



Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Company:	Whiting Petroleum Corporation	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Project:	Weld County, CO	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site:	S12-T10N-R58W	North Reference:	True
Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #6		

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		S12-T10N-R58W			
Site Position:		Northing:	1,558,537.97 usft	Latitude:	40.854456
From:	Lat/Long	Easting:	3,465,176.15 usft	Longitude:	-103.818397
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	1.09 °

Well	Razor Federal #12F-1304B					
Well Position	+N/-S	0.0 usft	Northing:	1,558,539.82 usft	Latitude:	40.854455
	+E/-W	0.0 usft	Easting:	3,465,275.26 usft	Longitude:	-103.818039
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	4,936.8 usft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	4/11/2015	7.65	67.35	52,976

Design	Plan #6			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	180.00

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.00	0.00	
894.8	4.42	297.54	894.5	5.3	-10.1	1.50	1.50	0.00	297.54	
3,714.2	4.42	297.54	3,705.5	105.7	-202.8	0.00	0.00	0.00	0.00	
4,009.0	0.00	0.00	4,000.0	111.0	-212.9	1.50	-1.50	0.00	180.00	
5,585.1	0.00	0.00	5,576.1	111.0	-212.9	0.00	0.00	0.00	0.00	
6,403.3	90.00	180.00	6,097.0	-409.9	-212.9	11.00	11.00	0.00	180.00	
14,235.6	90.00	180.00	6,097.0	-8,242.2	-212.9	0.00	0.00	0.00	0.00	Razor #12-1304B PBI

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Company:	Whiting Petroleum Corporation	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Project:	Weld County, CO	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site:	S12-T10N-R58W	North Reference:	True
Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #6		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	KOP @ 600' MD
700.0	1.50	297.54	700.0	0.6	-1.2	-0.6	1.50	1.50	
800.0	3.00	297.54	799.9	2.4	-4.6	-2.4	1.50	1.50	
894.8	4.42	297.54	894.5	5.3	-10.1	-5.3	1.50	1.50	EOB; 4.42° Inc
900.0	4.42	297.54	899.7	5.4	-10.4	-5.4	0.00	0.00	
1,000.0	4.42	297.54	999.4	9.0	-17.3	-9.0	0.00	0.00	
1,100.0	4.42	297.54	1,099.1	12.6	-24.1	-12.6	0.00	0.00	
1,200.0	4.42	297.54	1,198.8	16.1	-30.9	-16.1	0.00	0.00	
1,300.0	4.42	297.54	1,298.5	19.7	-37.8	-19.7	0.00	0.00	
1,400.0	4.42	297.54	1,398.2	23.3	-44.6	-23.3	0.00	0.00	
1,500.0	4.42	297.54	1,497.9	26.8	-51.5	-26.8	0.00	0.00	
1,600.0	4.42	297.54	1,597.6	30.4	-58.3	-30.4	0.00	0.00	
1,700.0	4.42	297.54	1,697.3	34.0	-65.1	-34.0	0.00	0.00	
1,800.0	4.42	297.54	1,797.0	37.5	-72.0	-37.5	0.00	0.00	
1,900.0	4.42	297.54	1,896.7	41.1	-78.8	-41.1	0.00	0.00	
2,000.0	4.42	297.54	1,996.4	44.6	-85.6	-44.6	0.00	0.00	
2,100.0	4.42	297.54	2,096.1	48.2	-92.5	-48.2	0.00	0.00	
2,200.0	4.42	297.54	2,195.8	51.8	-99.3	-51.8	0.00	0.00	
2,300.0	4.42	297.54	2,295.5	55.3	-106.1	-55.3	0.00	0.00	
2,400.0	4.42	297.54	2,395.2	58.9	-113.0	-58.9	0.00	0.00	
2,500.0	4.42	297.54	2,494.9	62.5	-119.8	-62.5	0.00	0.00	
2,600.0	4.42	297.54	2,594.6	66.0	-126.7	-66.0	0.00	0.00	
2,700.0	4.42	297.54	2,694.3	69.6	-133.5	-69.6	0.00	0.00	
2,800.0	4.42	297.54	2,794.0	73.2	-140.3	-73.2	0.00	0.00	
2,900.0	4.42	297.54	2,893.7	76.7	-147.2	-76.7	0.00	0.00	
3,000.0	4.42	297.54	2,993.4	80.3	-154.0	-80.3	0.00	0.00	
3,100.0	4.42	297.54	3,093.1	83.9	-160.8	-83.9	0.00	0.00	
3,200.0	4.42	297.54	3,192.8	87.4	-167.7	-87.4	0.00	0.00	
3,300.0	4.42	297.54	3,292.5	91.0	-174.5	-91.0	0.00	0.00	
3,400.0	4.42	297.54	3,392.3	94.5	-181.3	-94.5	0.00	0.00	
3,500.0	4.42	297.54	3,492.0	98.1	-188.2	-98.1	0.00	0.00	
3,600.0	4.42	297.54	3,591.7	101.7	-195.0	-101.7	0.00	0.00	
3,700.0	4.42	297.54	3,691.4	105.2	-201.8	-105.2	0.00	0.00	
3,714.2	4.42	297.54	3,705.5	105.7	-202.8	-105.7	0.00	0.00	Start 1.5° Drop
3,800.0	3.13	297.54	3,791.1	108.4	-207.8	-108.4	1.50	-1.50	
3,900.0	1.63	297.54	3,891.0	110.3	-211.5	-110.3	1.50	-1.50	
4,000.0	0.13	297.54	3,991.0	111.0	-212.9	-111.0	1.50	-1.50	
4,009.0	0.00	0.00	4,000.0	111.0	-212.9	-111.0	1.50	-1.50	EOD; Vertical
4,100.0	0.00	0.00	4,091.0	111.0	-212.9	-111.0	0.00	0.00	
4,200.0	0.00	0.00	4,191.0	111.0	-212.9	-111.0	0.00	0.00	
4,300.0	0.00	0.00	4,291.0	111.0	-212.9	-111.0	0.00	0.00	
4,400.0	0.00	0.00	4,391.0	111.0	-212.9	-111.0	0.00	0.00	
4,500.0	0.00	0.00	4,491.0	111.0	-212.9	-111.0	0.00	0.00	
4,600.0	0.00	0.00	4,591.0	111.0	-212.9	-111.0	0.00	0.00	
4,700.0	0.00	0.00	4,691.0	111.0	-212.9	-111.0	0.00	0.00	
4,800.0	0.00	0.00	4,791.0	111.0	-212.9	-111.0	0.00	0.00	

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Site:	S12-T10N-R58W	North Reference:	True
Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #6		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
4,900.0	0.00	0.00	4,891.0	111.0	-212.9	-111.0	0.00	0.00	
5,000.0	0.00	0.00	4,991.0	111.0	-212.9	-111.0	0.00	0.00	
5,100.0	0.00	0.00	5,091.0	111.0	-212.9	-111.0	0.00	0.00	
5,200.0	0.00	0.00	5,191.0	111.0	-212.9	-111.0	0.00	0.00	
5,300.0	0.00	0.00	5,291.0	111.0	-212.9	-111.0	0.00	0.00	
5,400.0	0.00	0.00	5,391.0	111.0	-212.9	-111.0	0.00	0.00	
5,500.0	0.00	0.00	5,491.0	111.0	-212.9	-111.0	0.00	0.00	
5,585.1	0.00	0.00	5,576.1	111.0	-212.9	-111.0	0.00	0.00	Start Build 11.00
5,600.0	1.64	180.00	5,591.0	110.8	-212.9	-110.8	11.00	11.00	
5,700.0	12.64	180.00	5,690.1	98.4	-212.9	-98.4	11.00	11.00	
5,800.0	23.64	180.00	5,785.0	67.3	-212.9	-67.3	11.00	11.00	
5,900.0	34.64	180.00	5,872.2	18.7	-212.9	-18.7	11.00	11.00	
6,000.0	45.64	180.00	5,948.5	-45.7	-212.9	45.7	11.00	11.00	
6,100.0	56.64	180.00	6,011.2	-123.4	-212.9	123.4	11.00	11.00	
6,200.0	67.64	180.00	6,057.8	-211.7	-212.9	211.7	11.00	11.00	
6,300.0	78.64	180.00	6,086.8	-307.3	-212.9	307.3	11.00	11.00	
6,400.0	89.64	180.00	6,097.0	-406.6	-212.9	406.6	11.00	11.00	
6,403.3	90.00	180.00	6,097.0	-409.9	-212.9	409.9	10.96	10.96	LP @ 6097' TVD; 90° - Top Codell - 7" (1217' F)
6,483.4	90.00	180.00	6,097.0	-490.0	-212.9	490.0	0.00	0.00	MARKER JOINT @ 6483' MD 1218' FWL, 2551
6,500.0	90.00	180.00	6,097.0	-506.6	-212.9	506.6	0.00	0.00	
6,600.0	90.00	180.00	6,097.0	-606.6	-212.9	606.6	0.00	0.00	
6,700.0	90.00	180.00	6,097.0	-706.6	-212.9	706.6	0.00	0.00	
6,800.0	90.00	180.00	6,097.0	-806.6	-212.9	806.6	0.00	0.00	
6,900.0	90.00	180.00	6,097.0	-906.6	-212.9	906.6	0.00	0.00	
7,000.0	90.00	180.00	6,097.0	-1,006.6	-212.9	1,006.6	0.00	0.00	
7,100.0	90.00	180.00	6,097.0	-1,106.6	-212.9	1,106.6	0.00	0.00	
7,200.0	90.00	180.00	6,097.0	-1,206.6	-212.9	1,206.6	0.00	0.00	
7,300.0	90.00	180.00	6,097.0	-1,306.6	-212.9	1,306.6	0.00	0.00	
7,400.0	90.00	180.00	6,097.0	-1,406.6	-212.9	1,406.6	0.00	0.00	
7,500.0	90.00	180.00	6,097.0	-1,506.6	-212.9	1,506.6	0.00	0.00	
7,600.0	90.00	180.00	6,097.0	-1,606.6	-212.9	1,606.6	0.00	0.00	
7,700.0	90.00	180.00	6,097.0	-1,706.6	-212.9	1,706.6	0.00	0.00	
7,800.0	90.00	180.00	6,097.0	-1,806.6	-212.9	1,806.6	0.00	0.00	
7,900.0	90.00	180.00	6,097.0	-1,906.6	-212.9	1,906.6	0.00	0.00	
8,000.0	90.00	180.00	6,097.0	-2,006.6	-212.9	2,006.6	0.00	0.00	
8,100.0	90.00	180.00	6,097.0	-2,106.6	-212.9	2,106.6	0.00	0.00	
8,200.0	90.00	180.00	6,097.0	-2,206.6	-212.9	2,206.6	0.00	0.00	
8,300.0	90.00	180.00	6,097.0	-2,306.6	-212.9	2,306.6	0.00	0.00	
8,400.0	90.00	180.00	6,097.0	-2,406.6	-212.9	2,406.6	0.00	0.00	
8,500.0	90.00	180.00	6,097.0	-2,506.6	-212.9	2,506.6	0.00	0.00	
8,600.0	90.00	180.00	6,097.0	-2,606.6	-212.9	2,606.6	0.00	0.00	
8,700.0	90.00	180.00	6,097.0	-2,706.6	-212.9	2,706.6	0.00	0.00	
8,800.0	90.00	180.00	6,097.0	-2,806.6	-212.9	2,806.6	0.00	0.00	
8,900.0	90.00	180.00	6,097.0	-2,906.6	-212.9	2,906.6	0.00	0.00	
9,000.0	90.00	180.00	6,097.0	-3,006.6	-212.9	3,006.6	0.00	0.00	
9,100.0	90.00	180.00	6,097.0	-3,106.6	-212.9	3,106.6	0.00	0.00	
9,200.0	90.00	180.00	6,097.0	-3,206.6	-212.9	3,206.6	0.00	0.00	
9,300.0	90.00	180.00	6,097.0	-3,306.6	-212.9	3,306.6	0.00	0.00	
9,400.0	90.00	180.00	6,097.0	-3,406.6	-212.9	3,406.6	0.00	0.00	
9,500.0	90.00	180.00	6,097.0	-3,506.6	-212.9	3,506.6	0.00	0.00	
9,600.0	90.00	180.00	6,097.0	-3,606.6	-212.9	3,606.6	0.00	0.00	
9,700.0	90.00	180.00	6,097.0	-3,706.6	-212.9	3,706.6	0.00	0.00	

Planning Report

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Company:	Whiting Petroleum Corporation	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Project:	Weld County, CO	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site:	S12-T10N-R58W	North Reference:	True
Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #6		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
9,800.0	90.00	180.00	6,097.0	-3,806.6	-212.9	3,806.6	0.00	0.00	
9,900.0	90.00	180.00	6,097.0	-3,906.6	-212.9	3,906.6	0.00	0.00	
10,000.0	90.00	180.00	6,097.0	-4,006.6	-212.9	4,006.6	0.00	0.00	
10,100.0	90.00	180.00	6,097.0	-4,106.6	-212.9	4,106.6	0.00	0.00	
10,200.0	90.00	180.00	6,097.0	-4,206.6	-212.9	4,206.6	0.00	0.00	
10,300.0	90.00	180.00	6,097.0	-4,306.6	-212.9	4,306.6	0.00	0.00	
10,400.0	90.00	180.00	6,097.0	-4,406.6	-212.9	4,406.6	0.00	0.00	
10,500.0	90.00	180.00	6,097.0	-4,506.6	-212.9	4,506.6	0.00	0.00	
10,600.0	90.00	180.00	6,097.0	-4,606.6	-212.9	4,606.6	0.00	0.00	
10,700.0	90.00	180.00	6,097.0	-4,706.6	-212.9	4,706.6	0.00	0.00	
10,800.0	90.00	180.00	6,097.0	-4,806.6	-212.9	4,806.6	0.00	0.00	
10,900.0	90.00	180.00	6,097.0	-4,906.6	-212.9	4,906.6	0.00	0.00	
11,000.0	90.00	180.00	6,097.0	-5,006.6	-212.9	5,006.6	0.00	0.00	
11,100.0	90.00	180.00	6,097.0	-5,106.6	-212.9	5,106.6	0.00	0.00	
11,200.0	90.00	180.00	6,097.0	-5,206.6	-212.9	5,206.6	0.00	0.00	
11,300.0	90.00	180.00	6,097.0	-5,306.6	-212.9	5,306.6	0.00	0.00	
11,400.0	90.00	180.00	6,097.0	-5,406.6	-212.9	5,406.6	0.00	0.00	
11,500.0	90.00	180.00	6,097.0	-5,506.6	-212.9	5,506.6	0.00	0.00	
11,600.0	90.00	180.00	6,097.0	-5,606.6	-212.9	5,606.6	0.00	0.00	
11,700.0	90.00	180.00	6,097.0	-5,706.6	-212.9	5,706.6	0.00	0.00	
11,800.0	90.00	180.00	6,097.0	-5,806.6	-212.9	5,806.6	0.00	0.00	
11,900.0	90.00	180.00	6,097.0	-5,906.6	-212.9	5,906.6	0.00	0.00	
12,000.0	90.00	180.00	6,097.0	-6,006.6	-212.9	6,006.6	0.00	0.00	
12,100.0	90.00	180.00	6,097.0	-6,106.6	-212.9	6,106.6	0.00	0.00	
12,200.0	90.00	180.00	6,097.0	-6,206.6	-212.9	6,206.6	0.00	0.00	
12,300.0	90.00	180.00	6,097.0	-6,306.6	-212.9	6,306.6	0.00	0.00	
12,400.0	90.00	180.00	6,097.0	-6,406.6	-212.9	6,406.6	0.00	0.00	
12,500.0	90.00	180.00	6,097.0	-6,506.6	-212.9	6,506.6	0.00	0.00	
12,600.0	90.00	180.00	6,097.0	-6,606.6	-212.9	6,606.6	0.00	0.00	
12,700.0	90.00	180.00	6,097.0	-6,706.6	-212.9	6,706.6	0.00	0.00	
12,800.0	90.00	180.00	6,097.0	-6,806.6	-212.9	6,806.6	0.00	0.00	
12,900.0	90.00	180.00	6,097.0	-6,906.6	-212.9	6,906.6	0.00	0.00	
13,000.0	90.00	180.00	6,097.0	-7,006.6	-212.9	7,006.6	0.00	0.00	
13,100.0	90.00	180.00	6,097.0	-7,106.6	-212.9	7,106.6	0.00	0.00	
13,200.0	90.00	180.00	6,097.0	-7,206.6	-212.9	7,206.6	0.00	0.00	
13,300.0	90.00	180.00	6,097.0	-7,306.6	-212.9	7,306.6	0.00	0.00	
13,400.0	90.00	180.00	6,097.0	-7,406.6	-212.9	7,406.6	0.00	0.00	
13,500.0	90.00	180.00	6,097.0	-7,506.6	-212.9	7,506.6	0.00	0.00	
13,600.0	90.00	180.00	6,097.0	-7,606.6	-212.9	7,606.6	0.00	0.00	
13,700.0	90.00	180.00	6,097.0	-7,706.6	-212.9	7,706.6	0.00	0.00	
13,800.0	90.00	180.00	6,097.0	-7,806.6	-212.9	7,806.6	0.00	0.00	
13,900.0	90.00	180.00	6,097.0	-7,906.6	-212.9	7,906.6	0.00	0.00	
14,000.0	90.00	180.00	6,097.0	-8,006.6	-212.9	8,006.6	0.00	0.00	
14,100.0	90.00	180.00	6,097.0	-8,106.6	-212.9	8,106.6	0.00	0.00	
14,200.0	90.00	180.00	6,097.0	-8,206.6	-212.9	8,206.6	0.00	0.00	
14,235.6	90.00	180.00	6,097.0	-8,242.2	-212.9	8,242.2	0.00	0.00	TD at 14235.6

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Company:	Whiting Petroleum Corporation	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Project:	Weld County, CO	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site:	S12-T10N-R58W	North Reference:	True
Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #6		

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
Razor #12-1304B PBHL	0.00	0.00	5,900.0	-8,242.2	-212.9	1,550,295.04	3,465,218.69	40.831833	-103.818808
- plan misses target center by 197.0usft at 14235.6usft MD (6097.0 TVD, -8242.2 N, -212.9 E)									
- Point									
Razor #12-1304B PBHL	0.00	0.00	5,978.0	-8,242.2	-212.9	1,550,295.04	3,465,218.69	40.831833	-103.818808
- plan misses target center by 119.0usft at 14235.6usft MD (6097.0 TVD, -8242.2 N, -212.9 E)									
- Point									
Razor #12-1304B PBHL	0.00	0.00	5,912.0	-8,242.2	-212.9	1,550,295.04	3,465,218.69	40.831833	-103.818808
- plan misses target center by 185.0usft at 14235.6usft MD (6097.0 TVD, -8242.2 N, -212.9 E)									
- Point									
Razor #12-1304B PBHL	0.00	0.00	6,097.0	-8,242.2	-212.9	1,550,295.04	3,465,218.69	40.831833	-103.818808
- plan hits target center									
- Point									

Casing Points					
	Measured Depth	Vertical Depth		Casing Diameter	Hole Diameter
	(usft)	(usft)	Name	(")	(")
	6,403.3	6,097.0	7" (1217' FWL, 2633' FSL)	0	0

Formations					
	Measured Depth	Vertical Depth		Dip	Dip Direction
	(usft)	(usft)	Name	(°)	(°)
	6,403.3	6,097.0	Top Codell	0.00	

Plan Annotations					
	Measured Depth	Vertical Depth	Local Coordinates		
	(usft)	(usft)	+N/-S	+E/-W	Comment
	(usft)	(usft)	(usft)	(usft)	
	600.0	600.0	0.0	0.0	KOP @ 600' MD
	894.8	894.5	5.3	-10.1	EOB; 4.42° Inc
	3,714.2	3,705.5	105.7	-202.8	Start 1.5° Drop
	4,009.0	4,000.0	111.0	-212.9	EOD; Vertical
	5,585.1	5,576.1	111.0	-212.9	Start Build 11.00
	6,403.3	6,097.0	-409.9	-212.9	LP @ 6097' TVD; 90°
	6,483.4	6,097.0	-490.0	-212.9	MARKER JOINT @ 6483' MD 1218' FWL, 2551' FSL
	14,235.6	6,097.0	-8,242.2	-212.9	TD at 14235.6

Whiting Petroleum Corporation

Weld County, CO

S12-T10N-R58W

Razor Federal #12F-1304B

HZ

Plan #6

Anticollision Report

13 April, 2015

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Reference	Plan #6		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 5,280.0usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date	4/13/2015		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	14,235.6	Plan #6 (HZ)	ISCWSA MWD	MWD - ISCWSA

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance		Separation Factor	Warning
			Between Centres (usft)	Between Ellipses (usft)		
S12-T10N-R58W						
Razor #12F-0101A - HZ - Plan #3	500.0	498.8	124.2	122.3	62.716	CC
Razor #12F-0101A - HZ - Plan #3	3,714.2	3,703.4	129.6	112.4	7.551	SF
Razor #12F-0101A - HZ - Plan #3	3,800.0	3,789.2	130.7	113.1	7.442	SF
Razor #12F-0102B - HZ - Plan #3	500.0	498.8	99.9	97.9	50.425	CC, ES
Razor #12F-0102B - HZ - Plan #3	3,800.0	3,790.0	142.9	124.7	7.865	SF
Razor #12F-0103A - HZ - Plan #3	1,139.9	1,134.9	64.2	59.3	13.164	CC, ES
Razor #12F-0103A - HZ - Plan #3	4,009.0	3,999.9	163.8	144.5	8.491	SF
Razor #12F-0104B - HZ - Plan #3	884.6	881.3	71.7	68.0	19.366	CC
Razor #12F-0104B - HZ - Plan #3	900.0	896.3	71.7	68.0	19.022	ES
Razor #12F-0104B - HZ - Plan #3	5,200.0	5,186.1	279.7	255.1	11.387	SF
Razor #12F-0105A - HZ - Plan #3	801.7	800.4	81.7	78.4	24.585	CC
Razor #12F-0105A - HZ - Plan #3	894.8	893.3	81.9	78.2	21.890	ES
Razor #12F-0105A - HZ - Plan #3	5,300.0	5,283.0	342.4	317.6	13.795	SF
Razor #12F-0106B - HZ - Plan #3	600.0	598.8	99.4	97.0	40.891	CC
Razor #12F-0106B - HZ - Plan #3	700.0	698.8	99.7	96.8	34.699	ES
Razor #12F-0106B - HZ - Plan #3	5,500.0	5,460.9	456.0	430.4	17.816	SF
Razor #12F-0107A - HZ - Plan #3	600.0	598.8	123.6	121.2	50.866	CC, ES
Razor #12F-0107A - HZ - Plan #3	5,400.0	5,350.0	491.1	466.3	19.814	SF
Razor #12F-0108B - HZ - Plan #3	600.0	598.8	151.2	148.8	62.211	CC, ES
Razor #12F-0108B - HZ - Plan #3	5,500.0	5,450.0	580.4	555.3	23.043	SF
RAZOR 12-0141H (EXISTING) - WHTING WELL - SURV	342.3	351.9	3,211.5	3,210.2	2,531.643	CC
RAZOR 12-0141H (EXISTING) - WHTING WELL - SURV	600.0	596.1	3,211.9	3,209.5	1,348.095	ES
RAZOR 12-0141H (EXISTING) - WHTING WELL - SURV	10,000.0	5,507.0	5,214.8	5,126.5	59.068	SF
Razor Federal #12F-1301A - HZ - Plan #3	1,193.8	1,187.2	75.8	70.7	14.980	CC
Razor Federal #12F-1301A - HZ - Plan #3	1,200.0	1,193.3	75.8	70.7	14.906	ES
Razor Federal #12F-1301A - HZ - Plan #3	14,235.6	13,915.9	1,030.2	723.1	3.354	SF
Razor Federal #12F-1302B - HZ - Plan #3	1,306.2	1,302.3	36.0	30.4	6.371	CC, ES
Razor Federal #12F-1302B - HZ - Plan #3	14,235.6	13,870.5	685.4	377.9	2.229	SF
Razor Federal #12F-1303A - HZ - Plan #3	500.0	498.8	33.0	31.1	16.680	CC, ES
Razor Federal #12F-1303A - HZ - Plan #3	14,235.6	13,608.3	435.7	180.8	1.709	SF
Razor Federal #12F-1305A - HZ - Plan #3	600.0	598.8	33.0	30.6	13.595	CC, ES
Razor Federal #12F-1305A - HZ - Plan #3	14,235.6	13,541.6	435.7	181.0	1.710	SF
Razor Federal #12F-1306B - HZ - Plan #3	600.0	598.8	65.3	62.9	26.873	CC, ES
Razor Federal #12F-1306B - HZ - Plan #3	14,235.6	13,695.8	684.7	376.3	2.220	SF
Razor Federal #12F-1307A - HZ - Plan #3	400.0	398.8	98.4	96.8	64.224	CC, ES
Razor Federal #12F-1307A - HZ - Plan #3	14,235.6	13,658.4	1,029.5	720.9	3.336	SF
Razor Federal #12F-1308B - HZ - Plan #3	600.0	598.8	131.4	129.0	54.063	CC, ES
Razor Federal #12F-1308B - HZ - Plan #3	14,235.6	13,925.4	1,332.6	1,016.0	4.209	SF
Razor Federal #12G-1309A - HZ - PLAN #2	5,254.9	5,291.7	1,719.2	1,694.2	68.883	CC
Razor Federal #12G-1309A - HZ - PLAN #2	14,235.6	13,878.2	1,746.0	1,438.1	5.670	ES, SF

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0101A - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Between Centres (usft)	Between Ellipses (usft)						
0.0	0.0	0.0	0.0	0.0	0.0	-52.93	74.9	-99.1	124.3					
100.0	100.0	98.8	98.8	0.1	0.1	-52.93	74.9	-99.1	124.2	0.18	673.291			
200.0	200.0	198.8	198.8	0.3	0.3	-52.93	74.9	-99.1	124.2	0.63	196.438			
300.0	300.0	298.8	298.8	0.5	0.5	-52.93	74.9	-99.1	124.2	1.08	114.827			
400.0	400.0	398.8	398.8	0.8	0.8	-52.93	74.9	-99.1	124.2	1.53	81.124			
500.0	500.0	498.8	498.8	1.0	1.0	-52.93	74.9	-99.1	124.2	1.98	62.716 CC			
600.0	600.0	594.7	594.7	1.2	1.2	-52.85	76.0	-100.3	125.9	2.42	52.040			
700.0	700.0	690.4	690.2	1.4	1.4	9.92	79.2	-103.7	129.5	2.86	45.318			
800.0	799.9	789.9	789.5	1.7	1.6	10.51	84.0	-108.8	132.6	3.30	40.123			
894.8	894.5	884.6	884.0	1.9	1.9	11.25	88.5	-113.6	133.2	3.73	35.658			
900.0	899.7	889.9	889.2	1.9	1.9	11.29	88.8	-113.9	133.1	3.76	35.432			
1,000.0	999.4	989.8	989.0	2.1	2.1	12.18	93.5	-118.9	132.5	4.20	31.540			
1,100.0	1,099.1	1,089.8	1,088.7	2.4	2.4	13.07	98.3	-124.0	132.0	4.65	28.375			
1,200.0	1,198.8	1,189.8	1,188.4	2.6	2.6	13.97	103.1	-129.1	131.5	5.10	25.757			
1,300.0	1,298.5	1,289.8	1,288.2	2.9	2.9	14.88	107.9	-134.2	131.0	5.56	23.559			
1,400.0	1,398.2	1,389.7	1,387.9	3.1	3.1	15.79	112.7	-139.3	130.5	6.02	21.691			
1,500.0	1,497.9	1,489.7	1,487.6	3.4	3.4	16.71	117.4	-144.3	130.1	6.48	20.086			
1,600.0	1,597.6	1,589.7	1,587.4	3.6	3.6	17.64	122.2	-149.4	129.7	6.94	18.692			
1,700.0	1,697.3	1,689.7	1,687.1	3.9	3.9	18.57	127.0	-154.5	129.3	7.40	17.473			
1,800.0	1,797.0	1,789.7	1,786.8	4.1	4.2	19.51	131.8	-159.6	129.0	7.87	16.398			
1,900.0	1,896.7	1,889.6	1,886.6	4.4	4.4	20.45	136.6	-164.6	128.7	8.33	15.444			
2,000.0	1,996.4	1,989.6	1,986.3	4.7	4.7	21.40	141.3	-169.7	128.4	8.80	14.592			
2,100.0	2,096.1	2,089.6	2,086.0	4.9	4.9	22.34	146.1	-174.8	128.2	9.27	13.827			
2,200.0	2,195.8	2,189.6	2,185.8	5.2	5.2	23.30	150.9	-179.9	128.0	9.75	13.137			
2,300.0	2,295.5	2,289.5	2,285.5	5.5	5.4	24.25	155.7	-185.0	127.9	10.22	12.512			
2,400.0	2,395.2	2,389.5	2,385.2	5.7	5.7	25.21	160.5	-190.0	127.8	10.70	11.944			
2,500.0	2,494.9	2,489.5	2,485.0	6.0	5.9	26.16	165.2	-195.1	127.7	11.18	11.426			
2,600.0	2,594.6	2,589.5	2,584.7	6.2	6.2	27.12	170.0	-200.2	127.7	11.66	10.951			
2,669.0	2,663.4	2,658.5	2,653.5	6.4	6.4	27.78	173.3	-203.7	127.6	11.99	10.647			
2,700.0	2,694.3	2,689.4	2,684.4	6.5	6.5	28.08	174.8	-205.3	127.7	12.14	10.515			
2,800.0	2,794.0	2,789.4	2,784.2	6.8	6.7	29.04	179.6	-210.4	127.7	12.62	10.114			
2,900.0	2,893.7	2,889.4	2,883.9	7.0	7.0	30.00	184.3	-215.4	127.7	13.11	9.743			
3,000.0	2,993.4	2,989.4	2,983.6	7.3	7.2	30.95	189.1	-220.5	127.8	13.60	9.401			
3,100.0	3,093.1	3,089.4	3,083.4	7.6	7.5	31.91	193.9	-225.6	128.0	14.09	9.083			
3,200.0	3,192.8	3,189.3	3,183.1	7.8	7.7	32.86	198.7	-230.7	128.2	14.58	8.787			
3,300.0	3,292.5	3,289.3	3,282.8	8.1	8.0	33.81	203.5	-235.7	128.4	15.08	8.513			
3,400.0	3,392.3	3,389.3	3,382.6	8.4	8.3	34.76	208.2	-240.8	128.6	15.58	8.255			
3,500.0	3,492.0	3,489.3	3,482.3	8.6	8.5	35.70	213.0	-245.9	128.9	16.08	8.015			
3,600.0	3,591.7	3,589.2	3,582.0	8.9	8.8	36.64	217.8	-251.0	129.2	16.58	7.790			
3,700.0	3,691.4	3,689.2	3,681.8	9.2	9.0	37.57	222.6	-256.1	129.5	17.09	7.580			
3,714.2	3,705.5	3,703.4	3,695.9	9.2	9.1	37.71	223.3	-256.8	129.6	17.16	7.551 ES			
3,800.0	3,791.1	3,789.2	3,781.5	9.4	9.3	38.25	227.4	-261.1	130.7	17.56	7.442 SF			
3,900.0	3,891.0	3,889.1	3,881.2	9.6	9.6	38.24	232.1	-266.2	133.9	17.96	7.453			
4,009.0	4,000.0	3,997.9	3,989.7	9.8	9.8	-24.98	237.3	-271.7	139.7	18.54	7.534			
4,100.0	4,091.0	4,088.7	4,080.3	9.9	10.1	-25.90	241.7	-276.4	145.6	18.90	7.702			
4,200.0	4,191.0	4,188.5	4,179.8	10.1	10.3	-26.84	246.5	-281.4	152.1	19.32	7.873			
4,300.0	4,291.0	4,288.3	4,279.4	10.3	10.6	-27.69	251.2	-286.5	158.7	19.74	8.038			
4,400.0	4,391.0	4,388.0	4,378.9	10.5	10.8	-28.48	256.0	-291.6	165.3	20.17	8.197			
4,500.0	4,491.0	4,487.8	4,478.4	10.7	11.1	-29.21	260.8	-296.6	172.0	20.60	8.349			
4,600.0	4,591.0	4,587.5	4,577.9	10.9	11.4	-29.88	265.5	-301.7	178.6	21.03	8.495			
4,700.0	4,691.0	4,687.3	4,677.4	11.1	11.6	-30.51	270.3	-306.8	185.3	21.46	8.635			
4,800.0	4,791.0	4,787.0	4,776.9	11.3	11.9	-31.09	275.1	-311.8	192.0	21.90	8.770			

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0101A - HZ - Plan #3												Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor	Warning
4,900.0	4,891.0	4,886.8	4,876.4	11.5	12.1	-31.63	279.8	-316.9	198.7	176.4	22.33	8.899	
5,000.0	4,991.0	4,986.6	4,976.0	11.7	12.4	-32.14	284.6	-322.0	205.5	182.7	22.77	9.024	
5,100.0	5,091.0	5,086.3	5,075.5	11.9	12.6	-32.61	289.4	-327.0	212.2	189.0	23.21	9.144	
5,200.0	5,191.0	5,186.1	5,175.0	12.1	12.9	-33.06	294.1	-332.1	219.0	195.4	23.65	9.260	
5,300.0	5,291.0	5,285.8	5,274.5	12.3	13.2	-33.48	298.9	-337.2	225.8	201.7	24.10	9.371	
5,400.0	5,391.0	5,371.1	5,359.4	12.5	13.4	-33.87	303.7	-342.3	234.1	209.6	24.51	9.550	
5,500.0	5,491.0	5,438.4	5,425.4	12.7	13.6	-34.56	312.8	-351.9	253.4	228.5	24.90	10.174	
5,585.1	5,576.1	5,500.0	5,483.8	12.9	13.9	-35.46	326.1	-366.1	279.4	254.1	25.26	11.061	
5,600.0	5,591.0	5,500.0	5,483.8	12.9	13.9	144.18	326.1	-366.1	284.7	259.8	24.91	11.431	
5,650.0	5,640.9	5,530.0	5,511.3	13.0	14.1	142.32	334.3	-374.8	307.2	282.4	24.84	12.368	
5,700.0	5,690.1	5,550.0	5,529.3	13.1	14.2	140.08	340.4	-381.2	335.2	310.6	24.62	13.618	
5,750.0	5,738.3	5,578.4	5,554.1	13.1	14.4	137.49	349.8	-391.2	367.9	343.5	24.34	15.112	
5,800.0	5,785.0	5,600.0	5,572.5	13.2	14.6	134.16	357.5	-399.5	404.6	380.5	24.05	16.824	
5,850.0	5,829.8	5,613.9	5,584.0	13.3	14.7	129.51	362.8	-405.1	444.6	420.7	23.87	18.625	
5,900.0	5,872.2	5,626.9	5,594.7	13.3	14.8	123.40	367.9	-410.5	487.2	463.2	23.99	20.305	
5,950.0	5,911.9	5,637.0	5,602.8	13.4	14.8	115.16	372.0	-414.9	531.8	507.2	24.60	21.621	
6,000.0	5,948.5	5,650.0	5,613.2	13.5	14.9	105.33	377.5	-420.7	577.8	552.2	25.59	22.579	
6,050.0	5,981.7	5,650.0	5,613.2	13.6	14.9	90.80	377.5	-420.7	624.7	598.0	26.71	23.384	
6,100.0	6,011.2	5,650.0	5,613.2	13.7	14.9	74.92	377.5	-420.7	672.0	644.8	27.17	24.733	
6,150.0	6,036.6	5,650.0	5,613.2	13.9	14.9	60.17	377.5	-420.7	719.3	692.7	26.52	27.124	
6,200.0	6,057.8	5,650.0	5,613.2	14.1	14.9	48.17	377.5	-420.7	766.1	741.5	24.68	31.043	
6,250.0	6,074.6	5,650.0	5,613.2	14.4	14.9	39.07	377.5	-420.7	812.3	789.9	22.40	36.263	
6,300.0	6,086.8	5,650.0	5,613.2	14.8	14.9	32.33	377.5	-420.7	857.5	837.3	20.20	42.452	
6,350.0	6,094.3	5,650.0	5,613.2	15.2	14.9	27.31	377.5	-420.7	901.4	883.0	18.37	49.076	
6,403.3	6,097.0	5,630.9	5,598.0	15.7	14.8	21.82	369.6	-412.3	946.1	929.6	16.44	57.548	
6,500.0	6,097.0	5,616.5	5,586.3	16.7	14.7	20.77	363.8	-406.2	1,026.9	1,010.3	16.69	61.529	
6,600.0	6,097.0	5,600.0	5,572.5	17.9	14.6	19.62	357.5	-399.5	1,112.7	1,095.8	16.97	65.578	
6,700.0	6,097.0	5,600.0	5,572.5	19.2	14.6	19.62	357.5	-399.5	1,200.4	1,182.7	17.75	67.614	
6,800.0	6,097.0	5,578.2	5,554.0	20.7	14.4	18.21	349.7	-391.2	1,289.3	1,271.4	17.97	71.761	
6,900.0	6,097.0	5,567.3	5,544.5	22.1	14.3	17.54	346.0	-387.2	1,379.6	1,361.1	18.50	74.561	
7,000.0	6,097.0	5,550.0	5,529.3	23.7	14.2	16.55	340.4	-381.2	1,470.9	1,452.0	18.90	77.832	
7,100.0	6,097.0	5,550.0	5,529.3	25.3	14.2	16.55	340.4	-381.2	1,563.0	1,543.3	19.74	79.193	
7,200.0	6,097.0	5,550.0	5,529.3	26.9	14.2	16.55	340.4	-381.2	1,656.0	1,635.4	20.59	80.447	
7,300.0	6,097.0	5,530.4	5,511.7	28.6	14.1	15.50	334.4	-374.9	1,749.4	1,728.5	20.95	83.519	
7,400.0	6,097.0	5,522.7	5,504.6	30.3	14.1	15.11	332.2	-372.6	1,843.5	1,821.9	21.61	85.317	
7,500.0	6,097.0	5,500.0	5,483.8	32.1	13.9	14.05	326.1	-366.1	1,938.3	1,916.3	21.94	88.349	
7,600.0	6,097.0	5,500.0	5,483.8	33.8	13.9	14.05	326.1	-366.1	2,033.1	2,010.3	22.78	89.261	
7,700.0	6,097.0	5,500.0	5,483.8	35.6	13.9	14.05	326.1	-366.1	2,128.4	2,104.7	23.62	90.116	
7,800.0	6,097.0	5,500.0	5,483.8	37.4	13.9	14.05	326.1	-366.1	2,224.1	2,199.6	24.46	90.918	
7,900.0	6,097.0	5,500.0	5,483.8	39.1	13.9	14.05	326.1	-366.1	2,320.1	2,294.8	25.31	91.673	
8,000.0	6,097.0	5,500.0	5,483.8	41.0	13.9	14.05	326.1	-366.1	2,416.5	2,390.4	26.16	92.384	
8,100.0	6,097.0	5,479.7	5,464.9	42.8	13.8	13.20	321.2	-360.9	2,512.8	2,486.3	26.53	94.719	
8,200.0	6,097.0	5,474.9	5,460.3	44.6	13.8	13.01	320.1	-359.7	2,609.5	2,582.3	27.26	95.728	
8,300.0	6,097.0	5,470.3	5,455.9	46.4	13.8	12.83	319.1	-358.6	2,706.5	2,678.5	28.00	96.676	
8,400.0	6,097.0	5,450.0	5,436.6	48.3	13.7	12.10	314.9	-354.2	2,803.8	2,775.4	28.41	98.707	
8,500.0	6,097.0	5,450.0	5,436.6	50.1	13.7	12.10	314.9	-354.2	2,900.9	2,871.7	29.23	99.238	
8,600.0	6,097.0	5,450.0	5,436.6	52.0	13.7	12.10	314.9	-354.2	2,998.3	2,968.2	30.06	99.743	
8,700.0	6,097.0	5,450.0	5,436.6	53.8	13.7	12.10	314.9	-354.2	3,095.8	3,064.9	30.89	100.225	
8,800.0	6,097.0	5,450.0	5,436.6	55.7	13.7	12.10	314.9	-354.2	3,193.5	3,161.8	31.72	100.684	
8,900.0	6,097.0	5,450.0	5,436.6	57.5	13.7	12.10	314.9	-354.2	3,291.3	3,258.8	32.55	101.122	
9,000.0	6,097.0	5,450.0	5,436.6	59.4	13.7	12.10	314.9	-354.2	3,389.2	3,355.9	33.38	101.541	
9,100.0	6,097.0	5,450.0	5,436.6	61.3	13.7	12.10	314.9	-354.2	3,487.3	3,453.1	34.21	101.942	

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0101A - HZ - Plan #3												Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD												Offset Well Error: 0.0 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)	Total Uncertainty Axis	Separation Factor	
9,200.0	6,097.0	5,450.0	5,436.6	63.2	13.7	12.10	314.9	-354.2	3,585.5	3,550.4	35.04	102.325	
9,300.0	6,097.0	5,450.0	5,436.6	65.0	13.7	12.10	314.9	-354.2	3,683.7	3,647.9	35.87	102.692	
9,400.0	6,097.0	5,450.0	5,436.6	66.9	13.7	12.10	314.9	-354.2	3,782.1	3,745.4	36.70	103.044	
9,500.0	6,097.0	5,450.0	5,436.6	68.8	13.7	12.10	314.9	-354.2	3,880.5	3,843.0	37.54	103.382	
9,600.0	6,097.0	5,426.6	5,414.0	70.7	13.6	11.35	310.8	-349.8	3,978.6	3,940.8	37.82	105.200	
9,700.0	6,097.0	5,424.2	5,411.6	72.6	13.6	11.28	310.4	-349.4	4,077.1	4,038.5	38.59	105.657	
9,800.0	6,097.0	5,421.8	5,409.3	74.4	13.6	11.21	310.0	-349.0	4,175.7	4,136.3	39.36	106.094	
9,900.0	6,097.0	5,400.0	5,388.0	76.3	13.5	10.62	306.9	-345.7	4,274.6	4,234.8	39.74	107.577	
10,000.0	6,097.0	5,400.0	5,388.0	78.2	13.5	10.62	306.9	-345.7	4,373.2	4,332.6	40.55	107.851	
10,100.0	6,097.0	5,400.0	5,388.0	80.1	13.5	10.62	306.9	-345.7	4,471.8	4,430.5	41.36	108.116	
10,200.0	6,097.0	5,400.0	5,388.0	82.0	13.5	10.62	306.9	-345.7	4,570.6	4,528.4	42.17	108.372	
10,300.0	6,097.0	5,400.0	5,388.0	83.9	13.5	10.62	306.9	-345.7	4,669.3	4,626.4	42.99	108.619	
10,400.0	6,097.0	5,400.0	5,388.0	85.8	13.5	10.62	306.9	-345.7	4,768.2	4,724.4	43.80	108.857	
10,500.0	6,097.0	5,400.0	5,388.0	87.7	13.5	10.62	306.9	-345.7	4,867.0	4,822.4	44.62	109.088	
10,600.0	6,097.0	5,400.0	5,388.0	89.6	13.5	10.62	306.9	-345.7	4,966.0	4,920.5	45.43	109.311	
10,700.0	6,097.0	5,400.0	5,388.0	91.5	13.5	10.62	306.9	-345.7	5,064.9	5,018.7	46.24	109.526	
10,800.0	6,097.0	5,400.0	5,388.0	93.4	13.5	10.62	306.9	-345.7	5,163.9	5,116.9	47.06	109.735	
10,900.0	6,097.0	5,400.0	5,388.0	95.3	13.5	10.62	306.9	-345.7	5,263.0	5,215.1	47.87	109.938	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0102B - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: O-ISCWSA MWD													Offset Well Error: 0.0 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)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-41.42	74.9	-66.1	99.9					
100.0	100.0	98.8	98.8	0.1	0.1	-41.42	74.9	-66.1	99.9	99.7	0.18	541.344		
200.0	200.0	198.8	198.8	0.3	0.3	-41.42	74.9	-66.1	99.9	99.3	0.63	157.942		
300.0	300.0	298.8	298.8	0.5	0.5	-41.42	74.9	-66.1	99.9	98.8	1.08	92.324		
400.0	400.0	398.8	398.8	0.8	0.8	-41.42	74.9	-66.1	99.9	98.4	1.53	65.226		
500.0	500.0	498.8	498.8	1.0	1.0	-41.42	74.9	-66.1	99.9	97.9	1.98	50.425 CC, ES		
600.0	600.0	595.4	595.4	1.2	1.2	-41.36	76.2	-67.1	101.5	99.1	2.42	41.934		
700.0	700.0	691.9	691.7	1.4	1.4	21.50	80.0	-70.0	105.3	102.5	2.86	36.765		
800.0	799.9	791.5	791.1	1.7	1.7	22.44	85.5	-74.3	108.6	105.3	3.31	32.792		
894.8	894.5	886.2	885.6	1.9	1.9	23.80	90.7	-78.3	109.6	105.9	3.74	29.273		
900.0	899.7	891.5	890.8	1.9	1.9	23.89	91.0	-78.5	109.6	105.8	3.77	29.092		
978.2	977.7	969.7	968.8	2.1	2.1	25.21	95.3	-81.9	109.6	105.5	4.12	26.599		
1,000.0	999.4	991.4	990.6	2.1	2.1	25.57	96.5	-82.8	109.6	105.4	4.22	25.988		
1,100.0	1,099.1	1,091.4	1,090.3	2.4	2.4	27.26	102.0	-87.1	109.7	105.0	4.67	23.474		
1,200.0	1,198.8	1,191.3	1,190.0	2.6	2.6	28.94	107.5	-91.3	109.8	104.7	5.13	21.405		
1,300.0	1,298.5	1,291.3	1,289.7	2.9	2.9	30.62	113.1	-95.6	110.1	104.5	5.59	19.677		
1,400.0	1,398.2	1,391.2	1,389.4	3.1	3.1	32.28	118.6	-99.9	110.4	104.4	6.06	18.218		
1,500.0	1,497.9	1,491.2	1,489.1	3.4	3.4	33.94	124.1	-104.1	110.9	104.3	6.53	16.972		
1,600.0	1,597.6	1,591.1	1,588.8	3.6	3.6	35.58	129.6	-108.4	111.4	104.4	7.01	15.898		
1,700.0	1,697.3	1,691.1	1,688.5	3.9	3.9	37.20	135.1	-112.7	112.0	104.5	7.49	14.965		
1,800.0	1,797.0	1,791.0	1,788.2	4.1	4.2	38.80	140.6	-116.9	112.7	104.8	7.97	14.150		
1,900.0	1,896.7	1,891.0	1,887.9	4.4	4.4	40.39	146.1	-121.2	113.5	105.1	8.45	13.432		
2,000.0	1,996.4	1,990.9	1,987.6	4.7	4.7	41.94	151.7	-125.4	114.4	105.5	8.94	12.798		
2,100.0	2,096.1	2,090.9	2,087.3	4.9	4.9	43.48	157.2	-129.7	115.4	106.0	9.43	12.234		
2,200.0	2,195.8	2,190.8	2,187.0	5.2	5.2	44.99	162.7	-134.0	116.5	106.5	9.93	11.727		
2,300.0	2,295.5	2,290.7	2,286.7	5.5	5.4	46.46	168.2	-138.2	117.6	107.2	10.43	11.272		
2,400.0	2,395.2	2,390.7	2,386.4	5.7	5.7	47.91	173.7	-142.5	118.8	107.9	10.94	10.863		
2,500.0	2,494.9	2,490.6	2,486.1	6.0	5.9	49.33	179.2	-146.8	120.1	108.6	11.44	10.494		
2,600.0	2,594.6	2,590.6	2,585.8	6.2	6.2	50.72	184.8	-151.0	121.4	109.5	11.95	10.160		
2,700.0	2,694.3	2,690.5	2,685.5	6.5	6.5	52.08	190.3	-155.3	122.9	110.4	12.46	9.857		
2,800.0	2,794.0	2,790.5	2,785.2	6.8	6.7	53.41	195.8	-159.6	124.4	111.4	12.98	9.581		
2,900.0	2,893.7	2,890.4	2,884.9	7.0	7.0	54.70	201.3	-163.8	125.9	112.4	13.50	9.330		
3,000.0	2,993.4	2,990.4	2,984.6	7.3	7.2	55.96	206.8	-168.1	127.5	113.5	14.01	9.101		
3,100.0	3,093.1	3,090.3	3,084.3	7.6	7.5	57.19	212.3	-172.4	129.2	114.7	14.53	8.891		
3,200.0	3,192.8	3,190.3	3,184.0	7.8	7.7	58.39	217.8	-176.6	131.0	115.9	15.05	8.698		
3,300.0	3,292.5	3,290.2	3,283.8	8.1	8.0	59.55	223.4	-180.9	132.7	117.2	15.58	8.522		
3,400.0	3,392.3	3,390.2	3,383.5	8.4	8.3	60.69	228.9	-185.2	134.6	118.5	16.10	8.359		
3,500.0	3,492.0	3,490.1	3,483.2	8.6	8.5	61.79	234.4	-189.4	136.5	119.9	16.63	8.209		
3,600.0	3,591.7	3,590.1	3,582.9	8.9	8.8	62.86	239.9	-193.7	138.4	121.3	17.15	8.070		
3,700.0	3,691.4	3,690.0	3,682.6	9.2	9.0	63.90	245.4	-198.0	140.4	122.8	17.68	7.943		
3,714.2	3,705.5	3,704.2	3,696.7	9.2	9.1	64.05	246.2	-198.6	140.7	123.0	17.76	7.925		
3,800.0	3,791.1	3,790.0	3,782.3	9.4	9.3	64.60	250.9	-202.2	142.9	124.7	18.17	7.865 SF		
3,900.0	3,891.0	3,889.9	3,882.0	9.6	9.5	64.36	256.4	-206.5	146.5	127.9	18.58	7.884		
4,009.0	4,000.0	3,998.7	3,990.5	9.8	9.8	0.67	262.4	-211.1	151.7	132.5	19.15	7.921		
4,100.0	4,091.0	4,089.5	4,081.1	9.9	10.1	-0.77	267.5	-215.0	156.7	137.2	19.50	8.036		
4,200.0	4,191.0	4,189.3	4,180.6	10.1	10.3	-2.25	273.0	-219.3	162.4	142.4	19.91	8.156		
4,300.0	4,291.0	4,289.0	4,280.1	10.3	10.6	-3.63	278.5	-223.5	168.1	147.8	20.32	8.274		
4,400.0	4,391.0	4,388.8	4,379.6	10.5	10.8	-4.92	284.0	-227.8	173.9	153.2	20.73	8.391		
4,500.0	4,491.0	4,488.5	4,479.1	10.7	11.1	-6.12	289.5	-232.0	179.8	158.7	21.14	8.506		
4,600.0	4,591.0	4,588.3	4,578.6	10.9	11.3	-7.25	295.0	-236.3	185.8	164.2	21.56	8.619		
4,700.0	4,691.0	4,688.0	4,678.2	11.1	11.6	-8.30	300.5	-240.6	191.8	169.9	21.97	8.730		
4,800.0	4,791.0	4,787.8	4,777.7	11.3	11.9	-9.29	306.0	-244.8	198.0	175.6	22.40	8.839		

