2,014.4	-266.5	327.6	249.9	77.67	4.217		
7,453.0	5,633.0	7,510.8	5,721.8	43.9	41.3	105.51	2,112.1	-261.5	332.4	251.4	81.06	4.101		
7,553.0	5,633.0	7,608.9	5,721.9	45.6	42.9	105.31	2,210.1	-256.8	337.1	252.7	84.45	3.992		
7,653.0	5,633.0	7,704.7	5,721.8	47.3	44.5	105.04	2,305.7	-251.0	342.9	255.0	87.84	3.904		
7,753.0	5,633.0	7,810.9	5,721.6	49.1	46.3	104.74	2,411.8	-244.7	348.7	257.2	91.44	3.813		
7,853.0	5,633.0	7,924.6	5,722.4	50.8	48.3	104.75	2,525.4	-241.8	351.2	256.1	95.08	3.694		
7,953.0	5,633.0	8,032.6	5,721.7	52.6	50.1	104.65	2,633.4	-242.4	350.5	251.8	98.71	3.551		
8,053.0	5,633.0	8,135.2	5,720.0	54.3	52.0	104.47	2,735.9	-244.2	348.4	246.1	102.30	3.406		
8,153.0	5,633.0	8,238.5	5,718.9	56.1	53.8	104.39	2,839.2	-246.9	345.7	239.8	105.88	3.265		
8,253.0	5,633.0	8,341.4	5,718.1	57.9	55.6	104.44	2,942.0	-250.9	341.7	232.3	109.42	3.123		
8,353.0	5,633.0	8,444.0	5,715.0	59.7	57.4	104.09	3,044.5	-254.9	337.2	224.0	113.13	2.980		
8,453.0	5,633.0	8,537.2	5,712.1	61.5	59.1	103.75	3,137.6	-258.4	332.8	216.2	116.64	2.853		
8,553.0	5,633.0	8,627.8	5,710.9	63.3	60.6	103.61	3,228.2	-259.6	331.2	211.2	119.98	2.760		
8,560.4	5,633.0	8,634.5	5,711.0	63.4	60.7	103.61	3,234.9	-259.6	331.2	211.0	120.22	2.755		
8,653.0	5,633.0	8,725.9	5,711.8	65.1	62.3	103.75	3,326.2	-259.5	331.5	208.2	123.37	2.687		
8,753.0	5,633.0	8,826.6	5,712.3	66.9	64.1	103.83	3,426.9	-259.3	331.8	204.9	126.89	2.615		
8,853.0	5,633.0	8,928.0	5,712.8	68.8	65.8	103.91	3,528.3	-259.4	331.9	201.4	130.42	2.544		
8,953.0	5,633.0	9,033.8	5,714.1	70.6	67.7	104.22	3,634.1	-261.3	330.4	196.5	133.91	2.467		
9,053.0	5,633.0	9,128.5	5,715.1	72.4	69.4	104.44	3,728.8	-262.7	329.2	191.9	137.25	2.398		
9,073.3	5,633.0	9,147.7	5,715.1	72.8	69.7	104.44	3,748.0	-262.8	329.1	191.2	137.95	2.386		
9,153.0	5,633.0	9,226.4	5,713.9	74.3	71.1	104.22	3,826.7	-262.1	329.5	188.6	140.87	2.339		
9,253.0	5,633.0	9,331.9	5,714.3	76.1	73.0	104.31	3,932.2	-263.0	328.8	184.3	144.48	2.276		
9,353.0	5,633.0	9,429.6	5,715.1	78.0	74.8	104.54	4,029.8	-264.7	327.3	179.4	147.88	2.213		
9,384.7	5,633.0	9,459.0	5,715.1	78.6	75.3	104.53	4,059.2	-264.8	327.2	178.2	148.98	2.196		
9,453.0	5,633.0	9,520.0	5,714.5	79.8	76.4	104.39	4,120.3	-264.0	327.9	176.6	151.35	2.167		
9,553.0	5,633.0	9,616.6	5,713.2	81.7	78.1	104.03	4,216.8	-260.3	331.2	176.2	155.03	2.137		
9,653.0	5,633.0	9,719.6	5,712.2	83.5	79.9	103.72	4,319.7	-257.2	334.0	175.1	158.81	2.103		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #27I-2213A
Project:	Weld County, CO	TVD Reference:	HZ @ 4773.3ft
Reference Site:	S27-T10N-R58W	MD Reference:	HZ @ 4773.3ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #27I-2213A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	STK	Database:	USA EDM 5000 Multi Users DB
Reference Design:	STK Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2214B - HZ - FINAL												Offset Site Error:	0.0 ft
