



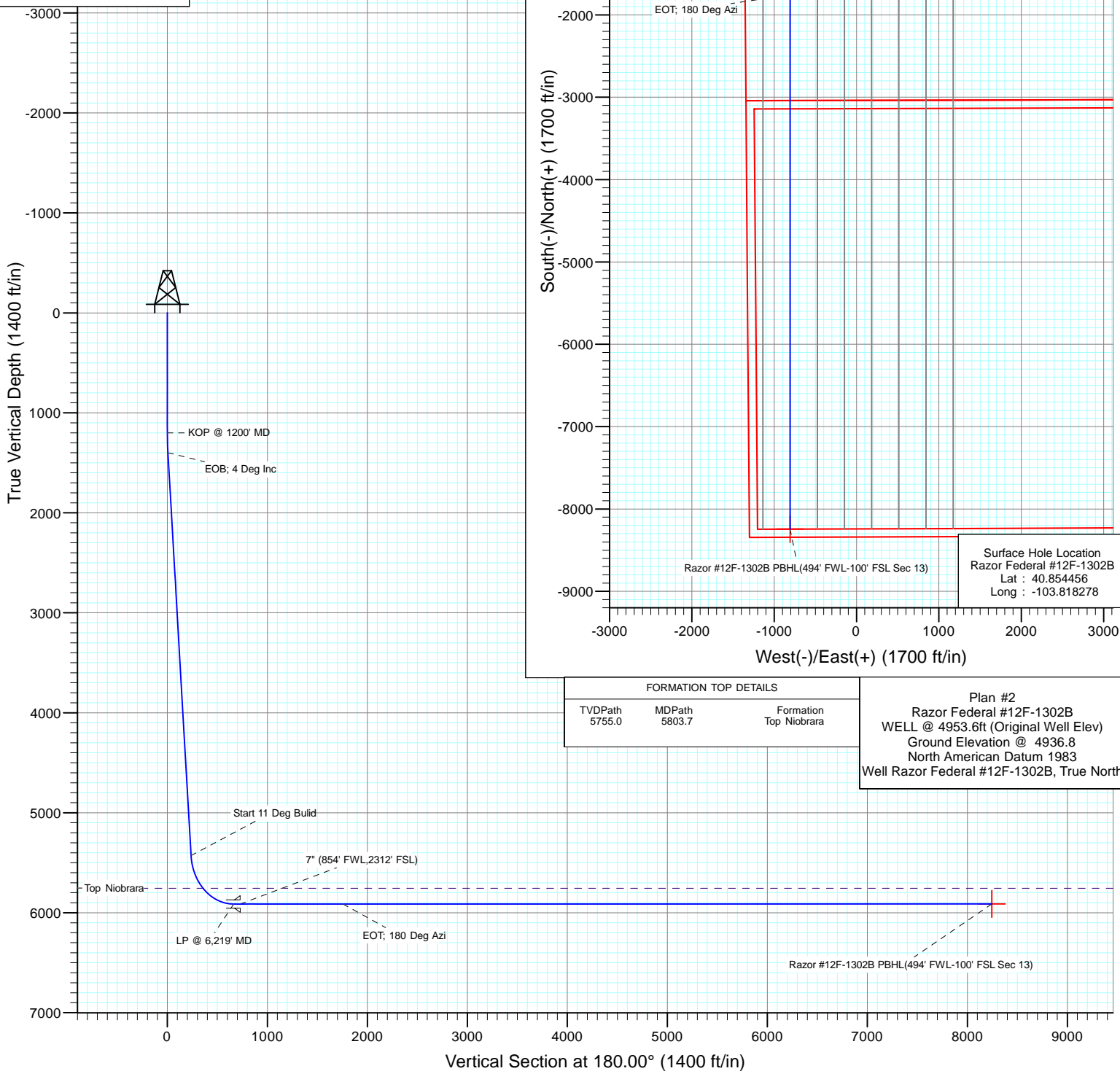
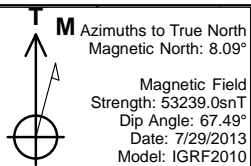
Project: Weld County, CO
Site: S12-T10N-R58W
Well: Razor Federal #12F-1302B
Wellbore: HZ
Design: Plan #2



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0
2	1200.0	0.00	0.00	1200.0	0.0	0.0	0.00	0.00	0.0
3	1400.0	4.00	214.95	1399.8	-5.7	-4.0	2.00	214.95	5.7
4	5438.0	4.00	214.95	5428.0	-236.6	-165.4	0.00	0.00	236.6
5	6219.8	90.00	214.95	5912.5	-662.5	-463.0	11.00	0.00	662.5
6	7384.9	90.00	180.00	5912.5	-1756.7	-807.5	3.00	-89.99	1756.7
7	13872.5	90.00	180.00	5912.0	-8244.3	-807.1	0.00	0.00	8244.3

Annotation
KOP @ 1200' MD
EOB: 4 Deg Inc
Start: 11 Deg Build
LP @ 6,219' MD
EOT: 180 Deg Azi
PBHL @ 13,872' MD



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor Federal #12F-1302B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site:	S12-T10N-R58W	North Reference:	True
Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

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:	1,558,541.09 ft	Latitude:	40.854456
From:	Lat/Long	Easting:	3,465,183.08 ft	Longitude:	-103.818397
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	1.09 °

Well	Razor Federal #12F-1302B					
Well Position	+N/-S	0.0 ft	Northing:	1,558,541.70 ft	Latitude:	40.854456
	+E/-W	0.0 ft	Easting:	3,465,216.12 ft	Longitude:	-103.818278
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,936.8 ft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	7/29/2013	8.09	67.49	53,239

Design	Plan #2				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.0	
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	180.00	

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,400.0	4.00	214.95	1,399.8	-5.7	-4.0	2.00	2.00	0.00	214.95	
5,438.0	4.00	214.95	5,428.0	-236.6	-165.4	0.00	0.00	0.00	0.00	
6,219.8	90.00	214.95	5,912.5	-662.5	-463.0	11.00	11.00	0.00	0.00	
7,384.9	90.00	180.00	5,912.5	-1,756.7	-807.5	3.00	0.00	-3.00	-89.99	
13,872.5	90.00	180.00	5,912.0	-8,244.3	-807.1	0.00	0.00	0.00	0.00	Razor #12F-1302B PI

Cathedral Energy Services

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Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site:	S12-T10N-R58W	North Reference:	True
Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
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	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	KOP @ 1200' MD
1,300.0	2.00	214.95	1,300.0	-1.4	-1.0	1.4	2.00	2.00	
1,400.0	4.00	214.95	1,399.8	-5.7	-4.0	5.7	2.00	2.00	EOB; 4 Deg Inc
1,500.0	4.00	214.95	1,499.6	-11.4	-8.0	11.4	0.00	0.00	
1,600.0	4.00	214.95	1,599.4	-17.2	-12.0	17.2	0.00	0.00	
1,700.0	4.00	214.95	1,699.1	-22.9	-16.0	22.9	0.00	0.00	
1,800.0	4.00	214.95	1,798.9	-28.6	-20.0	28.6	0.00	0.00	
1,900.0	4.00	214.95	1,898.6	-34.3	-24.0	34.3	0.00	0.00	
2,000.0	4.00	214.95	1,998.4	-40.0	-28.0	40.0	0.00	0.00	
2,100.0	4.00	214.95	2,098.1	-45.7	-32.0	45.7	0.00	0.00	
2,200.0	4.00	214.95	2,197.9	-51.5	-36.0	51.5	0.00	0.00	
2,300.0	4.00	214.95	2,297.6	-57.2	-40.0	57.2	0.00	0.00	
2,400.0	4.00	214.95	2,397.4	-62.9	-44.0	62.9	0.00	0.00	
2,500.0	4.00	214.95	2,497.2	-68.6	-48.0	68.6	0.00	0.00	
2,600.0	4.00	214.95	2,596.9	-74.3	-52.0	74.3	0.00	0.00	
2,700.0	4.00	214.95	2,696.7	-80.0	-55.9	80.0	0.00	0.00	
2,800.0	4.00	214.95	2,796.4	-85.8	-59.9	85.8	0.00	0.00	
2,900.0	4.00	214.95	2,896.2	-91.5	-63.9	91.5	0.00	0.00	
3,000.0	4.00	214.95	2,995.9	-97.2	-67.9	97.2	0.00	0.00	
3,100.0	4.00	214.95	3,095.7	-102.9	-71.9	102.9	0.00	0.00	
3,200.0	4.00	214.95	3,195.5	-108.6	-75.9	108.6	0.00	0.00	
3,300.0	4.00	214.95	3,295.2	-114.4	-79.9	114.4	0.00	0.00	
3,400.0	4.00	214.95	3,395.0	-120.1	-83.9	120.1	0.00	0.00	
3,500.0	4.00	214.95	3,494.7	-125.8	-87.9	125.8	0.00	0.00	
3,600.0	4.00	214.95	3,594.5	-131.5	-91.9	131.5	0.00	0.00	
3,700.0	4.00	214.95	3,694.2	-137.2	-95.9	137.2	0.00	0.00	
3,800.0	4.00	214.95	3,794.0	-142.9	-99.9	142.9	0.00	0.00	
3,900.0	4.00	214.95	3,893.7	-148.7	-103.9	148.7	0.00	0.00	
4,000.0	4.00	214.95	3,993.5	-154.4	-107.9	154.4	0.00	0.00	
4,100.0	4.00	214.95	4,093.3	-160.1	-111.9	160.1	0.00	0.00	
4,200.0	4.00	214.95	4,193.0	-165.8	-115.9	165.8	0.00	0.00	
4,300.0	4.00	214.95	4,292.8	-171.5	-119.9	171.5	0.00	0.00	
4,400.0	4.00	214.95	4,392.5	-177.2	-123.9	177.2	0.00	0.00	
4,500.0	4.00	214.95	4,492.3	-183.0	-127.9	183.0	0.00	0.00	
4,600.0	4.00	214.95	4,592.0	-188.7	-131.9	188.7	0.00	0.00	
4,700.0	4.00	214.95	4,691.8	-194.4	-135.9	194.4	0.00	0.00	
4,800.0	4.00	214.95	4,791.6	-200.1	-139.9	200.1	0.00	0.00	
4,900.0	4.00	214.95	4,891.3	-205.8	-143.9	205.8	0.00	0.00	
5,000.0	4.00	214.95	4,991.1	-211.6	-147.9	211.6	0.00	0.00	
5,100.0	4.00	214.95	5,090.8	-217.3	-151.9	217.3	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor Federal #12F-1302B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site:	S12-T10N-R58W	North Reference:	True
Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
5,200.0	4.00	214.95	5,190.6	-223.0	-155.8	223.0	0.00	0.00	
5,300.0	4.00	214.95	5,290.3	-228.7	-159.8	228.7	0.00	0.00	
5,400.0	4.00	214.95	5,390.1	-234.4	-163.8	234.4	0.00	0.00	
5,438.0	4.00	214.95	5,428.0	-236.6	-165.4	236.6	0.00	0.00	Start 11 Deg Bulid
5,450.0	5.32	214.95	5,440.0	-237.4	-165.9	237.4	11.00	11.00	
5,500.0	10.82	214.95	5,489.4	-243.1	-169.9	243.1	11.00	11.00	
5,550.0	16.32	214.95	5,538.0	-252.8	-176.7	252.8	11.00	11.00	
5,600.0	21.82	214.95	5,585.3	-266.1	-186.0	266.1	11.00	11.00	
5,650.0	27.32	214.95	5,630.7	-283.2	-197.9	283.2	11.00	11.00	
5,700.0	32.82	214.95	5,674.0	-303.7	-212.3	303.7	11.00	11.00	
5,750.0	38.32	214.95	5,714.6	-327.5	-228.9	327.5	11.00	11.00	
5,800.0	43.82	214.95	5,752.3	-354.4	-247.7	354.4	11.00	11.00	
5,803.7	44.23	214.95	5,755.0	-356.6	-249.2	356.6	11.00	11.00	Top Niobrara
5,850.0	49.32	214.95	5,786.7	-384.2	-268.5	384.2	11.00	11.00	
5,900.0	54.82	214.95	5,817.4	-416.5	-291.1	416.5	11.00	11.00	
5,950.0	60.32	214.95	5,844.2	-451.1	-315.3	451.1	11.00	11.00	
6,000.0	65.82	214.95	5,866.8	-487.6	-340.8	487.6	11.00	11.00	
6,050.0	71.32	214.95	5,885.1	-525.7	-367.4	525.7	11.00	11.00	
6,100.0	76.82	214.95	5,898.8	-565.1	-395.0	565.1	11.00	11.00	
6,150.0	82.32	214.95	5,907.9	-605.4	-423.1	605.4	11.00	11.00	
6,200.0	87.82	214.95	5,912.2	-646.2	-451.7	646.2	11.00	11.00	
6,219.8	90.00	214.95	5,912.5	-662.5	-463.0	662.5	11.00	11.00	LP @ 6,219' MD
6,300.0	90.00	212.54	5,912.5	-729.1	-507.6	729.1	3.00	0.00	7" (854' FWL,2312' FSL)
6,400.0	90.00	209.54	5,912.5	-814.8	-559.1	814.8	3.00	0.00	
6,500.0	90.00	206.54	5,912.5	-903.1	-606.1	903.1	3.00	0.00	
6,600.0	90.00	203.54	5,912.5	-993.6	-648.5	993.6	3.00	0.00	
6,700.0	90.00	200.54	5,912.5	-1,086.3	-686.0	1,086.3	3.00	0.00	
6,800.0	90.00	197.54	5,912.5	-1,180.8	-718.6	1,180.8	3.00	0.00	
6,900.0	90.00	194.54	5,912.5	-1,276.9	-746.3	1,276.9	3.00	0.00	
7,000.0	90.00	191.54	5,912.5	-1,374.3	-768.8	1,374.3	3.00	0.00	
7,100.0	90.00	188.54	5,912.5	-1,472.8	-786.3	1,472.8	3.00	0.00	
7,200.0	90.00	185.54	5,912.5	-1,572.0	-798.5	1,572.0	3.00	0.00	
7,300.0	90.00	182.54	5,912.5	-1,671.8	-805.6	1,671.8	3.00	0.00	
7,384.9	90.00	180.00	5,912.5	-1,756.7	-807.5	1,756.7	3.00	0.00	EOT; 180 Deg Azi
7,400.0	90.00	180.00	5,912.5	-1,771.7	-807.5	1,771.7	0.00	0.00	
7,500.0	90.00	180.00	5,912.5	-1,871.7	-807.5	1,871.7	0.00	0.00	
7,600.0	90.00	180.00	5,912.5	-1,971.7	-807.4	1,971.7	0.00	0.00	
7,700.0	90.00	180.00	5,912.5	-2,071.7	-807.4	2,071.7	0.00	0.00	
7,800.0	90.00	180.00	5,912.5	-2,171.7	-807.4	2,171.7	0.00	0.00	
7,900.0	90.00	180.00	5,912.5	-2,271.7	-807.4	2,271.7	0.00	0.00	
8,000.0	90.00	180.00	5,912.5	-2,371.7	-807.4	2,371.7	0.00	0.00	
8,100.0	90.00	180.00	5,912.4	-2,471.7	-807.4	2,471.7	0.00	0.00	
8,200.0	90.00	180.00	5,912.4	-2,571.7	-807.4	2,571.7	0.00	0.00	
8,300.0	90.00	180.00	5,912.4	-2,671.7	-807.4	2,671.7	0.00	0.00	
8,400.0	90.00	180.00	5,912.4	-2,771.7	-807.4	2,771.7	0.00	0.00	
8,500.0	90.00	180.00	5,912.4	-2,871.7	-807.4	2,871.7	0.00	0.00	
8,600.0	90.00	180.00	5,912.4	-2,971.7	-807.4	2,971.7	0.00	0.00	
8,700.0	90.00	180.00	5,912.4	-3,071.7	-807.4	3,071.7	0.00	0.00	
8,800.0	90.00	180.00	5,912.4	-3,171.7	-807.4	3,171.7	0.00	0.00	
8,900.0	90.00	180.00	5,912.4	-3,271.7	-807.4	3,271.7	0.00	0.00	
9,000.0	90.00	180.00	5,912.4	-3,371.7	-807.4	3,371.7	0.00	0.00	
9,100.0	90.00	180.00	5,912.4	-3,471.7	-807.4	3,471.7	0.00	0.00	

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Wellbore:	HZ		
Design:	Plan #2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
9,200.0	90.00	180.00	5,912.4	-3,571.7	-807.4	3,571.7	0.00	0.00	
9,300.0	90.00	180.00	5,912.4	-3,671.7	-807.4	3,671.7	0.00	0.00	
9,400.0	90.00	180.00	5,912.4	-3,771.7	-807.4	3,771.7	0.00	0.00	
9,500.0	90.00	180.00	5,912.3	-3,871.7	-807.4	3,871.7	0.00	0.00	
9,600.0	90.00	180.00	5,912.3	-3,971.7	-807.4	3,971.7	0.00	0.00	
9,700.0	90.00	180.00	5,912.3	-4,071.7	-807.3	4,071.7	0.00	0.00	
9,800.0	90.00	180.00	5,912.3	-4,171.7	-807.3	4,171.7	0.00	0.00	
9,900.0	90.00	180.00	5,912.3	-4,271.7	-807.3	4,271.7	0.00	0.00	
10,000.0	90.00	180.00	5,912.3	-4,371.7	-807.3	4,371.7	0.00	0.00	
10,100.0	90.00	180.00	5,912.3	-4,471.7	-807.3	4,471.7	0.00	0.00	
10,200.0	90.00	180.00	5,912.3	-4,571.7	-807.3	4,571.7	0.00	0.00	
10,300.0	90.00	180.00	5,912.3	-4,671.7	-807.3	4,671.7	0.00	0.00	
10,400.0	90.00	180.00	5,912.3	-4,771.7	-807.3	4,771.7	0.00	0.00	
10,500.0	90.00	180.00	5,912.3	-4,871.7	-807.3	4,871.7	0.00	0.00	
10,600.0	90.00	180.00	5,912.3	-4,971.7	-807.3	4,971.7	0.00	0.00	
10,700.0	90.00	180.00	5,912.3	-5,071.7	-807.3	5,071.7	0.00	0.00	
10,800.0	90.00	180.00	5,912.2	-5,171.7	-807.3	5,171.7	0.00	0.00	
10,900.0	90.00	180.00	5,912.2	-5,271.7	-807.3	5,271.7	0.00	0.00	
11,000.0	90.00	180.00	5,912.2	-5,371.7	-807.3	5,371.7	0.00	0.00	
11,100.0	90.00	180.00	5,912.2	-5,471.7	-807.3	5,471.7	0.00	0.00	
11,200.0	90.00	180.00	5,912.2	-5,571.7	-807.3	5,571.7	0.00	0.00	
11,300.0	90.00	180.00	5,912.2	-5,671.7	-807.3	5,671.7	0.00	0.00	
11,400.0	90.00	180.00	5,912.2	-5,771.7	-807.3	5,771.7	0.00	0.00	
11,500.0	90.00	180.00	5,912.2	-5,871.7	-807.3	5,871.7	0.00	0.00	
11,600.0	90.00	180.00	5,912.2	-5,971.7	-807.3	5,971.7	0.00	0.00	
11,700.0	90.00	180.00	5,912.2	-6,071.7	-807.3	6,071.7	0.00	0.00	
11,800.0	90.00	180.00	5,912.2	-6,171.7	-807.2	6,171.7	0.00	0.00	
11,900.0	90.00	180.00	5,912.2	-6,271.7	-807.2	6,271.7	0.00	0.00	
12,000.0	90.00	180.00	5,912.2	-6,371.7	-807.2	6,371.7	0.00	0.00	
12,100.0	90.00	180.00	5,912.1	-6,471.7	-807.2	6,471.7	0.00	0.00	
12,200.0	90.00	180.00	5,912.1	-6,571.7	-807.2	6,571.7	0.00	0.00	
12,300.0	90.00	180.00	5,912.1	-6,671.7	-807.2	6,671.7	0.00	0.00	
12,400.0	90.00	180.00	5,912.1	-6,771.7	-807.2	6,771.7	0.00	0.00	
12,500.0	90.00	180.00	5,912.1	-6,871.7	-807.2	6,871.7	0.00	0.00	
12,600.0	90.00	180.00	5,912.1	-6,971.7	-807.2	6,971.7	0.00	0.00	
12,700.0	90.00	180.00	5,912.1	-7,071.7	-807.2	7,071.7	0.00	0.00	
12,800.0	90.00	180.00	5,912.1	-7,171.7	-807.2	7,171.7	0.00	0.00	
12,900.0	90.00	180.00	5,912.1	-7,271.7	-807.2	7,271.7	0.00	0.00	
13,000.0	90.00	180.00	5,912.1	-7,371.7	-807.2	7,371.7	0.00	0.00	
13,100.0	90.00	180.00	5,912.1	-7,471.7	-807.2	7,471.7	0.00	0.00	
13,200.0	90.00	180.00	5,912.1	-7,571.7	-807.2	7,571.7	0.00	0.00	
13,300.0	90.00	180.00	5,912.1	-7,671.7	-807.2	7,671.7	0.00	0.00	
13,400.0	90.00	180.00	5,912.0	-7,771.7	-807.2	7,771.7	0.00	0.00	
13,500.0	90.00	180.00	5,912.0	-7,871.7	-807.2	7,871.7	0.00	0.00	
13,600.0	90.00	180.00	5,912.0	-7,971.7	-807.2	7,971.7	0.00	0.00	
13,700.0	90.00	180.00	5,912.0	-8,071.7	-807.2	8,071.7	0.00	0.00	
13,800.0	90.00	180.00	5,912.0	-8,171.7	-807.2	8,171.7	0.00	0.00	
13,872.5	90.00	180.00	5,912.0	-8,244.3	-807.1	8,244.3	0.00	0.00	PBHL @ 13,872' MD

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor Federal #12F-1302B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site:	S12-T10N-R58W	North Reference:	True
Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
Razor #12F-1302B PBH	0.00	0.00	5,912.0	-8,244.3	-807.1	1,550,283.61	3,464,565.46	40.831828	-103.821194
- plan hits target center									
- Point									

Casing Points					
Measured Depth	Vertical Depth	Name		Casing Diameter	Hole Diameter
(ft)	(ft)			(in)	(in)
6,300.0	5,912.5	7" (854' FWL,2312' FSL)		0.000	0.000

Formations					
Measured Depth	Vertical Depth	Name		Dip	Dip Direction
(ft)	(ft)			(°)	(°)
5,803.7	5,755.0	Top Niobrara		0.00	

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S	+E/-W		
(ft)	(ft)	(ft)	(ft)		
1,200.0	1,200.0	0.0	0.0	KOP @ 1200' MD	
1,400.0	1,399.8	-5.7	-4.0	EOB; 4 Deg Inc	
5,438.0	5,428.0	-236.6	-165.4	Start 11 Deg Bulid	
6,219.8	5,912.5	-662.5	-463.0	LP @ 6,219' MD	
7,384.9	5,912.5	-1,756.7	-807.5	EOT; 180 Deg Azi	
13,872.5	5,912.0	-8,244.3	-807.1	PBHL @ 13,872' MD	

Whiting Petroleum Corporation

Weld County, CO

S12-T10N-R58W

Razor Federal #12F-1302B

HZ

Plan #2

Anticollision Report

18 October, 2013

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Reference	Plan #2		
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 10,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date	10/9/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	13,871.8	Plan #2 (HZ)	ISCWSA MWD	MWD - ISCWSA

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance		Separation Factor	Warning
			Between Centres (ft)	Between Ellipses (ft)		
S12-T10N-R58W						
ALLAN 1 (EXISTING) - DAVIS OIL WELL - NO SURVEY	10,665.2	5,862.6	2,336.6	2,234.1	22.790	CC
ALLAN 1 (EXISTING) - DAVIS OIL WELL - NO SURVEY	10,700.0	5,862.6	2,336.9	2,233.7	22.648	ES
ALLAN 1 (EXISTING) - DAVIS OIL WELL - NO SURVEY	11,700.0	5,862.6	2,555.5	2,432.6	20.793	SF
Razor #12F-0101A - HZ - Plan #2	500.0	500.0	74.9	72.9	37.729	CC, ES
Razor #12F-0101A - HZ - Plan #2	1,300.0	1,294.7	114.6	109.0	20.534	SF
Razor #12F-0102B - HZ - Plan #2	500.0	500.0	33.0	31.1	16.646	CC, ES
Razor #12F-0102B - HZ - Plan #2	900.0	897.8	48.5	44.7	12.762	SF
Razor #12F-0103A - HZ - Plan #2	1,000.0	1,000.0	99.9	95.6	23.597	CC, ES
Razor #12F-0103A - HZ - Plan #2	1,300.0	1,297.1	106.9	101.3	19.255	SF
Razor #12F-0104B - HZ - Plan #2	1,027.7	1,028.0	31.8	27.5	7.295	CC, ES
Razor #12F-0104B - HZ - Plan #2	1,200.0	1,199.8	34.0	28.9	6.607	SF
Razor #12F-0105A - HZ - Plan #2	1,100.0	1,100.0	151.2	146.6	32.302	CC, ES
Razor #12F-0105A - HZ - Plan #2	2,200.0	2,187.4	254.1	244.7	27.071	SF
Razor #12F-0106B - HZ - Plan #2	700.0	700.0	99.1	96.2	34.370	CC, ES
Razor #12F-0106B - HZ - Plan #2	1,400.0	1,396.0	123.2	117.2	20.580	SF
Razor #12F-0107A - HZ - Plan #2	1,200.0	1,200.0	211.2	206.1	41.158	CC, ES
Razor #12F-0107A - HZ - Plan #2	5,300.0	5,250.7	730.7	707.5	31.476	SF
Razor #12F-0108B - HZ - Plan #2	800.0	800.0	164.4	161.1	49.329	CC, ES
Razor #12F-0108B - HZ - Plan #2	3,700.0	3,668.8	477.4	461.4	29.761	SF
Razor Federal #12F-1301A - HZ - Plan #2	1,320.3	1,322.0	78.3	72.7	14.104	CC
Razor Federal #12F-1301A - HZ - Plan #2	13,872.5	13,992.7	344.9	44.4	1.148	Level 2, ES, SF
Razor Federal #12F-1303A - HZ - Plan #1	1,544.2	1,548.2	32.7	26.2	5.094	CC
Razor Federal #12F-1303A - HZ - Plan #1	2,500.0	2,503.9	35.1	24.4	3.290	ES
Razor Federal #12F-1303A - HZ - Plan #1	13,872.5	13,684.2	345.6	44.1	1.146	Level 2, SF
Razor Federal #12F-1304B - HZ - Plan #1	1,243.6	1,244.2	65.6	60.3	12.457	CC, ES
Razor Federal #12F-1304B - HZ - Plan #1	13,872.5	13,667.9	660.3	345.9	2.100	SF
Razor Federal #12F-1305A - HZ - Plan #1	1,288.9	1,292.7	116.1	110.7	21.540	CC
Razor Federal #12F-1305A - HZ - Plan #1	1,300.0	1,303.8	116.1	110.7	21.367	ES
Razor Federal #12F-1305A - HZ - Plan #1	13,872.5	13,617.4	995.2	679.1	3.148	SF
Razor Federal #12F-1306B - HZ - Plan #1	1,000.0	1,000.0	131.4	127.2	31.045	CC, ES
Razor Federal #12F-1306B - HZ - Plan #1	13,872.5	13,695.8	1,319.9	1,004.2	4.180	SF
Razor Federal #12F-1307A - HZ - Plan #1	400.0	400.0	180.7	179.2	117.666	CC
Razor Federal #12F-1307A - HZ - Plan #1	500.0	499.4	180.9	178.9	92.273	ES
Razor Federal #12F-1307A - HZ - Plan #1	13,872.5	13,734.0	1,652.8	1,335.3	5.206	SF
Razor Federal #12F-1308B - HZ - Plan #1	900.0	900.0	197.5	193.7	52.202	CC, ES
Razor Federal #12F-1308B - HZ - Plan #1	13,872.5	13,925.4	1,980.2	1,663.3	6.248	SF

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - ALLAN 1 (EXISTING) - DAVIS OIL WELL - NO SURVEYS													Offset Site Error: 0.0 ft	
Survey Program: 6719-ISCWSA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-148.03	-5,037.1	-3,143.9	5,937.9					
100.0	100.0	50.4	50.4	0.1	0.1	-148.03	-5,037.1	-3,143.9	5,937.7	5,937.6	0.15	N/A		
200.0	200.0	150.4	150.4	0.3	0.2	-148.03	-5,037.1	-3,143.9	5,937.7	5,937.2	0.49	N/A		
300.0	300.0	250.4	250.4	0.5	0.3	-148.03	-5,037.1	-3,143.9	5,937.7	5,936.9	0.82	7,205.481		
400.0	400.0	350.4	350.4	0.8	0.4	-148.03	-5,037.1	-3,143.9	5,937.7	5,936.5	1.16	5,114.071		
500.0	500.0	450.4	450.4	1.0	0.5	-148.03	-5,037.1	-3,143.9	5,937.7	5,936.2	1.50	3,963.620		
600.0	600.0	550.4	550.4	1.2	0.6	-148.03	-5,037.1	-3,143.9	5,937.7	5,935.9	1.84	3,235.719		
700.0	700.0	650.4	650.4	1.4	0.7	-148.03	-5,037.1	-3,143.9	5,937.7	5,935.5	2.17	2,733.689		
800.0	800.0	750.4	750.4	1.7	0.8	-148.03	-5,037.1	-3,143.9	5,937.7	5,935.2	2.51	2,366.518		
900.0	900.0	850.4	850.4	1.9	1.0	-148.03	-5,037.1	-3,143.9	5,937.7	5,934.9	2.85	2,086.300		
1,000.0	1,000.0	950.4	950.4	2.1	1.1	-148.03	-5,037.1	-3,143.9	5,937.7	5,934.5	3.18	1,865.417		
1,100.0	1,100.0	1,050.4	1,050.4	2.3	1.2	-148.03	-5,037.1	-3,143.9	5,937.7	5,934.2	3.52	1,686.828		
1,200.0	1,200.0	1,150.4	1,150.4	2.6	1.3	-148.03	-5,037.1	-3,143.9	5,937.7	5,933.8	3.86	1,539.442		
1,300.0	1,300.0	1,250.4	1,250.4	2.8	1.4	-2.98	-5,037.1	-3,143.9	5,936.0	5,931.8	4.20	1,413.846		
1,400.0	1,399.8	1,350.2	1,350.2	2.9	1.5	-2.99	-5,037.1	-3,143.9	5,930.7	5,926.2	4.52	1,312.052		
1,500.0	1,499.6	1,450.0	1,450.0	3.1	1.6	-2.99	-5,037.1	-3,143.9	5,923.8	5,918.9	4.82	1,228.163		
1,600.0	1,599.4	1,549.7	1,549.7	3.3	1.7	-3.00	-5,037.1	-3,143.9	5,916.8	5,911.7	5.13	1,152.917		
1,700.0	1,699.1	1,649.5	1,649.5	3.5	1.9	-3.00	-5,037.1	-3,143.9	5,909.8	5,904.4	5.45	1,085.266		
1,800.0	1,798.9	1,749.3	1,749.3	3.8	2.0	-3.00	-5,037.1	-3,143.9	5,902.9	5,897.1	5.76	1,024.269		
1,900.0	1,898.6	1,849.0	1,849.0	4.0	2.1	-3.01	-5,037.1	-3,143.9	5,895.9	5,889.8	6.08	969.103		
2,000.0	1,998.4	1,948.8	1,948.8	4.2	2.2	-3.01	-5,037.1	-3,143.9	5,888.9	5,882.5	6.41	919.051		
2,100.0	2,098.1	2,048.5	2,048.5	4.4	2.3	-3.01	-5,037.1	-3,143.9	5,882.0	5,875.2	6.73	873.493		
2,200.0	2,197.9	2,148.3	2,148.3	4.7	2.4	-3.02	-5,037.1	-3,143.9	5,875.0	5,867.9	7.06	831.894		
2,300.0	2,297.6	2,248.0	2,248.0	4.9	2.5	-3.02	-5,037.1	-3,143.9	5,868.0	5,860.6	7.39	793.793		
2,400.0	2,397.4	2,347.8	2,347.8	5.2	2.6	-3.03	-5,037.1	-3,143.9	5,861.1	5,853.3	7.72	758.792		
2,500.0	2,497.2	2,447.5	2,447.5	5.4	2.7	-3.03	-5,037.1	-3,143.9	5,854.1	5,846.1	8.06	726.546		
2,600.0	2,596.9	2,547.3	2,547.3	5.6	2.9	-3.03	-5,037.1	-3,143.9	5,847.1	5,838.8	8.39	696.759		
2,700.0	2,696.7	2,647.1	2,647.1	5.9	3.0	-3.04	-5,037.1	-3,143.9	5,840.2	5,831.4	8.73	669.171		
2,800.0	2,796.4	2,746.8	2,746.8	6.1	3.1	-3.04	-5,037.1	-3,143.9	5,833.2	5,824.1	9.06	643.556		
2,900.0	2,896.2	2,846.6	2,846.6	6.4	3.2	-3.04	-5,037.1	-3,143.9	5,826.2	5,816.8	9.40	619.718		
3,000.0	2,995.9	2,946.3	2,946.3	6.6	3.3	-3.05	-5,037.1	-3,143.9	5,819.3	5,809.5	9.74	597.484		
3,100.0	3,095.7	3,046.1	3,046.1	6.9	3.4	-3.05	-5,037.1	-3,143.9	5,812.3	5,802.2	10.08	576.703		
3,200.0	3,195.5	3,145.8	3,145.8	7.1	3.5	-3.05	-5,037.1	-3,143.9	5,805.3	5,794.9	10.42	557.239		
3,300.0	3,295.2	3,245.6	3,245.6	7.4	3.6	-3.06	-5,037.1	-3,143.9	5,798.4	5,787.6	10.76	538.976		
3,400.0	3,395.0	3,345.4	3,345.4	7.7	3.8	-3.06	-5,037.1	-3,143.9	5,791.4	5,780.3	11.10	521.808		
3,500.0	3,494.7	3,445.1	3,445.1	7.9	3.9	-3.07	-5,037.1	-3,143.9	5,784.4	5,773.0	11.44	505.641		
3,600.0	3,594.5	3,544.9	3,544.9	8.2	4.0	-3.07	-5,037.1	-3,143.9	5,777.5	5,765.7	11.78	490.392		
3,700.0	3,694.2	3,644.6	3,644.6	8.4	4.1	-3.07	-5,037.1	-3,143.9	5,770.5	5,758.4	12.12	475.987		
3,800.0	3,794.0	3,744.4	3,744.4	8.7	4.2	-3.08	-5,037.1	-3,143.9	5,763.6	5,751.1	12.47	462.360		
3,900.0	3,893.7	3,844.1	3,844.1	8.9	4.3	-3.08	-5,037.1	-3,143.9	5,756.6	5,743.8	12.81	449.448		
4,000.0	3,993.5	3,943.9	3,943.9	9.2	4.4	-3.08	-5,037.1	-3,143.9	5,749.6	5,736.5	13.15	437.200		
4,100.0	4,093.3	4,043.7	4,043.7	9.4	4.5	-3.09	-5,037.1	-3,143.9	5,742.7	5,729.2	13.49	425.565		
4,200.0	4,193.0	4,143.4	4,143.4	9.7	4.7	-3.09	-5,037.1	-3,143.9	5,735.7	5,721.9	13.84	414.499		
4,300.0	4,292.8	4,243.2	4,243.2	10.0	4.8	-3.10	-5,037.1	-3,143.9	5,728.7	5,714.5	14.18	403.963		
4,400.0	4,392.5	4,342.9	4,342.9	10.2	4.9	-3.10	-5,037.1	-3,143.9	5,721.8	5,707.2	14.53	393.919		
4,500.0	4,492.3	4,442.7	4,442.7	10.5	5.0	-3.10	-5,037.1	-3,143.9	5,714.8	5,699.9	14.87	384.334		
4,600.0	4,592.0	4,542.4	4,542.4	10.7	5.1	-3.11	-5,037.1	-3,143.9	5,707.8	5,692.6	15.21	375.179		
4,700.0	4,691.8	4,642.2	4,642.2	11.0	5.2	-3.11	-5,037.1	-3,143.9	5,700.9	5,685.3	15.56	366.424		
4,800.0	4,791.6	4,741.9	4,741.9	11.3	5.3	-3.11	-5,037.1	-3,143.9	5,693.9	5,678.0	15.90	358.044		
4,900.0	4,891.3	4,841.7	4,841.7	11.5	5.4	-3.12	-5,037.1	-3,143.9	5,686.9	5,670.7	16.25	350.017		
5,000.0	4,991.1	4,941.5	4,941.5	11.8	5.5	-3.12	-5,037.1	-3,143.9	5,680.0	5,663.4	16.59	342.320		
5,100.0	5,090.8	5,041.2	5,041.2	12.0	5.7	-3.13	-5,037.1	-3,143.9	5,673.0	5,656.1	16.94	334.935		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - ALLAN 1 (EXISTING) - DAVIS OIL WELL - NO SURVEYS												Offset Site Error: 0.0 ft	
Survey Program: 6719-ISCWSA MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	
5,200.0	5,190.6	5,141.0	5,141.0	12.3	5.8	-3.13	-5,037.1	-3,143.9	5,666.0	5,648.8	17.28	327.841	
5,300.0	5,290.3	5,240.7	5,240.7	12.6	5.9	-3.13	-5,037.1	-3,143.9	5,659.1	5,641.4	17.63	321.023	
5,400.0	5,390.1	5,340.5	5,340.5	12.8	6.0	-3.14	-5,037.1	-3,143.9	5,652.1	5,634.1	17.97	314.466	
5,438.0	5,428.0	5,378.4	5,378.4	12.9	6.0	-3.14	-5,037.1	-3,143.9	5,649.5	5,631.4	18.11	312.038	
5,450.0	5,440.0	5,390.4	5,390.4	13.0	6.0	-3.15	-5,037.1	-3,143.9	5,648.5	5,630.3	18.15	311.175	
5,500.0	5,489.4	5,439.8	5,439.8	13.1	6.1	-3.19	-5,037.1	-3,143.9	5,641.5	5,623.2	18.26	308.912	
5,550.0	5,538.0	5,488.4	5,488.4	13.3	6.2	-3.27	-5,037.1	-3,143.9	5,629.8	5,611.5	18.23	308.792	
5,600.0	5,585.3	5,535.7	5,535.7	13.6	6.2	-3.39	-5,037.1	-3,143.9	5,613.5	5,595.4	18.06	310.846	
5,650.0	5,630.7	5,581.1	5,581.1	13.9	6.3	-3.56	-5,037.1	-3,143.9	5,592.7	5,575.0	17.75	315.157	
5,700.0	5,674.0	5,624.4	5,624.4	14.2	6.3	-3.78	-5,037.1	-3,143.9	5,567.7	5,550.4	17.30	321.874	
5,750.0	5,714.6	5,665.0	5,665.0	14.6	6.4	-4.07	-5,037.1	-3,143.9	5,538.7	5,522.0	16.72	331.202	
5,800.0	5,752.3	5,702.7	5,702.7	15.0	6.4	-4.45	-5,037.1	-3,143.9	5,505.9	5,489.9	16.03	343.394	
5,850.0	5,786.7	5,737.1	5,737.1	15.5	6.4	-4.95	-5,037.1	-3,143.9	5,469.7	5,454.4	15.25	358.699	
5,900.0	5,817.4	5,767.8	5,767.8	16.0	6.5	-5.64	-5,037.1	-3,143.9	5,430.3	5,415.9	14.40	377.229	
5,950.0	5,844.2	5,794.6	5,794.6	16.6	6.5	-6.61	-5,037.1	-3,143.9	5,388.2	5,374.7	13.52	398.593	
6,000.0	5,866.8	5,817.2	5,817.2	17.2	6.5	-8.04	-5,037.1	-3,143.9	5,343.7	5,331.0	12.70	420.872	
6,050.0	5,885.1	5,835.5	5,835.5	17.9	6.5	-10.33	-5,037.1	-3,143.9	5,297.3	5,285.2	12.10	437.767	
6,100.0	5,898.8	5,849.2	5,849.2	18.6	6.6	-14.48	-5,037.1	-3,143.9	5,249.3	5,237.1	12.17	431.174	
6,150.0	5,907.9	5,858.3	5,858.3	19.4	6.6	-23.98	-5,037.1	-3,143.9	5,200.2	5,185.8	14.41	360.921	
6,200.0	5,912.2	5,862.6	5,862.6	20.1	6.6	-57.62	-5,037.1	-3,143.9	5,150.5	5,126.2	24.30	211.925	
6,219.8	5,912.5	5,862.9	5,862.9	20.4	6.6	-90.00	-5,037.1	-3,143.9	5,130.7	5,102.6	28.14	182.310	
6,300.0	5,912.5	5,862.9	5,862.9	21.6	6.6	-90.02	-5,037.1	-3,143.9	5,050.6	5,021.1	29.48	171.347	
6,400.0	5,912.5	5,862.9	5,862.9	23.0	6.6	90.02	-5,037.1	-3,143.9	4,950.6	4,921.1	29.57	167.445	
6,500.0	5,912.5	5,862.9	5,862.9	24.5	6.6	90.01	-5,037.1	-3,143.9	4,850.8	4,819.9	30.95	156.735	
6,600.0	5,912.5	5,862.9	5,862.9	26.0	6.6	90.01	-5,037.1	-3,143.9	4,751.5	4,719.2	32.33	146.984	
6,700.0	5,912.5	5,862.9	5,862.9	27.6	6.6	90.01	-5,037.1	-3,143.9	4,652.9	4,619.3	33.68	138.154	
6,800.0	5,912.5	5,862.9	5,862.9	29.1	6.6	90.01	-5,037.1	-3,143.9	4,555.5	4,520.5	34.99	130.181	
6,900.0	5,912.5	5,862.9	5,862.9	30.7	6.6	90.01	-5,037.1	-3,143.9	4,459.5	4,423.3	36.26	122.994	
7,000.0	5,912.5	5,862.9	5,862.9	32.2	6.6	90.01	-5,037.1	-3,143.9	4,365.4	4,327.9	37.46	116.521	
7,100.0	5,912.5	5,862.9	5,862.9	33.7	6.6	90.01	-5,037.1	-3,143.9	4,273.5	4,234.9	38.61	110.694	
7,200.0	5,912.5	5,862.9	5,862.9	35.3	6.6	90.01	-5,037.1	-3,143.9	4,184.2	4,144.5	39.68	105.453	
7,300.0	5,912.5	5,862.9	5,862.9	36.8	6.6	90.01	-5,037.1	-3,143.9	4,097.9	4,057.3	40.68	100.742	
7,384.9	5,912.5	5,862.9	5,862.9	38.0	6.6	90.01	-5,037.1	-3,143.9	4,027.4	3,986.0	41.47	97.122	
7,400.0	5,912.5	5,862.9	5,862.9	38.3	6.6	90.01	-5,037.1	-3,143.9	4,015.1	3,973.4	41.71	96.256	
7,500.0	5,912.5	5,862.9	5,862.9	39.8	6.6	90.01	-5,037.1	-3,143.9	3,934.3	3,890.9	43.35	90.748	
7,600.0	5,912.5	5,862.9	5,862.9	41.3	6.6	90.01	-5,037.1	-3,143.9	3,854.3	3,809.2	45.02	85.611	
7,700.0	5,912.5	5,862.9	5,862.9	42.9	6.6	90.01	-5,037.1	-3,143.9	3,775.2	3,728.5	46.71	80.822	
7,800.0	5,912.5	5,862.9	5,862.9	44.5	6.6	90.01	-5,037.1	-3,143.9	3,697.2	3,648.8	48.42	76.357	
7,900.0	5,912.5	5,862.9	5,862.9	46.1	6.6	90.01	-5,037.1	-3,143.9	3,620.3	3,570.1	50.15	72.193	
8,000.0	5,912.5	5,862.8	5,862.8	47.8	6.6	90.00	-5,037.1	-3,143.9	3,544.5	3,492.6	51.89	68.307	
8,100.0	5,912.4	5,862.8	5,862.8	49.4	6.6	90.00	-5,037.1	-3,143.9	3,469.9	3,416.2	53.65	64.680	
8,200.0	5,912.4	5,862.8	5,862.8	51.1	6.6	90.00	-5,037.1	-3,143.9	3,396.6	3,341.2	55.42	61.293	
8,300.0	5,912.4	5,862.8	5,862.8	52.8	6.6	90.00	-5,037.1	-3,143.9	3,324.8	3,267.6	57.20	58.129	
8,400.0	5,912.4	5,862.8	5,862.8	54.5	6.6	90.00	-5,037.1	-3,143.9	3,254.4	3,195.4	58.99	55.171	
8,500.0	5,912.4	5,862.8	5,862.8	56.2	6.6	90.00	-5,037.1	-3,143.9	3,185.6	3,124.8	60.79	52.406	
8,600.0	5,912.4	5,862.8	5,862.8	58.0	6.6	90.00	-5,037.1	-3,143.9	3,118.5	3,055.9	62.59	49.821	
8,700.0	5,912.4	5,862.8	5,862.8	59.7	6.6	90.00	-5,037.1	-3,143.9	3,053.2	2,988.8	64.41	47.403	
8,800.0	5,912.4	5,862.8	5,862.8	61.5	6.6	90.00	-5,037.1	-3,143.9	2,989.8	2,923.5	66.28	45.107	
8,900.0	5,912.4	5,862.8	5,862.8	63.3	6.6	90.00	-5,037.1	-3,143.9	2,928.4	2,860.3	68.19	42.945	
9,000.0	5,912.4	5,862.8	5,862.8	65.0	6.6	90.00	-5,037.1	-3,143.9	2,869.3	2,799.2	70.11	40.928	
9,100.0	5,912.4	5,862.8	5,862.8	66.8	6.6	90.00	-5,037.1	-3,143.9	2,812.4	2,740.4	72.02	39.048	
9,200.0	5,912.4	5,862.8	5,862.8	68.6	6.6	90.00	-5,037.1	-3,143.9	2,758.0	2,684.1	73.95	37.296	