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0102B - HZ - Plan #3												Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor	Warning
4,900.0	4,891.0	4,887.5	4,877.2	11.5	12.1	-10.23	311.5	-249.1	204.1	181.3	22.82	8.945	
5,000.0	4,991.0	4,987.3	4,976.7	11.7	12.4	-11.10	317.0	-253.3	210.3	187.1	23.24	9.049	
5,100.0	5,091.0	5,087.1	5,076.2	11.9	12.6	-11.93	322.5	-257.6	216.6	192.9	23.67	9.150	
5,200.0	5,191.0	5,186.8	5,175.7	12.1	12.9	-12.71	328.0	-261.8	222.9	198.8	24.10	9.248	
5,300.0	5,291.0	5,286.6	5,275.2	12.3	13.1	-13.45	333.5	-266.1	229.2	204.7	24.53	9.344	
5,400.0	5,391.0	5,386.3	5,374.8	12.5	13.4	-14.14	339.0	-270.4	235.6	210.7	24.97	9.437	
5,500.0	5,491.0	5,471.9	5,460.0	12.7	13.6	-14.81	344.6	-274.6	243.4	218.0	25.37	9.593	
5,585.1	5,576.1	5,529.8	5,516.8	12.9	13.8	-15.77	353.1	-281.3	258.2	232.5	25.69	10.049	
5,600.0	5,591.0	5,539.6	5,526.3	12.9	13.9	163.92	355.1	-282.8	261.9	236.5	25.39	10.314	
5,650.0	5,640.9	5,571.1	5,556.5	13.0	14.0	162.75	362.3	-288.3	278.9	253.6	25.28	11.035	
5,700.0	5,690.1	5,600.0	5,583.6	13.1	14.2	161.39	370.1	-294.4	302.6	277.7	24.95	12.131	
5,750.0	5,738.3	5,625.4	5,607.0	13.1	14.3	159.78	378.0	-300.5	332.3	307.8	24.41	13.609	
5,800.0	5,785.0	5,650.0	5,629.1	13.2	14.5	157.77	386.5	-307.1	367.0	343.3	23.72	15.475	
5,850.0	5,829.8	5,665.9	5,643.1	13.3	14.6	155.13	392.4	-311.7	405.9	383.0	22.89	17.733	
5,900.0	5,872.2	5,680.8	5,656.1	13.3	14.7	151.49	398.3	-316.2	448.3	426.2	22.08	20.303	
5,950.0	5,911.9	5,700.0	5,672.4	13.4	14.8	146.58	406.3	-322.4	493.4	471.9	21.50	22.951	
6,000.0	5,948.5	5,700.0	5,672.4	13.5	14.8	137.50	406.3	-322.4	540.2	518.4	21.78	24.807	
6,050.0	5,981.7	5,700.0	5,672.4	13.6	14.8	121.52	406.3	-322.4	588.5	564.6	23.87	24.659	
6,100.0	6,011.2	5,700.0	5,672.4	13.7	14.8	94.89	406.3	-322.4	637.6	610.6	27.00	23.614	
6,150.0	6,036.6	5,700.0	5,672.4	13.9	14.8	64.05	406.3	-322.4	686.8	659.7	27.16	25.292	
6,200.0	6,057.8	5,700.0	5,672.4	14.1	14.8	42.32	406.3	-322.4	735.8	712.2	23.68	31.074	
6,250.0	6,074.6	5,700.0	5,672.4	14.4	14.8	29.84	406.3	-322.4	784.2	764.2	20.00	39.208	
6,300.0	6,086.8	5,700.0	5,672.4	14.8	14.8	22.48	406.3	-322.4	831.7	814.6	17.14	48.515	
6,350.0	6,094.3	5,700.0	5,672.4	15.2	14.8	17.82	406.3	-322.4	878.1	862.9	15.14	58.004	
6,403.3	6,097.0	5,700.0	5,672.4	15.7	14.8	14.50	406.3	-322.4	925.9	911.9	13.96	66.333	
6,500.0	6,097.0	5,674.2	5,650.4	16.7	14.6	12.81	395.6	-314.2	1,011.3	997.3	13.96	72.454	
6,600.0	6,097.0	5,650.0	5,629.1	17.9	14.5	11.41	386.5	-307.1	1,101.3	1,087.2	14.14	77.867	
6,700.0	6,097.0	5,650.0	5,629.1	19.2	14.5	11.41	386.5	-307.1	1,192.3	1,177.4	14.87	80.193	
6,800.0	6,097.0	5,650.0	5,629.1	20.7	14.5	11.41	386.5	-307.1	1,284.6	1,269.0	15.61	82.280	
6,900.0	6,097.0	5,625.7	5,607.3	22.1	14.3	10.18	378.1	-300.6	1,377.3	1,361.3	15.92	86.532	
7,000.0	6,097.0	5,600.0	5,583.6	23.7	14.2	9.05	370.1	-294.4	1,471.2	1,454.9	16.27	90.425	
7,100.0	6,097.0	5,600.0	5,583.6	25.3	14.2	9.05	370.1	-294.4	1,565.1	1,548.1	17.03	91.907	
7,200.0	6,097.0	5,600.0	5,583.6	26.9	14.2	9.05	370.1	-294.4	1,659.8	1,642.0	17.80	93.273	
7,300.0	6,097.0	5,600.0	5,583.6	28.6	14.2	9.05	370.1	-294.4	1,755.1	1,736.5	18.57	94.536	
7,400.0	6,097.0	5,600.0	5,583.6	30.3	14.2	9.05	370.1	-294.4	1,850.9	1,831.5	19.34	95.708	
7,500.0	6,097.0	5,577.6	5,562.7	32.1	14.1	8.19	364.0	-289.6	1,946.5	1,926.8	19.79	98.382	
7,600.0	6,097.0	5,571.5	5,556.9	33.8	14.0	7.98	362.4	-288.4	2,042.8	2,022.3	20.47	99.775	
7,700.0	6,097.0	5,550.0	5,536.4	35.6	13.9	7.29	357.3	-284.5	2,139.6	2,118.6	20.98	101.974	
7,800.0	6,097.0	5,550.0	5,536.4	37.4	13.9	7.29	357.3	-284.5	2,236.2	2,214.4	21.75	102.826	
7,900.0	6,097.0	5,550.0	5,536.4	39.1	13.9	7.29	357.3	-284.5	2,333.1	2,310.6	22.51	103.629	
8,000.0	6,097.0	5,550.0	5,536.4	41.0	13.9	7.29	357.3	-284.5	2,430.2	2,407.0	23.28	104.384	
8,100.0	6,097.0	5,550.0	5,536.4	42.8	13.9	7.29	357.3	-284.5	2,527.6	2,503.6	24.05	105.098	
8,200.0	6,097.0	5,550.0	5,536.4	44.6	13.9	7.29	357.3	-284.5	2,625.2	2,600.4	24.82	105.772	
8,300.0	6,097.0	5,550.0	5,536.4	46.4	13.9	7.29	357.3	-284.5	2,722.9	2,697.3	25.59	106.410	
8,400.0	6,097.0	5,550.0	5,536.4	48.3	13.9	7.29	357.3	-284.5	2,820.8	2,794.5	26.36	107.014	
8,500.0	6,097.0	5,550.0	5,536.4	50.1	13.9	7.29	357.3	-284.5	2,918.9	2,891.8	27.13	107.587	
8,600.0	6,097.0	5,527.3	5,514.4	52.0	13.8	6.67	352.7	-280.9	3,016.6	2,989.0	27.62	109.217	
8,700.0	6,097.0	5,524.1	5,511.3	53.8	13.8	6.59	352.1	-280.5	3,114.7	3,086.4	28.35	109.867	
8,800.0	6,097.0	5,521.1	5,508.4	55.7	13.8	6.52	351.5	-280.0	3,213.0	3,183.9	29.08	110.482	
8,900.0	6,097.0	5,500.0	5,487.8	57.5	13.7	6.05	348.1	-277.4	3,311.6	3,282.0	29.63	111.763	
9,000.0	6,097.0	5,500.0	5,487.8	59.4	13.7	6.05	348.1	-277.4	3,409.9	3,379.6	30.39	112.198	
9,100.0	6,097.0	5,500.0	5,487.8	61.3	13.7	6.05	348.1	-277.4	3,508.4	3,477.2	31.15	112.615	

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0102B - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: 0-ISWWSA MWD													Offset Well Error: 0.0 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)	Total Uncertainty Axis	Separation Factor		
9,200.0	6,097.0	5,500.0	5,487.8	63.2	13.7	6.05	348.1	-277.4	3,606.9	3,575.0	31.92	113.013		
9,300.0	6,097.0	5,500.0	5,487.8	65.0	13.7	6.05	348.1	-277.4	3,705.5	3,672.8	32.68	113.395		
9,400.0	6,097.0	5,500.0	5,487.8	66.9	13.7	6.05	348.1	-277.4	3,804.1	3,770.7	33.44	113.761		
9,500.0	6,097.0	5,500.0	5,487.8	68.8	13.7	6.05	348.1	-277.4	3,902.9	3,868.7	34.20	114.112		
9,600.0	6,097.0	5,500.0	5,487.8	70.7	13.7	6.05	348.1	-277.4	4,001.7	3,966.7	34.96	114.449		
9,700.0	6,097.0	5,500.0	5,487.8	72.6	13.7	6.05	348.1	-277.4	4,100.5	4,064.8	35.73	114.774		
9,800.0	6,097.0	5,500.0	5,487.8	74.4	13.7	6.05	348.1	-277.4	4,199.4	4,162.9	36.49	115.085		
9,900.0	6,097.0	5,500.0	5,487.8	76.3	13.7	6.05	348.1	-277.4	4,298.4	4,261.1	37.25	115.385		
10,000.0	6,097.0	5,500.0	5,487.8	78.2	13.7	6.05	348.1	-277.4	4,397.4	4,359.4	38.02	115.674		
10,100.0	6,097.0	5,500.0	5,487.8	80.1	13.7	6.05	348.1	-277.4	4,496.4	4,457.7	38.78	115.953		
10,200.0	6,097.0	5,500.0	5,487.8	82.0	13.7	6.05	348.1	-277.4	4,595.5	4,556.0	39.54	116.221		
10,300.0	6,097.0	5,500.0	5,487.8	83.9	13.7	6.05	348.1	-277.4	4,694.7	4,654.4	40.30	116.480		
10,400.0	6,097.0	5,500.0	5,487.8	85.8	13.7	6.05	348.1	-277.4	4,793.8	4,752.8	41.07	116.730		
10,500.0	6,097.0	5,500.0	5,487.8	87.7	13.7	6.05	348.1	-277.4	4,893.0	4,851.2	41.83	116.972		
10,600.0	6,097.0	5,500.0	5,487.8	89.6	13.7	6.05	348.1	-277.4	4,992.3	4,949.7	42.59	117.205		
10,700.0	6,097.0	5,500.0	5,487.8	91.5	13.7	6.05	348.1	-277.4	5,091.5	5,048.2	43.36	117.431		
10,800.0	6,097.0	5,500.0	5,487.8	93.4	13.7	6.05	348.1	-277.4	5,190.8	5,146.7	44.12	117.650		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0103A - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 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)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-23.81	74.9	-33.0	81.9					
100.0	100.0	98.8	98.8	0.1	0.1	-23.81	74.9	-33.0	81.9	81.7	0.18	443.594		
200.0	200.0	198.8	198.8	0.3	0.3	-23.81	74.9	-33.0	81.9	81.2	0.63	129.422		
300.0	300.0	298.8	298.8	0.5	0.5	-23.81	74.9	-33.0	81.9	80.8	1.08	75.653		
400.0	400.0	398.8	398.8	0.8	0.8	-23.81	74.9	-33.0	81.9	80.3	1.53	53.448		
500.0	500.0	498.8	498.8	1.0	1.0	-23.81	74.9	-33.0	81.9	79.9	1.98	41.320		
600.0	600.0	598.8	598.8	1.2	1.2	-23.81	74.9	-33.0	81.9	79.4	2.43	33.678		
700.0	700.0	698.8	698.8	1.4	1.4	39.25	74.9	-33.0	80.8	78.0	2.88	28.039		
800.0	799.9	798.7	798.7	1.7	1.7	41.10	74.9	-33.0	77.8	74.5	3.33	23.341		
894.8	894.5	893.3	893.3	1.9	1.9	44.30	74.9	-33.0	73.3	69.6	3.77	19.456		
900.0	899.7	898.5	898.5	1.9	1.9	44.52	74.9	-33.0	73.0	69.2	3.79	19.260		
1,000.0	999.4	998.2	998.2	2.1	2.1	49.09	74.9	-33.0	67.7	63.5	4.24	15.961		
1,100.0	1,099.1	1,095.9	1,095.9	2.4	2.3	53.78	76.3	-33.8	64.5	59.8	4.70	13.732		
1,139.9	1,138.8	1,134.9	1,134.8	2.5	2.4	55.46	77.7	-34.6	64.2	59.3	4.88	13.164	CC, ES	
1,200.0	1,198.8	1,193.7	1,193.6	2.6	2.6	57.66	80.6	-36.2	64.8	59.7	5.16	12.574		
1,300.0	1,298.5	1,293.5	1,293.1	2.9	2.8	60.80	86.7	-39.5	67.2	61.6	5.63	11.939		
1,400.0	1,398.2	1,393.4	1,392.8	3.1	3.0	63.72	92.8	-42.9	69.7	63.6	6.10	11.423		
1,500.0	1,497.9	1,493.3	1,492.5	3.4	3.2	66.43	99.0	-46.2	72.4	65.9	6.59	10.992		
1,600.0	1,597.6	1,593.2	1,592.1	3.6	3.5	68.94	105.1	-49.6	75.3	68.2	7.08	10.633		
1,700.0	1,697.3	1,693.1	1,691.8	3.9	3.7	71.26	111.2	-52.9	78.3	70.7	7.58	10.332		
1,800.0	1,797.0	1,793.1	1,791.4	4.1	4.0	73.41	117.3	-56.3	81.4	73.3	8.08	10.079		
1,900.0	1,896.7	1,893.0	1,891.1	4.4	4.2	75.40	123.4	-59.6	84.6	76.1	8.58	9.865		
2,000.0	1,996.4	1,992.9	1,990.8	4.7	4.5	77.24	129.5	-63.0	88.0	78.9	9.08	9.682		
2,100.0	2,096.1	2,092.8	2,090.4	4.9	4.7	78.94	135.6	-66.3	91.4	81.8	9.59	9.526		
2,200.0	2,195.8	2,192.7	2,190.1	5.2	5.0	80.52	141.7	-69.7	94.8	84.7	10.10	9.391		
2,300.0	2,295.5	2,292.6	2,289.8	5.5	5.2	81.99	147.9	-73.0	98.4	87.8	10.61	9.274		
2,400.0	2,395.2	2,392.5	2,389.4	5.7	5.5	83.35	154.0	-76.4	102.0	90.9	11.12	9.172		
2,500.0	2,494.9	2,492.4	2,489.1	6.0	5.7	84.62	160.1	-79.7	105.6	94.0	11.63	9.083		
2,600.0	2,594.6	2,592.3	2,588.8	6.2	6.0	85.81	166.2	-83.1	109.3	97.2	12.14	9.005		
2,700.0	2,694.3	2,692.2	2,688.4	6.5	6.2	86.92	172.3	-86.4	113.1	100.4	12.66	8.936		
2,800.0	2,794.0	2,792.1	2,788.1	6.8	6.5	87.95	178.4	-89.7	116.9	103.7	13.17	8.875		
2,900.0	2,893.7	2,892.0	2,887.7	7.0	6.7	88.92	184.5	-93.1	120.7	107.0	13.68	8.821		
3,000.0	2,993.4	2,991.9	2,987.4	7.3	7.0	89.84	190.6	-96.4	124.6	110.4	14.20	8.773		
3,100.0	3,093.1	3,091.8	3,087.1	7.6	7.2	90.69	196.8	-99.8	128.4	113.7	14.71	8.731		
3,200.0	3,192.8	3,191.7	3,186.7	7.8	7.5	91.50	202.9	-103.1	132.4	117.1	15.23	8.692		
3,300.0	3,292.5	3,291.7	3,286.4	8.1	7.7	92.26	209.0	-106.5	136.3	120.5	15.74	8.658		
3,400.0	3,392.3	3,391.6	3,386.1	8.4	8.0	92.97	215.1	-109.8	140.3	124.0	16.26	8.627		
3,500.0	3,492.0	3,491.5	3,485.7	8.6	8.2	93.65	221.2	-113.2	144.2	127.5	16.77	8.599		
3,600.0	3,591.7	3,591.4	3,585.4	8.9	8.5	94.29	227.3	-116.5	148.2	130.9	17.29	8.574		
3,700.0	3,691.4	3,691.3	3,685.0	9.2	8.8	94.90	233.4	-119.9	152.2	134.4	17.80	8.551		
3,714.2	3,705.5	3,705.5	3,699.2	9.2	8.8	94.98	234.3	-120.4	152.8	134.9	17.88	8.548		
3,800.0	3,791.1	3,791.2	3,784.7	9.4	9.0	95.17	239.5	-123.2	156.2	137.9	18.29	8.541		
3,900.0	3,891.0	3,891.1	3,884.4	9.6	9.3	94.51	245.7	-126.6	159.9	141.2	18.72	8.543		
4,009.0	4,000.0	3,999.9	3,992.9	9.8	9.5	30.33	252.3	-130.2	163.8	144.5	19.29	8.491	SF	
4,100.0	4,091.0	4,090.7	4,083.5	9.9	9.8	28.47	257.9	-133.3	167.2	147.5	19.68	8.496		
4,200.0	4,191.0	4,190.5	4,183.0	10.1	10.0	26.51	264.0	-136.6	171.1	151.0	20.12	8.505		
4,300.0	4,291.0	4,290.2	4,282.5	10.3	10.3	24.64	270.1	-139.9	175.2	154.6	20.55	8.524		
4,400.0	4,391.0	4,390.0	4,382.0	10.5	10.5	22.85	276.2	-143.3	179.4	158.4	20.98	8.551		
4,500.0	4,491.0	4,489.7	4,481.5	10.7	10.8	21.15	282.3	-146.6	183.8	162.4	21.41	8.585		
4,600.0	4,591.0	4,589.5	4,581.1	10.9	11.0	19.53	288.4	-150.0	188.4	166.6	21.84	8.626		
4,700.0	4,691.0	4,689.2	4,680.6	11.1	11.3	17.99	294.5	-153.3	193.1	170.9	22.27	8.671		
4,800.0	4,791.0	4,789.0	4,780.1	11.3	11.6	16.52	300.6	-156.7	198.0	175.3	22.70	8.721		

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0103A - HZ - Plan #3												Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor	Warning
4,900.0	4,891.0	4,888.7	4,879.6	11.5	11.8	15.13	306.7	-160.0	203.0	179.8	23.13	8.774	
5,000.0	4,991.0	4,988.5	4,979.1	11.7	12.1	13.80	312.8	-163.3	208.1	184.5	23.57	8.830	
5,100.0	5,091.0	5,088.3	5,078.6	11.9	12.3	12.53	318.9	-166.7	213.3	189.3	24.00	8.888	
5,200.0	5,191.0	5,188.0	5,178.1	12.1	12.6	11.33	325.0	-170.0	218.6	194.1	24.43	8.948	
5,300.0	5,291.0	5,287.8	5,277.7	12.3	12.8	10.18	331.1	-173.4	224.0	199.1	24.86	9.009	
5,400.0	5,391.0	5,374.4	5,364.0	12.5	13.1	9.02	337.6	-176.9	230.9	205.6	25.27	9.137	
5,500.0	5,491.0	5,450.0	5,437.8	12.7	13.3	6.70	351.7	-184.6	247.8	222.2	25.66	9.658	
5,585.1	5,576.1	5,500.0	5,485.0	12.9	13.6	4.57	366.1	-192.5	271.2	245.3	25.97	10.444	
5,600.0	5,591.0	5,511.9	5,495.9	12.9	13.6	-175.94	370.1	-194.7	276.4	250.7	25.70	10.752	
5,650.0	5,640.9	5,541.5	5,522.8	13.0	13.8	-177.28	381.0	-200.7	298.2	272.6	25.60	11.648	
5,700.0	5,690.1	5,567.6	5,545.8	13.1	14.0	-178.58	391.7	-206.6	326.4	301.2	25.24	12.930	
5,750.0	5,738.3	5,589.9	5,565.1	13.1	14.1	-179.80	401.7	-212.0	360.3	335.6	24.65	14.618	
5,800.0	5,785.0	5,600.0	5,573.6	13.2	14.2	179.57	406.4	-214.6	399.0	375.2	23.80	16.764	
5,850.0	5,829.8	5,623.2	5,592.8	13.3	14.3	177.83	417.8	-220.9	441.1	418.4	22.74	19.400	
5,900.0	5,872.2	5,634.5	5,601.9	13.3	14.4	176.45	423.7	-224.1	486.4	464.9	21.46	22.664	
5,950.0	5,911.9	5,650.0	5,614.2	13.4	14.5	173.94	432.0	-228.6	533.8	513.8	20.00	26.691	
6,000.0	5,948.5	5,650.0	5,614.2	13.5	14.5	170.68	432.0	-228.6	582.6	564.1	18.44	31.597	
6,050.0	5,981.7	5,650.0	5,614.2	13.6	14.5	157.47	432.0	-228.6	632.2	614.3	17.89	35.338	
6,100.0	6,011.2	5,650.0	5,614.2	13.7	14.5	32.01	432.0	-228.6	682.2	659.7	22.53	30.284	
6,150.0	6,036.6	5,650.0	5,614.2	13.9	14.5	9.62	432.0	-228.6	732.0	714.8	17.17	42.619	
6,200.0	6,057.8	5,650.0	5,614.2	14.1	14.5	5.47	432.0	-228.6	781.2	766.3	14.91	52.394	
6,250.0	6,074.6	5,650.0	5,614.2	14.4	14.5	3.76	432.0	-228.6	829.6	816.6	13.03	63.685	
6,300.0	6,086.8	5,650.0	5,614.2	14.8	14.5	2.84	432.0	-228.6	876.9	865.4	11.47	76.454	
6,350.0	6,094.3	5,627.3	5,596.1	15.2	14.4	1.26	420.0	-222.0	922.1	911.8	10.31	89.447	
6,403.3	6,097.0	5,618.0	5,588.5	15.7	14.3	0.74	415.2	-219.4	968.6	958.5	10.09	96.022	
6,500.0	6,097.0	5,600.0	5,573.6	16.7	14.2	0.19	406.4	-214.6	1,051.8	1,041.1	10.70	98.322	
6,600.0	6,097.0	5,600.0	5,573.6	17.9	14.2	0.19	406.4	-214.6	1,139.7	1,128.3	11.41	99.916	
6,700.0	6,097.0	5,570.3	5,548.2	19.2	14.0	-0.60	392.9	-207.2	1,228.3	1,216.2	12.05	101.941	
6,800.0	6,097.0	5,550.0	5,530.4	20.7	13.9	-1.05	384.4	-202.5	1,318.4	1,305.7	12.74	103.525	
6,900.0	6,097.0	5,550.0	5,530.4	22.1	13.9	-1.05	384.4	-202.5	1,409.4	1,395.9	13.46	104.720	
7,000.0	6,097.0	5,550.0	5,530.4	23.7	13.9	-1.05	384.4	-202.5	1,501.5	1,487.3	14.18	105.860	
7,100.0	6,097.0	5,523.6	5,506.7	25.3	13.7	-1.55	374.2	-197.0	1,593.8	1,578.9	14.87	107.147	
7,200.0	6,097.0	5,500.0	5,485.0	26.9	13.6	-1.91	366.1	-192.5	1,687.2	1,671.7	15.58	108.307	
7,300.0	6,097.0	5,500.0	5,485.0	28.6	13.6	-1.91	366.1	-192.5	1,780.8	1,764.5	16.31	109.202	
7,400.0	6,097.0	5,500.0	5,485.0	30.3	13.6	-1.91	366.1	-192.5	1,875.1	1,858.0	17.04	110.056	
7,500.0	6,097.0	5,500.0	5,485.0	32.1	13.6	-1.91	366.1	-192.5	1,969.9	1,952.1	17.77	110.868	
7,600.0	6,097.0	5,500.0	5,485.0	33.8	13.6	-1.91	366.1	-192.5	2,065.2	2,046.7	18.50	111.641	
7,700.0	6,097.0	5,476.7	5,463.2	35.6	13.5	-2.20	358.9	-188.6	2,160.3	2,141.1	19.21	112.482	
7,800.0	6,097.0	5,470.7	5,457.5	37.4	13.4	-2.27	357.1	-187.6	2,256.1	2,236.1	19.93	113.189	
7,900.0	6,097.0	5,450.0	5,437.8	39.1	13.3	-2.46	351.7	-184.6	2,352.3	2,331.7	20.64	113.942	
8,000.0	6,097.0	5,450.0	5,437.8	41.0	13.3	-2.46	351.7	-184.6	2,448.5	2,427.1	21.38	114.537	
8,100.0	6,097.0	5,450.0	5,437.8	42.8	13.3	-2.46	351.7	-184.6	2,545.0	2,522.8	22.11	115.104	
8,200.0	6,097.0	5,450.0	5,437.8	44.6	13.3	-2.46	351.7	-184.6	2,641.7	2,618.8	22.84	115.645	
8,300.0	6,097.0	5,450.0	5,437.8	46.4	13.3	-2.46	351.7	-184.6	2,738.6	2,715.1	23.58	116.163	
8,400.0	6,097.0	5,450.0	5,437.8	48.3	13.3	-2.46	351.7	-184.6	2,835.8	2,811.5	24.31	116.657	
8,500.0	6,097.0	5,450.0	5,437.8	50.1	13.3	-2.46	351.7	-184.6	2,933.2	2,908.1	25.04	117.130	
8,600.0	6,097.0	5,450.0	5,437.8	52.0	13.3	-2.46	351.7	-184.6	3,030.7	3,004.9	25.78	117.582	
8,700.0	6,097.0	5,450.0	5,437.8	53.8	13.3	-2.46	351.7	-184.6	3,128.4	3,101.9	26.51	118.014	
8,800.0	6,097.0	5,426.9	5,415.5	55.7	13.3	-2.62	346.4	-181.7	3,225.7	3,198.4	27.22	118.512	
8,900.0	6,097.0	5,423.7	5,412.4	57.5	13.2	-2.64	345.7	-181.4	3,323.5	3,295.5	27.95	118.915	
9,000.0	6,097.0	5,400.0	5,389.2	59.4	13.2	-2.75	341.3	-179.0	3,421.8	3,393.1	28.66	119.409	
9,100.0	6,097.0	5,400.0	5,389.2	61.3	13.2	-2.75	341.3	-179.0	3,519.7	3,490.3	29.39	119.758	

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0103A - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: 0-ISWWSA MWD													Offset Well Error: 0.0 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)	Total Uncertainty Axis	Separation Factor		
9,200.0	6,097.0	5,400.0	5,389.2	63.2	13.2	-2.75	341.3	-179.0	3,617.7	3,587.6	30.12	120.093		
9,300.0	6,097.0	5,400.0	5,389.2	65.0	13.2	-2.75	341.3	-179.0	3,715.8	3,685.0	30.86	120.416		
9,400.0	6,097.0	5,400.0	5,389.2	66.9	13.2	-2.75	341.3	-179.0	3,814.1	3,782.5	31.59	120.726		
9,500.0	6,097.0	5,400.0	5,389.2	68.8	13.2	-2.75	341.3	-179.0	3,912.4	3,880.0	32.33	121.025		
9,600.0	6,097.0	5,400.0	5,389.2	70.7	13.2	-2.75	341.3	-179.0	4,010.8	3,977.7	33.06	121.313		
9,700.0	6,097.0	5,400.0	5,389.2	72.6	13.2	-2.75	341.3	-179.0	4,109.2	4,075.4	33.80	121.591		
9,800.0	6,097.0	5,400.0	5,389.2	74.4	13.2	-2.75	341.3	-179.0	4,207.8	4,173.2	34.53	121.859		
9,900.0	6,097.0	5,400.0	5,389.2	76.3	13.2	-2.75	341.3	-179.0	4,306.4	4,271.1	35.26	122.118		
10,000.0	6,097.0	5,400.0	5,389.2	78.2	13.2	-2.75	341.3	-179.0	4,405.1	4,369.1	36.00	122.368		
10,100.0	6,097.0	5,400.0	5,389.2	80.1	13.2	-2.75	341.3	-179.0	4,503.8	4,467.0	36.73	122.609		
10,200.0	6,097.0	5,400.0	5,389.2	82.0	13.2	-2.75	341.3	-179.0	4,602.6	4,565.1	37.47	122.842		
10,300.0	6,097.0	5,400.0	5,389.2	83.9	13.2	-2.75	341.3	-179.0	4,701.4	4,663.2	38.20	123.068		
10,400.0	6,097.0	5,400.0	5,389.2	85.8	13.2	-2.75	341.3	-179.0	4,800.3	4,761.4	38.94	123.286		
10,500.0	6,097.0	5,400.0	5,389.2	87.7	13.2	-2.75	341.3	-179.0	4,899.2	4,859.5	39.67	123.497		
10,600.0	6,097.0	5,400.0	5,389.2	89.6	13.2	-2.75	341.3	-179.0	4,998.2	4,957.8	40.41	123.702		
10,700.0	6,097.0	5,400.0	5,389.2	91.5	13.2	-2.75	341.3	-179.0	5,097.2	5,056.1	41.14	123.900		
10,800.0	6,097.0	5,400.0	5,389.2	93.4	13.2	-2.75	341.3	-179.0	5,196.3	5,154.4	41.87	124.092		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0104B - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance					Separation Factor	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)	Total Uncertainty Axis			
0.0	0.0	0.0	0.0	0.0	0.0	0.00	74.9	0.0	74.9					
100.0	100.0	98.8	98.8	0.1	0.1	0.00	74.9	0.0	74.9	74.7	0.18	405.954		
200.0	200.0	198.8	198.8	0.3	0.3	0.00	74.9	0.0	74.9	74.3	0.63	118.441		
300.0	300.0	298.8	298.8	0.5	0.5	0.00	74.9	0.0	74.9	73.8	1.08	69.234		
400.0	400.0	398.8	398.8	0.8	0.8	0.00	74.9	0.0	74.9	73.4	1.53	48.913		
500.0	500.0	498.8	498.8	1.0	1.0	0.00	74.9	0.0	74.9	72.9	1.98	37.814		
600.0	600.0	598.8	598.8	1.2	1.2	0.00	74.9	0.0	74.9	72.5	2.43	30.820		
700.0	700.0	698.8	698.8	1.4	1.4	63.37	74.9	0.0	74.3	71.4	2.88	25.814		
800.0	799.9	798.7	798.7	1.7	1.7	66.16	74.9	0.0	72.6	69.3	3.33	21.846		
884.6	884.4	881.3	881.3	1.8	1.8	69.67	76.0	-0.3	71.7	68.0	3.70	19.366 CC		
894.8	894.5	891.2	891.2	1.9	1.9	70.14	76.3	-0.4	71.7	68.0	3.75	19.135		
900.0	899.7	896.3	896.3	1.9	1.9	70.38	76.5	-0.5	71.7	68.0	3.77	19.022 ES		
1,000.0	999.4	994.0	993.8	2.1	2.1	74.26	81.2	-1.9	73.9	69.7	4.22	17.498		
1,100.0	1,099.1	1,093.7	1,093.3	2.4	2.3	77.23	87.8	-4.0	78.0	73.4	4.69	16.631		
1,200.0	1,198.8	1,193.5	1,192.9	2.6	2.6	79.90	94.5	-6.0	82.4	77.2	5.17	15.926		
1,300.0	1,298.5	1,293.3	1,292.5	2.9	2.8	82.29	101.1	-8.1	86.8	81.2	5.66	15.355		
1,400.0	1,398.2	1,393.2	1,392.1	3.1	3.0	84.45	107.8	-10.1	91.4	85.3	6.14	14.884		
1,500.0	1,497.9	1,493.0	1,491.7	3.4	3.3	86.40	114.5	-12.1	96.2	89.5	6.64	14.492		
1,600.0	1,597.6	1,592.9	1,591.2	3.6	3.5	88.17	121.1	-14.2	101.0	93.9	7.13	14.162		
1,700.0	1,697.3	1,692.7	1,690.8	3.9	3.8	89.77	127.8	-16.2	105.9	98.3	7.63	13.882		
1,800.0	1,797.0	1,792.5	1,790.4	4.1	4.0	91.23	134.4	-18.3	110.9	102.8	8.13	13.642		
1,900.0	1,896.7	1,892.4	1,890.0	4.4	4.3	92.56	141.1	-20.3	116.0	107.3	8.63	13.435		
2,000.0	1,996.4	1,992.2	1,989.6	4.7	4.5	93.78	147.7	-22.4	121.1	112.0	9.14	13.255		
2,100.0	2,096.1	2,092.0	2,089.2	4.9	4.8	94.91	154.4	-24.4	126.3	116.6	9.64	13.097		
2,200.0	2,195.8	2,191.9	2,188.8	5.2	5.0	95.94	161.1	-26.5	131.5	121.3	10.15	12.959		
2,300.0	2,295.5	2,291.7	2,288.4	5.5	5.3	96.89	167.7	-28.5	136.7	126.1	10.65	12.836		
2,400.0	2,395.2	2,391.6	2,388.0	5.7	5.5	97.78	174.4	-30.5	142.0	130.8	11.16	12.726		
2,500.0	2,494.9	2,491.4	2,487.6	6.0	5.8	98.60	181.0	-32.6	147.3	135.7	11.67	12.629		
2,600.0	2,594.6	2,591.2	2,587.2	6.2	6.0	99.36	187.7	-34.6	152.7	140.5	12.17	12.541		
2,700.0	2,694.3	2,691.1	2,686.8	6.5	6.3	100.07	194.3	-36.7	158.0	145.4	12.68	12.461		
2,800.0	2,794.0	2,790.9	2,786.4	6.8	6.5	100.74	201.0	-38.7	163.4	150.2	13.19	12.390		
2,900.0	2,893.7	2,890.7	2,886.0	7.0	6.8	101.36	207.7	-40.8	168.8	155.1	13.70	12.324		
3,000.0	2,993.4	2,990.6	2,985.6	7.3	7.1	101.94	214.3	-42.8	174.3	160.1	14.21	12.265		
3,100.0	3,093.1	3,090.4	3,085.2	7.6	7.3	102.49	221.0	-44.9	179.7	165.0	14.72	12.210		
3,200.0	3,192.8	3,190.3	3,184.8	7.8	7.6	103.00	227.6	-46.9	185.2	170.0	15.23	12.160		
3,300.0	3,292.5	3,290.1	3,284.3	8.1	7.8	103.49	234.3	-48.9	190.7	174.9	15.74	12.114		
3,400.0	3,392.3	3,389.9	3,383.9	8.4	8.1	103.95	241.0	-51.0	196.2	179.9	16.25	12.072		
3,500.0	3,492.0	3,489.8	3,483.5	8.6	8.3	104.38	247.6	-53.0	201.7	184.9	16.76	12.033		
3,600.0	3,591.7	3,589.6	3,583.1	8.9	8.6	104.79	254.3	-55.1	207.2	189.9	17.27	11.996		
3,700.0	3,691.4	3,689.4	3,682.7	9.2	8.8	105.18	260.9	-57.1	212.7	194.9	17.78	11.963		
3,714.2	3,705.5	3,703.6	3,696.9	9.2	8.9	105.24	261.9	-57.4	213.5	195.6	17.85	11.958		
3,800.0	3,791.1	3,789.3	3,782.3	9.4	9.1	105.37	267.6	-59.2	218.0	199.7	18.26	11.936		
3,900.0	3,891.0	3,889.2	3,882.0	9.6	9.3	104.92	274.2	-61.2	222.6	203.9	18.70	11.904		
4,009.0	4,000.0	3,997.9	3,990.5	9.8	9.6	41.24	281.5	-63.4	226.9	207.6	19.29	11.762		
4,100.0	4,091.0	4,088.7	4,081.1	9.9	9.9	39.90	287.6	-65.3	230.3	210.6	19.68	11.699		
4,200.0	4,191.0	4,188.5	4,180.6	10.1	10.1	38.47	294.2	-67.3	234.2	214.0	20.13	11.633		
4,300.0	4,291.0	4,288.3	4,280.1	10.3	10.4	37.09	300.9	-69.4	238.2	217.6	20.58	11.576		
4,400.0	4,391.0	4,388.0	4,379.6	10.5	10.6	35.75	307.5	-71.4	242.4	221.3	21.02	11.529		
4,500.0	4,491.0	4,487.8	4,479.1	10.7	10.9	34.46	314.2	-73.5	246.6	225.2	21.46	11.490		
4,600.0	4,591.0	4,587.5	4,578.6	10.9	11.1	33.22	320.8	-75.5	251.0	229.1	21.91	11.459		
4,700.0	4,691.0	4,687.3	4,678.1	11.1	11.4	32.02	327.5	-77.6	255.6	233.2	22.35	11.434		
4,800.0	4,791.0	4,787.0	4,777.6	11.3	11.6	30.86	334.1	-79.6	260.2	237.4	22.79	11.415		

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0104B - HZ - Plan #3												Offset Site Error:	0.0 usft
Survey Program: 0-ISCSA MWD												Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor	Warning
4,900.0	4,891.0	4,886.8	4,877.2	11.5	11.9	29.74	340.8	-81.6	264.9	241.7	23.23	11.402	
5,000.0	4,991.0	4,986.5	4,976.7	11.7	12.2	28.66	347.4	-83.7	269.8	246.1	23.68	11.393	
5,100.0	5,091.0	5,086.3	5,076.2	11.9	12.4	27.62	354.1	-85.7	274.7	250.6	24.12	11.388	
5,200.0	5,191.0	5,186.1	5,175.7	12.1	12.7	26.62	360.7	-87.8	279.7	255.1	24.56	11.387 SF	
5,300.0	5,291.0	5,285.8	5,275.2	12.3	12.9	25.65	367.4	-89.8	284.8	259.8	25.00	11.390	
5,400.0	5,391.0	5,385.6	5,374.7	12.5	13.2	24.71	374.0	-91.8	289.9	264.5	25.44	11.395	
5,500.0	5,491.0	5,471.1	5,459.9	12.7	13.4	23.80	380.7	-93.9	296.3	270.5	25.86	11.459	
5,585.1	5,576.1	5,528.9	5,516.7	12.9	13.6	22.46	391.1	-97.1	308.6	282.4	26.20	11.782	
5,600.0	5,591.0	5,538.7	5,526.1	12.9	13.7	-157.71	393.4	-97.8	311.8	285.8	25.94	12.017	
5,650.0	5,640.9	5,570.0	5,556.2	13.0	13.8	-158.30	402.1	-100.5	326.7	300.8	25.91	12.609	
5,700.0	5,690.1	5,600.0	5,584.3	13.1	13.9	-158.87	412.0	-103.5	348.2	322.6	25.66	13.569	
5,750.0	5,738.3	5,623.4	5,605.8	13.1	14.1	-159.01	420.8	-106.2	375.9	350.7	25.21	14.911	
5,800.0	5,785.0	5,650.0	5,629.8	13.2	14.2	-159.22	431.9	-109.6	409.0	384.5	24.56	16.653	
5,850.0	5,829.8	5,661.9	5,640.2	13.3	14.3	-157.93	437.2	-111.2	446.7	422.9	23.78	18.781	
5,900.0	5,872.2	5,675.6	5,652.2	13.3	14.4	-156.13	443.6	-113.2	488.2	465.3	22.95	21.275	
5,950.0	5,911.9	5,685.9	5,661.0	13.4	14.4	-152.80	448.6	-114.8	532.8	510.5	22.24	23.959	
6,000.0	5,948.5	5,700.0	5,673.0	13.5	14.5	-148.16	455.8	-117.0	579.6	557.8	21.85	26.529	
6,050.0	5,981.7	5,700.0	5,673.0	13.6	14.5	-135.80	455.8	-117.0	627.8	604.7	23.10	27.180	
6,100.0	6,011.2	5,700.0	5,673.0	13.7	14.5	-111.14	455.8	-117.0	676.9	650.4	26.54	25.503	
6,150.0	6,036.6	5,700.0	5,673.0	13.9	14.5	-72.85	455.8	-117.0	726.5	698.8	27.61	26.314	
6,200.0	6,057.8	5,700.0	5,673.0	14.1	14.5	-43.58	455.8	-117.0	775.8	752.9	22.89	33.887	
6,250.0	6,074.6	5,700.0	5,673.0	14.4	14.5	-28.61	455.8	-117.0	824.7	806.4	18.30	45.070	
6,300.0	6,086.8	5,700.0	5,673.0	14.8	14.5	-20.68	455.8	-117.0	872.7	857.6	15.14	57.642	
6,350.0	6,094.3	5,680.1	5,656.1	15.2	14.4	-15.68	445.8	-113.9	919.1	906.2	12.94	71.043	
6,403.3	6,097.0	5,671.5	5,648.6	15.7	14.3	-12.64	441.6	-112.6	967.0	955.1	11.87	81.461	
6,500.0	6,097.0	5,650.0	5,629.8	16.7	14.2	-12.50	431.9	-109.6	1,052.9	1,040.4	12.43	84.699	
6,600.0	6,097.0	5,650.0	5,629.8	17.9	14.2	-12.50	431.9	-109.6	1,142.9	1,129.8	13.13	87.024	
6,700.0	6,097.0	5,627.8	5,609.8	19.2	14.1	-12.32	422.5	-106.7	1,233.8	1,220.0	13.77	89.576	
6,800.0	6,097.0	5,600.0	5,584.3	20.7	13.9	-12.07	412.0	-103.5	1,326.1	1,311.7	14.40	92.072	
6,900.0	6,097.0	5,600.0	5,584.3	22.1	13.9	-12.07	412.0	-103.5	1,418.5	1,403.4	15.16	93.561	
7,000.0	6,097.0	5,600.0	5,584.3	23.7	13.9	-12.07	412.0	-103.5	1,511.9	1,496.0	15.93	94.915	
7,100.0	6,097.0	5,600.0	5,584.3	25.3	13.9	-12.07	412.0	-103.5	1,606.1	1,589.4	16.70	96.153	
7,200.0	6,097.0	5,578.3	5,564.0	26.9	13.8	-11.86	404.7	-101.3	1,700.4	1,683.0	17.38	97.843	
7,300.0	6,097.0	5,570.8	5,556.9	28.6	13.8	-11.78	402.3	-100.5	1,795.4	1,777.3	18.12	99.066	
7,400.0	6,097.0	5,550.0	5,537.1	30.3	13.7	-11.55	396.4	-98.7	1,891.0	1,872.2	18.80	100.584	
7,500.0	6,097.0	5,550.0	5,537.1	32.1	13.7	-11.55	396.4	-98.7	1,986.6	1,967.0	19.58	101.436	
7,600.0	6,097.0	5,550.0	5,537.1	33.8	13.7	-11.55	396.4	-98.7	2,082.6	2,062.2	20.37	102.233	
7,700.0	6,097.0	5,550.0	5,537.1	35.6	13.7	-11.55	396.4	-98.7	2,178.9	2,157.8	21.16	102.981	
7,800.0	6,097.0	5,550.0	5,537.1	37.4	13.7	-11.55	396.4	-98.7	2,275.6	2,253.6	21.95	103.682	
7,900.0	6,097.0	5,550.0	5,537.1	39.1	13.7	-11.55	396.4	-98.7	2,372.5	2,349.8	22.74	104.342	
8,000.0	6,097.0	5,550.0	5,537.1	41.0	13.7	-11.55	396.4	-98.7	2,469.7	2,446.2	23.53	104.964	
8,100.0	6,097.0	5,527.6	5,515.4	42.8	13.6	-11.29	390.8	-97.0	2,566.6	2,542.4	24.18	106.129	
8,200.0	6,097.0	5,523.7	5,511.6	44.6	13.6	-11.25	389.9	-96.7	2,663.9	2,639.0	24.95	106.777	
8,300.0	6,097.0	5,500.0	5,488.5	46.4	13.5	-10.96	385.2	-95.3	2,761.9	2,736.3	25.59	107.948	
8,400.0	6,097.0	5,500.0	5,488.5	48.3	13.5	-10.96	385.2	-95.3	2,859.5	2,833.1	26.37	108.422	
8,500.0	6,097.0	5,500.0	5,488.5	50.1	13.5	-10.96	385.2	-95.3	2,957.2	2,930.0	27.16	108.874	
8,600.0	6,097.0	5,500.0	5,488.5	52.0	13.5	-10.96	385.2	-95.3	3,055.0	3,027.1	27.95	109.304	
8,700.0	6,097.0	5,500.0	5,488.5	53.8	13.5	-10.96	385.2	-95.3	3,153.0	3,124.3	28.74	109.714	
8,800.0	6,097.0	5,500.0	5,488.5	55.7	13.5	-10.96	385.2	-95.3	3,251.1	3,221.6	29.53	110.104	
8,900.0	6,097.0	5,500.0	5,488.5	57.5	13.5	-10.96	385.2	-95.3	3,349.4	3,319.1	30.32	110.477	
9,000.0	6,097.0	5,500.0	5,488.5	59.4	13.5	-10.96	385.2	-95.3	3,447.7	3,416.6	31.11	110.834	
9,100.0	6,097.0	5,500.0	5,488.5	61.3	13.5	-10.96	385.2	-95.3	3,546.1	3,514.2	31.90	111.175	