Survey Program: 138-ISCWSA MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
9,753.0	5,633.0	9,821.8	5,711.4	85.4	81.7	103.50	4,421.9	-254.9	336.0	173.4	162.56	2.067	
9,853.0	5,633.0	9,926.5	5,710.6	87.3	83.6	103.32	4,526.6	-253.6	337.0	170.6	166.33	2.026	
9,953.0	5,633.0	10,025.2	5,709.6	89.1	85.3	103.12	4,625.2	-252.9	337.4	167.5	169.97	1.985	
10,053.0	5,633.0	10,122.3	5,709.7	91.0	87.0	103.09	4,722.3	-251.7	338.6	165.1	173.45	1.952	
10,153.0	5,633.0	10,222.3	5,710.4	92.9	88.7	103.16	4,822.4	-250.4	340.0	163.1	176.96	1.922	
10,253.0	5,633.0	10,319.9	5,711.0	94.7	90.4	103.19	4,920.0	-248.7	341.9	161.5	180.47	1.895	
10,353.0	5,633.0	10,418.6	5,714.1	96.6	92.1	103.62	5,018.6	-247.0	344.3	160.6	183.73	1.874	
10,453.0	5,633.0	10,517.6	5,718.1	98.5	93.8	104.21	5,117.5	-245.1	347.1	160.2	186.86	1.858	
10,553.0	5,633.0	10,619.4	5,723.2	100.4	95.6	104.94	5,219.1	-243.5	349.9	160.0	189.93	1.842	
10,653.0	5,633.0	10,724.0	5,728.5	102.2	97.5	105.75	5,323.6	-243.0	351.7	158.7	192.96	1.823	
10,753.0	5,633.0	10,826.3	5,732.5	104.1	99.3	106.40	5,425.8	-243.5	352.4	156.3	196.04	1.798	
10,853.0	5,633.0	10,933.4	5,734.3	106.0	101.3	106.73	5,532.9	-244.4	352.0	152.6	199.44	1.765	
10,953.0	5,633.0	11,035.0	5,732.8	107.9	103.1	106.57	5,634.5	-246.1	350.0	146.8	203.16	1.723	
10,994.6	5,633.0	11,069.7	5,732.4	108.7	103.7	106.53	5,669.1	-246.4	349.6	145.0	204.55	1.709	
11,053.0	5,633.0	11,118.4	5,732.4	109.8	104.5	106.48	5,717.8	-245.6	350.4	143.9	206.48	1.697	
11,153.0	5,633.0	11,223.9	5,733.4	111.7	106.4	106.55	5,823.3	-243.9	352.3	142.2	210.04	1.677	
11,253.0	5,633.0	11,321.9	5,734.8	113.6	108.2	106.75	5,921.3	-243.2	353.4	140.0	213.40	1.656	
11,353.0	5,633.0	11,410.9	5,736.0	115.4	109.7	106.79	6,010.3	-240.3	356.8	140.1	216.69	1.646	
11,453.0	5,633.0	11,508.3	5,738.5	117.3	111.4	106.95	6,107.5	-235.2	362.6	142.6	219.98	1.648	
11,553.0	5,633.0	11,623.4	5,742.3	119.2	113.4	107.39	6,222.5	-232.4	365.8	142.5	223.34	1.638	
11,653.0	5,633.0	11,726.2	5,746.9	121.1	115.3	108.11	6,325.1	-233.3	366.4	140.2	226.20	1.620	
11,753.0	5,633.0	11,831.2	5,753.4	123.0	117.1	109.16	6,429.9	-235.1	366.7	138.1	228.64	1.604	
11,853.0	5,633.0	11,941.0	5,758.5	124.9	119.1	110.13	6,539.5	-239.2	364.8	133.6	231.18	1.578	
11,953.0	5,633.0	12,048.4	5,761.5	126.8	121.1	110.95	6,646.7	-245.7	360.1	126.3	233.80	1.540	
12,053.0	5,633.0	12,141.8	5,764.1	128.7	122.7	111.63	6,740.0	-251.0	355.7	119.5	236.26	1.506	
12,153.0	5,633.0	12,235.1	5,767.3	130.6	124.3	112.37	6,833.1	-255.1	352.9	114.4	238.56	1.480 Level 3	
12,192.6	5,633.0	12,269.2	5,768.5	131.3	124.9	112.59	6,867.1	-255.9	352.6	113.1	239.50	1.472 Level 3	
12,253.0	5,633.0	12,323.0	5,770.2	132.5	125.9	112.85	6,920.9	-256.0	353.3	112.2	241.08	1.466 Level 3	
12,353.0	5,633.0	12,421.6	5,774.6	134.4	127.6	113.47	7,019.4	-255.3	355.7	112.2	243.55	1.461 Level 3	
12,453.0	5,633.0	12,529.6	5,778.4	136.3	129.5	114.05	7,127.3	-255.7	356.8	110.6	246.20	1.449 Level 3	