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - ALLAN 1 (EXISTING) - DAVIS OIL WELL - NO SURVEYS													Offset Site Error: 0.0 ft	
Survey Program: 6719-ISCWSA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
9,300.0	5,912.4	5,862.7	5,862.7	70.4	6.6	90.00	-5,037.1	-3,143.9	2,706.2	2,630.3	75.88	35.666		
9,400.0	5,912.4	5,862.7	5,862.7	72.2	6.6	90.00	-5,037.1	-3,143.9	2,657.2	2,579.4	77.81	34.150		
9,500.0	5,912.3	5,862.7	5,862.7	74.0	6.6	90.00	-5,037.1	-3,143.9	2,611.0	2,531.3	79.75	32.742		
9,600.0	5,912.3	5,862.7	5,862.7	75.9	6.6	90.00	-5,037.1	-3,143.9	2,568.0	2,486.3	81.69	31.438		
9,700.0	5,912.3	5,862.7	5,862.7	77.7	6.6	90.00	-5,037.1	-3,143.9	2,528.1	2,444.5	83.63	30.231		
9,800.0	5,912.3	5,862.7	5,862.7	79.5	6.6	90.00	-5,037.1	-3,143.9	2,491.7	2,406.1	85.57	29.117		
9,900.0	5,912.3	5,862.7	5,862.7	81.3	6.6	90.00	-5,037.1	-3,143.9	2,458.7	2,371.2	87.52	28.093		
10,000.0	5,912.3	5,862.7	5,862.7	83.2	6.6	90.00	-5,037.1	-3,143.9	2,429.5	2,340.0	89.47	27.153		
10,100.0	5,912.3	5,862.7	5,862.7	85.0	6.6	90.00	-5,037.1	-3,143.9	2,404.0	2,312.6	91.43	26.295		
10,200.0	5,912.3	5,862.7	5,862.7	86.9	6.6	90.00	-5,037.1	-3,143.9	2,382.5	2,289.1	93.38	25.514		
10,300.0	5,912.3	5,862.7	5,862.7	88.7	6.6	90.00	-5,037.1	-3,143.9	2,365.0	2,269.7	95.34	24.807		
10,400.0	5,912.3	5,862.7	5,862.7	90.6	6.6	90.00	-5,037.1	-3,143.9	2,351.6	2,254.3	97.30	24.170		
10,500.0	5,912.3	5,862.7	5,862.7	92.4	6.6	90.00	-5,037.1	-3,143.9	2,342.5	2,243.2	99.26	23.600		
10,600.0	5,912.3	5,862.7	5,862.7	94.3	6.6	90.00	-5,037.1	-3,143.9	2,337.5	2,236.3	101.22	23.093		
10,665.2	5,912.3	5,862.6	5,862.6	95.5	6.6	90.00	-5,037.1	-3,143.9	2,336.6	2,234.1	102.53	22.790 CC		
10,700.0	5,912.3	5,862.6	5,862.6	96.1	6.6	90.00	-5,037.1	-3,143.9	2,336.9	2,233.7	103.19	22.648 ES		
10,800.0	5,912.2	5,862.6	5,862.6	98.0	6.6	90.00	-5,037.1	-3,143.9	2,340.5	2,235.4	105.15	22.259		
10,900.0	5,912.2	5,862.6	5,862.6	99.9	6.6	90.00	-5,037.1	-3,143.9	2,348.4	2,241.3	107.12	21.923		
11,000.0	5,912.2	5,862.6	5,862.6	101.7	6.6	90.00	-5,037.1	-3,143.9	2,360.5	2,251.4	109.09	21.639		
11,100.0	5,912.2	5,862.6	5,862.6	103.6	6.6	90.00	-5,037.1	-3,143.9	2,376.7	2,265.7	111.06	21.401		
11,200.0	5,912.2	5,862.6	5,862.6	105.5	6.6	90.00	-5,037.1	-3,143.9	2,397.1	2,284.0	113.03	21.208		
11,300.0	5,912.2	5,862.6	5,862.6	107.3	6.6	90.00	-5,037.1	-3,143.9	2,421.3	2,306.3	115.00	21.055		
11,400.0	5,912.2	5,862.6	5,862.6	109.2	6.6	90.00	-5,037.1	-3,143.9	2,449.4	2,332.5	116.97	20.940		
11,500.0	5,912.2	5,862.6	5,862.6	111.1	6.6	90.00	-5,037.1	-3,143.9	2,481.3	2,362.3	118.95	20.860		
11,600.0	5,912.2	5,862.6	5,862.6	113.0	6.6	90.00	-5,037.1	-3,143.9	2,516.7	2,395.8	120.92	20.812		
11,700.0	5,912.2	5,862.6	5,862.6	114.8	6.6	90.00	-5,037.1	-3,143.9	2,555.5	2,432.6	122.90	20.793 SF		
11,800.0	5,912.2	5,862.6	5,862.6	116.7	6.6	90.00	-5,037.1	-3,143.9	2,597.6	2,472.7	124.88	20.801		
11,900.0	5,912.2	5,862.6	5,862.6	118.6	6.6	90.00	-5,037.1	-3,143.9	2,642.8	2,516.0	126.85	20.834		
12,000.0	5,912.2	5,862.5	5,862.5	120.5	6.6	90.00	-5,037.1	-3,143.9	2,691.0	2,562.2	128.83	20.887		
12,100.0	5,912.1	5,862.5	5,862.5	122.4	6.6	90.00	-5,037.1	-3,143.9	2,742.0	2,611.2	130.81	20.961		
12,200.0	5,912.1	5,862.5	5,862.5	124.3	6.6	90.00	-5,037.1	-3,143.9	2,795.6	2,662.8	132.79	21.052		
12,300.0	5,912.1	5,862.5	5,862.5	126.1	6.6	90.00	-5,037.1	-3,143.9	2,851.7	2,717.0	134.77	21.159		
12,400.0	5,912.1	5,862.5	5,862.5	128.0	6.6	90.00	-5,037.1	-3,143.9	2,910.2	2,773.5	136.76	21.280		
12,500.0	5,912.1	5,862.5	5,862.5	129.9	6.6	90.00	-5,037.1	-3,143.9	2,970.9	2,832.2	138.74	21.414		
12,600.0	5,912.1	5,862.5	5,862.5	131.8	6.6	90.00	-5,037.1	-3,143.9	3,033.7	2,893.0	140.72	21.558		
12,700.0	5,912.1	5,862.5	5,862.5	133.7	6.6	90.00	-5,037.1	-3,143.9	3,098.4	2,955.7	142.70	21.712		
12,800.0	5,912.1	5,862.5	5,862.5	135.6	6.6	90.00	-5,037.1	-3,143.9	3,165.0	3,020.3	144.69	21.875		
12,900.0	5,912.1	5,862.5	5,862.5	137.5	6.6	90.00	-5,037.1	-3,143.9	3,233.3	3,086.6	146.67	22.044		
13,000.0	5,912.1	5,862.5	5,862.5	139.4	6.6	90.00	-5,037.1	-3,143.9	3,303.2	3,154.5	148.66	22.220		
13,100.0	5,912.1	5,862.5	5,862.5	141.3	6.6	90.00	-5,037.1	-3,143.9	3,374.6	3,224.0	150.64	22.401		
13,200.0	5,912.1	5,862.5	5,862.5	143.2	6.6	90.00	-5,037.1	-3,143.9	3,447.5	3,294.8	152.63	22.587		
13,300.0	5,912.1	5,862.4	5,862.4	145.1	6.6	90.00	-5,037.1	-3,143.9	3,521.6	3,367.0	154.62	22.777		
13,400.0	5,912.0	5,862.4	5,862.4	146.9	6.6	89.99	-5,037.1	-3,143.9	3,597.1	3,440.5	156.60	22.970		
13,500.0	5,912.0	5,862.4	5,862.4	148.8	6.6	89.99	-5,037.1	-3,143.9	3,673.7	3,515.1	158.59	23.165		
13,600.0	5,912.0	5,862.4	5,862.4	150.7	6.6	89.99	-5,037.1	-3,143.9	3,751.4	3,590.8	160.58	23.362		
13,700.0	5,912.0	5,862.4	5,862.4	152.6	6.6	89.99	-5,037.1	-3,143.9	3,830.1	3,667.6	162.56	23.561		
13,800.0	5,912.0	5,862.4	5,862.4	154.5	6.6	89.99	-5,037.1	-3,143.9	3,909.8	3,745.3	164.55	23.760		
13,872.5	5,912.0	5,862.4	5,862.4	155.7	6.6	89.99	-5,037.1	-3,143.9	3,968.2	3,802.5	165.75	23.941		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0101A - HZ - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	0.00	74.9	0.0	74.9					
100.0	100.0	100.0	100.0	0.1	0.1	0.00	74.9	0.0	74.9	74.7	0.19	400.508		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	74.9	0.0	74.9	74.3	0.64	117.663		
300.0	300.0	300.0	300.0	0.5	0.5	0.00	74.9	0.0	74.9	73.8	1.09	68.962		
400.0	400.0	400.0	400.0	0.8	0.8	0.00	74.9	0.0	74.9	73.4	1.54	48.774		
500.0	500.0	500.0	500.0	1.0	1.0	0.00	74.9	0.0	74.9	72.9	1.99	37.729 CC, ES		
600.0	600.0	598.2	598.2	1.2	1.2	-0.94	76.0	-1.2	76.1	73.6	2.43	31.327		
700.0	700.0	696.2	696.1	1.4	1.4	-3.58	79.4	-5.0	79.7	76.8	2.87	27.721		
800.0	800.0	795.9	795.5	1.7	1.7	-6.86	84.1	-10.1	84.8	81.5	3.32	25.519		
900.0	900.0	895.7	895.0	1.9	1.9	-9.75	88.8	-15.3	90.2	86.4	3.77	23.922		
1,000.0	1,000.0	995.4	994.5	2.1	2.1	-12.31	93.5	-20.4	95.8	91.6	4.22	22.704		
1,100.0	1,100.0	1,095.2	1,094.1	2.3	2.4	-14.59	98.1	-25.6	101.6	96.9	4.67	21.750		
1,200.0	1,200.0	1,194.9	1,193.6	2.6	2.6	-16.62	102.8	-30.7	107.5	102.4	5.12	20.987		
1,300.0	1,300.0	1,294.7	1,293.1	2.8	2.9	127.20	107.5	-35.8	114.6	109.0	5.58	20.534 SF		
1,400.0	1,399.8	1,394.2	1,392.4	2.9	3.1	127.38	112.2	-41.0	123.8	117.8	5.99	20.659		
1,500.0	1,499.6	1,493.7	1,491.6	3.1	3.4	128.25	116.9	-46.1	134.1	127.7	6.42	20.890		
1,600.0	1,599.4	1,593.1	1,590.8	3.3	3.6	128.99	121.5	-51.2	144.4	137.5	6.85	21.069		
1,700.0	1,699.1	1,692.6	1,690.0	3.5	3.9	129.64	126.2	-56.4	154.7	147.4	7.29	21.209		
1,800.0	1,798.9	1,792.0	1,789.2	3.8	4.2	130.21	130.9	-61.5	165.1	157.3	7.74	21.320		
1,900.0	1,898.6	1,891.5	1,888.4	4.0	4.4	130.71	135.5	-66.6	175.4	167.2	8.19	21.407		
2,000.0	1,998.4	1,990.9	1,987.6	4.2	4.7	131.15	140.2	-71.8	185.8	177.1	8.65	21.476		
2,100.0	2,098.1	2,090.4	2,086.8	4.4	4.9	131.55	144.9	-76.9	196.2	187.0	9.11	21.532		
2,200.0	2,197.9	2,189.8	2,186.0	4.7	5.2	131.90	149.5	-82.0	206.5	197.0	9.57	21.576		
2,300.0	2,297.6	2,289.3	2,285.3	4.9	5.4	132.22	154.2	-87.2	216.9	206.9	10.04	21.612		
2,400.0	2,397.4	2,388.7	2,384.5	5.2	5.7	132.52	158.9	-92.3	227.3	216.8	10.51	21.641		
2,500.0	2,497.2	2,488.2	2,483.7	5.4	5.9	132.79	163.5	-97.4	237.8	226.8	10.97	21.664		
2,600.0	2,596.9	2,587.6	2,582.9	5.6	6.2	133.03	168.2	-102.6	248.2	236.7	11.45	21.683		
2,700.0	2,696.7	2,687.1	2,682.1	5.9	6.5	133.26	172.9	-107.7	258.6	246.7	11.92	21.698		
2,800.0	2,796.4	2,786.5	2,781.3	6.1	6.7	133.46	177.6	-112.8	269.0	256.6	12.39	21.710		
2,900.0	2,896.2	2,886.0	2,880.5	6.4	7.0	133.66	182.2	-117.9	279.4	266.6	12.87	21.719		
3,000.0	2,995.9	2,985.4	2,979.7	6.6	7.2	133.83	186.9	-123.1	289.8	276.5	13.34	21.727		
3,100.0	3,095.7	3,084.9	3,078.9	6.9	7.5	134.00	191.6	-128.2	300.3	286.5	13.82	21.732		
3,200.0	3,195.5	3,184.4	3,178.1	7.1	7.7	134.15	196.2	-133.3	310.7	296.4	14.29	21.737		
3,300.0	3,295.2	3,283.8	3,277.3	7.4	8.0	134.30	200.9	-138.5	321.1	306.4	14.77	21.740		
3,400.0	3,395.0	3,383.3	3,376.6	7.7	8.2	134.44	205.6	-143.6	331.6	316.3	15.25	21.742		
3,500.0	3,494.7	3,482.7	3,475.8	7.9	8.5	134.56	210.2	-148.7	342.0	326.3	15.73	21.743		
3,600.0	3,594.5	3,582.2	3,575.0	8.2	8.8	134.68	214.9	-153.9	352.4	336.2	16.21	21.744		
3,700.0	3,694.2	3,681.6	3,674.2	8.4	9.0	134.80	219.6	-159.0	362.9	346.2	16.69	21.744		
3,800.0	3,794.0	3,781.1	3,773.4	8.7	9.3	134.90	224.2	-164.1	373.3	356.2	17.17	21.744		
3,900.0	3,893.7	3,880.5	3,872.6	8.9	9.5	135.00	228.9	-169.3	383.8	366.1	17.65	21.743		
4,000.0	3,993.5	3,980.0	3,971.8	9.2	9.8	135.10	233.6	-174.4	394.2	376.1	18.13	21.742		
4,100.0	4,093.3	4,079.4	4,071.0	9.4	10.0	135.19	238.2	-179.5	404.7	386.0	18.61	21.741		
4,200.0	4,193.0	4,178.9	4,170.2	9.7	10.3	135.28	242.9	-184.7	415.1	396.0	19.09	21.739		
4,300.0	4,292.8	4,278.3	4,269.4	10.0	10.6	135.36	247.6	-189.8	425.5	406.0	19.58	21.738		
4,400.0	4,392.5	4,377.8	4,368.6	10.2	10.8	135.44	252.3	-194.9	436.0	415.9	20.06	21.736		
4,500.0	4,492.3	4,477.2	4,467.9	10.5	11.1	135.51	256.9	-200.0	446.4	425.9	20.54	21.734		
4,600.0	4,592.0	4,576.7	4,567.1	10.7	11.3	135.58	261.6	-205.2	456.9	435.9	21.02	21.731		
4,700.0	4,691.8	4,676.1	4,666.3	11.0	11.6	135.65	266.3	-210.3	467.3	445.8	21.51	21.729		
4,800.0	4,791.6	4,775.6	4,765.5	11.3	11.8	135.71	270.9	-215.4	477.8	455.8	21.99	21.727		
4,900.0	4,891.3	4,875.0	4,864.7	11.5	12.1	135.77	275.6	-220.6	488.2	465.8	22.47	21.725		
5,000.0	4,991.1	4,974.5	4,963.9	11.8	12.4	135.83	280.3	-225.7	498.7	475.7	22.96	21.722		
5,100.0	5,090.8	5,073.9	5,063.1	12.0	12.6	135.89	284.9	-230.8	509.1	485.7	23.44	21.720		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0101A - HZ - Plan #2													Offset Site Error: 0.0 ft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,190.6	5,173.4	5,162.3	12.3	12.9	135.95	289.6	-236.0	519.6	495.7	23.92	21.717		
5,300.0	5,290.3	5,272.8	5,261.5	12.6	13.1	136.00	294.3	-241.1	530.0	505.6	24.41	21.715		
5,400.0	5,390.1	5,350.0	5,338.5	12.8	13.3	136.03	298.0	-245.2	541.1	516.2	24.84	21.782		
5,438.0	5,428.0	5,377.6	5,365.9	12.9	13.4	135.95	300.2	-247.6	546.6	521.6	25.01	21.856		
5,450.0	5,440.0	5,384.1	5,372.3	13.0	13.4	135.76	300.9	-248.3	548.7	523.7	25.03	21.921		
5,500.0	5,489.4	5,400.0	5,388.0	13.1	13.5	134.74	302.7	-250.4	561.0	536.0	25.05	22.396		
5,550.0	5,538.0	5,435.9	5,423.0	13.3	13.6	133.37	308.1	-256.3	578.0	552.9	25.07	23.053		
5,600.0	5,585.3	5,450.0	5,436.6	13.6	13.7	131.46	310.6	-259.1	600.1	575.1	25.00	23.999		
5,650.0	5,630.7	5,481.8	5,466.8	13.9	13.8	129.28	317.3	-266.3	626.2	601.1	25.01	25.032		
5,700.0	5,674.0	5,500.0	5,483.8	14.2	13.9	126.37	321.6	-271.1	656.2	631.2	25.08	26.168		
5,750.0	5,714.6	5,520.1	5,502.3	14.6	14.0	122.86	326.9	-276.9	689.7	664.4	25.32	27.242		
5,800.0	5,752.3	5,536.2	5,516.9	15.0	14.1	118.49	331.4	-281.9	726.0	700.2	25.80	28.138		
5,850.0	5,786.7	5,550.0	5,529.3	15.5	14.2	113.15	335.6	-286.5	764.7	738.1	26.59	28.762		
5,900.0	5,817.4	5,550.0	5,529.3	16.0	14.2	105.84	335.6	-286.5	805.4	777.7	27.71	29.069		
5,950.0	5,844.2	5,571.7	5,548.3	16.6	14.4	99.22	342.6	-294.2	847.3	818.4	28.84	29.382		
6,000.0	5,866.8	5,579.4	5,555.0	17.2	14.4	90.70	345.2	-297.0	890.3	860.5	29.87	29.803		
6,050.0	5,885.1	5,585.2	5,559.9	17.9	14.5	81.50	347.2	-299.2	934.0	903.6	30.42	30.707		
6,100.0	5,898.8	5,600.0	5,572.5	18.6	14.6	73.43	352.5	-305.0	978.0	947.6	30.42	32.156		
6,150.0	5,907.9	5,600.0	5,572.5	19.4	14.6	64.21	352.5	-305.0	1,021.8	992.2	29.50	34.635		
6,200.0	5,912.2	5,600.0	5,572.5	20.1	14.6	55.98	352.5	-305.0	1,065.0	1,037.0	28.04	37.985		
6,219.8	5,912.5	5,600.0	5,572.5	20.4	14.6	53.04	352.5	-305.0	1,082.0	1,054.6	27.39	39.510		
6,300.0	5,912.5	5,600.0	5,572.5	21.6	14.6	50.41	352.5	-305.0	1,151.7	1,124.2	27.52	41.858		
6,400.0	5,912.5	5,583.5	5,558.5	23.0	14.4	44.34	346.6	-298.6	1,241.8	1,215.5	26.36	47.113		
6,500.0	5,912.5	5,578.1	5,553.9	24.5	14.4	38.04	344.7	-296.6	1,334.7	1,310.0	24.76	53.904		
6,600.0	5,912.5	5,571.9	5,548.5	26.0	14.4	29.87	342.6	-294.2	1,429.6	1,407.7	21.88	65.326		
6,700.0	5,912.5	5,564.9	5,542.4	27.6	14.3	19.55	340.3	-291.7	1,525.7	1,508.1	17.59	86.720		
6,800.0	5,912.5	5,550.0	5,529.3	29.1	14.2	6.72	335.6	-286.5	1,622.7	1,609.9	12.86	126.174		
6,900.0	5,912.5	5,550.0	5,529.3	30.7	14.2	-5.96	335.6	-286.5	1,720.0	1,707.5	12.53	137.309		
7,000.0	5,912.5	5,550.0	5,529.3	32.2	14.2	-18.78	335.6	-286.5	1,817.5	1,799.6	17.94	101.327		
7,100.0	5,912.5	5,532.5	5,513.6	33.7	14.1	-30.17	330.4	-280.8	1,914.7	1,889.7	24.99	76.604		
7,200.0	5,912.5	5,524.0	5,505.8	35.3	14.1	-39.42	328.0	-278.1	2,011.5	1,980.5	31.03	64.831		
7,300.0	5,912.5	5,500.0	5,483.8	36.8	13.9	-46.08	321.6	-271.1	2,107.8	2,072.5	35.29	59.721		
7,384.9	5,912.5	5,500.0	5,483.8	38.0	13.9	-51.36	321.6	-271.1	2,188.8	2,150.2	38.55	56.771		
7,400.0	5,912.5	5,500.0	5,483.8	38.3	13.9	-51.36	321.6	-271.1	2,203.1	2,164.3	38.75	56.858		
7,500.0	5,912.5	5,500.0	5,483.8	39.8	13.9	-51.36	321.6	-271.1	2,298.3	2,258.3	40.04	57.404		
7,600.0	5,912.5	5,500.0	5,483.8	41.3	13.9	-51.36	321.6	-271.1	2,393.9	2,352.6	41.35	57.897		
7,700.0	5,912.5	5,500.0	5,483.8	42.9	13.9	-51.36	321.6	-271.1	2,489.9	2,447.2	42.68	58.343		
7,800.0	5,912.5	5,478.1	5,463.3	44.5	13.8	-50.35	316.4	-265.4	2,585.8	2,542.5	43.37	59.617		
7,900.0	5,912.5	5,472.1	5,457.6	46.1	13.8	-50.07	315.1	-264.0	2,682.2	2,637.6	44.53	60.227		
8,000.0	5,912.5	5,450.0	5,436.6	47.8	13.7	-49.04	310.6	-259.1	2,778.9	2,733.7	45.19	61.492		
8,100.0	5,912.4	5,450.0	5,436.6	49.4	13.7	-49.04	310.6	-259.1	2,875.5	2,829.0	46.54	61.788		
8,200.0	5,912.4	5,450.0	5,436.6	51.1	13.7	-49.04	310.6	-259.1	2,972.4	2,924.5	47.90	62.060		
8,300.0	5,912.4	5,450.0	5,436.6	52.8	13.7	-49.04	310.6	-259.1	3,069.5	3,020.2	49.26	62.310		
8,400.0	5,912.4	5,450.0	5,436.6	54.5	13.7	-49.04	310.6	-259.1	3,166.7	3,116.1	50.63	62.541		
8,500.0	5,912.4	5,450.0	5,436.6	56.2	13.7	-49.04	310.6	-259.1	3,264.1	3,212.1	52.06	62.698		
8,600.0	5,912.4	5,450.0	5,436.6	58.0	13.7	-49.04	310.6	-259.1	3,361.7	3,308.2	53.51	62.827		
8,700.0	5,912.4	5,450.0	5,436.6	59.7	13.7	-49.04	310.6	-259.1	3,459.4	3,404.4	54.96	62.944		
8,800.0	5,912.4	5,450.0	5,436.6	61.5	13.7	-49.04	310.6	-259.1	3,557.2	3,500.8	56.42	63.053		
8,900.0	5,912.4	5,428.4	5,415.7	63.3	13.6	-48.04	306.8	-254.9	3,654.9	3,597.8	57.09	64.015		
9,000.0	5,912.4	5,425.2	5,412.6	65.0	13.6	-47.89	306.3	-254.3	3,752.8	3,694.4	58.42	64.235		
9,100.0	5,912.4	5,422.1	5,409.6	66.8	13.6	-47.75	305.8	-253.8	3,850.9	3,791.1	59.76	64.442		
9,200.0	5,912.4	5,400.0	5,388.0	68.6	13.5	-46.72	302.7	-250.4	3,949.3	3,888.9	60.34	65.450		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0101A - HZ - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
9,300.0	5,912.4	5,400.0	5,388.0	70.4	13.5	-46.72	302.7	-250.4	4,047.4	3,985.6	61.78	65.517		
9,400.0	5,912.4	5,400.0	5,388.0	72.2	13.5	-46.72	302.7	-250.4	4,145.7	4,082.4	63.22	65.580		
9,500.0	5,912.3	5,400.0	5,388.0	74.0	13.5	-46.72	302.7	-250.4	4,244.0	4,179.3	64.66	65.638		
9,600.0	5,912.3	5,400.0	5,388.0	75.9	13.5	-46.72	302.7	-250.4	4,342.4	4,276.3	66.10	65.693		
9,700.0	5,912.3	5,400.0	5,388.0	77.7	13.5	-46.72	302.7	-250.4	4,440.8	4,373.3	67.55	65.744		
9,800.0	5,912.3	5,400.0	5,388.0	79.5	13.5	-46.72	302.7	-250.4	4,539.4	4,470.4	69.00	65.793		
9,900.0	5,912.3	5,400.0	5,388.0	81.3	13.5	-46.72	302.7	-250.4	4,638.0	4,567.5	70.45	65.838		
10,000.0	5,912.3	5,400.0	5,388.0	83.2	13.5	-46.72	302.7	-250.4	4,736.6	4,664.7	71.90	65.881		
10,100.0	5,912.3	5,400.0	5,388.0	85.0	13.5	-46.72	302.7	-250.4	4,835.4	4,762.0	73.35	65.921		
10,200.0	5,912.3	5,400.0	5,388.0	86.9	13.5	-46.72	302.7	-250.4	4,934.1	4,859.3	74.81	65.960		
10,300.0	5,912.3	5,400.0	5,388.0	88.7	13.5	-46.72	302.7	-250.4	5,032.9	4,956.7	76.26	65.996		
10,400.0	5,912.3	5,400.0	5,388.0	90.6	13.5	-46.72	302.7	-250.4	5,131.8	5,054.1	77.72	66.030		
10,500.0	5,912.3	5,400.0	5,388.0	92.4	13.5	-46.72	302.7	-250.4	5,230.7	5,151.5	79.18	66.062		
10,600.0	5,912.3	5,400.0	5,388.0	94.3	13.5	-46.72	302.7	-250.4	5,329.6	5,249.0	80.64	66.093		
10,700.0	5,912.3	5,400.0	5,388.0	96.1	13.5	-46.72	302.7	-250.4	5,428.6	5,346.5	82.10	66.123		
10,800.0	5,912.2	5,400.0	5,388.0	98.0	13.5	-46.72	302.7	-250.4	5,527.6	5,444.1	83.56	66.150		
10,900.0	5,912.2	5,400.0	5,388.0	99.9	13.5	-46.72	302.7	-250.4	5,626.7	5,541.7	85.02	66.177		
11,000.0	5,912.2	5,400.0	5,388.0	101.7	13.5	-46.72	302.7	-250.4	5,725.8	5,639.3	86.49	66.202		
11,100.0	5,912.2	5,400.0	5,388.0	103.6	13.5	-46.72	302.7	-250.4	5,824.9	5,736.9	87.95	66.227		
11,200.0	5,912.2	5,400.0	5,388.0	105.5	13.5	-46.72	302.7	-250.4	5,924.0	5,834.6	89.42	66.250		
11,300.0	5,912.2	5,400.0	5,388.0	107.3	13.5	-46.72	302.7	-250.4	6,023.2	5,932.3	90.89	66.272		
11,400.0	5,912.2	5,400.0	5,388.0	109.2	13.5	-46.72	302.7	-250.4	6,122.4	6,030.1	92.35	66.293		
11,500.0	5,912.2	5,377.2	5,365.5	111.1	13.4	-45.66	300.2	-247.6	6,221.3	6,128.8	92.49	67.268		
11,600.0	5,912.2	5,376.0	5,364.3	113.0	13.4	-45.61	300.1	-247.4	6,320.5	6,226.7	93.87	67.336		
11,700.0	5,912.2	5,374.9	5,363.2	114.8	13.4	-45.56	299.9	-247.3	6,419.8	6,324.5	95.25	67.402		
11,800.0	5,912.2	5,373.8	5,362.1	116.7	13.4	-45.51	299.8	-247.2	6,519.0	6,422.4	96.63	67.465		
11,900.0	5,912.2	5,372.7	5,361.1	118.6	13.4	-45.46	299.7	-247.1	6,618.3	6,520.3	98.01	67.527		
12,000.0	5,912.2	5,350.0	5,338.5	120.5	13.3	-44.41	298.0	-245.2	6,717.9	6,619.9	98.02	68.540		
12,100.0	5,912.1	5,350.0	5,338.5	122.4	13.3	-44.41	298.0	-245.2	6,817.2	6,717.8	99.44	68.553		
12,200.0	5,912.1	5,350.0	5,338.5	124.3	13.3	-44.41	298.0	-245.2	6,916.5	6,815.6	100.87	68.566		
12,300.0	5,912.1	5,350.0	5,338.5	126.1	13.3	-44.41	298.0	-245.2	7,015.9	6,913.5	102.30	68.579		
12,400.0	5,912.1	5,350.0	5,338.5	128.0	13.3	-44.41	298.0	-245.2	7,115.2	7,011.5	103.73	68.591		
12,500.0	5,912.1	5,350.0	5,338.5	129.9	13.3	-44.41	298.0	-245.2	7,214.6	7,109.4	105.16	68.603		
12,600.0	5,912.1	5,350.0	5,338.5	131.8	13.3	-44.41	298.0	-245.2	7,314.0	7,207.4	106.60	68.614		
12,700.0	5,912.1	5,350.0	5,338.5	133.7	13.3	-44.41	298.0	-245.2	7,413.4	7,305.3	108.03	68.625		
12,800.0	5,912.1	5,350.0	5,338.5	135.6	13.3	-44.41	298.0	-245.2	7,512.8	7,403.3	109.46	68.636		
12,900.0	5,912.1	5,350.0	5,338.5	137.5	13.3	-44.41	298.0	-245.2	7,612.2	7,501.3	110.89	68.646		
13,000.0	5,912.1	5,350.0	5,338.5	139.4	13.3	-44.41	298.0	-245.2	7,711.7	7,599.3	112.32	68.656		
13,100.0	5,912.1	5,350.0	5,338.5	141.3	13.3	-44.41	298.0	-245.2	7,811.1	7,697.4	113.76	68.666		
13,200.0	5,912.1	5,350.0	5,338.5	143.2	13.3	-44.41	298.0	-245.2	7,910.6	7,795.4	115.19	68.675		
13,300.0	5,912.1	5,350.0	5,338.5	145.1	13.3	-44.41	298.0	-245.2	8,010.1	7,893.5	116.62	68.684		
13,400.0	5,912.0	5,350.0	5,338.5	146.9	13.3	-44.41	298.0	-245.2	8,109.6	7,991.5	118.06	68.693		
13,500.0	5,912.0	5,350.0	5,338.5	148.8	13.3	-44.41	298.0	-245.2	8,209.1	8,089.6	119.49	68.702		
13,600.0	5,912.0	5,350.0	5,338.5	150.7	13.3	-44.41	298.0	-245.2	8,308.6	8,187.7	120.92	68.710		
13,700.0	5,912.0	5,350.0	5,338.5	152.6	13.3	-44.41	298.0	-245.2	8,408.2	8,285.8	122.36	68.718		
13,800.0	5,912.0	5,350.0	5,338.5	154.5	13.3	-44.41	298.0	-245.2	8,507.7	8,383.9	123.79	68.726		
13,872.5	5,912.0	5,350.0	5,338.5	155.7	13.3	-44.41	298.0	-245.2	8,579.9	8,455.3	124.61	68.857		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0102B - HZ - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	0.0	-33.0	33.0					
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	0.0	-33.0	33.0	32.9	0.19	176.698		
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-33.0	33.0	32.4	0.64	51.911		
300.0	300.0	300.0	300.0	0.5	0.5	-89.99	0.0	-33.0	33.0	32.0	1.09	30.425		
400.0	400.0	400.0	400.0	0.8	0.8	-89.99	0.0	-33.0	33.0	31.5	1.54	21.518		
500.0	500.0	500.0	500.0	1.0	1.0	-89.99	0.0	-33.0	33.0	31.1	1.99	16.646 CC, ES		
600.0	600.0	599.3	599.3	1.2	1.2	-87.68	1.4	-34.1	34.1	31.7	2.43	14.032		
700.0	700.0	698.3	698.2	1.4	1.4	-81.57	5.5	-37.1	37.6	34.7	2.88	13.058		
800.0	800.0	798.1	797.7	1.7	1.7	-74.98	11.1	-41.3	42.8	39.5	3.34	12.831		
900.0	900.0	897.8	897.2	1.9	1.9	-69.87	16.7	-45.5	48.5	44.7	3.80	12.762 SF		
1,000.0	1,000.0	997.6	996.7	2.1	2.2	-65.85	22.2	-49.6	54.5	50.2	4.26	12.773		
1,100.0	1,100.0	1,097.3	1,096.2	2.3	2.4	-62.64	27.8	-53.8	60.7	55.9	4.73	12.826		
1,200.0	1,200.0	1,197.1	1,195.7	2.6	2.7	-60.03	33.4	-57.9	67.0	61.8	5.20	12.898		
1,300.0	1,300.0	1,296.8	1,295.2	2.8	2.9	88.41	39.0	-62.1	73.4	67.8	5.56	13.209		
1,400.0	1,399.8	1,396.3	1,394.4	2.9	3.2	93.70	44.5	-66.2	80.2	74.2	5.96	13.453		
1,500.0	1,499.6	1,495.6	1,493.5	3.1	3.4	99.37	50.1	-70.4	87.8	81.5	6.38	13.778		
1,600.0	1,599.4	1,595.0	1,592.7	3.3	3.7	104.09	55.7	-74.5	96.2	89.4	6.80	14.145		
1,700.0	1,699.1	1,694.4	1,691.8	3.5	3.9	108.05	61.2	-78.7	105.1	97.9	7.24	14.526		
1,800.0	1,798.9	1,793.7	1,790.9	3.8	4.2	111.37	66.8	-82.8	114.5	106.8	7.68	14.904		
1,900.0	1,898.6	1,893.1	1,890.0	4.0	4.4	114.19	72.3	-86.9	124.1	116.0	8.13	15.271		
2,000.0	1,998.4	1,992.4	1,989.1	4.2	4.7	116.59	77.9	-91.1	134.1	125.5	8.58	15.621		
2,100.0	2,098.1	2,091.8	2,088.2	4.4	4.9	118.66	83.5	-95.2	144.2	135.1	9.04	15.953		
2,200.0	2,197.9	2,191.2	2,187.4	4.7	5.2	120.46	89.0	-99.4	154.5	145.0	9.50	16.264		
2,300.0	2,297.6	2,290.5	2,286.5	4.9	5.4	122.04	94.6	-103.5	164.9	154.9	9.96	16.556		
2,400.0	2,397.4	2,389.9	2,385.6	5.2	5.7	123.42	100.1	-107.6	175.4	165.0	10.42	16.830		
2,500.0	2,497.2	2,489.2	2,484.7	5.4	5.9	124.65	105.7	-111.8	186.0	175.1	10.89	17.086		
2,600.0	2,596.9	2,588.6	2,583.8	5.6	6.2	125.75	111.2	-115.9	196.7	185.4	11.35	17.325		
2,700.0	2,696.7	2,688.0	2,683.0	5.9	6.5	126.73	116.8	-120.1	207.5	195.7	11.82	17.550		
2,800.0	2,796.4	2,787.3	2,782.1	6.1	6.7	127.61	122.4	-124.2	218.3	206.0	12.29	17.760		
2,900.0	2,896.2	2,886.7	2,881.2	6.4	7.0	128.41	127.9	-128.4	229.1	216.4	12.76	17.956		
3,000.0	2,995.9	2,986.0	2,980.3	6.6	7.2	129.14	133.5	-132.5	240.0	226.8	13.23	18.141		
3,100.0	3,095.7	3,085.4	3,079.4	6.9	7.5	129.81	139.0	-136.6	251.0	237.3	13.70	18.315		
3,200.0	3,195.5	3,184.8	3,178.5	7.1	7.7	130.42	144.6	-140.8	261.9	247.8	14.18	18.479		
3,300.0	3,295.2	3,284.1	3,277.7	7.4	8.0	130.98	150.1	-144.9	272.9	258.3	14.65	18.633		
3,400.0	3,395.0	3,383.5	3,376.8	7.7	8.2	131.50	155.7	-149.1	283.9	268.8	15.12	18.778		
3,500.0	3,494.7	3,482.8	3,475.9	7.9	8.5	131.98	161.3	-153.2	295.0	279.4	15.59	18.916		
3,600.0	3,594.5	3,582.2	3,575.0	8.2	8.8	132.42	166.8	-157.3	306.0	290.0	16.07	19.046		
3,700.0	3,694.2	3,681.6	3,674.1	8.4	9.0	132.84	172.4	-161.5	317.1	300.6	16.54	19.169		
3,800.0	3,794.0	3,780.9	3,773.3	8.7	9.3	133.22	177.9	-165.6	328.2	311.2	17.02	19.285		
3,900.0	3,893.7	3,880.3	3,872.4	8.9	9.5	133.58	183.5	-169.8	339.3	321.8	17.49	19.396		
4,000.0	3,993.5	3,979.6	3,971.5	9.2	9.8	133.92	189.1	-173.9	350.4	332.4	17.97	19.502		
4,100.0	4,093.3	4,079.0	4,070.6	9.4	10.0	134.24	194.6	-178.0	361.5	343.1	18.44	19.602		
4,200.0	4,193.0	4,178.4	4,169.7	9.7	10.3	134.53	200.2	-182.2	372.7	353.7	18.92	19.698		
4,300.0	4,292.8	4,277.7	4,268.8	10.0	10.5	134.81	205.7	-186.3	383.8	364.4	19.40	19.789		
4,400.0	4,392.5	4,377.1	4,368.0	10.2	10.8	135.08	211.3	-190.5	395.0	375.1	19.87	19.876		
4,500.0	4,492.3	4,476.4	4,467.1	10.5	11.1	135.33	216.8	-194.6	406.1	385.8	20.35	19.959		
4,600.0	4,592.0	4,575.8	4,566.2	10.7	11.3	135.57	222.4	-198.8	417.3	396.5	20.82	20.038		
4,700.0	4,691.8	4,675.2	4,665.3	11.0	11.6	135.79	228.0	-202.9	428.5	407.2	21.30	20.114		
4,800.0	4,791.6	4,774.5	4,764.4	11.3	11.8	136.00	233.5	-207.0	439.6	417.9	21.78	20.187		
4,900.0	4,891.3	4,873.9	4,863.6	11.5	12.1	136.21	239.1	-211.2	450.8	428.6	22.26	20.257		
5,000.0	4,991.1	4,973.2	4,962.7	11.8	12.3	136.40	244.6	-215.3	462.0	439.3	22.73	20.324		
5,100.0	5,090.8	5,072.6	5,061.8	12.0	12.6	136.58	250.2	-219.5	473.2	450.0	23.21	20.388		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0102B - HZ - Plan #2													Offset Site Error: 0.0 ft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,190.6	5,172.0	5,160.9	12.3	12.8	136.76	255.7	-223.6	484.4	460.7	23.69	20.450		
5,300.0	5,290.3	5,271.3	5,260.0	12.6	13.1	136.92	261.3	-227.7	495.6	471.5	24.17	20.509		
5,400.0	5,390.1	5,370.7	5,359.1	12.8	13.4	137.08	266.9	-231.9	506.8	482.2	24.64	20.567		
5,438.0	5,428.0	5,408.5	5,396.8	12.9	13.5	137.14	269.0	-233.5	511.1	486.3	24.82	20.588		
5,450.0	5,440.0	5,420.3	5,408.7	13.0	13.5	137.06	269.6	-233.9	512.5	487.7	24.86	20.620		
5,500.0	5,489.4	5,450.0	5,438.3	13.1	13.6	136.57	271.4	-235.3	521.2	496.3	24.89	20.942		
5,550.0	5,538.0	5,480.7	5,468.7	13.3	13.7	135.80	274.3	-237.5	535.1	510.3	24.85	21.531		
5,600.0	5,585.3	5,500.0	5,487.8	13.6	13.7	134.49	276.9	-239.4	554.3	529.6	24.74	22.403		
5,650.0	5,630.7	5,526.9	5,514.1	13.9	13.8	132.91	281.5	-242.8	578.3	553.7	24.66	23.454		
5,700.0	5,674.0	5,550.0	5,536.4	14.2	13.9	130.76	286.3	-246.3	606.8	582.1	24.62	24.641		
5,750.0	5,714.6	5,565.3	5,551.0	14.6	14.0	127.74	289.9	-249.0	639.0	614.3	24.74	25.829		
5,800.0	5,752.3	5,581.1	5,566.0	15.0	14.1	123.97	293.9	-252.1	674.6	649.5	25.11	26.864		
5,850.0	5,786.7	5,600.0	5,583.6	15.5	14.2	119.51	299.3	-256.0	713.1	687.3	25.80	27.638		
5,900.0	5,817.4	5,600.0	5,583.6	16.0	14.2	112.58	299.3	-256.0	753.8	726.8	27.01	27.909		
5,950.0	5,844.2	5,614.9	5,597.4	16.6	14.2	105.57	303.9	-259.4	796.2	767.9	28.37	28.061		
6,000.0	5,866.8	5,621.7	5,603.6	17.2	14.3	96.60	306.0	-261.1	840.0	810.2	29.80	28.183		
6,050.0	5,885.1	5,626.3	5,607.9	17.9	14.3	86.41	307.6	-262.2	884.5	853.8	30.77	28.744		
6,100.0	5,898.8	5,629.0	5,610.3	18.6	14.3	75.64	308.5	-262.9	929.5	898.6	30.83	30.149		
6,150.0	5,907.9	5,629.7	5,610.9	19.4	14.3	65.14	308.7	-263.1	974.4	944.6	29.83	32.666		
6,200.0	5,912.2	5,628.6	5,609.9	20.1	14.3	55.63	308.3	-262.8	1,019.0	990.9	28.03	36.347		
6,219.8	5,912.5	5,627.6	5,609.0	20.4	14.3	52.22	308.0	-262.6	1,036.4	1,009.2	27.21	38.096		
6,300.0	5,912.5	5,623.0	5,604.8	21.6	14.3	48.65	306.5	-261.4	1,108.1	1,081.1	26.97	41.079		
6,400.0	5,912.5	5,616.8	5,599.2	23.0	14.3	42.94	304.5	-259.9	1,200.2	1,174.3	25.89	46.356		