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0104B - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor		
9,200.0	6,097.0	5,500.0	5,488.5	63.2	13.5	-10.96	385.2	-95.3	3,644.6	3,611.9	32.69	111.502		
9,300.0	6,097.0	5,500.0	5,488.5	65.0	13.5	-10.96	385.2	-95.3	3,743.2	3,709.7	33.48	111.814		
9,400.0	6,097.0	5,500.0	5,488.5	66.9	13.5	-10.96	385.2	-95.3	3,841.9	3,807.6	34.27	112.114		
9,500.0	6,097.0	5,500.0	5,488.5	68.8	13.5	-10.96	385.2	-95.3	3,940.6	3,905.5	35.06	112.402		
9,600.0	6,097.0	5,500.0	5,488.5	70.7	13.5	-10.96	385.2	-95.3	4,039.4	4,003.5	35.85	112.679		
9,700.0	6,097.0	5,500.0	5,488.5	72.6	13.5	-10.96	385.2	-95.3	4,138.2	4,101.6	36.64	112.944		
9,800.0	6,097.0	5,500.0	5,488.5	74.4	13.5	-10.96	385.2	-95.3	4,237.1	4,199.7	37.43	113.200		
9,900.0	6,097.0	5,500.0	5,488.5	76.3	13.5	-10.96	385.2	-95.3	4,336.1	4,297.9	38.22	113.446		
10,000.0	6,097.0	5,500.0	5,488.5	78.2	13.5	-10.96	385.2	-95.3	4,435.1	4,396.1	39.01	113.683		
10,100.0	6,097.0	5,500.0	5,488.5	80.1	13.5	-10.96	385.2	-95.3	4,534.1	4,494.3	39.80	113.911		
10,200.0	6,097.0	5,476.6	5,465.4	82.0	13.4	-10.67	381.5	-94.1	4,632.7	4,592.3	40.38	114.723		
10,300.0	6,097.0	5,475.2	5,464.0	83.9	13.4	-10.65	381.3	-94.1	4,731.7	4,690.6	41.16	114.970		
10,400.0	6,097.0	5,473.8	5,462.6	85.8	13.4	-10.63	381.1	-94.0	4,830.8	4,788.9	41.93	115.207		
10,500.0	6,097.0	5,450.0	5,439.0	87.7	13.3	-10.33	378.5	-93.2	4,930.5	4,888.0	42.49	116.032		
10,600.0	6,097.0	5,450.0	5,439.0	89.6	13.3	-10.33	378.5	-93.2	5,029.5	4,986.3	43.28	116.217		
10,700.0	6,097.0	5,450.0	5,439.0	91.5	13.3	-10.33	378.5	-93.2	5,128.7	5,084.6	44.06	116.397		
10,800.0	6,097.0	5,450.0	5,439.0	93.4	13.3	-10.33	378.5	-93.2	5,227.8	5,183.0	44.85	116.571		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0105A - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 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)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	23.81	74.9	33.0	81.9					
100.0	100.0	98.8	98.8	0.1	0.1	23.81	74.9	33.0	81.9	81.7	0.18	443.594		
200.0	200.0	198.8	198.8	0.3	0.3	23.81	74.9	33.0	81.9	81.2	0.63	129.422		
300.0	300.0	298.8	298.8	0.5	0.5	23.81	74.9	33.0	81.9	80.8	1.08	75.653		
400.0	400.0	398.8	398.8	0.8	0.8	23.81	74.9	33.0	81.9	80.3	1.53	53.448		
500.0	500.0	498.8	498.8	1.0	1.0	23.81	74.9	33.0	81.9	79.9	1.98	41.320		
600.0	600.0	598.8	598.8	1.2	1.2	23.81	74.9	33.0	81.9	79.4	2.43	33.678		
700.0	700.0	698.8	698.8	1.4	1.4	87.19	74.9	33.0	81.8	78.9	2.87	28.457		
800.0	799.9	798.7	798.7	1.7	1.7	89.94	74.9	33.0	81.7	78.4	3.31	24.642		
801.7	801.6	800.4	800.4	1.7	1.7	90.00	74.9	33.0	81.7	78.4	3.32	24.585 CC		
894.8	894.5	893.3	893.3	1.9	1.9	94.22	74.9	33.0	81.9	78.2	3.74	21.890 ES		
900.0	899.7	898.5	898.5	1.9	1.9	94.50	74.9	33.0	81.9	78.2	3.77	21.759		
1,000.0	999.4	998.2	998.2	2.1	2.1	99.80	74.9	33.0	82.9	78.7	4.23	19.621		
1,100.0	1,099.1	1,097.9	1,097.9	2.4	2.3	104.94	74.9	33.0	84.6	79.9	4.69	18.036		
1,200.0	1,198.8	1,195.7	1,195.7	2.6	2.6	108.97	76.5	33.0	87.9	82.8	5.15	17.077		
1,300.0	1,298.5	1,293.5	1,293.3	2.9	2.8	111.06	81.4	32.8	93.8	88.2	5.62	16.711		
1,400.0	1,398.2	1,393.1	1,392.7	3.1	3.0	112.07	88.4	32.5	101.0	94.9	6.09	16.591		
1,500.0	1,497.9	1,492.8	1,492.1	3.4	3.2	112.95	95.3	32.3	108.2	101.7	6.57	16.486		
1,600.0	1,597.6	1,592.5	1,591.6	3.6	3.5	113.71	102.3	32.0	115.5	108.4	7.05	16.390		
1,700.0	1,697.3	1,692.2	1,691.1	3.9	3.7	114.39	109.2	31.7	122.8	115.2	7.53	16.302		
1,800.0	1,797.0	1,792.0	1,790.6	4.1	3.9	114.99	116.2	31.5	130.0	122.0	8.02	16.222		
1,900.0	1,896.7	1,891.7	1,890.1	4.4	4.2	115.52	123.1	31.2	137.3	128.8	8.50	16.148		
2,000.0	1,996.4	1,991.4	1,989.6	4.7	4.4	116.01	130.1	30.9	144.6	135.6	8.99	16.081		
2,100.0	2,096.1	2,091.1	2,089.0	4.9	4.7	116.44	137.0	30.7	151.9	142.4	9.48	16.019		
2,200.0	2,195.8	2,190.9	2,188.5	5.2	4.9	116.84	144.0	30.4	159.2	149.3	9.98	15.961		
2,300.0	2,295.5	2,290.6	2,288.0	5.5	5.2	117.20	150.9	30.1	166.6	156.1	10.47	15.909		
2,400.0	2,395.2	2,390.3	2,387.5	5.7	5.4	117.53	157.9	29.9	173.9	162.9	10.96	15.860		
2,500.0	2,494.9	2,490.0	2,487.0	6.0	5.7	117.83	164.8	29.6	181.2	169.8	11.46	15.814		
2,600.0	2,594.6	2,589.8	2,586.5	6.2	5.9	118.11	171.8	29.3	188.6	176.6	11.96	15.772		
2,700.0	2,694.3	2,689.5	2,685.9	6.5	6.2	118.37	178.7	29.1	195.9	183.5	12.45	15.733		
2,800.0	2,794.0	2,789.2	2,785.4	6.8	6.4	118.61	185.7	28.8	203.3	190.3	12.95	15.696		
2,900.0	2,893.7	2,888.9	2,884.9	7.0	6.7	118.84	192.6	28.5	210.6	197.2	13.45	15.662		
3,000.0	2,993.4	2,988.7	2,984.4	7.3	6.9	119.05	199.6	28.3	218.0	204.0	13.95	15.630		
3,100.0	3,093.1	3,088.4	3,083.9	7.6	7.2	119.24	206.5	28.0	225.3	210.9	14.44	15.599		
3,200.0	3,192.8	3,188.1	3,183.4	7.8	7.4	119.42	213.5	27.7	232.7	217.7	14.94	15.571		
3,300.0	3,292.5	3,287.9	3,282.8	8.1	7.7	119.60	220.4	27.5	240.0	224.6	15.44	15.544		
3,400.0	3,392.3	3,387.6	3,382.3	8.4	7.9	119.76	227.4	27.2	247.4	231.5	15.94	15.519		
3,500.0	3,492.0	3,487.3	3,481.8	8.6	8.2	119.91	234.3	26.9	254.8	238.3	16.44	15.495		
3,600.0	3,591.7	3,587.0	3,581.3	8.9	8.4	120.05	241.3	26.7	262.1	245.2	16.94	15.472		
3,700.0	3,691.4	3,686.8	3,680.8	9.2	8.7	120.19	248.2	26.4	269.5	252.1	17.44	15.450		
3,714.2	3,705.5	3,700.9	3,694.9	9.2	8.7	120.21	249.2	26.3	270.5	253.0	17.51	15.448		
3,800.0	3,791.1	3,786.5	3,780.3	9.4	8.9	120.22	255.2	26.1	276.4	258.5	17.92	15.422		
3,900.0	3,891.0	3,886.3	3,879.9	9.6	9.2	119.79	262.1	25.8	282.0	263.6	18.36	15.359		
4,009.0	4,000.0	3,995.1	3,988.3	9.8	9.5	56.35	269.7	25.6	286.6	267.7	18.96	15.116		
4,100.0	4,091.0	4,085.9	4,078.9	9.9	9.7	55.28	276.1	25.3	290.0	270.6	19.37	14.975		
4,200.0	4,191.0	4,185.6	4,178.4	10.1	9.9	54.14	283.0	25.0	293.8	274.0	19.82	14.822		
4,300.0	4,291.0	4,285.4	4,278.0	10.3	10.2	53.02	290.0	24.8	297.8	277.5	20.28	14.682		
4,400.0	4,391.0	4,385.1	4,377.5	10.5	10.4	51.94	296.9	24.5	301.8	281.1	20.74	14.554		
4,500.0	4,491.0	4,484.9	4,477.0	10.7	10.7	50.88	303.9	24.2	305.9	284.8	21.19	14.437		
4,600.0	4,591.0	4,584.7	4,576.5	10.9	11.0	49.85	310.8	24.0	310.2	288.5	21.65	14.329		
4,700.0	4,691.0	4,684.4	4,676.0	11.1	11.2	48.85	317.8	23.7	314.5	292.4	22.10	14.231		
4,800.0	4,791.0	4,784.2	4,775.5	11.3	11.5	47.88	324.7	23.4	319.0	296.4	22.56	14.141		

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0105A - HZ - Plan #3												Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
4,900.0	4,891.0	4,883.9	4,875.0	11.5	11.7	46.93	331.7	23.2	323.5	300.5	23.01	14.059	
5,000.0	4,991.0	4,983.7	4,974.6	11.7	12.0	46.01	338.6	22.9	328.1	304.7	23.46	13.984	
5,100.0	5,091.0	5,083.4	5,074.1	11.9	12.2	45.12	345.6	22.6	332.8	308.9	23.92	13.915	
5,200.0	5,191.0	5,183.2	5,173.6	12.1	12.5	44.25	352.5	22.4	337.6	313.2	24.37	13.852	
5,300.0	5,291.0	5,283.0	5,273.1	12.3	12.7	43.40	359.5	22.1	342.4	317.6	24.82	13.795 SF	
5,400.0	5,391.0	5,367.7	5,357.5	12.5	13.0	42.59	366.4	21.8	348.4	323.1	25.25	13.798	
5,500.0	5,491.0	5,433.3	5,421.9	12.7	13.2	41.16	379.0	21.4	362.4	336.7	25.66	14.124	
5,585.1	5,576.1	5,486.1	5,472.2	12.9	13.4	39.45	394.9	20.7	381.8	355.8	26.02	14.674	
5,600.0	5,591.0	5,500.0	5,485.1	12.9	13.5	-140.78	400.0	20.6	386.1	360.3	25.78	14.977	
5,650.0	5,640.9	5,522.7	5,506.0	13.0	13.6	-140.52	408.9	20.2	404.2	378.4	25.81	15.660	
5,700.0	5,690.1	5,550.0	5,530.5	13.1	13.7	-140.28	420.9	19.8	428.1	402.3	25.72	16.644	
5,750.0	5,738.3	5,568.5	5,546.7	13.1	13.9	-139.11	429.7	19.4	457.1	431.6	25.50	17.927	
5,800.0	5,785.0	5,586.0	5,561.8	13.2	14.0	-137.28	438.6	19.1	490.9	465.7	25.22	19.463	
5,850.0	5,829.8	5,600.0	5,573.7	13.3	14.0	-134.31	446.1	18.8	528.6	503.7	24.98	21.164	
5,900.0	5,872.2	5,600.0	5,573.7	13.3	14.0	-128.25	446.1	18.8	569.9	544.9	25.00	22.793	
5,950.0	5,911.9	5,618.3	5,588.8	13.4	14.2	-123.02	456.3	18.4	613.3	588.1	25.23	24.304	
6,000.0	5,948.5	5,623.1	5,592.8	13.5	14.2	-113.28	459.1	18.3	658.8	632.8	26.03	25.313	
6,050.0	5,981.7	5,625.4	5,594.6	13.6	14.2	-99.96	460.5	18.2	705.5	678.5	27.01	26.115	
6,100.0	6,011.2	5,625.6	5,594.7	13.7	14.2	-83.66	460.5	18.2	752.9	725.4	27.53	27.353	
6,150.0	6,036.6	5,623.7	5,593.2	13.9	14.2	-66.94	459.5	18.3	800.5	773.5	26.96	29.687	
6,200.0	6,057.8	5,620.1	5,590.3	14.1	14.2	-52.62	457.4	18.3	847.7	822.9	24.84	34.132	
6,250.0	6,074.6	5,600.0	5,573.7	14.4	14.0	-40.24	446.1	18.8	894.6	873.0	21.60	41.425	
6,300.0	6,086.8	5,600.0	5,573.7	14.8	14.0	-33.24	446.1	18.8	939.8	920.6	19.19	48.973	
6,350.0	6,094.3	5,600.0	5,573.7	15.2	14.0	-28.06	446.1	18.8	983.8	966.7	17.17	57.285	
6,403.3	6,097.0	5,600.0	5,573.7	15.7	14.0	-23.93	446.1	18.8	1,029.1	1,013.4	15.63	65.819	
6,500.0	6,097.0	5,575.1	5,552.4	16.7	13.9	-23.14	433.0	19.3	1,110.0	1,094.1	15.90	69.813	
6,600.0	6,097.0	5,550.0	5,530.5	17.9	13.7	-22.37	420.9	19.8	1,195.6	1,179.3	16.27	73.505	
6,700.0	6,097.0	5,550.0	5,530.5	19.2	13.7	-22.37	420.9	19.8	1,282.5	1,265.5	17.04	75.269	
6,800.0	6,097.0	5,550.0	5,530.5	20.7	13.7	-22.37	420.9	19.8	1,371.3	1,353.4	17.85	76.813	
6,900.0	6,097.0	5,521.2	5,504.6	22.1	13.6	-21.52	408.3	20.2	1,460.4	1,442.1	18.29	79.867	
7,000.0	6,097.0	5,500.0	5,485.1	23.7	13.5	-20.92	400.0	20.6	1,551.1	1,532.2	18.85	82.297	
7,100.0	6,097.0	5,500.0	5,485.1	25.3	13.5	-20.92	400.0	20.6	1,642.3	1,622.6	19.71	83.323	
7,200.0	6,097.0	5,500.0	5,485.1	26.9	13.5	-20.92	400.0	20.6	1,734.5	1,713.9	20.59	84.259	
7,300.0	6,097.0	5,500.0	5,485.1	28.6	13.5	-20.92	400.0	20.6	1,827.5	1,806.0	21.47	85.120	
7,400.0	6,097.0	5,476.7	5,463.4	30.3	13.4	-20.29	391.7	20.9	1,920.6	1,898.5	22.03	87.198	
7,500.0	6,097.0	5,450.0	5,438.0	32.1	13.3	-19.59	383.5	21.2	2,014.9	1,992.4	22.54	89.397	
7,600.0	6,097.0	5,450.0	5,438.0	33.8	13.3	-19.59	383.5	21.2	2,109.0	2,085.6	23.42	90.038	
7,700.0	6,097.0	5,450.0	5,438.0	35.6	13.3	-19.59	383.5	21.2	2,203.6	2,179.3	24.31	90.640	
7,800.0	6,097.0	5,450.0	5,438.0	37.4	13.3	-19.59	383.5	21.2	2,298.7	2,273.5	25.20	91.204	
7,900.0	6,097.0	5,450.0	5,438.0	39.1	13.3	-19.59	383.5	21.2	2,394.1	2,368.0	26.10	91.736	
8,000.0	6,097.0	5,450.0	5,438.0	41.0	13.3	-19.59	383.5	21.2	2,490.0	2,463.0	26.99	92.238	
8,100.0	6,097.0	5,450.0	5,438.0	42.8	13.3	-19.59	383.5	21.2	2,586.1	2,558.2	27.89	92.712	
8,200.0	6,097.0	5,450.0	5,438.0	44.6	13.3	-19.59	383.5	21.2	2,682.5	2,653.7	28.79	93.160	
8,300.0	6,097.0	5,450.0	5,438.0	46.4	13.3	-19.59	383.5	21.2	2,779.2	2,749.5	29.70	93.585	
8,400.0	6,097.0	5,425.2	5,414.0	48.3	13.2	-18.97	377.0	21.4	2,875.4	2,845.2	30.19	95.245	
8,500.0	6,097.0	5,421.6	5,410.6	50.1	13.1	-18.88	376.1	21.5	2,972.3	2,941.3	31.03	95.801	
8,600.0	6,097.0	5,400.0	5,389.4	52.0	13.1	-18.37	371.6	21.6	3,069.7	3,038.2	31.57	97.245	
8,700.0	6,097.0	5,400.0	5,389.4	53.8	13.1	-18.37	371.6	21.6	3,166.9	3,134.4	32.45	97.577	
8,800.0	6,097.0	5,400.0	5,389.4	55.7	13.1	-18.37	371.6	21.6	3,264.1	3,230.8	33.34	97.895	
8,900.0	6,097.0	5,400.0	5,389.4	57.5	13.1	-18.37	371.6	21.6	3,361.6	3,327.3	34.23	98.199	
9,000.0	6,097.0	5,400.0	5,389.4	59.4	13.1	-18.37	371.6	21.6	3,459.2	3,424.0	35.12	98.489	
9,100.0	6,097.0	5,400.0	5,389.4	61.3	13.1	-18.37	371.6	21.6	3,556.9	3,520.9	36.01	98.768	

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0105A - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor		
9,200.0	6,097.0	5,400.0	5,389.4	63.2	13.1	-18.37	371.6	21.6	3,654.7	3,617.8	36.90	99.035		
9,300.0	6,097.0	5,400.0	5,389.4	65.0	13.1	-18.37	371.6	21.6	3,752.7	3,714.9	37.79	99.291		
9,400.0	6,097.0	5,400.0	5,389.4	66.9	13.1	-18.37	371.6	21.6	3,850.8	3,812.1	38.69	99.537		
9,500.0	6,097.0	5,400.0	5,389.4	68.8	13.1	-18.37	371.6	21.6	3,948.9	3,909.3	39.58	99.774		
9,600.0	6,097.0	5,400.0	5,389.4	70.7	13.1	-18.37	371.6	21.6	4,047.2	4,006.7	40.47	100.001		
9,700.0	6,097.0	5,400.0	5,389.4	72.6	13.1	-18.37	371.6	21.6	4,145.5	4,104.1	41.36	100.220		
9,800.0	6,097.0	5,400.0	5,389.4	74.4	13.1	-18.37	371.6	21.6	4,243.9	4,201.7	42.26	100.431		
9,900.0	6,097.0	5,400.0	5,389.4	76.3	13.1	-18.37	371.6	21.6	4,342.4	4,299.3	43.15	100.634		
10,000.0	6,097.0	5,400.0	5,389.4	78.2	13.1	-18.37	371.6	21.6	4,441.0	4,396.9	44.04	100.829		
10,100.0	6,097.0	5,400.0	5,389.4	80.1	13.1	-18.37	371.6	21.6	4,539.6	4,494.6	44.94	101.018		
10,200.0	6,097.0	5,400.0	5,389.4	82.0	13.1	-18.37	371.6	21.6	4,638.3	4,592.4	45.83	101.200		
10,300.0	6,097.0	5,400.0	5,389.4	83.9	13.1	-18.37	371.6	21.6	4,737.0	4,690.3	46.73	101.376		
10,400.0	6,097.0	5,400.0	5,389.4	85.8	13.1	-18.37	371.6	21.6	4,835.8	4,788.1	47.62	101.546		
10,500.0	6,097.0	5,377.2	5,366.9	87.7	13.0	-17.85	367.7	21.8	4,934.0	4,886.0	48.01	102.780		
10,600.0	6,097.0	5,375.8	5,365.5	89.6	13.0	-17.82	367.5	21.8	5,032.9	4,984.0	48.86	103.002		
10,700.0	6,097.0	5,374.4	5,364.2	91.5	13.0	-17.79	367.3	21.8	5,131.7	5,082.0	49.72	103.217		
10,800.0	6,097.0	5,373.1	5,362.9	93.4	13.0	-17.76	367.1	21.8	5,230.6	5,180.0	50.57	103.424		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0106B - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCSA MWD													Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	41.09	74.9	65.3	99.4					
100.0	100.0	98.8	98.8	0.1	0.1	41.09	74.9	65.3	99.4	99.2	0.18	538.598		
200.0	200.0	198.8	198.8	0.3	0.3	41.09	74.9	65.3	99.4	98.8	0.63	157.141		
300.0	300.0	298.8	298.8	0.5	0.5	41.09	74.9	65.3	99.4	98.3	1.08	91.856		
400.0	400.0	398.8	398.8	0.8	0.8	41.09	74.9	65.3	99.4	97.9	1.53	64.895		
500.0	500.0	498.8	498.8	1.0	1.0	41.09	74.9	65.3	99.4	97.4	1.98	50.170		
600.0	600.0	598.8	598.8	1.2	1.2	41.09	74.9	65.3	99.4	97.0	2.43	40.891 CC		
700.0	700.0	698.8	698.8	1.4	1.4	104.28	74.9	65.3	99.7	96.8	2.87	34.699 ES		
800.0	799.9	795.7	795.7	1.7	1.7	105.89	76.5	65.7	102.2	98.9	3.31	30.889		
894.8	894.5	887.4	887.2	1.9	1.9	107.67	80.9	66.8	108.0	104.3	3.73	28.947		
900.0	899.7	892.4	892.3	1.9	1.9	107.77	81.2	66.9	108.4	104.7	3.75	28.877		
1,000.0	999.4	991.8	991.4	2.1	2.1	109.60	87.9	68.6	116.8	112.6	4.21	27.711		
1,100.0	1,099.1	1,091.3	1,090.7	2.4	2.3	111.18	94.6	70.3	125.3	120.6	4.68	26.771		
1,200.0	1,198.8	1,190.9	1,190.1	2.6	2.6	112.56	101.4	72.0	133.9	128.7	5.15	25.990		
1,300.0	1,298.5	1,290.5	1,289.4	2.9	2.8	113.77	108.1	73.7	142.5	136.9	5.63	25.332		
1,400.0	1,398.2	1,390.1	1,388.7	3.1	3.1	114.84	114.8	75.4	151.2	145.1	6.10	24.773		
1,500.0	1,497.9	1,489.7	1,488.1	3.4	3.3	115.80	121.6	77.1	159.9	153.3	6.58	24.293		
1,600.0	1,597.6	1,589.3	1,587.4	3.6	3.6	116.66	128.3	78.8	168.7	161.6	7.07	23.876		
1,700.0	1,697.3	1,688.8	1,686.8	3.9	3.8	117.43	135.0	80.5	177.5	170.0	7.55	23.513		
1,800.0	1,797.0	1,788.4	1,786.1	4.1	4.1	118.13	141.8	82.2	186.4	178.3	8.04	23.192		
1,900.0	1,896.7	1,888.0	1,885.4	4.4	4.3	118.76	148.5	83.9	195.2	186.7	8.52	22.909		
2,000.0	1,996.4	1,987.6	1,984.8	4.7	4.6	119.34	155.2	85.6	204.1	195.1	9.01	22.655		
2,100.0	2,096.1	2,087.2	2,084.1	4.9	4.8	119.88	162.0	87.3	213.0	203.5	9.50	22.428		
2,200.0	2,195.8	2,186.8	2,183.5	5.2	5.1	120.36	168.7	89.0	222.0	212.0	9.99	22.224		
2,300.0	2,295.5	2,286.3	2,282.8	5.5	5.3	120.82	175.4	90.7	230.9	220.4	10.48	22.038		
2,400.0	2,395.2	2,385.9	2,382.1	5.7	5.6	121.23	182.2	92.4	239.9	228.9	10.97	21.870		
2,500.0	2,494.9	2,485.5	2,481.5	6.0	5.8	121.62	188.9	94.1	248.8	237.4	11.46	21.716		
2,600.0	2,594.6	2,585.1	2,580.8	6.2	6.1	121.98	195.6	95.8	257.8	245.9	11.95	21.575		
2,700.0	2,694.3	2,684.7	2,680.2	6.5	6.3	122.32	202.4	97.5	266.8	254.3	12.44	21.445		
2,800.0	2,794.0	2,784.3	2,779.5	6.8	6.6	122.63	209.1	99.2	275.8	262.8	12.93	21.325		
2,900.0	2,893.7	2,883.9	2,878.9	7.0	6.8	122.93	215.8	101.0	284.8	271.4	13.42	21.214		
3,000.0	2,993.4	2,983.4	2,978.2	7.3	7.1	123.20	222.6	102.7	293.8	279.9	13.92	21.111		
3,100.0	3,093.1	3,083.0	3,077.5	7.6	7.3	123.46	229.3	104.4	302.8	288.4	14.41	21.015		
3,200.0	3,192.8	3,182.6	3,176.9	7.8	7.6	123.71	236.0	106.1	311.8	296.9	14.90	20.926		
3,300.0	3,292.5	3,282.2	3,276.2	8.1	7.8	123.94	242.8	107.8	320.9	305.5	15.39	20.843		
3,400.0	3,392.3	3,381.8	3,375.6	8.4	8.1	124.16	249.5	109.5	329.9	314.0	15.89	20.764		
3,500.0	3,492.0	3,481.4	3,474.9	8.6	8.3	124.37	256.3	111.2	338.9	322.5	16.38	20.691		
3,600.0	3,591.7	3,580.9	3,574.2	8.9	8.6	124.56	263.0	112.9	348.0	331.1	16.87	20.622		
3,700.0	3,691.4	3,680.5	3,673.6	9.2	8.8	124.75	269.7	114.6	357.0	339.6	17.37	20.557		
3,714.2	3,705.5	3,694.7	3,687.7	9.2	8.9	124.77	270.7	114.8	358.3	340.9	17.44	20.548		
3,800.0	3,791.1	3,780.2	3,773.0	9.4	9.1	124.89	276.5	116.3	365.5	347.7	17.84	20.487		
3,900.0	3,891.0	3,879.9	3,872.5	9.6	9.4	124.70	283.2	118.0	372.5	354.3	18.27	20.387		
4,009.0	4,000.0	3,988.6	3,980.9	9.8	9.6	61.65	290.6	119.8	378.5	359.6	18.91	20.018		
4,100.0	4,091.0	4,079.4	4,071.5	9.9	9.9	60.95	296.7	121.4	382.8	363.5	19.31	19.830		
4,200.0	4,191.0	4,179.2	4,171.0	10.1	10.1	60.20	303.4	123.1	387.7	367.9	19.76	19.622		
4,300.0	4,291.0	4,278.9	4,270.5	10.3	10.4	59.47	310.2	124.8	392.5	372.3	20.21	19.426		
4,400.0	4,391.0	4,378.7	4,370.0	10.5	10.6	58.75	316.9	126.5	397.5	376.8	20.66	19.241		
4,500.0	4,491.0	4,478.4	4,469.6	10.7	10.9	58.06	323.7	128.2	402.5	381.4	21.11	19.068		
4,600.0	4,591.0	4,578.2	4,569.1	10.9	11.1	57.38	330.4	129.9	407.6	386.0	21.56	18.903		
4,700.0	4,691.0	4,678.0	4,668.6	11.1	11.4	56.72	337.2	131.6	412.7	390.7	22.01	18.748		
4,800.0	4,791.0	4,777.7	4,768.1	11.3	11.7	56.07	343.9	133.3	417.9	395.4	22.46	18.602		
4,900.0	4,891.0	4,877.5	4,867.6	11.5	11.9	55.44	350.7	135.0	423.1	400.2	22.91	18.463		

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0106B - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 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)	Total Uncertainty Axis	Separation Factor		
5,000.0	4,991.0	4,977.2	4,967.1	11.7	12.2	54.83	357.4	136.7	428.4	405.0	23.37	18.332		
5,100.0	5,091.0	5,077.0	5,066.6	11.9	12.4	54.23	364.2	138.5	433.7	409.9	23.82	18.208		
5,200.0	5,191.0	5,176.7	5,166.2	12.1	12.7	53.64	370.9	140.2	439.0	414.8	24.27	18.090		
5,300.0	5,291.0	5,276.5	5,265.7	12.3	12.9	53.07	377.7	141.9	444.5	419.7	24.72	17.978		
5,400.0	5,391.0	5,376.2	5,365.2	12.5	13.2	52.51	384.4	143.6	449.9	424.7	25.18	17.871		
5,500.0	5,491.0	5,460.9	5,449.5	12.7	13.4	52.02	390.6	145.1	456.0	430.4	25.60	17.816 SF		
5,585.1	5,576.1	5,500.0	5,488.2	12.9	13.5	51.57	396.2	146.6	467.0	441.1	25.88	18.042		
5,600.0	5,591.0	5,518.6	5,506.4	12.9	13.6	-128.49	399.9	147.5	469.5	443.8	25.64	18.309		
5,650.0	5,640.9	5,550.0	5,536.9	13.0	13.7	-128.23	407.5	149.4	481.8	456.1	25.73	18.729		
5,700.0	5,690.1	5,570.9	5,556.8	13.1	13.8	-127.44	413.5	150.9	499.1	473.4	25.70	19.422		
5,750.0	5,738.3	5,600.0	5,584.1	13.1	14.0	-126.77	423.2	153.4	521.4	495.8	25.62	20.348		
5,800.0	5,785.0	5,612.8	5,596.0	13.2	14.0	-124.77	428.0	154.6	548.1	522.6	25.51	21.489		
5,850.0	5,829.8	5,629.3	5,611.0	13.3	14.1	-122.39	434.5	156.2	579.0	553.5	25.43	22.764		
5,900.0	5,872.2	5,650.0	5,629.6	13.3	14.2	-119.74	443.3	158.5	613.6	588.1	25.45	24.106		
5,950.0	5,911.9	5,650.0	5,629.6	13.4	14.2	-114.16	443.3	158.5	651.1	625.3	25.74	25.297		
6,000.0	5,948.5	5,650.0	5,629.6	13.5	14.2	-107.17	443.3	158.5	691.3	665.1	26.26	26.325		
6,050.0	5,981.7	5,665.9	5,643.6	13.6	14.3	-100.99	450.5	160.3	733.1	706.3	26.85	27.301		
6,100.0	6,011.2	5,668.7	5,646.1	13.7	14.3	-91.91	451.9	160.6	776.5	749.1	27.40	28.334		
6,150.0	6,036.6	5,669.4	5,646.7	13.9	14.3	-81.70	452.2	160.7	820.6	793.0	27.66	29.666		
6,200.0	6,057.8	5,668.3	5,645.7	14.1	14.3	-71.13	451.7	160.6	865.1	837.6	27.51	31.443		
6,250.0	6,074.6	5,650.0	5,629.6	14.4	14.2	-59.24	443.3	158.5	909.8	883.7	26.10	34.854		
6,300.0	6,086.8	5,650.0	5,629.6	14.8	14.2	-51.14	443.3	158.5	953.5	929.0	24.51	38.898		
6,350.0	6,094.3	5,650.0	5,629.6	15.2	14.2	-44.39	443.3	158.5	996.3	973.6	22.75	43.797		
6,403.3	6,097.0	5,650.0	5,629.6	15.7	14.2	-38.54	443.3	158.5	1,040.7	1,019.7	21.00	49.559		
6,500.0	6,097.0	5,650.0	5,629.6	16.7	14.2	-38.54	443.3	158.5	1,121.4	1,099.7	21.72	51.636		
6,600.0	6,097.0	5,622.0	5,604.4	17.9	14.1	-36.86	431.6	155.5	1,206.2	1,184.3	21.87	55.164		
6,700.0	6,097.0	5,600.0	5,584.1	19.2	14.0	-35.60	423.2	153.4	1,293.2	1,271.0	22.23	58.173		
6,800.0	6,097.0	5,600.0	5,584.1	20.7	14.0	-35.60	423.2	153.4	1,381.5	1,358.3	23.18	59.587		
6,900.0	6,097.0	5,600.0	5,584.1	22.1	14.0	-35.60	423.2	153.4	1,471.2	1,447.0	24.18	60.835		
7,000.0	6,097.0	5,600.0	5,584.1	23.7	14.0	-35.60	423.2	153.4	1,562.2	1,536.9	25.22	61.946		
7,100.0	6,097.0	5,574.5	5,560.2	25.3	13.8	-34.21	414.6	151.2	1,653.4	1,627.7	25.61	64.549		
7,200.0	6,097.0	5,550.0	5,536.9	26.9	13.7	-32.95	407.5	149.4	1,746.1	1,720.1	26.05	67.029		
7,300.0	6,097.0	5,550.0	5,536.9	28.6	13.7	-32.95	407.5	149.4	1,838.9	1,811.8	27.11	67.824		
7,400.0	6,097.0	5,550.0	5,536.9	30.3	13.7	-32.95	407.5	149.4	1,932.5	1,904.3	28.19	68.552		
7,500.0	6,097.0	5,550.0	5,536.9	32.1	13.7	-32.95	407.5	149.4	2,026.7	1,997.4	29.28	69.219		
7,600.0	6,097.0	5,550.0	5,536.9	33.8	13.7	-32.95	407.5	149.4	2,121.4	2,091.0	30.38	69.835		
7,700.0	6,097.0	5,550.0	5,536.9	35.6	13.7	-32.95	407.5	149.4	2,216.5	2,185.0	31.48	70.405		
7,800.0	6,097.0	5,550.0	5,536.9	37.4	13.7	-32.95	407.5	149.4	2,312.1	2,279.5	32.60	70.934		
7,900.0	6,097.0	5,550.0	5,536.9	39.1	13.7	-32.95	407.5	149.4	2,408.0	2,374.3	33.71	71.426		
8,000.0	6,097.0	5,525.5	5,513.2	41.0	13.6	-31.77	401.4	147.9	2,503.6	2,469.5	34.09	73.442		
8,100.0	6,097.0	5,521.7	5,509.5	42.8	13.6	-31.59	400.6	147.7	2,599.9	2,564.8	35.08	74.113		
8,200.0	6,097.0	5,500.0	5,488.2	44.6	13.5	-30.61	396.2	146.6	2,696.8	2,661.3	35.53	75.905		
8,300.0	6,097.0	5,500.0	5,488.2	46.4	13.5	-30.61	396.2	146.6	2,793.5	2,756.8	36.62	76.279		
8,400.0	6,097.0	5,500.0	5,488.2	48.3	13.5	-30.61	396.2	146.6	2,890.3	2,852.6	37.72	76.633		
8,500.0	6,097.0	5,500.0	5,488.2	50.1	13.5	-30.61	396.2	146.6	2,987.4	2,948.6	38.81	76.967		
8,600.0	6,097.0	5,500.0	5,488.2	52.0	13.5	-30.61	396.2	146.6	3,084.7	3,044.7	39.91	77.284		
8,700.0	6,097.0	5,500.0	5,488.2	53.8	13.5	-30.61	396.2	146.6	3,182.1	3,141.1	41.01	77.584		
8,800.0	6,097.0	5,500.0	5,488.2	55.7	13.5	-30.61	396.2	146.6	3,279.7	3,237.6	42.12	77.869		
8,900.0	6,097.0	5,500.0	5,488.2	57.5	13.5	-30.61	396.2	146.6	3,377.4	3,334.2	43.22	78.141		
9,000.0	6,097.0	5,500.0	5,488.2	59.4	13.5	-30.61	396.2	146.6	3,475.2	3,430.9	44.33	78.399		
9,100.0	6,097.0	5,500.0	5,488.2	61.3	13.5	-30.61	396.2	146.6	3,573.2	3,527.8	45.43	78.645		
9,200.0	6,097.0	5,500.0	5,488.2	63.2	13.5	-30.61	396.2	146.6	3,671.3	3,624.8	46.54	78.880		

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0106B - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor		
9,300.0	6,097.0	5,500.0	5,488.2	65.0	13.5	-30.61	396.2	146.6	3,769.5	3,721.8	47.65	79.104		
9,400.0	6,097.0	5,500.0	5,488.2	66.9	13.5	-30.61	396.2	146.6	3,867.8	3,819.0	48.76	79.319		
9,500.0	6,097.0	5,500.0	5,488.2	68.8	13.5	-30.61	396.2	146.6	3,966.1	3,916.2	49.87	79.524		
9,600.0	6,097.0	5,500.0	5,488.2	70.7	13.5	-30.61	396.2	146.6	4,064.6	4,013.6	50.98	79.721		
9,700.0	6,097.0	5,500.0	5,488.2	72.6	13.5	-30.61	396.2	146.6	4,163.1	4,111.0	52.10	79.910		
9,800.0	6,097.0	5,500.0	5,488.2	74.4	13.5	-30.61	396.2	146.6	4,261.7	4,208.5	53.21	80.091		
9,900.0	6,097.0	5,500.0	5,488.2	76.3	13.5	-30.61	396.2	146.6	4,360.3	4,306.0	54.32	80.265		
10,000.0	6,097.0	5,477.5	5,466.0	78.2	13.5	-29.65	392.6	145.6	4,458.5	4,404.0	54.48	81.841		
10,100.0	6,097.0	5,476.0	5,464.6	80.1	13.5	-29.60	392.4	145.6	4,557.2	4,501.7	55.51	82.091		
10,200.0	6,097.0	5,474.6	5,463.2	82.0	13.4	-29.54	392.2	145.6	4,655.9	4,599.4	56.55	82.333		
10,300.0	6,097.0	5,473.3	5,461.9	83.9	13.4	-29.48	392.1	145.5	4,754.7	4,697.1	57.59	82.565		
10,400.0	6,097.0	5,450.0	5,438.7	85.8	13.4	-28.57	389.5	144.9	4,854.1	4,796.4	57.69	84.139		
10,500.0	6,097.0	5,450.0	5,438.7	87.7	13.4	-28.57	389.5	144.9	4,952.9	4,894.1	58.77	84.278		
10,600.0	6,097.0	5,450.0	5,438.7	89.6	13.4	-28.57	389.5	144.9	5,051.8	4,991.9	59.85	84.412		
10,700.0	6,097.0	5,450.0	5,438.7	91.5	13.4	-28.57	389.5	144.9	5,150.7	5,089.8	60.93	84.542		
10,800.0	6,097.0	5,450.0	5,438.7	93.4	13.4	-28.57	389.5	144.9	5,249.7	5,187.7	62.00	84.667		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0107A - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
0.0	0.0	0.0	0.0	0.0	0.0	52.71	74.9	98.4	123.6					
100.0	100.0	98.8	98.8	0.1	0.1	52.71	74.9	98.4	123.6	123.5	0.18	669.986		
200.0	200.0	198.8	198.8	0.3	0.3	52.71	74.9	98.4	123.6	123.0	0.63	195.474		
300.0	300.0	298.8	298.8	0.5	0.5	52.71	74.9	98.4	123.6	122.6	1.08	114.263		
400.0	400.0	398.8	398.8	0.8	0.8	52.71	74.9	98.4	123.6	122.1	1.53	80.726		
500.0	500.0	498.8	498.8	1.0	1.0	52.71	74.9	98.4	123.6	121.7	1.98	62.408		
600.0	600.0	598.8	598.8	1.2	1.2	52.71	74.9	98.4	123.6	121.2	2.43	50.866 CC, ES		
700.0	700.0	698.8	698.8	1.4	1.4	115.71	74.9	98.4	124.2	121.3	2.87	43.222		
800.0	799.9	798.7	798.7	1.7	1.7	117.30	74.9	98.4	126.0	122.6	3.31	38.007		
894.8	894.5	893.3	893.3	1.9	1.9	119.68	74.9	98.4	128.9	125.1	3.74	34.478		
900.0	899.7	898.5	898.5	1.9	1.9	119.83	74.9	98.4	129.1	125.3	3.76	34.316		
1,000.0	999.4	998.2	998.2	2.1	2.1	122.71	74.9	98.4	133.1	128.9	4.21	31.577		
1,100.0	1,099.1	1,097.9	1,097.9	2.4	2.3	125.41	74.9	98.4	137.4	132.8	4.67	29.418		
1,200.0	1,198.8	1,197.6	1,197.6	2.6	2.6	127.94	74.9	98.4	142.0	136.9	5.13	27.692		
1,300.0	1,298.5	1,293.7	1,293.6	2.9	2.8	129.83	76.3	99.0	148.1	142.5	5.58	26.545		
1,400.0	1,398.2	1,389.4	1,389.3	3.1	3.0	130.78	80.5	101.2	156.8	150.8	6.03	25.997		
1,500.0	1,497.9	1,488.5	1,488.1	3.4	3.2	131.19	86.7	104.3	167.0	160.5	6.49	25.723		
1,600.0	1,597.6	1,587.9	1,587.3	3.6	3.4	131.55	92.9	107.4	177.3	170.3	6.96	25.481		
1,700.0	1,697.3	1,687.4	1,686.5	3.9	3.7	131.86	99.1	110.5	187.5	180.1	7.42	25.261		
1,800.0	1,797.0	1,786.9	1,785.8	4.1	3.9	132.15	105.3	113.6	197.8	189.9	7.89	25.060		
1,900.0	1,896.7	1,886.3	1,885.0	4.4	4.1	132.41	111.5	116.7	208.0	199.7	8.36	24.876		
2,000.0	1,996.4	1,985.8	1,984.2	4.7	4.4	132.64	117.7	119.8	218.3	209.5	8.84	24.707		
2,100.0	2,096.1	2,085.3	2,083.4	4.9	4.6	132.86	123.9	122.9	228.6	219.3	9.31	24.551		
2,200.0	2,195.8	2,184.7	2,182.7	5.2	4.9	133.05	130.1	126.0	238.8	229.0	9.79	24.408		
2,300.0	2,295.5	2,284.2	2,281.9	5.5	5.1	133.23	136.3	129.1	249.1	238.8	10.26	24.275		
2,400.0	2,395.2	2,383.7	2,381.1	5.7	5.4	133.39	142.5	132.2	259.4	248.6	10.74	24.153		
2,500.0	2,494.9	2,483.1	2,480.3	6.0	5.6	133.55	148.7	135.3	269.7	258.4	11.22	24.039		
2,600.0	2,594.6	2,582.6	2,579.6	6.2	5.8	133.69	154.9	138.4	279.9	268.2	11.70	23.932		
2,700.0	2,694.3	2,682.1	2,678.8	6.5	6.1	133.82	161.1	141.5	290.2	278.0	12.18	23.833		
2,800.0	2,794.0	2,781.6	2,778.0	6.8	6.3	133.94	167.3	144.7	300.5	287.8	12.66	23.741		
2,900.0	2,893.7	2,881.0	2,877.3	7.0	6.6	134.05	173.5	147.8	310.8	297.6	13.14	23.654		
3,000.0	2,993.4	2,980.5	2,976.5	7.3	6.8	134.16	179.7	150.9	321.1	307.4	13.62	23.573		
3,100.0	3,093.1	3,080.0	3,075.7	7.6	7.1	134.26	185.9	154.0	331.3	317.2	14.10	23.497		
3,200.0	3,192.8	3,179.4	3,174.9	7.8	7.3	134.35	192.1	157.1	341.6	327.0	14.58	23.425		
3,300.0	3,292.5	3,278.9	3,274.2	8.1	7.6	134.44	198.3	160.2	351.9	336.8	15.07	23.357		
3,400.0	3,392.3	3,378.4	3,373.4	8.4	7.8	134.52	204.5	163.3	362.2	346.6	15.55	23.293		
3,500.0	3,492.0	3,477.8	3,472.6	8.6	8.1	134.60	210.7	166.4	372.5	356.5	16.03	23.233		
3,600.0	3,591.7	3,577.3	3,571.8	8.9	8.3	134.68	216.9	169.5	382.8	366.3	16.52	23.176		
3,700.0	3,691.4	3,676.8	3,671.1	9.2	8.6	134.75	223.1	172.6	393.1	376.1	17.00	23.121		
3,714.2	3,705.5	3,690.9	3,685.2	9.2	8.6	134.76	224.0	173.1	394.5	377.5	17.07	23.114		
3,800.0	3,791.1	3,776.3	3,770.3	9.4	8.8	134.81	229.3	175.7	402.7	385.2	17.47	23.052		
3,900.0	3,891.0	3,876.0	3,869.8	9.6	9.1	134.86	235.6	178.8	410.5	392.6	17.90	22.934		
4,009.0	4,000.0	3,984.7	3,978.2	9.8	9.4	71.61	242.3	182.2	416.9	398.4	18.53	22.502		
4,100.0	4,091.0	4,075.5	4,068.8	9.9	9.6	71.00	248.0	185.1	421.4	402.5	18.93	22.265		
4,200.0	4,191.0	4,175.2	4,168.3	10.1	9.9	70.35	254.2	188.2	426.4	407.1	19.38	22.003		
4,300.0	4,291.0	4,275.0	4,267.8	10.3	10.1	69.71	260.5	191.3	431.5	411.7	19.83	21.756		
4,400.0	4,391.0	4,374.7	4,367.3	10.5	10.4	69.08	266.7	194.4	436.6	416.4	20.29	21.522		
4,500.0	4,491.0	4,474.5	4,466.8	10.7	10.6	68.47	272.9	197.5	441.8	421.1	20.74	21.301		
4,600.0	4,591.0	4,574.3	4,566.4	10.9	10.9	67.88	279.1	200.7	447.0	425.8	21.20	21.091		
4,700.0	4,691.0	4,674.0	4,665.9	11.1	11.1	67.30	285.3	203.8	452.3	430.7	21.65	20.892		
4,800.0	4,791.0	4,773.8	4,765.4	11.3	11.4	66.73	291.6	206.9	457.6	435.5	22.11	20.702		
4,900.0	4,891.0	4,873.5	4,864.9	11.5	11.6	66.17	297.8	210.0	463.0	440.4	22.56	20.523		

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0107A - HZ - Plan #3												Offset Site Error:	0.0 usft
Survey Program: O-ISCWSA MWD												Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor	Warning
5,000.0	4,991.0	4,973.3	4,964.4	11.7	11.9	65.63	304.0	213.1	468.4	445.4	23.02	20.351	
5,100.0	5,091.0	5,073.0	5,063.9	11.9	12.1	65.10	310.2	216.3	473.8	450.4	23.47	20.189	
5,200.0	5,191.0	5,172.8	5,163.4	12.1	12.4	64.58	316.4	219.4	479.3	455.4	23.93	20.033	
5,300.0	5,291.0	5,272.5	5,263.0	12.3	12.7	64.07	322.7	222.5	484.9	460.5	24.38	19.885	
5,400.0	5,391.0	5,350.0	5,340.2	12.5	12.9	63.67	327.7	225.0	491.1	466.3	24.78	19.814 SF	
5,500.0	5,491.0	5,412.5	5,401.9	12.7	13.1	63.00	336.4	229.4	504.1	478.9	25.18	20.021	
5,585.1	5,576.1	5,450.0	5,438.2	12.9	13.2	62.36	344.8	233.6	522.2	496.7	25.48	20.491	
5,600.0	5,591.0	5,465.7	5,453.2	12.9	13.3	-117.57	349.0	235.7	525.9	500.7	25.23	20.843	
5,650.0	5,640.9	5,500.0	5,485.4	13.0	13.4	-117.02	359.5	240.9	541.8	516.4	25.38	21.351	
5,700.0	5,690.1	5,512.9	5,497.2	13.1	13.5	-115.47	364.0	243.2	561.5	536.1	25.41	22.095	
5,750.0	5,738.3	5,532.8	5,515.3	13.1	13.6	-113.82	371.4	246.9	585.2	559.8	25.45	22.994	
5,800.0	5,785.0	5,550.0	5,530.7	13.2	13.7	-111.60	378.3	250.3	612.6	587.1	25.50	24.027	
5,850.0	5,829.8	5,564.3	5,543.3	13.3	13.8	-108.66	384.3	253.4	643.3	617.7	25.60	25.131	
5,900.0	5,872.2	5,575.9	5,553.4	13.3	13.8	-104.88	389.5	256.0	676.9	651.1	25.79	26.249	
5,950.0	5,911.9	5,584.9	5,561.1	13.4	13.9	-100.17	393.6	258.0	712.9	686.8	26.07	27.344	
6,000.0	5,948.5	5,600.0	5,573.9	13.5	14.0	-95.44	400.8	261.6	751.0	724.6	26.42	28.425	
6,050.0	5,981.7	5,600.0	5,573.9	13.6	14.0	-88.43	400.8	261.6	790.3	763.6	26.70	29.605	
6,100.0	6,011.2	5,600.0	5,573.9	13.7	14.0	-80.91	400.8	261.6	830.7	803.9	26.83	30.967	
6,150.0	6,036.6	5,600.0	5,573.9	13.9	14.0	-73.24	400.8	261.6	871.7	844.9	26.88	32.436	
6,200.0	6,057.8	5,600.0	5,573.9	14.1	14.0	-65.79	400.8	261.6	912.9	886.4	26.46	34.497	
6,250.0	6,074.6	5,600.0	5,573.9	14.4	14.0	-58.86	400.8	261.6	953.8	928.2	25.61	37.239	
6,300.0	6,086.8	5,600.0	5,573.9	14.8	14.0	-52.65	400.8	261.6	994.2	969.7	24.45	40.659	
6,350.0	6,094.3	5,583.2	5,559.7	15.2	13.9	-46.02	392.8	257.6	1,033.3	1,010.5	22.75	45.412	
6,403.3	6,097.0	5,575.9	5,553.4	15.7	13.8	-40.84	389.5	256.0	1,073.8	1,052.5	21.27	50.483	
6,500.0	6,097.0	5,550.0	5,530.7	16.7	13.7	-39.35	378.3	250.3	1,147.5	1,126.1	21.42	53.563	
6,600.0	6,097.0	5,550.0	5,530.7	17.9	13.7	-39.35	378.3	250.3	1,226.3	1,204.0	22.28	55.052	
6,700.0	6,097.0	5,550.0	5,530.7	19.2	13.7	-39.35	378.3	250.3	1,308.0	1,284.7	23.21	56.357	
6,800.0	6,097.0	5,526.9	5,510.0	20.7	13.6	-38.06	369.1	245.7	1,391.3	1,367.6	23.67	58.788	
6,900.0	6,097.0	5,500.0	5,485.4	22.1	13.4	-36.63	359.5	240.9	1,477.0	1,453.0	24.07	61.357	
7,000.0	6,097.0	5,500.0	5,485.4	23.7	13.4	-36.63	359.5	240.9	1,563.6	1,538.5	25.12	62.241	
7,100.0	6,097.0	5,500.0	5,485.4	25.3	13.4	-36.63	359.5	240.9	1,651.7	1,625.5	26.20	63.042	
7,200.0	6,097.0	5,500.0	5,485.4	26.9	13.4	-36.63	359.5	240.9	1,741.1	1,713.8	27.30	63.772	
7,300.0	6,097.0	5,500.0	5,485.4	28.6	13.4	-36.63	359.5	240.9	1,831.5	1,803.1	28.42	64.441	
7,400.0	6,097.0	5,477.7	5,464.5	30.3	13.3	-35.50	352.4	237.4	1,922.4	1,893.4	28.98	66.335	
7,500.0	6,097.0	5,471.4	5,458.6	32.1	13.3	-35.19	350.6	236.5	2,014.2	1,984.3	29.95	67.262	
7,600.0	6,097.0	5,450.0	5,438.2	33.8	13.2	-34.17	344.8	233.6	2,107.0	2,076.5	30.52	69.036	
7,700.0	6,097.0	5,450.0	5,438.2	35.6	13.2	-34.17	344.8	233.6	2,199.9	2,168.3	31.65	69.515	
7,800.0	6,097.0	5,450.0	5,438.2	37.4	13.2	-34.17	344.8	233.6	2,293.5	2,260.7	32.78	69.964	
7,900.0	6,097.0	5,450.0	5,438.2	39.1	13.2	-34.17	344.8	233.6	2,387.5	2,353.6	33.92	70.386	
8,000.0	6,097.0	5,450.0	5,438.2	41.0	13.2	-34.17	344.8	233.6	2,482.1	2,447.0	35.07	70.783	
8,100.0	6,097.0	5,450.0	5,438.2	42.8	13.2	-34.17	344.8	233.6	2,577.0	2,540.8	36.22	71.157	
8,200.0	6,097.0	5,450.0	5,438.2	44.6	13.2	-34.17	344.8	233.6	2,672.3	2,634.9	37.37	71.511	
8,300.0	6,097.0	5,450.0	5,438.2	46.4	13.2	-34.17	344.8	233.6	2,767.9	2,729.4	38.53	71.846	
8,400.0	6,097.0	5,450.0	5,438.2	48.3	13.2	-34.17	344.8	233.6	2,863.9	2,824.2	39.69	72.163	
8,500.0	6,097.0	5,426.3	5,415.3	50.1	13.1	-33.10	339.2	230.8	2,959.4	2,919.4	40.09	73.820	
8,600.0	6,097.0	5,423.0	5,412.2	52.0	13.1	-32.96	338.5	230.4	3,055.7	3,014.6	41.13	74.292	
8,700.0	6,097.0	5,400.0	5,389.7	53.8	13.0	-31.99	334.1	228.2	3,152.6	3,111.1	41.55	75.879	
8,800.0	6,097.0	5,400.0	5,389.7	55.7	13.0	-31.99	334.1	228.2	3,249.2	3,206.5	42.68	76.135	
8,900.0	6,097.0	5,400.0	5,389.7	57.5	13.0	-31.99	334.1	228.2	3,345.9	3,302.1	43.81	76.379	
9,000.0	6,097.0	5,400.0	5,389.7	59.4	13.0	-31.99	334.1	228.2	3,442.9	3,397.9	44.94	76.613	
9,100.0	6,097.0	5,400.0	5,389.7	61.3	13.0	-31.99	334.1	228.2	3,540.0	3,493.9	46.07	76.837	
9,200.0	6,097.0	5,400.0	5,389.7	63.2	13.0	-31.99	334.1	228.2	3,637.3	3,590.1	47.21	77.052	