12,553.0	5,633.0	12,634.8	5,778.6	138.2	131.4	114.14	7,232.6	-256.6	356.0	106.5	249.59	1.427 Level 3	
12,653.0	5,633.0	12,734.1	5,778.8	140.1	133.2	114.29	7,331.8	-258.4	354.5	101.7	252.76	1.402 Level 3	
12,753.0	5,633.0	12,834.4	5,780.1	142.0	135.0	114.60	7,432.1	-260.2	353.4	97.7	255.66	1.382 Level 3	
12,853.0	5,633.0	12,932.5	5,780.6	143.9	136.7	114.76	7,530.1	-261.6	352.3	93.5	258.76	1.361 Level 3	
12,933.9	5,633.0	13,010.8	5,780.0	145.4	138.1	114.68	7,608.4	-261.7	352.0	90.4	261.61	1.345 Level 3	
12,953.0	5,633.0	13,029.2	5,779.7	145.8	138.5	114.63	7,626.9	-261.5	352.0	89.6	262.34	1.342 Level 3	
13,053.0	5,633.0	13,127.4	5,777.6	147.7	140.2	114.22	7,725.0	-260.1	352.5	86.1	266.41	1.323 Level 3	
13,153.0	5,633.0	13,235.7	5,774.4	149.6	142.1	113.68	7,833.3	-259.1	352.1	81.2	270.89	1.300 Level 3	
13,253.0	5,633.0	13,345.1	5,769.4	151.5	144.1	113.03	7,942.6	-260.5	349.1	73.5	275.60	1.267 Level 3	
13,353.0	5,633.0	13,449.7	5,762.1	153.4	146.0	112.09	8,046.9	-263.4	343.9	63.2	280.70	1.225 Level 2, SF	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #27I-2213A
Project:	Weld County, CO	TVD Reference:	HZ @ 4773.3ft
Reference Site:	S27-T10N-R58W	MD Reference:	HZ @ 4773.3ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #27I-2213A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	STK	Database:	USA EDM 5000 Multi Users DB
Reference Design:	STK Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2215A - HZ - Plan #3													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,053.0	5,047.9	5,047.6	5,047.6	10.9	8.8	-163.13	-1.1	66.2	210.6	191.3	19.30	10.914	CC	
5,153.0	5,147.7	5,169.6	5,169.5	11.1	9.0	-174.37	2.4	66.3	214.8	194.8	19.93	10.774		
5,253.0	5,245.2	5,323.3	5,317.3	11.5	9.3	179.49	42.5	67.8	213.8	193.2	20.56	10.397		
5,353.0	5,336.7	5,465.7	5,438.4	11.9	9.8	168.13	116.4	70.6	211.0	190.2	20.80	10.144		
5,366.4	5,348.4	5,483.6	5,452.1	12.0	9.9	166.32	128.0	71.0	210.9	190.1	20.80	10.141	ES	
5,453.0	5,419.0	5,592.7	5,526.0	12.5	10.5	153.75	207.9	74.0	214.7	193.5	21.26	10.101	SF	
5,553.0	5,489.0	5,704.9	5,583.0	13.3	11.5	138.64	304.2	77.6	232.0	209.4	22.68	10.232		
5,653.0	5,544.0	5,805.3	5,615.5	14.3	12.5	124.13	399.0	81.2	264.6	239.6	25.00	10.583		
5,753.0	5,582.2	5,897.4	5,628.7	15.6	13.7	110.69	489.9	84.6	309.2	281.6	27.53	11.232		
5,853.0	5,602.1	5,993.9	5,629.6	17.1	14.9	98.83	586.3	87.0	360.3	329.9	30.45	11.832		
5,953.0	5,607.8	6,080.3	5,629.6	18.7	16.2	95.09	672.8	87.1	411.2	377.8	33.38	12.319		
6,053.0	5,612.4	6,168.3	5,629.6	20.3	17.4	93.70	760.8	87.1	458.2	421.8	36.41	12.585		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #27I-2213A
Project:	Weld County, CO	TVD Reference:	HZ @ 4773.3ft
Reference Site:	S27-T10N-R58W	MD Reference:	HZ @ 4773.3ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #27I-2213A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	STK	Database:	USA EDM 5000 Multi Users DB