6,500.0	5,912.5	5,600.0	5,583.6	24.5	14.2	34.27	299.3	-256.0	1,294.8	1,271.7	23.10	56.047		
6,600.0	5,912.5	5,600.0	5,583.6	26.0	14.2	25.48	299.3	-256.0	1,390.6	1,370.9	19.77	70.355		
6,700.0	5,912.5	5,600.0	5,583.6	27.6	14.2	14.27	299.3	-256.0	1,487.6	1,472.5	15.12	98.372		
6,800.0	5,912.5	5,600.0	5,583.6	29.1	14.2	0.89	299.3	-256.0	1,585.2	1,573.5	11.68	135.717		
6,900.0	5,912.5	5,581.9	5,566.7	30.7	14.1	-13.59	294.2	-252.2	1,682.9	1,667.9	14.97	112.441		
7,000.0	5,912.5	5,574.9	5,560.1	32.2	14.0	-26.26	292.3	-250.8	1,780.5	1,758.2	22.28	79.910		
7,100.0	5,912.5	5,567.9	5,553.5	33.7	14.0	-36.81	290.5	-249.5	1,877.8	1,848.7	29.10	64.540		
7,200.0	5,912.5	5,550.0	5,536.4	35.3	13.9	-44.52	286.3	-246.3	1,974.8	1,940.7	34.06	57.970		
7,300.0	5,912.5	5,550.0	5,536.4	36.8	13.9	-51.42	286.3	-246.3	2,070.8	2,032.5	38.34	54.018		
7,384.9	5,912.5	5,550.0	5,536.4	38.0	13.9	-56.16	286.3	-246.3	2,151.7	2,110.6	41.13	52.316		
7,400.0	5,912.5	5,550.0	5,536.4	38.3	13.9	-56.16	286.3	-246.3	2,166.0	2,124.7	41.33	52.407		
7,500.0	5,912.5	5,550.0	5,536.4	39.8	13.9	-56.16	286.3	-246.3	2,261.3	2,218.6	42.68	52.981		
7,600.0	5,912.5	5,550.0	5,536.4	41.3	13.9	-56.16	286.3	-246.3	2,356.9	2,312.8	44.05	53.502		
7,700.0	5,912.5	5,550.0	5,536.4	42.9	13.9	-56.16	286.3	-246.3	2,452.9	2,407.4	45.44	53.977		
7,800.0	5,912.5	5,527.4	5,514.5	44.5	13.8	-54.81	281.6	-242.9	2,548.7	2,502.6	46.08	55.310		
7,900.0	5,912.5	5,523.0	5,510.3	46.1	13.8	-54.56	280.8	-242.2	2,645.1	2,597.8	47.33	55.883		
8,000.0	5,912.5	5,500.0	5,487.8	47.8	13.7	-53.21	276.9	-239.4	2,742.0	2,694.1	47.92	57.225		
8,100.0	5,912.4	5,500.0	5,487.8	49.4	13.7	-53.21	276.9	-239.4	2,838.7	2,789.4	49.32	57.553		
8,200.0	5,912.4	5,500.0	5,487.8	51.1	13.7	-53.21	276.9	-239.4	2,935.6	2,884.9	50.74	57.856		
8,300.0	5,912.4	5,500.0	5,487.8	52.8	13.7	-53.21	276.9	-239.4	3,032.8	2,980.6	52.17	58.136		
8,400.0	5,912.4	5,500.0	5,487.8	54.5	13.7	-53.21	276.9	-239.4	3,130.1	3,076.5	53.60	58.396		
8,500.0	5,912.4	5,500.0	5,487.8	56.2	13.7	-53.21	276.9	-239.4	3,227.6	3,172.5	55.04	58.638		
8,600.0	5,912.4	5,500.0	5,487.8	58.0	13.7	-53.21	276.9	-239.4	3,325.2	3,268.7	56.54	58.812		
8,700.0	5,912.4	5,500.0	5,487.8	59.7	13.7	-53.21	276.9	-239.4	3,423.0	3,364.9	58.06	58.958		
8,800.0	5,912.4	5,500.0	5,487.8	61.5	13.7	-53.21	276.9	-239.4	3,520.8	3,461.3	59.58	59.094		
8,900.0	5,912.4	5,500.0	5,487.8	63.3	13.7	-53.21	276.9	-239.4	3,618.9	3,557.7	61.11	59.219		
9,000.0	5,912.4	5,500.0	5,487.8	65.0	13.7	-53.21	276.9	-239.4	3,717.0	3,654.3	62.64	59.337		
9,100.0	5,912.4	5,500.0	5,487.8	66.8	13.7	-53.21	276.9	-239.4	3,815.2	3,751.0	64.18	59.446		
9,200.0	5,912.4	5,500.0	5,487.8	68.6	13.7	-53.21	276.9	-239.4	3,913.5	3,847.8	65.72	59.548		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0102B - HZ - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning	
9,300.0	5,912.4	5,500.0	5,487.8	70.4	13.7	-53.21	276.9	-239.4	4,011.9	3,944.6	67.26	59.644		
9,400.0	5,912.4	5,500.0	5,487.8	72.2	13.7	-53.21	276.9	-239.4	4,110.3	4,041.5	68.81	59.734		
9,500.0	5,912.3	5,500.0	5,487.8	74.0	13.7	-53.21	276.9	-239.4	4,208.9	4,138.5	70.36	59.819		
9,600.0	5,912.3	5,478.0	5,466.0	75.9	13.7	-51.94	274.0	-237.2	4,307.1	4,236.2	70.85	60.790		
9,700.0	5,912.3	5,476.4	5,464.4	77.7	13.6	-51.84	273.8	-237.1	4,405.7	4,333.4	72.31	60.931		
9,800.0	5,912.3	5,474.8	5,462.9	79.5	13.6	-51.75	273.7	-236.9	4,504.3	4,430.6	73.76	61.065		
9,900.0	5,912.3	5,473.3	5,461.4	81.3	13.6	-51.67	273.5	-236.8	4,603.0	4,527.8	75.22	61.193		
10,000.0	5,912.3	5,471.9	5,460.0	83.2	13.6	-51.59	273.3	-236.7	4,701.8	4,625.1	76.68	61.315		
10,100.0	5,912.3	5,450.0	5,438.3	85.0	13.6	-50.34	271.4	-235.3	4,801.0	4,723.9	77.05	62.307		
10,200.0	5,912.3	5,450.0	5,438.3	86.9	13.6	-50.34	271.4	-235.3	4,899.8	4,821.2	78.57	62.361		
10,300.0	5,912.3	5,450.0	5,438.3	88.7	13.6	-50.34	271.4	-235.3	4,998.7	4,918.6	80.09	62.413		
10,400.0	5,912.3	5,450.0	5,438.3	90.6	13.6	-50.34	271.4	-235.3	5,097.6	5,016.0	81.61	62.462		
10,500.0	5,912.3	5,450.0	5,438.3	92.4	13.6	-50.34	271.4	-235.3	5,196.5	5,113.4	83.13	62.508		
10,600.0	5,912.3	5,450.0	5,438.3	94.3	13.6	-50.34	271.4	-235.3	5,295.5	5,210.8	84.66	62.553		
10,700.0	5,912.3	5,450.0	5,438.3	96.1	13.6	-50.34	271.4	-235.3	5,394.5	5,308.4	86.18	62.596		
10,800.0	5,912.2	5,450.0	5,438.3	98.0	13.6	-50.34	271.4	-235.3	5,493.6	5,405.9	87.71	62.636		
10,900.0	5,912.2	5,450.0	5,438.3	99.9	13.6	-50.34	271.4	-235.3	5,592.7	5,503.5	89.23	62.675		
11,000.0	5,912.2	5,450.0	5,438.3	101.7	13.6	-50.34	271.4	-235.3	5,691.8	5,601.1	90.76	62.712		
11,100.0	5,912.2	5,450.0	5,438.3	103.6	13.6	-50.34	271.4	-235.3	5,791.0	5,698.7	92.29	62.748		
11,200.0	5,912.2	5,450.0	5,438.3	105.5	13.6	-50.34	271.4	-235.3	5,890.2	5,796.3	93.82	62.783		
11,300.0	5,912.2	5,450.0	5,438.3	107.3	13.6	-50.34	271.4	-235.3	5,989.4	5,894.0	95.35	62.816		
11,400.0	5,912.2	5,450.0	5,438.3	109.2	13.6	-50.34	271.4	-235.3	6,088.6	5,991.7	96.88	62.847		
11,500.0	5,912.2	5,450.0	5,438.3	111.1	13.6	-50.34	271.4	-235.3	6,187.9	6,089.5	98.41	62.878		
11,600.0	5,912.2	5,450.0	5,438.3	113.0	13.6	-50.34	271.4	-235.3	6,287.2	6,187.2	99.94	62.907		
11,700.0	5,912.2	5,450.0	5,438.3	114.8	13.6	-50.34	271.4	-235.3	6,386.5	6,285.0	101.48	62.935		
11,800.0	5,912.2	5,450.0	5,438.3	116.7	13.6	-50.34	271.4	-235.3	6,485.8	6,382.8	103.01	62.962		
11,900.0	5,912.2	5,450.0	5,438.3	118.6	13.6	-50.34	271.4	-235.3	6,585.2	6,480.6	104.55	62.989		
12,000.0	5,912.2	5,450.0	5,438.3	120.5	13.6	-50.34	271.4	-235.3	6,684.5	6,578.5	106.08	63.014		
12,100.0	5,912.1	5,450.0	5,438.3	122.4	13.6	-50.34	271.4	-235.3	6,783.9	6,676.3	107.62	63.038		
12,200.0	5,912.1	5,450.0	5,438.3	124.3	13.6	-50.34	271.4	-235.3	6,883.3	6,774.2	109.15	63.062		
12,300.0	5,912.1	5,450.0	5,438.3	126.1	13.6	-50.34	271.4	-235.3	6,982.8	6,872.1	110.69	63.085		
12,400.0	5,912.1	5,450.0	5,438.3	128.0	13.6	-50.34	271.4	-235.3	7,082.2	6,970.0	112.23	63.107		
12,500.0	5,912.1	5,450.0	5,438.3	129.9	13.6	-50.34	271.4	-235.3	7,181.6	7,067.9	113.76	63.128		
12,600.0	5,912.1	5,450.0	5,438.3	131.8	13.6	-50.34	271.4	-235.3	7,281.1	7,165.8	115.30	63.149		
12,700.0	5,912.1	5,450.0	5,438.3	133.7	13.6	-50.34	271.4	-235.3	7,380.6	7,263.8	116.84	63.169		
12,800.0	5,912.1	5,450.0	5,438.3	135.6	13.6	-50.34	271.4	-235.3	7,480.1	7,361.7	118.38	63.188		
12,900.0	5,912.1	5,450.0	5,438.3	137.5	13.6	-50.34	271.4	-235.3	7,579.6	7,459.7	119.92	63.207		
13,000.0	5,912.1	5,450.0	5,438.3	139.4	13.6	-50.34	271.4	-235.3	7,679.1	7,557.7	121.46	63.225		
13,100.0	5,912.1	5,450.0	5,438.3	141.3	13.6	-50.34	271.4	-235.3	7,778.7	7,655.7	123.00	63.243		
13,200.0	5,912.1	5,444.5	5,432.8	143.2	13.6	-50.04	271.0	-235.0	7,878.2	7,754.1	124.08	63.492		
13,300.0	5,912.1	5,439.0	5,427.3	145.1	13.5	-49.73	270.7	-234.7	7,977.8	7,852.6	125.15	63.745		
13,400.0	5,912.0	5,439.0	5,427.3	146.9	13.5	-49.73	270.7	-234.7	8,077.3	7,950.7	126.68	63.761		
13,500.0	5,912.0	5,439.0	5,427.3	148.8	13.5	-49.73	270.7	-234.7	8,176.9	8,048.7	128.21	63.776		
13,600.0	5,912.0	5,439.0	5,427.3	150.7	13.5	-49.73	270.7	-234.7	8,276.5	8,146.7	129.74	63.791		
13,700.0	5,912.0	5,439.0	5,427.3	152.6	13.5	-49.73	270.7	-234.7	8,376.1	8,244.8	131.27	63.806		
13,800.0	5,912.0	5,439.0	5,427.3	154.5	13.5	-49.73	270.7	-234.7	8,475.7	8,342.9	132.81	63.820		
13,872.5	5,912.0	5,439.0	5,427.3	155.7	13.5	-49.73	270.7	-234.7	8,547.9	8,414.2	133.69	63.940		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0103A - HZ - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	41.43	74.9	66.1	99.9					
100.0	100.0	100.0	100.0	0.1	0.1	41.43	74.9	66.1	99.9	99.7	0.19	534.099		
200.0	200.0	200.0	200.0	0.3	0.3	41.43	74.9	66.1	99.9	99.2	0.64	156.911		
300.0	300.0	300.0	300.0	0.5	0.5	41.43	74.9	66.1	99.9	98.8	1.09	91.964		
400.0	400.0	400.0	400.0	0.8	0.8	41.43	74.9	66.1	99.9	98.3	1.54	65.043		
500.0	500.0	500.0	500.0	1.0	1.0	41.43	74.9	66.1	99.9	97.9	1.99	50.314		
600.0	600.0	600.0	600.0	1.2	1.2	41.43	74.9	66.1	99.9	97.4	2.43	41.024		
700.0	700.0	700.0	700.0	1.4	1.4	41.43	74.9	66.1	99.9	97.0	2.88	34.630		
800.0	800.0	800.0	800.0	1.7	1.7	41.43	74.9	66.1	99.9	96.5	3.33	29.960		
900.0	900.0	900.0	900.0	1.9	1.9	41.43	74.9	66.1	99.9	96.1	3.78	26.400		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	41.43	74.9	66.1	99.9	95.6	4.23	23.597 CC, ES		
1,100.0	1,100.0	1,098.9	1,098.8	2.3	2.3	40.51	76.4	65.2	100.4	95.8	4.68	21.468		
1,200.0	1,200.0	1,197.5	1,197.3	2.6	2.6	37.81	80.8	62.7	102.3	97.2	5.13	19.952		
1,300.0	1,300.0	1,297.1	1,296.7	2.8	2.8	179.37	86.8	59.2	106.9	101.3	5.55	19.255 SF		
1,400.0	1,399.8	1,396.6	1,395.9	2.9	3.0	176.27	92.8	55.8	115.3	109.4	5.96	19.364		
1,500.0	1,499.6	1,495.9	1,495.0	3.1	3.3	173.70	98.8	52.3	125.8	119.4	6.37	19.737		
1,600.0	1,599.4	1,595.2	1,594.1	3.3	3.5	171.53	104.9	48.9	136.5	129.7	6.80	20.073		
1,700.0	1,699.1	1,694.5	1,693.1	3.5	3.7	169.67	110.9	45.4	147.3	140.1	7.23	20.376		
1,800.0	1,798.9	1,793.8	1,792.2	3.8	4.0	168.07	116.9	42.0	158.3	150.6	7.66	20.649		
1,900.0	1,898.6	1,893.1	1,891.3	4.0	4.2	166.67	122.9	38.5	169.3	161.2	8.10	20.894		
2,000.0	1,998.4	1,992.4	1,990.3	4.2	4.5	165.45	128.9	35.1	180.5	171.9	8.55	21.116		
2,100.0	2,098.1	2,091.7	2,089.4	4.4	4.7	164.37	134.9	31.7	191.7	182.7	8.99	21.316		
2,200.0	2,197.9	2,191.0	2,188.5	4.7	5.0	163.41	140.9	28.2	203.0	193.6	9.44	21.497		
2,300.0	2,297.6	2,290.3	2,287.5	4.9	5.2	162.55	146.9	24.8	214.3	204.4	9.90	21.662		
2,400.0	2,397.4	2,389.6	2,386.6	5.2	5.5	161.78	152.9	21.3	225.7	215.4	10.35	21.812		
2,500.0	2,497.2	2,489.0	2,485.6	5.4	5.7	161.08	158.9	17.9	237.1	226.3	10.80	21.949		
2,600.0	2,596.9	2,588.3	2,584.7	5.6	6.0	160.44	164.9	14.4	248.6	237.3	11.26	22.074		
2,700.0	2,696.7	2,687.6	2,683.8	5.9	6.2	159.86	170.9	11.0	260.1	248.4	11.72	22.190		
2,800.0	2,796.4	2,786.9	2,782.8	6.1	6.5	159.33	177.0	7.5	271.6	259.4	12.18	22.296		
2,900.0	2,896.2	2,886.2	2,881.9	6.4	6.7	158.85	183.0	4.1	283.1	270.5	12.64	22.394		
3,000.0	2,995.9	2,985.5	2,981.0	6.6	7.0	158.40	189.0	0.6	294.6	281.5	13.10	22.485		
3,100.0	3,095.7	3,084.8	3,080.0	6.9	7.2	157.98	195.0	-2.8	306.2	292.6	13.57	22.570		
3,200.0	3,195.5	3,184.1	3,179.1	7.1	7.5	157.60	201.0	-6.3	317.8	303.7	14.03	22.648		
3,300.0	3,295.2	3,283.4	3,278.2	7.4	7.7	157.24	207.0	-9.7	329.4	314.9	14.50	22.721		
3,400.0	3,395.0	3,382.7	3,377.2	7.7	8.0	156.91	213.0	-13.2	341.0	326.0	14.96	22.790		
3,500.0	3,494.7	3,482.0	3,476.3	7.9	8.2	156.60	219.0	-16.6	352.6	337.1	15.43	22.854		
3,600.0	3,594.5	3,581.3	3,575.4	8.2	8.5	156.31	225.0	-20.1	364.2	348.3	15.89	22.913		
3,700.0	3,694.2	3,680.6	3,674.4	8.4	8.7	156.03	231.0	-23.5	375.8	359.5	16.36	22.970		
3,800.0	3,794.0	3,779.9	3,773.5	8.7	9.0	155.78	237.0	-27.0	387.5	370.6	16.83	23.023		
3,900.0	3,893.7	3,879.2	3,872.5	8.9	9.2	155.54	243.0	-30.4	399.1	381.8	17.30	23.073		
4,000.0	3,993.5	3,978.5	3,971.6	9.2	9.5	155.31	249.0	-33.9	410.7	393.0	17.77	23.120		
4,100.0	4,093.3	4,077.9	4,070.7	9.4	9.7	155.09	255.1	-37.3	422.4	404.2	18.24	23.164		
4,200.0	4,193.0	4,177.2	4,169.7	9.7	10.0	154.89	261.1	-40.8	434.1	415.4	18.70	23.206		
4,300.0	4,292.8	4,276.5	4,268.8	10.0	10.2	154.69	267.1	-44.2	445.7	426.6	19.17	23.246		
4,400.0	4,392.5	4,375.8	4,367.9	10.2	10.5	154.51	273.1	-47.6	457.4	437.8	19.64	23.284		
4,500.0	4,492.3	4,475.1	4,466.9	10.5	10.8	154.34	279.1	-51.1	469.1	449.0	20.11	23.320		
4,600.0	4,592.0	4,574.4	4,566.0	10.7	11.0	154.17	285.1	-54.5	480.8	460.2	20.59	23.355		
4,700.0	4,691.8	4,673.7	4,665.1	11.0	11.3	154.01	291.1	-58.0	492.4	471.4	21.06	23.387		
4,800.0	4,791.6	4,773.0	4,764.1	11.3	11.5	153.86	297.1	-61.4	504.1	482.6	21.53	23.418		
4,900.0	4,891.3	4,872.3	4,863.2	11.5	11.8	153.72	303.1	-64.9	515.8	493.8	22.00	23.448		
5,000.0	4,991.1	4,971.6	4,962.3	11.8	12.0	153.58	309.1	-68.3	527.5	505.0	22.47	23.476		
5,100.0	5,090.8	5,070.9	5,061.3	12.0	12.3	153.45	315.1	-71.8	539.2	516.3	22.94	23.504		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0103A - HZ - Plan #2													Offset Site Error: 0.0 ft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,190.6	5,170.2	5,160.4	12.3	12.5	153.32	321.1	-75.2	550.9	527.5	23.41	23.530		
5,300.0	5,290.3	5,269.5	5,259.4	12.6	12.8	153.20	327.2	-78.7	562.6	538.7	23.89	23.554		
5,400.0	5,390.1	5,350.0	5,339.7	12.8	13.0	153.10	332.2	-81.6	574.7	550.4	24.31	23.639		
5,438.0	5,428.0	5,374.0	5,363.6	12.9	13.1	153.00	334.6	-83.0	580.7	556.2	24.47	23.734		
5,450.0	5,440.0	5,380.3	5,369.7	13.0	13.1	152.85	335.4	-83.4	583.0	558.5	24.48	23.813		
5,500.0	5,489.4	5,400.0	5,389.2	13.1	13.2	152.07	338.3	-85.1	596.1	571.7	24.42	24.407		
5,550.0	5,538.0	5,429.7	5,418.2	13.3	13.3	150.91	343.9	-88.3	615.0	590.7	24.27	25.339		
5,600.0	5,585.3	5,450.0	5,437.8	13.6	13.4	149.39	348.6	-91.0	639.3	615.3	23.98	26.660		
5,650.0	5,630.7	5,472.4	5,459.1	13.9	13.5	147.39	354.5	-94.4	668.4	644.8	23.64	28.279		
5,700.0	5,674.0	5,500.0	5,485.0	14.2	13.6	144.88	362.8	-99.1	702.0	678.7	23.32	30.106		
5,750.0	5,714.6	5,500.0	5,485.0	14.6	13.6	141.22	362.8	-99.1	739.0	715.9	23.10	31.995		
5,800.0	5,752.3	5,520.0	5,503.3	15.0	13.7	136.82	369.6	-103.0	779.2	756.0	23.22	33.558		
5,850.0	5,786.7	5,531.2	5,513.6	15.5	13.8	130.73	373.7	-105.4	821.9	798.0	23.89	34.400		
5,900.0	5,817.4	5,550.0	5,530.4	16.0	13.9	123.25	380.9	-109.5	866.7	841.5	25.22	34.368		
5,950.0	5,844.2	5,550.0	5,530.4	16.6	13.9	111.83	380.9	-109.5	912.7	885.3	27.43	33.273		
6,000.0	5,866.8	5,550.0	5,530.4	17.2	13.9	97.20	380.9	-109.5	959.7	930.1	29.64	32.376		
6,050.0	5,885.1	5,550.0	5,530.4	17.9	13.9	80.65	380.9	-109.5	1,007.2	976.8	30.42	33.109		
6,100.0	5,898.8	5,550.0	5,530.4	18.6	13.9	64.85	380.9	-109.5	1,054.6	1,025.6	29.03	36.330		
6,150.0	5,907.9	5,550.0	5,530.4	19.4	13.9	51.84	380.9	-109.5	1,101.7	1,075.5	26.25	41.975		
6,200.0	5,912.2	5,550.0	5,530.4	20.1	13.9	42.00	380.9	-109.5	1,148.0	1,124.8	23.24	49.403		
6,219.8	5,912.5	5,550.0	5,530.4	20.4	13.9	38.87	380.9	-109.5	1,166.1	1,143.9	22.15	52.645		
6,300.0	5,912.5	5,550.0	5,530.4	21.6	13.9	34.40	380.9	-109.5	1,239.7	1,218.5	21.10	58.750		
6,400.0	5,912.5	5,550.0	5,530.4	23.0	13.9	27.45	380.9	-109.5	1,333.4	1,314.6	18.85	70.730		
6,500.0	5,912.5	5,528.7	5,511.3	24.5	13.7	16.88	372.8	-104.9	1,428.3	1,413.6	14.67	97.333		
6,600.0	5,912.5	5,520.4	5,503.7	26.0	13.7	6.24	369.7	-103.1	1,524.3	1,513.0	11.28	135.161		
6,700.0	5,912.5	5,500.0	5,485.0	27.6	13.6	-5.47	362.8	-99.1	1,620.9	1,609.7	11.20	144.767		
6,800.0	5,912.5	5,500.0	5,485.0	29.1	13.6	-16.33	362.8	-99.1	1,717.4	1,702.0	15.44	111.240		
6,900.0	5,912.5	5,500.0	5,485.0	30.7	13.6	-26.64	362.8	-99.1	1,813.9	1,792.3	21.65	83.766		
7,000.0	5,912.5	5,500.0	5,485.0	32.2	13.6	-35.80	362.8	-99.1	1,910.2	1,882.6	27.64	69.124		
7,100.0	5,912.5	5,480.1	5,466.4	33.7	13.5	-42.65	356.7	-95.6	2,005.8	1,973.6	32.15	62.388		
7,200.0	5,912.5	5,472.8	5,459.5	35.3	13.5	-48.63	354.6	-94.4	2,100.7	2,064.7	36.02	58.324		
7,300.0	5,912.5	5,450.0	5,437.8	36.8	13.4	-52.73	348.6	-91.0	2,195.0	2,156.3	38.65	56.790		
7,384.9	5,912.5	5,450.0	5,437.8	38.0	13.4	-56.47	348.6	-91.0	2,273.9	2,233.0	40.92	55.568		
7,400.0	5,912.5	5,450.0	5,437.8	38.3	13.4	-56.47	348.6	-91.0	2,287.9	2,246.8	41.12	55.634		
7,500.0	5,912.5	5,450.0	5,437.8	39.8	13.4	-56.47	348.6	-91.0	2,380.9	2,338.4	42.48	56.051		
7,600.0	5,912.5	5,450.0	5,437.8	41.3	13.4	-56.47	348.6	-91.0	2,474.4	2,430.5	43.85	56.426		
7,700.0	5,912.5	5,450.0	5,437.8	42.9	13.4	-56.47	348.6	-91.0	2,568.4	2,523.2	45.25	56.765		
7,800.0	5,912.5	5,450.0	5,437.8	44.5	13.4	-56.47	348.6	-91.0	2,662.8	2,616.2	46.66	57.072		
7,900.0	5,912.5	5,450.0	5,437.8	46.1	13.4	-56.47	348.6	-91.0	2,757.7	2,709.6	48.08	57.352		
8,000.0	5,912.5	5,427.5	5,416.1	47.8	13.3	-55.39	343.5	-88.0	2,852.4	2,803.6	48.87	58.368		
8,100.0	5,912.4	5,423.5	5,412.1	49.4	13.2	-55.19	342.6	-87.6	2,947.8	2,897.6	50.18	58.740		
8,200.0	5,912.4	5,400.0	5,389.2	51.1	13.2	-54.07	338.3	-85.1	3,043.7	2,992.8	50.90	59.793		
8,300.0	5,912.4	5,400.0	5,389.2	52.8	13.2	-54.07	338.3	-85.1	3,139.4	3,087.1	52.34	59.979		
8,400.0	5,912.4	5,400.0	5,389.2	54.5	13.2	-54.07	338.3	-85.1	3,235.4	3,181.6	53.82	60.114		
8,500.0	5,912.4	5,400.0	5,389.2	56.2	13.2	-54.07	338.3	-85.1	3,331.7	3,276.3	55.34	60.203		
8,600.0	5,912.4	5,400.0	5,389.2	58.0	13.2	-54.07	338.3	-85.1	3,428.1	3,371.3	56.87	60.284		
8,700.0	5,912.4	5,400.0	5,389.2	59.7	13.2	-54.07	338.3	-85.1	3,524.8	3,466.4	58.40	60.358		
8,800.0	5,912.4	5,400.0	5,389.2	61.5	13.2	-54.07	338.3	-85.1	3,621.6	3,561.7	59.93	60.426		
8,900.0	5,912.4	5,400.0	5,389.2	63.3	13.2	-54.07	338.3	-85.1	3,718.6	3,657.1	61.48	60.489		
9,000.0	5,912.4	5,400.0	5,389.2	65.0	13.2	-54.07	338.3	-85.1	3,815.8	3,752.7	63.02	60.546		
9,100.0	5,912.4	5,400.0	5,389.2	66.8	13.2	-54.07	338.3	-85.1	3,913.1	3,848.5	64.57	60.600		
9,200.0	5,912.4	5,400.0	5,389.2	68.6	13.2	-54.07	338.3	-85.1	4,010.5	3,944.4	66.13	60.649		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0103A - HZ - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
9,300.0	5,912.4	5,400.0	5,389.2	70.4	13.2	-54.07	338.3	-85.1	4,108.1	4,040.4	67.68	60.695		
9,400.0	5,912.4	5,400.0	5,389.2	72.2	13.2	-54.07	338.3	-85.1	4,205.7	4,136.5	69.24	60.738		
9,500.0	5,912.3	5,400.0	5,389.2	74.0	13.2	-54.07	338.3	-85.1	4,303.5	4,232.7	70.81	60.778		
9,600.0	5,912.3	5,400.0	5,389.2	75.9	13.2	-54.07	338.3	-85.1	4,401.4	4,329.0	72.37	60.815		
9,700.0	5,912.3	5,400.0	5,389.2	77.7	13.2	-54.07	338.3	-85.1	4,499.3	4,425.4	73.94	60.850		
9,800.0	5,912.3	5,400.0	5,389.2	79.5	13.2	-54.07	338.3	-85.1	4,597.4	4,521.9	75.51	60.883		
9,900.0	5,912.3	5,400.0	5,389.2	81.3	13.2	-54.07	338.3	-85.1	4,695.5	4,618.5	77.08	60.914		
10,000.0	5,912.3	5,376.6	5,366.1	83.2	13.1	-52.96	334.9	-83.1	4,793.3	4,715.6	77.68	61.709		
10,100.0	5,912.3	5,375.0	5,364.6	85.0	13.1	-52.89	334.7	-83.0	4,891.5	4,812.3	79.17	61.785		
10,200.0	5,912.3	5,373.6	5,363.2	86.9	13.1	-52.83	334.6	-82.9	4,989.8	4,909.1	80.67	61.857		
10,300.0	5,912.3	5,372.2	5,361.8	88.7	13.1	-52.76	334.4	-82.8	5,088.2	5,006.0	82.16	61.926		
10,400.0	5,912.3	5,350.0	5,339.7	90.6	13.0	-51.72	332.2	-81.6	5,186.9	5,104.2	82.71	62.709		
10,500.0	5,912.3	5,350.0	5,339.7	92.4	13.0	-51.72	332.2	-81.6	5,285.4	5,201.1	84.26	62.728		
10,600.0	5,912.3	5,350.0	5,339.7	94.3	13.0	-51.72	332.2	-81.6	5,383.9	5,298.1	85.81	62.745		
10,700.0	5,912.3	5,350.0	5,339.7	96.1	13.0	-51.72	332.2	-81.6	5,482.4	5,395.1	87.35	62.761		
10,800.0	5,912.2	5,350.0	5,339.7	98.0	13.0	-51.72	332.2	-81.6	5,581.0	5,492.1	88.90	62.777		
10,900.0	5,912.2	5,350.0	5,339.7	99.9	13.0	-51.72	332.2	-81.6	5,679.6	5,589.2	90.45	62.792		
11,000.0	5,912.2	5,350.0	5,339.7	101.7	13.0	-51.72	332.2	-81.6	5,778.3	5,686.3	92.00	62.807		
11,100.0	5,912.2	5,350.0	5,339.7	103.6	13.0	-51.72	332.2	-81.6	5,877.1	5,783.5	93.55	62.820		
11,200.0	5,912.2	5,350.0	5,339.7	105.5	13.0	-51.72	332.2	-81.6	5,975.8	5,880.7	95.11	62.833		
11,300.0	5,912.2	5,350.0	5,339.7	107.3	13.0	-51.72	332.2	-81.6	6,074.6	5,978.0	96.66	62.846		
11,400.0	5,912.2	5,350.0	5,339.7	109.2	13.0	-51.72	332.2	-81.6	6,173.5	6,075.3	98.21	62.858		
11,500.0	5,912.2	5,350.0	5,339.7	111.1	13.0	-51.72	332.2	-81.6	6,272.4	6,172.6	99.77	62.869		
11,600.0	5,912.2	5,350.0	5,339.7	113.0	13.0	-51.72	332.2	-81.6	6,371.3	6,270.0	101.32	62.880		
11,700.0	5,912.2	5,350.0	5,339.7	114.8	13.0	-51.72	332.2	-81.6	6,470.3	6,367.4	102.88	62.891		
11,800.0	5,912.2	5,350.0	5,339.7	116.7	13.0	-51.72	332.2	-81.6	6,569.3	6,464.8	104.44	62.901		
11,900.0	5,912.2	5,350.0	5,339.7	118.6	13.0	-51.72	332.2	-81.6	6,668.3	6,562.3	106.00	62.911		
12,000.0	5,912.2	5,350.0	5,339.7	120.5	13.0	-51.72	332.2	-81.6	6,767.3	6,659.8	107.55	62.920		
12,100.0	5,912.1	5,350.0	5,339.7	122.4	13.0	-51.72	332.2	-81.6	6,866.4	6,757.3	109.11	62.929		
12,200.0	5,912.1	5,350.0	5,339.7	124.3	13.0	-51.72	332.2	-81.6	6,965.5	6,854.8	110.67	62.938		
12,300.0	5,912.1	5,350.0	5,339.7	126.1	13.0	-51.72	332.2	-81.6	7,064.6	6,952.4	112.23	62.947		
12,400.0	5,912.1	5,350.0	5,339.7	128.0	13.0	-51.72	332.2	-81.6	7,163.8	7,050.0	113.79	62.955		
12,500.0	5,912.1	5,350.0	5,339.7	129.9	13.0	-51.72	332.2	-81.6	7,263.0	7,147.6	115.35	62.963		
12,600.0	5,912.1	5,350.0	5,339.7	131.8	13.0	-51.72	332.2	-81.6	7,362.2	7,245.2	116.91	62.970		
12,700.0	5,912.1	5,350.0	5,339.7	133.7	13.0	-51.72	332.2	-81.6	7,461.4	7,342.9	118.48	62.978		
12,800.0	5,912.1	5,350.0	5,339.7	135.6	13.0	-51.72	332.2	-81.6	7,560.6	7,440.6	120.04	62.985		
12,900.0	5,912.1	5,350.0	5,339.7	137.5	13.0	-51.72	332.2	-81.6	7,659.9	7,538.3	121.60	62.992		
13,000.0	5,912.1	5,350.0	5,339.7	139.4	13.0	-51.72	332.2	-81.6	7,759.1	7,636.0	123.16	62.999		
13,100.0	5,912.1	5,350.0	5,339.7	141.3	13.0	-51.72	332.2	-81.6	7,858.4	7,733.7	124.73	63.005		
13,200.0	5,912.1	5,350.0	5,339.7	143.2	13.0	-51.72	332.2	-81.6	7,957.8	7,831.5	126.29	63.011		
13,300.0	5,912.1	5,350.0	5,339.7	145.1	13.0	-51.72	332.2	-81.6	8,057.1	7,929.2	127.85	63.018		
13,400.0	5,912.0	5,350.0	5,339.7	146.9	13.0	-51.72	332.2	-81.6	8,156.4	8,027.0	129.42	63.024		
13,500.0	5,912.0	5,350.0	5,339.7	148.8	13.0	-51.72	332.2	-81.6	8,255.8	8,124.8	130.98	63.029		
13,600.0	5,912.0	5,350.0	5,339.7	150.7	13.0	-51.72	332.2	-81.6	8,355.2	8,222.6	132.55	63.035		
13,700.0	5,912.0	5,350.0	5,339.7	152.6	13.0	-51.72	332.2	-81.6	8,454.6	8,320.5	134.11	63.040		
13,800.0	5,912.0	5,343.5	5,333.3	154.5	13.0	-51.42	331.7	-81.3	8,553.9	8,418.7	135.21	63.263		
13,872.5	5,912.0	5,343.2	5,332.9	155.7	13.0	-51.40	331.6	-81.3	8,626.0	8,490.0	136.09	63.385		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0104B - HZ - Plan #2														Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total		Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Separation Factor			
0.0	0.0	0.0	0.0	0.0	0.0	90.01	0.0	33.0	33.0						
100.0	100.0	100.0	100.0	0.1	0.1	90.01	0.0	33.0	33.0	32.9	0.19	176.698			
200.0	200.0	200.0	200.0	0.3	0.3	90.01	0.0	33.0	33.0	32.4	0.64	51.911			
300.0	300.0	300.0	300.0	0.5	0.5	90.01	0.0	33.0	33.0	32.0	1.09	30.425			
400.0	400.0	400.0	400.0	0.8	0.8	90.01	0.0	33.0	33.0	31.5	1.54	21.518			
500.0	500.0	500.0	500.0	1.0	1.0	90.01	0.0	33.0	33.0	31.1	1.99	16.646			
600.0	600.0	600.0	600.0	1.2	1.2	90.01	0.0	33.0	33.0	30.6	2.43	13.572			
700.0	700.0	700.0	700.0	1.4	1.4	90.01	0.0	33.0	33.0	30.2	2.88	11.457			
800.0	800.0	800.0	800.0	1.7	1.7	90.01	0.0	33.0	33.0	29.7	3.33	9.912			
900.0	900.0	900.3	900.3	1.9	1.9	87.04	1.7	32.6	32.6	28.8	3.78	8.621			
1,000.0	1,000.0	1,000.3	1,000.1	2.1	2.1	77.80	6.7	31.2	31.9	27.6	4.23	7.526			
1,027.7	1,027.7	1,028.0	1,027.7	2.2	2.2	74.33	8.6	30.6	31.8	27.5	4.36	7.295 CC, ES			
1,100.0	1,100.0	1,100.1	1,099.6	2.3	2.3	65.35	13.4	29.3	32.2	27.5	4.69	6.866			
1,200.0	1,200.0	1,199.8	1,199.2	2.6	2.6	53.68	20.1	27.4	34.0	28.9	5.15	6.607 SF			
1,300.0	1,300.0	1,299.5	1,298.6	2.8	2.8	-171.76	26.8	25.5	38.8	33.2	5.58	6.947			
1,400.0	1,399.8	1,398.9	1,397.7	2.9	3.1	-179.78	33.5	23.6	48.0	42.0	5.99	8.021			
1,500.0	1,499.6	1,498.1	1,496.7	3.1	3.3	175.00	40.2	21.8	59.6	53.2	6.40	9.315			
1,600.0	1,599.4	1,597.3	1,595.6	3.3	3.5	171.49	46.8	19.9	71.6	64.8	6.82	10.490			
1,700.0	1,699.1	1,696.5	1,694.6	3.5	3.8	169.00	53.5	18.0	83.7	76.5	7.25	11.546			
1,800.0	1,798.9	1,795.7	1,793.6	3.8	4.0	167.13	60.2	16.2	96.0	88.3	7.68	12.492			
1,900.0	1,898.6	1,894.9	1,892.5	4.0	4.3	165.69	66.8	14.3	108.3	100.2	8.12	13.341			
2,000.0	1,998.4	1,994.1	1,991.5	4.2	4.5	164.55	73.5	12.4	120.7	112.1	8.56	14.104			
2,100.0	2,098.1	2,093.3	2,090.5	4.4	4.8	163.61	80.1	10.6	133.1	124.1	9.00	14.793			
2,200.0	2,197.9	2,192.5	2,189.4	4.7	5.0	162.84	86.8	8.7	145.5	136.1	9.44	15.415			
2,300.0	2,297.6	2,291.7	2,288.4	4.9	5.3	162.19	93.5	6.8	158.0	148.1	9.89	15.980			
2,400.0	2,397.4	2,390.9	2,387.3	5.2	5.5	161.63	100.1	5.0	170.5	160.2	10.34	16.495			
2,500.0	2,497.2	2,490.1	2,486.3	5.4	5.8	161.15	106.8	3.1	183.0	172.2	10.79	16.966			
2,600.0	2,596.9	2,589.3	2,585.3	5.6	6.0	160.74	113.5	1.2	195.5	184.3	11.24	17.398			
2,700.0	2,696.7	2,688.5	2,684.2	5.9	6.3	160.37	120.1	-0.7	208.0	196.3	11.69	17.795			
2,800.0	2,796.4	2,787.7	2,783.2	6.1	6.5	160.04	126.8	-2.5	220.6	208.4	12.15	18.161			
2,900.0	2,896.2	2,886.9	2,882.2	6.4	6.8	159.75	133.4	-4.4	233.1	220.5	12.60	18.500			
3,000.0	2,995.9	2,986.1	2,981.1	6.6	7.0	159.49	140.1	-6.3	245.6	232.6	13.06	18.814			
3,100.0	3,095.7	3,085.3	3,080.1	6.9	7.3	159.25	146.8	-8.1	258.2	244.7	13.51	19.106			
3,200.0	3,195.5	3,184.5	3,179.1	7.1	7.6	159.04	153.4	-10.0	270.7	256.8	13.97	19.378			
3,300.0	3,295.2	3,283.7	3,278.0	7.4	7.8	158.84	160.1	-11.9	283.3	268.9	14.43	19.632			
3,400.0	3,395.0	3,382.9	3,377.0	7.7	8.1	158.66	166.8	-13.7	295.8	281.0	14.89	19.870			
3,500.0	3,494.7	3,482.2	3,475.9	7.9	8.3	158.50	173.4	-15.6	308.4	293.1	15.35	20.093			
3,600.0	3,594.5	3,581.4	3,574.9	8.2	8.6	158.35	180.1	-17.5	321.0	305.2	15.81	20.303			
3,700.0	3,694.2	3,680.6	3,673.9	8.4	8.8	158.21	186.8	-19.3	333.5	317.3	16.27	20.500			
3,800.0	3,794.0	3,779.8	3,772.8	8.7	9.1	158.08	193.4	-21.2	346.1	329.4	16.73	20.686			
3,900.0	3,893.7	3,879.0	3,871.8	8.9	9.3	157.96	200.1	-23.1	358.7	341.5	17.19	20.862			
4,000.0	3,993.5	3,978.2	3,970.8	9.2	9.6	157.84	206.7	-25.0	371.2	353.6	17.65	21.028			
4,100.0	4,093.3	4,077.4	4,069.7	9.4	9.8	157.74	213.4	-26.8	383.8	365.7	18.12	21.185			
4,200.0	4,193.0	4,176.6	4,168.7	9.7	10.1	157.64	220.1	-28.7	396.4	377.8	18.58	21.334			
4,300.0	4,292.8	4,275.8	4,267.6	10.0	10.3	157.55	226.7	-30.6	408.9	389.9	19.04	21.475			
4,400.0	4,392.5	4,375.0	4,366.6	10.2	10.6	157.46	233.4	-32.4	421.5	402.0	19.50	21.610			
4,500.0	4,492.3	4,474.2	4,465.6	10.5	10.8	157.38	240.1	-34.3	434.1	414.1	19.97	21.738			
4,600.0	4,592.0	4,573.4	4,564.5	10.7	11.1	157.30	246.7	-36.2	446.6	426.2	20.43	21.860			
4,700.0	4,691.8	4,672.6	4,663.5	11.0	11.4	157.23	253.4	-38.0	459.2	438.3	20.90	21.977			
4,800.0	4,791.6	4,771.8	4,762.5	11.3	11.6	157.16	260.0	-39.9	471.8	450.4	21.36	22.088			
4,900.0	4,891.3	4,871.0	4,861.4	11.5	11.9	157.09	266.7	-41.8	484.4	462.5	21.82	22.194			
5,000.0	4,991.1	4,970.2	4,960.4	11.8	12.1	157.03	273.4	-43.6	496.9	474.7	22.29	22.296			