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0107A - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISWWSA MWD													Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor		
9,300.0	6,097.0	5,400.0	5,389.7	65.0	13.0	-31.99	334.1	228.2	3,734.7	3,686.3	48.34	77.257		
9,400.0	6,097.0	5,400.0	5,389.7	66.9	13.0	-31.99	334.1	228.2	3,832.2	3,782.8	49.48	77.455		
9,500.0	6,097.0	5,400.0	5,389.7	68.8	13.0	-31.99	334.1	228.2	3,929.9	3,879.3	50.61	77.644		
9,600.0	6,097.0	5,400.0	5,389.7	70.7	13.0	-31.99	334.1	228.2	4,027.7	3,975.9	51.75	77.827		
9,700.0	6,097.0	5,400.0	5,389.7	72.6	13.0	-31.99	334.1	228.2	4,125.6	4,072.7	52.89	78.002		
9,800.0	6,097.0	5,400.0	5,389.7	74.4	13.0	-31.99	334.1	228.2	4,223.6	4,169.5	54.03	78.171		
9,900.0	6,097.0	5,400.0	5,389.7	76.3	13.0	-31.99	334.1	228.2	4,321.7	4,266.5	55.17	78.333		
10,000.0	6,097.0	5,400.0	5,389.7	78.2	13.0	-31.99	334.1	228.2	4,419.8	4,363.5	56.31	78.490		
10,100.0	6,097.0	5,400.0	5,389.7	80.1	13.0	-31.99	334.1	228.2	4,518.1	4,460.6	57.45	78.641		
10,200.0	6,097.0	5,400.0	5,389.7	82.0	13.0	-31.99	334.1	228.2	4,616.4	4,557.8	58.59	78.787		
10,300.0	6,097.0	5,400.0	5,389.7	83.9	13.0	-31.99	334.1	228.2	4,714.8	4,655.1	59.74	78.927		
10,400.0	6,097.0	5,400.0	5,389.7	85.8	13.0	-31.99	334.1	228.2	4,813.3	4,752.4	60.88	79.063		
10,500.0	6,097.0	5,400.0	5,389.7	87.7	13.0	-31.99	334.1	228.2	4,911.8	4,849.8	62.02	79.195		
10,600.0	6,097.0	5,400.0	5,389.7	89.6	13.0	-31.99	334.1	228.2	5,010.4	4,947.2	63.16	79.322		
10,700.0	6,097.0	5,400.0	5,389.7	91.5	13.0	-31.99	334.1	228.2	5,109.0	5,044.7	64.31	79.445		
10,800.0	6,097.0	5,400.0	5,389.7	93.4	13.0	-31.99	334.1	228.2	5,207.7	5,142.2	65.45	79.564		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0108B - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 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)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	60.32	74.9	131.4	151.2					
100.0	100.0	98.8	98.8	0.1	0.1	60.32	74.9	131.4	151.2	151.0	0.18	819.413		
200.0	200.0	198.8	198.8	0.3	0.3	60.32	74.9	131.4	151.2	150.6	0.63	239.071		
300.0	300.0	298.8	298.8	0.5	0.5	60.32	74.9	131.4	151.2	150.1	1.08	139.748		
400.0	400.0	398.8	398.8	0.8	0.8	60.32	74.9	131.4	151.2	149.7	1.53	98.730		
500.0	500.0	498.8	498.8	1.0	1.0	60.32	74.9	131.4	151.2	149.2	1.98	76.327		
600.0	600.0	598.8	598.8	1.2	1.2	60.32	74.9	131.4	151.2	148.8	2.43	62.211	CC, ES	
700.0	700.0	698.8	698.8	1.4	1.4	123.19	74.9	131.4	151.9	149.0	2.87	52.869		
800.0	799.9	798.7	798.7	1.7	1.7	124.39	74.9	131.4	154.1	150.8	3.31	46.504		
894.8	894.5	888.9	888.9	1.9	1.9	125.86	76.0	132.2	159.0	155.2	3.73	42.656		
900.0	899.7	893.8	893.8	1.9	1.9	125.94	76.1	132.3	159.3	155.6	3.75	42.498		
1,000.0	999.4	988.5	988.4	2.1	2.1	127.25	79.8	135.1	168.3	164.1	4.19	40.167		
1,100.0	1,099.1	1,087.3	1,086.9	2.4	2.3	128.17	85.3	139.3	179.2	174.5	4.64	38.577		
1,200.0	1,198.8	1,186.7	1,186.1	2.6	2.5	128.99	90.8	143.4	190.1	185.0	5.10	37.265		
1,300.0	1,298.5	1,286.1	1,285.2	2.9	2.8	129.72	96.3	147.6	201.0	195.4	5.56	36.150		
1,400.0	1,398.2	1,385.4	1,384.3	3.1	3.0	130.37	101.9	151.8	212.0	205.9	6.02	35.190		
1,500.0	1,497.9	1,484.8	1,483.5	3.4	3.3	130.96	107.4	156.0	222.9	216.5	6.49	34.356		
1,600.0	1,597.6	1,584.2	1,582.6	3.6	3.5	131.49	112.9	160.2	234.0	227.0	6.96	33.628		
1,700.0	1,697.3	1,683.5	1,681.7	3.9	3.7	131.97	118.4	164.4	245.0	237.6	7.43	32.985		
1,800.0	1,797.0	1,782.9	1,780.8	4.1	4.0	132.42	124.0	168.6	256.0	248.1	7.90	32.416		
1,900.0	1,896.7	1,882.3	1,880.0	4.4	4.2	132.82	129.5	172.7	267.1	258.7	8.37	31.908		
2,000.0	1,996.4	1,981.7	1,979.1	4.7	4.5	133.20	135.0	176.9	278.1	269.3	8.84	31.452		
2,100.0	2,096.1	2,081.0	2,078.2	4.9	4.7	133.54	140.6	181.1	289.2	279.9	9.32	31.041		
2,200.0	2,195.8	2,180.4	2,177.4	5.2	5.0	133.86	146.1	185.3	300.3	290.5	9.79	30.668		
2,300.0	2,295.5	2,279.8	2,276.5	5.5	5.2	134.16	151.6	189.5	311.4	301.1	10.27	30.329		
2,400.0	2,395.2	2,379.1	2,375.6	5.7	5.5	134.44	157.1	193.7	322.5	311.8	10.74	30.019		
2,500.0	2,494.9	2,478.5	2,474.7	6.0	5.7	134.69	162.7	197.8	333.6	322.4	11.22	29.734		
2,600.0	2,594.6	2,577.9	2,573.9	6.2	6.0	134.94	168.2	202.0	344.7	333.0	11.70	29.472		
2,700.0	2,694.3	2,677.2	2,673.0	6.5	6.2	135.16	173.7	206.2	355.9	343.7	12.17	29.231		
2,800.0	2,794.0	2,776.6	2,772.1	6.8	6.5	135.37	179.2	210.4	367.0	354.3	12.65	29.007		
2,900.0	2,893.7	2,876.0	2,871.2	7.0	6.8	135.57	184.8	214.6	378.1	365.0	13.13	28.799		
3,000.0	2,993.4	2,975.3	2,970.4	7.3	7.0	135.76	190.3	218.8	389.3	375.7	13.61	28.606		
3,100.0	3,093.1	3,074.7	3,069.5	7.6	7.3	135.94	195.8	222.9	400.4	386.3	14.09	28.425		
3,200.0	3,192.8	3,174.1	3,168.6	7.8	7.5	136.11	201.3	227.1	411.6	397.0	14.57	28.256		
3,300.0	3,292.5	3,273.5	3,267.8	8.1	7.8	136.27	206.9	231.3	422.7	407.7	15.04	28.098		
3,400.0	3,392.3	3,372.8	3,366.9	8.4	8.0	136.42	212.4	235.5	433.9	418.3	15.52	27.949		
3,500.0	3,492.0	3,472.2	3,466.0	8.6	8.3	136.57	217.9	239.7	445.0	429.0	16.00	27.809		
3,600.0	3,591.7	3,571.6	3,565.1	8.9	8.5	136.70	223.4	243.9	456.2	439.7	16.48	27.678		
3,700.0	3,691.4	3,670.9	3,664.3	9.2	8.8	136.83	229.0	248.1	467.3	450.4	16.96	27.553		
3,714.2	3,705.5	3,685.1	3,678.4	9.2	8.8	136.85	229.8	248.6	468.9	451.9	17.03	27.536		
3,800.0	3,791.1	3,770.4	3,763.5	9.4	9.0	136.97	234.5	252.2	477.8	460.4	17.43	27.417		
3,900.0	3,891.0	3,870.0	3,862.9	9.6	9.3	136.89	240.0	256.4	486.4	468.5	17.85	27.241		
4,009.0	4,000.0	3,978.7	3,971.3	9.8	9.6	74.09	246.1	261.0	493.6	475.1	18.50	26.673		
4,100.0	4,091.0	4,069.5	4,061.8	9.9	9.8	73.65	251.1	264.8	498.6	479.7	18.90	26.383		
4,200.0	4,191.0	4,169.2	4,161.4	10.1	10.1	73.18	256.7	269.0	504.3	484.9	19.35	26.062		
4,300.0	4,291.0	4,269.0	4,260.9	10.3	10.3	72.72	262.2	273.2	509.9	490.1	19.80	25.756		
4,400.0	4,391.0	4,368.8	4,360.4	10.5	10.6	72.27	267.8	277.4	515.6	495.4	20.25	25.465		
4,500.0	4,491.0	4,468.5	4,459.9	10.7	10.8	71.83	273.3	281.6	521.4	500.7	20.70	25.187		
4,600.0	4,591.0	4,568.3	4,559.4	10.9	11.1	71.40	278.9	285.8	527.1	506.0	21.15	24.922		
4,700.0	4,691.0	4,668.0	4,658.9	11.1	11.3	70.97	284.4	290.0	532.9	511.3	21.60	24.669		
4,800.0	4,791.0	4,767.8	4,758.4	11.3	11.6	70.56	290.0	294.2	538.7	516.7	22.05	24.427		
4,900.0	4,891.0	4,867.5	4,858.0	11.5	11.8	70.16	295.5	298.4	544.5	522.0	22.51	24.196		

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0108B - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 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)	Total Uncertainty Axis	Separation Factor		
5,000.0	4,991.0	4,967.3	4,957.5	11.7	12.1	69.76	301.1	302.6	550.4	527.5	22.96	23.974		
5,100.0	5,091.0	5,067.0	5,057.0	11.9	12.4	69.37	306.6	306.8	556.3	532.9	23.41	23.761		
5,200.0	5,191.0	5,166.8	5,156.5	12.1	12.6	69.00	312.2	311.0	562.2	538.4	23.87	23.558		
5,300.0	5,291.0	5,266.6	5,256.0	12.3	12.9	68.62	317.7	315.2	568.2	543.8	24.32	23.362		
5,400.0	5,391.0	5,366.3	5,355.5	12.5	13.1	68.26	323.3	319.4	574.1	549.3	24.77	23.175		
5,500.0	5,491.0	5,450.0	5,439.0	12.7	13.3	67.95	328.0	323.0	580.4	555.3	25.19	23.043 SF		
5,585.1	5,576.1	5,500.0	5,488.5	12.9	13.5	67.60	333.6	327.3	590.6	565.1	25.51	23.153		
5,600.0	5,591.0	5,500.0	5,488.5	12.9	13.5	-112.15	333.6	327.3	593.1	567.9	25.19	23.541		
5,650.0	5,640.9	5,526.5	5,514.4	13.0	13.6	-111.47	338.1	330.7	603.8	578.5	25.32	23.852		
5,700.0	5,690.1	5,550.0	5,537.0	13.1	13.7	-110.58	343.0	334.4	618.4	593.0	25.39	24.352		
5,750.0	5,738.3	5,569.7	5,555.9	13.1	13.8	-109.32	347.7	337.9	636.5	611.1	25.45	25.012		
5,800.0	5,785.0	5,600.0	5,584.3	13.2	13.9	-108.32	356.0	344.2	658.4	632.9	25.53	25.792		
5,850.0	5,829.8	5,600.0	5,584.3	13.3	13.9	-105.32	356.0	344.2	683.2	657.6	25.60	26.691		
5,900.0	5,872.2	5,618.0	5,600.9	13.3	14.0	-102.90	361.6	348.4	711.1	685.3	25.76	27.608		
5,950.0	5,911.9	5,629.3	5,611.2	13.4	14.1	-99.57	365.3	351.2	741.7	715.7	25.99	28.541		
6,000.0	5,948.5	5,650.0	5,629.7	13.5	14.2	-96.55	372.6	356.8	774.8	748.5	26.29	29.472		
6,050.0	5,981.7	5,650.0	5,629.7	13.6	14.2	-91.28	372.6	356.8	809.4	782.8	26.60	30.430		
6,100.0	6,011.2	5,650.0	5,629.7	13.7	14.2	-85.50	372.6	356.8	845.6	818.8	26.81	31.536		
6,150.0	6,036.6	5,650.0	5,629.7	13.9	14.2	-79.39	372.6	356.8	883.0	856.0	26.95	32.761		
6,200.0	6,057.8	5,650.0	5,629.7	14.1	14.2	-73.15	372.6	356.8	920.9	893.9	27.00	34.107		
6,250.0	6,074.6	5,650.0	5,629.7	14.4	14.2	-67.03	372.6	356.8	959.1	932.4	26.71	35.911		
6,300.0	6,086.8	5,650.0	5,629.7	14.8	14.2	-61.21	372.6	356.8	997.2	971.1	26.09	38.216		
6,350.0	6,094.3	5,650.0	5,629.7	15.2	14.2	-55.85	372.6	356.8	1,034.9	1,009.6	25.24	40.997		
6,403.3	6,097.0	5,650.0	5,629.7	15.7	14.2	-50.71	372.6	356.8	1,074.2	1,050.0	24.22	44.360		
6,500.0	6,097.0	5,629.5	5,611.4	16.7	14.1	-49.35	365.4	351.3	1,146.0	1,121.4	24.59	46.602		
6,600.0	6,097.0	5,619.4	5,602.2	17.9	14.0	-48.69	362.0	348.8	1,223.6	1,198.3	25.31	48.343		
6,700.0	6,097.0	5,600.0	5,584.3	19.2	13.9	-47.44	356.0	344.2	1,304.3	1,278.3	25.91	50.342		
6,800.0	6,097.0	5,600.0	5,584.3	20.7	13.9	-47.44	356.0	344.2	1,386.9	1,359.9	27.00	51.372		
6,900.0	6,097.0	5,600.0	5,584.3	22.1	13.9	-47.44	356.0	344.2	1,471.8	1,443.6	28.15	52.292		
7,000.0	6,097.0	5,600.0	5,584.3	23.7	13.9	-47.44	356.0	344.2	1,558.4	1,529.1	29.34	53.119		
7,100.0	6,097.0	5,579.3	5,565.0	25.3	13.8	-46.16	350.2	339.8	1,646.0	1,616.0	30.05	54.775		
7,200.0	6,097.0	5,573.0	5,559.0	26.9	13.8	-45.77	348.5	338.5	1,735.1	1,704.0	31.13	55.741		
7,300.0	6,097.0	5,550.0	5,537.0	28.6	13.7	-44.40	343.0	334.4	1,825.6	1,793.8	31.78	57.437		
7,400.0	6,097.0	5,550.0	5,537.0	30.3	13.7	-44.40	343.0	334.4	1,916.4	1,883.4	33.04	58.000		
7,500.0	6,097.0	5,550.0	5,537.0	32.1	13.7	-44.40	343.0	334.4	2,008.1	1,973.8	34.31	58.521		
7,600.0	6,097.0	5,550.0	5,537.0	33.8	13.7	-44.40	343.0	334.4	2,100.6	2,065.0	35.60	59.004		
7,700.0	6,097.0	5,550.0	5,537.0	35.6	13.7	-44.40	343.0	334.4	2,193.7	2,156.8	36.90	59.453		
7,800.0	6,097.0	5,550.0	5,537.0	37.4	13.7	-44.40	343.0	334.4	2,287.4	2,249.2	38.20	59.873		
7,900.0	6,097.0	5,550.0	5,537.0	39.1	13.7	-44.40	343.0	334.4	2,381.6	2,342.1	39.52	60.265		
8,000.0	6,097.0	5,550.0	5,537.0	41.0	13.7	-44.40	343.0	334.4	2,476.3	2,435.5	40.84	60.633		
8,100.0	6,097.0	5,550.0	5,537.0	42.8	13.7	-44.40	343.0	334.4	2,571.4	2,529.2	42.17	60.979		
8,200.0	6,097.0	5,527.4	5,515.3	44.6	13.6	-43.12	338.3	330.8	2,666.3	2,623.5	42.74	62.381		
8,300.0	6,097.0	5,524.1	5,512.1	46.4	13.6	-42.94	337.7	330.3	2,761.9	2,717.9	43.95	62.847		
8,400.0	6,097.0	5,521.0	5,509.0	48.3	13.6	-42.77	337.1	329.9	2,857.8	2,812.6	45.15	63.289		
8,500.0	6,097.0	5,500.0	5,488.5	50.1	13.5	-41.65	333.6	327.3	2,954.2	2,908.5	45.73	64.596		
8,600.0	6,097.0	5,500.0	5,488.5	52.0	13.5	-41.65	333.6	327.3	3,050.5	3,003.5	47.03	64.857		
8,700.0	6,097.0	5,500.0	5,488.5	53.8	13.5	-41.65	333.6	327.3	3,147.0	3,098.6	48.34	65.105		
8,800.0	6,097.0	5,500.0	5,488.5	55.7	13.5	-41.65	333.6	327.3	3,243.7	3,194.1	49.64	65.341		
8,900.0	6,097.0	5,500.0	5,488.5	57.5	13.5	-41.65	333.6	327.3	3,340.6	3,289.6	50.95	65.566		
9,000.0	6,097.0	5,500.0	5,488.5	59.4	13.5	-41.65	333.6	327.3	3,437.7	3,385.4	52.26	65.780		
9,100.0	6,097.0	5,500.0	5,488.5	61.3	13.5	-41.65	333.6	327.3	3,534.9	3,481.3	53.57	65.985		
9,200.0	6,097.0	5,500.0	5,488.5	63.2	13.5	-41.65	333.6	327.3	3,632.3	3,577.4	54.88	66.181		

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0108B - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor		
9,300.0	6,097.0	5,500.0	5,488.5	65.0	13.5	-41.65	333.6	327.3	3,729.8	3,673.6	56.20	66.368		
9,400.0	6,097.0	5,500.0	5,488.5	66.9	13.5	-41.65	333.6	327.3	3,827.5	3,770.0	57.52	66.548		
9,500.0	6,097.0	5,500.0	5,488.5	68.8	13.5	-41.65	333.6	327.3	3,925.3	3,866.4	58.83	66.720		
9,600.0	6,097.0	5,500.0	5,488.5	70.7	13.5	-41.65	333.6	327.3	4,023.2	3,963.0	60.15	66.885		
9,700.0	6,097.0	5,500.0	5,488.5	72.6	13.5	-41.65	333.6	327.3	4,121.2	4,059.7	61.47	67.043		
9,800.0	6,097.0	5,500.0	5,488.5	74.4	13.5	-41.65	333.6	327.3	4,219.2	4,156.4	62.79	67.196		
9,900.0	6,097.0	5,500.0	5,488.5	76.3	13.5	-41.65	333.6	327.3	4,317.4	4,253.3	64.11	67.342		
10,000.0	6,097.0	5,500.0	5,488.5	78.2	13.5	-41.65	333.6	327.3	4,415.7	4,350.2	65.43	67.483		
10,100.0	6,097.0	5,500.0	5,488.5	80.1	13.5	-41.65	333.6	327.3	4,514.0	4,447.2	66.76	67.619		
10,200.0	6,097.0	5,500.0	5,488.5	82.0	13.5	-41.65	333.6	327.3	4,612.4	4,544.3	68.08	67.750		
10,300.0	6,097.0	5,500.0	5,488.5	83.9	13.5	-41.65	333.6	327.3	4,710.9	4,641.4	69.44	67.840		
10,400.0	6,097.0	5,500.0	5,488.5	85.8	13.5	-41.65	333.6	327.3	4,809.4	4,738.6	70.82	67.913		
10,500.0	6,097.0	5,500.0	5,488.5	87.7	13.5	-41.65	333.6	327.3	4,908.0	4,835.8	72.19	67.984		
10,600.0	6,097.0	5,500.0	5,488.5	89.6	13.5	-41.65	333.6	327.3	5,006.6	4,933.1	73.57	68.052		
10,700.0	6,097.0	5,476.7	5,465.5	91.5	13.4	-40.48	330.5	325.0	5,104.8	5,031.2	73.62	69.341		
10,800.0	6,097.0	5,475.5	5,464.4	93.4	13.4	-40.42	330.4	324.8	5,203.5	5,128.6	74.91	69.467		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - RAZOR 12-0141H (EXISTING) - WHTING WELL - SURVEYS												Offset Site Error:	0.0 usft
Survey Program: 109-ISCWSA MWD												Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	11.0	11.0	0.0	0.0	92.16	-121.3	3,209.9	3,212.2				
100.0	100.0	122.4	122.4	0.1	0.1	92.18	-121.9	3,209.6	3,211.9	3,211.7	0.23	N/A	
200.0	200.0	215.5	215.5	0.3	0.3	92.19	-122.9	3,209.3	3,211.6	3,211.0	0.65	4,936.812	
300.0	300.0	312.2	312.2	0.5	0.5	92.21	-124.1	3,209.1	3,211.5	3,210.4	1.09	2,954.870	
342.3	342.3	351.9	351.9	0.6	0.6	92.22	-124.6	3,209.0	3,211.5	3,210.2	1.27	2,531.643 CC	
400.0	400.0	407.1	407.1	0.8	0.8	92.24	-125.4	3,209.0	3,211.5	3,210.0	1.52	2,114.998	
500.0	500.0	504.2	504.1	1.0	1.0	92.27	-127.1	3,209.1	3,211.6	3,209.6	1.96	1,641.806	
600.0	600.0	596.1	596.0	1.2	1.2	92.30	-129.0	3,209.3	3,211.9	3,209.5	2.38	1,348.095 ES	
700.0	700.0	684.3	684.2	1.4	1.4	154.79	-130.6	3,209.7	3,213.7	3,210.9	2.79	1,149.878	
800.0	799.9	764.0	763.9	1.7	1.5	154.80	-131.6	3,210.5	3,218.3	3,215.1	3.17	1,013.968	
894.8	894.5	857.0	856.9	1.9	1.7	154.82	-132.6	3,211.8	3,225.2	3,221.6	3.58	899.933	
900.0	899.7	857.0	856.9	1.9	1.7	154.82	-132.6	3,211.8	3,225.6	3,222.0	3.60	897.196	
1,000.0	999.4	952.0	951.9	2.1	1.9	154.90	-133.9	3,213.4	3,234.3	3,230.3	4.03	803.173	
1,100.0	1,099.1	1,092.1	1,092.0	2.4	2.2	155.00	-135.1	3,214.9	3,242.4	3,237.8	4.53	715.401	
1,200.0	1,198.8	1,190.3	1,190.2	2.6	2.4	155.06	-135.5	3,215.4	3,249.9	3,245.0	4.96	655.360	
1,300.0	1,298.5	1,280.2	1,280.1	2.9	2.6	155.12	-135.9	3,215.9	3,257.6	3,252.2	5.38	605.915	
1,400.0	1,398.2	1,361.5	1,361.4	3.1	2.8	155.17	-136.2	3,216.8	3,265.7	3,259.9	5.78	564.924	
1,500.0	1,497.9	1,453.1	1,453.0	3.4	3.0	155.23	-136.8	3,218.3	3,274.3	3,268.1	6.21	527.559	
1,600.0	1,597.6	1,567.4	1,567.3	3.6	3.2	155.31	-137.5	3,220.0	3,282.8	3,276.1	6.67	492.390	
1,700.0	1,697.3	1,677.1	1,676.9	3.9	3.4	155.38	-138.0	3,221.1	3,290.8	3,283.7	7.11	462.679	
1,800.0	1,797.0	1,769.4	1,769.2	4.1	3.6	155.44	-138.6	3,221.9	3,298.8	3,291.2	7.54	437.783	
1,900.0	1,896.7	1,913.1	1,912.9	4.4	3.9	155.54	-139.6	3,223.2	3,306.9	3,298.8	8.06	410.249	
2,000.0	1,996.4	2,015.7	2,015.5	4.7	4.1	155.62	-141.0	3,222.8	3,313.7	3,305.2	8.51	389.568	
2,100.0	2,096.1	2,162.2	2,162.0	4.9	4.4	155.76	-144.3	3,220.7	3,319.2	3,310.2	9.04	367.060	
2,200.0	2,195.8	2,242.5	2,242.2	5.2	4.6	155.82	-145.2	3,219.5	3,324.8	3,315.4	9.44	352.214	
2,300.0	2,295.5	2,311.0	2,310.7	5.5	4.7	155.83	-144.0	3,219.0	3,331.1	3,321.3	9.81	339.465	
2,400.0	2,395.2	2,375.0	2,374.7	5.7	4.9	155.84	-142.1	3,219.2	3,338.4	3,328.2	10.18	327.988	
2,500.0	2,494.9	2,498.8	2,498.3	6.0	5.1	155.82	-137.1	3,219.9	3,345.7	3,335.0	10.66	313.714	
2,600.0	2,594.6	2,578.3	2,577.9	6.2	5.3	155.83	-135.7	3,220.5	3,353.3	3,342.3	11.06	303.138	
2,700.0	2,694.3	2,718.0	2,717.5	6.5	5.6	155.85	-132.1	3,220.7	3,360.2	3,348.7	11.58	290.132	
2,800.0	2,794.0	2,798.4	2,797.9	6.8	5.7	155.85	-129.7	3,220.6	3,367.0	3,355.1	11.98	281.030	
2,900.0	2,893.7	2,877.8	2,877.3	7.0	5.9	155.89	-129.3	3,221.1	3,374.7	3,362.3	12.38	272.574	
3,000.0	2,993.4	2,976.1	2,975.5	7.3	6.1	155.92	-128.2	3,221.9	3,382.4	3,369.6	12.82	263.833	
3,100.0	3,093.1	3,069.3	3,068.7	7.6	6.3	155.95	-127.2	3,222.9	3,390.5	3,377.2	13.25	255.901	
3,200.0	3,192.8	3,171.4	3,170.9	7.8	6.5	155.98	-125.7	3,223.8	3,398.3	3,384.6	13.70	248.122	
3,300.0	3,292.5	3,258.4	3,257.8	8.1	6.7	156.01	-124.9	3,224.9	3,406.6	3,392.4	14.11	241.381	
3,400.0	3,392.3	3,373.6	3,373.0	8.4	7.0	156.10	-126.4	3,226.2	3,414.8	3,400.2	14.59	234.075	
3,500.0	3,492.0	3,476.3	3,475.6	8.6	7.2	156.18	-128.1	3,226.7	3,422.5	3,407.5	15.04	227.621	
3,600.0	3,591.7	3,575.9	3,575.3	8.9	7.4	156.26	-130.1	3,227.4	3,430.4	3,414.9	15.48	221.608	
3,700.0	3,691.4	3,858.9	3,858.1	9.2	8.0	156.54	-137.4	3,221.8	3,435.8	3,419.5	16.30	210.788	
3,714.2	3,705.5	3,873.6	3,872.7	9.2	8.0	156.55	-137.8	3,221.1	3,436.1	3,419.8	16.36	209.993	
3,800.0	3,791.1	3,929.3	3,928.4	9.4	8.1	156.60	-138.7	3,218.6	3,437.7	3,421.0	16.67	206.272	
3,900.0	3,891.0	3,989.0	3,988.0	9.6	8.2	156.62	-138.3	3,216.8	3,438.5	3,421.5	16.97	202.605	
4,009.0	4,000.0	4,072.5	4,071.5	9.8	8.4	94.15	-137.5	3,215.2	3,437.6	3,420.3	17.36	198.031	
4,100.0	4,091.0	4,189.1	4,188.1	9.9	8.7	94.16	-138.1	3,212.7	3,435.7	3,417.9	17.78	193.250	
4,200.0	4,191.0	4,292.5	4,291.5	10.1	8.9	94.17	-138.6	3,209.9	3,433.1	3,414.9	18.20	188.648	
4,300.0	4,291.0	4,378.1	4,377.0	10.3	9.0	94.16	-138.1	3,207.8	3,430.6	3,412.1	18.58	184.633	
4,400.0	4,391.0	4,475.9	4,474.8	10.5	9.2	94.14	-136.2	3,205.8	3,428.5	3,409.5	18.99	180.540	
4,500.0	4,491.0	4,577.4	4,576.3	10.7	9.5	94.11	-134.5	3,203.7	3,426.2	3,406.8	19.41	176.528	
4,600.0	4,591.0	4,669.6	4,668.4	10.9	9.7	94.10	-133.6	3,201.8	3,424.1	3,404.3	19.81	172.836	
4,700.0	4,691.0	4,748.0	4,746.8	11.1	9.8	94.09	-133.1	3,200.5	3,422.5	3,402.3	20.19	169.544	
4,800.0	4,791.0	4,832.5	4,831.3	11.3	10.0	94.09	-133.0	3,199.6	3,421.3	3,400.8	20.58	166.278	

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - RAZOR 12-0141H (EXISTING) - WHTING WELL - SURVEYS												Offset Site Error: 0.0 usft	
Survey Program: 109-ISCWSA MWD												Offset Well Error: 0.0 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)	Total Uncertainty Axis	Separation Factor	
4,900.0	4,891.0	4,935.4	4,934.2	11.5	10.2	94.10	-133.7	3,198.6	3,420.4	3,399.4	21.01	162.837	
5,000.0	4,991.0	5,014.9	5,013.6	11.7	10.4	94.12	-134.5	3,198.0	3,419.7	3,398.4	21.39	159.907	
5,039.1	5,030.2	5,033.0	5,031.8	11.8	10.4	94.12	-134.8	3,197.9	3,419.7	3,398.2	21.51	158.999	
5,100.0	5,091.0	5,080.8	5,079.6	11.9	10.5	94.13	-135.4	3,198.0	3,419.8	3,398.1	21.74	157.310	
5,200.0	5,191.0	5,127.0	5,125.8	12.1	10.6	94.14	-136.1	3,198.4	3,421.0	3,399.0	22.05	155.139	
5,300.0	5,291.0	5,179.1	5,177.9	12.3	10.7	94.15	-136.7	3,199.7	3,423.7	3,401.4	22.38	152.994	
5,400.0	5,391.0	5,223.0	5,221.7	12.5	10.8	94.15	-136.8	3,201.6	3,428.2	3,405.5	22.69	151.104	
5,500.0	5,491.0	5,507.0	5,504.6	12.7	11.4	93.85	-119.4	3,210.8	3,431.5	3,408.0	23.50	146.016	
5,511.6	5,502.7	5,509.1	5,506.8	12.8	11.4	93.85	-119.1	3,210.8	3,431.5	3,407.9	23.53	145.833	
5,585.1	5,576.1	5,539.0	5,536.3	12.9	11.5	93.77	-114.7	3,211.2	3,431.9	3,408.1	23.75	144.494	
5,600.0	5,591.0	5,539.0	5,536.3	12.9	11.5	-86.20	-114.7	3,211.2	3,432.1	3,408.3	23.76	144.466	
5,650.0	5,640.9	5,561.0	5,558.1	13.0	11.5	-86.18	-111.7	3,211.9	3,433.0	3,409.1	23.89	143.721	
5,700.0	5,690.1	5,561.0	5,558.1	13.1	11.5	-86.06	-111.7	3,211.9	3,434.1	3,410.2	23.97	143.258	
5,750.0	5,738.3	5,573.4	5,570.4	13.1	11.6	-85.98	-110.0	3,212.6	3,435.6	3,411.5	24.07	142.726	
5,800.0	5,785.0	5,593.0	5,589.7	13.2	11.6	-85.96	-107.3	3,213.8	3,437.3	3,413.1	24.18	142.165	
5,850.0	5,829.8	5,629.7	5,625.9	13.3	11.7	-86.13	-101.3	3,216.3	3,439.0	3,414.7	24.31	141.435	
5,900.0	5,872.2	5,956.0	5,902.8	13.3	12.7	-90.77	60.3	3,225.9	3,439.1	3,413.7	25.41	135.326	
5,950.0	5,911.9	5,956.0	5,902.8	13.4	12.7	-90.72	60.3	3,225.9	3,439.6	3,414.1	25.49	134.936	
6,000.0	5,948.5	5,956.0	5,902.8	13.5	12.7	-90.58	60.3	3,225.9	3,440.9	3,415.3	25.59	134.440	
6,050.0	5,981.7	5,956.0	5,902.8	13.6	12.7	-90.35	60.3	3,225.9	3,442.9	3,417.2	25.73	133.795	
6,100.0	6,011.2	5,956.0	5,902.8	13.7	12.7	-90.04	60.3	3,225.9	3,445.7	3,419.8	25.91	132.969	
6,150.0	6,036.6	5,956.0	5,902.8	13.9	12.7	-89.65	60.3	3,225.9	3,449.2	3,423.1	26.14	131.944	
6,200.0	6,057.8	5,940.9	5,892.4	14.1	12.7	-88.96	49.3	3,226.2	3,453.4	3,427.1	26.34	131.085	
6,250.0	6,074.6	5,846.8	5,821.6	14.4	12.3	-87.01	-12.5	3,226.5	3,458.2	3,432.0	26.24	131.810	
6,300.0	6,086.8	5,830.9	5,808.8	14.8	12.2	-86.24	-21.8	3,226.2	3,462.9	3,436.3	26.54	130.499	
6,350.0	6,094.3	5,814.5	5,795.2	15.2	12.2	-85.45	-31.0	3,225.8	3,467.9	3,441.0	26.87	129.051	
6,403.3	6,097.0	5,776.7	5,762.8	15.7	12.0	-84.29	-50.5	3,224.7	3,473.4	3,446.2	27.19	127.745	
6,500.0	6,097.0	5,718.8	5,710.9	16.7	11.9	-83.43	-75.8	3,221.9	3,484.3	3,456.3	28.02	124.345	
6,600.0	6,097.0	5,702.2	5,695.5	17.9	11.8	-83.17	-81.9	3,220.9	3,497.9	3,468.8	29.18	119.885	
6,700.0	6,097.0	5,683.0	5,677.3	19.2	11.8	-82.87	-88.1	3,219.8	3,514.3	3,483.9	30.44	115.453	
6,800.0	6,097.0	5,683.0	5,677.3	20.7	11.8	-82.87	-88.1	3,219.8	3,533.3	3,501.4	31.86	110.895	
6,900.0	6,097.0	5,661.4	5,656.6	22.1	11.7	-82.53	-94.2	3,218.5	3,554.8	3,521.6	33.28	106.812	
7,000.0	6,097.0	5,651.0	5,646.6	23.7	11.7	-82.36	-96.8	3,217.8	3,579.0	3,544.2	34.80	102.846	
7,100.0	6,097.0	5,651.0	5,646.6	25.3	11.7	-82.36	-96.8	3,217.8	3,605.7	3,569.3	36.40	99.047	
7,200.0	6,097.0	5,636.3	5,632.3	26.9	11.7	-82.13	-100.0	3,216.8	3,634.9	3,596.9	37.99	95.670	
7,300.0	6,097.0	5,630.8	5,627.0	28.6	11.7	-82.04	-101.1	3,216.4	3,666.5	3,626.9	39.65	92.473	
7,400.0	6,097.0	5,619.0	5,615.3	30.3	11.7	-81.85	-103.3	3,215.6	3,700.6	3,659.3	41.31	89.588	
7,500.0	6,097.0	5,619.0	5,615.3	32.1	11.7	-81.85	-103.3	3,215.6	3,737.0	3,694.0	43.03	86.841	
7,600.0	6,097.0	5,619.0	5,615.3	33.8	11.7	-81.85	-103.3	3,215.6	3,775.7	3,730.9	44.78	84.320	
7,700.0	6,097.0	5,619.0	5,615.3	35.6	11.7	-81.85	-103.3	3,215.6	3,816.6	3,770.1	46.54	82.008	
7,800.0	6,097.0	5,605.5	5,602.1	37.4	11.6	-81.63	-105.4	3,214.7	3,859.6	3,811.4	48.26	79.975	
7,900.0	6,097.0	5,593.0	5,589.7	39.1	11.6	-81.42	-107.3	3,213.8	3,904.7	3,854.7	49.99	78.104	
8,000.0	6,097.0	5,593.0	5,589.7	41.0	11.6	-81.42	-107.3	3,213.8	3,951.8	3,900.0	51.79	76.303	
8,100.0	6,097.0	5,593.0	5,589.7	42.8	11.6	-81.42	-107.3	3,213.8	4,000.8	3,947.2	53.60	74.647	
8,200.0	6,097.0	5,593.0	5,589.7	44.6	11.6	-81.42	-107.3	3,213.8	4,051.7	3,996.3	55.41	73.122	
8,300.0	6,097.0	5,593.0	5,589.7	46.4	11.6	-81.42	-107.3	3,213.8	4,104.4	4,047.2	57.23	71.716	
8,400.0	6,097.0	5,578.6	5,575.4	48.3	11.6	-81.19	-109.3	3,212.9	4,158.8	4,099.8	58.99	70.496	
8,500.0	6,097.0	5,574.6	5,571.6	50.1	11.6	-81.12	-109.8	3,212.6	4,214.9	4,154.1	60.81	69.315	
8,600.0	6,097.0	5,561.0	5,558.1	52.0	11.5	-80.90	-111.7	3,211.9	4,272.5	4,210.0	62.58	68.274	
8,700.0	6,097.0	5,561.0	5,558.1	53.8	11.5	-80.90	-111.7	3,211.9	4,331.7	4,267.3	64.42	67.242	
8,800.0	6,097.0	5,561.0	5,558.1	55.7	11.5	-80.90	-111.7	3,211.9	4,392.3	4,326.1	66.26	66.286	
8,900.0	6,097.0	5,561.0	5,558.1	57.5	11.5	-80.90	-111.7	3,211.9	4,454.4	4,386.3	68.11	65.399	

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - RAZOR 12-0141H (EXISTING) - WHITING WELL - SURVEYS													Offset Site Error: 0.0 usft
Survey Program: 109-ISCWSA MWD													Offset Well Error: 0.0 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)	Total Uncertainty Axis	Separation Factor	
9,000.0	6,097.0	5,561.0	5,558.1	59.4	11.5	-80.90	-111.7	3,211.9	4,517.8	4,447.8	69.96	64.575	
9,100.0	6,097.0	5,561.0	5,558.1	61.3	11.5	-80.90	-111.7	3,211.9	4,582.5	4,510.7	71.82	63.809	
9,200.0	6,097.0	5,561.0	5,558.1	63.2	11.5	-80.90	-111.7	3,211.9	4,648.5	4,574.8	73.67	63.097	
9,300.0	6,097.0	5,550.1	5,547.3	65.0	11.5	-80.72	-113.1	3,211.4	4,715.6	4,640.1	75.48	62.479	
9,400.0	6,097.0	5,539.0	5,536.3	66.9	11.5	-80.54	-114.7	3,211.2	4,783.9	4,706.7	77.28	61.907	
9,500.0	6,097.0	5,539.0	5,536.3	68.8	11.5	-80.54	-114.7	3,211.2	4,853.3	4,774.1	79.14	61.327	
9,600.0	6,097.0	5,539.0	5,536.3	70.7	11.5	-80.54	-114.7	3,211.2	4,923.7	4,842.7	81.00	60.785	
9,700.0	6,097.0	5,538.0	5,535.4	72.6	11.5	-80.53	-114.9	3,211.2	4,995.1	4,912.2	82.86	60.282	
9,800.0	6,097.0	5,521.2	5,518.7	74.4	11.4	-80.26	-117.3	3,211.0	5,067.5	4,982.8	84.63	59.876	
9,900.0	6,097.0	5,507.0	5,504.6	76.3	11.4	-80.03	-119.4	3,210.8	5,140.7	5,054.3	86.42	59.487	
10,000.0	6,097.0	5,507.0	5,504.6	78.2	11.4	-80.03	-119.4	3,210.8	5,214.8	5,126.5	88.28	59.068 SF	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1301A - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	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)				
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	0.0	-99.1	99.1					
100.0	100.0	98.8	98.8	0.1	0.1	-89.99	0.0	-99.1	99.1	98.9	0.18	537.186		
200.0	200.0	198.8	198.8	0.3	0.3	-89.99	0.0	-99.1	99.1	98.5	0.63	156.733		
300.0	300.0	298.8	298.8	0.5	0.5	-89.99	0.0	-99.1	99.1	98.0	1.08	91.617		
400.0	400.0	398.8	398.8	0.8	0.8	-89.99	0.0	-99.1	99.1	97.6	1.53	64.726		
500.0	500.0	498.8	498.8	1.0	1.0	-89.99	0.0	-99.1	99.1	97.1	1.98	50.039		
600.0	600.0	598.8	598.8	1.2	1.2	-89.99	0.0	-99.1	99.1	96.7	2.43	40.784		
700.0	700.0	698.8	698.8	1.4	1.4	-27.89	0.0	-99.1	98.0	95.1	2.88	33.968		
800.0	799.9	798.7	798.7	1.7	1.7	-29.02	0.0	-99.1	94.5	91.2	3.34	28.327		
894.8	894.5	893.3	893.3	1.9	1.9	-30.98	0.0	-99.1	89.2	85.4	3.77	23.656		
900.0	899.7	898.5	898.5	1.9	1.9	-31.11	0.0	-99.1	88.9	85.1	3.79	23.420		
1,000.0	999.4	998.2	998.2	2.1	2.1	-33.88	0.0	-99.1	82.3	78.1	4.24	19.410		
1,100.0	1,099.1	1,095.8	1,095.8	2.4	2.3	-37.75	-1.1	-100.2	77.4	72.7	4.67	16.580		
1,193.8	1,192.6	1,187.2	1,187.1	2.6	2.5	-43.01	-4.4	-103.4	75.8	70.7	5.06	14.980 CC		
1,200.0	1,198.8	1,193.3	1,193.2	2.6	2.5	-43.41	-4.7	-103.7	75.8	70.7	5.08	14.906 ES		
1,300.0	1,298.5	1,292.8	1,292.4	2.9	2.7	-49.94	-9.6	-108.5	76.7	71.2	5.52	13.899		
1,400.0	1,398.2	1,392.4	1,391.7	3.1	2.9	-56.26	-14.6	-113.3	78.6	72.7	5.97	13.176		
1,500.0	1,497.9	1,492.0	1,491.1	3.4	3.1	-62.20	-19.6	-118.1	81.5	75.0	6.43	12.677		
1,600.0	1,597.6	1,591.6	1,590.5	3.6	3.3	-67.69	-24.6	-123.0	85.1	78.2	6.89	12.351		
1,700.0	1,697.3	1,691.2	1,689.9	3.9	3.6	-72.69	-29.6	-127.8	89.5	82.1	7.36	12.155		
1,800.0	1,797.0	1,790.8	1,789.2	4.1	3.8	-77.20	-34.6	-132.6	94.5	86.7	7.84	12.055		
1,900.0	1,896.7	1,890.4	1,888.6	4.4	4.0	-81.23	-39.6	-137.5	100.0	91.7	8.32	12.026		
2,000.0	1,996.4	1,990.1	1,988.0	4.7	4.3	-84.83	-44.6	-142.3	106.0	97.2	8.80	12.047		
2,100.0	2,096.1	2,089.7	2,087.3	4.9	4.5	-88.04	-49.6	-147.1	112.3	103.0	9.28	12.104		
2,200.0	2,195.8	2,189.3	2,186.7	5.2	4.8	-90.90	-54.6	-152.0	118.9	109.2	9.76	12.185		
2,300.0	2,295.5	2,288.9	2,286.1	5.5	5.0	-93.45	-59.6	-156.8	125.9	115.6	10.25	12.283		
2,400.0	2,395.2	2,388.5	2,385.4	5.7	5.3	-95.73	-64.6	-161.6	133.0	122.3	10.74	12.386		
2,500.0	2,494.9	2,488.1	2,484.8	6.0	5.5	-97.77	-69.6	-166.5	140.3	129.1	11.23	12.495		
2,600.0	2,594.6	2,587.7	2,584.2	6.2	5.8	-99.62	-74.6	-171.3	147.8	136.1	11.72	12.606		
2,700.0	2,694.3	2,687.3	2,683.6	6.5	6.0	-101.28	-79.6	-176.1	155.4	143.2	12.22	12.719		
2,800.0	2,794.0	2,787.0	2,782.9	6.8	6.3	-102.79	-84.5	-181.0	163.2	150.4	12.71	12.832		
2,900.0	2,893.7	2,886.6	2,882.3	7.0	6.5	-104.16	-89.5	-185.8	171.0	157.8	13.21	12.943		
3,000.0	2,993.4	2,986.2	2,981.7	7.3	6.8	-105.40	-94.5	-190.6	178.9	165.2	13.71	13.052		
3,100.0	3,093.1	3,085.8	3,081.0	7.6	7.0	-106.55	-99.5	-195.5	186.9	172.7	14.21	13.159		
3,200.0	3,192.8	3,185.4	3,180.4	7.8	7.3	-107.60	-104.5	-200.3	195.0	180.3	14.70	13.262		
3,300.0	3,292.5	3,285.0	3,279.8	8.1	7.5	-108.56	-109.5	-205.1	203.1	187.9	15.20	13.362		
3,400.0	3,392.3	3,384.6	3,379.1	8.4	7.8	-109.45	-114.5	-210.0	211.3	195.6	15.70	13.458		
3,500.0	3,492.0	3,484.2	3,478.5	8.6	8.0	-110.28	-119.5	-214.8	219.6	203.4	16.20	13.551		
3,600.0	3,591.7	3,583.9	3,577.9	8.9	8.3	-111.04	-124.5	-219.6	227.8	211.1	16.70	13.641		
3,700.0	3,691.4	3,683.5	3,677.3	9.2	8.6	-111.75	-129.5	-224.5	236.2	219.0	17.20	13.727		
3,714.2	3,705.5	3,697.6	3,691.4	9.2	8.6	-111.85	-130.2	-225.1	237.3	220.1	17.28	13.739		
3,800.0	3,791.1	3,783.1	3,776.7	9.4	8.8	-112.30	-134.5	-229.3	244.1	226.5	17.67	13.813		
3,900.0	3,891.0	3,882.9	3,876.2	9.6	9.1	-112.27	-139.5	-234.1	251.2	233.1	18.09	13.881		
4,009.0	4,000.0	3,991.6	3,984.6	9.8	9.4	-174.09	-144.9	-239.4	257.7	239.1	18.58	13.872		
4,100.0	4,091.0	4,082.4	4,075.2	9.9	9.6	-173.23	-149.5	-243.8	262.7	243.8	18.96	13.858		
4,200.0	4,191.0	4,182.2	4,174.7	10.1	9.9	-172.33	-154.5	-248.6	268.3	248.9	19.39	13.835		
4,300.0	4,291.0	4,281.9	4,274.2	10.3	10.1	-171.47	-159.5	-253.5	274.0	254.1	19.83	13.816		
4,400.0	4,391.0	4,381.7	4,373.8	10.5	10.4	-170.64	-164.5	-258.3	279.7	259.4	20.27	13.800		
4,500.0	4,491.0	4,481.4	4,473.3	10.7	10.6	-169.84	-169.5	-263.2	285.4	264.7	20.70	13.788		
4,600.0	4,591.0	4,581.2	4,572.8	10.9	10.9	-169.08	-174.5	-268.0	291.3	270.1	21.14	13.778		
4,700.0	4,691.0	4,680.9	4,672.3	11.1	11.2	-168.34	-179.5	-272.8	297.1	275.5	21.58	13.771		
4,800.0	4,791.0	4,780.7	4,771.8	11.3	11.4	-167.63	-184.5	-277.7	303.0	281.0	22.01	13.766		