Reference Design:	STK Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2216B - HZ - ORIGINAL HOLE													Offset Site Error:	0.0 ft
Survey Program: 138-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning	
5,053.0	5,047.9	5,052.5	5,042.4	10.9	11.7	143.53	136.1	245.1	275.3	253.1	22.22	12.392	CC, ES, SF	
5,153.0	5,147.7	5,156.2	5,146.0	11.1	11.9	133.36	137.4	246.6	280.8	258.2	22.58	12.436		
5,253.0	5,245.2	5,256.8	5,245.9	11.5	12.2	132.92	148.3	249.2	296.1	273.5	22.68	13.059		
5,353.0	5,336.7	5,367.2	5,350.9	11.9	12.6	130.62	181.6	252.6	320.5	297.7	22.74	14.092		
5,453.0	5,419.0	5,457.4	5,431.0	12.5	13.0	127.02	222.4	258.6	356.9	334.0	22.92	15.573		
5,553.0	5,489.0	5,581.0	5,528.5	13.3	13.9	122.18	297.8	265.0	399.3	375.6	23.79	16.785		
5,653.0	5,544.0	5,657.2	5,579.8	14.3	14.5	116.63	353.9	268.8	448.1	423.0	25.13	17.834		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #27I-2213A
Project:	Weld County, CO	TVD Reference:	HZ @ 4773.3ft
Reference Site:	S27-T10N-R58W	MD Reference:	HZ @ 4773.3ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #27I-2213A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	STK	Database:	USA EDM 5000 Multi Users DB
Reference Design:	STK Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2216B - Stk #1 - SURVEYS													Offset Site Error:	0.0 ft
Survey Program: 138-ISCWSA MWD, 11318-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,053.0	5,047.9	5,052.5	5,042.4	10.9	11.7	143.53	136.1	245.1	275.3	253.1	22.22	12.392	CC, ES, SF	
5,153.0	5,147.7	5,156.2	5,146.0	11.1	11.9	133.36	137.4	246.6	280.8	258.2	22.58	12.436		
5,253.0	5,245.2	5,256.8	5,245.9	11.5	12.2	132.92	148.3	249.2	296.1	273.5	22.68	13.059		
5,353.0	5,336.7	5,367.2	5,350.9	11.9	12.6	130.62	181.6	252.6	320.5	297.7	22.74	14.092		
5,453.0	5,419.0	5,457.4	5,431.0	12.5	13.0	127.02	222.4	258.6	356.9	334.0	22.92	15.573		
5,553.0	5,489.0	5,581.0	5,528.5	13.3	13.9	122.18	297.8	265.0	399.3	375.6	23.79	16.785		
5,653.0	5,544.0	5,657.2	5,579.8	14.3	14.5	116.63	353.9	268.8	448.1	423.0	25.13	17.834		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #27I-2213A
Project:	Weld County, CO	TVD Reference:	HZ @ 4773.3ft
Reference Site:	S27-T10N-R58W	MD Reference:	HZ @ 4773.3ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #27I-2213A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	STK	Database:	USA EDM 5000 Multi Users DB
Reference Design:	STK Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-3413A - HZ - SURVEYS													Offset Site Error:	0.0 ft
Survey Program: 165-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,053.0	5,047.9	5,044.9	5,044.3	10.9	10.4	-139.25	-2.3	-19.0	191.2	170.3	20.86	9.165	CC, ES, SF	
5,094.6	5,089.5	5,080.4	5,079.8	11.0	10.5	-147.31	-3.4	-19.7	194.0	173.0	21.01	9.237		
5,153.0	5,147.7	5,127.0	5,126.0	11.1	10.6	-148.66	-7.2	-24.1	202.3	181.1	21.18	9.553		
5,253.0	5,245.2	5,198.8	5,195.2	11.5	10.7	-144.72	-18.4	-39.3	236.0	214.9	21.11	11.179		