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0104B - HZ - Plan #2												Offset Site Error:	0.0 ft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.0	5,090.8	5,069.4	5,059.4	12.0	12.4	156.97	280.0	-45.5	509.5	486.8	22.75	22.393	
5,200.0	5,190.6	5,168.6	5,158.3	12.3	12.6	156.92	286.7	-47.4	522.1	498.9	23.22	22.487	
5,300.0	5,290.3	5,267.8	5,257.3	12.6	12.9	156.86	293.4	-49.3	534.7	511.0	23.68	22.576	
5,400.0	5,390.1	5,367.0	5,356.2	12.8	13.1	156.81	300.0	-51.1	547.3	523.1	24.15	22.663	
5,438.0	5,428.0	5,404.7	5,393.9	12.9	13.2	156.79	302.6	-51.8	552.0	527.7	24.32	22.694	
5,450.0	5,440.0	5,416.6	5,405.7	13.0	13.3	156.72	303.4	-52.1	553.7	529.3	24.34	22.743	
5,500.0	5,489.4	5,450.0	5,439.0	13.1	13.3	156.34	305.7	-52.7	563.5	539.2	24.29	23.202	
5,550.0	5,538.0	5,476.2	5,465.0	13.3	13.4	155.70	308.7	-53.6	579.4	555.3	24.06	24.079	
5,600.0	5,585.3	5,500.0	5,488.5	13.6	13.5	154.74	312.5	-54.6	601.2	577.5	23.69	25.374	
5,650.0	5,630.7	5,519.1	5,507.2	13.9	13.6	153.36	316.3	-55.7	628.4	605.1	23.22	27.064	
5,700.0	5,674.0	5,550.0	5,537.1	14.2	13.7	151.70	323.8	-57.8	660.6	637.8	22.71	29.081	
5,750.0	5,714.6	5,550.0	5,537.1	14.6	13.7	148.88	323.8	-57.8	696.4	674.2	22.23	31.327	
5,800.0	5,752.3	5,566.9	5,553.2	15.0	13.8	145.47	328.6	-59.1	736.0	714.1	21.99	33.478	
5,850.0	5,786.7	5,578.0	5,563.7	15.5	13.8	140.59	332.0	-60.1	778.6	756.3	22.23	35.028	
5,900.0	5,817.4	5,600.0	5,584.3	16.0	13.9	134.60	339.5	-62.2	823.6	800.4	23.13	35.607	
5,950.0	5,844.2	5,600.0	5,584.3	16.6	13.9	124.21	339.5	-62.2	869.8	844.4	25.42	34.212	
6,000.0	5,866.8	5,600.0	5,584.3	17.2	13.9	109.17	339.5	-62.2	917.4	888.7	28.69	31.973	
6,050.0	5,885.1	5,600.0	5,584.3	17.9	13.9	89.58	339.5	-62.2	965.6	934.5	31.05	31.098	
6,100.0	5,898.8	5,600.0	5,584.3	18.6	13.9	69.11	339.5	-62.2	1,013.9	983.8	30.17	33.611	
6,150.0	5,907.9	5,600.0	5,584.3	19.4	13.9	52.33	339.5	-62.2	1,062.0	1,035.3	26.70	39.782	
6,200.0	5,912.2	5,600.0	5,584.3	20.1	13.9	40.40	339.5	-62.2	1,109.4	1,086.6	22.85	48.561	
6,219.8	5,912.5	5,600.0	5,584.3	20.4	13.9	36.79	339.5	-62.2	1,128.0	1,106.5	21.50	52.455	
6,300.0	5,912.5	5,600.0	5,584.3	21.6	13.9	31.28	339.5	-62.2	1,203.4	1,183.5	19.90	60.481	
6,400.0	5,912.5	5,580.4	5,565.9	23.0	13.8	20.84	332.8	-60.3	1,298.4	1,282.6	15.84	81.955	
6,500.0	5,912.5	5,572.5	5,558.6	24.5	13.8	9.98	330.3	-59.6	1,394.7	1,382.8	11.86	117.553	
6,600.0	5,912.5	5,550.0	5,537.1	26.0	13.7	-2.32	323.8	-57.8	1,491.8	1,481.5	10.29	145.014	
6,700.0	5,912.5	5,550.0	5,537.1	27.6	13.7	-13.96	323.8	-57.8	1,588.7	1,574.8	13.90	114.296	
6,800.0	5,912.5	5,550.0	5,537.1	29.1	13.7	-25.18	323.8	-57.8	1,685.7	1,665.3	20.38	82.726	
6,900.0	5,912.5	5,550.0	5,537.1	30.7	13.7	-35.15	323.8	-57.8	1,782.5	1,755.7	26.79	66.533	
7,000.0	5,912.5	5,550.0	5,537.1	32.2	13.7	-43.53	323.8	-57.8	1,878.9	1,846.6	32.22	58.313	
7,100.0	5,912.5	5,550.0	5,537.1	33.7	13.7	-50.37	323.8	-57.8	1,974.7	1,938.1	36.54	54.042	
7,200.0	5,912.5	5,527.1	5,514.9	35.3	13.6	-54.43	318.0	-56.2	2,069.2	2,030.0	39.17	52.827	
7,300.0	5,912.5	5,521.9	5,509.9	36.8	13.6	-58.63	316.9	-55.9	2,163.1	2,121.4	41.72	51.844	
7,384.9	5,912.5	5,500.0	5,488.5	38.0	13.5	-60.60	312.5	-54.6	2,242.3	2,199.3	43.00	52.145	
7,400.0	5,912.5	5,500.0	5,488.5	38.3	13.5	-60.60	312.5	-54.6	2,256.2	2,213.0	43.21	52.215	
7,500.0	5,912.5	5,500.0	5,488.5	39.8	13.5	-60.60	312.5	-54.6	2,348.9	2,304.3	44.61	52.655	
7,600.0	5,912.5	5,500.0	5,488.5	41.3	13.5	-60.60	312.5	-54.6	2,442.2	2,396.1	46.03	53.055	
7,700.0	5,912.5	5,500.0	5,488.5	42.9	13.5	-60.60	312.5	-54.6	2,536.0	2,488.5	47.47	53.419	
7,800.0	5,912.5	5,500.0	5,488.5	44.5	13.5	-60.60	312.5	-54.6	2,630.2	2,581.3	48.93	53.751	
7,900.0	5,912.5	5,500.0	5,488.5	46.1	13.5	-60.60	312.5	-54.6	2,724.8	2,674.4	50.41	54.056	
8,000.0	5,912.5	5,500.0	5,488.5	47.8	13.5	-60.60	312.5	-54.6	2,819.9	2,768.0	51.90	54.336	
8,100.0	5,912.4	5,500.0	5,488.5	49.4	13.5	-60.60	312.5	-54.6	2,915.2	2,861.8	53.40	54.594	
8,200.0	5,912.4	5,500.0	5,488.5	51.1	13.5	-60.60	312.5	-54.6	3,010.9	2,955.9	54.91	54.833	
8,300.0	5,912.4	5,500.0	5,488.5	52.8	13.5	-60.60	312.5	-54.6	3,106.8	3,050.3	56.43	55.054	
8,400.0	5,912.4	5,500.0	5,488.5	54.5	13.5	-60.60	312.5	-54.6	3,202.9	3,145.0	57.96	55.260	
8,500.0	5,912.4	5,500.0	5,488.5	56.2	13.5	-60.60	312.5	-54.6	3,299.4	3,239.9	59.50	55.452	
8,600.0	5,912.4	5,500.0	5,488.5	58.0	13.5	-60.60	312.5	-54.6	3,396.0	3,334.8	61.11	55.568	
8,700.0	5,912.4	5,477.3	5,466.1	59.7	13.4	-59.36	308.8	-53.6	3,492.3	3,430.3	61.99	56.332	
8,800.0	5,912.4	5,475.3	5,464.1	61.5	13.4	-59.26	308.6	-53.5	3,589.1	3,525.6	63.54	56.487	
8,900.0	5,912.4	5,473.5	5,462.3	63.3	13.4	-59.15	308.3	-53.5	3,686.2	3,621.1	65.09	56.632	
9,000.0	5,912.4	5,471.7	5,460.5	65.0	13.4	-59.06	308.1	-53.4	3,783.4	3,716.7	66.65	56.767	
9,100.0	5,912.4	5,450.0	5,439.0	66.8	13.3	-57.89	305.7	-52.7	3,881.1	3,813.6	67.48	57.512	