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1301A - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 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)	Total Uncertainty Axis	Separation Factor		
4,900.0	4,891.0	4,880.5	4,871.3	11.5	11.7	-166.96	-189.5	-282.5	309.0	286.5	22.45	13.762		
5,000.0	4,991.0	4,980.2	4,970.8	11.7	11.9	-166.30	-194.5	-287.4	315.0	292.1	22.89	13.760		
5,100.0	5,091.0	5,080.0	5,070.4	11.9	12.2	-165.67	-199.5	-292.2	321.0	297.7	23.33	13.760		
5,200.0	5,191.0	5,179.7	5,169.9	12.1	12.5	-165.07	-204.5	-297.0	327.1	303.4	23.77	13.761		
5,300.0	5,291.0	5,279.5	5,269.4	12.3	12.7	-164.48	-209.5	-301.9	333.2	309.0	24.21	13.763		
5,400.0	5,391.0	5,363.8	5,353.4	12.5	13.0	-163.95	-214.2	-306.4	340.3	315.7	24.62	13.822		
5,500.0	5,491.0	5,425.5	5,414.1	12.7	13.2	-163.10	-222.2	-314.1	356.3	331.3	25.00	14.252		
5,585.1	5,576.1	5,475.4	5,461.9	12.9	13.4	-162.07	-232.3	-324.0	378.1	352.8	25.34	14.924		
5,600.0	5,591.0	5,483.9	5,469.9	12.9	13.5	17.98	-234.4	-326.0	382.5	357.3	25.18	15.188		
5,650.0	5,640.9	5,512.0	5,496.0	13.0	13.6	18.29	-241.9	-333.2	395.9	370.5	25.41	15.582		
5,700.0	5,690.1	5,550.0	5,530.4	13.1	13.8	19.19	-253.5	-344.5	407.8	382.2	25.56	15.954		
5,750.0	5,738.3	5,566.6	5,545.0	13.1	13.9	19.51	-259.2	-350.0	417.4	392.0	25.46	16.399		
5,800.0	5,785.0	5,600.0	5,573.6	13.2	14.2	20.69	-271.6	-362.0	425.7	400.5	25.19	16.900		
5,850.0	5,829.8	5,618.8	5,589.2	13.3	14.3	21.37	-279.2	-369.3	432.3	407.6	24.71	17.492		
5,900.0	5,872.2	5,650.0	5,614.2	13.3	14.6	22.84	-292.5	-382.3	437.6	413.5	24.13	18.136		
5,950.0	5,911.9	5,668.3	5,628.3	13.4	14.7	23.76	-300.9	-390.3	441.4	418.1	23.39	18.877		
6,000.0	5,948.5	5,700.0	5,651.8	13.5	15.0	25.65	-316.2	-405.1	444.4	421.7	22.68	19.596		
6,050.0	5,981.7	5,715.0	5,662.4	13.6	15.1	26.59	-323.8	-412.5	446.0	424.2	21.86	20.402		
6,100.0	6,011.2	5,737.2	5,677.7	13.7	15.4	28.15	-335.4	-423.7	447.0	425.8	21.21	21.071		
6,150.0	6,036.6	5,750.0	5,686.1	13.9	15.5	29.09	-342.3	-430.4	447.5	426.9	20.60	21.726		
6,200.0	6,057.8	5,779.6	5,704.7	14.1	15.8	31.48	-358.9	-446.5	447.3	426.7	20.61	21.698		
6,250.0	6,074.6	5,800.0	5,716.7	14.4	16.1	33.24	-370.7	-457.9	446.9	426.1	20.83	21.461		
6,300.0	6,086.8	5,819.3	5,727.6	14.8	16.3	35.00	-382.2	-469.0	446.6	425.1	21.42	20.847		
6,350.0	6,094.3	5,838.2	5,737.5	15.2	16.5	36.79	-393.7	-480.2	446.3	423.9	22.39	19.935		
6,368.5	6,095.8	5,850.0	5,743.5	15.4	16.7	37.92	-401.1	-487.3	446.4	423.3	23.04	19.372		
6,403.3	6,097.0	5,850.0	5,743.5	15.7	16.7	37.91	-401.1	-487.3	446.6	423.2	23.45	19.050		
6,500.0	6,097.0	5,900.0	5,766.0	16.7	17.3	42.80	-433.1	-518.3	455.4	429.1	26.30	17.313		
6,600.0	6,097.0	5,933.0	5,778.5	17.9	17.8	45.83	-455.1	-539.5	479.9	451.3	28.58	16.794		
6,700.0	6,097.0	5,975.0	5,791.6	19.2	18.4	49.35	-483.7	-567.2	517.5	486.3	31.19	16.590		
6,800.0	6,097.0	6,018.9	5,801.7	20.7	19.1	52.56	-514.4	-596.9	565.1	531.3	33.83	16.703		
6,900.0	6,097.0	6,064.3	5,808.4	22.1	19.8	55.32	-546.7	-628.2	620.1	583.7	36.44	17.016		
7,000.0	6,097.0	6,110.6	5,811.2	23.7	20.5	57.54	-579.9	-660.3	680.6	641.6	38.99	17.457		
7,100.0	6,097.0	6,211.2	5,811.3	25.3	22.1	61.12	-653.7	-728.6	743.0	700.5	42.51	17.477		
7,200.0	6,097.0	6,335.0	5,811.3	26.9	24.0	64.42	-749.3	-807.3	802.1	755.8	46.29	17.327		
7,300.0	6,097.0	6,472.5	5,811.3	28.6	26.2	67.12	-861.2	-887.1	856.6	806.4	50.26	17.045		
7,400.0	6,097.0	6,624.4	5,811.3	30.3	28.6	69.30	-991.2	-965.7	905.7	851.2	54.48	16.623		
7,500.0	6,097.0	6,790.9	5,811.3	32.1	31.3	71.01	-1,140.3	-1,039.7	948.0	889.0	58.99	16.072		
7,600.0	6,097.0	6,971.3	5,811.3	33.8	34.2	72.31	-1,308.4	-1,104.9	982.6	918.9	63.74	15.415		
7,700.0	6,097.0	7,163.9	5,811.3	35.6	37.2	73.22	-1,493.7	-1,156.6	1,008.4	939.7	68.69	14.680		
7,800.0	6,097.0	7,365.5	5,811.3	37.4	40.2	73.77	-1,692.4	-1,190.5	1,024.6	950.8	73.73	13.897		
7,900.0	6,097.0	7,572.3	5,811.3	39.1	43.2	73.97	-1,898.7	-1,203.4	1,030.5	951.8	78.74	13.089		
8,000.0	6,097.0	7,680.2	5,811.3	41.0	44.7	73.97	-2,006.6	-1,203.4	1,030.6	948.4	82.16	12.544		
8,100.0	6,097.0	7,780.2	5,811.3	42.8	46.1	73.97	-2,106.6	-1,203.4	1,030.6	945.1	85.49	12.055		
8,200.0	6,097.0	7,880.2	5,811.2	44.6	47.6	73.97	-2,206.6	-1,203.4	1,030.6	941.7	88.85	11.599		
8,300.0	6,097.0	7,980.2	5,811.2	46.4	49.1	73.97	-2,306.6	-1,203.4	1,030.5	938.3	92.24	11.173		
8,400.0	6,097.0	8,080.2	5,811.2	48.3	50.6	73.97	-2,406.6	-1,203.4	1,030.5	934.9	95.65	10.774		
8,500.0	6,097.0	8,180.2	5,811.2	50.1	52.1	73.97	-2,506.6	-1,203.4	1,030.5	931.5	99.09	10.400		
8,600.0	6,097.0	8,280.2	5,811.2	52.0	53.7	73.97	-2,606.6	-1,203.4	1,030.5	928.0	102.54	10.050		
8,700.0	6,097.0	8,380.2	5,811.2	53.8	55.3	73.97	-2,706.6	-1,203.4	1,030.5	924.5	106.02	9.720		
8,800.0	6,097.0	8,480.2	5,811.2	55.7	56.9	73.97	-2,806.6	-1,203.4	1,030.5	921.0	109.51	9.410		
8,900.0	6,097.0	8,580.2	5,811.2	57.5	58.6	73.97	-2,906.6	-1,203.4	1,030.5	917.5	113.01	9.119		
9,000.0	6,097.0	8,680.2	5,811.2	59.4	60.2	73.97	-3,006.6	-1,203.4	1,030.5	914.0	116.53	8.843		

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1301A - HZ - Plan #3												Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor	Warning
9,100.0	6,097.0	8,780.2	5,811.2	61.3	61.9	73.97	-3,106.6	-1,203.3	1,030.5	910.4	120.06	8.583	
9,200.0	6,097.0	8,880.2	5,811.2	63.2	63.5	73.97	-3,206.6	-1,203.3	1,030.5	906.9	123.60	8.337	
9,300.0	6,097.0	8,980.2	5,811.2	65.0	65.2	73.97	-3,306.6	-1,203.3	1,030.5	903.3	127.15	8.105	
9,400.0	6,097.0	9,080.2	5,811.2	66.9	66.9	73.97	-3,406.6	-1,203.3	1,030.5	899.8	130.71	7.884	
9,500.0	6,097.0	9,180.2	5,811.2	68.8	68.7	73.97	-3,506.6	-1,203.3	1,030.5	896.2	134.28	7.674	
9,600.0	6,097.0	9,280.2	5,811.2	70.7	70.4	73.97	-3,606.6	-1,203.3	1,030.5	892.6	137.85	7.475	
9,700.0	6,097.0	9,380.2	5,811.2	72.6	72.1	73.97	-3,706.6	-1,203.3	1,030.5	889.0	141.43	7.286	
9,800.0	6,097.0	9,480.2	5,811.2	74.4	73.9	73.97	-3,806.6	-1,203.3	1,030.5	885.4	145.02	7.106	
9,900.0	6,097.0	9,580.2	5,811.2	76.3	75.6	73.97	-3,906.6	-1,203.3	1,030.5	881.8	148.62	6.934	
10,000.0	6,097.0	9,680.2	5,811.2	78.2	77.4	73.97	-4,006.6	-1,203.3	1,030.5	878.2	152.22	6.770	
10,100.0	6,097.0	9,780.2	5,811.2	80.1	79.2	73.97	-4,106.6	-1,203.3	1,030.5	874.6	155.83	6.613	
10,200.0	6,097.0	9,880.2	5,811.2	82.0	80.9	73.97	-4,206.6	-1,203.3	1,030.5	871.0	159.44	6.463	
10,300.0	6,097.0	9,980.2	5,811.2	83.9	82.7	73.97	-4,306.6	-1,203.3	1,030.4	867.4	163.05	6.320	
10,400.0	6,097.0	10,080.2	5,811.2	85.8	84.5	73.96	-4,406.6	-1,203.3	1,030.4	863.8	166.67	6.182	
10,500.0	6,097.0	10,180.2	5,811.2	87.7	86.3	73.96	-4,506.6	-1,203.3	1,030.4	860.1	170.30	6.051	
10,600.0	6,097.0	10,280.2	5,811.1	89.6	88.1	73.96	-4,606.6	-1,203.3	1,030.4	856.5	173.92	5.925	
10,700.0	6,097.0	10,380.2	5,811.1	91.5	89.9	73.96	-4,706.6	-1,203.3	1,030.4	852.9	177.55	5.803	
10,800.0	6,097.0	10,480.2	5,811.1	93.4	91.7	73.96	-4,806.6	-1,203.2	1,030.4	849.2	181.19	5.687	
10,900.0	6,097.0	10,580.2	5,811.1	95.3	93.5	73.96	-4,906.6	-1,203.2	1,030.4	845.6	184.82	5.575	
11,000.0	6,097.0	10,680.2	5,811.1	97.2	95.4	73.96	-5,006.6	-1,203.2	1,030.4	841.9	188.46	5.467	
11,100.0	6,097.0	10,780.2	5,811.1	99.1	97.2	73.96	-5,106.6	-1,203.2	1,030.4	838.3	192.11	5.364	
11,200.0	6,097.0	10,880.2	5,811.1	101.0	99.0	73.96	-5,206.6	-1,203.2	1,030.4	834.7	195.75	5.264	
11,300.0	6,097.0	10,980.2	5,811.1	102.9	100.8	73.96	-5,306.6	-1,203.2	1,030.4	831.0	199.40	5.168	
11,400.0	6,097.0	11,080.2	5,811.1	104.8	102.7	73.96	-5,406.6	-1,203.2	1,030.4	827.3	203.05	5.075	
11,500.0	6,097.0	11,180.2	5,811.1	106.7	104.5	73.96	-5,506.6	-1,203.2	1,030.4	823.7	206.70	4.985	
11,600.0	6,097.0	11,280.2	5,811.1	108.6	106.4	73.96	-5,606.6	-1,203.2	1,030.4	820.0	210.35	4.898	
11,700.0	6,097.0	11,380.2	5,811.1	110.5	108.2	73.96	-5,706.6	-1,203.2	1,030.4	816.4	214.01	4.815	
11,800.0	6,097.0	11,480.2	5,811.1	112.4	110.1	73.96	-5,806.6	-1,203.2	1,030.4	812.7	217.67	4.734	
11,900.0	6,097.0	11,580.2	5,811.1	114.3	111.9	73.96	-5,906.6	-1,203.2	1,030.4	809.0	221.33	4.655	
12,000.0	6,097.0	11,680.2	5,811.1	116.2	113.8	73.96	-6,006.6	-1,203.2	1,030.4	805.4	224.99	4.580	
12,100.0	6,097.0	11,780.2	5,811.1	118.1	115.6	73.96	-6,106.6	-1,203.2	1,030.4	801.7	228.65	4.506	
12,200.0	6,097.0	11,880.2	5,811.1	120.0	117.5	73.96	-6,206.6	-1,203.2	1,030.4	798.0	232.31	4.435	
12,300.0	6,097.0	11,980.2	5,811.1	121.9	119.3	73.96	-6,306.6	-1,203.2	1,030.3	794.4	235.98	4.366	
12,400.0	6,097.0	12,080.2	5,811.1	123.8	121.2	73.96	-6,406.6	-1,203.1	1,030.3	790.7	239.65	4.299	
12,500.0	6,097.0	12,180.2	5,811.1	125.8	123.0	73.96	-6,506.6	-1,203.1	1,030.3	787.0	243.31	4.235	
12,600.0	6,097.0	12,280.2	5,811.1	127.7	124.9	73.96	-6,606.6	-1,203.1	1,030.3	783.3	246.98	4.172	
12,700.0	6,097.0	12,380.2	5,811.1	129.6	126.8	73.96	-6,706.6	-1,203.1	1,030.3	779.7	250.65	4.111	
12,800.0	6,097.0	12,480.2	5,811.1	131.5	128.6	73.96	-6,806.6	-1,203.1	1,030.3	776.0	254.33	4.051	
12,900.0	6,097.0	12,580.2	5,811.0	133.4	130.5	73.96	-6,906.6	-1,203.1	1,030.3	772.3	258.00	3.993	
13,000.0	6,097.0	12,680.2	5,811.0	135.3	132.4	73.96	-7,006.6	-1,203.1	1,030.3	768.6	261.67	3.937	
13,100.0	6,097.0	12,780.2	5,811.0	137.2	134.3	73.96	-7,106.6	-1,203.1	1,030.3	765.0	265.35	3.883	
13,200.0	6,097.0	12,880.2	5,811.0	139.1	136.1	73.96	-7,206.6	-1,203.1	1,030.3	761.3	269.02	3.830	
13,300.0	6,097.0	12,980.2	5,811.0	141.0	138.0	73.96	-7,306.6	-1,203.1	1,030.3	757.6	272.70	3.778	
13,400.0	6,097.0	13,080.2	5,811.0	142.9	139.9	73.95	-7,406.6	-1,203.1	1,030.3	753.9	276.38	3.728	
13,500.0	6,097.0	13,180.2	5,811.0	144.8	141.8	73.95	-7,506.6	-1,203.1	1,030.3	750.2	280.05	3.679	
13,600.0	6,097.0	13,280.2	5,811.0	146.8	143.6	73.95	-7,606.6	-1,203.1	1,030.3	746.5	283.73	3.631	
13,700.0	6,097.0	13,380.2	5,811.0	148.7	145.5	73.95	-7,706.6	-1,203.1	1,030.3	742.9	287.41	3.585	
13,800.0	6,097.0	13,480.2	5,811.0	150.6	147.4	73.95	-7,806.6	-1,203.1	1,030.3	739.2	291.09	3.539	
13,900.0	6,097.0	13,580.2	5,811.0	152.5	149.3	73.95	-7,906.6	-1,203.1	1,030.3	735.5	294.77	3.495	
14,000.0	6,097.0	13,680.2	5,811.0	154.4	151.2	73.95	-8,006.6	-1,203.0	1,030.3	731.8	298.46	3.452	
14,100.0	6,097.0	13,780.2	5,811.0	156.3	153.1	73.95	-8,106.6	-1,203.0	1,030.3	728.1	302.14	3.410	
14,200.0	6,097.0	13,880.2	5,811.0	158.2	154.9	73.95	-8,206.6	-1,203.0	1,030.3	724.4	305.82	3.369	

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1301A - HZ - Plan #3												Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor	Warning
14,235.6	6,097.0	13,915.9	5,811.0	158.9	155.6	73.95	-8,242.3	-1,203.0	1,030.2	723.1	307.13	3.354 SF	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1302B - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance					Separation Factor	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)	Total Uncertainty Axis			
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	0.0	-66.1	66.1					
100.0	100.0	98.8	98.8	0.1	0.1	-89.99	0.0	-66.1	66.1	65.9	0.18	358.127		
200.0	200.0	198.8	198.8	0.3	0.3	-89.99	0.0	-66.1	66.1	65.5	0.63	104.487		
300.0	300.0	298.8	298.8	0.5	0.5	-89.99	0.0	-66.1	66.1	65.0	1.08	61.077		
400.0	400.0	398.8	398.8	0.8	0.8	-89.99	0.0	-66.1	66.1	64.6	1.53	43.150		
500.0	500.0	498.8	498.8	1.0	1.0	-89.99	0.0	-66.1	66.1	64.1	1.98	33.359		
600.0	600.0	598.8	598.8	1.2	1.2	-89.99	0.0	-66.1	66.1	63.7	2.43	27.189		
700.0	700.0	698.8	698.8	1.4	1.4	-28.06	0.0	-66.1	64.9	62.0	2.88	22.512		
800.0	799.9	798.7	798.7	1.7	1.7	-29.81	0.0	-66.1	61.5	58.2	3.34	18.430		
894.8	894.5	893.3	893.3	1.9	1.9	-32.96	0.0	-66.1	56.3	52.5	3.77	14.919		
900.0	899.7	898.5	898.5	1.9	1.9	-33.18	0.0	-66.1	55.9	52.1	3.79	14.739		
1,000.0	999.4	998.2	998.2	2.1	2.1	-38.05	0.0	-66.1	49.6	45.4	4.24	11.698		
1,100.0	1,099.1	1,097.9	1,097.9	2.4	2.3	-44.27	0.0	-66.1	43.8	39.1	4.70	9.321		
1,200.0	1,198.8	1,197.6	1,197.6	2.6	2.6	-52.26	0.0	-66.1	38.7	33.5	5.17	7.480		
1,300.0	1,298.5	1,296.2	1,296.2	2.9	2.8	-63.18	-1.3	-67.0	36.0	30.4	5.62	6.407		
1,306.2	1,304.7	1,302.3	1,302.3	2.9	2.8	-63.96	-1.5	-67.1	36.0	30.4	5.65	6.371 CC, ES		
1,400.0	1,398.2	1,394.6	1,394.4	3.1	2.9	-75.90	-5.4	-69.9	38.3	32.2	6.06	6.315		
1,500.0	1,497.9	1,494.0	1,493.6	3.4	3.1	-86.67	-11.1	-73.8	44.1	37.6	6.51	6.780		
1,600.0	1,597.6	1,593.6	1,592.9	3.6	3.3	-94.73	-16.8	-77.8	51.2	44.2	6.95	7.357		
1,700.0	1,697.3	1,693.1	1,692.2	3.9	3.5	-100.75	-22.5	-81.8	59.0	51.6	7.40	7.965		
1,800.0	1,797.0	1,792.6	1,791.5	4.1	3.7	-105.34	-28.2	-85.8	67.2	59.4	7.85	8.563		
1,900.0	1,896.7	1,892.1	1,890.8	4.4	4.0	-108.91	-33.8	-89.8	75.9	67.6	8.31	9.127		
2,000.0	1,996.4	1,991.7	1,990.1	4.7	4.2	-111.74	-39.5	-93.7	84.7	76.0	8.78	9.654		
2,100.0	2,096.1	2,091.2	2,089.4	4.9	4.4	-114.03	-45.2	-97.7	93.7	84.5	9.24	10.143		
2,200.0	2,195.8	2,190.7	2,188.6	5.2	4.7	-115.91	-50.9	-101.7	102.9	93.2	9.71	10.595		
2,300.0	2,295.5	2,290.3	2,287.9	5.5	4.9	-117.49	-56.6	-105.7	112.1	101.9	10.18	11.010		
2,400.0	2,395.2	2,389.8	2,387.2	5.7	5.1	-118.83	-62.3	-109.6	121.4	110.8	10.66	11.393		
2,500.0	2,494.9	2,489.3	2,486.5	6.0	5.4	-119.97	-68.0	-113.6	130.8	119.7	11.14	11.746		
2,600.0	2,594.6	2,588.8	2,585.8	6.2	5.6	-120.96	-73.7	-117.6	140.2	128.6	11.62	12.072		
2,700.0	2,694.3	2,688.4	2,685.1	6.5	5.9	-121.83	-79.4	-121.6	149.7	137.6	12.10	12.373		
2,800.0	2,794.0	2,787.9	2,784.4	6.8	6.1	-122.60	-85.1	-125.5	159.1	146.6	12.58	12.651		
2,900.0	2,893.7	2,887.4	2,883.6	7.0	6.4	-123.27	-90.7	-129.5	168.6	155.6	13.06	12.910		
3,000.0	2,993.4	2,987.0	2,982.9	7.3	6.6	-123.88	-96.4	-133.5	178.2	164.6	13.55	13.151		
3,100.0	3,093.1	3,086.5	3,082.2	7.6	6.9	-124.42	-102.1	-137.5	187.7	173.7	14.03	13.375		
3,200.0	3,192.8	3,186.0	3,181.5	7.8	7.1	-124.92	-107.8	-141.5	197.3	182.7	14.52	13.584		
3,300.0	3,292.5	3,285.5	3,280.8	8.1	7.4	-125.36	-113.5	-145.4	206.8	191.8	15.01	13.779		
3,400.0	3,392.3	3,385.1	3,380.1	8.4	7.6	-125.77	-119.2	-149.4	216.4	200.9	15.50	13.962		
3,500.0	3,492.0	3,484.6	3,479.4	8.6	7.9	-126.14	-124.9	-153.4	226.0	210.0	15.99	14.134		
3,600.0	3,591.7	3,584.1	3,578.7	8.9	8.1	-126.48	-130.6	-157.4	235.6	219.1	16.48	14.296		
3,700.0	3,691.4	3,683.7	3,677.9	9.2	8.4	-126.80	-136.3	-161.3	245.2	228.2	16.97	14.448		
3,714.2	3,705.5	3,697.8	3,692.0	9.2	8.4	-126.84	-137.1	-161.9	246.6	229.5	17.04	14.469		
3,800.0	3,791.1	3,783.3	3,777.3	9.4	8.6	-127.01	-142.0	-165.3	254.2	236.8	17.44	14.580		
3,900.0	3,891.0	3,883.0	3,876.7	9.6	8.9	-126.75	-147.7	-169.3	261.7	243.9	17.86	14.657		
4,009.0	4,000.0	3,991.7	3,985.2	9.8	9.2	171.57	-153.9	-173.7	268.1	249.8	18.34	14.622		
4,100.0	4,091.0	4,082.5	4,075.8	9.9	9.4	172.49	-159.1	-177.3	272.8	254.0	18.73	14.565		
4,200.0	4,191.0	4,182.2	4,175.3	10.1	9.7	173.46	-164.8	-181.3	278.0	258.8	19.17	14.497		
4,300.0	4,291.0	4,282.0	4,274.8	10.3	9.9	174.39	-170.5	-185.3	283.2	263.6	19.62	14.437		
4,400.0	4,391.0	4,381.7	4,374.3	10.5	10.2	175.29	-176.2	-189.2	288.6	268.5	20.06	14.383		
4,500.0	4,491.0	4,481.5	4,473.8	10.7	10.4	176.16	-181.9	-193.2	294.0	273.5	20.51	14.334		
4,600.0	4,591.0	4,581.2	4,573.3	10.9	10.7	176.99	-187.6	-197.2	299.5	278.5	20.95	14.291		
4,700.0	4,691.0	4,681.0	4,672.9	11.1	11.0	177.80	-193.3	-201.2	305.0	283.6	21.40	14.253		
4,800.0	4,791.0	4,780.8	4,772.4	11.3	11.2	178.57	-199.0	-205.2	310.6	288.7	21.84	14.218		

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1302B - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 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)	Total Uncertainty Axis	Separation Factor		
4,900.0	4,891.0	4,880.5	4,871.9	11.5	11.5	179.32	-204.7	-209.2	316.2	293.9	22.29	14.187		
5,000.0	4,991.0	4,980.3	4,971.4	11.7	11.7	-179.95	-210.4	-213.2	321.9	299.2	22.74	14.160		
5,100.0	5,091.0	5,080.0	5,070.9	11.9	12.0	-179.26	-216.1	-217.1	327.7	304.5	23.18	14.136		
5,200.0	5,191.0	5,179.8	5,170.4	12.1	12.3	-178.58	-221.8	-221.1	333.5	309.9	23.63	14.115		
5,300.0	5,291.0	5,279.5	5,269.9	12.3	12.5	-177.93	-227.5	-225.1	339.3	315.3	24.07	14.096		
5,400.0	5,391.0	5,379.3	5,369.4	12.5	12.8	-177.31	-233.2	-229.1	345.2	320.7	24.52	14.079		
5,500.0	5,491.0	5,464.1	5,453.9	12.7	13.0	-176.73	-238.6	-232.9	352.0	327.1	24.94	14.116		
5,585.1	5,576.1	5,516.8	5,505.9	12.9	13.2	-175.98	-245.9	-238.0	364.4	339.1	25.26	14.425		
5,600.0	5,591.0	5,525.9	5,514.7	12.9	13.2	4.17	-247.6	-239.2	367.1	342.0	25.14	14.604		
5,650.0	5,640.9	5,550.0	5,538.0	13.0	13.3	4.62	-252.7	-242.7	375.0	349.6	25.40	14.765		
5,700.0	5,690.1	5,585.9	5,572.1	13.1	13.5	5.50	-262.0	-249.2	380.5	355.0	25.53	14.903		
5,750.0	5,738.3	5,615.4	5,599.5	13.1	13.7	6.37	-271.0	-255.5	384.1	358.7	25.43	15.105		
5,800.0	5,785.0	5,650.0	5,630.7	13.2	13.9	7.61	-283.2	-264.0	385.8	360.7	25.12	15.361		
5,850.0	5,829.8	5,673.1	5,651.0	13.3	14.0	8.57	-292.2	-270.3	385.5	360.9	24.56	15.694		
5,900.0	5,872.2	5,700.0	5,674.0	13.3	14.2	9.84	-303.7	-278.3	383.4	359.6	23.82	16.097		
5,950.0	5,911.9	5,728.8	5,697.8	13.4	14.4	11.41	-317.0	-287.7	379.7	356.8	22.92	16.567		
6,000.0	5,948.5	5,750.0	5,714.6	13.5	14.6	12.73	-327.5	-295.0	374.6	352.7	21.86	17.134		
6,050.0	5,981.7	5,782.6	5,739.6	13.6	14.8	14.98	-344.7	-307.0	368.0	347.1	20.82	17.674		
6,100.0	6,011.2	5,800.0	5,752.3	13.7	15.0	16.43	-354.4	-313.8	360.5	340.8	19.70	18.300		
6,150.0	6,036.6	5,834.4	5,776.3	13.9	15.3	19.42	-374.6	-327.9	351.7	332.7	18.97	18.537		
6,200.0	6,057.8	5,850.0	5,786.7	14.1	15.5	21.11	-384.2	-334.6	342.7	324.4	18.29	18.740		
6,250.0	6,074.6	5,884.3	5,808.2	14.4	15.8	24.80	-406.1	-349.9	332.9	314.3	18.62	17.882		
6,300.0	6,086.8	5,900.0	5,817.4	14.8	16.0	26.90	-416.5	-357.2	323.5	304.5	19.00	17.033		
6,350.0	6,094.3	5,932.4	5,835.2	15.2	16.4	31.10	-438.7	-372.7	314.2	293.5	20.72	15.163		
6,403.3	6,097.0	5,950.0	5,844.2	15.7	16.6	33.80	-451.1	-381.4	305.6	283.3	22.32	13.693		
6,474.3	6,097.0	5,991.6	5,863.3	16.4	17.1	39.20	-481.3	-402.5	300.0	274.8	25.19	11.911		
6,500.0	6,097.0	6,000.0	5,866.8	16.7	17.2	40.27	-487.6	-406.9	300.7	274.8	25.84	11.636		
6,600.0	6,097.0	6,057.4	5,887.4	17.9	18.0	47.15	-531.5	-437.6	315.5	285.8	29.67	10.633		
6,700.0	6,097.0	6,114.0	5,901.8	19.2	18.8	52.85	-576.4	-468.9	346.6	313.4	33.15	10.454		
6,800.0	6,097.0	6,173.3	5,910.5	20.7	19.7	57.38	-624.4	-502.5	389.1	352.7	36.37	10.698		
6,900.0	6,097.0	6,243.8	5,912.5	22.1	20.8	60.94	-682.2	-542.7	439.0	399.5	39.51	11.111		
7,000.0	6,097.0	6,352.2	5,912.5	23.7	22.4	64.73	-773.5	-601.1	488.5	445.3	43.15	11.321		
7,100.0	6,097.0	6,468.5	5,912.5	25.3	24.1	67.62	-875.0	-657.9	534.1	487.3	46.76	11.422		
7,200.0	6,097.0	6,592.8	5,912.5	26.9	25.9	69.82	-987.0	-711.6	574.9	524.5	50.47	11.390		
7,300.0	6,097.0	6,724.5	5,912.5	28.6	27.9	71.50	-1,109.3	-760.5	610.2	555.9	54.33	11.232		
7,400.0	6,097.0	6,863.1	5,912.5	30.3	30.1	72.74	-1,241.3	-802.7	639.4	581.1	58.31	10.965		
7,500.0	6,097.0	7,007.6	5,912.5	32.1	32.3	73.62	-1,381.8	-836.4	661.8	599.4	62.39	10.606		
7,600.0	6,097.0	7,156.6	5,912.5	33.8	34.6	74.18	-1,528.9	-859.9	677.0	610.4	66.54	10.174		
7,700.0	6,097.0	7,308.4	5,912.5	35.6	36.9	74.46	-1,680.2	-872.0	684.6	613.9	70.69	9.685		
7,800.0	6,097.0	7,434.9	5,912.5	37.4	38.8	74.49	-1,806.6	-873.5	685.6	611.2	74.41	9.213		
7,900.0	6,097.0	7,534.9	5,912.5	39.1	40.3	74.49	-1,906.6	-873.5	685.6	607.8	77.76	8.817		
8,000.0	6,097.0	7,634.9	5,912.5	41.0	41.9	74.49	-2,006.6	-873.5	685.6	604.5	81.13	8.450		
8,100.0	6,097.0	7,734.9	5,912.5	42.8	43.4	74.49	-2,106.6	-873.5	685.6	601.1	84.54	8.110		
8,200.0	6,097.0	7,834.9	5,912.5	44.6	45.1	74.49	-2,206.6	-873.5	685.6	597.6	87.97	7.793		
8,300.0	6,097.0	7,934.9	5,912.5	46.4	46.7	74.49	-2,306.6	-873.5	685.6	594.2	91.43	7.499		
8,400.0	6,097.0	8,034.9	5,912.4	48.3	48.3	74.49	-2,406.6	-873.5	685.6	590.7	94.90	7.224		
8,500.0	6,097.0	8,134.9	5,912.4	50.1	50.0	74.49	-2,506.6	-873.5	685.6	587.2	98.40	6.967		
8,600.0	6,097.0	8,234.9	5,912.4	52.0	51.7	74.49	-2,606.6	-873.5	685.6	583.7	101.91	6.727		
8,700.0	6,097.0	8,334.9	5,912.4	53.8	53.4	74.49	-2,706.6	-873.5	685.6	580.1	105.43	6.502		
8,800.0	6,097.0	8,434.9	5,912.4	55.7	55.1	74.48	-2,806.6	-873.5	685.6	576.6	108.97	6.291		
8,900.0	6,097.0	8,534.9	5,912.4	57.5	56.8	74.48	-2,906.6	-873.5	685.6	573.0	112.52	6.093		
9,000.0	6,097.0	8,634.9	5,912.4	59.4	58.6	74.48	-3,006.6	-873.5	685.6	569.5	116.09	5.906		

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1302B - HZ - Plan #3												Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor	Warning
9,100.0	6,097.0	8,734.9	5,912.4	61.3	60.3	74.48	-3,106.6	-873.5	685.6	565.9	119.66	5.729	
9,200.0	6,097.0	8,834.9	5,912.4	63.2	62.1	74.48	-3,206.6	-873.5	685.6	562.3	123.24	5.563	
9,300.0	6,097.0	8,934.9	5,912.4	65.0	63.9	74.48	-3,306.6	-873.5	685.6	558.7	126.82	5.406	
9,400.0	6,097.0	9,034.9	5,912.4	66.9	65.7	74.48	-3,406.6	-873.5	685.6	555.1	130.42	5.257	
9,500.0	6,097.0	9,134.9	5,912.4	68.8	67.5	74.48	-3,506.6	-873.5	685.6	551.5	134.02	5.115	
9,600.0	6,097.0	9,234.9	5,912.4	70.7	69.2	74.48	-3,606.6	-873.5	685.6	547.9	137.63	4.981	
9,700.0	6,097.0	9,334.9	5,912.3	72.6	71.1	74.48	-3,706.6	-873.5	685.5	544.3	141.24	4.854	
9,800.0	6,097.0	9,434.9	5,912.3	74.4	72.9	74.48	-3,806.6	-873.5	685.5	540.7	144.86	4.732	
9,900.0	6,097.0	9,534.9	5,912.3	76.3	74.7	74.48	-3,906.6	-873.5	685.5	537.1	148.49	4.617	
10,000.0	6,097.0	9,634.9	5,912.3	78.2	76.5	74.48	-4,006.6	-873.4	685.5	533.4	152.12	4.507	
10,100.0	6,097.0	9,734.9	5,912.3	80.1	78.3	74.48	-4,106.6	-873.4	685.5	529.8	155.75	4.402	
10,200.0	6,097.0	9,834.9	5,912.3	82.0	80.1	74.47	-4,206.6	-873.4	685.5	526.1	159.39	4.301	
10,300.0	6,097.0	9,934.9	5,912.3	83.9	82.0	74.47	-4,306.6	-873.4	685.5	522.5	163.03	4.205	
10,400.0	6,097.0	10,034.9	5,912.3	85.8	83.8	74.47	-4,406.6	-873.4	685.5	518.9	166.67	4.113	
10,500.0	6,097.0	10,134.9	5,912.3	87.7	85.7	74.47	-4,506.6	-873.4	685.5	515.2	170.32	4.025	
10,600.0	6,097.0	10,234.9	5,912.3	89.6	87.5	74.47	-4,606.6	-873.4	685.5	511.6	173.97	3.940	
10,700.0	6,097.0	10,334.9	5,912.3	91.5	89.4	74.47	-4,706.6	-873.4	685.5	507.9	177.62	3.859	
10,800.0	6,097.0	10,434.9	5,912.3	93.4	91.2	74.47	-4,806.6	-873.4	685.5	504.2	181.28	3.782	
10,900.0	6,097.0	10,534.9	5,912.3	95.3	93.1	74.47	-4,906.6	-873.4	685.5	500.6	184.94	3.707	
11,000.0	6,097.0	10,634.9	5,912.2	97.2	94.9	74.47	-5,006.6	-873.4	685.5	496.9	188.60	3.635	
11,100.0	6,097.0	10,734.9	5,912.2	99.1	96.8	74.47	-5,106.6	-873.4	685.5	493.3	192.26	3.566	
11,200.0	6,097.0	10,834.9	5,912.2	101.0	98.6	74.47	-5,206.6	-873.4	685.5	489.6	195.93	3.499	
11,300.0	6,097.0	10,934.9	5,912.2	102.9	100.5	74.47	-5,306.6	-873.4	685.5	485.9	199.59	3.435	
11,400.0	6,097.0	11,034.9	5,912.2	104.8	102.4	74.47	-5,406.6	-873.4	685.5	482.2	203.26	3.373	
11,500.0	6,097.0	11,134.9	5,912.2	106.7	104.2	74.47	-5,506.6	-873.4	685.5	478.6	206.93	3.313	
11,600.0	6,097.0	11,234.9	5,912.2	108.6	106.1	74.46	-5,606.6	-873.4	685.5	474.9	210.60	3.255	
11,700.0	6,097.0	11,334.9	5,912.2	110.5	108.0	74.46	-5,706.6	-873.4	685.5	471.2	214.28	3.199	
11,800.0	6,097.0	11,434.9	5,912.2	112.4	109.9	74.46	-5,806.6	-873.4	685.5	467.5	217.95	3.145	
11,900.0	6,097.0	11,534.9	5,912.2	114.3	111.7	74.46	-5,906.6	-873.4	685.5	463.9	221.63	3.093	
12,000.0	6,097.0	11,634.9	5,912.2	116.2	113.6	74.46	-6,006.6	-873.4	685.5	460.2	225.30	3.043	
12,100.0	6,097.0	11,734.9	5,912.2	118.1	115.5	74.46	-6,106.6	-873.4	685.5	456.5	228.98	2.994	
12,200.0	6,097.0	11,834.9	5,912.2	120.0	117.4	74.46	-6,206.6	-873.3	685.5	452.8	232.66	2.946	
12,300.0	6,097.0	11,934.9	5,912.1	121.9	119.3	74.46	-6,306.6	-873.3	685.5	449.1	236.34	2.900	
12,400.0	6,097.0	12,034.9	5,912.1	123.8	121.1	74.46	-6,406.6	-873.3	685.5	445.5	240.02	2.856	
12,500.0	6,097.0	12,134.9	5,912.1	125.8	123.0	74.46	-6,506.6	-873.3	685.5	441.8	243.71	2.813	
12,600.0	6,097.0	12,234.9	5,912.1	127.7	124.9	74.46	-6,606.6	-873.3	685.5	438.1	247.39	2.771	
12,700.0	6,097.0	12,334.9	5,912.1	129.6	126.8	74.46	-6,706.6	-873.3	685.5	434.4	251.08	2.730	
12,800.0	6,097.0	12,434.9	5,912.1	131.5	128.7	74.46	-6,806.6	-873.3	685.5	430.7	254.76	2.691	
12,900.0	6,097.0	12,534.9	5,912.1	133.4	130.6	74.46	-6,906.6	-873.3	685.5	427.0	258.45	2.652	
13,000.0	6,097.0	12,634.9	5,912.1	135.3	132.5	74.45	-7,006.6	-873.3	685.5	423.3	262.14	2.615	
13,100.0	6,097.0	12,734.9	5,912.1	137.2	134.4	74.45	-7,106.6	-873.3	685.5	419.6	265.83	2.579	
13,200.0	6,097.0	12,834.9	5,912.1	139.1	136.2	74.45	-7,206.6	-873.3	685.5	415.9	269.51	2.543	
13,300.0	6,097.0	12,934.9	5,912.1	141.0	138.1	74.45	-7,306.6	-873.3	685.5	412.2	273.20	2.509	
13,400.0	6,097.0	13,034.9	5,912.1	142.9	140.0	74.45	-7,406.6	-873.3	685.4	408.6	276.89	2.475	
13,500.0	6,097.0	13,134.9	5,912.1	144.8	141.9	74.45	-7,506.6	-873.3	685.4	404.9	280.59	2.443	
13,600.0	6,097.0	13,234.9	5,912.0	146.8	143.8	74.45	-7,606.6	-873.3	685.4	401.2	284.28	2.411	
13,700.0	6,097.0	13,334.9	5,912.0	148.7	145.7	74.45	-7,706.6	-873.3	685.4	397.5	287.97	2.380	
13,800.0	6,097.0	13,434.9	5,912.0	150.6	147.6	74.45	-7,806.6	-873.3	685.4	393.8	291.66	2.350	
13,900.0	6,097.0	13,534.9	5,912.0	152.5	149.5	74.45	-7,906.6	-873.3	685.4	390.1	295.36	2.321	
14,000.0	6,097.0	13,634.9	5,912.0	154.4	151.4	74.45	-8,006.6	-873.3	685.4	386.4	299.05	2.292	
14,100.0	6,097.0	13,734.9	5,912.0	156.3	153.3	74.45	-8,106.6	-873.3	685.4	382.7	302.74	2.264	
14,200.0	6,097.0	13,834.9	5,912.0	158.2	155.1	74.45	-8,206.6	-873.3	685.4	379.1	306.32	2.238	

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1302B - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor	Warning	
14,235.6	6,097.0	13,870.5	5,912.0	158.9	155.6	74.45	-8,242.2	-873.3	685.4	377.9	307.52	2.229 SF		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1303A - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
0.0	0.0	0.0	0.0	0.0	0.0	-89.97	0.0	-33.0	33.1					
100.0	100.0	98.8	98.8	0.1	0.1	-89.97	0.0	-33.0	33.0	32.9	0.18	179.062		
200.0	200.0	198.8	198.8	0.3	0.3	-89.97	0.0	-33.0	33.0	32.4	0.63	52.244		
300.0	300.0	298.8	298.8	0.5	0.5	-89.97	0.0	-33.0	33.0	32.0	1.08	30.539		
400.0	400.0	398.8	398.8	0.8	0.8	-89.97	0.0	-33.0	33.0	31.5	1.53	21.575		
500.0	500.0	498.8	498.8	1.0	1.0	-89.97	0.0	-33.0	33.0	31.1	1.98	16.680 CC, ES		
600.0	600.0	598.3	598.3	1.2	1.2	-92.58	-1.5	-33.7	33.8	31.4	2.40	14.041		
700.0	700.0	697.5	697.4	1.4	1.4	-38.63	-6.2	-35.8	35.3	32.5	2.82	12.545		
800.0	799.9	797.2	796.8	1.7	1.6	-51.24	-12.6	-38.6	37.2	33.9	3.24	11.478		
894.8	894.5	891.5	890.9	1.9	1.8	-64.72	-18.6	-41.3	39.3	35.7	3.65	10.781		
900.0	899.7	896.7	896.0	1.9	1.8	-65.50	-18.9	-41.4	39.5	35.8	3.67	10.757		
1,000.0	999.4	996.1	995.2	2.1	2.0	-79.06	-25.2	-44.2	43.7	39.6	4.11	10.632		
1,100.0	1,099.1	1,095.5	1,094.4	2.4	2.3	-89.78	-31.6	-47.0	49.9	45.3	4.56	10.938		
1,200.0	1,198.8	1,195.0	1,193.6	2.6	2.5	-97.93	-37.9	-49.9	57.4	52.4	5.02	11.429		
1,300.0	1,298.5	1,294.4	1,292.8	2.9	2.8	-104.10	-44.3	-52.7	65.8	60.3	5.49	11.980		
1,400.0	1,398.2	1,393.8	1,392.0	3.1	3.0	-108.84	-50.6	-55.5	74.8	68.9	5.97	12.535		
1,500.0	1,497.9	1,493.2	1,491.1	3.4	3.3	-112.54	-56.9	-58.3	84.2	77.8	6.45	13.063		
1,600.0	1,597.6	1,592.7	1,590.3	3.6	3.5	-115.49	-63.3	-61.1	93.9	87.0	6.93	13.554		
1,700.0	1,697.3	1,692.1	1,689.5	3.9	3.8	-117.89	-69.6	-63.9	103.8	96.4	7.41	14.005		
1,800.0	1,797.0	1,791.5	1,788.7	4.1	4.0	-119.87	-76.0	-66.7	113.8	105.9	7.90	14.417		
1,900.0	1,896.7	1,890.9	1,887.9	4.4	4.3	-121.52	-82.3	-69.5	124.0	115.6	8.38	14.792		
2,000.0	1,996.4	1,990.4	1,987.1	4.7	4.6	-122.93	-88.7	-72.3	134.2	125.3	8.87	15.135		
2,100.0	2,096.1	2,089.8	2,086.2	4.9	4.8	-124.13	-95.0	-75.1	144.5	135.2	9.35	15.447		
2,200.0	2,195.8	2,189.2	2,185.4	5.2	5.1	-125.18	-101.3	-78.0	154.9	145.0	9.84	15.734		
2,300.0	2,295.5	2,288.6	2,284.6	5.5	5.3	-126.09	-107.7	-80.8	165.3	154.9	10.33	15.996		
2,400.0	2,395.2	2,388.1	2,383.8	5.7	5.6	-126.90	-114.0	-83.6	175.7	164.9	10.82	16.237		
2,500.0	2,494.9	2,487.5	2,483.0	6.0	5.9	-127.61	-120.4	-86.4	186.2	174.9	11.31	16.460		
2,600.0	2,594.6	2,586.9	2,582.2	6.2	6.1	-128.25	-126.7	-89.2	196.7	184.9	11.80	16.666		
2,700.0	2,694.3	2,686.3	2,681.3	6.5	6.4	-128.83	-133.0	-92.0	207.2	194.9	12.29	16.856		
2,800.0	2,794.0	2,785.8	2,780.5	6.8	6.6	-129.34	-139.4	-94.8	217.7	204.9	12.78	17.033		
2,900.0	2,893.7	2,885.2	2,879.7	7.0	6.9	-129.81	-145.7	-97.6	228.3	215.0	13.27	17.198		
3,000.0	2,993.4	2,984.6	2,978.9	7.3	7.2	-130.24	-152.1	-100.4	238.8	225.1	13.76	17.351		
3,100.0	3,093.1	3,084.0	3,078.1	7.6	7.4	-130.64	-158.4	-103.2	249.4	235.1	14.26	17.495		
3,200.0	3,192.8	3,183.5	3,177.3	7.8	7.7	-131.00	-164.7	-106.1	260.0	245.2	14.75	17.629		
3,300.0	3,292.5	3,282.9	3,276.4	8.1	7.9	-131.33	-171.1	-108.9	270.6	255.3	15.24	17.755		
3,400.0	3,392.3	3,382.3	3,375.6	8.4	8.2	-131.64	-177.4	-111.7	281.2	265.4	15.73	17.874		
3,500.0	3,492.0	3,481.7	3,474.8	8.6	8.5	-131.92	-183.8	-114.5	291.8	275.6	16.22	17.986		
3,600.0	3,591.7	3,581.2	3,574.0	8.9	8.7	-132.19	-190.1	-117.3	302.4	285.7	16.72	18.091		
3,700.0	3,691.4	3,680.6	3,673.2	9.2	9.0	-132.43	-196.4	-120.1	313.0	295.8	17.21	18.191		
3,714.2	3,705.5	3,694.7	3,687.3	9.2	9.0	-132.47	-197.3	-120.5	314.5	297.3	17.28	18.205		
3,800.0	3,791.1	3,780.1	3,772.4	9.4	9.2	-132.63	-202.8	-122.9	323.0	305.3	17.68	18.270		
3,900.0	3,891.0	3,879.7	3,871.8	9.6	9.5	-132.49	-209.1	-125.7	331.2	313.1	18.10	18.299		
4,009.0	4,000.0	3,988.4	3,980.3	9.8	9.8	165.58	-216.1	-128.8	338.2	319.6	18.60	18.184		
4,100.0	4,091.0	4,079.2	4,070.8	9.9	10.0	166.24	-221.9	-131.4	343.2	324.2	18.99	18.073		
4,200.0	4,191.0	4,179.0	4,170.4	10.1	10.3	166.94	-228.2	-134.2	348.8	329.4	19.44	17.944		
4,300.0	4,291.0	4,278.7	4,269.9	10.3	10.6	167.62	-234.6	-137.0	354.4	334.5	19.88	17.823		
4,400.0	4,391.0	4,378.5	4,369.4	10.5	10.8	168.27	-241.0	-139.8	360.0	339.7	20.33	17.710		
4,500.0	4,491.0	4,478.3	4,468.9	10.7	11.1	168.91	-247.3	-142.6	365.7	345.0	20.78	17.604		
4,600.0	4,591.0	4,578.0	4,568.4	10.9	11.4	169.52	-253.7	-145.5	371.5	350.3	21.22	17.504		
4,700.0	4,691.0	4,677.8	4,667.9	11.1	11.6	170.12	-260.0	-148.3	377.3	355.6	21.67	17.409		
4,800.0	4,791.0	4,777.5	4,767.4	11.3	11.9	170.70	-266.4	-151.1	383.1	361.0	22.12	17.320		
4,900.0	4,891.0	4,877.3	4,867.0	11.5	12.1	171.26	-272.8	-153.9	388.9	366.4	22.57	17.237		