5,353.0	5,336.7	5,258.8	5,249.9	11.9	10.8	-138.83	-33.0	-58.9	292.3	271.4	20.90	13.986		
5,453.0	5,419.0	5,307.6	5,292.5	12.5	11.0	-130.97	-47.9	-77.5	365.0	343.9	21.06	17.328		
5,553.0	5,489.0	5,331.0	5,312.3	13.3	11.1	-117.93	-55.9	-86.9	449.0	426.4	22.63	19.837		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #27I-2213A
Project:	Weld County, CO	TVD Reference:	HZ @ 4773.3ft
Reference Site:	S27-T10N-R58W	MD Reference:	HZ @ 4773.3ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #27I-2213A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	STK	Database:	USA EDM 5000 Multi Users DB
Reference Design:	STK Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-3414B - HZ - FINAL													Offset Site Error:	0.0 ft
Survey Program: 257-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre +N/-S	+E/-W	Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)				
5,053.0	5,047.9	5,046.4	5,045.5	10.9	10.3	-141.21	-91.9	-6.6	281.2	260.5	20.77	13.543	CC, ES, SF	
5,080.1	5,075.0	5,067.8	5,066.9	11.0	10.3	-147.85	-92.2	-6.9	282.5	261.7	20.86	13.544		
5,153.0	5,147.7	5,118.3	5,117.3	11.1	10.4	-151.69	-95.6	-7.2	291.9	270.8	21.05	13.864		
5,253.0	5,245.2	5,176.0	5,174.3	11.5	10.6	-150.98	-104.5	-6.8	326.3	305.5	20.87	15.633		
5,353.0	5,336.7	5,245.8	5,242.3	11.9	10.7	-150.03	-120.0	-4.9	382.3	362.0	20.25	18.876		
5,453.0	5,419.0	5,279.5	5,274.6	12.5	10.8	-145.67	-129.3	-3.5	455.9	436.4	19.55	23.317		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #27I-2213A
Project:	Weld County, CO	TVD Reference:	HZ @ 4773.3ft
Reference Site:	S27-T10N-R58W	MD Reference:	HZ @ 4773.3ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #27I-2213A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	STK	Database:	USA EDM 5000 Multi Users DB
Reference Design:	STK Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-3415A - HZ - Plan #3													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,053.0	5,047.9	5,047.6	5,047.6	10.9	11.2	-154.45	-1.1	32.9	198.5	176.8	21.70	9.148	CC, ES, SF	
5,085.2	5,080.2	5,079.9	5,079.9	11.0	11.3	-161.79	-1.1	32.9	199.8	178.0	21.83	9.152		
5,153.0	5,147.7	5,136.5	5,136.5	11.1	11.4	-165.30	-1.8	33.2	205.5	183.5	22.00	9.339		
5,253.0	5,245.2	5,200.0	5,199.5	11.5	11.5	-165.53	-8.6	35.8	237.8	216.2	21.62	11.001		
5,353.0	5,336.7	5,250.0	5,248.3	11.9	11.6	-164.89	-18.9	39.7	296.9	276.4	20.56	14.441		
5,453.0	5,419.0	5,300.0	5,295.7	12.5	11.7	-163.22	-33.6	45.3	375.6	356.6	18.99	19.777		
5,553.0	5,489.0	5,314.6	5,309.2	13.3	11.7	-155.81	-38.6	47.2	466.7	448.9	17.80	26.212		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #27I-2213A
Project:	Weld County, CO	TVD Reference:	HZ @ 4773.3ft
Reference Site:	S27-T10N-R58W	MD Reference:	HZ @ 4773.3ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #27I-2213A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	STK	Database:	USA EDM 5000 Multi Users DB