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0104B - HZ - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
9,200.0	5,912.4	5,450.0	5,439.0	68.6	13.3	-57.89	305.7	-52.7	3,978.5	3,909.4	69.09	57.581		
9,300.0	5,912.4	5,450.0	5,439.0	70.4	13.3	-57.89	305.7	-52.7	4,076.0	4,005.3	70.71	57.647		
9,400.0	5,912.4	5,450.0	5,439.0	72.2	13.3	-57.89	305.7	-52.7	4,173.6	4,101.3	72.32	57.708		
9,500.0	5,912.3	5,450.0	5,439.0	74.0	13.3	-57.89	305.7	-52.7	4,271.4	4,197.5	73.94	57.766		
9,600.0	5,912.3	5,450.0	5,439.0	75.9	13.3	-57.89	305.7	-52.7	4,369.2	4,293.7	75.56	57.821		
9,700.0	5,912.3	5,450.0	5,439.0	77.7	13.3	-57.89	305.7	-52.7	4,467.2	4,390.0	77.19	57.873		
9,800.0	5,912.3	5,450.0	5,439.0	79.5	13.3	-57.89	305.7	-52.7	4,565.2	4,486.4	78.82	57.922		
9,900.0	5,912.3	5,450.0	5,439.0	81.3	13.3	-57.89	305.7	-52.7	4,663.3	4,582.9	80.45	57.968		
10,000.0	5,912.3	5,450.0	5,439.0	83.2	13.3	-57.89	305.7	-52.7	4,761.5	4,679.5	82.08	58.012		
10,100.0	5,912.3	5,450.0	5,439.0	85.0	13.3	-57.89	305.7	-52.7	4,859.8	4,776.1	83.71	58.054		
10,200.0	5,912.3	5,450.0	5,439.0	86.9	13.3	-57.89	305.7	-52.7	4,958.1	4,872.8	85.35	58.093		
10,300.0	5,912.3	5,450.0	5,439.0	88.7	13.3	-57.89	305.7	-52.7	5,056.5	4,969.6	86.98	58.131		
10,400.0	5,912.3	5,450.0	5,439.0	90.6	13.3	-57.89	305.7	-52.7	5,155.0	5,066.4	88.62	58.167		
10,500.0	5,912.3	5,450.0	5,439.0	92.4	13.3	-57.89	305.7	-52.7	5,253.5	5,163.3	90.26	58.202		
10,600.0	5,912.3	5,450.0	5,439.0	94.3	13.3	-57.89	305.7	-52.7	5,352.1	5,260.2	91.91	58.235		
10,700.0	5,912.3	5,450.0	5,439.0	96.1	13.3	-57.89	305.7	-52.7	5,450.7	5,357.2	93.55	58.266		
10,800.0	5,912.2	5,450.0	5,439.0	98.0	13.3	-57.89	305.7	-52.7	5,549.4	5,454.2	95.19	58.297		
10,900.0	5,912.2	5,450.0	5,439.0	99.9	13.3	-57.89	305.7	-52.7	5,648.1	5,551.3	96.84	58.326		
11,000.0	5,912.2	5,450.0	5,439.0	101.7	13.3	-57.89	305.7	-52.7	5,746.9	5,648.4	98.48	58.353		
11,100.0	5,912.2	5,450.0	5,439.0	103.6	13.3	-57.89	305.7	-52.7	5,845.7	5,745.6	100.13	58.380		
11,200.0	5,912.2	5,450.0	5,439.0	105.5	13.3	-57.89	305.7	-52.7	5,944.6	5,842.8	101.78	58.406		
11,300.0	5,912.2	5,450.0	5,439.0	107.3	13.3	-57.89	305.7	-52.7	6,043.5	5,940.0	103.43	58.430		
11,400.0	5,912.2	5,450.0	5,439.0	109.2	13.3	-57.89	305.7	-52.7	6,142.4	6,037.3	105.08	58.454		
11,500.0	5,912.2	5,450.0	5,439.0	111.1	13.3	-57.89	305.7	-52.7	6,241.3	6,134.6	106.73	58.477		
11,600.0	5,912.2	5,444.3	5,433.3	113.0	13.3	-57.59	305.2	-52.6	6,340.3	6,232.2	108.07	58.670		
11,700.0	5,912.2	5,443.6	5,432.6	114.8	13.3	-57.55	305.2	-52.6	6,439.3	6,329.6	109.68	58.710		
11,800.0	5,912.2	5,438.0	5,427.0	116.7	13.3	-57.25	304.8	-52.5	6,538.4	6,427.4	111.01	58.900		
11,900.0	5,912.2	5,438.0	5,427.0	118.6	13.3	-57.25	304.8	-52.5	6,637.5	6,524.8	112.65	58.919		
12,000.0	5,912.2	5,438.0	5,427.0	120.5	13.3	-57.25	304.8	-52.5	6,736.6	6,622.3	114.30	58.938		
12,100.0	5,912.1	5,438.0	5,427.0	122.4	13.3	-57.25	304.8	-52.5	6,835.7	6,719.7	115.94	58.956		
12,200.0	5,912.1	5,438.0	5,427.0	124.3	13.3	-57.25	304.8	-52.5	6,934.8	6,817.2	117.59	58.974		
12,300.0	5,912.1	5,438.0	5,427.0	126.1	13.3	-57.25	304.8	-52.5	7,034.0	6,914.8	119.24	58.991		
12,400.0	5,912.1	5,438.0	5,427.0	128.0	13.3	-57.25	304.8	-52.5	7,133.2	7,012.3	120.89	59.007		
12,500.0	5,912.1	5,438.0	5,427.0	129.9	13.3	-57.25	304.8	-52.5	7,232.4	7,109.9	122.53	59.023		
12,600.0	5,912.1	5,438.0	5,427.0	131.8	13.3	-57.25	304.8	-52.5	7,331.6	7,207.5	124.18	59.039		
12,700.0	5,912.1	5,438.0	5,427.0	133.7	13.3	-57.25	304.8	-52.5	7,430.9	7,305.1	125.83	59.054		
12,800.0	5,912.1	5,434.0	5,423.0	135.6	13.3	-57.04	304.5	-52.4	7,530.2	7,403.0	127.22	59.190		
12,900.0	5,912.1	5,427.2	5,416.3	137.5	13.3	-56.69	304.1	-52.3	7,629.5	7,501.0	128.43	59.407		
13,000.0	5,912.1	5,420.5	5,409.6	139.4	13.3	-56.34	303.6	-52.1	7,728.8	7,599.1	129.62	59.625		
13,100.0	5,912.1	5,413.8	5,402.9	141.3	13.3	-55.99	303.2	-52.0	7,828.1	7,697.3	130.81	59.844		
13,200.0	5,912.1	5,407.1	5,396.2	143.2	13.2	-55.65	302.7	-51.9	7,927.4	7,795.4	131.99	60.063		
13,300.0	5,912.1	5,400.3	5,389.5	145.1	13.2	-55.31	302.3	-51.7	8,026.7	7,893.6	133.15	60.283		
13,400.0	5,912.0	5,393.6	5,382.7	146.9	13.2	-54.97	301.8	-51.6	8,126.1	7,991.8	134.31	60.503		
13,500.0	5,912.0	5,386.9	5,376.0	148.8	13.2	-54.63	301.4	-51.5	8,225.4	8,090.0	135.46	60.724		
13,600.0	5,912.0	5,380.2	5,369.3	150.7	13.2	-54.30	300.9	-51.4	8,324.8	8,188.2	136.59	60.945		
13,700.0	5,912.0	5,373.4	5,362.6	152.6	13.1	-53.97	300.5	-51.2	8,424.2	8,286.5	137.72	61.168		
13,800.0	5,912.0	5,366.7	5,355.9	154.5	13.1	-53.65	300.0	-51.1	8,523.6	8,384.7	138.84	61.390		
13,872.5	5,912.0	5,361.8	5,351.0	155.7	13.1	-53.41	299.7	-51.0	8,595.7	8,456.2	139.42	61.655		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0105A - HZ - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	60.32	74.9	131.4	151.2					
100.0	100.0	100.0	100.0	0.1	0.1	60.32	74.9	131.4	151.2	151.1	0.19	808.787		
200.0	200.0	200.0	200.0	0.3	0.3	60.32	74.9	131.4	151.2	150.6	0.64	237.610		
300.0	300.0	300.0	300.0	0.5	0.5	60.32	74.9	131.4	151.2	150.2	1.09	139.261		
400.0	400.0	400.0	400.0	0.8	0.8	60.32	74.9	131.4	151.2	149.7	1.54	98.494		
500.0	500.0	500.0	500.0	1.0	1.0	60.32	74.9	131.4	151.2	149.3	1.99	76.190		
600.0	600.0	600.0	600.0	1.2	1.2	60.32	74.9	131.4	151.2	148.8	2.43	62.123		
700.0	700.0	700.0	700.0	1.4	1.4	60.32	74.9	131.4	151.2	148.4	2.88	52.440		
800.0	800.0	800.0	800.0	1.7	1.7	60.32	74.9	131.4	151.2	147.9	3.33	45.369		
900.0	900.0	900.0	900.0	1.9	1.9	60.32	74.9	131.4	151.2	147.5	3.78	39.978		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	60.32	74.9	131.4	151.2	147.0	4.23	35.732		
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	60.32	74.9	131.4	151.2	146.6	4.68	32.302 CC, ES		
1,200.0	1,200.0	1,197.7	1,197.7	2.6	2.6	59.75	76.6	131.3	152.0	146.9	5.13	29.642		
1,300.0	1,300.0	1,295.1	1,295.0	2.8	2.8	-157.07	81.5	130.9	155.9	150.4	5.54	28.123		
1,400.0	1,399.8	1,394.4	1,394.0	2.9	3.0	-159.86	88.4	130.4	164.2	158.3	5.94	27.622		
1,500.0	1,499.6	1,493.5	1,492.9	3.1	3.2	-162.61	95.3	129.9	174.5	168.2	6.36	27.455		
1,600.0	1,599.4	1,592.6	1,591.8	3.3	3.5	-165.05	102.2	129.4	185.2	178.4	6.78	27.329		
1,700.0	1,699.1	1,691.8	1,690.6	3.5	3.7	-167.22	109.1	128.9	196.2	188.9	7.20	27.236		
1,800.0	1,798.9	1,790.9	1,789.5	3.8	3.9	-169.15	116.0	128.4	207.4	199.7	7.63	27.170		
1,900.0	1,898.6	1,890.0	1,888.4	4.0	4.2	-170.89	122.9	127.9	218.8	210.7	8.07	27.124		
2,000.0	1,998.4	1,989.2	1,987.3	4.2	4.4	-172.46	129.8	127.4	230.4	221.9	8.50	27.095		
2,100.0	2,098.1	2,088.3	2,086.2	4.4	4.7	-173.87	136.7	126.8	242.2	233.2	8.94	27.078		
2,200.0	2,197.9	2,187.4	2,185.1	4.7	4.9	-175.16	143.6	126.3	254.1	244.7	9.39	27.071 SF		
2,300.0	2,297.6	2,286.6	2,284.0	4.9	5.2	-176.33	150.5	125.8	266.1	256.2	9.83	27.071		
2,400.0	2,397.4	2,385.7	2,382.9	5.2	5.4	-177.39	157.4	125.3	278.2	267.9	10.27	27.077		
2,500.0	2,497.2	2,484.9	2,481.8	5.4	5.6	-178.37	164.3	124.8	290.4	279.7	10.72	27.086		
2,600.0	2,596.9	2,584.0	2,580.7	5.6	5.9	-179.27	171.2	124.3	302.7	291.5	11.17	27.099		
2,700.0	2,696.7	2,683.1	2,679.6	5.9	6.1	179.90	178.1	123.8	315.0	303.4	11.62	27.115		
2,800.0	2,796.4	2,782.3	2,778.5	6.1	6.4	179.13	185.0	123.3	327.4	315.3	12.07	27.132		
2,900.0	2,896.2	2,881.4	2,877.4	6.4	6.6	178.42	191.9	122.8	339.9	327.3	12.52	27.150		
3,000.0	2,995.9	2,980.5	2,976.3	6.6	6.9	177.76	198.8	122.3	352.4	339.4	12.97	27.169		
3,100.0	3,095.7	3,079.7	3,075.2	6.9	7.1	177.15	205.7	121.8	364.9	351.5	13.42	27.189		
3,200.0	3,195.5	3,178.8	3,174.1	7.1	7.4	176.57	212.6	121.2	377.5	363.6	13.87	27.208		
3,300.0	3,295.2	3,277.9	3,273.0	7.4	7.6	176.04	219.4	120.7	390.1	375.8	14.33	27.228		
3,400.0	3,395.0	3,377.1	3,371.9	7.7	7.9	175.53	226.3	120.2	402.8	388.0	14.78	27.248		
3,500.0	3,494.7	3,476.2	3,470.8	7.9	8.1	175.06	233.2	119.7	415.4	400.2	15.24	27.268		
3,600.0	3,594.5	3,575.4	3,569.6	8.2	8.4	174.61	240.1	119.2	428.1	412.5	15.69	27.287		
3,700.0	3,694.2	3,674.5	3,668.5	8.4	8.6	174.20	247.0	118.7	440.9	424.7	16.15	27.306		
3,800.0	3,794.0	3,773.6	3,767.4	8.7	8.9	173.80	253.9	118.2	453.6	437.0	16.60	27.325		
3,900.0	3,893.7	3,872.8	3,866.3	8.9	9.1	173.43	260.8	117.7	466.4	449.3	17.06	27.343		
4,000.0	3,993.5	3,971.9	3,965.2	9.2	9.4	173.07	267.7	117.2	479.2	461.7	17.51	27.361		
4,100.0	4,093.3	4,071.0	4,064.1	9.4	9.7	172.74	274.6	116.7	492.0	474.0	17.97	27.378		
4,200.0	4,193.0	4,170.2	4,163.0	9.7	9.9	172.42	281.5	116.2	504.8	486.4	18.43	27.395		
4,300.0	4,292.8	4,269.3	4,261.9	10.0	10.2	172.11	288.4	115.6	517.7	498.8	18.89	27.411		
4,400.0	4,392.5	4,368.4	4,360.8	10.2	10.4	171.83	295.3	115.1	530.5	511.2	19.34	27.427		
4,500.0	4,492.3	4,467.6	4,459.7	10.5	10.7	171.55	302.2	114.6	543.4	523.6	19.80	27.443		
4,600.0	4,592.0	4,566.7	4,558.6	10.7	10.9	171.29	309.1	114.1	556.3	536.0	20.26	27.458		
4,700.0	4,691.8	4,665.9	4,657.5	11.0	11.2	171.04	316.0	113.6	569.1	548.4	20.72	27.473		
4,800.0	4,791.6	4,765.0	4,756.4	11.3	11.4	170.80	322.9	113.1	582.0	560.9	21.18	27.487		
4,900.0	4,891.3	4,864.1	4,855.3	11.5	11.7	170.57	329.8	112.6	595.0	573.3	21.63	27.501		
5,000.0	4,991.1	4,963.3	4,954.2	11.8	11.9	170.35	336.7	112.1	607.9	585.8	22.09	27.514		
5,100.0	5,090.8	5,062.4	5,053.1	12.0	12.2	170.14	343.6	111.6	620.8	598.2	22.55	27.527		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0105A - HZ - Plan #2													Offset Site Error: 0.0 ft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,190.6	5,161.5	5,152.0	12.3	12.4	169.94	350.5	111.1	633.7	610.7	23.01	27.540		
5,300.0	5,290.3	5,260.7	5,250.9	12.6	12.7	169.75	357.4	110.6	646.7	623.2	23.47	27.553		
5,400.0	5,390.1	5,350.0	5,340.0	12.8	12.9	169.57	363.8	110.1	659.9	635.9	23.91	27.600		
5,438.0	5,428.0	5,365.0	5,354.9	12.9	13.0	169.52	365.4	110.0	666.0	642.0	24.03	27.713		
5,450.0	5,440.0	5,370.5	5,360.3	13.0	13.0	169.45	366.2	109.9	668.4	644.3	24.04	27.806		
5,500.0	5,489.4	5,400.0	5,389.4	13.1	13.1	169.03	371.0	109.6	682.1	658.2	23.94	28.486		
5,550.0	5,538.0	5,414.1	5,403.2	13.3	13.1	168.50	373.8	109.3	701.9	678.2	23.63	29.706		
5,600.0	5,585.3	5,433.5	5,422.1	13.6	13.2	167.75	378.4	109.0	727.4	704.3	23.14	31.435		
5,650.0	5,630.7	5,450.0	5,438.0	13.9	13.3	166.74	382.8	108.7	758.1	735.6	22.48	33.725		
5,700.0	5,674.0	5,466.2	5,453.4	14.2	13.3	165.38	387.7	108.3	793.4	771.7	21.68	36.591		
5,750.0	5,714.6	5,479.3	5,465.8	14.6	13.4	163.52	391.9	108.0	832.5	811.7	20.80	40.032		
5,800.0	5,752.3	5,500.0	5,485.1	15.0	13.5	160.96	399.3	107.5	875.0	855.1	19.95	43.860		
5,850.0	5,786.7	5,500.0	5,485.1	15.5	13.5	156.93	399.3	107.5	919.9	900.5	19.35	47.536		
5,900.0	5,817.4	5,500.0	5,485.1	16.0	13.5	150.16	399.3	107.5	966.9	947.2	19.65	49.217		
5,950.0	5,844.2	5,500.0	5,485.1	16.6	13.5	137.42	399.3	107.5	1,015.3	993.1	22.22	45.701		
6,000.0	5,866.8	5,500.0	5,485.1	17.2	13.5	111.27	399.3	107.5	1,064.6	1,036.2	28.32	37.595		
6,050.0	5,885.1	5,500.0	5,485.1	17.9	13.5	70.83	399.3	107.5	1,114.1	1,084.4	29.70	37.512		
6,100.0	5,898.8	5,500.0	5,485.1	18.6	13.5	41.88	399.3	107.5	1,163.5	1,140.7	22.83	50.969		
6,150.0	5,907.9	5,500.0	5,485.1	19.4	13.5	27.67	399.3	107.5	1,212.3	1,195.0	17.34	69.901		
6,200.0	5,912.2	5,500.0	5,485.1	20.1	13.5	20.22	399.3	107.5	1,260.2	1,246.2	14.07	89.576		
6,219.8	5,912.5	5,500.0	5,485.1	20.4	13.5	18.22	399.3	107.5	1,278.9	1,265.7	13.21	96.833		
6,300.0	5,912.5	5,500.0	5,485.1	21.6	13.5	11.71	399.3	107.5	1,354.4	1,343.3	11.08	122.188		
6,400.0	5,912.5	5,500.0	5,485.1	23.0	13.5	2.52	399.3	107.5	1,449.5	1,440.3	9.18	157.933		
6,500.0	5,912.5	5,479.7	5,466.2	24.5	13.4	-7.66	392.1	108.0	1,544.9	1,534.4	10.50	147.194		
6,600.0	5,912.5	5,471.7	5,458.6	26.0	13.4	-17.27	389.4	108.2	1,640.6	1,625.9	14.70	111.635		
6,700.0	5,912.5	5,450.0	5,438.0	27.6	13.3	-25.71	382.8	108.7	1,736.4	1,716.7	19.74	87.960		
6,800.0	5,912.5	5,450.0	5,438.0	29.1	13.3	-33.77	382.8	108.7	1,831.6	1,806.6	24.99	73.286		
6,900.0	5,912.5	5,450.0	5,438.0	30.7	13.3	-40.87	382.8	108.7	1,926.4	1,896.7	29.70	64.853		
7,000.0	5,912.5	5,450.0	5,438.0	32.2	13.3	-46.95	382.8	108.7	2,020.6	1,986.9	33.72	59.922		
7,100.0	5,912.5	5,450.0	5,438.0	33.7	13.3	-52.08	382.8	108.7	2,114.1	2,077.1	37.06	57.049		
7,200.0	5,912.5	5,450.0	5,438.0	35.3	13.3	-56.38	382.8	108.7	2,206.8	2,167.0	39.80	55.452		
7,300.0	5,912.5	5,427.8	5,416.5	36.8	13.2	-58.91	377.0	109.1	2,297.8	2,256.4	41.50	55.372		
7,384.9	5,912.5	5,423.7	5,412.6	38.0	13.2	-61.39	376.0	109.2	2,374.6	2,331.5	43.02	55.196		
7,400.0	5,912.5	5,423.0	5,411.9	38.3	13.2	-61.35	375.9	109.2	2,388.1	2,344.9	43.22	55.260		
7,500.0	5,912.5	5,400.0	5,389.4	39.8	13.1	-60.29	371.0	109.6	2,478.8	2,434.7	44.10	56.209		
7,600.0	5,912.5	5,400.0	5,389.4	41.3	13.1	-60.29	371.0	109.6	2,569.6	2,524.1	45.52	56.453		
7,700.0	5,912.5	5,400.0	5,389.4	42.9	13.1	-60.29	371.0	109.6	2,661.1	2,614.1	46.96	56.672		
7,800.0	5,912.5	5,400.0	5,389.4	44.5	13.1	-60.29	371.0	109.6	2,753.2	2,704.7	48.41	56.869		
7,900.0	5,912.5	5,400.0	5,389.4	46.1	13.1	-60.29	371.0	109.6	2,845.8	2,795.9	49.88	57.048		
8,000.0	5,912.5	5,400.0	5,389.4	47.8	13.1	-60.29	371.0	109.6	2,938.9	2,887.5	51.37	57.211		
8,100.0	5,912.4	5,400.0	5,389.4	49.4	13.1	-60.29	371.0	109.6	3,032.4	2,979.5	52.87	57.359		
8,200.0	5,912.4	5,400.0	5,389.4	51.1	13.1	-60.29	371.0	109.6	3,126.3	3,072.0	54.37	57.496		
8,300.0	5,912.4	5,400.0	5,389.4	52.8	13.1	-60.29	371.0	109.6	3,220.6	3,164.7	55.90	57.617		
8,400.0	5,912.4	5,400.0	5,389.4	54.5	13.1	-60.29	371.0	109.6	3,315.3	3,257.8	57.49	57.663		
8,500.0	5,912.4	5,400.0	5,389.4	56.2	13.1	-60.29	371.0	109.6	3,410.2	3,351.1	59.10	57.704		
8,600.0	5,912.4	5,400.0	5,389.4	58.0	13.1	-60.29	371.0	109.6	3,505.4	3,444.7	60.71	57.741		
8,700.0	5,912.4	5,400.0	5,389.4	59.7	13.1	-60.29	371.0	109.6	3,600.9	3,538.6	62.33	57.774		
8,800.0	5,912.4	5,400.0	5,389.4	61.5	13.1	-60.29	371.0	109.6	3,696.6	3,632.7	63.95	57.803		
8,900.0	5,912.4	5,400.0	5,389.4	63.3	13.1	-60.29	371.0	109.6	3,792.6	3,727.0	65.58	57.831		
9,000.0	5,912.4	5,376.7	5,366.5	65.0	13.0	-59.23	367.0	109.8	3,888.2	3,821.6	66.53	58.441		
9,100.0	5,912.4	5,375.0	5,364.7	66.8	13.0	-59.15	366.8	109.9	3,984.4	3,916.3	68.10	58.507		
9,200.0	5,912.4	5,373.3	5,363.1	68.6	13.0	-59.08	366.5	109.9	4,080.8	4,011.2	69.68	58.568		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0105A - HZ - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
9,300.0	5,912.4	5,350.0	5,340.0	70.4	12.9	-58.03	363.8	110.1	4,177.9	4,107.3	70.57	59.202		
9,400.0	5,912.4	5,350.0	5,340.0	72.2	12.9	-58.03	363.8	110.1	4,274.6	4,202.4	72.19	59.214		
9,500.0	5,912.3	5,350.0	5,340.0	74.0	12.9	-58.03	363.8	110.1	4,371.4	4,297.6	73.81	59.224		
9,600.0	5,912.3	5,350.0	5,340.0	75.9	12.9	-58.03	363.8	110.1	4,468.3	4,392.9	75.43	59.234		
9,700.0	5,912.3	5,350.0	5,340.0	77.7	12.9	-58.03	363.8	110.1	4,565.4	4,488.4	77.06	59.244		
9,800.0	5,912.3	5,350.0	5,340.0	79.5	12.9	-58.03	363.8	110.1	4,662.6	4,584.0	78.69	59.252		
9,900.0	5,912.3	5,350.0	5,340.0	81.3	12.9	-58.03	363.8	110.1	4,760.0	4,679.7	80.32	59.261		
10,000.0	5,912.3	5,350.0	5,340.0	83.2	12.9	-58.03	363.8	110.1	4,857.4	4,775.5	81.96	59.268		
10,100.0	5,912.3	5,350.0	5,340.0	85.0	12.9	-58.03	363.8	110.1	4,955.0	4,871.4	83.59	59.275		
10,200.0	5,912.3	5,350.0	5,340.0	86.9	12.9	-58.03	363.8	110.1	5,052.6	4,967.4	85.23	59.282		
10,300.0	5,912.3	5,350.0	5,340.0	88.7	12.9	-58.03	363.8	110.1	5,150.3	5,063.4	86.87	59.288		
10,400.0	5,912.3	5,350.0	5,340.0	90.6	12.9	-58.03	363.8	110.1	5,248.1	5,159.6	88.51	59.294		
10,500.0	5,912.3	5,350.0	5,340.0	92.4	12.9	-58.03	363.8	110.1	5,346.0	5,255.9	90.15	59.300		
10,600.0	5,912.3	5,350.0	5,340.0	94.3	12.9	-58.03	363.8	110.1	5,444.0	5,352.2	91.80	59.305		
10,700.0	5,912.3	5,350.0	5,340.0	96.1	12.9	-58.03	363.8	110.1	5,542.0	5,448.6	93.44	59.311		
10,800.0	5,912.2	5,350.0	5,340.0	98.0	12.9	-58.03	363.8	110.1	5,640.1	5,545.1	95.09	59.316		
10,900.0	5,912.2	5,350.0	5,340.0	99.9	12.9	-58.03	363.8	110.1	5,738.3	5,641.6	96.73	59.320		
11,000.0	5,912.2	5,350.0	5,340.0	101.7	12.9	-58.03	363.8	110.1	5,836.6	5,738.2	98.38	59.325		
11,100.0	5,912.2	5,350.0	5,340.0	103.6	12.9	-58.03	363.8	110.1	5,934.8	5,834.8	100.03	59.329		
11,200.0	5,912.2	5,350.0	5,340.0	105.5	12.9	-58.03	363.8	110.1	6,033.2	5,931.5	101.68	59.333		
11,300.0	5,912.2	5,350.0	5,340.0	107.3	12.9	-58.03	363.8	110.1	6,131.6	6,028.3	103.33	59.337		
11,400.0	5,912.2	5,350.0	5,340.0	109.2	12.9	-58.03	363.8	110.1	6,230.1	6,125.1	104.99	59.341		
11,500.0	5,912.2	5,350.0	5,340.0	111.1	12.9	-58.03	363.8	110.1	6,328.6	6,221.9	106.64	59.345		
11,600.0	5,912.2	5,350.0	5,340.0	113.0	12.9	-58.03	363.8	110.1	6,427.1	6,318.8	108.29	59.349		
11,700.0	5,912.2	5,350.0	5,340.0	114.8	12.9	-58.03	363.8	110.1	6,525.7	6,415.8	109.95	59.352		
11,800.0	5,912.2	5,350.0	5,340.0	116.7	12.9	-58.03	363.8	110.1	6,624.4	6,512.7	111.60	59.356		
11,900.0	5,912.2	5,350.0	5,340.0	118.6	12.9	-58.03	363.8	110.1	6,723.0	6,609.8	113.26	59.359		
12,000.0	5,912.2	5,350.0	5,340.0	120.5	12.9	-58.03	363.8	110.1	6,821.7	6,706.8	114.92	59.362		
12,100.0	5,912.1	5,350.0	5,340.0	122.4	12.9	-58.03	363.8	110.1	6,920.5	6,803.9	116.57	59.365		
12,200.0	5,912.1	5,350.0	5,340.0	124.3	12.9	-58.03	363.8	110.1	7,019.3	6,901.1	118.23	59.368		
12,300.0	5,912.1	5,343.0	5,333.0	126.1	12.9	-57.72	363.2	110.1	7,118.1	6,998.5	119.54	59.547		
12,400.0	5,912.1	5,336.0	5,326.0	128.0	12.9	-57.41	362.6	110.2	7,216.9	7,096.1	120.83	59.726		
12,500.0	5,912.1	5,336.0	5,326.0	129.9	12.9	-57.41	362.6	110.2	7,315.8	7,193.3	122.48	59.729		
12,600.0	5,912.1	5,336.0	5,326.0	131.8	12.9	-57.41	362.6	110.2	7,414.7	7,290.6	124.14	59.731		
12,700.0	5,912.1	5,336.0	5,326.0	133.7	12.9	-57.41	362.6	110.2	7,513.6	7,387.9	125.79	59.733		
12,800.0	5,912.1	5,336.0	5,326.0	135.6	12.9	-57.41	362.6	110.2	7,612.6	7,485.2	127.44	59.735		
12,900.0	5,912.1	5,336.0	5,326.0	137.5	12.9	-57.41	362.6	110.2	7,711.6	7,582.5	129.09	59.737		
13,000.0	5,912.1	5,336.0	5,326.0	139.4	12.9	-57.41	362.6	110.2	7,810.6	7,679.9	130.74	59.740		
13,100.0	5,912.1	5,336.0	5,326.0	141.3	12.9	-57.41	362.6	110.2	7,909.6	7,777.2	132.40	59.742		
13,200.0	5,912.1	5,336.0	5,326.0	143.2	12.9	-57.41	362.6	110.2	8,008.7	7,874.6	134.05	59.744		
13,300.0	5,912.1	5,336.0	5,326.0	145.1	12.9	-57.41	362.6	110.2	8,107.8	7,972.1	135.70	59.746		
13,400.0	5,912.0	5,336.0	5,326.0	146.9	12.9	-57.41	362.6	110.2	8,206.9	8,069.5	137.36	59.748		
13,500.0	5,912.0	5,336.0	5,326.0	148.8	12.9	-57.41	362.6	110.2	8,306.0	8,167.0	139.01	59.749		
13,600.0	5,912.0	5,336.0	5,326.0	150.7	12.9	-57.41	362.6	110.2	8,405.2	8,264.5	140.67	59.751		
13,700.0	5,912.0	5,336.0	5,326.0	152.6	12.9	-57.41	362.6	110.2	8,504.3	8,362.0	142.32	59.753		
13,800.0	5,912.0	5,331.6	5,321.6	154.5	12.9	-57.22	362.3	110.2	8,603.5	8,459.8	143.71	59.866		
13,872.5	5,912.0	5,326.5	5,316.6	155.7	12.8	-57.00	362.0	110.2	8,675.4	8,531.1	144.37	60.092		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0106B - HZ - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	90.01	0.0	99.1	99.1					
100.0	100.0	100.0	100.0	0.1	0.1	90.01	0.0	99.1	99.1	98.9	0.19	530.095		
200.0	200.0	200.0	200.0	0.3	0.3	90.01	0.0	99.1	99.1	98.5	0.64	155.734		
300.0	300.0	300.0	300.0	0.5	0.5	90.01	0.0	99.1	99.1	98.0	1.09	91.275		
400.0	400.0	400.0	400.0	0.8	0.8	90.01	0.0	99.1	99.1	97.6	1.54	64.555		
500.0	500.0	500.0	500.0	1.0	1.0	90.01	0.0	99.1	99.1	97.1	1.99	49.937		
600.0	600.0	600.0	600.0	1.2	1.2	90.01	0.0	99.1	99.1	96.7	2.43	40.716		
700.0	700.0	700.0	700.0	1.4	1.4	90.01	0.0	99.1	99.1	96.2	2.88	34.370	CC, ES	
800.0	800.0	799.0	799.0	1.7	1.7	89.06	1.6	99.6	99.6	96.3	3.33	29.901		
900.0	900.0	897.8	897.7	1.9	1.9	86.28	6.6	101.0	101.2	97.4	3.78	26.765		
1,000.0	1,000.0	997.6	997.2	2.1	2.1	82.65	13.3	102.8	103.7	99.5	4.24	24.492		
1,100.0	1,100.0	1,097.3	1,096.7	2.3	2.4	79.20	20.0	104.7	106.6	102.0	4.69	22.746		
1,200.0	1,200.0	1,197.1	1,196.2	2.6	2.6	75.95	26.7	106.6	109.9	104.8	5.14	21.376		
1,300.0	1,300.0	1,296.7	1,295.6	2.8	2.8	-142.52	33.4	108.4	114.9	109.3	5.58	20.592		
1,400.0	1,399.8	1,396.0	1,394.6	2.9	3.1	-146.61	40.0	110.3	123.2	117.2	5.99	20.580	SF	
1,500.0	1,499.6	1,495.0	1,493.4	3.1	3.3	-150.61	46.7	112.2	133.6	127.2	6.40	20.869		
1,600.0	1,599.4	1,594.1	1,592.2	3.3	3.6	-154.03	53.3	114.0	144.6	137.7	6.82	21.187		
1,700.0	1,699.1	1,693.1	1,691.0	3.5	3.8	-156.96	60.0	115.9	156.0	148.7	7.25	21.517		
1,800.0	1,798.9	1,792.2	1,789.9	3.8	4.1	-159.49	66.7	117.7	167.7	160.0	7.68	21.847		
1,900.0	1,898.6	1,891.2	1,888.7	4.0	4.3	-161.69	73.3	119.6	179.7	171.6	8.11	22.169		
2,000.0	1,998.4	1,990.3	1,987.5	4.2	4.6	-163.61	80.0	121.5	192.0	183.4	8.54	22.479		
2,100.0	2,098.1	2,089.4	2,086.3	4.4	4.8	-165.30	86.6	123.3	204.4	195.4	8.97	22.775		
2,200.0	2,197.9	2,188.4	2,185.1	4.7	5.1	-166.79	93.3	125.2	217.0	207.6	9.41	23.056		
2,300.0	2,297.6	2,287.5	2,283.9	4.9	5.3	-168.12	99.9	127.0	229.7	219.8	9.85	23.322		
2,400.0	2,397.4	2,386.5	2,382.7	5.2	5.6	-169.32	106.6	128.9	242.5	232.2	10.29	23.572		
2,500.0	2,497.2	2,485.6	2,481.5	5.4	5.8	-170.39	113.2	130.8	255.4	244.7	10.73	23.808		
2,600.0	2,596.9	2,584.6	2,580.4	5.6	6.1	-171.35	119.9	132.6	268.4	257.3	11.17	24.029		
2,700.0	2,696.7	2,683.7	2,679.2	5.9	6.3	-172.23	126.5	134.5	281.5	269.9	11.61	24.238		
2,800.0	2,796.4	2,782.7	2,778.0	6.1	6.6	-173.03	133.2	136.3	294.6	282.6	12.06	24.434		
2,900.0	2,896.2	2,881.8	2,876.8	6.4	6.8	-173.76	139.9	138.2	307.8	295.3	12.50	24.619		
3,000.0	2,995.9	2,980.8	2,975.6	6.6	7.1	-174.44	146.5	140.0	321.0	308.1	12.95	24.793		
3,100.0	3,095.7	3,079.9	3,074.4	6.9	7.3	-175.05	153.2	141.9	334.3	320.9	13.40	24.957		
3,200.0	3,195.5	3,179.0	3,173.2	7.1	7.6	-175.63	159.8	143.8	347.6	333.8	13.84	25.111		
3,300.0	3,295.2	3,278.0	3,272.1	7.4	7.8	-176.16	166.5	145.6	360.9	346.6	14.29	25.258		
3,400.0	3,395.0	3,377.1	3,370.9	7.7	8.1	-176.65	173.1	147.5	374.3	359.6	14.74	25.396		
3,500.0	3,494.7	3,476.1	3,469.7	7.9	8.3	-177.10	179.8	149.3	387.7	372.5	15.19	25.527		
3,600.0	3,594.5	3,575.2	3,568.5	8.2	8.6	-177.53	186.4	151.2	401.1	385.4	15.64	25.651		
3,700.0	3,694.2	3,674.2	3,667.3	8.4	8.8	-177.93	193.1	153.0	414.5	398.4	16.09	25.769		
3,800.0	3,794.0	3,773.3	3,766.1	8.7	9.1	-178.31	199.8	154.9	428.0	411.4	16.54	25.881		
3,900.0	3,893.7	3,872.3	3,864.9	8.9	9.3	-178.66	206.4	156.8	441.4	424.4	16.99	25.987		
4,000.0	3,993.5	3,971.4	3,963.7	9.2	9.6	-178.99	213.1	158.6	454.9	437.5	17.44	26.089		
4,100.0	4,093.3	4,070.4	4,062.6	9.4	9.8	-179.30	219.7	160.5	468.4	450.5	17.89	26.185		
4,200.0	4,193.0	4,169.5	4,161.4	9.7	10.1	-179.59	226.4	162.3	481.9	463.6	18.34	26.277		
4,300.0	4,292.8	4,268.6	4,260.2	10.0	10.4	-179.87	233.0	164.2	495.4	476.6	18.79	26.365		
4,400.0	4,392.5	4,367.6	4,359.0	10.2	10.6	-179.86	239.7	166.1	508.9	489.7	19.24	26.449		
4,500.0	4,492.3	4,466.7	4,457.8	10.5	10.9	-179.61	246.3	167.9	522.5	502.8	19.69	26.529		
4,600.0	4,592.0	4,565.7	4,556.6	10.7	11.1	-179.38	253.0	169.8	536.0	515.9	20.15	26.606		
4,700.0	4,691.8	4,664.8	4,655.4	11.0	11.4	-179.15	259.7	171.6	549.6	529.0	20.60	26.679		
4,800.0	4,791.6	4,763.8	4,754.2	11.3	11.6	-178.94	266.3	173.5	563.1	542.1	21.05	26.750		
4,900.0	4,891.3	4,862.9	4,853.1	11.5	11.9	-178.73	273.0	175.3	576.7	555.2	21.51	26.818		
5,000.0	4,991.1	4,961.9	4,951.9	11.8	12.1	-178.54	279.6	177.2	590.3	568.3	21.96	26.883		
5,100.0	5,090.8	5,061.0	5,050.7	12.0	12.4	-178.35	286.3	179.1	603.9	581.5	22.41	26.945		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0106B - HZ - Plan #2													Offset Site Error: 0.0 ft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,190.6	5,160.0	5,149.5	12.3	12.6	178.17	292.9	180.9	617.5	594.6	22.87	27.005		
5,300.0	5,290.3	5,259.1	5,248.3	12.6	12.9	178.00	299.6	182.8	631.1	607.7	23.32	27.063		
5,400.0	5,390.1	5,358.1	5,347.1	12.8	13.1	177.84	306.2	184.6	644.7	620.9	23.77	27.118		
5,438.0	5,428.0	5,395.8	5,384.7	12.9	13.2	177.78	308.8	185.3	649.8	625.9	23.95	27.139		
5,450.0	5,440.0	5,407.7	5,396.5	13.0	13.3	177.75	309.6	185.6	651.6	627.7	23.96	27.199		
5,500.0	5,489.4	5,446.9	5,435.7	13.1	13.4	177.65	312.3	186.3	662.0	638.2	23.86	27.746		
5,550.0	5,538.0	5,468.1	5,456.7	13.3	13.4	177.53	314.4	186.9	678.6	655.1	23.53	28.845		
5,600.0	5,585.3	5,500.0	5,488.2	13.6	13.5	177.31	319.2	188.3	701.5	678.5	23.02	30.477		
5,650.0	5,630.7	5,500.0	5,488.2	13.9	13.5	177.13	319.2	188.3	729.6	707.3	22.24	32.800		
5,700.0	5,674.0	5,521.2	5,509.0	14.2	13.6	176.80	323.4	189.4	762.8	741.4	21.34	35.746		
5,750.0	5,714.6	5,534.7	5,522.1	14.6	13.7	176.37	326.5	190.3	800.3	780.1	20.25	39.528		
5,800.0	5,752.3	5,550.0	5,536.9	15.0	13.7	175.76	330.4	191.4	841.6	822.6	19.01	44.268		
5,850.0	5,786.7	5,550.0	5,536.9	15.5	13.7	174.91	330.4	191.4	885.7	868.1	17.63	50.242		
5,900.0	5,817.4	5,550.0	5,536.9	16.0	13.7	173.46	330.4	191.4	932.4	916.2	16.20	57.542		
5,950.0	5,844.2	5,566.8	5,552.9	16.6	13.8	170.80	335.1	192.7	980.3	965.4	14.93	65.655		
6,000.0	5,866.8	5,569.7	5,555.7	17.2	13.8	163.76	336.0	193.0	1,029.6	1,014.8	14.80	69.574		
6,050.0	5,885.1	5,570.9	5,556.8	17.9	13.8	117.76	336.4	193.1	1,079.5	1,051.2	28.24	38.224		
6,100.0	5,898.8	5,570.4	5,556.3	18.6	13.8	21.32	336.2	193.0	1,129.4	1,114.2	15.22	74.218		
6,150.0	5,907.9	5,568.5	5,554.5	19.4	13.8	9.71	335.7	192.9	1,179.0	1,168.5	10.45	112.829		
6,200.0	5,912.2	5,550.0	5,536.9	20.1	13.7	5.60	330.4	191.4	1,228.1	1,219.3	8.82	139.287		
6,219.8	5,912.5	5,550.0	5,536.9	20.4	13.7	4.93	330.4	191.4	1,247.1	1,238.5	8.59	145.158		
6,300.0	5,912.5	5,550.0	5,536.9	21.6	13.7	-2.92	330.4	191.4	1,323.7	1,315.2	8.58	154.300		
6,400.0	5,912.5	5,550.0	5,536.9	23.0	13.7	-13.21	330.4	191.4	1,419.8	1,407.9	11.94	118.936		
6,500.0	5,912.5	5,550.0	5,536.9	24.5	13.7	-23.35	330.4	191.4	1,516.1	1,498.7	17.40	87.150		
6,600.0	5,912.5	5,550.0	5,536.9	26.0	13.7	-32.68	330.4	191.4	1,612.3	1,589.1	23.18	69.570		
6,700.0	5,912.5	5,529.3	5,516.9	27.6	13.6	-39.38	325.2	189.9	1,707.7	1,680.1	27.56	61.967		
6,800.0	5,912.5	5,523.8	5,511.5	29.1	13.6	-45.79	324.0	189.6	1,802.8	1,771.1	31.74	56.807		
6,900.0	5,912.5	5,500.0	5,488.2	30.7	13.5	-49.89	319.2	188.3	1,897.6	1,863.0	34.57	54.889		
7,000.0	5,912.5	5,500.0	5,488.2	32.2	13.5	-54.67	319.2	188.3	1,991.0	1,953.3	37.66	52.866		
7,100.0	5,912.5	5,500.0	5,488.2	33.7	13.5	-58.68	319.2	188.3	2,083.5	2,043.3	40.21	51.811		
7,200.0	5,912.5	5,500.0	5,488.2	35.3	13.5	-62.04	319.2	188.3	2,175.0	2,132.6	42.32	51.399		
7,300.0	5,912.5	5,500.0	5,488.2	36.8	13.5	-64.86	319.2	188.3	2,265.3	2,221.3	44.04	51.434		
7,384.9	5,912.5	5,500.0	5,488.2	38.0	13.5	-66.92	319.2	188.3	2,341.1	2,295.8	45.26	51.724		
7,400.0	5,912.5	5,500.0	5,488.2	38.3	13.5	-66.92	319.2	188.3	2,354.4	2,309.0	45.48	51.770		
7,500.0	5,912.5	5,500.0	5,488.2	39.8	13.5	-66.92	319.2	188.3	2,443.7	2,396.7	46.94	52.062		
7,600.0	5,912.5	5,500.0	5,488.2	41.3	13.5	-66.92	319.2	188.3	2,533.7	2,485.3	48.42	52.327		
7,700.0	5,912.5	5,500.0	5,488.2	42.9	13.5	-66.92	319.2	188.3	2,624.5	2,574.6	49.93	52.568		
7,800.0	5,912.5	5,500.0	5,488.2	44.5	13.5	-66.92	319.2	188.3	2,715.9	2,664.5	51.45	52.789		
7,900.0	5,912.5	5,500.0	5,488.2	46.1	13.5	-66.92	319.2	188.3	2,807.9	2,754.9	52.99	52.991		
8,000.0	5,912.5	5,500.0	5,488.2	47.8	13.5	-66.92	319.2	188.3	2,900.4	2,845.9	54.54	53.178		
8,100.0	5,912.4	5,500.0	5,488.2	49.4	13.5	-66.92	319.2	188.3	2,993.4	2,937.3	56.11	53.351		
8,200.0	5,912.4	5,478.3	5,466.8	51.1	13.5	-65.86	315.7	187.3	3,086.3	3,029.2	57.19	53.967		
8,300.0	5,912.4	5,476.3	5,464.9	52.8	13.5	-65.76	315.5	187.2	3,180.1	3,121.4	58.73	54.150		
8,400.0	5,912.4	5,474.4	5,463.0	54.5	13.4	-65.67	315.2	187.1	3,274.2	3,213.9	60.34	54.258		
8,500.0	5,912.4	5,472.7	5,461.3	56.2	13.4	-65.59	315.0	187.1	3,368.6	3,306.7	61.97	54.359		
8,600.0	5,912.4	5,450.0	5,438.7	58.0	13.4	-64.51	312.5	186.4	3,463.9	3,400.8	63.09	54.902		
8,700.0	5,912.4	5,450.0	5,438.7	59.7	13.4	-64.51	312.5	186.4	3,558.8	3,494.1	64.76	54.953		
8,800.0	5,912.4	5,450.0	5,438.7	61.5	13.4	-64.51	312.5	186.4	3,654.0	3,587.6	66.44	55.001		
8,900.0	5,912.4	5,450.0	5,438.7	63.3	13.4	-64.51	312.5	186.4	3,749.5	3,681.4	68.12	55.046		
9,000.0	5,912.4	5,450.0	5,438.7	65.0	13.4	-64.51	312.5	186.4	3,845.2	3,775.4	69.80	55.088		
9,100.0	5,912.4	5,450.0	5,438.7	66.8	13.4	-64.51	312.5	186.4	3,941.1	3,869.6	71.49	55.128		