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1303A - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 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)	Total Uncertainty Axis	Separation Factor		
5,000.0	4,991.0	4,977.0	4,966.5	11.7	12.4	171.81	-279.1	-156.7	394.8	371.8	23.01	17.157		
5,100.0	5,091.0	5,076.8	5,066.0	11.9	12.7	172.34	-285.5	-159.6	400.8	377.3	23.46	17.082		
5,200.0	5,191.0	5,176.6	5,165.5	12.1	12.9	172.85	-291.9	-162.4	406.7	382.8	23.91	17.011		
5,300.0	5,291.0	5,276.3	5,265.0	12.3	13.2	173.35	-298.2	-165.2	412.7	388.4	24.36	16.944		
5,400.0	5,391.0	5,360.4	5,348.9	12.5	13.4	173.79	-304.0	-167.8	419.5	394.7	24.77	16.931		
5,500.0	5,491.0	5,418.0	5,405.6	12.7	13.6	174.45	-312.8	-171.7	434.1	408.9	25.15	17.260		
5,585.1	5,576.1	5,464.9	5,450.8	12.9	13.8	175.25	-324.2	-176.7	454.0	428.5	25.48	17.817		
5,600.0	5,591.0	5,472.9	5,458.4	12.9	13.9	-4.56	-326.5	-177.8	457.9	432.6	25.34	18.075		
5,650.0	5,640.9	5,500.0	5,483.8	13.0	14.0	-3.91	-335.1	-181.6	469.8	444.2	25.58	18.367		
5,700.0	5,690.1	5,526.2	5,507.8	13.1	14.2	-3.29	-344.5	-185.8	479.2	453.6	25.69	18.654		
5,750.0	5,738.3	5,550.0	5,529.3	13.1	14.3	-2.72	-354.1	-190.0	486.4	460.8	25.57	19.021		
5,800.0	5,785.0	5,578.8	5,554.4	13.2	14.5	-2.01	-366.8	-195.7	491.2	466.0	25.24	19.461		
5,850.0	5,829.8	5,600.0	5,572.5	13.3	14.7	-1.47	-377.0	-200.2	493.8	469.1	24.66	20.022		
5,900.0	5,872.2	5,630.6	5,597.7	13.3	14.9	-0.66	-392.8	-207.2	494.0	470.1	23.89	20.674		
5,950.0	5,911.9	5,650.0	5,613.2	13.4	15.1	-0.10	-403.5	-212.0	492.0	469.1	22.88	21.502		
6,000.0	5,948.5	5,681.5	5,637.3	13.5	15.3	0.87	-422.1	-220.3	487.7	466.0	21.71	22.459		
6,050.0	5,981.7	5,700.0	5,650.9	13.6	15.5	1.50	-433.5	-225.4	481.3	461.0	20.33	23.671		
6,100.0	6,011.2	5,731.6	5,673.0	13.7	15.8	2.68	-454.2	-234.5	472.6	453.8	18.86	25.061		
6,150.0	6,036.6	5,750.0	5,685.2	13.9	16.0	3.46	-466.7	-240.1	462.1	444.8	17.25	26.783		
6,200.0	6,057.8	5,780.9	5,704.6	14.1	16.3	4.90	-488.6	-249.9	449.4	433.7	15.71	28.602		
6,250.0	6,074.6	5,800.0	5,715.9	14.4	16.6	5.98	-502.7	-256.2	434.9	420.7	14.24	30.534		
6,300.0	6,086.8	5,829.3	5,732.1	14.8	16.9	7.77	-525.0	-266.1	418.5	405.3	13.27	31.529		
6,350.0	6,094.3	5,850.0	5,742.7	15.2	17.1	9.34	-541.3	-273.3	400.6	387.7	12.88	31.091		
6,403.3	6,097.0	5,878.5	5,756.2	15.7	17.5	11.74	-564.2	-283.5	379.7	366.0	13.66	27.788		
6,500.0	6,097.0	5,926.1	5,775.5	16.7	18.1	15.42	-604.0	-301.2	346.2	330.2	16.04	21.592		
6,600.0	6,097.0	5,979.3	5,792.2	17.9	18.9	19.72	-650.0	-321.7	325.4	306.4	18.99	17.132		
6,686.9	6,097.0	6,028.1	5,803.0	19.1	19.6	23.64	-693.5	-341.1	319.6	297.7	21.88	14.606		
6,700.0	6,097.0	6,035.6	5,804.3	19.2	19.7	24.22	-700.3	-344.1	319.7	297.4	22.32	14.322		
6,800.0	6,097.0	6,100.0	5,810.7	20.7	20.7	28.87	-758.8	-370.1	329.0	303.0	26.03	12.642		
6,900.0	6,097.0	6,177.2	5,811.1	22.1	21.8	33.41	-829.7	-400.7	349.6	319.7	29.98	11.662		
7,000.0	6,097.0	6,283.0	5,811.1	23.7	23.3	38.34	-928.6	-438.1	371.3	336.7	34.54	10.748		
7,100.0	6,097.0	6,393.0	5,811.1	25.3	24.8	42.20	-1,033.6	-471.0	391.2	352.4	38.81	10.080		
7,200.0	6,097.0	6,506.7	5,811.1	26.9	26.5	45.11	-1,143.8	-498.7	408.3	365.4	42.83	9.533		
7,300.0	6,097.0	6,623.5	5,811.1	28.6	28.2	47.19	-1,258.6	-520.2	421.7	375.1	46.62	9.046		
7,400.0	6,097.0	6,742.5	5,811.1	30.3	30.0	48.52	-1,376.7	-534.9	430.9	380.7	50.16	8.590		
7,500.0	6,097.0	6,862.9	5,811.1	32.1	31.9	49.16	-1,496.8	-542.3	435.5	382.1	53.43	8.150		
7,600.0	6,097.0	6,972.7	5,811.1	33.8	33.6	49.23	-1,606.6	-543.1	436.0	379.7	56.31	7.744		
7,700.0	6,097.0	7,072.7	5,811.1	35.6	35.2	49.23	-1,706.6	-543.1	436.0	376.9	59.08	7.381		
7,800.0	6,097.0	7,172.7	5,811.1	37.4	36.8	49.23	-1,806.6	-543.1	436.0	374.1	61.88	7.046		
7,900.0	6,097.0	7,272.7	5,811.1	39.1	38.5	49.23	-1,906.6	-543.1	436.0	371.3	64.71	6.738		
8,000.0	6,097.0	7,372.7	5,811.1	41.0	40.2	49.23	-2,006.6	-543.1	436.0	368.5	67.55	6.454		
8,100.0	6,097.0	7,472.7	5,811.1	42.8	41.9	49.23	-2,106.6	-543.1	436.0	365.6	70.42	6.191		
8,200.0	6,097.0	7,572.7	5,811.1	44.6	43.7	49.23	-2,206.6	-543.1	436.0	362.7	73.30	5.948		
8,300.0	6,097.0	7,672.7	5,811.1	46.4	45.4	49.23	-2,306.6	-543.1	436.0	359.8	76.20	5.722		
8,400.0	6,097.0	7,772.7	5,811.1	48.3	47.2	49.23	-2,406.6	-543.1	436.0	356.9	79.11	5.511		
8,500.0	6,097.0	7,872.7	5,811.1	50.1	49.0	49.23	-2,506.6	-543.1	436.0	354.0	82.03	5.315		
8,600.0	6,097.0	7,972.7	5,811.1	52.0	50.7	49.23	-2,606.6	-543.1	436.0	351.0	84.96	5.131		
8,700.0	6,097.0	8,072.7	5,811.1	53.8	52.5	49.22	-2,706.6	-543.1	436.0	348.1	87.90	4.960		
8,800.0	6,097.0	8,172.7	5,811.1	55.7	54.3	49.22	-2,806.6	-543.1	436.0	345.1	90.85	4.799		
8,900.0	6,097.0	8,272.7	5,811.1	57.5	56.2	49.22	-2,906.6	-543.1	436.0	342.2	93.81	4.647		
9,000.0	6,097.0	8,372.7	5,811.1	59.4	58.0	49.22	-3,006.6	-543.0	436.0	339.2	96.77	4.505		
9,100.0	6,097.0	8,472.7	5,811.1	61.3	59.8	49.22	-3,106.6	-543.0	436.0	336.2	99.74	4.371		

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1303A - HZ - Plan #3												Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor	Warning
9,200.0	6,097.0	8,572.7	5,811.1	63.2	61.6	49.22	-3,206.6	-543.0	436.0	333.2	102.71	4.244	
9,300.0	6,097.0	8,672.7	5,811.0	65.0	63.5	49.22	-3,306.6	-543.0	435.9	330.3	105.69	4.125	
9,400.0	6,097.0	8,772.7	5,811.0	66.9	65.3	49.22	-3,406.6	-543.0	435.9	327.3	108.67	4.012	
9,500.0	6,097.0	8,872.7	5,811.0	68.8	67.2	49.22	-3,506.6	-543.0	435.9	324.3	111.66	3.904	
9,600.0	6,097.0	8,972.7	5,811.0	70.7	69.0	49.22	-3,606.6	-543.0	435.9	321.3	114.65	3.802	
9,700.0	6,097.0	9,072.7	5,811.0	72.6	70.9	49.22	-3,706.6	-543.0	435.9	318.3	117.64	3.706	
9,800.0	6,097.0	9,172.7	5,811.0	74.4	72.7	49.22	-3,806.6	-543.0	435.9	315.3	120.64	3.613	
9,900.0	6,097.0	9,272.7	5,811.0	76.3	74.6	49.22	-3,906.6	-543.0	435.9	312.3	123.64	3.526	
10,000.0	6,097.0	9,372.7	5,811.0	78.2	76.4	49.22	-4,006.6	-543.0	435.9	309.3	126.64	3.442	
10,100.0	6,097.0	9,472.7	5,811.0	80.1	78.3	49.21	-4,106.6	-543.0	435.9	306.3	129.65	3.362	
10,200.0	6,097.0	9,572.7	5,811.0	82.0	80.2	49.21	-4,206.6	-543.0	435.9	303.3	132.66	3.286	
10,300.0	6,097.0	9,672.7	5,811.0	83.9	82.0	49.21	-4,306.6	-543.0	435.9	300.2	135.67	3.213	
10,400.0	6,097.0	9,772.7	5,811.0	85.8	83.9	49.21	-4,406.6	-543.0	435.9	297.2	138.68	3.143	
10,500.0	6,097.0	9,872.7	5,811.0	87.7	85.8	49.21	-4,506.6	-542.9	435.9	294.2	141.69	3.076	
10,600.0	6,097.0	9,972.7	5,811.0	89.6	87.7	49.21	-4,606.6	-542.9	435.9	291.2	144.71	3.012	
10,700.0	6,097.0	10,072.7	5,811.0	91.5	89.6	49.21	-4,706.6	-542.9	435.9	288.2	147.72	2.951	
10,800.0	6,097.0	10,172.7	5,811.0	93.4	91.4	49.21	-4,806.6	-542.9	435.9	285.1	150.74	2.892	
10,900.0	6,097.0	10,272.7	5,811.0	95.3	93.3	49.21	-4,906.6	-542.9	435.9	282.1	153.76	2.835	
11,000.0	6,097.0	10,372.7	5,811.0	97.2	95.2	49.21	-5,006.6	-542.9	435.9	279.1	156.78	2.780	
11,100.0	6,097.0	10,472.7	5,811.0	99.1	97.1	49.21	-5,106.6	-542.9	435.9	276.1	159.81	2.727	
11,200.0	6,097.0	10,572.7	5,811.0	101.0	99.0	49.21	-5,206.6	-542.9	435.9	273.0	162.83	2.677	
11,300.0	6,097.0	10,672.7	5,811.0	102.9	100.9	49.21	-5,306.6	-542.9	435.9	270.0	165.86	2.628	
11,400.0	6,097.0	10,772.7	5,811.0	104.8	102.8	49.21	-5,406.6	-542.9	435.9	267.0	168.88	2.581	
11,500.0	6,097.0	10,872.7	5,811.0	106.7	104.6	49.20	-5,506.6	-542.9	435.9	263.9	171.91	2.535	
11,600.0	6,097.0	10,972.7	5,811.0	108.6	106.5	49.20	-5,606.6	-542.9	435.8	260.9	174.94	2.491	
11,700.0	6,097.0	11,072.7	5,811.0	110.5	108.4	49.20	-5,706.6	-542.9	435.8	257.9	177.97	2.449	
11,800.0	6,097.0	11,172.7	5,811.0	112.4	110.3	49.20	-5,806.6	-542.9	435.8	254.8	181.00	2.408	
11,900.0	6,097.0	11,272.7	5,811.0	114.3	112.2	49.20	-5,906.6	-542.9	435.8	251.8	184.03	2.368	
12,000.0	6,097.0	11,372.7	5,811.0	116.2	114.1	49.20	-6,006.6	-542.9	435.8	248.8	187.06	2.330	
12,100.0	6,097.0	11,472.7	5,811.0	118.1	116.0	49.20	-6,106.6	-542.8	435.8	245.7	190.09	2.293	
12,200.0	6,097.0	11,572.7	5,811.0	120.0	117.9	49.20	-6,206.6	-542.8	435.8	242.7	193.12	2.257	
12,300.0	6,097.0	11,672.7	5,811.0	121.9	119.8	49.20	-6,306.6	-542.8	435.8	239.7	196.16	2.222	
12,400.0	6,097.0	11,772.7	5,811.0	123.8	121.7	49.20	-6,406.6	-542.8	435.8	236.6	199.19	2.188	
12,500.0	6,097.0	11,872.7	5,811.0	125.8	123.6	49.20	-6,506.6	-542.8	435.8	233.6	202.23	2.155	
12,600.0	6,097.0	11,972.7	5,811.0	127.7	125.5	49.20	-6,606.6	-542.8	435.8	230.5	205.26	2.123	
12,700.0	6,097.0	12,072.7	5,811.0	129.6	127.4	49.20	-6,706.6	-542.8	435.8	227.5	208.30	2.092	
12,800.0	6,097.0	12,172.7	5,811.0	131.5	129.3	49.20	-6,806.6	-542.8	435.8	224.5	211.34	2.062	
12,900.0	6,097.0	12,272.7	5,811.0	133.4	131.2	49.19	-6,906.6	-542.8	435.8	221.4	214.37	2.033	
13,000.0	6,097.0	12,372.7	5,811.0	135.3	133.1	49.19	-7,006.6	-542.8	435.8	218.4	217.41	2.004	
13,100.0	6,097.0	12,472.7	5,811.0	137.2	135.0	49.19	-7,106.6	-542.8	435.8	215.3	220.45	1.977	
13,200.0	6,097.0	12,572.7	5,811.0	139.1	136.9	49.19	-7,206.6	-542.8	435.8	212.3	223.49	1.950	
13,300.0	6,097.0	12,672.7	5,811.0	141.0	138.8	49.19	-7,306.6	-542.8	435.8	209.3	226.52	1.924	
13,400.0	6,097.0	12,772.7	5,811.0	142.9	140.7	49.19	-7,406.6	-542.8	435.8	206.2	229.56	1.898	
13,500.0	6,097.0	12,872.7	5,811.0	144.8	142.6	49.19	-7,506.6	-542.8	435.8	203.2	232.60	1.873	
13,600.0	6,097.0	12,972.7	5,811.0	146.8	144.6	49.19	-7,606.6	-542.8	435.8	200.1	235.64	1.849	
13,700.0	6,097.0	13,072.7	5,811.0	148.7	146.5	49.19	-7,706.6	-542.7	435.8	197.1	238.68	1.826	
13,800.0	6,097.0	13,172.7	5,811.0	150.6	148.4	49.19	-7,806.6	-542.7	435.8	194.0	241.72	1.803	
13,900.0	6,097.0	13,272.7	5,811.0	152.5	150.3	49.19	-7,906.6	-542.7	435.7	191.0	244.76	1.780	
14,000.0	6,097.0	13,372.7	5,811.0	154.4	152.2	49.19	-8,006.6	-542.7	435.7	187.9	247.80	1.758	
14,100.0	6,097.0	13,472.7	5,811.0	156.3	154.1	49.19	-8,106.6	-542.7	435.7	184.9	250.85	1.737	
14,200.0	6,097.0	13,572.7	5,811.0	158.2	156.0	49.19	-8,206.6	-542.7	435.7	181.8	253.89	1.716	
14,235.6	6,097.0	13,608.3	5,811.0	158.9	156.7	49.19	-8,242.2	-542.7	435.7	180.8	254.97	1.709 SF	

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1305A - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	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)				
0.0	0.0	0.0	0.0	0.0	0.0	89.97	0.0	33.0	33.1					
100.0	100.0	98.8	98.8	0.1	0.1	89.97	0.0	33.0	33.0	32.9	0.18	179.062		
200.0	200.0	198.8	198.8	0.3	0.3	89.97	0.0	33.0	33.0	32.4	0.63	52.244		
300.0	300.0	298.8	298.8	0.5	0.5	89.97	0.0	33.0	33.0	32.0	1.08	30.539		
400.0	400.0	398.8	398.8	0.8	0.8	89.97	0.0	33.0	33.0	31.5	1.53	21.575		
500.0	500.0	498.8	498.8	1.0	1.0	89.97	0.0	33.0	33.0	31.1	1.98	16.680		
600.0	600.0	598.8	598.8	1.2	1.2	89.97	0.0	33.0	33.0	30.6	2.43	13.595 CC, ES		
700.0	700.0	698.8	698.8	1.4	1.4	153.44	0.0	33.0	34.2	31.3	2.87	11.902		
800.0	799.9	798.7	798.7	1.7	1.7	156.08	0.0	33.0	37.8	34.4	3.31	11.392		
894.8	894.5	893.3	893.3	1.9	1.9	159.33	0.0	33.0	43.4	39.7	3.73	11.631		
900.0	899.7	898.5	898.5	1.9	1.9	159.52	0.0	33.0	43.8	40.1	3.76	11.660		
1,000.0	999.4	997.7	997.7	2.1	2.1	164.32	-1.6	33.2	51.6	47.4	4.17	12.365		
1,100.0	1,099.1	1,096.4	1,096.2	2.4	2.3	170.85	-6.7	33.7	60.9	56.3	4.57	13.332		
1,200.0	1,198.8	1,195.5	1,195.1	2.6	2.4	176.92	-13.6	34.3	71.7	66.7	4.98	14.397		
1,300.0	1,298.5	1,294.7	1,294.0	2.9	2.6	-178.62	-20.5	34.9	83.1	77.7	5.40	15.381		
1,400.0	1,398.2	1,393.8	1,393.0	3.1	2.9	-175.25	-27.3	35.6	94.9	89.1	5.84	16.261		
1,500.0	1,497.9	1,493.0	1,491.9	3.4	3.1	-172.63	-34.2	36.2	106.9	100.6	6.27	17.042		
1,600.0	1,597.6	1,592.2	1,590.8	3.6	3.3	-170.54	-41.1	36.8	119.1	112.4	6.72	17.733		
1,700.0	1,697.3	1,691.3	1,689.7	3.9	3.5	-168.84	-48.0	37.5	131.5	124.3	7.17	18.344		
1,800.0	1,797.0	1,790.5	1,788.7	4.1	3.8	-167.43	-54.9	38.1	143.9	136.3	7.62	18.887		
1,900.0	1,896.7	1,889.7	1,887.6	4.4	4.0	-166.25	-61.8	38.7	156.4	148.3	8.07	19.371		
2,000.0	1,996.4	1,988.8	1,986.5	4.7	4.3	-165.24	-68.7	39.4	168.9	160.4	8.53	19.804		
2,100.0	2,096.1	2,088.0	2,085.4	4.9	4.5	-164.37	-75.6	40.0	181.5	172.5	8.99	20.193		
2,200.0	2,195.8	2,187.2	2,184.4	5.2	4.7	-163.62	-82.4	40.6	194.2	184.7	9.45	20.544		
2,300.0	2,295.5	2,286.4	2,283.3	5.5	5.0	-162.95	-89.3	41.3	206.8	196.9	9.91	20.863		
2,400.0	2,395.2	2,385.5	2,382.2	5.7	5.2	-162.37	-96.2	41.9	219.5	209.1	10.38	21.152		
2,500.0	2,494.9	2,484.7	2,481.2	6.0	5.5	-161.84	-103.1	42.5	232.2	221.4	10.84	21.417		
2,600.0	2,594.6	2,583.9	2,580.1	6.2	5.7	-161.38	-110.0	43.2	245.0	233.6	11.31	21.659		
2,700.0	2,694.3	2,683.0	2,679.0	6.5	6.0	-160.95	-116.9	43.8	257.7	245.9	11.78	21.881		
2,800.0	2,794.0	2,782.2	2,777.9	6.8	6.2	-160.57	-123.8	44.4	270.4	258.2	12.24	22.087		
2,900.0	2,893.7	2,881.4	2,876.9	7.0	6.5	-160.22	-130.7	45.1	283.2	270.5	12.71	22.276		
3,000.0	2,993.4	2,980.5	2,975.8	7.3	6.8	-159.91	-137.6	45.7	296.0	282.8	13.18	22.452		
3,100.0	3,093.1	3,079.7	3,074.7	7.6	7.0	-159.61	-144.4	46.3	308.8	295.1	13.65	22.616		
3,200.0	3,192.8	3,178.9	3,173.6	7.8	7.3	-159.35	-151.3	47.0	321.5	307.4	14.12	22.768		
3,300.0	3,292.5	3,278.0	3,272.6	8.1	7.5	-159.10	-158.2	47.6	334.3	319.7	14.59	22.910		
3,400.0	3,392.3	3,377.2	3,371.5	8.4	7.8	-158.87	-165.1	48.2	347.1	332.1	15.06	23.043		
3,500.0	3,492.0	3,476.4	3,470.4	8.6	8.0	-158.65	-172.0	48.9	359.9	344.4	15.54	23.168		
3,600.0	3,591.7	3,575.5	3,569.3	8.9	8.3	-158.46	-178.9	49.5	372.7	356.7	16.01	23.285		
3,700.0	3,691.4	3,674.7	3,668.3	9.2	8.6	-158.27	-185.8	50.1	385.6	369.1	16.48	23.396		
3,714.2	3,705.5	3,688.8	3,682.3	9.2	8.6	-158.25	-186.8	50.2	387.4	370.8	16.55	23.411		
3,800.0	3,791.1	3,774.0	3,767.3	9.4	8.8	-158.10	-192.7	50.7	397.5	380.5	16.94	23.463		
3,900.0	3,891.0	3,873.5	3,866.6	9.6	9.1	-157.81	-199.6	51.4	407.0	389.7	17.36	23.447		
4,009.0	4,000.0	3,982.1	3,974.9	9.8	9.4	140.21	-207.1	52.1	414.7	396.9	17.86	23.215		
4,100.0	4,091.0	4,072.9	4,065.5	9.9	9.6	140.70	-213.4	52.7	420.0	401.7	18.26	22.999		
4,200.0	4,191.0	4,172.7	4,165.0	10.1	9.9	141.22	-220.4	53.3	425.8	407.1	18.71	22.755		
4,300.0	4,291.0	4,272.4	4,264.5	10.3	10.1	141.74	-227.3	53.9	431.6	412.4	19.16	22.524		
4,400.0	4,391.0	4,372.2	4,364.1	10.5	10.4	142.23	-234.2	54.6	437.5	417.9	19.61	22.304		
4,500.0	4,491.0	4,472.0	4,463.6	10.7	10.6	142.72	-241.2	55.2	443.4	423.3	20.07	22.096		
4,600.0	4,591.0	4,571.7	4,563.1	10.9	10.9	143.19	-248.1	55.8	449.3	428.8	20.52	21.898		
4,700.0	4,691.0	4,671.5	4,662.6	11.1	11.2	143.65	-255.0	56.5	455.3	434.3	20.97	21.709		
4,800.0	4,791.0	4,771.2	4,762.1	11.3	11.4	144.10	-261.9	57.1	461.3	439.8	21.42	21.530		
4,900.0	4,891.0	4,871.0	4,861.6	11.5	11.7	144.53	-268.9	57.8	467.3	445.4	21.88	21.358		

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1305A - HZ - Plan #3												Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD												Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor	Warning
5,000.0	4,991.0	4,970.7	4,961.1	11.7	11.9	144.96	-275.8	58.4	473.3	451.0	22.33	21.194	
5,100.0	5,091.0	5,070.5	5,060.7	11.9	12.2	145.37	-282.7	59.0	479.4	456.6	22.79	21.038	
5,200.0	5,191.0	5,170.2	5,160.2	12.1	12.5	145.77	-289.7	59.7	485.5	462.2	23.24	20.889	
5,300.0	5,291.0	5,270.0	5,259.7	12.3	12.7	146.17	-296.6	60.3	491.6	467.9	23.70	20.746	
5,400.0	5,391.0	5,350.0	5,339.5	12.5	12.9	146.48	-302.3	60.8	498.3	474.2	24.11	20.671	
5,500.0	5,491.0	5,400.0	5,388.9	12.7	13.1	146.87	-309.4	61.5	512.0	487.6	24.46	20.937	
5,585.1	5,576.1	5,450.0	5,437.5	12.9	13.3	147.49	-321.2	62.6	530.6	505.8	24.79	21.399	
5,600.0	5,591.0	5,450.0	5,437.5	12.9	13.3	-32.28	-321.2	62.6	534.5	509.8	24.64	21.694	
5,650.0	5,640.9	5,484.0	5,469.8	13.0	13.5	-31.20	-331.8	63.5	545.7	520.8	24.89	21.926	
5,700.0	5,690.1	5,500.0	5,484.7	13.1	13.6	-30.51	-337.5	64.1	555.3	530.3	25.03	22.188	
5,750.0	5,738.3	5,534.1	5,515.9	13.1	13.8	-29.92	-351.2	65.3	562.8	537.7	25.07	22.448	
5,800.0	5,785.0	5,550.0	5,530.1	13.2	13.8	-29.57	-358.3	66.0	568.5	543.6	24.89	22.839	
5,850.0	5,829.8	5,584.1	5,559.9	13.3	14.1	-29.40	-374.9	67.5	572.0	547.4	24.64	23.218	
5,900.0	5,872.2	5,600.0	5,573.3	13.3	14.2	-29.35	-383.3	68.3	573.8	549.6	24.18	23.732	
5,950.0	5,911.9	5,634.1	5,601.3	13.4	14.4	-29.59	-402.7	70.0	573.3	549.6	23.70	24.190	
6,000.0	5,948.5	5,650.0	5,613.9	13.5	14.6	-29.84	-412.3	70.9	571.1	548.0	23.06	24.763	
6,050.0	5,981.7	5,684.1	5,639.9	13.6	14.9	-30.48	-434.3	73.0	566.6	544.1	22.52	25.164	
6,100.0	6,011.2	5,700.0	5,651.6	13.7	15.0	-31.06	-445.1	73.9	560.6	538.7	21.89	25.612	
6,150.0	6,036.6	5,734.0	5,675.2	13.9	15.3	-32.15	-469.4	76.2	552.3	530.8	21.53	25.654	
6,200.0	6,057.8	5,750.0	5,685.8	14.1	15.5	-33.08	-481.3	77.3	542.6	521.4	21.17	25.624	
6,250.0	6,074.6	5,783.8	5,707.0	14.4	15.8	-34.68	-507.6	79.7	530.8	509.5	21.32	24.893	
6,300.0	6,086.8	5,800.0	5,716.5	14.8	16.0	-36.03	-520.6	80.9	517.8	496.2	21.52	24.060	
6,350.0	6,094.3	5,833.7	5,734.9	15.2	16.4	-38.25	-548.7	83.5	503.0	480.5	22.41	22.444	
6,403.3	6,097.0	5,850.0	5,743.2	15.7	16.6	-40.17	-562.7	84.8	486.1	462.8	23.30	20.864	
6,500.0	6,097.0	5,910.7	5,770.0	16.7	17.4	-42.89	-616.9	89.7	458.1	432.5	25.60	17.896	
6,600.0	6,097.0	5,967.7	5,789.3	17.9	18.1	-45.10	-670.2	94.6	438.8	410.9	27.90	15.729	
6,700.0	6,097.0	6,028.6	5,803.3	19.2	19.0	-46.93	-729.2	100.1	429.0	398.7	30.29	14.164	
6,758.7	6,097.0	6,065.6	5,808.3	20.1	19.6	-47.74	-765.8	103.4	427.4	395.8	31.66	13.501	
6,800.0	6,097.0	6,100.0	5,810.7	20.7	20.1	-48.25	-799.9	106.6	428.2	395.4	32.76	13.070	
6,900.0	6,097.0	6,189.0	5,811.1	22.1	21.4	-48.89	-888.7	113.4	433.4	398.2	35.26	12.294	
7,000.0	6,097.0	6,306.9	5,811.1	23.7	23.0	-49.14	-1,006.6	116.3	435.2	397.3	37.95	11.468	
7,100.0	6,097.0	6,406.9	5,811.1	25.3	24.6	-49.14	-1,106.6	116.3	435.3	394.7	40.56	10.731	
7,200.0	6,097.0	6,506.9	5,811.0	26.9	26.3	-49.14	-1,206.6	116.3	435.3	392.0	43.23	10.068	
7,300.0	6,097.0	6,606.9	5,811.0	28.6	28.0	-49.14	-1,306.6	116.3	435.3	389.3	45.96	9.471	
7,400.0	6,097.0	6,706.9	5,811.0	30.3	29.7	-49.14	-1,406.6	116.3	435.3	386.6	48.72	8.934	
7,500.0	6,097.0	6,806.9	5,811.0	32.1	31.5	-49.14	-1,506.6	116.3	435.3	383.8	51.52	8.448	
7,600.0	6,097.0	6,906.9	5,811.0	33.8	33.2	-49.14	-1,606.6	116.3	435.3	380.9	54.35	8.009	
7,700.0	6,097.0	7,006.9	5,811.0	35.6	35.0	-49.15	-1,706.6	116.3	435.3	378.1	57.21	7.609	
7,800.0	6,097.0	7,106.9	5,811.0	37.4	36.8	-49.15	-1,806.6	116.3	435.3	375.2	60.09	7.245	
7,900.0	6,097.0	7,206.9	5,811.0	39.1	38.6	-49.15	-1,906.6	116.4	435.3	372.3	62.98	6.912	
8,000.0	6,097.0	7,306.9	5,811.0	41.0	40.5	-49.15	-2,006.6	116.4	435.3	369.4	65.89	6.606	
8,100.0	6,097.0	7,406.9	5,811.0	42.8	42.3	-49.15	-2,106.6	116.4	435.3	366.5	68.82	6.326	
8,200.0	6,097.0	7,506.9	5,811.0	44.6	44.1	-49.15	-2,206.6	116.4	435.3	363.6	71.75	6.067	
8,300.0	6,097.0	7,606.9	5,811.0	46.4	46.0	-49.15	-2,306.6	116.4	435.3	360.6	74.70	5.828	
8,400.0	6,097.0	7,706.9	5,811.0	48.3	47.8	-49.15	-2,406.6	116.4	435.3	357.7	77.66	5.606	
8,500.0	6,097.0	7,806.9	5,811.0	50.1	49.7	-49.15	-2,506.6	116.4	435.3	354.7	80.63	5.400	
8,600.0	6,097.0	7,906.9	5,811.0	52.0	51.5	-49.15	-2,606.6	116.4	435.4	351.8	83.60	5.208	
8,700.0	6,097.0	8,006.9	5,811.0	53.8	53.4	-49.15	-2,706.6	116.4	435.4	348.8	86.58	5.029	
8,800.0	6,097.0	8,106.9	5,811.0	55.7	55.3	-49.15	-2,806.6	116.4	435.4	345.8	89.56	4.861	
8,900.0	6,097.0	8,206.9	5,811.0	57.5	57.2	-49.15	-2,906.6	116.4	435.4	342.8	92.55	4.704	
9,000.0	6,097.0	8,306.9	5,811.0	59.4	59.0	-49.15	-3,006.6	116.4	435.4	339.8	95.55	4.557	
9,100.0	6,097.0	8,406.9	5,811.0	61.3	60.9	-49.15	-3,106.6	116.4	435.4	336.8	98.55	4.418	

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1305A - HZ - Plan #3												Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor	Warning
9,200.0	6,097.0	8,506.9	5,811.0	63.2	62.8	-49.15	-3,206.6	116.5	435.4	333.8	101.55	4.287	
9,300.0	6,097.0	8,606.9	5,811.0	65.0	64.7	-49.16	-3,306.6	116.5	435.4	330.8	104.56	4.164	
9,400.0	6,097.0	8,706.9	5,811.0	66.9	66.6	-49.16	-3,406.6	116.5	435.4	327.8	107.57	4.048	
9,500.0	6,097.0	8,806.9	5,811.0	68.8	68.4	-49.16	-3,506.6	116.5	435.4	324.8	110.59	3.937	
9,600.0	6,097.0	8,906.9	5,811.0	70.7	70.3	-49.16	-3,606.6	116.5	435.4	321.8	113.60	3.833	
9,700.0	6,097.0	9,006.9	5,811.0	72.6	72.2	-49.16	-3,706.6	116.5	435.4	318.8	116.62	3.734	
9,800.0	6,097.0	9,106.9	5,811.0	74.4	74.1	-49.16	-3,806.6	116.5	435.4	315.8	119.65	3.639	
9,900.0	6,097.0	9,206.9	5,811.0	76.3	76.0	-49.16	-3,906.6	116.5	435.4	312.8	122.67	3.550	
10,000.0	6,097.0	9,306.9	5,811.0	78.2	77.9	-49.16	-4,006.6	116.5	435.5	309.8	125.70	3.464	
10,100.0	6,097.0	9,406.9	5,811.0	80.1	79.8	-49.16	-4,106.6	116.5	435.5	306.7	128.72	3.383	
10,200.0	6,097.0	9,506.9	5,811.0	82.0	81.7	-49.16	-4,206.6	116.5	435.5	303.7	131.76	3.305	
10,300.0	6,097.0	9,606.9	5,811.0	83.9	83.6	-49.16	-4,306.6	116.5	435.5	300.7	134.79	3.231	
10,400.0	6,097.0	9,706.9	5,811.0	85.8	85.5	-49.16	-4,406.6	116.5	435.5	297.7	137.82	3.160	
10,500.0	6,097.0	9,806.9	5,811.0	87.7	87.4	-49.16	-4,506.6	116.6	435.5	294.6	140.86	3.092	
10,600.0	6,097.0	9,906.9	5,811.0	89.6	89.3	-49.16	-4,606.6	116.6	435.5	291.6	143.89	3.027	
10,700.0	6,097.0	10,006.9	5,811.0	91.5	91.2	-49.16	-4,706.6	116.6	435.5	288.6	146.93	2.964	
10,800.0	6,097.0	10,106.9	5,811.0	93.4	93.1	-49.16	-4,806.6	116.6	435.5	285.5	149.97	2.904	
10,900.0	6,097.0	10,206.9	5,811.0	95.3	95.0	-49.17	-4,906.6	116.6	435.5	282.5	153.01	2.846	
11,000.0	6,097.0	10,306.9	5,811.0	97.2	96.9	-49.17	-5,006.6	116.6	435.5	279.5	156.05	2.791	
11,100.0	6,097.0	10,406.9	5,811.0	99.1	98.8	-49.17	-5,106.6	116.6	435.5	276.4	159.09	2.738	
11,200.0	6,097.0	10,506.9	5,811.0	101.0	100.7	-49.17	-5,206.6	116.6	435.5	273.4	162.13	2.686	
11,300.0	6,097.0	10,606.9	5,811.0	102.9	102.6	-49.17	-5,306.6	116.6	435.5	270.4	165.18	2.637	
11,400.0	6,097.0	10,706.9	5,811.0	104.8	104.6	-49.17	-5,406.6	116.6	435.5	267.3	168.22	2.589	
11,500.0	6,097.0	10,806.9	5,811.0	106.7	106.5	-49.17	-5,506.6	116.6	435.6	264.3	171.27	2.543	
11,600.0	6,097.0	10,906.9	5,811.0	108.6	108.4	-49.17	-5,606.6	116.6	435.6	261.2	174.31	2.499	
11,700.0	6,097.0	11,006.9	5,811.0	110.5	110.3	-49.17	-5,706.6	116.6	435.6	258.2	177.36	2.456	
11,800.0	6,097.0	11,106.9	5,811.0	112.4	112.2	-49.17	-5,806.6	116.7	435.6	255.2	180.41	2.414	
11,900.0	6,097.0	11,206.9	5,811.0	114.3	114.1	-49.17	-5,906.6	116.7	435.6	252.1	183.46	2.374	
12,000.0	6,097.0	11,306.9	5,811.0	116.2	116.0	-49.17	-6,006.6	116.7	435.6	249.1	186.51	2.336	
12,100.0	6,097.0	11,406.9	5,811.0	118.1	117.9	-49.17	-6,106.6	116.7	435.6	246.0	189.56	2.298	
12,200.0	6,097.0	11,506.9	5,811.0	120.0	119.8	-49.17	-6,206.6	116.7	435.6	243.0	192.61	2.262	
12,300.0	6,097.0	11,606.9	5,811.0	121.9	121.7	-49.17	-6,306.6	116.7	435.6	239.9	195.66	2.226	
12,400.0	6,097.0	11,706.9	5,811.0	123.8	123.7	-49.17	-6,406.6	116.7	435.6	236.9	198.71	2.192	
12,500.0	6,097.0	11,806.9	5,811.0	125.8	125.6	-49.17	-6,506.6	116.7	435.6	233.9	201.76	2.159	
12,600.0	6,097.0	11,906.9	5,811.0	127.7	127.5	-49.18	-6,606.6	116.7	435.6	230.8	204.81	2.127	
12,700.0	6,097.0	12,006.9	5,811.0	129.6	129.4	-49.18	-6,706.6	116.7	435.6	227.8	207.87	2.096	
12,800.0	6,097.0	12,106.9	5,811.0	131.5	131.3	-49.18	-6,806.6	116.7	435.6	224.7	210.92	2.065	
12,900.0	6,097.0	12,206.9	5,811.0	133.4	133.2	-49.18	-6,906.6	116.7	435.6	221.7	213.97	2.036	
13,000.0	6,097.0	12,306.9	5,811.0	135.3	135.1	-49.18	-7,006.6	116.7	435.7	218.6	217.03	2.007	
13,100.0	6,097.0	12,406.9	5,811.0	137.2	137.0	-49.18	-7,106.6	116.8	435.7	215.6	220.08	1.980	
13,200.0	6,097.0	12,506.9	5,811.0	139.1	139.0	-49.18	-7,206.6	116.8	435.7	212.5	223.14	1.952	
13,300.0	6,097.0	12,606.9	5,811.0	141.0	140.9	-49.18	-7,306.6	116.8	435.7	209.5	226.19	1.926	
13,400.0	6,097.0	12,706.9	5,811.0	142.9	142.8	-49.18	-7,406.6	116.8	435.7	206.4	229.25	1.900	
13,500.0	6,097.0	12,806.9	5,811.0	144.8	144.7	-49.18	-7,506.6	116.8	435.7	203.4	232.30	1.876	
13,600.0	6,097.0	12,906.9	5,811.0	146.8	146.6	-49.18	-7,606.6	116.8	435.7	200.3	235.36	1.851	
13,700.0	6,097.0	13,006.9	5,811.0	148.7	148.5	-49.18	-7,706.6	116.8	435.7	197.3	238.42	1.827	
13,800.0	6,097.0	13,106.9	5,811.0	150.6	150.4	-49.18	-7,806.6	116.8	435.7	194.2	241.47	1.804	
13,900.0	6,097.0	13,206.9	5,811.0	152.5	152.4	-49.18	-7,906.6	116.8	435.7	191.2	244.53	1.782	
14,000.0	6,097.0	13,306.9	5,811.0	154.4	154.3	-49.18	-8,006.6	116.8	435.7	188.1	247.59	1.760	
14,100.0	6,097.0	13,406.9	5,811.0	156.3	156.2	-49.18	-8,106.6	116.8	435.7	185.1	250.65	1.738	
14,200.0	6,097.0	13,506.9	5,811.0	158.2	158.1	-49.19	-8,206.6	116.8	435.7	182.0	253.70	1.717	
14,217.3	6,097.0	13,524.2	5,811.0	158.6	158.4	-49.19	-8,223.9	116.8	435.7	181.5	254.22	1.714	

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1305A - HZ - Plan #3												Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor	Warning
14,235.6	6,097.0	13,541.6	5,811.0	158.9	158.8	-49.19	-8,241.2	116.8	435.7	181.0	254.78	1.710 SF	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1306B - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 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)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	65.3	65.3					
100.0	100.0	98.8	98.8	0.1	0.1	90.00	0.0	65.3	65.3	65.1	0.18	353.963		
200.0	200.0	198.8	198.8	0.3	0.3	90.00	0.0	65.3	65.3	64.7	0.63	103.272		
300.0	300.0	298.8	298.8	0.5	0.5	90.00	0.0	65.3	65.3	64.2	1.08	60.367		
400.0	400.0	398.8	398.8	0.8	0.8	90.00	0.0	65.3	65.3	63.8	1.53	42.648		
500.0	500.0	498.8	498.8	1.0	1.0	90.00	0.0	65.3	65.3	63.3	1.98	32.971		
600.0	600.0	598.8	598.8	1.2	1.2	90.00	0.0	65.3	65.3	62.9	2.43	26.873 CC, ES		
700.0	700.0	698.8	698.8	1.4	1.4	152.98	0.0	65.3	66.5	63.6	2.87	23.131		
800.0	799.9	798.7	798.7	1.7	1.7	154.42	0.0	65.3	70.0	66.7	3.31	21.119		
894.8	894.5	893.3	893.3	1.9	1.9	156.39	0.0	65.3	75.6	71.8	3.73	20.237		
900.0	899.7	898.5	898.5	1.9	1.9	156.51	0.0	65.3	76.0	72.2	3.76	20.211		
1,000.0	999.4	998.2	998.2	2.1	2.1	158.63	0.0	65.3	83.1	78.9	4.20	19.779		
1,100.0	1,099.1	1,096.5	1,096.4	2.4	2.3	161.30	-1.5	65.9	91.1	86.5	4.62	19.729		
1,200.0	1,198.8	1,194.1	1,194.0	2.6	2.5	165.16	-6.2	67.5	101.0	96.0	5.01	20.144		
1,300.0	1,298.5	1,293.1	1,292.7	2.9	2.7	169.16	-12.7	69.8	112.4	107.0	5.42	20.729		
1,400.0	1,398.2	1,392.1	1,391.5	3.1	2.9	172.42	-19.2	72.1	124.3	118.5	5.84	21.278		
1,500.0	1,497.9	1,491.2	1,490.3	3.4	3.1	175.11	-25.7	74.4	136.5	130.3	6.27	21.780		
1,600.0	1,597.6	1,590.3	1,589.1	3.6	3.3	177.35	-32.3	76.7	149.0	142.3	6.70	22.234		
1,700.0	1,697.3	1,689.3	1,688.0	3.9	3.5	179.24	-38.8	79.0	161.6	154.5	7.14	22.645		
1,800.0	1,797.0	1,788.4	1,786.8	4.1	3.7	-179.14	-45.3	81.3	174.4	166.8	7.58	23.015		
1,900.0	1,896.7	1,887.5	1,885.6	4.4	4.0	-177.74	-51.8	83.6	187.3	179.3	8.02	23.349		
2,000.0	1,996.4	1,986.5	1,984.4	4.7	4.2	-176.53	-58.3	85.9	200.3	191.9	8.47	23.652		
2,100.0	2,096.1	2,085.6	2,083.3	4.9	4.5	-175.46	-64.9	88.2	213.4	204.5	8.92	23.927		
2,200.0	2,195.8	2,184.7	2,182.1	5.2	4.7	-174.51	-71.4	90.5	226.6	217.2	9.37	24.177		
2,300.0	2,295.5	2,283.7	2,280.9	5.5	4.9	-173.67	-77.9	92.7	239.8	229.9	9.82	24.406		
2,400.0	2,395.2	2,382.8	2,379.7	5.7	5.2	-172.92	-84.4	95.0	253.0	242.7	10.28	24.615		
2,500.0	2,494.9	2,481.9	2,478.6	6.0	5.4	-172.24	-90.9	97.3	266.3	255.6	10.74	24.807		
2,600.0	2,594.6	2,580.9	2,577.4	6.2	5.7	-171.63	-97.4	99.6	279.6	268.4	11.19	24.983		
2,700.0	2,694.3	2,680.0	2,676.2	6.5	5.9	-171.07	-104.0	101.9	293.0	281.3	11.65	25.146		
2,800.0	2,794.0	2,779.1	2,775.0	6.8	6.2	-170.56	-110.5	104.2	306.3	294.2	12.11	25.297		
2,900.0	2,893.7	2,878.1	2,873.9	7.0	6.4	-170.10	-117.0	106.5	319.7	307.2	12.57	25.437		
3,000.0	2,993.4	2,977.2	2,972.7	7.3	6.7	-169.67	-123.5	108.8	333.1	320.1	13.03	25.568		
3,100.0	3,093.1	3,076.3	3,071.5	7.6	6.9	-169.27	-130.0	111.1	346.6	333.1	13.49	25.689		
3,200.0	3,192.8	3,175.3	3,170.3	7.8	7.2	-168.90	-136.6	113.4	360.0	346.1	13.95	25.803		
3,300.0	3,292.5	3,274.4	3,269.2	8.1	7.4	-168.56	-143.1	115.7	373.5	359.1	14.42	25.909		
3,400.0	3,392.3	3,373.5	3,368.0	8.4	7.7	-168.25	-149.6	118.0	387.0	372.1	14.88	26.008		
3,500.0	3,492.0	3,472.5	3,466.8	8.6	8.0	-167.95	-156.1	120.3	400.4	385.1	15.34	26.102		
3,600.0	3,591.7	3,571.6	3,565.6	8.9	8.2	-167.68	-162.6	122.6	413.9	398.1	15.81	26.190		
3,700.0	3,691.4	3,670.7	3,664.5	9.2	8.5	-167.42	-169.1	124.9	427.4	411.2	16.27	26.273		
3,714.2	3,705.5	3,684.7	3,678.5	9.2	8.5	-167.38	-170.1	125.2	429.4	413.0	16.33	26.284		
3,800.0	3,791.1	3,769.8	3,763.4	9.4	8.7	-167.18	-175.7	127.2	440.0	423.3	16.72	26.309		
3,900.0	3,891.0	3,869.3	3,862.6	9.6	9.0	-166.89	-182.2	129.5	450.1	432.9	17.14	26.258		
4,009.0	4,000.0	3,977.9	3,971.0	9.8	9.3	131.05	-189.4	132.0	458.2	440.5	17.65	25.955		
4,100.0	4,091.0	4,068.7	4,061.6	9.9	9.5	131.44	-195.3	134.1	463.7	445.7	18.05	25.694		
4,200.0	4,191.0	4,168.5	4,161.1	10.1	9.8	131.85	-201.9	136.4	469.8	451.3	18.50	25.401		
4,300.0	4,291.0	4,268.2	4,260.6	10.3	10.0	132.26	-208.5	138.7	476.0	457.0	18.95	25.122		
4,400.0	4,391.0	4,368.0	4,360.1	10.5	10.3	132.65	-215.0	141.0	482.1	462.7	19.40	24.856		
4,500.0	4,491.0	4,467.7	4,459.6	10.7	10.5	133.03	-221.6	143.4	488.3	468.5	19.85	24.603		
4,600.0	4,591.0	4,567.5	4,559.1	10.9	10.8	133.41	-228.2	145.7	494.5	474.2	20.30	24.361		
4,700.0	4,691.0	4,667.2	4,658.6	11.1	11.1	133.77	-234.7	148.0	500.7	480.0	20.75	24.130		
4,800.0	4,791.0	4,767.0	4,758.2	11.3	11.3	134.13	-241.3	150.3	507.0	485.8	21.20	23.909		
4,900.0	4,891.0	4,866.8	4,857.7	11.5	11.6	134.47	-247.8	152.6	513.2	491.6	21.66	23.697		