Reference Design:	STK Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #27J-2212B - HZ - Plan #3													Offset Site Error:	0.0 ft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
6,253.0	5,620.3	6,592.4	5,753.4	23.7	24.4	-105.92	943.6	-902.5	468.3	421.5	46.82	10.001		
6,353.0	5,623.6	6,686.7	5,753.4	25.5	25.9	-106.63	1,037.8	-902.5	435.3	385.1	50.20	8.672		
6,453.0	5,626.3	6,782.5	5,753.3	27.2	27.4	-107.32	1,133.6	-902.5	407.2	353.7	53.58	7.601		
6,553.0	5,628.6	6,879.6	5,753.3	29.0	28.9	-107.96	1,230.8	-902.5	384.0	327.1	56.92	6.747		
6,653.0	5,630.5	6,977.8	5,753.3	30.7	30.6	-108.53	1,329.0	-902.5	365.7	305.5	60.19	6.076		
6,753.0	5,631.8	7,076.8	5,753.3	32.4	32.2	-108.98	1,428.0	-902.5	352.4	289.0	63.38	5.559		
6,853.0	5,632.6	7,176.5	5,753.3	34.1	33.9	-109.28	1,527.6	-902.5	343.9	277.4	66.48	5.173		
6,953.0	5,633.0	7,276.4	5,753.3	35.7	35.7	-109.41	1,627.6	-902.5	340.4	270.9	69.48	4.900		
7,000.6	5,633.0	7,324.0	5,753.3	36.5	36.5	-109.42	1,675.2	-902.5	340.1	269.0	71.04	4.787		
7,053.0	5,633.0	7,376.4	5,753.3	37.3	37.4	-109.41	1,727.6	-902.5	340.3	267.6	72.69	4.682		
7,153.0	5,633.0	7,476.4	5,753.3	39.0	39.2	-109.41	1,827.6	-902.5	340.3	264.3	76.00	4.478		
7,253.0	5,633.0	7,576.4	5,753.3	40.6	40.9	-109.41	1,927.6	-902.4	340.3	261.0	79.33	4.289		
7,353.0	5,633.0	7,676.4	5,753.3	42.2	42.7	-109.41	2,027.6	-902.4	340.3	257.6	82.70	4.115		
7,453.0	5,633.0	7,776.4	5,753.3	43.9	44.5	-109.41	2,127.6	-902.4	340.3	254.2	86.09	3.953		
7,553.0	5,633.0	7,876.4	5,753.3	45.6	46.3	-109.41	2,227.6	-902.4	340.3	250.8	89.50	3.802		
7,653.0	5,633.0	7,976.4	5,753.3	47.3	48.1	-109.41	2,327.6	-902.4	340.3	247.3	92.93	3.661		
7,753.0	5,633.0	8,076.4	5,753.3	49.1	50.0	-109.41	2,427.6	-902.4	340.2	243.9	96.38	3.530		
7,853.0	5,633.0	8,176.4	5,753.3	50.8	51.8	-109.41	2,527.6	-902.4	340.2	240.4	99.85	3.408		
7,953.0	5,633.0	8,276.4	5,753.3	52.6	53.6	-109.41	2,627.6	-902.4	340.2	236.9	103.32	3.293		
8,053.0	5,633.0	8,376.4	5,753.3	54.3	55.5	-109.41	2,727.6	-902.4	340.2	233.4	106.81	3.185		
8,153.0	5,633.0	8,476.4	5,753.3	56.1	57.3	-109.41	2,827.6	-902.4	340.2	229.9	110.32	3.084		
8,253.0	5,633.0	8,576.4	5,753.3	57.9	59.2	-109.41	2,927.6	-902.4	340.2	226.4	113.83	2.989		
8,353.0	5,633.0	8,676.4	5,753.2	59.7	61.0	-109.41	3,027.6	-902.3	340.2	222.8	117.35	2.899		
8,453.0	5,633.0	8,776.4	5,753.2	61.5	62.9	-109.41	3,127.6	-902.3	340.2	219.3	120.88	2.814		
8,553.0	5,633.0	8,876.4	5,753.2	63.3	64.8	-109.41	3,227.6	-902.3	340.2	215.7	124.42	2.734		
8,653.0	5,633.0	8,976.4	5,753.2	65.1	66.6	-109.41	3,327.6	-902.3	340.1	212.2	127.96	2.658		
8,753.0	5,633.0	9,076.4	5,753.2	66.9	68.5	-109.41	3,427.6	-902.3	340.1	208.6	131.51	2.586		
8,853.0	5,633.0	9,176.4	5,753.2	68.8	70.4	-109.41	3,527.6	-902.3	340.1	205.1	135.07	2.518		
8,953.0	5,633.0	9,276.4	5,753.2	70.6	72.3	-109.41	3,627.6	-902.3	340.1	201.5	138.63	2.453		
9,053.0	5,633.0	9,376.4	5,753.2	72.4	74.1	-109.41	3,727.6	-902.3	340.1	197.9	142.19	2.392		