9,200.0	5,912.4	5,450.0	5,438.7	68.6	13.4	-64.51	312.5	186.4	4,037.3	3,964.1	73.18	55.165		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0106B - HZ - Plan #2													Offset Site Error: 0.0 ft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
9,300.0	5,912.4	5,450.0	5,438.7	70.4	13.4	-64.51	312.5	186.4	4,133.6	4,058.7	74.88	55.201		
9,400.0	5,912.4	5,450.0	5,438.7	72.2	13.4	-64.51	312.5	186.4	4,230.0	4,153.4	76.58	55.234		
9,500.0	5,912.3	5,450.0	5,438.7	74.0	13.4	-64.51	312.5	186.4	4,326.7	4,248.4	78.29	55.266		
9,600.0	5,912.3	5,450.0	5,438.7	75.9	13.4	-64.51	312.5	186.4	4,423.4	4,343.4	80.00	55.296		
9,700.0	5,912.3	5,450.0	5,438.7	77.7	13.4	-64.51	312.5	186.4	4,520.4	4,438.6	81.71	55.325		
9,800.0	5,912.3	5,450.0	5,438.7	79.5	13.4	-64.51	312.5	186.4	4,617.4	4,534.0	83.42	55.352		
9,900.0	5,912.3	5,450.0	5,438.7	81.3	13.4	-64.51	312.5	186.4	4,714.6	4,629.4	85.13	55.378		
10,000.0	5,912.3	5,450.0	5,438.7	83.2	13.4	-64.51	312.5	186.4	4,811.9	4,725.0	86.85	55.403		
10,100.0	5,912.3	5,450.0	5,438.7	85.0	13.4	-64.51	312.5	186.4	4,909.3	4,820.7	88.57	55.427		
10,200.0	5,912.3	5,450.0	5,438.7	86.9	13.4	-64.51	312.5	186.4	5,006.8	4,916.5	90.29	55.450		
10,300.0	5,912.3	5,450.0	5,438.7	88.7	13.4	-64.51	312.5	186.4	5,104.4	5,012.4	92.02	55.472		
10,400.0	5,912.3	5,450.0	5,438.7	90.6	13.4	-64.51	312.5	186.4	5,202.1	5,108.3	93.74	55.493		
10,500.0	5,912.3	5,450.0	5,438.7	92.4	13.4	-64.51	312.5	186.4	5,299.8	5,204.4	95.47	55.514		
10,600.0	5,912.3	5,450.0	5,438.7	94.3	13.4	-64.51	312.5	186.4	5,397.7	5,300.5	97.20	55.533		
10,700.0	5,912.3	5,450.0	5,438.7	96.1	13.4	-64.51	312.5	186.4	5,495.6	5,396.7	98.93	55.552		
10,800.0	5,912.2	5,450.0	5,438.7	98.0	13.4	-64.51	312.5	186.4	5,593.6	5,493.0	100.66	55.571		
10,900.0	5,912.2	5,450.0	5,438.7	99.9	13.4	-64.51	312.5	186.4	5,691.7	5,589.3	102.39	55.588		
11,000.0	5,912.2	5,450.0	5,438.7	101.7	13.4	-64.51	312.5	186.4	5,789.9	5,685.7	104.12	55.605		
11,100.0	5,912.2	5,450.0	5,438.7	103.6	13.4	-64.51	312.5	186.4	5,888.1	5,782.2	105.86	55.622		
11,200.0	5,912.2	5,444.6	5,433.4	105.5	13.4	-64.25	312.1	186.3	5,986.3	5,878.9	107.39	55.746		
11,300.0	5,912.2	5,439.0	5,427.8	107.3	13.3	-63.99	311.7	186.2	6,084.6	5,975.7	108.90	55.873		
11,400.0	5,912.2	5,439.0	5,427.8	109.2	13.3	-63.99	311.7	186.2	6,183.0	6,072.4	110.63	55.888		
11,500.0	5,912.2	5,439.0	5,427.8	111.1	13.3	-63.99	311.7	186.2	6,281.4	6,169.0	112.36	55.902		
11,600.0	5,912.2	5,439.0	5,427.8	113.0	13.3	-63.99	311.7	186.2	6,379.9	6,265.8	114.10	55.916		
11,700.0	5,912.2	5,439.0	5,427.8	114.8	13.3	-63.99	311.7	186.2	6,478.4	6,362.6	115.83	55.929		
11,800.0	5,912.2	5,439.0	5,427.8	116.7	13.3	-63.99	311.7	186.2	6,576.9	6,459.4	117.57	55.942		
11,900.0	5,912.2	5,439.0	5,427.8	118.6	13.3	-63.99	311.7	186.2	6,675.5	6,556.2	119.30	55.955		
12,000.0	5,912.2	5,439.0	5,427.8	120.5	13.3	-63.99	311.7	186.2	6,774.2	6,653.1	121.04	55.967		
12,100.0	5,912.1	5,439.0	5,427.8	122.4	13.3	-63.99	311.7	186.2	6,872.9	6,750.1	122.78	55.979		
12,200.0	5,912.1	5,439.0	5,427.8	124.3	13.3	-63.99	311.7	186.2	6,971.6	6,847.1	124.51	55.991		
12,300.0	5,912.1	5,434.3	5,423.1	126.1	13.3	-63.77	311.4	186.1	7,070.3	6,944.3	126.04	56.096		
12,400.0	5,912.1	5,427.6	5,416.4	128.0	13.3	-63.46	310.9	185.9	7,169.1	7,041.6	127.47	56.242		
12,500.0	5,912.1	5,420.9	5,409.7	129.9	13.3	-63.15	310.5	185.8	7,267.9	7,139.0	128.89	56.389		
12,600.0	5,912.1	5,414.2	5,403.0	131.8	13.3	-62.84	310.0	185.7	7,366.7	7,236.4	130.30	56.537		
12,700.0	5,912.1	5,407.4	5,396.3	133.7	13.3	-62.53	309.6	185.6	7,465.6	7,333.9	131.70	56.686		
12,800.0	5,912.1	5,400.7	5,389.6	135.6	13.2	-62.22	309.1	185.4	7,564.5	7,431.4	133.10	56.835		
12,900.0	5,912.1	5,394.0	5,382.9	137.5	13.2	-61.92	308.6	185.3	7,663.4	7,528.9	134.48	56.985		
13,000.0	5,912.1	5,387.3	5,376.2	139.4	13.2	-61.61	308.2	185.2	7,762.3	7,626.5	135.86	57.136		
13,100.0	5,912.1	5,380.5	5,369.5	141.3	13.2	-61.31	307.7	185.1	7,861.3	7,724.0	137.22	57.288		
13,200.0	5,912.1	5,373.8	5,362.7	143.2	13.2	-61.01	307.3	184.9	7,960.2	7,821.6	138.58	57.440		
13,300.0	5,912.1	5,367.1	5,356.0	145.1	13.2	-60.71	306.8	184.8	8,059.2	7,919.3	139.93	57.593		
13,400.0	5,912.0	5,360.4	5,349.3	146.9	13.1	-60.41	306.4	184.7	8,158.2	8,017.0	141.27	57.747		
13,500.0	5,912.0	5,353.6	5,342.6	148.8	13.1	-60.12	305.9	184.6	8,257.3	8,114.6	142.61	57.902		
13,600.0	5,912.0	5,346.9	5,335.9	150.7	13.1	-59.83	305.5	184.4	8,356.3	8,212.4	143.93	58.057		
13,700.0	5,912.0	5,340.2	5,329.2	152.6	13.1	-59.53	305.0	184.3	8,455.4	8,310.1	145.25	58.213		
13,800.0	5,912.0	5,333.4	5,322.5	154.5	13.1	-59.24	304.6	184.2	8,554.4	8,407.9	146.56	58.370		
13,872.5	5,912.0	5,328.6	5,317.6	155.7	13.1	-59.03	304.3	184.1	8,626.3	8,479.0	147.26	58.577		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0107A - HZ - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	69.23	74.9	197.5	211.2					
100.0	100.0	100.0	100.0	0.1	0.1	69.23	74.9	197.5	211.2	211.0	0.19	1,129.473		
200.0	200.0	200.0	200.0	0.3	0.3	69.23	74.9	197.5	211.2	210.6	0.64	331.823		
300.0	300.0	300.0	300.0	0.5	0.5	69.23	74.9	197.5	211.2	210.1	1.09	194.479		
400.0	400.0	400.0	400.0	0.8	0.8	69.23	74.9	197.5	211.2	209.7	1.54	137.547		
500.0	500.0	500.0	500.0	1.0	1.0	69.23	74.9	197.5	211.2	209.2	1.99	106.400		
600.0	600.0	600.0	600.0	1.2	1.2	69.23	74.9	197.5	211.2	208.8	2.43	86.754		
700.0	700.0	700.0	700.0	1.4	1.4	69.23	74.9	197.5	211.2	208.3	2.88	73.233		
800.0	800.0	800.0	800.0	1.7	1.7	69.23	74.9	197.5	211.2	207.9	3.33	63.358		
900.0	900.0	900.0	900.0	1.9	1.9	69.23	74.9	197.5	211.2	207.4	3.78	55.830		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	69.23	74.9	197.5	211.2	207.0	4.23	49.900		
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	69.23	74.9	197.5	211.2	206.5	4.68	45.110		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	69.23	74.9	197.5	211.2	206.1	5.13	41.158 CC, ES		
1,300.0	1,300.0	1,294.8	1,294.8	2.8	2.8	-146.23	76.3	198.2	213.9	208.3	5.54	38.597		
1,400.0	1,399.8	1,389.0	1,388.9	2.9	3.0	-147.68	80.5	200.2	221.9	216.0	5.93	37.443		
1,500.0	1,499.6	1,487.4	1,487.1	3.1	3.2	-149.72	86.7	203.1	233.1	226.8	6.33	36.819		
1,600.0	1,599.4	1,586.5	1,585.9	3.3	3.4	-151.58	93.0	206.1	244.6	237.9	6.74	36.272		
1,700.0	1,699.1	1,685.5	1,684.6	3.5	3.7	-153.27	99.2	209.0	256.4	249.2	7.16	35.789		
1,800.0	1,798.9	1,784.5	1,783.4	3.8	3.9	-154.82	105.4	212.0	268.3	260.8	7.59	35.362		
1,900.0	1,898.6	1,883.6	1,882.2	4.0	4.1	-156.23	111.7	215.0	280.5	272.5	8.02	34.984		
2,000.0	1,998.4	1,982.6	1,981.0	4.2	4.4	-157.52	117.9	217.9	292.8	284.3	8.45	34.648		
2,100.0	2,098.1	2,081.6	2,079.8	4.4	4.6	-158.71	124.2	220.9	305.2	296.3	8.88	34.351		
2,200.0	2,197.9	2,180.7	2,178.6	4.7	4.9	-159.81	130.4	223.8	317.7	308.4	9.32	34.087		
2,300.0	2,297.6	2,279.7	2,277.4	4.9	5.1	-160.83	136.6	226.8	330.4	320.6	9.76	33.851		
2,400.0	2,397.4	2,378.7	2,376.2	5.2	5.3	-161.76	142.9	229.8	343.1	332.9	10.20	33.639		
2,500.0	2,497.2	2,477.8	2,475.0	5.4	5.6	-162.64	149.1	232.7	355.9	345.3	10.64	33.449		
2,600.0	2,596.9	2,576.8	2,573.8	5.6	5.8	-163.45	155.4	235.7	368.8	357.7	11.08	33.277		
2,700.0	2,696.7	2,675.8	2,672.6	5.9	6.1	-164.20	161.6	238.7	381.8	370.3	11.53	33.122		
2,800.0	2,796.4	2,774.9	2,771.4	6.1	6.3	-164.91	167.8	241.6	394.8	382.9	11.97	32.981		
2,900.0	2,896.2	2,873.9	2,870.2	6.4	6.6	-165.57	174.1	244.6	407.9	395.5	12.42	32.852		
3,000.0	2,995.9	2,972.9	2,968.9	6.6	6.8	-166.19	180.3	247.5	421.0	408.2	12.86	32.735		
3,100.0	3,095.7	3,072.0	3,067.7	6.9	7.1	-166.78	186.6	250.5	434.2	420.9	13.31	32.627		
3,200.0	3,195.5	3,171.0	3,166.5	7.1	7.3	-167.32	192.8	253.5	447.4	433.7	13.76	32.528		
3,300.0	3,295.2	3,270.0	3,265.3	7.4	7.6	-167.84	199.0	256.4	460.7	446.5	14.20	32.437		
3,400.0	3,395.0	3,369.1	3,364.1	7.7	7.8	-168.33	205.3	259.4	474.0	459.3	14.65	32.353		
3,500.0	3,494.7	3,468.1	3,462.9	7.9	8.1	-168.79	211.5	262.4	487.3	472.2	15.10	32.275		
3,600.0	3,594.5	3,567.1	3,561.7	8.2	8.3	-169.23	217.8	265.3	500.7	485.1	15.55	32.203		
3,700.0	3,694.2	3,666.2	3,660.5	8.4	8.6	-169.64	224.0	268.3	514.1	498.1	16.00	32.135		
3,800.0	3,794.0	3,765.2	3,759.3	8.7	8.8	-170.04	230.2	271.3	527.5	511.0	16.45	32.073		
3,900.0	3,893.7	3,864.2	3,858.1	8.9	9.1	-170.41	236.5	274.2	540.9	524.0	16.90	32.014		
4,000.0	3,993.5	3,963.3	3,956.9	9.2	9.3	-170.77	242.7	277.2	554.4	537.0	17.35	31.959		
4,100.0	4,093.3	4,062.3	4,055.7	9.4	9.6	-171.11	249.0	280.1	567.8	550.0	17.80	31.908		
4,200.0	4,193.0	4,161.3	4,154.5	9.7	9.8	-171.43	255.2	283.1	581.3	563.1	18.25	31.860		
4,300.0	4,292.8	4,260.4	4,253.2	10.0	10.1	-171.74	261.4	286.1	594.8	576.1	18.70	31.814		
4,400.0	4,392.5	4,359.4	4,352.0	10.2	10.3	-172.03	267.7	289.0	608.4	589.2	19.15	31.771		
4,500.0	4,492.3	4,458.4	4,450.8	10.5	10.6	-172.31	273.9	292.0	621.9	602.3	19.60	31.731		
4,600.0	4,592.0	4,557.5	4,549.6	10.7	10.8	-172.58	280.2	295.0	635.5	615.4	20.05	31.693		
4,700.0	4,691.8	4,656.5	4,648.4	11.0	11.1	-172.84	286.4	297.9	649.0	628.5	20.50	31.657		
4,800.0	4,791.6	4,755.5	4,747.2	11.3	11.3	-173.09	292.6	300.9	662.6	641.7	20.95	31.623		
4,900.0	4,891.3	4,854.6	4,846.0	11.5	11.6	-173.33	298.9	303.8	676.2	654.8	21.41	31.590		
5,000.0	4,991.1	4,953.6	4,944.8	11.8	11.8	-173.56	305.1	306.8	689.8	667.9	21.86	31.559		
5,100.0	5,090.8	5,052.6	5,043.6	12.0	12.1	-173.78	311.4	309.8	703.4	681.1	22.31	31.530		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0107A - HZ - Plan #2													Offset Site Error: 0.0 ft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,190.6	5,151.7	5,142.4	12.3	12.3	-173.99	317.6	312.7	717.0	694.3	22.76	31.502	SF	
5,300.0	5,290.3	5,250.7	5,241.2	12.6	12.6	-174.19	323.8	315.7	730.7	707.5	23.21	31.476		
5,400.0	5,390.1	5,341.8	5,332.0	12.8	12.8	-174.37	329.6	318.4	744.4	720.7	23.65	31.477		
5,438.0	5,428.0	5,350.0	5,340.2	12.9	12.9	-174.39	330.3	318.8	750.6	726.9	23.75	31.599		
5,450.0	5,440.0	5,350.0	5,340.2	13.0	12.9	-174.37	330.3	318.8	753.1	729.3	23.74	31.718		
5,500.0	5,489.4	5,382.3	5,372.3	13.1	13.0	-174.33	334.0	320.5	766.4	742.7	23.65	32.402		
5,550.0	5,538.0	5,400.0	5,389.7	13.3	13.0	-174.19	336.8	321.8	786.2	762.8	23.33	33.693		
5,600.0	5,585.3	5,418.3	5,407.6	13.6	13.1	-173.98	340.2	323.5	811.7	788.9	22.83	35.556		
5,650.0	5,630.7	5,433.8	5,422.6	13.9	13.1	-173.66	343.6	325.1	842.4	820.3	22.13	38.059		
5,700.0	5,674.0	5,450.0	5,438.2	14.2	13.2	-173.23	347.5	327.0	877.8	856.5	21.27	41.260		
5,750.0	5,714.6	5,450.0	5,438.2	14.6	13.2	-172.34	347.5	327.0	917.1	896.9	20.24	45.308		
5,800.0	5,752.3	5,468.1	5,455.4	15.0	13.3	-171.43	352.5	329.3	959.6	940.5	19.13	50.166		
5,850.0	5,786.7	5,475.4	5,462.4	15.5	13.3	-169.71	354.6	330.3	1,004.8	986.8	17.98	55.888		
5,900.0	5,817.4	5,480.8	5,467.5	16.0	13.3	-166.68	356.3	331.1	1,052.0	1,035.0	17.02	61.810		
5,950.0	5,844.2	5,500.0	5,485.4	16.6	13.4	-161.92	362.5	334.0	1,101.0	1,084.2	16.81	65.499		
6,000.0	5,866.8	5,500.0	5,485.4	17.2	13.4	-145.36	362.5	334.0	1,150.4	1,129.5	20.90	55.035		
6,050.0	5,885.1	5,500.0	5,485.4	17.9	13.4	-75.77	362.5	334.0	1,200.3	1,169.3	31.04	38.673		
6,100.0	5,898.8	5,500.0	5,485.4	18.6	13.4	-26.28	362.5	334.0	1,250.1	1,233.5	16.63	75.174		
6,150.0	5,907.9	5,500.0	5,485.4	19.4	13.4	-14.56	362.5	334.0	1,299.5	1,287.8	11.66	111.404		
6,200.0	5,912.2	5,479.4	5,466.1	20.1	13.3	-9.62	355.8	330.9	1,347.4	1,337.7	9.64	139.805		
6,219.8	5,912.5	5,477.6	5,464.5	20.4	13.3	-8.56	355.3	330.6	1,366.2	1,356.9	9.28	147.264		
6,300.0	5,912.5	5,470.5	5,457.7	21.6	13.3	-15.19	353.2	329.6	1,441.9	1,429.8	12.10	119.145		
6,400.0	5,912.5	5,450.0	5,438.2	23.0	13.2	-22.62	347.5	327.0	1,536.6	1,520.6	16.03	95.843		
6,500.0	5,912.5	5,450.0	5,438.2	24.5	13.2	-30.18	347.5	327.0	1,630.8	1,610.2	20.64	79.014		
6,600.0	5,912.5	5,450.0	5,438.2	26.0	13.2	-37.07	347.5	327.0	1,724.9	1,699.8	25.09	68.761		
6,700.0	5,912.5	5,450.0	5,438.2	27.6	13.2	-43.19	347.5	327.0	1,818.5	1,789.4	29.11	62.479		
6,800.0	5,912.5	5,450.0	5,438.2	29.1	13.2	-48.50	347.5	327.0	1,911.6	1,879.0	32.63	58.590		
6,900.0	5,912.5	5,450.0	5,438.2	30.7	13.2	-53.06	347.5	327.0	2,003.9	1,968.3	35.65	56.205		
7,000.0	5,912.5	5,425.6	5,414.6	32.2	13.1	-55.61	341.8	324.2	2,094.7	2,057.1	37.59	55.725		
7,100.0	5,912.5	5,421.1	5,410.3	33.7	13.1	-58.76	340.8	323.8	2,184.8	2,145.1	39.73	54.994		
7,200.0	5,912.5	5,400.0	5,389.7	35.3	13.0	-60.67	336.8	321.8	2,274.2	2,233.1	41.18	55.222		
7,300.0	5,912.5	5,400.0	5,389.7	36.8	13.0	-63.24	336.8	321.8	2,361.9	2,319.1	42.84	55.137		
7,384.9	5,912.5	5,400.0	5,389.7	38.0	13.0	-65.15	336.8	321.8	2,435.4	2,391.4	44.03	55.314		
7,400.0	5,912.5	5,400.0	5,389.7	38.3	13.0	-65.15	336.8	321.8	2,448.4	2,404.1	44.25	55.337		
7,500.0	5,912.5	5,400.0	5,389.7	39.8	13.0	-65.15	336.8	321.8	2,535.0	2,489.3	45.69	55.485		
7,600.0	5,912.5	5,400.0	5,389.7	41.3	13.0	-65.15	336.8	321.8	2,622.6	2,575.4	47.16	55.615		
7,700.0	5,912.5	5,400.0	5,389.7	42.9	13.0	-65.15	336.8	321.8	2,711.0	2,662.4	48.64	55.732		
7,800.0	5,912.5	5,400.0	5,389.7	44.5	13.0	-65.15	336.8	321.8	2,800.2	2,750.1	50.15	55.836		
7,900.0	5,912.5	5,400.0	5,389.7	46.1	13.0	-65.15	336.8	321.8	2,890.2	2,838.5	51.67	55.931		
8,000.0	5,912.5	5,400.0	5,389.7	47.8	13.0	-65.15	336.8	321.8	2,980.7	2,927.5	53.21	56.018		
8,100.0	5,912.4	5,400.0	5,389.7	49.4	13.0	-65.15	336.8	321.8	3,071.9	3,017.1	54.76	56.097		
8,200.0	5,912.4	5,400.0	5,389.7	51.1	13.0	-65.15	336.8	321.8	3,163.6	3,107.2	56.36	56.136		
8,300.0	5,912.4	5,400.0	5,389.7	52.8	13.0	-65.15	336.8	321.8	3,255.7	3,197.7	58.00	56.133		
8,400.0	5,912.4	5,400.0	5,389.7	54.5	13.0	-65.15	336.8	321.8	3,348.4	3,288.7	59.65	56.130		
8,500.0	5,912.4	5,400.0	5,389.7	56.2	13.0	-65.15	336.8	321.8	3,441.4	3,380.1	61.32	56.126		
8,600.0	5,912.4	5,400.0	5,389.7	58.0	13.0	-65.15	336.8	321.8	3,534.8	3,471.8	62.98	56.122		
8,700.0	5,912.4	5,400.0	5,389.7	59.7	13.0	-65.15	336.8	321.8	3,628.6	3,563.9	64.66	56.117		
8,800.0	5,912.4	5,376.9	5,366.9	61.5	12.9	-64.18	333.2	320.2	3,722.1	3,656.3	65.82	56.552		
8,900.0	5,912.4	5,375.3	5,365.3	63.3	12.9	-64.11	333.0	320.1	3,816.4	3,748.9	67.46	56.577		
9,000.0	5,912.4	5,373.8	5,363.8	65.0	12.9	-64.04	332.8	320.0	3,911.0	3,841.9	69.10	56.600		
9,100.0	5,912.4	5,372.3	5,362.3	66.8	12.9	-63.98	332.6	319.9	4,005.8	3,935.1	70.75	56.622		
9,200.0	5,912.4	5,350.0	5,340.2	68.6	12.9	-63.06	330.3	318.8	4,101.4	4,029.5	71.88	57.061		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0107A - HZ - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
9,300.0	5,912.4	5,350.0	5,340.2	70.4	12.9	-63.06	330.3	318.8	4,196.6	4,123.1	73.56	57.052		
9,400.0	5,912.4	5,350.0	5,340.2	72.2	12.9	-63.06	330.3	318.8	4,292.1	4,216.9	75.24	57.044		
9,500.0	5,912.3	5,350.0	5,340.2	74.0	12.9	-63.06	330.3	318.8	4,387.8	4,310.8	76.93	57.036		
9,600.0	5,912.3	5,350.0	5,340.2	75.9	12.9	-63.06	330.3	318.8	4,483.6	4,405.0	78.62	57.029		
9,700.0	5,912.3	5,350.0	5,340.2	77.7	12.9	-63.06	330.3	318.8	4,579.7	4,499.3	80.31	57.023		
9,800.0	5,912.3	5,350.0	5,340.2	79.5	12.9	-63.06	330.3	318.8	4,675.9	4,593.8	82.01	57.017		
9,900.0	5,912.3	5,350.0	5,340.2	81.3	12.9	-63.06	330.3	318.8	4,772.2	4,688.5	83.71	57.011		
10,000.0	5,912.3	5,350.0	5,340.2	83.2	12.9	-63.06	330.3	318.8	4,868.7	4,783.3	85.41	57.006		
10,100.0	5,912.3	5,350.0	5,340.2	85.0	12.9	-63.06	330.3	318.8	4,965.4	4,878.2	87.11	57.002		
10,200.0	5,912.3	5,350.0	5,340.2	86.9	12.9	-63.06	330.3	318.8	5,062.1	4,973.3	88.81	56.998		
10,300.0	5,912.3	5,350.0	5,340.2	88.7	12.9	-63.06	330.3	318.8	5,159.0	5,068.5	90.52	56.994		
10,400.0	5,912.3	5,350.0	5,340.2	90.6	12.9	-63.06	330.3	318.8	5,256.0	5,163.8	92.23	56.990		
10,500.0	5,912.3	5,350.0	5,340.2	92.4	12.9	-63.06	330.3	318.8	5,353.2	5,259.2	93.94	56.987		
10,600.0	5,912.3	5,350.0	5,340.2	94.3	12.9	-63.06	330.3	318.8	5,450.4	5,354.7	95.65	56.984		
10,700.0	5,912.3	5,350.0	5,340.2	96.1	12.9	-63.06	330.3	318.8	5,547.7	5,450.3	97.36	56.982		
10,800.0	5,912.2	5,350.0	5,340.2	98.0	12.9	-63.06	330.3	318.8	5,645.1	5,546.1	99.07	56.980		
10,900.0	5,912.2	5,350.0	5,340.2	99.9	12.9	-63.06	330.3	318.8	5,742.6	5,641.8	100.79	56.978		
11,000.0	5,912.2	5,350.0	5,340.2	101.7	12.9	-63.06	330.3	318.8	5,840.2	5,737.7	102.50	56.976		
11,100.0	5,912.2	5,350.0	5,340.2	103.6	12.9	-63.06	330.3	318.8	5,937.9	5,833.7	104.22	56.974		
11,200.0	5,912.2	5,350.0	5,340.2	105.5	12.9	-63.06	330.3	318.8	6,035.6	5,929.7	105.94	56.973		
11,300.0	5,912.2	5,350.0	5,340.2	107.3	12.9	-63.06	330.3	318.8	6,133.5	6,025.8	107.66	56.972		
11,400.0	5,912.2	5,350.0	5,340.2	109.2	12.9	-63.06	330.3	318.8	6,231.4	6,122.0	109.38	56.971		
11,500.0	5,912.2	5,350.0	5,340.2	111.1	12.9	-63.06	330.3	318.8	6,329.3	6,218.2	111.10	56.970		
11,600.0	5,912.2	5,350.0	5,340.2	113.0	12.9	-63.06	330.3	318.8	6,427.3	6,314.5	112.82	56.969		
11,700.0	5,912.2	5,350.0	5,340.2	114.8	12.9	-63.06	330.3	318.8	6,525.4	6,410.9	114.54	56.969		
11,800.0	5,912.2	5,350.0	5,340.2	116.7	12.9	-63.06	330.3	318.8	6,623.5	6,507.3	116.27	56.969		
11,900.0	5,912.2	5,350.0	5,340.2	118.6	12.9	-63.06	330.3	318.8	6,721.7	6,603.7	117.99	56.968		
12,000.0	5,912.2	5,350.0	5,340.2	120.5	12.9	-63.06	330.3	318.8	6,820.0	6,700.3	119.72	56.968		
12,100.0	5,912.1	5,350.0	5,340.2	122.4	12.9	-63.06	330.3	318.8	6,918.3	6,796.8	121.44	56.968		
12,200.0	5,912.1	5,350.0	5,340.2	124.3	12.9	-63.06	330.3	318.8	7,016.6	6,893.4	123.17	56.968		
12,300.0	5,912.1	5,350.0	5,340.2	126.1	12.9	-63.06	330.3	318.8	7,115.0	6,990.1	124.89	56.969		
12,400.0	5,912.1	5,343.2	5,333.5	128.0	12.8	-62.78	329.7	318.5	7,213.4	7,087.0	126.34	57.094		
12,500.0	5,912.1	5,342.7	5,332.9	129.9	12.8	-62.76	329.7	318.5	7,311.9	7,183.8	128.04	57.104		
12,600.0	5,912.1	5,336.0	5,326.3	131.8	12.8	-62.49	329.2	318.3	7,410.4	7,280.9	129.49	57.229		
12,700.0	5,912.1	5,336.0	5,326.3	133.7	12.8	-62.49	329.2	318.3	7,508.9	7,377.7	131.21	57.230		
12,800.0	5,912.1	5,336.0	5,326.3	135.6	12.8	-62.49	329.2	318.3	7,607.5	7,474.6	132.93	57.230		
12,900.0	5,912.1	5,336.0	5,326.3	137.5	12.8	-62.49	329.2	318.3	7,706.1	7,571.5	134.65	57.230		
13,000.0	5,912.1	5,336.0	5,326.3	139.4	12.8	-62.49	329.2	318.3	7,804.8	7,668.4	136.37	57.230		
13,100.0	5,912.1	5,336.0	5,326.3	141.3	12.8	-62.49	329.2	318.3	7,903.5	7,765.4	138.10	57.231		
13,200.0	5,912.1	5,336.0	5,326.3	143.2	12.8	-62.49	329.2	318.3	8,002.2	7,862.4	139.82	57.231		
13,300.0	5,912.1	5,336.0	5,326.3	145.1	12.8	-62.49	329.2	318.3	8,100.9	7,959.4	141.55	57.232		
13,400.0	5,912.0	5,336.0	5,326.3	146.9	12.8	-62.49	329.2	318.3	8,199.7	8,056.5	143.27	57.232		
13,500.0	5,912.0	5,336.0	5,326.3	148.8	12.8	-62.49	329.2	318.3	8,298.5	8,153.5	145.00	57.233		
13,600.0	5,912.0	5,336.0	5,326.3	150.7	12.8	-62.49	329.2	318.3	8,397.4	8,250.6	146.72	57.234		
13,700.0	5,912.0	5,336.0	5,326.3	152.6	12.8	-62.49	329.2	318.3	8,496.2	8,347.8	148.45	57.234		
13,800.0	5,912.0	5,336.0	5,326.3	154.5	12.8	-62.49	329.2	318.3	8,595.1	8,445.0	150.17	57.235		
13,872.5	5,912.0	5,336.0	5,326.3	155.7	12.8	-62.49	329.2	318.3	8,666.9	8,515.7	151.19	57.325		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0108B - HZ - Plan #2													Offset Site Error: 0.0 ft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre		Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
							+N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	90.01	0.0	164.4	164.4					
100.0	100.0	100.0	100.0	0.1	0.1	90.01	0.0	164.4	164.4	164.3	0.19	879.383		
200.0	200.0	200.0	200.0	0.3	0.3	90.01	0.0	164.4	164.4	163.8	0.64	258.350		
300.0	300.0	300.0	300.0	0.5	0.5	90.01	0.0	164.4	164.4	163.4	1.09	151.417		
400.0	400.0	400.0	400.0	0.8	0.8	90.01	0.0	164.4	164.4	162.9	1.54	107.091		
500.0	500.0	500.0	500.0	1.0	1.0	90.01	0.0	164.4	164.4	162.5	1.99	82.840		
600.0	600.0	600.0	600.0	1.2	1.2	90.01	0.0	164.4	164.4	162.0	2.43	67.545		
700.0	700.0	700.0	700.0	1.4	1.4	90.01	0.0	164.4	164.4	161.6	2.88	57.017		
800.0	800.0	800.0	800.0	1.7	1.7	90.01	0.0	164.4	164.4	161.1	3.33	49.329 CC, ES		
900.0	900.0	896.6	896.6	1.9	1.9	89.56	1.3	165.4	165.5	161.7	3.77	43.849		
1,000.0	1,000.0	993.0	992.9	2.1	2.1	88.25	5.2	168.4	168.6	164.4	4.22	39.999		
1,100.0	1,100.0	1,092.5	1,092.1	2.3	2.3	86.46	10.7	172.6	173.1	168.4	4.66	37.103		
1,200.0	1,200.0	1,192.3	1,191.6	2.6	2.6	84.75	16.2	176.8	177.7	172.6	5.11	34.751		
1,300.0	1,300.0	1,291.9	1,291.0	2.8	2.8	-132.13	21.8	181.0	183.6	178.1	5.54	33.172		
1,400.0	1,399.8	1,391.1	1,390.0	2.9	3.0	-134.63	27.3	185.1	192.2	186.3	5.94	32.368		
1,500.0	1,499.6	1,490.2	1,488.8	3.1	3.3	-137.37	32.8	189.3	202.5	196.1	6.35	31.882		
1,600.0	1,599.4	1,589.2	1,587.6	3.3	3.5	-139.84	38.3	193.5	213.1	206.4	6.77	31.483		
1,700.0	1,699.1	1,688.2	1,686.4	3.5	3.8	-142.08	43.8	197.6	224.2	217.0	7.19	31.156		
1,800.0	1,798.9	1,787.2	1,785.2	3.8	4.0	-144.10	49.3	201.8	235.5	227.9	7.62	30.889		
1,900.0	1,898.6	1,886.3	1,883.9	4.0	4.3	-145.94	54.8	206.0	247.1	239.0	8.06	30.672		
2,000.0	1,998.4	1,985.3	1,982.7	4.2	4.5	-147.61	60.3	210.1	258.9	250.4	8.49	30.494		
2,100.0	2,098.1	2,084.3	2,081.5	4.4	4.7	-149.14	65.8	214.3	270.9	262.0	8.93	30.349		
2,200.0	2,197.9	2,183.3	2,180.3	4.7	5.0	-150.53	71.3	218.5	283.1	273.7	9.36	30.231		
2,300.0	2,297.6	2,282.4	2,279.1	4.9	5.2	-151.81	76.9	222.7	295.4	285.6	9.80	30.134		
2,400.0	2,397.4	2,381.4	2,377.9	5.2	5.5	-152.99	82.4	226.8	307.9	297.7	10.24	30.055		
2,500.0	2,497.2	2,480.4	2,476.7	5.4	5.7	-154.07	87.9	231.0	320.5	309.8	10.69	29.991		
2,600.0	2,596.9	2,579.5	2,575.4	5.6	6.0	-155.08	93.4	235.2	333.2	322.1	11.13	29.938		
2,700.0	2,696.7	2,678.5	2,674.2	5.9	6.3	-156.01	98.9	239.3	346.0	334.4	11.57	29.896		
2,800.0	2,796.4	2,777.5	2,773.0	6.1	6.5	-156.87	104.4	243.5	358.9	346.9	12.02	29.862		
2,900.0	2,896.2	2,876.5	2,871.8	6.4	6.8	-157.67	109.9	247.7	371.8	359.4	12.46	29.835		
3,000.0	2,995.9	2,975.6	2,970.6	6.6	7.0	-158.42	115.4	251.8	384.8	371.9	12.91	29.813		
3,100.0	3,095.7	3,074.6	3,069.4	6.9	7.3	-159.12	120.9	256.0	397.9	384.6	13.35	29.797		
3,200.0	3,195.5	3,173.6	3,168.2	7.1	7.5	-159.78	126.4	260.2	411.1	397.3	13.80	29.784		
3,300.0	3,295.2	3,272.6	3,266.9	7.4	7.8	-160.39	131.9	264.4	424.2	410.0	14.25	29.775		
3,400.0	3,395.0	3,371.7	3,365.7	7.7	8.0	-160.97	137.4	268.5	437.5	422.8	14.70	29.768		
3,500.0	3,494.7	3,470.7	3,464.5	7.9	8.3	-161.52	142.9	272.7	450.7	435.6	15.14	29.764		
3,600.0	3,594.5	3,569.7	3,563.3	8.2	8.5	-162.03	148.5	276.9	464.1	448.5	15.59	29.761		
3,700.0	3,694.2	3,668.8	3,662.1	8.4	8.8	-162.51	154.0	281.0	477.4	461.4	16.04	29.761 SF		
3,800.0	3,794.0	3,767.8	3,760.9	8.7	9.0	-162.97	159.5	285.2	490.8	474.3	16.49	29.761		
3,900.0	3,893.7	3,866.8	3,859.7	8.9	9.3	-163.41	165.0	289.4	504.2	487.2	16.94	29.763		
4,000.0	3,993.5	3,965.8	3,958.4	9.2	9.5	-163.82	170.5	293.5	517.6	500.2	17.39	29.766		
4,100.0	4,093.3	4,064.9	4,057.2	9.4	9.8	-164.21	176.0	297.7	531.1	513.2	17.84	29.770		
4,200.0	4,193.0	4,163.9	4,156.0	9.7	10.0	-164.58	181.5	301.9	544.5	526.3	18.29	29.774		
4,300.0	4,292.8	4,262.9	4,254.8	10.0	10.3	-164.93	187.0	306.1	558.0	539.3	18.74	29.779		
4,400.0	4,392.5	4,361.9	4,353.6	10.2	10.5	-165.27	192.5	310.2	571.6	552.4	19.19	29.784		
4,500.0	4,492.3	4,461.0	4,452.4	10.5	10.8	-165.59	198.0	314.4	585.1	565.5	19.64	29.790		
4,600.0	4,592.0	4,560.0	4,551.2	10.7	11.1	-165.90	203.5	318.6	598.7	578.6	20.09	29.796		
4,700.0	4,691.8	4,659.0	4,650.0	11.0	11.3	-166.19	209.0	322.7	612.2	591.7	20.54	29.802		
4,800.0	4,791.6	4,758.1	4,748.7	11.3	11.6	-166.47	214.5	326.9	625.8	604.8	20.99	29.808		
4,900.0	4,891.3	4,857.1	4,847.5	11.5	11.8	-166.74	220.0	331.1	639.4	618.0	21.45	29.815		
5,000.0	4,991.1	4,956.1	4,946.3	11.8	12.1	-167.00	225.6	335.2	653.0	631.1	21.90	29.822		
5,100.0	5,090.8	5,055.1	5,045.1	12.0	12.3	-167.24	231.1	339.4	666.7	644.3	22.35	29.829		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0108B - HZ - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning	
5,200.0	5,190.6	5,154.2	5,143.9	12.3	12.6	-167.48	236.6	343.6	680.3	657.5	22.80	29.836		
5,300.0	5,290.3	5,253.2	5,242.7	12.6	12.8	-167.71	242.1	347.7	693.9	670.7	23.25	29.842		
5,400.0	5,390.1	5,352.2	5,341.5	12.8	13.1	-167.93	247.6	351.9	707.6	683.9	23.71	29.849		
5,438.0	5,428.0	5,389.9	5,379.0	12.9	13.2	-168.01	249.7	353.5	712.8	688.9	23.88	29.852		
5,450.0	5,440.0	5,401.7	5,390.8	13.0	13.2	-167.99	250.3	354.0	714.6	690.7	23.89	29.908		
5,500.0	5,489.4	5,443.3	5,432.3	13.1	13.3	-167.89	252.7	355.8	724.9	701.1	23.82	30.433		
5,550.0	5,538.0	5,450.0	5,439.0	13.3	13.3	-167.51	253.1	356.1	741.3	717.8	23.49	31.561		
5,600.0	5,585.3	5,481.5	5,470.2	13.6	13.4	-167.14	256.2	358.4	763.2	740.2	23.04	33.127		
5,650.0	5,630.7	5,500.0	5,488.5	13.9	13.5	-166.51	258.7	360.4	790.9	768.5	22.40	35.304		
5,700.0	5,674.0	5,500.0	5,488.5	14.2	13.5	-165.34	258.7	360.4	823.8	802.2	21.61	38.118		
5,750.0	5,714.6	5,525.7	5,513.6	14.6	13.6	-164.22	263.1	363.6	860.4	839.7	20.77	41.419		
5,800.0	5,752.3	5,550.0	5,537.1	15.0	13.7	-162.68	268.1	367.4	901.3	881.4	19.91	45.271		
5,850.0	5,786.7	5,550.0	5,537.1	15.5	13.7	-159.59	268.1	367.4	944.6	925.3	19.24	49.095		
5,900.0	5,817.4	5,550.0	5,537.1	16.0	13.7	-154.65	268.1	367.4	990.4	971.2	19.19	51.613		
5,950.0	5,844.2	5,550.0	5,537.1	16.6	13.7	-145.98	268.1	367.4	1,038.1	1,017.3	20.82	49.853		
6,000.0	5,866.8	5,550.0	5,537.1	17.2	13.7	-128.89	268.1	367.4	1,086.9	1,061.2	25.72	42.252		
6,050.0	5,885.1	5,550.0	5,537.1	17.9	13.7	-95.24	268.1	367.4	1,136.4	1,104.3	32.08	35.428		
6,100.0	5,898.8	5,550.0	5,537.1	18.6	13.7	-56.71	268.1	367.4	1,185.9	1,157.9	28.02	42.325		
6,150.0	5,907.9	5,550.0	5,537.1	19.4	13.7	-34.94	268.1	367.4	1,235.1	1,214.7	20.44	60.421		
6,200.0	5,912.2	5,550.0	5,537.1	20.1	13.7	-24.20	268.1	367.4	1,283.6	1,267.9	15.70	81.774		
6,219.8	5,912.5	5,550.0	5,537.1	20.4	13.7	-21.46	268.1	367.4	1,302.5	1,288.0	14.53	89.619		
6,300.0	5,912.5	5,550.0	5,537.1	21.6	13.7	-28.17	268.1	367.4	1,378.8	1,360.4	18.33	75.204		
6,400.0	5,912.5	5,550.0	5,537.1	23.0	13.7	-35.93	268.1	367.4	1,473.8	1,450.8	23.02	64.032		
6,500.0	5,912.5	5,550.0	5,537.1	24.5	13.7	-42.79	268.1	367.4	1,568.6	1,541.3	27.29	57.488		
6,600.0	5,912.5	5,527.4	5,515.3	26.0	13.6	-46.99	263.4	363.9	1,662.2	1,632.0	30.19	55.056		
6,700.0	5,912.5	5,522.1	5,510.1	27.6	13.6	-51.67	262.4	363.1	1,755.5	1,722.2	33.30	52.724		
6,800.0	5,912.5	5,500.0	5,488.5	29.1	13.5	-54.51	258.7	360.4	1,848.3	1,812.9	35.46	52.125		
6,900.0	5,912.5	5,500.0	5,488.5	30.7	13.5	-58.25	258.7	360.4	1,939.8	1,901.8	37.96	51.094		
7,000.0	5,912.5	5,500.0	5,488.5	32.2	13.5	-61.45	258.7	360.4	2,030.2	1,990.1	40.11	50.614		
7,100.0	5,912.5	5,500.0	5,488.5	33.7	13.5	-64.18	258.7	360.4	2,119.6	2,077.7	41.95	50.531		
7,200.0	5,912.5	5,500.0	5,488.5	35.3	13.5	-66.52	258.7	360.4	2,207.8	2,164.3	43.51	50.745		
7,300.0	5,912.5	5,500.0	5,488.5	36.8	13.5	-68.54	258.7	360.4	2,294.8	2,250.0	44.83	51.190		
7,384.9	5,912.5	5,500.0	5,488.5	38.0	13.5	-70.04	258.7	360.4	2,367.6	2,321.8	45.78	51.717		
7,400.0	5,912.5	5,500.0	5,488.5	38.3	13.5	-70.04	258.7	360.4	2,380.4	2,334.4	46.00	51.746		
7,500.0	5,912.5	5,500.0	5,488.5	39.8	13.5	-70.04	258.7	360.4	2,466.3	2,418.8	47.49	51.937		
7,600.0	5,912.5	5,500.0	5,488.5	41.3	13.5	-70.04	258.7	360.4	2,553.1	2,504.2	48.99	52.111		
7,700.0	5,912.5	5,500.0	5,488.5	42.9	13.5	-70.04	258.7	360.4	2,641.0	2,590.4	50.52	52.271		
7,800.0	5,912.5	5,500.0	5,488.5	44.5	13.5	-70.04	258.7	360.4	2,729.6	2,677.5	52.07	52.418		
7,900.0	5,912.5	5,500.0	5,488.5	46.1	13.5	-70.04	258.7	360.4	2,819.0	2,765.4	53.64	52.555		
8,000.0	5,912.5	5,500.0	5,488.5	47.8	13.5	-70.04	258.7	360.4	2,909.1	2,853.9	55.22	52.682		
8,100.0	5,912.4	5,500.0	5,488.5	49.4	13.5	-70.04	258.7	360.4	2,999.8	2,943.0	56.81	52.801		
8,200.0	5,912.4	5,500.0	5,488.5	51.1	13.5	-70.04	258.7	360.4	3,091.1	3,032.7	58.42	52.913		
8,300.0	5,912.4	5,477.6	5,466.4	52.8	13.4	-69.05	255.8	358.1	3,182.4	3,122.7	59.70	53.306		
8,400.0	5,912.4	5,475.9	5,464.8	54.5	13.4	-68.98	255.6	358.0	3,274.6	3,213.3	61.36	53.365		
8,500.0	5,912.4	5,474.4	5,463.2	56.2	13.4	-68.91	255.4	357.8	3,367.3	3,304.2	63.03	53.421		
8,600.0	5,912.4	5,472.9	5,461.7	58.0	13.4	-68.84	255.2	357.7	3,460.3	3,395.6	64.71	53.474		
8,700.0	5,912.4	5,450.0	5,439.0	59.7	13.3	-67.85	253.1	356.1	3,554.3	3,488.3	65.96	53.882		
8,800.0	5,912.4	5,450.0	5,439.0	61.5	13.3	-67.85	253.1	356.1	3,648.0	3,580.3	67.67	53.905		