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1306B - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 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)	Total Uncertainty Axis	Separation Factor		
5,000.0	4,991.0	4,966.5	4,957.2	11.7	11.8	134.81	-254.4	154.9	519.5	497.4	22.11	23.495		
5,100.0	5,091.0	5,066.3	5,056.7	11.9	12.1	135.14	-261.0	157.2	525.8	503.2	22.56	23.301		
5,200.0	5,191.0	5,166.0	5,156.2	12.1	12.4	135.47	-267.5	159.5	532.1	509.1	23.02	23.115		
5,300.0	5,291.0	5,265.8	5,255.7	12.3	12.6	135.78	-274.1	161.8	538.4	514.9	23.47	22.937		
5,400.0	5,391.0	5,365.5	5,355.2	12.5	12.9	136.09	-280.7	164.2	544.8	520.8	23.93	22.765		
5,500.0	5,491.0	5,450.0	5,439.5	12.7	13.1	136.35	-286.3	166.2	551.5	527.1	24.35	22.648		
5,585.1	5,576.1	5,500.0	5,489.0	12.9	13.3	136.65	-293.0	168.5	562.2	537.5	24.67	22.790		
5,600.0	5,591.0	5,500.0	5,489.0	12.9	13.3	-43.18	-293.0	168.5	564.5	540.0	24.51	23.035		
5,650.0	5,640.9	5,526.6	5,515.0	13.0	13.4	-42.54	-298.3	170.4	571.6	546.9	24.71	23.128		
5,700.0	5,690.1	5,550.0	5,537.5	13.1	13.5	-42.14	-304.0	172.4	577.3	552.4	24.91	23.174		
5,750.0	5,738.3	5,575.9	5,562.2	13.1	13.6	-41.97	-311.5	175.0	581.7	556.7	25.01	23.258		
5,800.0	5,785.0	5,600.0	5,584.8	13.2	13.7	-41.99	-319.4	177.8	584.6	559.6	25.00	23.390		
5,850.0	5,829.8	5,624.9	5,607.7	13.3	13.9	-42.23	-328.7	181.1	586.3	561.4	24.90	23.545		
5,900.0	5,872.2	5,650.0	5,630.2	13.3	14.0	-42.68	-339.0	184.7	586.5	561.8	24.74	23.708		
5,950.0	5,911.9	5,673.4	5,650.8	13.4	14.2	-43.30	-349.6	188.4	585.5	561.0	24.55	23.851		
6,000.0	5,948.5	5,700.0	5,673.5	13.5	14.4	-44.20	-362.7	193.0	583.3	558.9	24.39	23.917		
6,050.0	5,981.7	5,721.4	5,691.2	13.6	14.5	-45.15	-373.9	197.0	579.9	555.7	24.25	23.911		
6,100.0	6,011.2	5,750.0	5,714.1	13.7	14.7	-46.55	-390.1	202.7	575.6	551.3	24.30	23.690		
6,150.0	6,036.6	5,768.7	5,728.6	13.9	14.9	-47.76	-401.3	206.6	570.3	545.9	24.38	23.391		
6,200.0	6,057.8	5,800.0	5,751.8	14.1	15.2	-49.71	-421.0	213.6	564.5	539.6	24.84	22.726		
6,250.0	6,074.6	5,815.2	5,762.7	14.4	15.3	-51.07	-431.1	217.1	557.9	532.6	25.23	22.113		
6,300.0	6,086.8	5,838.2	5,778.4	14.8	15.6	-52.96	-446.9	222.7	551.0	525.1	25.95	21.236		
6,350.0	6,094.3	5,860.9	5,793.2	15.2	15.8	-54.99	-463.2	228.4	544.1	517.2	26.85	20.267		
6,403.3	6,097.0	5,884.8	5,808.0	15.7	16.0	-57.26	-480.9	234.7	536.8	508.9	27.96	19.202		
6,500.0	6,097.0	5,930.8	5,833.9	16.7	16.6	-60.35	-516.7	247.3	529.6	499.6	30.01	17.647		
6,517.1	6,097.0	5,939.5	5,838.4	16.9	16.7	-60.91	-523.7	249.7	529.4	499.1	30.35	17.445		
6,600.0	6,097.0	5,984.2	5,859.6	17.9	17.2	-63.60	-560.8	262.8	533.1	500.7	32.37	16.469		
6,700.0	6,097.0	6,050.0	5,884.6	19.2	18.1	-66.93	-618.2	283.0	546.2	511.2	35.05	15.583		
6,800.0	6,097.0	6,107.9	5,900.1	20.7	19.0	-69.17	-670.7	301.5	566.9	529.4	37.57	15.091		
6,900.0	6,097.0	6,175.9	5,910.2	22.1	20.0	-70.93	-734.2	323.9	593.5	553.3	40.27	14.738		
7,000.0	6,097.0	6,270.4	5,912.1	23.7	21.4	-72.06	-823.5	354.6	624.0	580.6	43.36	14.391		
7,100.0	6,097.0	6,411.9	5,912.1	25.3	23.5	-73.13	-959.6	393.0	650.0	602.9	47.13	13.791		
7,200.0	6,097.0	6,558.5	5,912.0	26.9	25.7	-73.86	-1,103.3	422.1	669.1	618.0	51.08	13.099		
7,300.0	6,097.0	6,709.0	5,912.0	28.6	28.0	-74.29	-1,252.6	440.4	680.8	625.6	55.14	12.346		
7,400.0	6,097.0	6,861.4	5,912.0	30.3	30.4	-74.44	-1,404.8	446.9	684.9	625.6	59.25	11.560		
7,500.0	6,097.0	6,963.2	5,912.0	32.1	32.0	-74.44	-1,506.6	446.9	684.9	622.3	62.61	10.939		
7,600.0	6,097.0	7,063.2	5,912.0	33.8	33.7	-74.44	-1,606.6	446.9	684.9	618.9	66.00	10.377		
7,700.0	6,097.0	7,163.2	5,912.0	35.6	35.4	-74.44	-1,706.6	446.9	684.9	615.5	69.42	9.866		
7,800.0	6,097.0	7,263.2	5,912.0	37.4	37.2	-74.44	-1,806.6	446.9	684.9	612.0	72.88	9.398		
7,900.0	6,097.0	7,363.2	5,912.0	39.1	38.9	-74.44	-1,906.6	446.8	684.9	608.5	76.36	8.969		
8,000.0	6,097.0	7,463.2	5,912.0	41.0	40.7	-74.44	-2,006.6	446.8	684.9	605.0	79.86	8.576		
8,100.0	6,097.0	7,563.2	5,912.0	42.8	42.5	-74.44	-2,106.6	446.8	684.9	601.5	83.38	8.214		
8,200.0	6,097.0	7,663.2	5,912.0	44.6	44.2	-74.44	-2,206.6	446.8	684.9	597.9	86.92	7.879		
8,300.0	6,097.0	7,763.2	5,912.0	46.4	46.0	-74.44	-2,306.6	446.8	684.9	594.4	90.48	7.569		
8,400.0	6,097.0	7,863.2	5,912.0	48.3	47.9	-74.44	-2,406.6	446.8	684.9	590.8	94.05	7.282		
8,500.0	6,097.0	7,963.2	5,912.0	50.1	49.7	-74.44	-2,506.6	446.8	684.8	587.2	97.63	7.015		
8,600.0	6,097.0	8,063.2	5,912.0	52.0	51.5	-74.44	-2,606.6	446.8	684.8	583.6	101.22	6.766		
8,700.0	6,097.0	8,163.2	5,912.0	53.8	53.3	-74.44	-2,706.6	446.8	684.8	580.0	104.82	6.534		
8,800.0	6,097.0	8,263.2	5,912.0	55.7	55.2	-74.44	-2,806.6	446.8	684.8	576.4	108.43	6.316		
8,900.0	6,097.0	8,363.2	5,912.0	57.5	57.0	-74.44	-2,906.6	446.8	684.8	572.8	112.04	6.112		
9,000.0	6,097.0	8,463.2	5,912.0	59.4	58.9	-74.43	-3,006.6	446.8	684.8	569.2	115.67	5.921		
9,100.0	6,097.0	8,563.2	5,912.0	61.3	60.7	-74.43	-3,106.6	446.8	684.8	565.5	119.30	5.740		

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1306B - HZ - Plan #3												Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor	Warning
9,200.0	6,097.0	8,663.2	5,912.0	63.2	62.6	-74.43	-3,206.6	446.8	684.8	561.9	122.94	5.571	
9,300.0	6,097.0	8,763.2	5,912.0	65.0	64.4	-74.43	-3,306.6	446.8	684.8	558.3	126.58	5.410	
9,400.0	6,097.0	8,863.2	5,912.0	66.9	66.3	-74.43	-3,406.6	446.8	684.8	554.6	130.22	5.259	
9,500.0	6,097.0	8,963.2	5,912.0	68.8	68.2	-74.43	-3,506.6	446.8	684.8	550.9	133.87	5.115	
9,600.0	6,097.0	9,063.2	5,912.0	70.7	70.0	-74.43	-3,606.6	446.8	684.8	547.3	137.53	4.979	
9,700.0	6,097.0	9,163.2	5,912.0	72.6	71.9	-74.43	-3,706.6	446.8	684.8	543.6	141.19	4.850	
9,800.0	6,097.0	9,263.2	5,912.0	74.4	73.8	-74.43	-3,806.6	446.8	684.8	540.0	144.85	4.728	
9,900.0	6,097.0	9,363.2	5,912.0	76.3	75.7	-74.43	-3,906.6	446.8	684.8	536.3	148.51	4.611	
10,000.0	6,097.0	9,463.2	5,912.0	78.2	77.6	-74.43	-4,006.6	446.8	684.8	532.6	152.18	4.500	
10,100.0	6,097.0	9,563.2	5,912.0	80.1	79.4	-74.43	-4,106.6	446.8	684.8	529.0	155.85	4.394	
10,200.0	6,097.0	9,663.2	5,912.0	82.0	81.3	-74.43	-4,206.6	446.8	684.8	525.3	159.53	4.293	
10,300.0	6,097.0	9,763.2	5,912.0	83.9	83.2	-74.43	-4,306.6	446.8	684.8	521.6	163.20	4.196	
10,400.0	6,097.0	9,863.2	5,912.0	85.8	85.1	-74.43	-4,406.6	446.8	684.8	517.9	166.88	4.104	
10,500.0	6,097.0	9,963.2	5,912.0	87.7	87.0	-74.43	-4,506.6	446.8	684.8	514.2	170.56	4.015	
10,600.0	6,097.0	10,063.2	5,912.0	89.6	88.9	-74.43	-4,606.6	446.8	684.8	510.5	174.24	3.930	
10,700.0	6,097.0	10,163.2	5,912.0	91.5	90.8	-74.43	-4,706.6	446.7	684.8	506.9	177.93	3.849	
10,800.0	6,097.0	10,263.2	5,912.0	93.4	92.7	-74.43	-4,806.6	446.7	684.8	503.2	181.61	3.771	
10,900.0	6,097.0	10,363.2	5,912.0	95.3	94.6	-74.43	-4,906.6	446.7	684.8	499.5	185.30	3.696	
11,000.0	6,097.0	10,463.2	5,912.0	97.2	96.4	-74.43	-5,006.6	446.7	684.8	495.8	188.99	3.623	
11,100.0	6,097.0	10,563.2	5,912.0	99.1	98.3	-74.43	-5,106.6	446.7	684.8	492.1	192.68	3.554	
11,200.0	6,097.0	10,663.2	5,912.0	101.0	100.2	-74.43	-5,206.6	446.7	684.8	488.4	196.37	3.487	
11,300.0	6,097.0	10,763.2	5,912.0	102.9	102.1	-74.43	-5,306.6	446.7	684.8	484.7	200.06	3.423	
11,400.0	6,097.0	10,863.2	5,912.0	104.8	104.0	-74.43	-5,406.6	446.7	684.8	481.0	203.76	3.361	
11,500.0	6,097.0	10,963.2	5,912.0	106.7	105.9	-74.43	-5,506.6	446.7	684.8	477.3	207.45	3.301	
11,600.0	6,097.0	11,063.2	5,912.0	108.6	107.8	-74.43	-5,606.6	446.7	684.8	473.6	211.15	3.243	
11,700.0	6,097.0	11,163.2	5,912.0	110.5	109.7	-74.43	-5,706.6	446.7	684.8	469.9	214.84	3.187	
11,800.0	6,097.0	11,263.2	5,912.0	112.4	111.6	-74.43	-5,806.6	446.7	684.8	466.2	218.54	3.133	
11,900.0	6,097.0	11,363.2	5,912.0	114.3	113.5	-74.43	-5,906.6	446.7	684.8	462.5	222.24	3.081	
12,000.0	6,097.0	11,463.2	5,912.0	116.2	115.5	-74.43	-6,006.6	446.7	684.7	458.8	225.94	3.031	
12,100.0	6,097.0	11,563.2	5,912.0	118.1	117.4	-74.43	-6,106.6	446.7	684.7	455.1	229.64	2.982	
12,200.0	6,097.0	11,663.2	5,912.0	120.0	119.3	-74.43	-6,206.6	446.7	684.7	451.4	233.34	2.934	
12,300.0	6,097.0	11,763.2	5,912.0	121.9	121.2	-74.43	-6,306.6	446.7	684.7	447.7	237.05	2.889	
12,400.0	6,097.0	11,863.2	5,912.0	123.8	123.1	-74.43	-6,406.6	446.7	684.7	444.0	240.75	2.844	
12,500.0	6,097.0	11,963.2	5,912.0	125.8	125.0	-74.43	-6,506.6	446.7	684.7	440.3	244.45	2.801	
12,600.0	6,097.0	12,063.2	5,912.0	127.7	126.9	-74.43	-6,606.6	446.7	684.7	436.6	248.16	2.759	
12,700.0	6,097.0	12,163.2	5,912.0	129.6	128.8	-74.43	-6,706.6	446.7	684.7	432.9	251.86	2.719	
12,800.0	6,097.0	12,263.2	5,912.0	131.5	130.7	-74.43	-6,806.6	446.7	684.7	429.2	255.57	2.679	
12,900.0	6,097.0	12,363.2	5,912.0	133.4	132.6	-74.43	-6,906.6	446.7	684.7	425.4	259.27	2.641	
13,000.0	6,097.0	12,463.2	5,912.0	135.3	134.5	-74.43	-7,006.6	446.7	684.7	421.7	262.98	2.604	
13,100.0	6,097.0	12,563.2	5,912.0	137.2	136.4	-74.43	-7,106.6	446.7	684.7	418.0	266.69	2.567	
13,200.0	6,097.0	12,663.2	5,912.0	139.1	138.3	-74.43	-7,206.6	446.7	684.7	414.3	270.40	2.532	
13,300.0	6,097.0	12,763.2	5,912.0	141.0	140.2	-74.43	-7,306.6	446.7	684.7	410.6	274.10	2.498	
13,400.0	6,097.0	12,863.2	5,912.0	142.9	142.2	-74.43	-7,406.6	446.7	684.7	406.9	277.81	2.465	
13,500.0	6,097.0	12,963.2	5,912.0	144.8	144.1	-74.43	-7,506.6	446.6	684.7	403.2	281.52	2.432	
13,600.0	6,097.0	13,063.2	5,912.0	146.8	146.0	-74.43	-7,606.6	446.6	684.7	399.5	285.23	2.401	
13,700.0	6,097.0	13,163.2	5,912.0	148.7	147.9	-74.43	-7,706.6	446.6	684.7	395.8	288.94	2.370	
13,800.0	6,097.0	13,263.2	5,912.0	150.6	149.8	-74.43	-7,806.6	446.6	684.7	392.0	292.65	2.340	
13,900.0	6,097.0	13,363.2	5,912.0	152.5	151.7	-74.43	-7,906.6	446.6	684.7	388.3	296.36	2.310	
14,000.0	6,097.0	13,463.2	5,912.0	154.4	153.6	-74.43	-8,006.6	446.6	684.7	384.6	300.07	2.282	
14,100.0	6,097.0	13,563.2	5,912.0	156.3	155.5	-74.43	-8,106.6	446.6	684.7	380.9	303.78	2.254	
14,200.0	6,097.0	13,663.2	5,912.0	158.2	157.2	-74.43	-8,206.6	446.6	684.7	377.4	307.28	2.228	
14,227.8	6,097.0	13,691.0	5,912.0	158.8	157.7	-74.43	-8,234.4	446.6	684.7	376.5	308.21	2.222	

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1306B - HZ - Plan #3												Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor	Warning
14,235.6	6,097.0	13,695.8	5,912.0	158.9	157.7	-74.43	-8,239.2	446.6	684.7	376.3	308.43	2.220 SF	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1307A - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
0.0	0.0	0.0	0.0	0.0	0.0	89.99	0.0	98.4	98.4					
100.0	100.0	98.8	98.8	0.1	0.1	89.99	0.0	98.4	98.4	98.2	0.18	533.022		
200.0	200.0	198.8	198.8	0.3	0.3	89.99	0.0	98.4	98.4	97.7	0.63	155.518		
300.0	300.0	298.8	298.8	0.5	0.5	89.99	0.0	98.4	98.4	97.3	1.08	90.907		
400.0	400.0	398.8	398.8	0.8	0.8	89.99	0.0	98.4	98.4	96.8	1.53	64.224 CC, ES		
500.0	500.0	497.1	497.1	1.0	1.0	90.81	-1.4	99.2	99.2	97.2	1.95	50.749		
600.0	600.0	595.2	595.0	1.2	1.2	93.23	-5.7	101.7	101.9	99.5	2.37	42.947		
700.0	700.0	694.7	694.3	1.4	1.4	159.08	-11.8	105.1	107.1	104.3	2.80	38.202		
800.0	799.9	794.2	793.5	1.7	1.6	162.52	-17.8	108.6	115.1	111.9	3.24	35.508		
894.8	894.5	888.2	887.3	1.9	1.8	165.63	-23.5	111.8	125.4	121.7	3.66	34.225		
900.0	899.7	893.3	892.5	1.9	1.8	165.80	-23.8	112.0	126.0	122.3	3.69	34.187		
1,000.0	999.4	992.3	991.2	2.1	2.1	168.68	-29.8	115.4	138.4	134.3	4.13	33.531		
1,100.0	1,099.1	1,091.3	1,090.0	2.4	2.3	171.09	-35.8	118.9	151.1	146.6	4.57	33.037		
1,200.0	1,198.8	1,190.4	1,188.7	2.6	2.6	173.11	-41.8	122.3	164.1	159.0	5.02	32.657		
1,300.0	1,298.5	1,289.4	1,287.5	2.9	2.8	174.85	-47.8	125.7	177.2	171.7	5.47	32.359		
1,400.0	1,398.2	1,388.4	1,386.3	3.1	3.1	176.34	-53.8	129.2	190.4	184.5	5.93	32.120		
1,500.0	1,497.9	1,487.4	1,485.0	3.4	3.3	177.64	-59.8	132.6	203.7	197.3	6.38	31.927		
1,600.0	1,597.6	1,586.4	1,583.8	3.6	3.6	178.78	-65.7	136.0	217.2	210.3	6.84	31.767		
1,700.0	1,697.3	1,685.4	1,682.6	3.9	3.9	179.78	-71.7	139.5	230.7	223.4	7.29	31.633		
1,800.0	1,797.0	1,784.4	1,781.3	4.1	4.1	-179.32	-77.7	142.9	244.2	236.5	7.75	31.519		
1,900.0	1,896.7	1,883.4	1,880.1	4.4	4.4	-178.52	-83.7	146.3	257.9	249.7	8.21	31.422		
2,000.0	1,996.4	1,982.4	1,978.9	4.7	4.6	-177.80	-89.7	149.8	271.5	262.9	8.66	31.338		
2,100.0	2,096.1	2,081.4	2,077.6	4.9	4.9	-177.15	-95.7	153.2	285.2	276.1	9.12	31.264		
2,200.0	2,195.8	2,180.4	2,176.4	5.2	5.1	-176.56	-101.7	156.6	299.0	289.4	9.58	31.200		
2,300.0	2,295.5	2,279.4	2,275.2	5.5	5.4	-176.02	-107.7	160.1	312.7	302.7	10.04	31.143		
2,400.0	2,395.2	2,378.4	2,373.9	5.7	5.7	-175.53	-113.7	163.5	326.5	316.0	10.50	31.092		
2,500.0	2,494.9	2,477.4	2,472.7	6.0	5.9	-175.07	-119.7	166.9	340.3	329.4	10.96	31.046		
2,600.0	2,594.6	2,576.4	2,571.5	6.2	6.2	-174.65	-125.7	170.3	354.2	342.8	11.42	31.005		
2,700.0	2,694.3	2,675.5	2,670.2	6.5	6.4	-174.27	-131.7	173.8	368.0	356.1	11.88	30.968		
2,800.0	2,794.0	2,774.5	2,769.0	6.8	6.7	-173.91	-137.7	177.2	381.9	369.5	12.35	30.934		
2,900.0	2,893.7	2,873.5	2,867.8	7.0	7.0	-173.57	-143.7	180.6	395.8	383.0	12.81	30.903		
3,000.0	2,993.4	2,972.5	2,966.5	7.3	7.2	-173.26	-149.6	184.1	409.7	396.4	13.27	30.874		
3,100.0	3,093.1	3,071.5	3,065.3	7.6	7.5	-172.97	-155.6	187.5	423.6	409.8	13.73	30.848		
3,200.0	3,192.8	3,170.5	3,164.1	7.8	7.8	-172.70	-161.6	190.9	437.5	423.3	14.19	30.824		
3,300.0	3,292.5	3,269.5	3,262.8	8.1	8.0	-172.44	-167.6	194.4	451.4	436.7	14.65	30.802		
3,400.0	3,392.3	3,368.5	3,361.6	8.4	8.3	-172.20	-173.6	197.8	465.3	450.2	15.12	30.781		
3,500.0	3,492.0	3,467.5	3,460.4	8.6	8.5	-171.98	-179.6	201.2	479.3	463.7	15.58	30.762		
3,600.0	3,591.7	3,566.5	3,559.1	8.9	8.8	-171.76	-185.6	204.7	493.2	477.2	16.04	30.744		
3,700.0	3,691.4	3,665.5	3,657.9	9.2	9.1	-171.56	-191.6	208.1	507.2	490.7	16.51	30.727		
3,714.2	3,705.5	3,679.6	3,671.9	9.2	9.1	-171.54	-192.4	208.6	509.1	492.6	16.57	30.725		
3,800.0	3,791.1	3,764.7	3,756.8	9.4	9.3	-171.38	-197.6	211.5	520.2	503.2	16.96	30.664		
3,900.0	3,891.0	3,864.1	3,856.0	9.6	9.6	-171.16	-203.6	215.0	530.6	513.3	17.38	30.526		
4,009.0	4,000.0	3,972.7	3,964.3	9.8	9.9	126.65	-210.2	218.8	539.1	521.2	17.92	30.094		
4,100.0	4,091.0	4,063.5	4,054.9	9.9	10.1	126.92	-215.7	221.9	545.0	526.7	18.31	29.763		
4,200.0	4,191.0	4,163.2	4,154.4	10.1	10.4	127.21	-221.7	225.4	551.4	532.6	18.76	29.392		
4,300.0	4,291.0	4,263.0	4,253.9	10.3	10.6	127.49	-227.8	228.8	557.8	538.6	19.21	29.039		
4,400.0	4,391.0	4,362.7	4,353.4	10.5	10.9	127.76	-233.8	232.3	564.3	544.6	19.66	28.701		
4,500.0	4,491.0	4,462.5	4,452.9	10.7	11.2	128.03	-239.8	235.7	570.7	550.6	20.11	28.378		
4,600.0	4,591.0	4,562.3	4,552.4	10.9	11.4	128.29	-245.9	239.2	577.2	556.6	20.56	28.069		
4,700.0	4,691.0	4,662.0	4,652.0	11.1	11.7	128.54	-251.9	242.6	583.7	562.7	21.02	27.774		
4,800.0	4,791.0	4,761.8	4,751.5	11.3	12.0	128.79	-258.0	246.1	590.2	568.7	21.47	27.490		
4,900.0	4,891.0	4,861.5	4,851.0	11.5	12.2	129.04	-264.0	249.6	596.7	574.7	21.92	27.218		

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1307A - HZ - Plan #3												Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD												Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor	Warning
5,000.0	4,991.0	4,961.3	4,950.5	11.7	12.5	129.28	-270.0	253.0	603.2	580.8	22.38	26.957	
5,100.0	5,091.0	5,061.0	5,050.0	11.9	12.7	129.51	-276.1	256.5	609.7	586.9	22.83	26.706	
5,200.0	5,191.0	5,160.8	5,149.5	12.1	13.0	129.74	-282.1	259.9	616.2	592.9	23.29	26.465	
5,300.0	5,291.0	5,260.6	5,249.0	12.3	13.3	129.96	-288.1	263.4	622.8	599.0	23.74	26.232	
5,400.0	5,391.0	5,350.0	5,338.3	12.5	13.5	130.17	-293.7	266.6	629.5	605.4	24.17	26.044	
5,500.0	5,491.0	5,400.0	5,387.7	12.7	13.7	130.38	-299.8	270.1	642.2	617.7	24.52	26.188	
5,585.1	5,576.1	5,432.7	5,419.7	12.9	13.8	130.60	-306.0	273.6	659.3	634.5	24.81	26.579	
5,600.0	5,591.0	5,450.0	5,436.3	12.9	13.9	-49.00	-310.0	275.9	662.9	638.3	24.67	26.871	
5,650.0	5,640.9	5,450.0	5,436.3	13.0	13.9	-48.08	-310.0	275.9	673.8	649.1	24.76	27.215	
5,700.0	5,690.1	5,483.3	5,467.9	13.1	14.1	-47.32	-318.9	281.0	683.3	658.3	25.00	27.338	
5,750.0	5,738.3	5,500.0	5,483.6	13.1	14.1	-46.73	-324.1	284.0	691.8	666.8	25.09	27.578	
5,800.0	5,785.0	5,526.8	5,508.2	13.2	14.3	-46.44	-333.3	289.3	699.0	673.9	25.12	27.825	
5,850.0	5,829.8	5,550.0	5,529.0	13.3	14.4	-46.34	-342.2	294.3	704.9	679.9	25.06	28.126	
5,900.0	5,872.2	5,569.6	5,546.3	13.3	14.6	-46.36	-350.2	299.0	709.6	684.7	24.93	28.459	
5,950.0	5,911.9	5,600.0	5,572.3	13.4	14.8	-46.83	-363.9	306.8	713.2	688.4	24.83	28.718	
6,000.0	5,948.5	5,600.0	5,572.3	13.5	14.8	-46.65	-363.9	306.8	715.5	691.0	24.53	29.165	
6,050.0	5,981.7	5,631.7	5,598.4	13.6	15.1	-47.55	-379.5	315.7	716.5	692.0	24.51	29.238	
6,100.0	6,011.2	5,650.0	5,612.9	13.7	15.2	-48.19	-389.1	321.2	716.6	692.2	24.44	29.317	
6,150.0	6,036.6	5,671.4	5,629.5	13.9	15.4	-49.10	-400.9	328.0	715.8	691.2	24.54	29.164	
6,200.0	6,057.8	5,700.0	5,650.6	14.1	15.7	-50.50	-417.6	337.5	714.3	689.4	24.91	28.674	
6,250.0	6,074.6	5,700.0	5,650.6	14.4	15.7	-50.69	-417.6	337.5	712.0	687.0	24.97	28.515	
6,300.0	6,086.8	5,727.8	5,670.1	14.8	16.0	-52.34	-434.8	347.4	709.1	683.4	25.70	27.591	
6,350.0	6,094.3	5,750.0	5,685.0	15.2	16.2	-53.84	-449.1	355.6	705.9	679.4	26.50	26.637	
6,403.3	6,097.0	5,763.9	5,693.9	15.7	16.3	-54.99	-458.4	360.9	702.2	674.9	27.30	25.723	
6,467.0	6,097.0	5,786.1	5,707.5	16.4	16.6	-56.31	-473.6	369.6	700.0	671.7	28.38	24.670	
6,500.0	6,097.0	5,800.0	5,715.7	16.7	16.8	-57.12	-483.3	375.2	700.6	671.6	29.02	24.142	
6,600.0	6,097.0	5,837.4	5,736.1	17.9	17.2	-59.21	-510.5	390.8	709.2	678.3	30.94	22.921	
6,700.0	6,097.0	5,880.5	5,756.8	19.2	17.8	-61.43	-543.3	409.5	727.3	694.2	33.10	21.976	
6,800.0	6,097.0	5,927.5	5,775.7	20.7	18.5	-63.57	-580.6	430.9	753.6	718.2	35.41	21.286	
6,900.0	6,097.0	5,977.9	5,791.6	22.1	19.2	-65.50	-622.1	454.7	786.8	749.0	37.83	20.797	
7,000.0	6,097.0	6,031.3	5,803.3	23.7	20.0	-67.13	-667.3	480.5	825.5	785.2	40.34	20.467	
7,100.0	6,097.0	6,086.6	5,809.8	25.3	20.9	-68.35	-714.9	507.8	868.7	825.8	42.87	20.264	
7,200.0	6,097.0	6,184.5	5,810.8	26.9	22.5	-69.65	-800.4	555.5	914.7	868.6	46.11	19.839	
7,300.0	6,097.0	6,354.0	5,810.8	28.6	25.2	-71.28	-953.5	628.0	955.5	904.9	50.52	18.911	
7,400.0	6,097.0	6,537.0	5,810.8	30.3	28.1	-72.50	-1,125.4	690.6	988.2	932.9	55.32	17.865	
7,500.0	6,097.0	6,731.6	5,810.8	32.1	31.3	-73.33	-1,313.9	738.9	1,012.0	951.6	60.41	16.753	
7,600.0	6,097.0	6,934.5	5,810.8	33.8	34.6	-73.81	-1,514.5	768.5	1,026.1	960.5	65.64	15.632	
7,700.0	6,097.0	7,126.9	5,810.8	35.6	37.6	-73.94	-1,706.7	776.9	1,030.0	959.4	70.59	14.590	
7,800.0	6,097.0	7,226.9	5,810.8	37.4	39.2	-73.94	-1,806.7	776.9	1,030.0	956.0	73.98	13.923	
7,900.0	6,097.0	7,326.9	5,810.8	39.1	40.8	-73.94	-1,906.7	776.9	1,030.0	952.6	77.40	13.307	
8,000.0	6,097.0	7,426.9	5,810.8	41.0	42.5	-73.94	-2,006.7	776.8	1,030.0	949.1	80.86	12.738	
8,100.0	6,097.0	7,526.9	5,810.8	42.8	44.2	-73.94	-2,106.7	776.8	1,029.9	945.6	84.33	12.213	
8,200.0	6,097.0	7,626.9	5,810.8	44.6	45.9	-73.94	-2,206.7	776.8	1,029.9	942.1	87.83	11.727	
8,300.0	6,097.0	7,726.9	5,810.8	46.4	47.6	-73.94	-2,306.7	776.8	1,029.9	938.6	91.34	11.276	
8,400.0	6,097.0	7,826.9	5,810.9	48.3	49.3	-73.94	-2,406.7	776.8	1,029.9	935.1	94.87	10.856	
8,500.0	6,097.0	7,926.9	5,810.9	50.1	51.1	-73.94	-2,506.7	776.8	1,029.9	931.5	98.41	10.465	
8,600.0	6,097.0	8,026.9	5,810.9	52.0	52.8	-73.94	-2,606.7	776.8	1,029.9	927.9	101.97	10.100	
8,700.0	6,097.0	8,126.9	5,810.9	53.8	54.6	-73.94	-2,706.7	776.8	1,029.9	924.4	105.54	9.758	
8,800.0	6,097.0	8,226.9	5,810.9	55.7	56.4	-73.94	-2,806.7	776.8	1,029.9	920.8	109.12	9.438	
8,900.0	6,097.0	8,326.9	5,810.9	57.5	58.1	-73.94	-2,906.7	776.8	1,029.9	917.2	112.71	9.138	
9,000.0	6,097.0	8,426.9	5,810.9	59.4	59.9	-73.94	-3,006.7	776.8	1,029.9	913.6	116.30	8.855	
9,100.0	6,097.0	8,526.9	5,810.9	61.3	61.7	-73.94	-3,106.7	776.8	1,029.9	910.0	119.90	8.589	

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1307A - HZ - Plan #3												Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD												Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor	
9,200.0	6,097.0	8,626.9	5,810.9	63.2	63.5	-73.94	-3,206.7	776.8	1,029.9	906.4	123.52	8.338	
9,300.0	6,097.0	8,726.9	5,810.9	65.0	65.4	-73.94	-3,306.7	776.8	1,029.9	902.7	127.13	8.101	
9,400.0	6,097.0	8,826.9	5,810.9	66.9	67.2	-73.94	-3,406.7	776.7	1,029.9	899.1	130.75	7.876	
9,500.0	6,097.0	8,926.9	5,810.9	68.8	69.0	-73.94	-3,506.7	776.7	1,029.8	895.5	134.38	7.664	
9,600.0	6,097.0	9,026.9	5,810.9	70.7	70.8	-73.94	-3,606.7	776.7	1,029.8	891.8	138.01	7.462	
9,700.0	6,097.0	9,126.9	5,810.9	72.6	72.7	-73.94	-3,706.7	776.7	1,029.8	888.2	141.65	7.270	
9,800.0	6,097.0	9,226.9	5,810.9	74.4	74.5	-73.94	-3,806.7	776.7	1,029.8	884.5	145.29	7.088	
9,900.0	6,097.0	9,326.9	5,810.9	76.3	76.4	-73.94	-3,906.7	776.7	1,029.8	880.9	148.94	6.914	
10,000.0	6,097.0	9,426.9	5,810.9	78.2	78.2	-73.94	-4,006.7	776.7	1,029.8	877.2	152.59	6.749	
10,100.0	6,097.0	9,526.9	5,810.9	80.1	80.1	-73.94	-4,106.7	776.7	1,029.8	873.6	156.24	6.591	
10,200.0	6,097.0	9,626.9	5,810.9	82.0	81.9	-73.94	-4,206.7	776.7	1,029.8	869.9	159.89	6.440	
10,300.0	6,097.0	9,726.9	5,810.9	83.9	83.8	-73.94	-4,306.7	776.7	1,029.8	866.2	163.55	6.296	
10,400.0	6,097.0	9,826.9	5,810.9	85.8	85.6	-73.94	-4,406.7	776.7	1,029.8	862.6	167.21	6.158	
10,500.0	6,097.0	9,926.9	5,810.9	87.7	87.5	-73.94	-4,506.7	776.7	1,029.8	858.9	170.88	6.026	
10,600.0	6,097.0	10,026.9	5,810.9	89.6	89.4	-73.94	-4,606.7	776.7	1,029.8	855.2	174.54	5.900	
10,700.0	6,097.0	10,126.9	5,810.9	91.5	91.2	-73.94	-4,706.7	776.7	1,029.8	851.6	178.21	5.778	
10,800.0	6,097.0	10,226.9	5,810.9	93.4	93.1	-73.94	-4,806.7	776.6	1,029.8	847.9	181.88	5.662	
10,900.0	6,097.0	10,326.9	5,810.9	95.3	95.0	-73.94	-4,906.7	776.6	1,029.7	844.2	185.55	5.550	
11,000.0	6,097.0	10,426.9	5,810.9	97.2	96.9	-73.94	-5,006.7	776.6	1,029.7	840.5	189.23	5.442	
11,100.0	6,097.0	10,526.9	5,810.9	99.1	98.7	-73.94	-5,106.7	776.6	1,029.7	836.8	192.90	5.338	
11,200.0	6,097.0	10,626.9	5,810.9	101.0	100.6	-73.94	-5,206.7	776.6	1,029.7	833.1	196.58	5.238	
11,300.0	6,097.0	10,726.9	5,810.9	102.9	102.5	-73.94	-5,306.7	776.6	1,029.7	829.5	200.26	5.142	
11,400.0	6,097.0	10,826.9	5,810.9	104.8	104.4	-73.94	-5,406.7	776.6	1,029.7	825.8	203.94	5.049	
11,500.0	6,097.0	10,926.9	5,810.9	106.7	106.3	-73.94	-5,506.7	776.6	1,029.7	822.1	207.62	4.960	
11,600.0	6,097.0	11,026.9	5,810.9	108.6	108.1	-73.94	-5,606.7	776.6	1,029.7	818.4	211.30	4.873	
11,700.0	6,097.0	11,126.9	5,810.9	110.5	110.0	-73.94	-5,706.7	776.6	1,029.7	814.7	214.98	4.790	
11,800.0	6,097.0	11,226.9	5,810.9	112.4	111.9	-73.94	-5,806.7	776.6	1,029.7	811.0	218.67	4.709	
11,900.0	6,097.0	11,326.9	5,810.9	114.3	113.8	-73.94	-5,906.7	776.6	1,029.7	807.3	222.36	4.631	
12,000.0	6,097.0	11,426.9	5,810.9	116.2	115.7	-73.94	-6,006.7	776.6	1,029.7	803.6	226.04	4.555	
12,100.0	6,097.0	11,526.9	5,810.9	118.1	117.6	-73.94	-6,106.7	776.6	1,029.7	799.9	229.73	4.482	
12,200.0	6,097.0	11,626.9	5,810.9	120.0	119.5	-73.94	-6,206.7	776.5	1,029.7	796.2	233.42	4.411	
12,300.0	6,097.0	11,726.9	5,810.9	121.9	121.4	-73.94	-6,306.7	776.5	1,029.6	792.5	237.11	4.342	
12,400.0	6,097.0	11,826.9	5,810.9	123.8	123.3	-73.94	-6,406.7	776.5	1,029.6	788.8	240.80	4.276	
12,500.0	6,097.0	11,926.9	5,810.9	125.8	125.2	-73.94	-6,506.7	776.5	1,029.6	785.1	244.49	4.211	
12,600.0	6,097.0	12,026.9	5,810.9	127.7	127.1	-73.94	-6,606.7	776.5	1,029.6	781.4	248.19	4.149	
12,700.0	6,097.0	12,126.9	5,811.0	129.6	129.0	-73.94	-6,706.7	776.5	1,029.6	777.7	251.88	4.088	
12,800.0	6,097.0	12,226.9	5,811.0	131.5	130.8	-73.94	-6,806.7	776.5	1,029.6	774.0	255.57	4.029	
12,900.0	6,097.0	12,326.9	5,811.0	133.4	132.7	-73.94	-6,906.7	776.5	1,029.6	770.3	259.27	3.971	
13,000.0	6,097.0	12,426.9	5,811.0	135.3	134.6	-73.94	-7,006.7	776.5	1,029.6	766.6	262.96	3.915	
13,100.0	6,097.0	12,526.9	5,811.0	137.2	136.5	-73.94	-7,106.7	776.5	1,029.6	762.9	266.66	3.861	
13,200.0	6,097.0	12,626.9	5,811.0	139.1	138.4	-73.94	-7,206.7	776.5	1,029.6	759.2	270.36	3.808	
13,300.0	6,097.0	12,726.9	5,811.0	141.0	140.3	-73.94	-7,306.7	776.5	1,029.6	755.5	274.05	3.757	
13,400.0	6,097.0	12,826.9	5,811.0	142.9	142.2	-73.94	-7,406.7	776.5	1,029.6	751.8	277.75	3.707	
13,500.0	6,097.0	12,926.9	5,811.0	144.8	144.1	-73.94	-7,506.7	776.5	1,029.6	748.1	281.45	3.658	
13,600.0	6,097.0	13,026.9	5,811.0	146.8	146.0	-73.94	-7,606.7	776.4	1,029.6	744.4	285.15	3.611	
13,700.0	6,097.0	13,126.9	5,811.0	148.7	147.9	-73.94	-7,706.7	776.4	1,029.5	740.7	288.85	3.564	
13,800.0	6,097.0	13,226.9	5,811.0	150.6	149.8	-73.94	-7,806.7	776.4	1,029.5	737.0	292.55	3.519	
13,900.0	6,097.0	13,326.9	5,811.0	152.5	151.8	-73.94	-7,906.7	776.4	1,029.5	733.3	296.25	3.475	
14,000.0	6,097.0	13,426.9	5,811.0	154.4	153.7	-73.94	-8,006.7	776.4	1,029.5	729.6	299.95	3.432	
14,100.0	6,097.0	13,526.9	5,811.0	156.3	155.6	-73.94	-8,106.7	776.4	1,029.5	725.9	303.65	3.390	
14,200.0	6,097.0	13,626.9	5,811.0	158.2	157.5	-73.94	-8,206.7	776.4	1,029.5	722.2	307.35	3.350	
14,227.6	6,097.0	13,654.5	5,811.0	158.8	158.0	-73.94	-8,234.3	776.4	1,029.5	721.1	308.37	3.339	

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design											S12-T10N-R58W - Razor Federal #12F-1307A - HZ - Plan #3				Offset Site Error:		0.0 usft	
Survey Program: 0-ISCWSA MWD															Offset Well Error:		0.0 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)	Total Uncertainty Axis	Separation Factor						
14,235.6	6,097.0	13,658.4	5,811.0	158.9	158.1	-73.94	-8,238.2	776.4	1,029.5	720.9	308.59	3.336 SF						

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1308B - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 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)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	90.01	0.0	131.4	131.4					
100.0	100.0	98.8	98.8	0.1	0.1	90.01	0.0	131.4	131.4	131.2	0.18	712.090		
200.0	200.0	198.8	198.8	0.3	0.3	90.01	0.0	131.4	131.4	130.8	0.63	207.758		
300.0	300.0	298.8	298.8	0.5	0.5	90.01	0.0	131.4	131.4	130.3	1.08	121.444		
400.0	400.0	398.8	398.8	0.8	0.8	90.01	0.0	131.4	131.4	129.9	1.53	85.799		
500.0	500.0	498.8	498.8	1.0	1.0	90.01	0.0	131.4	131.4	129.4	1.98	66.330		
600.0	600.0	598.8	598.8	1.2	1.2	90.01	0.0	131.4	131.4	129.0	2.43	54.063 CC, ES		
700.0	700.0	698.8	698.8	1.4	1.4	152.72	0.0	131.4	132.6	129.7	2.87	46.123		
800.0	799.9	798.7	798.7	1.7	1.7	153.46	0.0	131.4	136.1	132.8	3.31	41.052		
894.8	894.5	893.3	893.3	1.9	1.9	154.53	0.0	131.4	141.6	137.8	3.73	37.909		
900.0	899.7	898.5	898.5	1.9	1.9	154.60	0.0	131.4	141.9	138.2	3.76	37.773		
1,000.0	999.4	994.8	994.8	2.1	2.1	156.27	-1.2	132.4	150.1	145.9	4.17	35.975		
1,100.0	1,099.1	1,090.3	1,090.2	2.4	2.3	158.56	-4.9	135.5	160.7	156.1	4.57	35.140		
1,200.0	1,198.8	1,188.9	1,188.5	2.6	2.5	161.08	-10.1	139.9	173.0	168.1	4.99	34.696		
1,300.0	1,298.5	1,287.9	1,287.3	2.9	2.7	163.27	-15.4	144.3	185.7	180.3	5.41	34.339		
1,400.0	1,398.2	1,386.8	1,386.0	3.1	2.9	165.18	-20.7	148.7	198.6	192.7	5.83	34.036		
1,500.0	1,497.9	1,485.8	1,484.7	3.4	3.1	166.85	-26.0	153.1	211.6	205.4	6.27	33.777		
1,600.0	1,597.6	1,584.8	1,583.4	3.6	3.3	168.33	-31.3	157.6	224.9	218.2	6.70	33.555		
1,700.0	1,697.3	1,683.7	1,682.1	3.9	3.6	169.65	-36.6	162.0	238.2	231.1	7.14	33.365		
1,800.0	1,797.0	1,782.7	1,780.9	4.1	3.8	170.82	-41.9	166.4	251.7	244.1	7.58	33.197		
1,900.0	1,896.7	1,881.7	1,879.6	4.4	4.0	171.88	-47.2	170.8	265.3	257.2	8.03	33.053		
2,000.0	1,996.4	1,980.6	1,978.3	4.7	4.3	172.83	-52.5	175.3	278.9	270.4	8.47	32.925		
2,100.0	2,096.1	2,079.6	2,077.0	4.9	4.5	173.70	-57.8	179.7	292.6	283.7	8.92	32.813		
2,200.0	2,195.8	2,178.5	2,175.8	5.2	4.8	174.49	-63.1	184.1	306.4	297.0	9.37	32.713		
2,300.0	2,295.5	2,277.5	2,274.5	5.5	5.0	175.20	-68.4	188.5	320.2	310.4	9.82	32.624		
2,400.0	2,395.2	2,376.5	2,373.2	5.7	5.3	175.86	-73.7	193.0	334.1	323.8	10.27	32.544		
2,500.0	2,494.9	2,475.4	2,471.9	6.0	5.5	176.47	-79.0	197.4	348.0	337.3	10.72	32.471		
2,600.0	2,594.6	2,574.4	2,570.6	6.2	5.8	177.03	-84.3	201.8	362.0	350.8	11.17	32.406		
2,700.0	2,694.3	2,673.4	2,669.4	6.5	6.0	177.55	-89.6	206.3	375.9	364.3	11.62	32.346		
2,800.0	2,794.0	2,772.3	2,768.1	6.8	6.3	178.03	-94.9	210.7	389.9	377.9	12.08	32.292		
2,900.0	2,893.7	2,871.3	2,866.8	7.0	6.5	178.48	-100.2	215.1	404.0	391.4	12.53	32.242		
3,000.0	2,993.4	2,970.2	2,965.5	7.3	6.8	178.90	-105.5	219.5	418.0	405.0	12.98	32.197		
3,100.0	3,093.1	3,069.2	3,064.2	7.6	7.0	179.29	-110.8	224.0	432.1	418.7	13.44	32.154		
3,200.0	3,192.8	3,168.2	3,163.0	7.8	7.3	179.66	-116.1	228.4	446.2	432.3	13.89	32.115		
3,300.0	3,292.5	3,267.1	3,261.7	8.1	7.6	180.00	-121.4	232.8	460.3	446.0	14.35	32.079		
3,400.0	3,392.3	3,366.1	3,360.4	8.4	7.8	-179.68	-126.7	237.2	474.4	459.6	14.80	32.045		
3,500.0	3,492.0	3,465.1	3,459.1	8.6	8.1	-179.37	-132.0	241.7	488.6	473.3	15.26	32.014		
3,600.0	3,591.7	3,564.0	3,557.9	8.9	8.3	-179.08	-137.3	246.1	502.7	487.0	15.72	31.985		
3,700.0	3,691.4	3,663.0	3,656.6	9.2	8.6	-178.81	-142.6	250.5	516.9	500.7	16.17	31.957		
3,714.2	3,705.5	3,677.0	3,670.6	9.2	8.6	-178.78	-143.3	251.1	518.9	502.7	16.24	31.953		
3,800.0	3,791.1	3,762.1	3,755.4	9.4	8.8	-178.56	-147.9	254.9	530.1	513.5	16.63	31.884		
3,900.0	3,891.0	3,861.5	3,854.6	9.6	9.1	-178.31	-153.2	259.4	540.8	523.7	17.04	31.734		
4,009.0	4,000.0	3,970.1	3,962.9	9.8	9.4	119.50	-159.0	264.2	549.4	531.8	17.58	31.256		
4,100.0	4,091.0	4,060.9	4,053.5	9.9	9.6	119.73	-163.9	268.3	555.4	537.4	17.97	30.903		
4,200.0	4,191.0	4,160.6	4,153.0	10.1	9.9	119.98	-169.2	272.8	561.9	543.5	18.42	30.509		
4,300.0	4,291.0	4,260.4	4,252.5	10.3	10.1	120.22	-174.5	277.2	568.5	549.6	18.87	30.133		
4,400.0	4,391.0	4,360.1	4,352.0	10.5	10.4	120.46	-179.9	281.7	575.0	555.7	19.31	29.773		
4,500.0	4,491.0	4,459.9	4,451.6	10.7	10.7	120.69	-185.2	286.2	581.6	561.8	19.76	29.429		
4,600.0	4,591.0	4,559.7	4,551.1	10.9	10.9	120.92	-190.6	290.6	588.2	568.0	20.21	29.100		
4,700.0	4,691.0	4,659.4	4,650.6	11.1	11.2	121.14	-195.9	295.1	594.8	574.1	20.66	28.784		
4,800.0	4,791.0	4,759.2	4,750.1	11.3	11.4	121.36	-201.2	299.5	601.4	580.3	21.12	28.482		
4,900.0	4,891.0	4,858.9	4,849.6	11.5	11.7	121.57	-206.6	304.0	608.0	586.4	21.57	28.191		