9,153.0	5,633.0	9,476.4	5,753.2	74.3	76.0	-109.41	3,827.6	-902.3	340.1	194.3	145.76	2.333		
9,253.0	5,633.0	9,576.4	5,753.2	76.1	77.9	-109.41	3,927.6	-902.3	340.1	190.7	149.34	2.277		
9,353.0	5,633.0	9,676.4	5,753.2	78.0	79.8	-109.41	4,027.6	-902.3	340.1	187.1	152.92	2.224		
9,453.0	5,633.0	9,776.4	5,753.2	79.8	81.7	-109.40	4,127.6	-902.2	340.1	183.6	156.50	2.173		
9,553.0	5,633.0	9,876.4	5,753.2	81.7	83.6	-109.40	4,227.6	-902.2	340.0	180.0	160.09	2.124		
9,653.0	5,633.0	9,976.4	5,753.2	83.5	85.4	-109.40	4,327.6	-902.2	340.0	176.4	163.68	2.077		
9,753.0	5,633.0	10,076.4	5,753.2	85.4	87.3	-109.40	4,427.6	-902.2	340.0	172.8	167.27	2.033		
9,853.0	5,633.0	10,176.4	5,753.2	87.3	89.2	-109.40	4,527.6	-902.2	340.0	169.1	170.87	1.990		
9,953.0	5,633.0	10,276.4	5,753.2	89.1	91.1	-109.40	4,627.6	-902.2	340.0	165.5	174.46	1.949		
10,053.0	5,633.0	10,376.4	5,753.2	91.0	93.0	-109.40	4,727.6	-902.2	340.0	161.9	178.07	1.909		
10,153.0	5,633.0	10,476.4	5,753.2	92.9	94.9	-109.40	4,827.6	-902.2	340.0	158.3	181.67	1.871		
10,253.0	5,633.0	10,576.4	5,753.1	94.7	96.8	-109.40	4,927.6	-902.2	340.0	154.7	185.27	1.835		
10,353.0	5,633.0	10,676.4	5,753.1	96.6	98.7	-109.40	5,027.6	-902.2	340.0	151.1	188.88	1.800		
10,453.0	5,633.0	10,776.4	5,753.1	98.5	100.6	-109.40	5,127.6	-902.1	340.0	147.5	192.49	1.766		
10,553.0	5,633.0	10,876.4	5,753.1	100.4	102.5	-109.40	5,227.6	-902.1	339.9	143.8	196.10	1.734		
10,653.0	5,633.0	10,976.4	5,753.1	102.2	104.4	-109.40	5,327.6	-902.1	339.9	140.2	199.71	1.702		
10,753.0	5,633.0	11,076.4	5,753.1	104.1	106.3	-109.40	5,427.6	-902.1	339.9	136.6	203.33	1.672		
10,853.0	5,633.0	11,176.4	5,753.1	106.0	108.2	-109.40	5,527.6	-902.1	339.9	133.0	206.94	1.643		
10,953.0	5,633.0	11,276.4	5,753.1	107.9	110.1	-109.40	5,627.6	-902.1	339.9	129.3	210.56	1.614		
11,053.0	5,633.0	11,376.4	5,753.1	109.8	112.0	-109.40	5,727.6	-902.1	339.9	125.7	214.18	1.587		
11,153.0	5,633.0	11,476.4	5,753.1	111.7	113.9	-109.40	5,827.6	-902.1	339.9	122.1	217.80	1.561		
11,253.0	5,633.0	11,576.4	5,753.1	113.6	115.8	-109.40	5,927.6	-902.1	339.9	118.4	221.42	1.535		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #27I-2213A
Project:	Weld County, CO	TVD Reference:	HZ @ 4773.3ft
Reference Site:	S27-T10N-R58W	MD Reference:	HZ @ 4773.3ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #27I-2213A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	STK	Database:	USA EDM 5000 Multi Users DB
Reference Design:	STK Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #27J-2212B - HZ - Plan #3												Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
11,353.0	5,633.0	11,676.4	5,753.1	115.4	117.7	-109.40	6,027.6	-902.1	339.9	114.8	225.04	1.510	
11,453.0	5,633.0	11,776.4	5,753.1	117.3	119.6	-109.40	6,127.6	-902.1	339.8	111.2	228.66	1.486 Level 3	
11,553.0	5,633.0	11,876.4	5,753.1	119.2	121.5	-109.40	6,227.6	-902.0	339.8	107.5	232.29	1.463 Level 3	
11,653.0	5,633.0	11,976.4	5,753.1	121.1	123.4	-109.40	6,327.6	-902.0	339.8	103.9	235.91	1.440 Level 3	