8,900.0	5,912.4	5,450.0	5,439.0	63.3	13.3	-67.85	253.1	356.1	3,742.0	3,672.6	69.39	53.927		
9,000.0	5,912.4	5,450.0	5,439.0	65.0	13.3	-67.85	253.1	356.1	3,836.3	3,765.2	71.11	53.949		
9,100.0	5,912.4	5,450.0	5,439.0	66.8	13.3	-67.85	253.1	356.1	3,931.0	3,858.1	72.84	53.970		
9,200.0	5,912.4	5,450.0	5,439.0	68.6	13.3	-67.85	253.1	356.1	4,025.9	3,951.3	74.57	53.990		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0108B - HZ - Plan #2													Offset Site Error: 0.0 ft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
9,300.0	5,912.4	5,450.0	5,439.0	70.4	13.3	-67.85	253.1	356.1	4,121.0	4,044.7	76.30	54.010		
9,400.0	5,912.4	5,450.0	5,439.0	72.2	13.3	-67.85	253.1	356.1	4,216.3	4,138.3	78.04	54.029		
9,500.0	5,912.3	5,450.0	5,439.0	74.0	13.3	-67.85	253.1	356.1	4,311.9	4,232.1	79.78	54.048		
9,600.0	5,912.3	5,450.0	5,439.0	75.9	13.3	-67.85	253.1	356.1	4,407.6	4,326.1	81.52	54.067		
9,700.0	5,912.3	5,450.0	5,439.0	77.7	13.3	-67.85	253.1	356.1	4,503.6	4,420.3	83.27	54.085		
9,800.0	5,912.3	5,450.0	5,439.0	79.5	13.3	-67.85	253.1	356.1	4,599.7	4,514.7	85.02	54.102		
9,900.0	5,912.3	5,450.0	5,439.0	81.3	13.3	-67.85	253.1	356.1	4,696.0	4,609.2	86.77	54.119		
10,000.0	5,912.3	5,450.0	5,439.0	83.2	13.3	-67.85	253.1	356.1	4,792.4	4,703.9	88.53	54.136		
10,100.0	5,912.3	5,450.0	5,439.0	85.0	13.3	-67.85	253.1	356.1	4,889.0	4,798.7	90.28	54.153		
10,200.0	5,912.3	5,450.0	5,439.0	86.9	13.3	-67.85	253.1	356.1	4,985.7	4,893.6	92.04	54.169		
10,300.0	5,912.3	5,450.0	5,439.0	88.7	13.3	-67.85	253.1	356.1	5,082.5	4,988.7	93.80	54.184		
10,400.0	5,912.3	5,450.0	5,439.0	90.6	13.3	-67.85	253.1	356.1	5,179.5	5,083.9	95.56	54.200		
10,500.0	5,912.3	5,450.0	5,439.0	92.4	13.3	-67.85	253.1	356.1	5,276.5	5,179.2	97.33	54.215		
10,600.0	5,912.3	5,450.0	5,439.0	94.3	13.3	-67.85	253.1	356.1	5,373.7	5,274.6	99.09	54.230		
10,700.0	5,912.3	5,450.0	5,439.0	96.1	13.3	-67.85	253.1	356.1	5,471.0	5,370.1	100.86	54.244		
10,800.0	5,912.2	5,450.0	5,439.0	98.0	13.3	-67.85	253.1	356.1	5,568.4	5,465.7	102.63	54.259		
10,900.0	5,912.2	5,450.0	5,439.0	99.9	13.3	-67.85	253.1	356.1	5,665.8	5,561.4	104.40	54.273		
11,000.0	5,912.2	5,450.0	5,439.0	101.7	13.3	-67.85	253.1	356.1	5,763.4	5,657.2	106.17	54.286		
11,100.0	5,912.2	5,450.0	5,439.0	103.6	13.3	-67.85	253.1	356.1	5,861.0	5,753.1	107.94	54.300		
11,200.0	5,912.2	5,450.0	5,439.0	105.5	13.3	-67.85	253.1	356.1	5,958.7	5,849.0	109.71	54.313		
11,300.0	5,912.2	5,450.0	5,439.0	107.3	13.3	-67.85	253.1	356.1	6,056.5	5,945.0	111.49	54.326		
11,400.0	5,912.2	5,450.0	5,439.0	109.2	13.3	-67.85	253.1	356.1	6,154.4	6,041.1	113.26	54.338		
11,500.0	5,912.2	5,450.0	5,439.0	111.1	13.3	-67.85	253.1	356.1	6,252.3	6,137.3	115.04	54.351		
11,600.0	5,912.2	5,450.0	5,439.0	113.0	13.3	-67.85	253.1	356.1	6,350.3	6,233.5	116.81	54.363		
11,700.0	5,912.2	5,450.0	5,439.0	114.8	13.3	-67.85	253.1	356.1	6,448.4	6,329.8	118.59	54.375		
11,800.0	5,912.2	5,444.4	5,433.4	116.7	13.3	-67.61	252.7	355.8	6,546.4	6,426.3	120.18	54.473		
11,900.0	5,912.2	5,443.8	5,432.9	118.6	13.3	-67.59	252.7	355.8	6,644.6	6,522.7	121.94	54.492		
12,000.0	5,912.2	5,438.0	5,427.0	120.5	13.3	-67.34	252.4	355.5	6,742.9	6,619.3	123.51	54.593		
12,100.0	5,912.1	5,438.0	5,427.0	122.4	13.3	-67.34	252.4	355.5	6,841.1	6,715.8	125.29	54.604		
12,200.0	5,912.1	5,438.0	5,427.0	124.3	13.3	-67.34	252.4	355.5	6,939.4	6,812.4	127.06	54.614		
12,300.0	5,912.1	5,438.0	5,427.0	126.1	13.3	-67.34	252.4	355.5	7,037.8	6,909.0	128.84	54.625		
12,400.0	5,912.1	5,438.0	5,427.0	128.0	13.3	-67.34	252.4	355.5	7,136.2	7,005.6	130.62	54.635		
12,500.0	5,912.1	5,438.0	5,427.0	129.9	13.3	-67.34	252.4	355.5	7,234.6	7,102.3	132.39	54.645		
12,600.0	5,912.1	5,438.0	5,427.0	131.8	13.3	-67.34	252.4	355.5	7,333.1	7,199.0	134.17	54.655		
12,700.0	5,912.1	5,438.0	5,427.0	133.7	13.3	-67.34	252.4	355.5	7,431.7	7,295.7	135.95	54.665		
12,800.0	5,912.1	5,438.0	5,427.0	135.6	13.3	-67.34	252.4	355.5	7,530.2	7,392.5	137.73	54.674		
12,900.0	5,912.1	5,438.0	5,427.0	137.5	13.3	-67.34	252.4	355.5	7,628.8	7,489.3	139.51	54.684		
13,000.0	5,912.1	5,438.0	5,427.0	139.4	13.3	-67.34	252.4	355.5	7,727.5	7,586.2	141.29	54.693		
13,100.0	5,912.1	5,438.0	5,427.0	141.3	13.3	-67.34	252.4	355.5	7,826.2	7,683.1	143.07	54.702		
13,200.0	5,912.1	5,437.8	5,426.8	143.2	13.3	-67.33	252.3	355.5	7,924.9	7,780.0	144.84	54.715		
13,300.0	5,912.1	5,432.2	5,421.2	145.1	13.3	-67.09	252.0	355.3	8,023.6	7,877.2	146.39	54.809		
13,400.0	5,912.0	5,426.6	5,415.7	146.9	13.3	-66.85	251.7	355.1	8,122.4	7,974.4	147.94	54.903		
13,500.0	5,912.0	5,421.1	5,410.1	148.8	13.3	-66.62	251.4	354.8	8,221.2	8,071.7	149.48	54.998		
13,600.0	5,912.0	5,415.5	5,404.6	150.7	13.2	-66.38	251.1	354.6	8,320.0	8,169.0	151.01	55.094		
13,700.0	5,912.0	5,409.9	5,399.0	152.6	13.2	-66.15	250.8	354.3	8,418.8	8,266.3	152.54	55.190		
13,800.0	5,912.0	5,404.3	5,393.5	154.5	13.2	-65.92	250.5	354.1	8,517.7	8,363.6	154.07	55.286		
13,872.5	5,912.0	5,400.3	5,389.4	155.7	13.2	-65.75	250.3	353.9	8,589.4	8,434.5	154.93	55.442		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1301A - HZ - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	-23.81	74.9	-33.0	81.8					
100.0	100.0	100.0	100.0	0.1	0.1	-23.81	74.9	-33.0	81.8	81.7	0.19	437.651		
200.0	200.0	200.0	200.0	0.3	0.3	-23.81	74.9	-33.0	81.8	81.2	0.64	128.579		
300.0	300.0	300.0	300.0	0.5	0.5	-23.81	74.9	-33.0	81.8	80.8	1.09	75.359		
400.0	400.0	400.0	400.0	0.8	0.8	-23.81	74.9	-33.0	81.8	80.3	1.54	53.298		
500.0	500.0	500.0	500.0	1.0	1.0	-23.81	74.9	-33.0	81.8	79.9	1.99	41.229		
600.0	600.0	600.0	600.0	1.2	1.2	-23.81	74.9	-33.0	81.8	79.4	2.43	33.616		
700.0	700.0	700.0	700.0	1.4	1.4	-23.81	74.9	-33.0	81.8	79.0	2.88	28.377		
800.0	800.0	800.0	800.0	1.7	1.7	-23.81	74.9	-33.0	81.8	78.5	3.33	24.550		
900.0	900.0	900.0	900.0	1.9	1.9	-23.81	74.9	-33.0	81.8	78.1	3.78	21.633		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-23.81	74.9	-33.0	81.8	77.6	4.23	19.336		
1,100.0	1,100.0	1,101.0	1,101.0	2.3	2.3	-24.98	73.6	-34.3	81.2	76.5	4.66	17.425		
1,200.0	1,200.0	1,201.8	1,201.7	2.6	2.5	-28.56	69.8	-38.0	79.5	74.4	5.07	15.671		
1,300.0	1,300.0	1,301.7	1,301.3	2.8	2.7	112.78	64.8	-42.8	78.3	72.8	5.47	14.311		
1,320.3	1,320.3	1,322.0	1,321.5	2.8	2.7	112.30	63.7	-43.8	78.3	72.7	5.55	14.104 CC		
1,400.0	1,399.8	1,401.7	1,401.0	2.9	2.9	111.35	59.8	-47.7	78.7	72.9	5.86	13.431		
1,500.0	1,499.6	1,501.6	1,500.7	3.1	3.1	111.12	54.7	-52.5	79.8	73.5	6.27	12.725		
1,600.0	1,599.4	1,601.6	1,600.5	3.3	3.4	110.89	49.7	-57.4	80.8	74.1	6.69	12.078		
1,700.0	1,699.1	1,701.6	1,700.2	3.5	3.6	110.68	44.7	-62.2	81.9	74.8	7.13	11.486		
1,800.0	1,798.9	1,801.6	1,800.0	3.8	3.8	110.46	39.7	-67.1	83.0	75.4	7.58	10.948		
1,900.0	1,898.6	1,901.6	1,899.7	4.0	4.1	110.26	34.7	-71.9	84.0	76.0	8.04	10.457		
2,000.0	1,998.4	2,001.6	1,999.5	4.2	4.3	110.05	29.7	-76.8	85.1	76.6	8.50	10.011		
2,100.0	2,098.1	2,101.6	2,099.2	4.4	4.5	109.86	24.7	-81.6	86.2	77.2	8.97	9.603		
2,200.0	2,197.9	2,201.6	2,199.0	4.7	4.8	109.67	19.7	-86.5	87.2	77.8	9.45	9.232		
2,300.0	2,297.6	2,301.6	2,298.7	4.9	5.0	109.48	14.6	-91.3	88.3	78.4	9.93	8.891		
2,400.0	2,397.4	2,401.6	2,398.5	5.2	5.3	109.30	9.6	-96.2	89.4	79.0	10.42	8.579		
2,500.0	2,497.2	2,501.6	2,498.2	5.4	5.5	109.12	4.6	-101.0	90.5	79.5	10.91	8.292		
2,600.0	2,596.9	2,601.6	2,598.0	5.6	5.8	108.94	-0.4	-105.9	91.5	80.1	11.40	8.027		
2,700.0	2,696.7	2,701.6	2,697.7	5.9	6.0	108.77	-5.4	-110.7	92.6	80.7	11.90	7.783		
2,800.0	2,796.4	2,801.6	2,797.5	6.1	6.3	108.60	-10.4	-115.6	93.7	81.3	12.40	7.557		
2,900.0	2,896.2	2,901.6	2,897.2	6.4	6.5	108.44	-15.4	-120.4	94.7	81.9	12.90	7.347		
3,000.0	2,995.9	3,001.5	2,997.0	6.6	6.8	108.28	-20.4	-125.3	95.8	82.4	13.40	7.152		
3,100.0	3,095.7	3,101.5	3,096.7	6.9	7.1	108.13	-25.5	-130.1	96.9	83.0	13.90	6.970		
3,200.0	3,195.5	3,201.5	3,196.5	7.1	7.3	107.98	-30.5	-135.0	98.0	83.6	14.41	6.800		
3,300.0	3,295.2	3,301.5	3,296.2	7.4	7.6	107.83	-35.5	-139.8	99.1	84.1	14.92	6.640		
3,400.0	3,395.0	3,401.5	3,396.0	7.7	7.8	107.68	-40.5	-144.7	100.1	84.7	15.43	6.491		
3,500.0	3,494.7	3,501.5	3,495.7	7.9	8.1	107.54	-45.5	-149.5	101.2	85.3	15.94	6.351		
3,600.0	3,594.5	3,601.5	3,595.5	8.2	8.4	107.40	-50.5	-154.4	102.3	85.8	16.45	6.219		
3,700.0	3,694.2	3,701.5	3,695.3	8.4	8.6	107.26	-55.5	-159.2	103.4	86.4	16.96	6.095		
3,800.0	3,794.0	3,801.5	3,795.0	8.7	8.9	107.13	-60.5	-164.1	104.5	87.0	17.47	5.978		
3,900.0	3,893.7	3,901.5	3,894.8	8.9	9.1	107.00	-65.6	-168.9	105.5	87.5	17.99	5.867		
4,000.0	3,993.5	4,001.5	3,994.5	9.2	9.4	106.87	-70.6	-173.8	106.6	88.1	18.50	5.762		
4,100.0	4,093.3	4,101.5	4,094.3	9.4	9.6	106.74	-75.6	-178.6	107.7	88.7	19.02	5.663		
4,200.0	4,193.0	4,201.5	4,194.0	9.7	9.9	106.62	-80.6	-183.5	108.8	89.2	19.54	5.569		
4,300.0	4,292.8	4,301.5	4,293.8	10.0	10.2	106.50	-85.6	-188.3	109.9	89.8	20.05	5.479		
4,400.0	4,392.5	4,401.5	4,393.5	10.2	10.4	106.38	-90.6	-193.2	111.0	90.4	20.57	5.394		
4,500.0	4,492.3	4,501.5	4,493.3	10.5	10.7	106.26	-95.6	-198.0	112.0	90.9	21.09	5.313		
4,600.0	4,592.0	4,601.5	4,593.0	10.7	11.0	106.15	-100.6	-202.9	113.1	91.5	21.61	5.236		
4,700.0	4,691.8	4,701.4	4,692.8	11.0	11.2	106.04	-105.7	-207.7	114.2	92.1	22.13	5.162		
4,800.0	4,791.6	4,801.4	4,792.5	11.3	11.5	105.93	-110.7	-212.6	115.3	92.6	22.65	5.091		
4,900.0	4,891.3	4,901.4	4,892.3	11.5	11.7	105.82	-115.7	-217.5	116.4	93.2	23.17	5.024		
5,000.0	4,991.1	5,001.4	4,992.0	11.8	12.0	105.72	-120.7	-222.3	117.5	93.8	23.69	4.959		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1301A - HZ - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning	
5,100.0	5,090.8	5,101.4	5,091.8	12.0	12.3	105.61	-125.7	-227.2	118.6	94.3	24.21	4.898		
5,200.0	5,190.6	5,201.4	5,191.5	12.3	12.5	105.51	-130.7	-232.0	119.6	94.9	24.73	4.838		
5,300.0	5,290.3	5,301.4	5,291.3	12.6	12.8	105.41	-135.7	-236.9	120.7	95.5	25.25	4.782		
5,400.0	5,390.1	5,402.7	5,391.9	12.8	13.1	103.37	-143.8	-244.6	121.4	95.6	25.84	4.700		
5,438.0	5,428.0	5,440.7	5,428.8	12.9	13.2	100.45	-150.0	-250.7	121.6	95.4	26.13	4.652		
5,450.0	5,440.0	5,452.5	5,440.1	13.0	13.3	99.33	-152.4	-253.0	121.7	95.5	26.22	4.641		
5,500.0	5,489.4	5,501.1	5,485.9	13.1	13.5	94.69	-164.0	-264.2	123.1	96.5	26.64	4.622		
5,550.0	5,538.0	5,548.8	5,529.3	13.3	13.8	90.18	-178.3	-278.0	126.1	99.0	27.13	4.649		
5,600.0	5,585.3	5,595.6	5,569.9	13.6	14.1	85.95	-195.0	-294.2	130.4	102.8	27.65	4.716		
5,650.0	5,630.7	5,641.7	5,607.6	13.9	14.5	82.07	-214.0	-312.6	135.9	107.7	28.20	4.819		
5,700.0	5,674.0	5,687.1	5,642.4	14.2	14.9	78.61	-235.0	-332.9	142.4	113.6	28.76	4.950		
5,750.0	5,714.6	5,731.7	5,674.0	14.6	15.3	75.57	-257.7	-354.8	149.6	120.3	29.33	5.101		
5,800.0	5,752.3	5,775.8	5,702.4	15.0	15.8	72.94	-281.9	-378.3	157.5	127.6	29.91	5.264		
5,850.0	5,786.7	5,819.4	5,727.6	15.5	16.3	70.71	-307.4	-403.0	165.7	135.2	30.52	5.431		
5,900.0	5,817.4	5,862.4	5,749.5	16.0	16.8	68.83	-334.0	-428.7	174.2	143.1	31.15	5.593		
5,950.0	5,844.2	5,905.1	5,768.1	16.6	17.4	67.28	-361.6	-455.4	182.9	151.0	31.85	5.742		
6,000.0	5,866.8	5,950.0	5,784.2	17.2	18.0	66.00	-391.7	-484.6	191.6	158.9	32.65	5.866		
6,050.0	5,885.1	5,989.3	5,795.3	17.9	18.6	65.01	-418.8	-510.8	200.1	166.6	33.48	5.977		
6,100.0	5,898.8	6,031.0	5,803.9	18.6	19.3	64.25	-448.1	-539.1	208.5	174.1	34.45	6.053		
6,150.0	5,907.9	6,072.5	5,809.3	19.4	19.9	63.69	-477.7	-567.8	216.7	181.2	35.53	6.100		
6,200.0	5,912.2	6,113.9	5,811.3	20.1	20.6	63.32	-507.4	-596.5	224.6	187.9	36.72	6.117		
6,219.8	5,912.5	6,134.2	5,811.3	20.4	20.9	63.32	-522.0	-610.6	227.5	190.2	37.30	6.099		
6,300.0	5,912.5	6,223.3	5,811.3	21.6	22.3	64.61	-587.9	-670.5	238.2	198.2	40.01	5.953		
6,400.0	5,912.5	6,335.3	5,811.3	23.0	24.0	66.02	-674.7	-741.3	251.2	208.0	43.22	5.811		
6,500.0	5,912.5	6,448.4	5,811.3	24.5	25.8	67.24	-766.3	-807.6	263.7	217.3	46.43	5.680		
6,600.0	5,912.5	6,562.5	5,811.3	26.0	27.6	68.30	-862.5	-868.8	275.7	226.1	49.58	5.560		
6,700.0	5,912.5	6,677.6	5,811.3	27.6	29.5	69.21	-963.2	-924.6	287.0	234.4	52.65	5.451		
6,800.0	5,912.5	6,793.6	5,811.3	29.1	31.3	70.01	-1,067.8	-974.7	297.7	242.0	55.61	5.353		
6,900.0	5,912.5	6,910.5	5,811.3	30.7	33.2	70.69	-1,176.1	-1,018.6	307.5	249.1	58.43	5.263		
7,000.0	5,912.5	7,028.2	5,811.3	32.2	35.1	71.28	-1,287.7	-1,056.0	316.6	255.5	61.09	5.182		
7,100.0	5,912.5	7,146.8	5,811.3	33.7	36.9	71.78	-1,402.2	-1,086.7	324.8	261.2	63.59	5.108		
7,200.0	5,912.5	7,266.0	5,811.3	35.3	38.7	72.21	-1,519.0	-1,110.3	332.1	266.2	65.91	5.038		
7,300.0	5,912.5	7,385.8	5,811.3	36.8	40.5	72.57	-1,637.7	-1,126.7	338.4	270.4	68.05	4.973		
7,384.9	5,912.5	7,488.0	5,811.3	38.0	42.0	72.81	-1,739.6	-1,134.7	343.0	273.3	69.73	4.919		
7,400.0	5,912.5	7,506.2	5,811.3	38.3	42.2	72.86	-1,757.8	-1,135.6	343.7	273.4	70.26	4.891		
7,500.0	5,912.5	7,620.2	5,811.3	39.8	43.8	72.94	-1,871.8	-1,137.3	345.1	271.4	73.65	4.685		
7,600.0	5,912.5	7,720.2	5,811.3	41.3	45.3	72.94	-1,971.8	-1,137.3	345.1	268.2	76.81	4.492		
7,700.0	5,912.5	7,820.2	5,811.3	42.9	46.7	72.94	-2,071.8	-1,137.3	345.0	265.0	80.01	4.313		
7,800.0	5,912.5	7,920.2	5,811.3	44.5	48.2	72.94	-2,171.8	-1,137.3	345.0	261.8	83.26	4.144		
7,900.0	5,912.5	8,020.2	5,811.3	46.1	49.7	72.94	-2,271.8	-1,137.3	345.0	258.5	86.54	3.987		
8,000.0	5,912.5	8,120.2	5,811.3	47.8	51.2	72.95	-2,371.8	-1,137.3	345.0	255.2	89.85	3.840		
8,100.0	5,912.4	8,220.2	5,811.2	49.4	52.8	72.95	-2,471.8	-1,137.3	345.0	251.8	93.20	3.702		
8,200.0	5,912.4	8,320.2	5,811.2	51.1	54.4	72.95	-2,571.8	-1,137.3	345.0	248.5	96.57	3.573		
8,300.0	5,912.4	8,420.2	5,811.2	52.8	56.0	72.95	-2,671.8	-1,137.3	345.0	245.1	99.96	3.452		
8,400.0	5,912.4	8,520.2	5,811.2	54.5	57.6	72.95	-2,771.8	-1,137.3	345.0	241.7	103.37	3.338		
8,500.0	5,912.4	8,620.2	5,811.2	56.2	59.2	72.95	-2,871.8	-1,137.3	345.0	238.2	106.81	3.230		
8,600.0	5,912.4	8,720.2	5,811.2	58.0	60.9	72.95	-2,971.8	-1,137.3	345.0	234.8	110.26	3.129		
8,700.0	5,912.4	8,820.2	5,811.2	59.7	62.5	72.95	-3,071.8	-1,137.3	345.0	231.3	113.72	3.034		
8,800.0	5,912.4	8,920.2	5,811.2	61.5	64.2	72.95	-3,171.8	-1,137.2	345.0	227.8	117.21	2.944		
8,900.0	5,912.4	9,020.2	5,811.2	63.3	65.9	72.95	-3,271.8	-1,137.2	345.0	224.3	120.70	2.859		
9,000.0	5,912.4	9,120.2	5,811.2	65.0	67.6	72.95	-3,371.8	-1,137.2	345.0	220.8	124.20	2.778		
9,100.0	5,912.4	9,220.2	5,811.2	66.8	69.3	72.95	-3,471.8	-1,137.2	345.0	217.3	127.72	2.701		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1301A - HZ - Plan #2													Offset Site Error: 0.0 ft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
9,200.0	5,912.4	9,320.2	5,811.2	68.6	71.1	72.95	-3,571.8	-1,137.2	345.0	213.8	131.25	2.629		
9,300.0	5,912.4	9,420.2	5,811.2	70.4	72.8	72.95	-3,671.8	-1,137.2	345.0	210.2	134.78	2.560		
9,400.0	5,912.4	9,520.2	5,811.2	72.2	74.6	72.95	-3,771.8	-1,137.2	345.0	206.7	138.33	2.494		
9,500.0	5,912.3	9,620.2	5,811.2	74.0	76.3	72.95	-3,871.8	-1,137.2	345.0	203.1	141.88	2.432		
9,600.0	5,912.3	9,720.2	5,811.2	75.9	78.1	72.95	-3,971.8	-1,137.2	345.0	199.6	145.44	2.372		
9,700.0	5,912.3	9,820.2	5,811.2	77.7	79.9	72.95	-4,071.8	-1,137.2	345.0	196.0	149.01	2.315		
9,800.0	5,912.3	9,920.2	5,811.2	79.5	81.6	72.95	-4,171.8	-1,137.2	345.0	192.4	152.58	2.261		
9,900.0	5,912.3	10,020.2	5,811.2	81.3	83.4	72.95	-4,271.8	-1,137.2	345.0	188.8	156.16	2.209		
10,000.0	5,912.3	10,120.2	5,811.2	83.2	85.2	72.95	-4,371.8	-1,137.2	345.0	185.2	159.74	2.160		
10,100.0	5,912.3	10,220.2	5,811.2	85.0	87.0	72.95	-4,471.8	-1,137.2	345.0	181.7	163.33	2.112		
10,200.0	5,912.3	10,320.2	5,811.2	86.9	88.8	72.96	-4,571.8	-1,137.2	345.0	178.1	166.93	2.067		
10,300.0	5,912.3	10,420.2	5,811.2	88.7	90.6	72.96	-4,671.8	-1,137.2	345.0	174.5	170.53	2.023		
10,400.0	5,912.3	10,520.2	5,811.1	90.6	92.4	72.96	-4,771.8	-1,137.1	345.0	170.9	174.13	1.981		
10,500.0	5,912.3	10,620.2	5,811.1	92.4	94.3	72.96	-4,871.8	-1,137.1	345.0	167.2	177.74	1.941		
10,600.0	5,912.3	10,720.2	5,811.1	94.3	96.1	72.96	-4,971.8	-1,137.1	345.0	163.6	181.35	1.902		
10,700.0	5,912.3	10,820.2	5,811.1	96.1	97.9	72.96	-5,071.8	-1,137.1	345.0	160.0	184.96	1.865		
10,800.0	5,912.2	10,920.2	5,811.1	98.0	99.7	72.96	-5,171.8	-1,137.1	345.0	156.4	188.58	1.829		
10,900.0	5,912.2	11,020.2	5,811.1	99.9	101.6	72.96	-5,271.8	-1,137.1	345.0	152.8	192.20	1.795		
11,000.0	5,912.2	11,120.2	5,811.1	101.7	103.4	72.96	-5,371.8	-1,137.1	345.0	149.1	195.82	1.762		
11,100.0	5,912.2	11,220.2	5,811.1	103.6	105.3	72.96	-5,471.8	-1,137.1	345.0	145.5	199.45	1.730		
11,200.0	5,912.2	11,320.2	5,811.1	105.5	107.1	72.96	-5,571.8	-1,137.1	345.0	141.9	203.08	1.699		
11,300.0	5,912.2	11,420.2	5,811.1	107.3	108.9	72.96	-5,671.8	-1,137.1	345.0	138.2	206.71	1.669		
11,400.0	5,912.2	11,520.2	5,811.1	109.2	110.8	72.96	-5,771.8	-1,137.1	345.0	134.6	210.35	1.640		
11,500.0	5,912.2	11,620.2	5,811.1	111.1	112.6	72.96	-5,871.8	-1,137.1	345.0	131.0	213.98	1.612		
11,600.0	5,912.2	11,720.2	5,811.1	113.0	114.5	72.96	-5,971.8	-1,137.1	345.0	127.3	217.62	1.585		
11,700.0	5,912.2	11,820.2	5,811.1	114.8	116.4	72.96	-6,071.8	-1,137.1	345.0	123.7	221.26	1.559		
11,800.0	5,912.2	11,920.2	5,811.1	116.7	118.2	72.96	-6,171.8	-1,137.1	344.9	120.0	224.90	1.534		
11,900.0	5,912.2	12,020.2	5,811.1	118.6	120.1	72.96	-6,271.8	-1,137.1	344.9	116.4	228.55	1.509		
12,000.0	5,912.2	12,120.2	5,811.1	120.5	121.9	72.96	-6,371.8	-1,137.0	344.9	112.8	232.19	1.486 Level 3		
12,100.0	5,912.1	12,220.2	5,811.1	122.4	123.8	72.96	-6,471.8	-1,137.0	344.9	109.1	235.84	1.463 Level 3		
12,200.0	5,912.1	12,320.2	5,811.1	124.3	125.7	72.96	-6,571.8	-1,137.0	344.9	105.4	239.49	1.440 Level 3		
12,300.0	5,912.1	12,420.2	5,811.1	126.1	127.5	72.96	-6,671.8	-1,137.0	344.9	101.8	243.14	1.419 Level 3		
12,400.0	5,912.1	12,520.2	5,811.1	128.0	129.4	72.96	-6,771.8	-1,137.0	344.9	98.1	246.79	1.398 Level 3		
12,500.0	5,912.1	12,620.2	5,811.1	129.9	131.3	72.97	-6,871.8	-1,137.0	344.9	94.5	250.45	1.377 Level 3		
12,600.0	5,912.1	12,720.2	5,811.1	131.8	133.1	72.97	-6,971.8	-1,137.0	344.9	90.8	254.10	1.357 Level 3		
12,700.0	5,912.1	12,820.2	5,811.1	133.7	135.0	72.97	-7,071.8	-1,137.0	344.9	87.2	257.76	1.338 Level 3		
12,800.0	5,912.1	12,920.2	5,811.0	135.6	136.9	72.97	-7,171.8	-1,137.0	344.9	83.5	261.42	1.319 Level 3		
12,900.0	5,912.1	13,020.2	5,811.0	137.5	138.8	72.97	-7,271.8	-1,137.0	344.9	79.8	265.08	1.301 Level 3		
13,000.0	5,912.1	13,120.2	5,811.0	139.4	140.6	72.97	-7,371.8	-1,137.0	344.9	76.2	268.74	1.283 Level 3		
13,100.0	5,912.1	13,220.2	5,811.0	141.3	142.5	72.97	-7,471.8	-1,137.0	344.9	72.5	272.40	1.266 Level 3		
13,200.0	5,912.1	13,320.2	5,811.0	143.2	144.4	72.97	-7,571.8	-1,137.0	344.9	68.9	276.06	1.249 Level 2		
13,300.0	5,912.1	13,420.2	5,811.0	145.1	146.3	72.97	-7,671.8	-1,137.0	344.9	65.2	279.72	1.233 Level 2		
13,400.0	5,912.0	13,520.2	5,811.0	146.9	148.2	72.97	-7,771.8	-1,137.0	344.9	61.5	283.39	1.217 Level 2		
13,500.0	5,912.0	13,620.2	5,811.0	148.8	150.0	72.97	-7,871.8	-1,137.0	344.9	57.9	287.05	1.202 Level 2		
13,600.0	5,912.0	13,720.2	5,811.0	150.7	151.9	72.97	-7,971.8	-1,136.9	344.9	54.2	290.72	1.186 Level 2		
13,700.0	5,912.0	13,820.2	5,811.0	152.6	153.8	72.97	-8,071.8	-1,136.9	344.9	50.5	294.38	1.172 Level 2		
13,800.0	5,912.0	13,920.2	5,811.0	154.5	155.7	72.97	-8,171.8	-1,136.9	344.9	46.8	298.05	1.157 Level 2		
13,872.5	5,912.0	13,992.7	5,811.0	155.7	157.1	72.97	-8,244.3	-1,136.9	344.9	44.4	300.47	1.148 Level 2, ES, 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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1303A - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance					Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	23.81	74.9	33.0	81.9					
100.0	100.0	100.0	100.0	0.1	0.1	23.81	74.9	33.0	81.9	81.7	0.19	437.692		
200.0	200.0	200.0	200.0	0.3	0.3	23.81	74.9	33.0	81.9	81.2	0.64	128.591		
300.0	300.0	300.0	300.0	0.5	0.5	23.81	74.9	33.0	81.9	80.8	1.09	75.366		
400.0	400.0	400.0	400.0	0.8	0.8	23.81	74.9	33.0	81.9	80.3	1.54	53.303		
500.0	500.0	500.0	500.0	1.0	1.0	23.81	74.9	33.0	81.9	79.9	1.99	41.233		
600.0	600.0	602.9	602.9	1.2	1.2	23.81	73.2	32.3	80.1	77.6	2.42	33.146		
700.0	700.0	705.4	705.2	1.4	1.4	23.80	68.2	30.1	74.7	71.8	2.84	26.328		
800.0	800.0	805.1	804.7	1.7	1.6	23.79	61.8	27.2	67.7	64.4	3.26	20.739		
900.0	900.0	904.9	904.2	1.9	1.8	23.78	55.4	24.4	60.7	57.0	3.70	16.415		
1,000.0	1,000.0	1,004.6	1,003.7	2.1	2.1	23.76	49.1	21.6	53.8	49.6	4.14	12.979		
1,100.0	1,100.0	1,104.4	1,103.3	2.3	2.3	23.74	42.7	18.8	46.8	42.2	4.59	10.195		
1,200.0	1,200.0	1,204.2	1,202.8	2.6	2.5	23.71	36.4	16.0	39.8	34.8	5.04	7.900		
1,300.0	1,300.0	1,304.0	1,302.4	2.8	2.8	169.31	30.0	13.1	34.5	29.1	5.42	6.366		
1,400.0	1,399.8	1,404.0	1,402.1	2.9	3.0	171.09	23.6	10.3	32.7	26.9	5.82	5.622		
1,500.0	1,499.6	1,504.0	1,501.9	3.1	3.3	173.45	17.2	7.5	32.7	26.4	6.23	5.245		
1,544.2	1,543.7	1,548.2	1,546.0	3.2	3.4	174.49	14.4	6.2	32.7	26.2	6.41	5.094 CC		
1,600.0	1,599.4	1,604.0	1,601.6	3.3	3.6	175.80	10.9	4.7	32.7	26.0	6.64	4.918		
1,700.0	1,699.1	1,704.0	1,701.4	3.5	3.8	178.15	4.5	1.8	32.7	25.7	7.07	4.632		
1,800.0	1,798.9	1,803.9	1,801.1	3.8	4.1	-179.51	-1.9	-1.0	32.8	25.3	7.49	4.382		
1,900.0	1,898.6	1,903.9	1,900.8	4.0	4.3	-177.19	-8.3	-3.8	33.0	25.1	7.93	4.163		
2,000.0	1,998.4	2,003.9	2,000.6	4.2	4.6	-174.90	-14.7	-6.6	33.2	24.9	8.37	3.970		
2,100.0	2,098.1	2,103.9	2,100.3	4.4	4.8	-172.64	-21.0	-9.5	33.5	24.7	8.82	3.799		
2,200.0	2,197.9	2,203.9	2,200.1	4.7	5.1	-170.42	-27.4	-12.3	33.8	24.6	9.27	3.649		
2,300.0	2,297.6	2,303.9	2,299.8	4.9	5.4	-168.25	-33.8	-15.1	34.2	24.5	9.73	3.515		
2,400.0	2,397.4	2,403.9	2,399.6	5.2	5.6	-166.12	-40.2	-17.9	34.6	24.4	10.19	3.396		
2,500.0	2,497.2	2,503.9	2,499.3	5.4	5.9	-164.05	-46.5	-20.8	35.1	24.4	10.67	3.290 ES		
2,600.0	2,596.9	2,603.9	2,599.1	5.6	6.2	-162.04	-52.9	-23.6	35.6	24.5	11.14	3.196		
2,700.0	2,696.7	2,703.9	2,698.8	5.9	6.4	-160.09	-59.3	-26.4	36.2	24.5	11.62	3.111		
2,800.0	2,796.4	2,803.9	2,798.6	6.1	6.7	-158.20	-65.7	-29.2	36.8	24.6	12.11	3.036		
2,900.0	2,896.2	2,903.9	2,898.3	6.4	6.9	-156.37	-72.0	-32.1	37.4	24.8	12.60	2.968		
3,000.0	2,995.9	3,003.8	2,998.1	6.6	7.2	-154.60	-78.4	-34.9	38.1	25.0	13.09	2.907		
3,100.0	3,095.7	3,103.8	3,097.8	6.9	7.5	-152.90	-84.8	-37.7	38.8	25.2	13.59	2.852		
3,200.0	3,195.5	3,203.8	3,197.6	7.1	7.7	-151.26	-91.2	-40.5	39.5	25.4	14.10	2.803		
3,300.0	3,295.2	3,303.8	3,297.3	7.4	8.0	-149.68	-97.6	-43.4	40.3	25.7	14.60	2.758		
3,400.0	3,395.0	3,403.8	3,397.1	7.7	8.3	-148.16	-103.9	-46.2	41.1	26.0	15.12	2.718		
3,500.0	3,494.7	3,503.8	3,496.8	7.9	8.5	-146.70	-110.3	-49.0	41.9	26.3	15.63	2.682		
3,600.0	3,594.5	3,603.8	3,596.6	8.2	8.8	-145.30	-116.7	-51.8	42.8	26.6	16.15	2.649		
3,700.0	3,694.2	3,703.8	3,696.3	8.4	9.0	-143.95	-123.1	-54.7	43.6	27.0	16.67	2.619		
3,800.0	3,794.0	3,803.8	3,796.0	8.7	9.3	-142.66	-129.4	-57.5	44.5	27.4	17.19	2.592		
3,900.0	3,893.7	3,903.8	3,895.8	8.9	9.6	-141.42	-135.8	-60.3	45.5	27.8	17.71	2.568		
4,000.0	3,993.5	4,003.8	3,995.5	9.2	9.8	-140.23	-142.2	-63.2	46.4	28.2	18.23	2.546		
4,100.0	4,093.3	4,103.7	4,095.3	9.4	10.1	-139.09	-148.6	-66.0	47.4	28.6	18.76	2.526		
4,200.0	4,193.0	4,203.7	4,195.0	9.7	10.4	-137.99	-154.9	-68.8	48.4	29.1	19.29	2.508		
4,300.0	4,292.8	4,303.7	4,294.8	10.0	10.6	-136.94	-161.3	-71.6	49.4	29.5	19.82	2.491		
4,400.0	4,392.5	4,403.7	4,394.5	10.2	10.9	-135.93	-167.7	-74.5	50.4	30.0	20.35	2.476		
4,500.0	4,492.3	4,503.7	4,494.3	10.5	11.2	-134.95	-174.1	-77.3	51.4	30.5	20.88	2.463		
4,600.0	4,592.0	4,603.7	4,594.0	10.7	11.4	-134.02	-180.5	-80.1	52.5	31.0	21.41	2.450		
4,700.0	4,691.8	4,703.7	4,693.8	11.0	11.7	-133.13	-186.8	-82.9	53.5	31.6	21.94	2.439		
4,800.0	4,791.6	4,803.7	4,793.5	11.3	12.0	-132.27	-193.2	-85.8	54.6	32.1	22.47	2.429		
4,900.0	4,891.3	4,903.7	4,893.3	11.5	12.2	-131.44	-199.6	-88.6	55.7	32.7	23.01	2.420		
5,000.0	4,991.1	5,003.7	4,993.0	11.8	12.5	-130.64	-206.0	-91.4	56.8	33.2	23.54	2.411		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1303A - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning	
5,100.0	5,090.8	5,103.7	5,092.8	12.0	12.7	-129.88	-212.3	-94.2	57.9	33.8	24.07	2.404		
5,200.0	5,190.6	5,203.6	5,192.5	12.3	13.0	-129.14	-218.7	-97.1	59.0	34.4	24.61	2.397		
5,300.0	5,290.3	5,303.6	5,292.3	12.6	13.3	-128.43	-225.1	-99.9	60.1	35.0	25.14	2.390		
5,400.0	5,390.1	5,406.9	5,394.7	12.8	13.6	-123.81	-235.8	-104.6	59.4	33.5	25.87	2.296		
5,438.0	5,428.0	5,445.9	5,432.6	12.9	13.8	-117.52	-244.3	-108.4	57.7	31.3	26.34	2.189		
5,450.0	5,440.0	5,457.9	5,444.2	13.0	13.8	-115.11	-247.4	-109.8	57.2	30.7	26.49	2.158		
5,481.3	5,471.0	5,489.2	5,473.7	13.1	14.0	-108.60	-256.6	-113.9	56.6	29.7	26.88	2.106		
5,500.0	5,489.4	5,507.7	5,490.9	13.1	14.1	-104.64	-262.9	-116.7	56.8	29.7	27.10	2.096		
5,550.0	5,538.0	5,556.4	5,535.0	13.3	14.4	-94.36	-281.9	-125.2	59.3	31.6	27.65	2.144		
5,600.0	5,585.3	5,604.2	5,576.0	13.6	14.7	-85.26	-304.2	-135.1	64.3	36.2	28.10	2.287		
5,650.0	5,630.7	5,650.0	5,613.2	13.9	15.1	-77.90	-328.7	-145.9	71.3	42.8	28.44	2.506		
5,700.0	5,674.0	5,697.0	5,648.7	14.2	15.5	-71.90	-356.8	-158.4	79.7	51.0	28.71	2.776		
5,750.0	5,714.6	5,742.2	5,680.1	14.6	15.9	-67.41	-386.5	-171.7	89.1	60.2	28.94	3.080		
5,800.0	5,752.3	5,786.7	5,708.1	15.0	16.4	-64.02	-418.0	-185.7	99.2	70.0	29.17	3.401		
5,850.0	5,786.7	5,830.5	5,732.8	15.5	16.9	-61.48	-451.1	-200.4	109.6	80.2	29.42	3.726		
5,900.0	5,817.4	5,873.8	5,754.0	16.0	17.5	-59.58	-485.5	-215.7	120.2	90.5	29.75	4.042		
5,950.0	5,844.2	5,916.5	5,771.9	16.6	18.0	-58.20	-520.9	-231.5	130.9	100.7	30.17	4.338		
6,000.0	5,866.8	5,958.8	5,786.4	17.2	18.6	-57.20	-557.2	-247.6	141.4	110.7	30.71	4.605		
6,050.0	5,885.1	6,000.0	5,797.4	17.9	19.2	-56.52	-593.5	-263.8	151.8	120.4	31.38	4.836		
6,100.0	5,898.8	6,042.2	5,805.3	18.6	19.8	-56.10	-631.4	-280.6	161.9	129.6	32.25	5.020		
6,150.0	5,907.9	6,083.5	5,809.8	19.4	20.4	-55.89	-668.9	-297.3	171.7	138.4	33.28	5.158		
6,200.0	5,912.2	6,125.2	5,811.1	20.1	21.1	-55.87	-706.9	-314.2	181.1	146.6	34.47	5.252		
6,219.8	5,912.5	6,143.2	5,811.1	20.4	21.3	-56.10	-723.4	-321.4	184.5	149.5	35.06	5.263		
6,300.0	5,912.5	6,215.6	5,811.1	21.6	22.3	-58.69	-790.5	-348.8	198.1	160.1	38.02	5.211		
6,400.0	5,912.5	6,305.2	5,811.1	23.0	23.6	-61.41	-874.8	-379.1	215.2	173.7	41.42	5.194		
6,500.0	5,912.5	6,394.1	5,811.1	24.5	24.8	-63.68	-959.8	-405.2	232.1	187.4	44.72	5.190		
6,600.0	5,912.5	6,482.3	5,811.1	26.0	26.1	-65.58	-1,045.2	-427.2	248.8	200.9	47.89	5.195		
6,700.0	5,912.5	6,569.9	5,811.1	27.6	27.4	-67.19	-1,130.9	-445.1	265.1	214.2	50.94	5.204		
6,800.0	5,912.5	6,656.9	5,811.1	29.1	28.7	-68.56	-1,216.8	-459.0	281.0	227.2	53.86	5.218		
6,900.0	5,912.5	6,743.3	5,811.1	30.7	30.0	-69.74	-1,302.6	-468.9	296.4	239.8	56.63	5.234		
7,000.0	5,912.5	6,829.2	5,811.1	32.2	31.4	-70.77	-1,388.3	-474.9	311.2	252.0	59.26	5.252		
7,100.0	5,912.5	6,914.6	5,811.1	33.7	32.7	-71.66	-1,473.6	-477.0	325.4	263.7	61.73	5.272		
7,200.0	5,912.5	7,013.0	5,811.1	35.3	34.2	-72.41	-1,572.0	-477.0	337.1	272.8	64.28	5.244		
7,300.0	5,912.5	7,112.7	5,811.1	36.8	35.9	-72.83	-1,671.7	-477.0	343.8	277.2	66.64	5.160		
7,384.9	5,912.5	7,197.6	5,811.1	38.0	37.3	-72.94	-1,756.6	-477.0	345.6	277.2	68.44	5.051		
7,400.0	5,912.5	7,212.7	5,811.1	38.3	37.5	-72.94	-1,771.7	-477.0	345.6	276.7	68.93	5.015		
7,500.0	5,912.5	7,312.7	5,811.1	39.8	39.2	-72.94	-1,871.7	-477.0	345.6	273.5	72.19	4.788		
7,600.0	5,912.5	7,412.7	5,811.1	41.3	40.9	-72.94	-1,971.7	-477.0	345.6	270.2	75.49	4.579		
7,700.0	5,912.5	7,512.7	5,811.1	42.9	42.6	-72.94	-2,071.7	-477.0	345.6	266.8	78.82	4.385		
7,800.0	5,912.5	7,612.7	5,811.1	44.5	44.4	-72.94	-2,171.7	-477.0	345.6	263.5	82.19	4.205		
7,900.0	5,912.5	7,712.7	5,811.1	46.1	46.1	-72.94	-2,271.7	-477.0	345.6	260.1	85.58	4.039		
8,000.0	5,912.5	7,812.7	5,811.1	47.8	47.9	-72.94	-2,371.7	-477.0	345.6	256.6	89.01	3.883		
8,100.0	5,912.4	7,912.7	5,811.1	49.4	49.7	-72.95	-2,471.7	-477.0	345.6	253.2	92.45	3.739		
8,200.0	5,912.4	8,012.7	5,811.1	51.1	51.5	-72.95	-2,571.7	-477.0	345.6	249.7	95.91	3.604		
8,300.0	5,912.4	8,112.7	5,811.1	52.8	53.3	-72.95	-2,671.7	-477.0	345.6	246.3	99.39	3.478		
8,400.0	5,912.4	8,212.7	5,811.1	54.5	55.1	-72.95	-2,771.7	-477.0	345.6	242.8	102.88	3.360		
8,500.0	5,912.4	8,312.7	5,811.1	56.2	56.9	-72.95	-2,871.7	-477.0	345.6	239.2	106.39	3.249		