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1308B - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 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)	Total Uncertainty Axis	Separation Factor		
5,000.0	4,991.0	4,958.7	4,949.1	11.7	12.0	121.77	-211.9	308.5	614.6	592.6	22.02	27.912		
5,100.0	5,091.0	5,058.4	5,048.6	11.9	12.2	121.98	-217.3	312.9	621.2	598.8	22.47	27.644		
5,200.0	5,191.0	5,158.2	5,148.1	12.1	12.5	122.17	-222.6	317.4	627.9	605.0	22.93	27.386		
5,300.0	5,291.0	5,258.0	5,247.7	12.3	12.7	122.37	-227.9	321.9	634.5	611.1	23.38	27.138		
5,400.0	5,391.0	5,357.7	5,347.2	12.5	13.0	122.56	-233.3	326.3	641.2	617.3	23.84	26.899		
5,500.0	5,491.0	5,450.0	5,439.2	12.7	13.3	122.73	-238.3	330.5	648.0	623.7	24.27	26.695		
5,585.1	5,576.1	5,485.3	5,474.3	12.9	13.4	122.85	-241.8	333.4	658.0	633.5	24.55	26.801		
5,600.0	5,591.0	5,500.0	5,488.7	12.9	13.4	-56.90	-243.7	335.0	660.4	636.0	24.40	27.065		
5,650.0	5,640.9	5,514.3	5,502.7	13.0	13.5	-56.26	-245.9	336.9	667.5	643.0	24.50	27.245		
5,700.0	5,690.1	5,550.0	5,537.3	13.1	13.6	-55.92	-252.7	342.5	674.4	649.6	24.75	27.244		
5,750.0	5,738.3	5,550.0	5,537.3	13.1	13.6	-55.40	-252.7	342.5	680.1	655.3	24.84	27.376		
5,800.0	5,785.0	5,580.1	5,565.9	13.2	13.8	-55.42	-259.8	348.5	685.3	660.4	24.96	27.454		
5,850.0	5,829.8	5,600.0	5,584.5	13.3	13.9	-55.44	-265.2	353.0	690.0	665.0	25.00	27.601		
5,900.0	5,872.2	5,622.3	5,605.1	13.3	14.0	-55.67	-272.0	358.6	694.1	669.1	25.02	27.745		
5,950.0	5,911.9	5,650.0	5,630.0	13.4	14.2	-56.25	-281.2	366.3	697.8	672.8	25.06	27.849		
6,000.0	5,948.5	5,650.0	5,630.0	13.5	14.2	-55.94	-281.2	366.3	701.2	676.3	24.94	28.118		
6,050.0	5,981.7	5,682.3	5,658.2	13.6	14.4	-56.99	-293.2	376.4	703.8	678.7	25.08	28.062		
6,100.0	6,011.2	5,700.0	5,673.2	13.7	14.5	-57.55	-300.4	382.4	706.5	681.3	25.17	28.063		
6,150.0	6,036.6	5,719.3	5,689.3	13.9	14.7	-58.26	-308.7	389.3	709.0	683.6	25.37	27.944		
6,200.0	6,057.8	5,750.0	5,713.9	14.1	14.9	-59.67	-322.7	401.0	711.8	686.0	25.82	27.565		
6,250.0	6,074.6	5,750.0	5,713.9	14.4	14.9	-59.43	-322.7	401.0	714.3	688.4	25.95	27.529		
6,300.0	6,086.8	5,769.5	5,729.0	14.8	15.1	-60.31	-332.2	409.0	717.3	690.9	26.46	27.109		
6,350.0	6,094.3	5,784.6	5,740.3	15.2	15.2	-60.94	-339.9	415.4	720.7	693.7	26.99	26.702		
6,403.3	6,097.0	5,800.0	5,751.6	15.7	15.4	-61.54	-347.9	422.1	725.0	697.3	27.63	26.237		
6,500.0	6,097.0	5,827.4	5,770.8	16.7	15.6	-63.35	-362.9	434.6	738.6	709.5	29.06	25.413		
6,600.0	6,097.0	5,850.0	5,785.9	17.9	15.9	-64.79	-375.8	445.4	763.3	732.7	30.56	24.979		
6,700.0	6,097.0	5,900.0	5,816.7	19.2	16.4	-67.79	-406.0	470.7	797.2	764.5	32.69	24.388		
6,800.0	6,097.0	5,934.0	5,835.3	20.7	16.9	-69.63	-427.8	488.8	838.9	804.3	34.59	24.250		
6,900.0	6,097.0	5,977.2	5,856.3	22.1	17.4	-71.74	-456.8	513.1	887.0	850.2	36.72	24.151		
7,000.0	6,097.0	6,024.4	5,875.6	23.7	18.1	-73.71	-489.9	540.7	939.9	900.9	38.96	24.124		
7,100.0	6,097.0	6,075.3	5,891.9	25.3	18.9	-75.43	-526.8	571.6	996.6	955.3	41.29	24.136		
7,200.0	6,097.0	6,129.1	5,903.9	26.9	19.7	-76.80	-567.0	605.2	1,056.0	1,012.3	43.69	24.172		
7,300.0	6,097.0	6,184.9	5,910.6	28.6	20.7	-77.76	-609.6	640.7	1,117.5	1,071.4	46.13	24.224		
7,400.0	6,097.0	6,295.3	5,911.8	30.3	22.5	-78.73	-695.2	710.3	1,179.9	1,130.6	49.39	23.892		
7,500.0	6,097.0	6,515.8	5,911.8	32.1	26.2	-80.04	-877.2	834.5	1,235.7	1,181.3	54.45	22.694		
7,600.0	6,097.0	6,771.5	5,911.8	33.8	30.7	-81.02	-1,104.5	951.2	1,281.0	1,220.4	60.57	21.151		
7,700.0	6,097.0	7,060.3	5,911.8	35.6	35.6	-81.68	-1,377.4	1,045.1	1,313.3	1,245.8	67.58	19.434		
7,800.0	6,097.0	7,373.8	5,911.8	37.4	40.7	-82.02	-1,685.7	1,099.3	1,330.5	1,255.5	75.06	17.727		
7,900.0	6,097.0	7,594.9	5,911.8	39.1	44.1	-82.07	-1,906.7	1,107.3	1,333.0	1,252.3	80.69	16.519		
8,000.0	6,097.0	7,694.9	5,911.8	41.0	45.6	-82.07	-2,006.7	1,107.3	1,333.0	1,248.8	84.17	15.836		
8,100.0	6,097.0	7,794.9	5,911.8	42.8	47.2	-82.07	-2,106.7	1,107.3	1,333.0	1,245.3	87.68	15.203		
8,200.0	6,097.0	7,894.9	5,911.8	44.6	48.8	-82.07	-2,206.7	1,107.3	1,333.0	1,241.8	91.21	14.615		
8,300.0	6,097.0	7,994.9	5,911.8	46.4	50.3	-82.07	-2,306.7	1,107.3	1,333.0	1,238.2	94.76	14.067		
8,400.0	6,097.0	8,094.9	5,911.8	48.3	52.0	-82.07	-2,406.7	1,107.3	1,333.0	1,234.6	98.33	13.555		
8,500.0	6,097.0	8,194.9	5,911.8	50.1	53.6	-82.07	-2,506.7	1,107.3	1,333.0	1,231.0	101.93	13.078		
8,600.0	6,097.0	8,294.9	5,911.8	52.0	55.3	-82.07	-2,606.7	1,107.3	1,332.9	1,227.4	105.53	12.631		
8,700.0	6,097.0	8,394.9	5,911.8	53.8	56.9	-82.07	-2,706.7	1,107.3	1,332.9	1,223.8	109.15	12.212		
8,800.0	6,097.0	8,494.9	5,911.8	55.7	58.6	-82.07	-2,806.7	1,107.3	1,332.9	1,220.1	112.79	11.818		
8,900.0	6,097.0	8,594.9	5,911.8	57.5	60.3	-82.07	-2,906.7	1,107.3	1,332.9	1,216.5	116.43	11.448		
9,000.0	6,097.0	8,694.9	5,911.8	59.4	62.0	-82.07	-3,006.7	1,107.3	1,332.9	1,212.8	120.09	11.099		
9,100.0	6,097.0	8,794.9	5,911.9	61.3	63.8	-82.07	-3,106.7	1,107.3	1,332.9	1,209.2	123.76	10.770		
9,200.0	6,097.0	8,894.9	5,911.9	63.2	65.5	-82.07	-3,206.7	1,107.2	1,332.9	1,205.5	127.43	10.460		

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1308B - HZ - Plan #3												Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor	Warning
9,300.0	6,097.0	8,994.9	5,911.9	65.0	67.2	-82.07	-3,306.7	1,107.2	1,332.9	1,201.8	131.12	10.166	
9,400.0	6,097.0	9,094.9	5,911.9	66.9	69.0	-82.07	-3,406.7	1,107.2	1,332.9	1,198.1	134.81	9.887	
9,500.0	6,097.0	9,194.9	5,911.9	68.8	70.8	-82.07	-3,506.7	1,107.2	1,332.9	1,194.4	138.50	9.623	
9,600.0	6,097.0	9,294.9	5,911.9	70.7	72.5	-82.07	-3,606.7	1,107.2	1,332.9	1,190.7	142.21	9.373	
9,700.0	6,097.0	9,394.9	5,911.9	72.6	74.3	-82.07	-3,706.7	1,107.2	1,332.9	1,187.0	145.92	9.134	
9,800.0	6,097.0	9,494.9	5,911.9	74.4	76.1	-82.07	-3,806.7	1,107.2	1,332.9	1,183.2	149.63	8.908	
9,900.0	6,097.0	9,594.9	5,911.9	76.3	77.9	-82.07	-3,906.7	1,107.2	1,332.9	1,179.5	153.35	8.692	
10,000.0	6,097.0	9,694.9	5,911.9	78.2	79.7	-82.07	-4,006.7	1,107.2	1,332.9	1,175.8	157.08	8.485	
10,100.0	6,097.0	9,794.9	5,911.9	80.1	81.5	-82.07	-4,106.7	1,107.2	1,332.9	1,172.1	160.81	8.289	
10,200.0	6,097.0	9,894.9	5,911.9	82.0	83.3	-82.07	-4,206.7	1,107.2	1,332.9	1,168.3	164.54	8.101	
10,300.0	6,097.0	9,994.9	5,911.9	83.9	85.1	-82.07	-4,306.7	1,107.2	1,332.8	1,164.6	168.27	7.921	
10,400.0	6,097.0	10,094.9	5,911.9	85.8	86.9	-82.07	-4,406.7	1,107.2	1,332.8	1,160.8	172.01	7.748	
10,500.0	6,097.0	10,194.9	5,911.9	87.7	88.8	-82.07	-4,506.7	1,107.2	1,332.8	1,157.1	175.76	7.583	
10,600.0	6,097.0	10,294.9	5,911.9	89.6	90.6	-82.07	-4,606.7	1,107.2	1,332.8	1,153.3	179.50	7.425	
10,700.0	6,097.0	10,394.9	5,911.9	91.5	92.4	-82.07	-4,706.7	1,107.2	1,332.8	1,149.6	183.25	7.273	
10,800.0	6,097.0	10,494.9	5,911.9	93.4	94.3	-82.07	-4,806.7	1,107.1	1,332.8	1,145.8	187.00	7.127	
10,900.0	6,097.0	10,594.9	5,911.9	95.3	96.1	-82.07	-4,906.7	1,107.1	1,332.8	1,142.1	190.76	6.987	
11,000.0	6,097.0	10,694.9	5,911.9	97.2	97.9	-82.07	-5,006.7	1,107.1	1,332.8	1,138.3	194.52	6.852	
11,100.0	6,097.0	10,794.9	5,911.9	99.1	99.8	-82.07	-5,106.7	1,107.1	1,332.8	1,134.5	198.27	6.722	
11,200.0	6,097.0	10,894.9	5,911.9	101.0	101.6	-82.07	-5,206.7	1,107.1	1,332.8	1,130.8	202.04	6.597	
11,300.0	6,097.0	10,994.9	5,911.9	102.9	103.5	-82.07	-5,306.7	1,107.1	1,332.8	1,127.0	205.80	6.476	
11,400.0	6,097.0	11,094.9	5,911.9	104.8	105.3	-82.07	-5,406.7	1,107.1	1,332.8	1,123.2	209.56	6.360	
11,500.0	6,097.0	11,194.9	5,911.9	106.7	107.2	-82.07	-5,506.7	1,107.1	1,332.8	1,119.4	213.33	6.248	
11,600.0	6,097.0	11,294.9	5,911.9	108.6	109.1	-82.07	-5,606.7	1,107.1	1,332.8	1,115.7	217.10	6.139	
11,700.0	6,097.0	11,394.9	5,911.9	110.5	110.9	-82.07	-5,706.7	1,107.1	1,332.8	1,111.9	220.87	6.034	
11,800.0	6,097.0	11,494.9	5,911.9	112.4	112.8	-82.07	-5,806.7	1,107.1	1,332.8	1,108.1	224.64	5.933	
11,900.0	6,097.0	11,594.9	5,911.9	114.3	114.7	-82.07	-5,906.7	1,107.1	1,332.8	1,104.3	228.41	5.835	
12,000.0	6,097.0	11,694.9	5,911.9	116.2	116.5	-82.07	-6,006.7	1,107.1	1,332.7	1,100.6	232.19	5.740	
12,100.0	6,097.0	11,794.9	5,911.9	118.1	118.4	-82.07	-6,106.7	1,107.1	1,332.7	1,096.8	235.96	5.648	
12,200.0	6,097.0	11,894.9	5,911.9	120.0	120.3	-82.07	-6,206.7	1,107.1	1,332.7	1,093.0	239.74	5.559	
12,300.0	6,097.0	11,994.9	5,911.9	121.9	122.1	-82.07	-6,306.7	1,107.1	1,332.7	1,089.2	243.52	5.473	
12,400.0	6,097.0	12,094.9	5,911.9	123.8	124.0	-82.07	-6,406.7	1,107.1	1,332.7	1,085.4	247.29	5.389	
12,500.0	6,097.0	12,194.9	5,911.9	125.8	125.9	-82.07	-6,506.7	1,107.0	1,332.7	1,081.6	251.07	5.308	
12,600.0	6,097.0	12,294.9	5,912.0	127.7	127.8	-82.07	-6,606.7	1,107.0	1,332.7	1,077.9	254.86	5.229	
12,700.0	6,097.0	12,394.9	5,912.0	129.6	129.6	-82.07	-6,706.7	1,107.0	1,332.7	1,074.1	258.64	5.153	
12,800.0	6,097.0	12,494.9	5,912.0	131.5	131.5	-82.07	-6,806.7	1,107.0	1,332.7	1,070.3	262.42	5.078	
12,900.0	6,097.0	12,594.9	5,912.0	133.4	133.4	-82.07	-6,906.7	1,107.0	1,332.7	1,066.5	266.21	5.006	
13,000.0	6,097.0	12,694.9	5,912.0	135.3	135.3	-82.07	-7,006.7	1,107.0	1,332.7	1,062.7	269.99	4.936	
13,100.0	6,097.0	12,794.9	5,912.0	137.2	137.2	-82.07	-7,106.7	1,107.0	1,332.7	1,058.9	273.78	4.868	
13,200.0	6,097.0	12,894.9	5,912.0	139.1	139.0	-82.07	-7,206.7	1,107.0	1,332.7	1,055.1	277.56	4.801	
13,300.0	6,097.0	12,994.9	5,912.0	141.0	140.9	-82.07	-7,306.7	1,107.0	1,332.7	1,051.3	281.35	4.737	
13,400.0	6,097.0	13,094.9	5,912.0	142.9	142.8	-82.07	-7,406.7	1,107.0	1,332.7	1,047.5	285.14	4.674	
13,500.0	6,097.0	13,194.9	5,912.0	144.8	144.7	-82.07	-7,506.7	1,107.0	1,332.7	1,043.7	288.93	4.612	
13,600.0	6,097.0	13,294.9	5,912.0	146.8	146.6	-82.07	-7,606.7	1,107.0	1,332.7	1,039.9	292.71	4.553	
13,700.0	6,097.0	13,394.9	5,912.0	148.7	148.5	-82.07	-7,706.7	1,107.0	1,332.6	1,036.1	296.50	4.495	
13,800.0	6,097.0	13,494.9	5,912.0	150.6	150.4	-82.07	-7,806.7	1,107.0	1,332.6	1,032.3	300.30	4.438	
13,900.0	6,097.0	13,594.9	5,912.0	152.5	152.2	-82.07	-7,906.7	1,107.0	1,332.6	1,028.5	304.09	4.382	
14,000.0	6,097.0	13,694.9	5,912.0	154.4	154.1	-82.07	-8,006.7	1,107.0	1,332.6	1,024.7	307.88	4.328	
14,100.0	6,097.0	13,794.9	5,912.0	156.3	156.0	-82.07	-8,106.7	1,107.0	1,332.6	1,021.0	311.67	4.276	
14,200.0	6,097.0	13,894.9	5,912.0	158.2	157.9	-82.07	-8,206.7	1,106.9	1,332.6	1,017.2	315.46	4.224	
14,227.1	6,097.0	13,922.1	5,912.0	158.7	158.4	-82.07	-8,233.8	1,106.9	1,332.6	1,016.2	316.41	4.212	
14,235.6	6,097.0	13,925.4	5,912.0	158.9	158.4	-82.07	-8,237.1	1,106.9	1,332.6	1,016.0	316.62	4.209 SF	

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12G-1309A - HZ - PLAN #2													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 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)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	19.2	19.2	0.0	0.0	101.60	-350.1	1,705.2	1,740.8					
100.0	100.0	119.2	119.2	0.1	0.1	101.60	-350.1	1,705.2	1,740.8	1,740.6	0.22	7,768.204		
200.0	200.0	219.2	219.2	0.3	0.4	101.60	-350.1	1,705.2	1,740.8	1,740.1	0.67	2,584.219		
300.0	300.0	319.2	319.2	0.5	0.6	101.60	-350.1	1,705.2	1,740.8	1,739.7	1.12	1,549.911		
400.0	400.0	419.2	419.2	0.8	0.8	101.60	-350.1	1,705.2	1,740.8	1,739.2	1.57	1,106.890		
500.0	500.0	519.2	519.2	1.0	1.0	101.60	-350.1	1,705.2	1,740.8	1,738.8	2.02	860.832		
600.0	600.0	619.2	619.2	1.2	1.3	101.60	-350.1	1,705.2	1,740.8	1,738.3	2.47	704.275		
700.0	700.0	719.2	719.2	1.4	1.5	164.07	-350.1	1,705.2	1,742.1	1,739.1	2.92	597.161		
800.0	799.9	819.1	819.1	1.7	1.7	164.09	-350.1	1,705.2	1,745.8	1,742.5	3.36	519.367		
894.8	894.5	913.7	913.7	1.9	1.9	164.12	-350.1	1,705.2	1,751.7	1,747.9	3.79	462.722		
900.0	899.7	918.9	918.9	1.9	1.9	164.13	-350.1	1,705.2	1,752.1	1,748.3	3.81	460.020		
1,000.0	999.4	1,018.6	1,018.6	2.1	2.2	164.20	-350.1	1,705.2	1,759.5	1,755.3	4.25	413.804		
1,100.0	1,099.1	1,118.3	1,118.3	2.4	2.4	164.26	-350.1	1,705.2	1,767.0	1,762.3	4.70	376.094		
1,200.0	1,198.8	1,229.7	1,229.7	2.6	2.6	164.34	-350.0	1,705.2	1,774.3	1,769.1	5.17	343.081		
1,300.0	1,298.5	1,394.4	1,394.3	2.9	3.0	164.29	-344.3	1,702.2	1,779.3	1,773.5	5.76	308.896		
1,400.0	1,398.2	1,559.1	1,558.1	3.1	3.4	164.00	-330.2	1,694.8	1,780.6	1,774.2	6.36	279.885		
1,500.0	1,497.9	1,659.8	1,658.1	3.4	3.6	163.75	-318.9	1,689.0	1,780.0	1,773.2	6.83	260.493		
1,600.0	1,597.6	1,759.5	1,757.0	3.6	3.9	163.51	-307.8	1,683.2	1,779.5	1,772.2	7.31	243.453		
1,700.0	1,697.3	1,859.2	1,855.9	3.9	4.2	163.26	-296.6	1,677.4	1,779.1	1,771.3	7.79	228.285		
1,800.0	1,797.0	1,958.9	1,954.8	4.1	4.4	163.01	-285.5	1,671.6	1,778.6	1,770.3	8.28	214.751		
1,900.0	1,896.7	2,058.6	2,053.7	4.4	4.7	162.77	-274.4	1,665.8	1,778.2	1,769.4	8.78	202.589		
2,000.0	1,996.4	2,158.3	2,152.6	4.7	5.0	162.52	-263.2	1,660.0	1,777.9	1,768.6	9.28	191.640		
2,100.0	2,096.1	2,258.1	2,251.5	4.9	5.3	162.27	-252.1	1,654.2	1,777.5	1,767.7	9.78	181.739		
2,200.0	2,195.8	2,357.8	2,350.5	5.2	5.6	162.03	-241.0	1,648.4	1,777.2	1,766.9	10.29	172.751		
2,300.0	2,295.5	2,457.5	2,449.4	5.5	5.9	161.78	-229.8	1,642.6	1,776.9	1,766.1	10.80	164.562		
2,400.0	2,395.2	2,557.2	2,548.3	5.7	6.2	161.53	-218.7	1,636.8	1,776.7	1,765.4	11.31	157.076		
2,500.0	2,494.9	2,656.9	2,647.2	6.0	6.5	161.29	-207.5	1,631.0	1,776.5	1,764.7	11.83	150.209		
2,600.0	2,594.6	2,756.6	2,746.1	6.2	6.8	161.04	-196.4	1,625.2	1,776.3	1,764.0	12.34	143.891		
2,700.0	2,694.3	2,856.3	2,845.0	6.5	7.1	160.79	-185.3	1,619.4	1,776.2	1,763.3	12.87	138.062		
2,800.0	2,794.0	2,956.0	2,943.9	6.8	7.4	160.54	-174.1	1,613.6	1,776.1	1,762.7	13.39	132.668		
2,900.0	2,893.7	3,055.7	3,042.8	7.0	7.7	160.30	-163.0	1,607.8	1,776.0	1,762.1	13.91	127.664		
3,000.0	2,993.4	3,155.4	3,141.7	7.3	8.0	160.05	-151.9	1,602.0	1,776.0	1,761.5	14.44	123.011		
3,067.4	3,060.7	3,222.6	3,208.4	7.5	8.2	159.88	-144.4	1,598.1	1,776.0	1,761.2	14.79	120.056		
3,100.0	3,093.1	3,255.1	3,240.7	7.6	8.3	159.80	-140.7	1,596.2	1,776.0	1,761.0	14.97	118.674		
3,200.0	3,192.8	3,354.8	3,339.6	7.8	8.7	159.56	-129.6	1,590.4	1,776.0	1,760.5	15.49	114.622		
3,300.0	3,292.5	3,454.5	3,438.5	8.1	9.0	159.31	-118.4	1,584.6	1,776.0	1,760.0	16.02	110.830		
3,400.0	3,392.3	3,554.2	3,537.4	8.4	9.3	159.06	-107.3	1,578.8	1,776.1	1,759.6	16.56	107.274		
3,500.0	3,492.0	3,653.9	3,636.3	8.6	9.6	158.81	-96.2	1,573.0	1,776.3	1,759.2	17.09	103.933		
3,600.0	3,591.7	3,753.6	3,735.2	8.9	9.9	158.57	-85.0	1,567.2	1,776.4	1,758.8	17.63	100.789		
3,700.0	3,691.4	3,853.3	3,834.1	9.2	10.2	158.32	-73.9	1,561.4	1,776.6	1,758.5	18.16	97.825		
3,714.2	3,705.5	3,867.5	3,848.2	9.2	10.3	158.29	-72.3	1,560.6	1,776.7	1,758.4	18.24	97.418		
3,800.0	3,791.1	3,953.0	3,933.0	9.4	10.5	158.06	-62.8	1,555.6	1,776.0	1,757.3	18.68	95.061		
3,900.0	3,891.0	4,052.5	4,031.7	9.6	10.9	157.75	-51.6	1,549.8	1,772.9	1,753.8	19.17	92.501		
4,009.0	4,000.0	4,160.8	4,139.1	9.8	11.2	94.90	-39.6	1,543.5	1,766.9	1,747.4	19.58	90.249		
4,100.0	4,091.0	4,251.1	4,228.7	9.9	11.5	94.59	-29.5	1,538.3	1,760.8	1,740.7	20.03	87.894		
4,200.0	4,191.0	4,350.3	4,327.1	10.1	11.8	94.24	-18.4	1,532.5	1,754.1	1,733.5	20.55	85.368		
4,300.0	4,291.0	4,449.5	4,425.5	10.3	12.1	93.89	-7.3	1,526.7	1,747.4	1,726.4	21.06	82.961		
4,400.0	4,391.0	4,548.7	4,524.0	10.5	12.4	93.54	3.8	1,520.9	1,740.9	1,719.3	21.58	80.666		
4,500.0	4,491.0	4,647.9	4,622.4	10.7	12.7	93.18	14.9	1,515.2	1,734.4	1,712.3	22.10	78.475		
4,600.0	4,591.0	4,724.0	4,698.0	10.9	12.9	92.94	22.5	1,511.2	1,728.6	1,706.1	22.51	76.793		
4,700.0	4,691.0	4,800.0	4,773.7	11.1	13.1	92.75	28.3	1,508.2	1,724.2	1,701.3	22.89	75.320		
4,800.0	4,791.0	4,877.0	4,850.5	11.3	13.3	92.62	32.4	1,506.0	1,721.2	1,697.9	23.26	74.013		

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

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Anticollision Report

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Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12G-1309A - HZ - PLAN #2												Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD												Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor	Warning
4,900.0	4,891.0	4,953.8	4,927.3	11.5	13.4	92.54	34.7	1,504.9	1,719.5	1,695.9	23.60	72.853	
5,000.0	4,991.0	5,036.7	5,010.2	11.7	13.5	92.53	35.2	1,504.6	1,719.2	1,695.2	23.95	71.775	
5,100.0	5,091.0	5,136.7	5,110.2	11.9	13.7	92.53	35.2	1,504.6	1,719.2	1,694.8	24.34	70.634	
5,200.0	5,191.0	5,236.7	5,210.2	12.1	13.9	92.53	35.2	1,504.6	1,719.2	1,694.4	24.74	69.495	
5,254.9	5,246.0	5,291.7	5,265.2	12.2	14.0	92.53	35.2	1,504.6	1,719.2	1,694.2	24.96	68.883 CC	
5,300.0	5,291.0	5,333.4	5,306.9	12.3	14.0	92.54	34.7	1,504.6	1,719.2	1,694.1	25.12	68.438	
5,400.0	5,391.0	5,419.1	5,391.8	12.5	14.1	92.90	23.9	1,504.6	1,719.8	1,694.4	25.37	67.793	
5,500.0	5,491.0	5,500.0	5,469.4	12.7	14.0	93.66	1.1	1,504.6	1,721.5	1,696.0	25.51	67.480	
5,585.1	5,576.1	5,561.0	5,525.0	12.9	14.0	94.49	-23.8	1,504.6	1,724.2	1,698.6	25.58	67.395	
5,600.0	5,591.0	5,571.2	5,534.0	12.9	13.9	-85.29	-28.6	1,504.6	1,724.8	1,699.1	25.76	66.964	
5,650.0	5,640.9	5,600.0	5,558.8	13.0	13.9	-84.63	-43.2	1,504.6	1,727.0	1,701.3	25.76	67.036	
5,700.0	5,690.1	5,638.3	5,590.6	13.1	13.8	-83.85	-64.5	1,504.6	1,729.3	1,703.6	25.73	67.203	
5,750.0	5,738.3	5,671.2	5,616.6	13.1	13.8	-83.19	-84.7	1,504.6	1,731.6	1,705.9	25.70	67.370	
5,800.0	5,785.0	5,700.0	5,638.2	13.2	13.7	-82.60	-103.7	1,504.6	1,734.0	1,708.3	25.67	67.535	
5,850.0	5,829.8	5,735.8	5,663.7	13.3	13.6	-81.97	-129.0	1,504.6	1,736.2	1,710.6	25.64	67.711	
5,900.0	5,872.2	5,767.7	5,684.8	13.3	13.6	-81.44	-152.8	1,504.6	1,738.4	1,712.7	25.63	67.834	
5,950.0	5,911.9	5,800.0	5,704.6	13.4	13.5	-80.96	-178.3	1,504.6	1,740.4	1,714.7	25.63	67.905	
6,000.0	5,948.5	5,830.9	5,722.1	13.5	13.5	-80.54	-203.7	1,504.6	1,742.2	1,716.5	25.67	67.855	
6,050.0	5,981.7	5,862.2	5,738.2	13.6	13.4	-80.19	-230.5	1,504.6	1,743.7	1,718.0	25.76	67.696	
6,100.0	6,011.2	5,900.0	5,755.5	13.7	13.4	-79.87	-264.2	1,504.6	1,745.0	1,719.1	25.90	67.379	
6,150.0	6,036.6	5,924.4	5,765.4	13.9	13.3	-79.68	-286.5	1,504.6	1,746.0	1,719.9	26.10	66.899	
6,200.0	6,057.8	5,950.0	5,774.6	14.1	13.3	-79.54	-310.4	1,504.6	1,746.7	1,720.4	26.35	66.290	
6,250.0	6,074.6	5,986.4	5,785.7	14.4	13.3	-79.45	-345.1	1,504.6	1,747.1	1,720.4	26.72	65.394	
6,300.0	6,086.8	6,017.4	5,793.1	14.8	13.3	-79.44	-375.1	1,504.6	1,747.1	1,720.0	27.14	64.370	
6,350.0	6,094.3	6,050.0	5,799.0	15.2	13.4	-79.51	-407.2	1,504.6	1,746.8	1,719.2	27.64	63.189	
6,403.3	6,097.0	6,081.4	5,802.8	15.7	13.5	-79.66	-438.4	1,504.6	1,746.1	1,717.9	28.26	61.793	
6,493.3	6,097.0	6,142.9	5,805.0	16.6	13.9	-79.73	-499.8	1,504.6	1,745.5	1,716.0	29.53	59.111	
6,500.0	6,097.0	6,149.6	5,805.0	16.7	14.0	-79.73	-506.5	1,504.6	1,745.5	1,715.8	29.65	58.871	
6,600.0	6,097.0	6,249.6	5,805.0	17.9	14.8	-79.73	-606.5	1,504.6	1,745.5	1,713.9	31.60	55.237	
6,700.0	6,097.0	6,349.6	5,805.0	19.2	15.7	-79.73	-706.5	1,504.6	1,745.5	1,711.7	33.85	51.565	
6,800.0	6,097.0	6,449.6	5,805.0	20.7	16.9	-79.73	-806.5	1,504.7	1,745.5	1,709.2	36.36	48.006	
6,900.0	6,097.0	6,549.6	5,805.0	22.1	18.1	-79.73	-906.5	1,504.7	1,745.5	1,706.4	39.08	44.665	
7,000.0	6,097.0	6,649.6	5,805.0	23.7	19.5	-79.73	-1,006.5	1,504.7	1,745.5	1,703.6	41.97	41.590	
7,100.0	6,097.0	6,749.6	5,805.0	25.3	20.9	-79.73	-1,106.5	1,504.7	1,745.5	1,700.5	45.00	38.794	
7,200.0	6,097.0	6,849.6	5,805.0	26.9	22.4	-79.73	-1,206.5	1,504.7	1,745.5	1,697.4	48.13	36.266	
7,300.0	6,097.0	6,949.6	5,805.0	28.6	24.0	-79.73	-1,306.5	1,504.7	1,745.6	1,694.2	51.36	33.988	
7,400.0	6,097.0	7,049.6	5,805.0	30.3	25.6	-79.73	-1,406.5	1,504.7	1,745.6	1,690.9	54.66	31.937	
7,500.0	6,097.0	7,149.6	5,805.0	32.1	27.3	-79.73	-1,506.5	1,504.7	1,745.6	1,687.6	58.02	30.087	
7,600.0	6,097.0	7,249.6	5,805.0	33.8	29.0	-79.73	-1,606.5	1,504.7	1,745.6	1,684.1	61.43	28.417	
7,700.0	6,097.0	7,349.6	5,805.0	35.6	30.7	-79.73	-1,706.5	1,504.7	1,745.6	1,680.7	64.88	26.905	
7,800.0	6,097.0	7,449.6	5,805.0	37.4	32.4	-79.73	-1,806.5	1,504.7	1,745.6	1,677.2	68.37	25.532	
7,900.0	6,097.0	7,549.6	5,805.0	39.1	34.2	-79.73	-1,906.5	1,504.7	1,745.6	1,673.7	71.89	24.282	
8,000.0	6,097.0	7,649.6	5,805.0	41.0	36.0	-79.73	-2,006.5	1,504.7	1,745.6	1,670.2	75.43	23.141	
8,100.0	6,097.0	7,749.6	5,805.0	42.8	37.8	-79.73	-2,106.5	1,504.7	1,745.6	1,666.6	79.00	22.096	
8,200.0	6,097.0	7,849.6	5,805.0	44.6	39.6	-79.73	-2,206.5	1,504.7	1,745.6	1,663.0	82.59	21.136	
8,300.0	6,097.0	7,949.6	5,805.0	46.4	41.4	-79.73	-2,306.5	1,504.7	1,745.6	1,659.4	86.20	20.252	
8,400.0	6,097.0	8,049.6	5,805.0	48.3	43.2	-79.73	-2,406.5	1,504.8	1,745.6	1,655.8	89.82	19.436	
8,500.0	6,097.0	8,149.6	5,805.0	50.1	45.0	-79.73	-2,506.5	1,504.8	1,745.6	1,652.2	93.45	18.680	
8,600.0	6,097.0	8,249.6	5,805.0	52.0	46.9	-79.73	-2,606.5	1,504.8	1,745.6	1,648.5	97.09	17.979	
8,700.0	6,097.0	8,349.6	5,805.0	53.8	48.7	-79.73	-2,706.5	1,504.8	1,745.6	1,644.9	100.75	17.327	
8,800.0	6,097.0	8,449.6	5,805.0	55.7	50.5	-79.73	-2,806.5	1,504.8	1,745.7	1,641.2	104.41	16.718	
8,900.0	6,097.0	8,549.6	5,805.0	57.5	52.4	-79.73	-2,906.5	1,504.8	1,745.7	1,637.6	108.09	16.150	

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12G-1309A - HZ - PLAN #2												Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor	Warning
9,000.0	6,097.0	8,649.6	5,805.0	59.4	54.3	-79.73	-3,006.5	1,504.8	1,745.7	1,633.9	111.77	15.618	
9,100.0	6,097.0	8,749.6	5,805.0	61.3	56.1	-79.73	-3,106.5	1,504.8	1,745.7	1,630.2	115.46	15.120	
9,200.0	6,097.0	8,849.6	5,805.0	63.2	58.0	-79.73	-3,206.5	1,504.8	1,745.7	1,626.5	119.15	14.651	
9,300.0	6,097.0	8,949.6	5,805.0	65.0	59.9	-79.73	-3,306.5	1,504.8	1,745.7	1,622.8	122.85	14.210	
9,400.0	6,097.0	9,049.6	5,805.0	66.9	61.7	-79.73	-3,406.5	1,504.8	1,745.7	1,619.1	126.56	13.794	
9,500.0	6,097.0	9,149.6	5,805.0	68.8	63.6	-79.73	-3,506.5	1,504.8	1,745.7	1,615.4	130.27	13.401	
9,600.0	6,097.0	9,249.6	5,805.0	70.7	65.5	-79.73	-3,606.5	1,504.8	1,745.7	1,611.7	133.98	13.030	
9,700.0	6,097.0	9,349.6	5,805.0	72.6	67.4	-79.73	-3,706.5	1,504.8	1,745.7	1,608.0	137.70	12.678	
9,800.0	6,097.0	9,449.6	5,805.0	74.4	69.2	-79.73	-3,806.5	1,504.8	1,745.7	1,604.3	141.42	12.344	
9,900.0	6,097.0	9,549.6	5,805.0	76.3	71.1	-79.73	-3,906.5	1,504.9	1,745.7	1,600.6	145.14	12.028	
10,000.0	6,097.0	9,649.6	5,805.0	78.2	73.0	-79.73	-4,006.5	1,504.9	1,745.7	1,596.9	148.87	11.726	
10,100.0	6,097.0	9,749.6	5,805.0	80.1	74.9	-79.73	-4,106.5	1,504.9	1,745.7	1,593.1	152.60	11.440	
10,200.0	6,097.0	9,849.6	5,805.0	82.0	76.8	-79.73	-4,206.5	1,504.9	1,745.8	1,589.4	156.34	11.167	
10,300.0	6,097.0	9,949.6	5,805.0	83.9	78.7	-79.73	-4,306.5	1,504.9	1,745.8	1,585.7	160.07	10.906	
10,400.0	6,097.0	10,049.6	5,805.0	85.8	80.6	-79.73	-4,406.5	1,504.9	1,745.8	1,582.0	163.81	10.657	
10,500.0	6,097.0	10,149.6	5,805.0	87.7	82.5	-79.73	-4,506.5	1,504.9	1,745.8	1,578.2	167.55	10.419	
10,600.0	6,097.0	10,249.6	5,805.0	89.6	84.4	-79.73	-4,606.5	1,504.9	1,745.8	1,574.5	171.29	10.192	
10,700.0	6,097.0	10,349.6	5,805.0	91.5	86.2	-79.73	-4,706.5	1,504.9	1,745.8	1,570.7	175.04	9.974	
10,800.0	6,097.0	10,449.6	5,805.0	93.4	88.1	-79.73	-4,806.5	1,504.9	1,745.8	1,567.0	178.78	9.765	
10,900.0	6,097.0	10,549.6	5,805.0	95.3	90.0	-79.73	-4,906.5	1,504.9	1,745.8	1,563.3	182.53	9.564	
11,000.0	6,097.0	10,649.6	5,805.0	97.2	91.9	-79.73	-5,006.5	1,504.9	1,745.8	1,559.5	186.28	9.372	
11,100.0	6,097.0	10,749.6	5,805.0	99.1	93.8	-79.73	-5,106.5	1,504.9	1,745.8	1,555.8	190.03	9.187	
11,200.0	6,097.0	10,849.6	5,805.0	101.0	95.7	-79.73	-5,206.5	1,504.9	1,745.8	1,552.0	193.79	9.009	
11,300.0	6,097.0	10,949.6	5,805.0	102.9	97.6	-79.73	-5,306.5	1,504.9	1,745.8	1,548.3	197.54	8.838	
11,400.0	6,097.0	11,049.6	5,805.0	104.8	99.5	-79.73	-5,406.5	1,505.0	1,745.8	1,544.5	201.29	8.673	
11,500.0	6,097.0	11,149.6	5,805.0	106.7	101.4	-79.73	-5,506.5	1,505.0	1,745.8	1,540.8	205.05	8.514	
11,600.0	6,097.0	11,249.6	5,805.0	108.6	103.3	-79.73	-5,606.5	1,505.0	1,745.8	1,537.0	208.81	8.361	
11,700.0	6,097.0	11,349.6	5,805.0	110.5	105.2	-79.73	-5,706.5	1,505.0	1,745.9	1,533.3	212.56	8.213	
11,800.0	6,097.0	11,449.6	5,805.0	112.4	107.2	-79.73	-5,806.5	1,505.0	1,745.9	1,529.5	216.32	8.071	
11,900.0	6,097.0	11,549.6	5,805.0	114.3	109.1	-79.73	-5,906.5	1,505.0	1,745.9	1,525.8	220.08	7.933	
12,000.0	6,097.0	11,649.6	5,805.0	116.2	111.0	-79.73	-6,006.5	1,505.0	1,745.9	1,522.0	223.84	7.799	
12,100.0	6,097.0	11,749.6	5,805.0	118.1	112.9	-79.73	-6,106.5	1,505.0	1,745.9	1,518.3	227.61	7.671	
12,200.0	6,097.0	11,849.6	5,805.0	120.0	114.8	-79.73	-6,206.5	1,505.0	1,745.9	1,514.5	231.37	7.546	
12,300.0	6,097.0	11,949.6	5,805.0	121.9	116.7	-79.73	-6,306.5	1,505.0	1,745.9	1,510.8	235.13	7.425	
12,400.0	6,097.0	12,049.6	5,805.0	123.8	118.6	-79.73	-6,406.5	1,505.0	1,745.9	1,507.0	238.90	7.308	
12,500.0	6,097.0	12,149.6	5,805.0	125.8	120.5	-79.73	-6,506.5	1,505.0	1,745.9	1,503.2	242.66	7.195	
12,600.0	6,097.0	12,249.6	5,805.0	127.7	122.4	-79.73	-6,606.5	1,505.0	1,745.9	1,499.5	246.43	7.085	
12,700.0	6,097.0	12,349.6	5,805.0	129.6	124.3	-79.73	-6,706.5	1,505.0	1,745.9	1,495.7	250.19	6.978	
12,800.0	6,097.0	12,449.6	5,805.0	131.5	126.2	-79.73	-6,806.5	1,505.0	1,745.9	1,492.0	253.96	6.875	
12,900.0	6,097.0	12,549.6	5,805.0	133.4	128.1	-79.73	-6,906.5	1,505.0	1,745.9	1,488.2	257.73	6.774	
13,000.0	6,097.0	12,649.6	5,805.0	135.3	130.0	-79.73	-7,006.5	1,505.1	1,745.9	1,484.4	261.49	6.677	
13,100.0	6,097.0	12,749.6	5,805.0	137.2	131.9	-79.73	-7,106.5	1,505.1	1,745.9	1,480.7	265.26	6.582	
13,200.0	6,097.0	12,849.6	5,805.0	139.1	133.8	-79.73	-7,206.5	1,505.1	1,746.0	1,476.9	269.03	6.490	
13,300.0	6,097.0	12,949.6	5,805.0	141.0	135.8	-79.73	-7,306.5	1,505.1	1,746.0	1,473.2	272.80	6.400	
13,400.0	6,097.0	13,049.6	5,805.0	142.9	137.7	-79.73	-7,406.5	1,505.1	1,746.0	1,469.4	276.57	6.313	
13,500.0	6,097.0	13,149.6	5,805.0	144.8	139.6	-79.73	-7,506.5	1,505.1	1,746.0	1,465.6	280.34	6.228	
13,600.0	6,097.0	13,249.6	5,805.0	146.8	141.5	-79.73	-7,606.5	1,505.1	1,746.0	1,461.9	284.11	6.145	
13,700.0	6,097.0	13,349.6	5,805.0	148.7	143.4	-79.73	-7,706.5	1,505.1	1,746.0	1,458.1	287.88	6.065	
13,800.0	6,097.0	13,449.6	5,805.0	150.6	145.3	-79.73	-7,806.5	1,505.1	1,746.0	1,454.3	291.65	5.987	
13,900.0	6,097.0	13,549.6	5,805.0	152.5	147.2	-79.73	-7,906.5	1,505.1	1,746.0	1,450.6	295.42	5.910	
14,000.0	6,097.0	13,649.6	5,805.0	154.4	149.1	-79.73	-8,006.5	1,505.1	1,746.0	1,446.8	299.20	5.836	
14,100.0	6,097.0	13,749.6	5,805.0	156.3	151.0	-79.73	-8,106.5	1,505.1	1,746.0	1,443.0	302.97	5.763	

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 Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12G-1309A - HZ - PLAN #2													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 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)	Total Uncertainty Axis	Separation Factor	Warning	
14,200.0	6,097.0	13,849.6	5,805.0	158.2	153.0	-79.73	-8,206.5	1,505.1	1,746.0	1,439.3	306.74	5.692		
14,214.9	6,097.0	13,864.4	5,805.0	158.5	153.2	-79.73	-8,221.3	1,505.1	1,746.0	1,438.7	307.29	5.682		
14,235.6	6,097.0	13,878.2	5,805.0	158.9	153.5	-79.73	-8,235.1	1,505.1	1,746.0	1,438.1	307.95	5.670 ES, SF		

Cathedral Energy Services

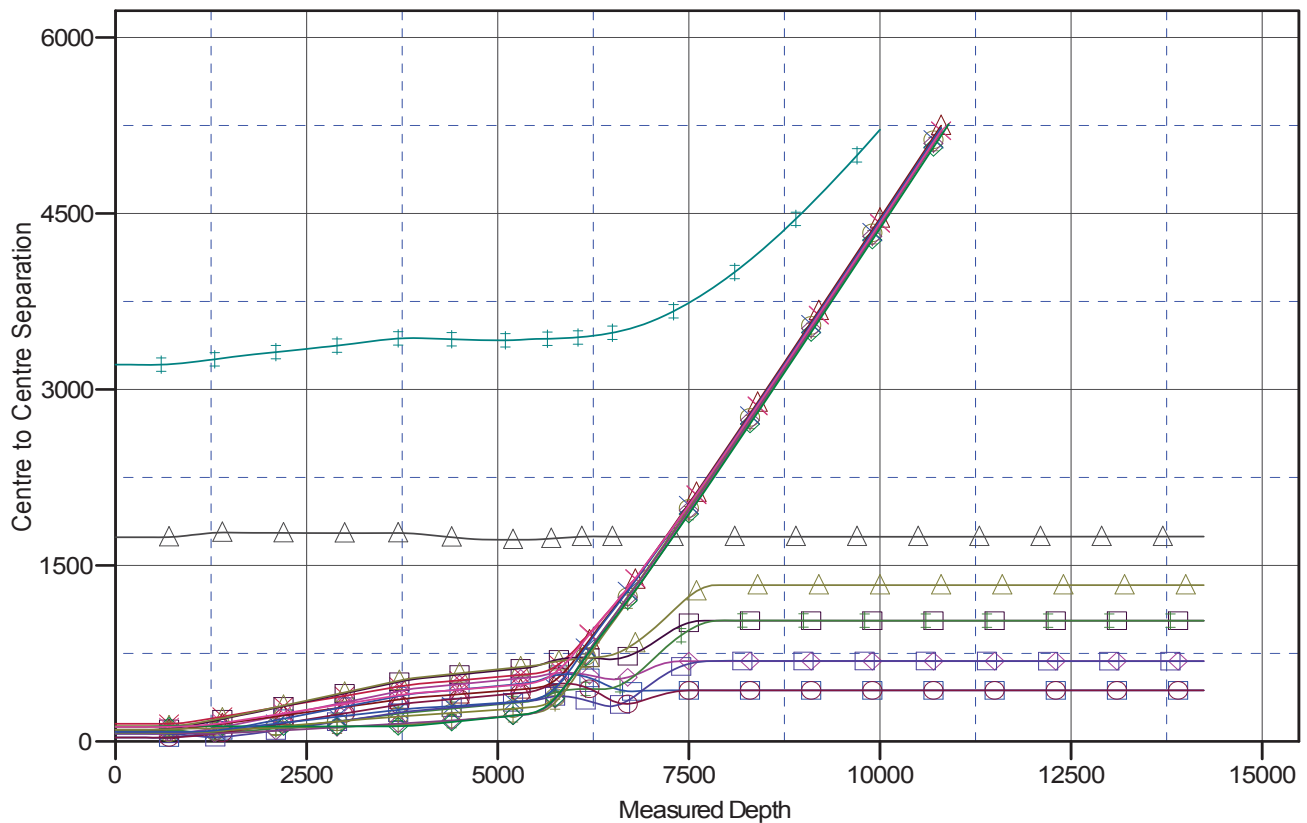
Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	18' KB @ 4954.8usft (XTR 18)
Reference Site:	S12-T10N-R58W	MD Reference:	18' KB @ 4954.8usft (XTR 18)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Reference Depths are relative to 18' KB @ 4954.8usft (XTR 18)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Razor Federal #12F-1304B
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.09°

Ladder Plot



LEGEND

2F-1306B, HZ, Plan #3 V0	Razor Federal #12F-1308B, HZ, Plan #3 V0	Razor #12F-0104B, HZ, Plan #3 V0
3B, HZ, Plan #3 V0	Razor Federal #12G-1309A, HZ, PLAN#2 V0	Razor #12F-0103A, HZ, Plan #3 V0
3B, HZ, Plan #3 V0	Razor Federal #12F-1301A, HZ, Plan #3 V0	Razor #12F-0101A, HZ, Plan #3 V0
H (EXISTING), WHITING WELL, SURVEYS V0	Razor Federal #12F-1302B, HZ, Plan #3 V0	Razor #12F-0105A, HZ, Plan #3 V0
2F-1305A, HZ, Plan #3 V0	Razor #12F-0102B, HZ, Plan #3 V0	Razor #12F-0107A, HZ, Plan #3 V0
2F-1307A, HZ, Plan #3 V0	Razor Federal #12F-1303A, HZ, Plan #3 V0	