11,753.0	5,633.0	12,076.4	5,753.1	123.0	125.3	-109.40	6,427.6	-902.0	339.8	100.3	239.54	1.419 Level 3	
11,853.0	5,633.0	12,176.4	5,753.1	124.9	127.2	-109.40	6,527.6	-902.0	339.8	96.6	243.17	1.397 Level 3	
11,953.0	5,633.0	12,276.4	5,753.1	126.8	129.2	-109.40	6,627.6	-902.0	339.8	93.0	246.80	1.377 Level 3	
12,053.0	5,633.0	12,376.4	5,753.1	128.7	131.1	-109.40	6,727.6	-902.0	339.8	89.4	250.42	1.357 Level 3	
12,153.0	5,633.0	12,476.4	5,753.1	130.6	133.0	-109.40	6,827.6	-902.0	339.8	85.7	254.05	1.337 Level 3	
12,253.0	5,633.0	12,576.4	5,753.0	132.5	134.9	-109.40	6,927.6	-902.0	339.8	82.1	257.69	1.319 Level 3	
12,353.0	5,633.0	12,676.4	5,753.0	134.4	136.8	-109.40	7,027.6	-902.0	339.7	78.4	261.32	1.300 Level 3	
12,453.0	5,633.0	12,776.4	5,753.0	136.3	138.7	-109.40	7,127.6	-902.0	339.7	74.8	264.95	1.282 Level 3	
12,553.0	5,633.0	12,876.4	5,753.0	138.2	140.6	-109.40	7,227.6	-901.9	339.7	71.1	268.58	1.265 Level 3	
12,653.0	5,633.0	12,976.4	5,753.0	140.1	142.5	-109.40	7,327.6	-901.9	339.7	67.5	272.21	1.248 Level 2	
12,753.0	5,633.0	13,076.4	5,753.0	142.0	144.4	-109.40	7,427.6	-901.9	339.7	63.9	275.85	1.231 Level 2	
12,853.0	5,633.0	13,176.4	5,753.0	143.9	146.3	-109.39	7,527.6	-901.9	339.7	60.2	279.48	1.215 Level 2	
12,912.0	5,633.0	13,235.4	5,753.0	145.0	147.5	-109.39	7,586.6	-901.9	339.7	58.0	281.66	1.206 Level 2, CC, ES	
12,963.0	5,633.0	13,248.7	5,753.0	145.8	147.7	-109.39	7,599.9	-901.9	340.8	58.2	282.64	1.206 Level 2, SF	
13,053.0	5,633.0	13,248.7	5,753.0	147.7	147.7	-109.39	7,599.9	-901.9	362.9	78.3	284.53	1.275 Level 3	
13,153.0	5,633.0	13,248.7	5,753.0	149.6	147.7	-109.39	7,599.9	-901.9	408.9	122.5	286.42	1.428 Level 3	
13,253.0	5,633.0	13,248.7	5,753.0	151.5	147.7	-109.39	7,599.9	-901.9	471.9	183.6	288.31	1.637	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #27I-2213A
Project:	Weld County, CO	TVD Reference:	HZ @ 4773.3ft
Reference Site:	S27-T10N-R58W	MD Reference:	HZ @ 4773.3ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #27I-2213A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	STK	Database:	USA EDM 5000 Multi Users DB
Reference Design:	STK Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to HZ @ 4773.3ft

Offset Depths are relative to Offset Datum

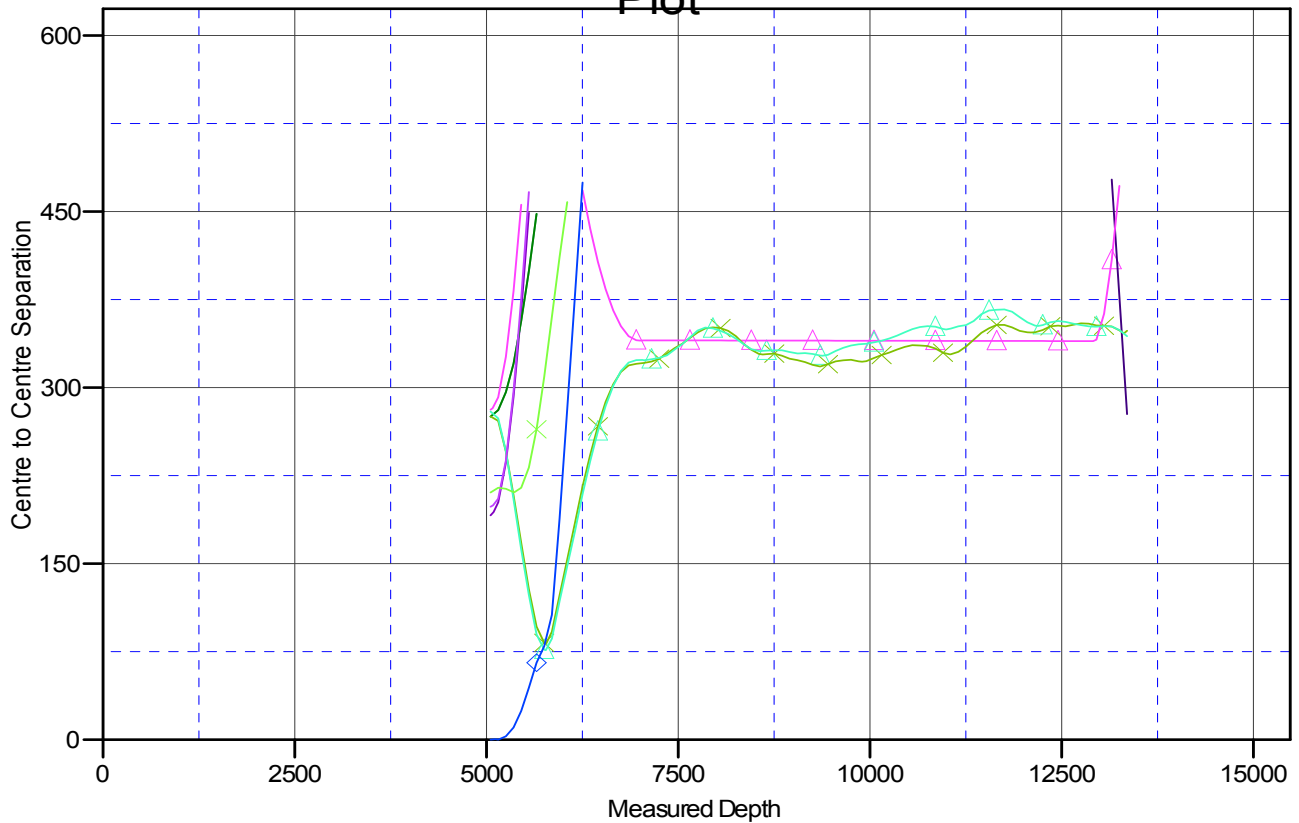
Central Meridian is 105° 30' 0.000 W °

Coordinates are relative to: Razor #27I-2213A

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 1.07°

Ladder Plot



LEGEND

Razor #10H-1513A, HZ, Plan #1 V0	Razor #27I-2216B, Stk #1, SURVEYS V0	Razor #27I-3415A, HZ, Plan #3 V0
Razor #10H-1514B, HZ, Plan #1 V0	Razor #27J-2212B, HZ, Plan #3 V0	Razor #27I-2213A, HZ, HZ V0
Razor #10F-1512B, HZ, Plan #1 V0	Razor #27I-3414B, HZ, FINAL V0	Razor #27I-2215A, HZ, Plan #3 V0
Razor #27I-3413A, HZ, SURVEYS V0	Razor #27I-2214B, Gyro Surveys, Gyro Surveys V0	
Razor #27I-2216B, HZ, ORIGINAL HOLE V0	Razor #27I-2214B, HZ, FINAL V0	