8,600.0	5,912.4	8,412.7	5,811.1	58.0	58.7	-72.95	-2,971.7	-476.9	345.6	235.7	109.91	3.145		
8,700.0	5,912.4	8,512.7	5,811.1	59.7	60.5	-72.95	-3,071.7	-476.9	345.6	232.2	113.45	3.047		
8,800.0	5,912.4	8,612.7	5,811.1	61.5	62.4	-72.95	-3,171.7	-476.9	345.6	228.7	116.99	2.954		
8,900.0	5,912.4	8,712.7	5,811.1	63.3	64.2	-72.95	-3,271.7	-476.9	345.6	225.1	120.54	2.867		
9,000.0	5,912.4	8,812.7	5,811.1	65.0	66.0	-72.96	-3,371.7	-476.9	345.6	221.5	124.11	2.785		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1303A - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
9,100.0	5,912.4	8,912.7	5,811.1	66.8	67.9	-72.96	-3,471.7	-476.9	345.6	218.0	127.68	2.707		
9,200.0	5,912.4	9,012.7	5,811.1	68.6	69.7	-72.96	-3,571.7	-476.9	345.6	214.4	131.25	2.633		
9,300.0	5,912.4	9,112.7	5,811.1	70.4	71.6	-72.96	-3,671.7	-476.9	345.6	210.8	134.84	2.563		
9,400.0	5,912.4	9,212.7	5,811.1	72.2	73.5	-72.96	-3,771.7	-476.9	345.6	207.2	138.43	2.497		
9,500.0	5,912.3	9,312.7	5,811.1	74.0	75.3	-72.96	-3,871.7	-476.9	345.6	203.6	142.02	2.434		
9,600.0	5,912.3	9,412.7	5,811.1	75.9	77.2	-72.96	-3,971.7	-476.9	345.6	200.0	145.63	2.373		
9,700.0	5,912.3	9,512.7	5,811.1	77.7	79.1	-72.96	-4,071.7	-476.9	345.6	196.4	149.23	2.316		
9,800.0	5,912.3	9,612.7	5,811.0	79.5	80.9	-72.96	-4,171.7	-476.9	345.6	192.8	152.84	2.261		
9,900.0	5,912.3	9,712.7	5,811.0	81.3	82.8	-72.97	-4,271.7	-476.9	345.6	189.2	156.46	2.209		
10,000.0	5,912.3	9,812.7	5,811.0	83.2	84.7	-72.97	-4,371.7	-476.9	345.6	185.6	160.08	2.159		
10,100.0	5,912.3	9,912.7	5,811.0	85.0	86.5	-72.97	-4,471.7	-476.9	345.6	181.9	163.70	2.111		
10,200.0	5,912.3	10,012.7	5,811.0	86.9	88.4	-72.97	-4,571.7	-476.8	345.6	178.3	167.33	2.066		
10,300.0	5,912.3	10,112.7	5,811.0	88.7	90.3	-72.97	-4,671.7	-476.8	345.6	174.7	170.96	2.022		
10,400.0	5,912.3	10,212.7	5,811.0	90.6	92.2	-72.97	-4,771.7	-476.8	345.6	171.0	174.59	1.980		
10,500.0	5,912.3	10,312.7	5,811.0	92.4	94.1	-72.97	-4,871.7	-476.8	345.6	167.4	178.23	1.939		
10,600.0	5,912.3	10,412.7	5,811.0	94.3	96.0	-72.97	-4,971.7	-476.8	345.6	163.8	181.86	1.901		
10,700.0	5,912.3	10,512.7	5,811.0	96.1	97.8	-72.97	-5,071.7	-476.8	345.6	160.1	185.50	1.863		
10,800.0	5,912.2	10,612.7	5,811.0	98.0	99.7	-72.98	-5,171.7	-476.8	345.6	156.5	189.15	1.827		
10,900.0	5,912.2	10,712.7	5,811.0	99.9	101.6	-72.98	-5,271.7	-476.8	345.6	152.8	192.79	1.793		
11,000.0	5,912.2	10,812.7	5,811.0	101.7	103.5	-72.98	-5,371.7	-476.8	345.6	149.2	196.44	1.759		
11,100.0	5,912.2	10,912.7	5,811.0	103.6	105.4	-72.98	-5,471.7	-476.8	345.6	145.5	200.09	1.727		
11,200.0	5,912.2	11,012.7	5,811.0	105.5	107.3	-72.98	-5,571.7	-476.8	345.6	141.9	203.74	1.696		
11,300.0	5,912.2	11,112.7	5,811.0	107.3	109.2	-72.98	-5,671.7	-476.8	345.6	138.2	207.40	1.667		
11,400.0	5,912.2	11,212.7	5,811.0	109.2	111.1	-72.98	-5,771.7	-476.8	345.6	134.6	211.05	1.638		
11,500.0	5,912.2	11,312.7	5,811.0	111.1	113.0	-72.98	-5,871.7	-476.8	345.6	130.9	214.71	1.610		
11,600.0	5,912.2	11,412.7	5,811.0	113.0	114.9	-72.98	-5,971.7	-476.8	345.6	127.3	218.37	1.583		
11,700.0	5,912.2	11,512.7	5,811.0	114.8	116.8	-72.99	-6,071.7	-476.7	345.6	123.6	222.03	1.557		
11,800.0	5,912.2	11,612.7	5,811.0	116.7	118.7	-72.99	-6,171.7	-476.7	345.6	119.9	225.69	1.531		
11,900.0	5,912.2	11,712.7	5,811.0	118.6	120.6	-72.99	-6,271.7	-476.7	345.6	116.3	229.35	1.507		
12,000.0	5,912.2	11,812.7	5,811.0	120.5	122.5	-72.99	-6,371.7	-476.7	345.6	112.6	233.02	1.483 Level 3		
12,100.0	5,912.1	11,912.7	5,811.0	122.4	124.4	-72.99	-6,471.7	-476.7	345.6	109.0	236.68	1.460 Level 3		
12,200.0	5,912.1	12,012.7	5,811.0	124.3	126.3	-72.99	-6,571.7	-476.7	345.6	105.3	240.35	1.438 Level 3		
12,300.0	5,912.1	12,112.7	5,811.0	126.1	128.2	-72.99	-6,671.7	-476.7	345.6	101.6	244.02	1.416 Level 3		
12,400.0	5,912.1	12,212.7	5,811.0	128.0	130.1	-72.99	-6,771.7	-476.7	345.6	98.0	247.68	1.395 Level 3		
12,500.0	5,912.1	12,312.7	5,811.0	129.9	132.0	-72.99	-6,871.7	-476.7	345.6	94.3	251.35	1.375 Level 3		
12,600.0	5,912.1	12,412.7	5,811.0	131.8	133.9	-72.99	-6,971.7	-476.7	345.6	90.6	255.02	1.355 Level 3		
12,700.0	5,912.1	12,512.7	5,811.0	133.7	135.8	-73.00	-7,071.7	-476.7	345.6	86.9	258.70	1.336 Level 3		
12,800.0	5,912.1	12,612.7	5,811.0	135.6	137.7	-73.00	-7,171.7	-476.7	345.6	83.3	262.37	1.317 Level 3		
12,900.0	5,912.1	12,712.7	5,811.0	137.5	139.6	-73.00	-7,271.7	-476.7	345.6	79.6	266.04	1.299 Level 3		
13,000.0	5,912.1	12,812.7	5,811.0	139.4	141.5	-73.00	-7,371.7	-476.7	345.6	75.9	269.72	1.281 Level 3		
13,100.0	5,912.1	12,912.7	5,811.0	141.3	143.4	-73.00	-7,471.7	-476.7	345.6	72.2	273.39	1.264 Level 3		
13,200.0	5,912.1	13,012.7	5,811.0	143.2	145.3	-73.00	-7,571.7	-476.6	345.6	68.6	277.07	1.247 Level 2		
13,300.0	5,912.1	13,112.7	5,811.0	145.1	147.2	-73.00	-7,671.7	-476.6	345.6	64.9	280.74	1.231 Level 2		
13,400.0	5,912.0	13,212.7	5,811.0	146.9	149.1	-73.00	-7,771.7	-476.6	345.6	61.2	284.42	1.215 Level 2		
13,500.0	5,912.0	13,312.7	5,811.0	148.8	151.0	-73.00	-7,871.7	-476.6	345.6	57.5	288.10	1.200 Level 2		
13,600.0	5,912.0	13,412.7	5,811.0	150.7	152.9	-73.01	-7,971.7	-476.6	345.6	53.9	291.78	1.185 Level 2		
13,700.0	5,912.0	13,512.7	5,811.0	152.6	154.9	-73.01	-8,071.7	-476.6	345.6	50.2	295.46	1.170 Level 2		
13,800.0	5,912.0	13,612.7	5,811.0	154.5	156.8	-73.01	-8,171.7	-476.6	345.6	46.5	299.14	1.155 Level 2		
13,853.0	5,912.0	13,665.7	5,811.0	155.4	157.8	-73.01	-8,224.8	-476.6	345.6	44.7	300.90	1.149 Level 2		
13,872.5	5,912.0	13,684.2	5,811.0	155.7	158.1	-73.01	-8,243.3	-476.6	345.6	44.1	301.54	1.146 Level 2, 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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1304B - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	90.01	0.0	66.1	66.1					
100.0	100.0	100.0	100.0	0.1	0.1	90.01	0.0	66.1	66.1	65.9	0.19	353.397		
200.0	200.0	200.0	200.0	0.3	0.3	90.01	0.0	66.1	66.1	65.5	0.64	103.823		
300.0	300.0	300.0	300.0	0.5	0.5	90.01	0.0	66.1	66.1	65.0	1.09	60.850		
400.0	400.0	400.0	400.0	0.8	0.8	90.01	0.0	66.1	66.1	64.6	1.54	43.037		
500.0	500.0	500.0	500.0	1.0	1.0	90.01	0.0	66.1	66.1	64.1	1.99	33.291		
600.0	600.0	600.0	600.0	1.2	1.2	90.01	0.0	66.1	66.1	63.7	2.43	27.144		
700.0	700.0	700.0	700.0	1.4	1.4	90.01	0.0	66.1	66.1	63.2	2.88	22.914		
800.0	800.0	800.0	800.0	1.7	1.7	90.01	0.0	66.1	66.1	62.8	3.33	19.824		
900.0	900.0	900.0	900.0	1.9	1.9	90.01	0.0	66.1	66.1	62.3	3.78	17.468		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	90.01	0.0	66.1	66.1	61.9	4.23	15.613		
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	90.01	0.0	66.1	66.1	61.4	4.68	14.114		
1,200.0	1,200.0	1,200.4	1,200.4	2.6	2.5	91.51	-1.7	65.7	65.7	60.6	5.10	12.880		
1,243.6	1,243.6	1,244.2	1,244.1	2.7	2.6	-122.08	-3.6	65.3	65.6	60.3	5.27	12.457 CC, ES		
1,300.0	1,300.0	1,300.7	1,300.6	2.8	2.7	-120.20	-6.9	64.6	65.8	60.4	5.48	12.023		
1,400.0	1,399.8	1,400.7	1,400.3	2.9	2.9	-118.14	-13.7	63.2	67.6	61.8	5.84	11.578		
1,500.0	1,499.6	1,500.6	1,500.0	3.1	3.1	-117.49	-20.5	61.7	70.3	64.0	6.23	11.284		
1,600.0	1,599.4	1,600.6	1,599.7	3.3	3.3	-116.89	-27.3	60.2	72.9	66.3	6.63	10.993		
1,700.0	1,699.1	1,700.6	1,699.4	3.5	3.5	-116.33	-34.2	58.8	75.6	68.5	7.06	10.714		
1,800.0	1,798.9	1,800.5	1,799.1	3.8	3.7	-115.80	-41.0	57.3	78.3	70.8	7.49	10.448		
1,900.0	1,898.6	1,900.5	1,898.9	4.0	4.0	-115.32	-47.8	55.8	81.0	73.0	7.94	10.198		
2,000.0	1,998.4	2,000.5	1,998.6	4.2	4.2	-114.86	-54.6	54.4	83.6	75.2	8.39	9.965		
2,100.0	2,098.1	2,100.4	2,098.3	4.4	4.4	-114.44	-61.4	52.9	86.3	77.5	8.86	9.747		
2,200.0	2,197.9	2,200.4	2,198.0	4.7	4.7	-114.03	-68.2	51.5	89.0	79.7	9.33	9.545		
2,300.0	2,297.6	2,300.3	2,297.7	4.9	4.9	-113.66	-75.1	50.0	91.7	81.9	9.80	9.356		
2,400.0	2,397.4	2,400.3	2,397.5	5.2	5.2	-113.30	-81.9	48.5	94.4	84.1	10.28	9.181		
2,500.0	2,497.2	2,500.3	2,497.2	5.4	5.4	-112.96	-88.7	47.1	97.1	86.4	10.77	9.019		
2,600.0	2,596.9	2,600.2	2,596.9	5.6	5.7	-112.65	-95.5	45.6	99.8	88.6	11.26	8.868		
2,700.0	2,696.7	2,700.2	2,696.6	5.9	5.9	-112.35	-102.3	44.2	102.5	90.8	11.75	8.727		
2,800.0	2,796.4	2,800.1	2,796.3	6.1	6.2	-112.06	-109.2	42.7	105.3	93.0	12.25	8.595		
2,900.0	2,896.2	2,900.1	2,896.1	6.4	6.4	-111.79	-116.0	41.2	108.0	95.2	12.74	8.472		
3,000.0	2,995.9	3,000.1	2,995.8	6.6	6.7	-111.53	-122.8	39.8	110.7	97.5	13.25	8.358		
3,100.0	3,095.7	3,100.0	3,095.5	6.9	6.9	-111.29	-129.6	38.3	113.4	99.7	13.75	8.250		
3,200.0	3,195.5	3,200.0	3,195.2	7.1	7.2	-111.05	-136.4	36.8	116.1	101.9	14.25	8.149		
3,300.0	3,295.2	3,300.0	3,294.9	7.4	7.4	-110.83	-143.2	35.4	118.9	104.1	14.76	8.055		
3,400.0	3,395.0	3,399.9	3,394.6	7.7	7.7	-110.61	-150.1	33.9	121.6	106.3	15.27	7.966		
3,500.0	3,494.7	3,499.9	3,494.4	7.9	7.9	-110.41	-156.9	32.5	124.3	108.6	15.77	7.882		
3,600.0	3,594.5	3,599.8	3,594.1	8.2	8.2	-110.22	-163.7	31.0	127.1	110.8	16.28	7.803		
3,700.0	3,694.2	3,699.8	3,693.8	8.4	8.4	-110.03	-170.5	29.5	129.8	113.0	16.79	7.728		
3,800.0	3,794.0	3,799.8	3,793.5	8.7	8.7	-109.85	-177.3	28.1	132.5	115.2	17.31	7.657		
3,900.0	3,893.7	3,899.7	3,893.2	8.9	9.0	-109.68	-184.2	26.6	135.3	117.4	17.82	7.590		
4,000.0	3,993.5	3,999.7	3,993.0	9.2	9.2	-109.51	-191.0	25.1	138.0	119.7	18.33	7.526		
4,100.0	4,093.3	4,099.7	4,092.7	9.4	9.5	-109.35	-197.8	23.7	140.7	121.9	18.85	7.466		
4,200.0	4,193.0	4,199.6	4,192.4	9.7	9.7	-109.20	-204.6	22.2	143.5	124.1	19.36	7.409		
4,300.0	4,292.8	4,299.6	4,292.1	10.0	10.0	-109.05	-211.4	20.8	146.2	126.3	19.88	7.354		
4,400.0	4,392.5	4,399.5	4,391.8	10.2	10.3	-108.91	-218.2	19.3	148.9	128.5	20.40	7.302		
4,500.0	4,492.3	4,499.5	4,491.5	10.5	10.5	-108.78	-225.1	17.8	151.7	130.8	20.91	7.253		
4,600.0	4,592.0	4,599.5	4,591.3	10.7	10.8	-108.64	-231.9	16.4	154.4	133.0	21.43	7.206		
4,700.0	4,691.8	4,699.4	4,691.0	11.0	11.0	-108.52	-238.7	14.9	157.2	135.2	21.95	7.160		
4,800.0	4,791.6	4,799.4	4,790.7	11.3	11.3	-108.39	-245.5	13.5	159.9	137.4	22.47	7.117		
4,900.0	4,891.3	4,899.3	4,890.4	11.5	11.6	-108.28	-252.3	12.0	162.6	139.7	22.99	7.076		
5,000.0	4,991.1	4,999.3	4,990.1	11.8	11.8	-108.16	-259.2	10.5	165.4	141.9	23.51	7.036		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1304B - HZ - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,100.0	5,090.8	5,099.3	5,089.9	12.0	12.1	-108.05	-266.0	9.1	168.1	144.1	24.03	6.998		
5,200.0	5,190.6	5,199.2	5,189.6	12.3	12.3	-107.94	-272.8	7.6	170.9	146.3	24.55	6.962		
5,300.0	5,290.3	5,299.2	5,289.3	12.6	12.6	-107.84	-279.6	6.1	173.6	148.6	25.07	6.927		
5,400.0	5,390.1	5,399.2	5,389.0	12.8	12.9	-107.74	-286.4	4.7	176.4	150.8	25.59	6.893		
5,438.0	5,428.0	5,437.2	5,426.9	12.9	13.0	-107.70	-289.0	4.1	177.4	151.6	25.78	6.881		
5,450.0	5,440.0	5,448.8	5,438.5	13.0	13.0	-107.65	-289.9	3.9	177.8	152.0	25.85	6.879		
5,500.0	5,489.4	5,497.2	5,486.5	13.1	13.2	-107.33	-296.4	2.6	180.5	154.4	26.14	6.908		
5,550.0	5,538.0	5,545.5	5,533.5	13.3	13.3	-106.80	-307.1	0.2	185.1	158.6	26.49	6.989		
5,600.0	5,585.3	5,593.5	5,579.0	13.6	13.6	-106.09	-322.0	-2.9	191.5	164.6	26.90	7.118		
5,650.0	5,630.7	5,641.2	5,622.7	13.9	13.8	-105.22	-340.8	-7.0	199.6	172.2	27.40	7.286		
5,700.0	5,674.0	5,688.6	5,664.1	14.2	14.1	-104.19	-363.2	-11.8	209.4	181.4	27.97	7.484		
5,750.0	5,714.6	5,735.5	5,702.9	14.6	14.5	-103.05	-388.9	-17.3	220.7	192.0	28.64	7.704		
5,800.0	5,752.3	5,782.1	5,739.0	15.0	14.9	-101.80	-417.8	-23.5	233.4	204.0	29.42	7.932		
5,850.0	5,786.7	5,828.3	5,772.0	15.5	15.3	-100.47	-449.4	-30.2	247.5	217.1	30.33	8.160		
5,900.0	5,817.4	5,874.1	5,801.7	16.0	15.7	-99.07	-483.4	-37.5	262.7	231.4	31.34	8.383		
5,950.0	5,844.2	5,919.7	5,828.2	16.6	16.2	-97.62	-519.6	-45.3	279.0	246.5	32.45	8.598		
6,000.0	5,866.8	5,964.9	5,851.2	17.2	16.8	-96.12	-557.7	-53.5	296.2	262.5	33.65	8.801		
6,050.0	5,885.1	6,010.1	5,870.6	17.9	17.3	-94.61	-597.5	-62.0	314.1	279.2	34.93	8.991		
6,100.0	5,898.8	6,055.1	5,886.5	18.6	17.9	-93.08	-638.8	-70.8	332.6	296.3	36.29	9.167		
6,150.0	5,907.9	6,100.0	5,898.6	19.4	18.5	-91.55	-681.0	-79.9	351.6	313.9	37.69	9.328		
6,200.0	5,912.2	6,145.5	5,907.0	20.1	19.2	-90.05	-724.7	-89.3	370.8	331.7	39.15	9.473		
6,219.8	5,912.5	6,163.5	5,909.3	20.4	19.4	-89.46	-742.2	-93.0	378.5	338.8	39.73	9.526		
6,300.0	5,912.5	6,234.6	5,912.3	21.6	20.5	-89.96	-811.6	-107.8	408.1	366.0	42.15	9.684		
6,400.0	5,912.5	6,311.2	5,912.3	23.0	21.5	-89.97	-886.9	-121.8	443.2	398.3	44.87	9.877		
6,500.0	5,912.5	6,387.0	5,912.3	24.5	22.5	-89.97	-961.9	-132.6	477.1	429.6	47.57	10.030		
6,600.0	5,912.5	6,462.1	5,912.3	26.0	23.6	-89.97	-1,036.6	-140.4	509.8	459.6	50.27	10.142		
6,700.0	5,912.5	6,536.5	5,912.3	27.6	24.7	-89.97	-1,110.9	-145.3	541.3	488.3	52.93	10.226		
6,800.0	5,912.5	6,610.4	5,912.3	29.1	25.7	-89.97	-1,184.7	-147.2	571.4	515.9	55.53	10.290		
6,900.0	5,912.5	6,702.6	5,912.3	30.7	27.2	-89.98	-1,276.9	-147.2	599.0	540.6	58.40	10.256		
7,000.0	5,912.5	6,800.0	5,912.3	32.2	28.8	-89.98	-1,374.3	-147.2	621.6	560.3	61.35	10.132		
7,100.0	5,912.5	6,898.5	5,912.3	33.7	30.5	-89.98	-1,472.8	-147.2	639.0	574.8	64.22	9.951		
7,200.0	5,912.5	6,997.7	5,912.3	35.3	32.2	-89.98	-1,572.0	-147.2	651.3	584.3	66.99	9.723		
7,300.0	5,912.5	7,097.4	5,912.3	36.8	33.9	-89.98	-1,671.7	-147.2	658.4	588.8	69.62	9.457		
7,384.9	5,912.5	7,182.3	5,912.3	38.0	35.4	-89.98	-1,756.6	-147.2	660.3	588.5	71.74	9.204		
7,400.0	5,912.5	7,197.4	5,912.3	38.3	35.7	-89.98	-1,771.7	-147.2	660.3	588.0	72.25	9.138		
7,500.0	5,912.5	7,297.4	5,912.3	39.8	37.4	-89.98	-1,871.7	-147.2	660.3	584.6	75.68	8.725		
7,600.0	5,912.5	7,397.4	5,912.3	41.3	39.2	-89.98	-1,971.7	-147.2	660.3	581.1	79.14	8.343		
7,700.0	5,912.5	7,497.4	5,912.3	42.9	41.0	-89.98	-2,071.7	-147.2	660.3	577.6	82.64	7.989		
7,800.0	5,912.5	7,597.4	5,912.3	44.5	42.8	-89.98	-2,171.7	-147.2	660.3	574.1	86.17	7.662		
7,900.0	5,912.5	7,697.4	5,912.3	46.1	44.7	-89.98	-2,271.7	-147.2	660.3	570.5	89.73	7.359		
8,000.0	5,912.5	7,797.4	5,912.3	47.8	46.5	-89.98	-2,371.7	-147.2	660.3	567.0	93.31	7.076		
8,100.0	5,912.4	7,897.4	5,912.2	49.4	48.3	-89.98	-2,471.7	-147.2	660.3	563.4	96.91	6.814		
8,200.0	5,912.4	7,997.4	5,912.2	51.1	50.2	-89.98	-2,571.7	-147.1	660.3	559.7	100.52	6.568		
8,300.0	5,912.4	8,097.4	5,912.2	52.8	52.0	-89.98	-2,671.7	-147.1	660.3	556.1	104.16	6.339		
8,400.0	5,912.4	8,197.4	5,912.2	54.5	53.9	-89.98	-2,771.7	-147.1	660.3	552.5	107.81	6.125		
8,500.0	5,912.4	8,297.4	5,912.2	56.2	55.7	-89.98	-2,871.7	-147.1	660.3	548.8	111.47	5.923		
8,600.0	5,912.4	8,397.4	5,912.2	58.0	57.6	-89.98	-2,971.7	-147.1	660.3	545.1	115.14	5.734		
8,700.0	5,912.4	8,497.4	5,912.2	59.7	59.5	-89.98	-3,071.7	-147.1	660.3	541.4	118.83	5.557		
8,800.0	5,912.4	8,597.4	5,912.2	61.5	61.3	-89.98	-3,171.7	-147.1	660.3	537.8	122.52	5.389		
8,900.0	5,912.4	8,697.4	5,912.2	63.3	63.2	-89.98	-3,271.7	-147.1	660.3	534.0	126.23	5.231		
9,000.0	5,912.4	8,797.4	5,912.2	65.0	65.1	-89.99	-3,371.7	-147.1	660.3	530.3	129.94	5.081		
9,100.0	5,912.4	8,897.4	5,912.2	66.8	67.0	-89.99	-3,471.7	-147.1	660.3	526.6	133.66	4.940		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1304B - HZ - Plan #1												Offset Site Error:	0.0 ft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
9,200.0	5,912.4	8,997.4	5,912.2	68.6	68.8	-89.99	-3,571.7	-147.1	660.3	522.9	137.39	4.806	
9,300.0	5,912.4	9,097.4	5,912.2	70.4	70.7	-89.99	-3,671.7	-147.1	660.3	519.2	141.12	4.679	
9,400.0	5,912.4	9,197.4	5,912.2	72.2	72.6	-89.99	-3,771.7	-147.1	660.3	515.4	144.86	4.558	
9,500.0	5,912.3	9,297.4	5,912.2	74.0	74.5	-89.99	-3,871.7	-147.1	660.3	511.7	148.60	4.443	
9,600.0	5,912.3	9,397.4	5,912.2	75.9	76.4	-89.99	-3,971.7	-147.1	660.3	507.9	152.35	4.334	
9,700.0	5,912.3	9,497.4	5,912.2	77.7	78.3	-89.99	-4,071.7	-147.1	660.3	504.2	156.11	4.230	
9,800.0	5,912.3	9,597.4	5,912.2	79.5	80.2	-89.99	-4,171.7	-147.1	660.3	500.4	159.86	4.130	
9,900.0	5,912.3	9,697.4	5,912.2	81.3	82.0	-89.99	-4,271.7	-147.1	660.3	496.7	163.63	4.035	
10,000.0	5,912.3	9,797.4	5,912.2	83.2	83.9	-89.99	-4,371.7	-147.0	660.3	492.9	167.39	3.945	
10,100.0	5,912.3	9,897.4	5,912.2	85.0	85.8	-89.99	-4,471.7	-147.0	660.3	489.1	171.16	3.858	
10,200.0	5,912.3	9,997.4	5,912.2	86.9	87.7	-89.99	-4,571.7	-147.0	660.3	485.4	174.93	3.775	
10,300.0	5,912.3	10,097.4	5,912.2	88.7	89.6	-89.99	-4,671.7	-147.0	660.3	481.6	178.71	3.695	
10,400.0	5,912.3	10,197.4	5,912.2	90.6	91.5	-89.99	-4,771.7	-147.0	660.3	477.8	182.49	3.618	
10,500.0	5,912.3	10,297.4	5,912.1	92.4	93.4	-89.99	-4,871.7	-147.0	660.3	474.0	186.27	3.545	
10,600.0	5,912.3	10,397.4	5,912.1	94.3	95.3	-89.99	-4,971.7	-147.0	660.3	470.2	190.05	3.474	
10,700.0	5,912.3	10,497.4	5,912.1	96.1	97.2	-89.99	-5,071.7	-147.0	660.3	466.5	193.84	3.406	
10,800.0	5,912.2	10,597.4	5,912.1	98.0	99.1	-89.99	-5,171.7	-147.0	660.3	462.7	197.63	3.341	
10,900.0	5,912.2	10,697.4	5,912.1	99.9	101.0	-89.99	-5,271.7	-147.0	660.3	458.9	201.42	3.278	
11,000.0	5,912.2	10,797.4	5,912.1	101.7	102.9	-89.99	-5,371.7	-147.0	660.3	455.1	205.21	3.218	
11,100.0	5,912.2	10,897.4	5,912.1	103.6	104.8	-89.99	-5,471.7	-147.0	660.3	451.3	209.01	3.159	
11,200.0	5,912.2	10,997.4	5,912.1	105.5	106.7	-89.99	-5,571.7	-147.0	660.3	447.5	212.80	3.103	
11,300.0	5,912.2	11,097.4	5,912.1	107.3	108.7	-89.99	-5,671.7	-147.0	660.3	443.7	216.60	3.048	
11,400.0	5,912.2	11,197.4	5,912.1	109.2	110.6	-89.99	-5,771.7	-147.0	660.3	439.9	220.40	2.996	
11,500.0	5,912.2	11,297.4	5,912.1	111.1	112.5	-89.99	-5,871.7	-147.0	660.3	436.1	224.20	2.945	
11,600.0	5,912.2	11,397.4	5,912.1	113.0	114.4	-89.99	-5,971.7	-147.0	660.3	432.3	228.00	2.896	
11,700.0	5,912.2	11,497.4	5,912.1	114.8	116.3	-89.99	-6,071.7	-146.9	660.3	428.5	231.81	2.849	
11,800.0	5,912.2	11,597.4	5,912.1	116.7	118.2	-89.99	-6,171.7	-146.9	660.3	424.7	235.61	2.803	
11,900.0	5,912.2	11,697.4	5,912.1	118.6	120.1	-89.99	-6,271.7	-146.9	660.3	420.9	239.42	2.758	
12,000.0	5,912.2	11,797.4	5,912.1	120.5	122.0	-89.99	-6,371.7	-146.9	660.3	417.1	243.23	2.715	
12,100.0	5,912.1	11,897.4	5,912.1	122.4	123.9	-89.99	-6,471.7	-146.9	660.3	413.3	247.03	2.673	
12,200.0	5,912.1	11,997.4	5,912.1	124.3	125.8	-89.99	-6,571.7	-146.9	660.3	409.5	250.84	2.632	
12,300.0	5,912.1	12,097.4	5,912.1	126.1	127.7	-90.00	-6,671.7	-146.9	660.3	405.7	254.65	2.593	
12,400.0	5,912.1	12,197.4	5,912.1	128.0	129.6	-90.00	-6,771.7	-146.9	660.3	401.8	258.47	2.555	
12,500.0	5,912.1	12,297.4	5,912.1	129.9	131.6	-90.00	-6,871.7	-146.9	660.3	398.0	262.28	2.518	
12,600.0	5,912.1	12,397.4	5,912.1	131.8	133.5	-90.00	-6,971.7	-146.9	660.3	394.2	266.09	2.482	
12,700.0	5,912.1	12,497.4	5,912.1	133.7	135.4	-90.00	-7,071.7	-146.9	660.3	390.4	269.91	2.446	
12,800.0	5,912.1	12,597.4	5,912.1	135.6	137.3	-90.00	-7,171.7	-146.9	660.3	386.6	273.72	2.412	
12,900.0	5,912.1	12,697.4	5,912.1	137.5	139.2	-90.00	-7,271.7	-146.9	660.3	382.8	277.54	2.379	
13,000.0	5,912.1	12,797.4	5,912.0	139.4	141.1	-90.00	-7,371.7	-146.9	660.3	379.0	281.36	2.347	
13,100.0	5,912.1	12,897.4	5,912.0	141.3	143.0	-90.00	-7,471.7	-146.9	660.3	375.1	285.17	2.316	
13,200.0	5,912.1	12,997.4	5,912.0	143.2	144.9	-90.00	-7,571.7	-146.9	660.3	371.3	288.99	2.285	
13,300.0	5,912.1	13,097.4	5,912.0	145.1	146.9	-90.00	-7,671.7	-146.9	660.3	367.5	292.81	2.255	
13,400.0	5,912.0	13,197.4	5,912.0	146.9	148.8	-90.00	-7,771.7	-146.9	660.3	363.7	296.63	2.226	
13,500.0	5,912.0	13,297.4	5,912.0	148.8	150.7	-90.00	-7,871.7	-146.8	660.3	359.9	300.45	2.198	
13,600.0	5,912.0	13,397.4	5,912.0	150.7	152.6	-90.00	-7,971.7	-146.8	660.3	356.1	304.27	2.170	
13,700.0	5,912.0	13,497.4	5,912.0	152.6	154.5	-90.00	-8,071.7	-146.8	660.3	352.2	308.09	2.143	
13,800.0	5,912.0	13,597.4	5,912.0	154.5	156.4	-90.00	-8,171.7	-146.8	660.3	348.4	311.91	2.117	
13,842.0	5,912.0	13,639.4	5,912.0	155.2	157.2	-90.00	-8,213.7	-146.8	660.3	347.0	313.35	2.107	
13,872.5	5,912.0	13,667.9	5,912.0	155.7	157.8	-90.00	-8,242.3	-146.8	660.3	345.9	314.40	2.100 SF	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1305A - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	52.93	74.9	99.1	124.2					
100.0	100.0	100.0	100.0	0.1	0.1	52.93	74.9	99.1	124.2	124.0	0.19	664.314		
200.0	200.0	200.0	200.0	0.3	0.3	52.93	74.9	99.1	124.2	123.6	0.64	195.171		
300.0	300.0	300.0	300.0	0.5	0.5	52.93	74.9	99.1	124.2	123.1	1.09	114.388		
400.0	400.0	400.0	400.0	0.8	0.8	52.93	74.9	99.1	124.2	122.7	1.54	80.902		
500.0	500.0	500.0	500.0	1.0	1.0	52.93	74.9	99.1	124.2	122.2	1.99	62.581		
600.0	600.0	600.0	600.0	1.2	1.2	52.93	74.9	99.1	124.2	121.8	2.43	51.026		
700.0	700.0	700.0	700.0	1.4	1.4	52.93	74.9	99.1	124.2	121.3	2.88	43.073		
800.0	800.0	800.0	800.0	1.7	1.7	52.93	74.9	99.1	124.2	120.9	3.33	37.265		
900.0	900.0	900.0	900.0	1.9	1.9	52.93	74.9	99.1	124.2	120.4	3.78	32.837		
1,000.0	1,000.0	1,002.3	1,002.3	2.1	2.1	53.66	73.1	99.3	123.3	119.1	4.21	29.292		
1,100.0	1,100.0	1,104.2	1,104.1	2.3	2.3	55.87	67.6	99.8	120.6	116.0	4.62	26.123		
1,200.0	1,200.0	1,204.0	1,203.6	2.6	2.5	58.85	60.7	100.4	117.4	112.4	5.03	23.340		
1,288.9	1,288.9	1,292.7	1,292.1	2.7	2.6	-153.64	54.5	101.0	116.1	110.7	5.39	21.540 CC		
1,300.0	1,300.0	1,303.8	1,303.2	2.8	2.7	-153.37	53.8	101.1	116.1	110.7	5.43	21.367 ES		
1,400.0	1,399.8	1,403.7	1,402.8	2.9	2.9	-151.37	46.8	101.7	118.1	112.3	5.82	20.296		
1,500.0	1,499.6	1,503.6	1,502.5	3.1	3.1	-149.88	39.9	102.3	121.7	115.5	6.22	19.560		
1,600.0	1,599.4	1,603.5	1,602.1	3.3	3.3	-148.48	33.0	103.0	125.4	118.8	6.64	18.886		
1,700.0	1,699.1	1,703.4	1,701.7	3.5	3.6	-147.16	26.0	103.6	129.2	122.2	7.07	18.272		
1,800.0	1,798.9	1,803.3	1,801.4	3.8	3.8	-145.92	19.1	104.3	133.1	125.6	7.51	17.714		
1,900.0	1,898.6	1,903.1	1,901.0	4.0	4.0	-144.74	12.1	104.9	137.0	129.0	7.96	17.206		
2,000.0	1,998.4	2,003.0	2,000.7	4.2	4.3	-143.64	5.2	105.5	141.0	132.6	8.42	16.744		
2,100.0	2,098.1	2,102.9	2,100.3	4.4	4.5	-142.59	-1.7	106.2	145.0	136.1	8.88	16.322		
2,200.0	2,197.9	2,202.8	2,199.9	4.7	4.8	-141.60	-8.7	106.8	149.1	139.7	9.35	15.937		
2,300.0	2,297.6	2,302.7	2,299.6	4.9	5.0	-140.66	-15.6	107.4	153.2	143.3	9.83	15.584		
2,400.0	2,397.4	2,402.6	2,399.2	5.2	5.3	-139.77	-22.6	108.1	157.3	147.0	10.31	15.262		
2,500.0	2,497.2	2,502.4	2,498.9	5.4	5.5	-138.93	-29.5	108.7	161.5	150.7	10.79	14.966		
2,600.0	2,596.9	2,602.3	2,598.5	5.6	5.8	-138.13	-36.4	109.4	165.7	154.4	11.28	14.694		
2,700.0	2,696.7	2,702.2	2,698.2	5.9	6.0	-137.37	-43.4	110.0	170.0	158.2	11.77	14.443		
2,800.0	2,796.4	2,802.1	2,797.8	6.1	6.3	-136.65	-50.3	110.6	174.2	162.0	12.26	14.211		
2,900.0	2,896.2	2,902.0	2,897.4	6.4	6.6	-135.96	-57.2	111.3	178.5	165.8	12.75	13.997		
3,000.0	2,995.9	3,001.9	2,997.1	6.6	6.8	-135.30	-64.2	111.9	182.9	169.6	13.25	13.798		
3,100.0	3,095.7	3,101.8	3,096.7	6.9	7.1	-134.68	-71.1	112.5	187.2	173.4	13.75	13.613		
3,200.0	3,195.5	3,201.6	3,196.4	7.1	7.3	-134.08	-78.1	113.2	191.6	177.3	14.25	13.441		
3,300.0	3,295.2	3,301.5	3,296.0	7.4	7.6	-133.51	-85.0	113.8	196.0	181.2	14.75	13.281		
3,400.0	3,395.0	3,401.4	3,395.6	7.7	7.8	-132.96	-91.9	114.5	200.4	185.1	15.26	13.131		
3,500.0	3,494.7	3,501.3	3,495.3	7.9	8.1	-132.44	-98.9	115.1	204.8	189.0	15.76	12.991		
3,600.0	3,594.5	3,601.2	3,594.9	8.2	8.4	-131.94	-105.8	115.7	209.2	193.0	16.27	12.859		
3,700.0	3,694.2	3,701.1	3,694.6	8.4	8.6	-131.46	-112.8	116.4	213.7	196.9	16.78	12.736		
3,800.0	3,794.0	3,801.0	3,794.2	8.7	8.9	-131.00	-119.7	117.0	218.2	200.9	17.29	12.620		
3,900.0	3,893.7	3,900.8	3,893.9	8.9	9.1	-130.56	-126.6	117.6	222.6	204.8	17.80	12.510		
4,000.0	3,993.5	4,000.7	3,993.5	9.2	9.4	-130.14	-133.6	118.3	227.1	208.8	18.31	12.407		
4,100.0	4,093.3	4,100.6	4,093.1	9.4	9.7	-129.73	-140.5	118.9	231.6	212.8	18.82	12.310		
4,200.0	4,193.0	4,200.5	4,192.8	9.7	9.9	-129.34	-147.4	119.6	236.2	216.8	19.33	12.218		
4,300.0	4,292.8	4,300.4	4,292.4	10.0	10.2	-128.96	-154.4	120.2	240.7	220.9	19.84	12.130		
4,400.0	4,392.5	4,400.3	4,392.1	10.2	10.4	-128.60	-161.3	120.8	245.2	224.9	20.36	12.048		
4,500.0	4,492.3	4,500.1	4,491.7	10.5	10.7	-128.25	-168.3	121.5	249.8	228.9	20.87	11.969		
4,600.0	4,592.0	4,600.0	4,591.3	10.7	11.0	-127.91	-175.2	122.1	254.3	233.0	21.38	11.895		
4,700.0	4,691.8	4,699.9	4,691.0	11.0	11.2	-127.59	-182.1	122.7	258.9	237.0	21.90	11.824		
4,800.0	4,791.6	4,799.8	4,790.6	11.3	11.5	-127.27	-189.1	123.4	263.5	241.1	22.41	11.756		
4,900.0	4,891.3	4,899.7	4,890.3	11.5	11.8	-126.97	-196.0	124.0	268.1	245.1	22.93	11.692		
5,000.0	4,991.1	4,999.6	4,989.9	11.8	12.0	-126.68	-203.0	124.7	272.7	249.2	23.44	11.630		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1305A - HZ - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,100.0	5,090.8	5,099.5	5,089.6	12.0	12.3	-126.39	-209.9	125.3	277.3	253.3	23.96	11.571		
5,200.0	5,190.6	5,199.3	5,189.2	12.3	12.5	-126.12	-216.8	125.9	281.9	257.4	24.48	11.515		
5,300.0	5,290.3	5,299.2	5,288.8	12.6	12.8	-125.85	-223.8	126.6	286.5	261.5	24.99	11.462		
5,400.0	5,390.1	5,396.2	5,385.2	12.8	13.1	-124.95	-233.8	127.5	291.4	265.8	25.54	11.407		
5,438.0	5,428.0	5,431.7	5,419.9	12.9	13.2	-123.85	-241.5	128.2	293.7	267.9	25.80	11.385		
5,450.0	5,440.0	5,442.7	5,430.5	13.0	13.3	-123.35	-244.3	128.5	294.6	268.7	25.87	11.388		
5,500.0	5,489.4	5,487.9	5,473.5	13.1	13.5	-121.10	-258.3	129.7	300.5	274.3	26.19	11.473		
5,550.0	5,538.0	5,531.9	5,513.9	13.3	13.7	-118.60	-275.4	131.3	309.7	283.2	26.53	11.674		
5,600.0	5,585.3	5,574.5	5,551.6	13.6	14.0	-115.91	-295.2	133.1	322.2	295.3	26.92	11.971		
5,650.0	5,630.7	5,615.6	5,586.3	13.9	14.3	-113.05	-317.1	135.1	337.7	310.4	27.36	12.342		
5,700.0	5,674.0	5,655.3	5,618.1	14.2	14.6	-110.07	-340.8	137.3	356.0	328.1	27.88	12.766		
5,750.0	5,714.6	5,693.7	5,647.0	14.6	14.9	-106.99	-365.9	139.6	376.7	348.2	28.50	13.218		
5,800.0	5,752.3	5,730.7	5,673.0	15.0	15.3	-103.83	-392.1	142.0	399.5	370.3	29.24	13.662		
5,850.0	5,786.7	5,766.4	5,696.3	15.5	15.7	-100.60	-419.1	144.5	424.2	394.2	30.08	14.104		
5,900.0	5,817.4	5,800.0	5,716.5	16.0	16.0	-97.32	-445.8	147.0	450.5	419.5	30.98	14.542		
5,950.0	5,844.2	5,834.7	5,735.4	16.6	16.4	-94.03	-474.7	149.6	478.0	446.1	31.95	14.960		
6,000.0	5,866.8	5,867.3	5,751.5	17.2	16.8	-90.74	-503.0	152.2	506.6	473.6	32.94	15.377		
6,050.0	5,885.1	5,900.0	5,765.8	17.9	17.2	-87.49	-532.3	154.9	535.9	501.9	33.94	15.787		
6,100.0	5,898.8	5,930.6	5,777.4	18.6	17.6	-84.27	-560.4	157.5	565.7	530.8	34.93	16.197		
6,150.0	5,907.9	5,961.5	5,787.5	19.4	18.1	-81.16	-589.5	160.2	595.8	559.9	35.89	16.601		
6,200.0	5,912.2	5,992.1	5,795.7	20.1	18.5	-78.18	-618.8	162.9	626.1	589.2	36.84	16.995		
6,219.8	5,912.5	6,000.0	5,797.6	20.4	18.6	-76.87	-626.5	163.6	638.1	600.9	37.15	17.178		
6,300.0	5,912.5	6,054.7	5,807.1	21.6	19.4	-79.02	-680.1	168.5	686.0	646.4	39.54	17.351		
6,400.0	5,912.5	6,124.7	5,811.1	23.0	20.4	-80.50	-749.6	174.9	743.8	701.5	42.35	17.563		
6,500.0	5,912.5	6,267.4	5,811.1	24.5	22.4	-81.76	-892.2	182.2	794.9	748.9	46.00	17.282		
6,600.0	5,912.5	6,368.8	5,811.1	26.0	24.0	-82.41	-993.6	182.4	837.0	787.7	49.34	16.966		
6,700.0	5,912.5	6,461.5	5,811.1	27.6	25.5	-82.89	-1,086.3	182.4	874.3	821.6	52.64	16.607		
6,800.0	5,912.5	6,556.0	5,811.1	29.1	27.1	-83.26	-1,180.8	182.4	906.7	850.7	55.97	16.198		
6,900.0	5,912.5	6,652.1	5,811.1	30.7	28.8	-83.56	-1,276.9	182.4	934.2	874.9	59.29	15.756		
7,000.0	5,912.5	6,749.5	5,811.1	32.2	30.5	-83.79	-1,374.3	182.4	956.6	894.1	62.56	15.291		
7,100.0	5,912.5	6,848.0	5,811.1	33.7	32.2	-83.95	-1,472.7	182.4	974.0	908.2	65.75	14.813		
7,200.0	5,912.5	6,947.2	5,811.1	35.3	34.0	-84.07	-1,572.0	182.4	986.2	917.4	68.83	14.328		
7,300.0	5,912.5	7,047.0	5,811.1	36.8	35.7	-84.13	-1,671.7	182.4	993.2	921.4	71.76	13.840		
7,384.9	5,912.5	7,131.9	5,811.1	38.0	37.3	-84.15	-1,756.6	182.4	995.1	921.0	74.13	13.424		
7,400.0	5,912.5	7,146.9	5,811.1	38.3	37.6	-84.15	-1,771.7	182.4	995.1	920.4	74.64	13.331		
7,500.0	5,912.5	7,246.9	5,811.1	39.8	39.4	-84.15	-1,871.7	182.4	995.1	917.0	78.09	12.743		
7,600.0	5,912.5	7,346.9	5,811.1	41.3	41.2	-84.15	-1,971.7	182.5	995.1	913.5	81.56	12.200		
7,700.0	5,912.5	7,446.9	5,811.1	42.9	43.0	-84.15	-2,071.7	182.5	995.1	910.0	85.07	11.697		
7,800.0	5,912.5	7,546.9	5,811.1	44.5	44.9	-84.15	-2,171.7	182.5	995.1	906.5	88.61	11.230		
7,900.0	5,912.5	7,646.9	5,811.1	46.1	46.7	-84.15	-2,271.7	182.5	995.1	902.9	92.17	10.796		
8,000.0	5,912.5	7,746.9	5,811.1	47.8	48.6	-84.15	-2,371.7	182.5	995.1	899.3	95.75	10.392		
8,100.0	5,912.4	7,846.9	5,811.0	49.4	50.4	-84.15	-2,471.7	182.5	995.1	895.7	99.35	10.016		
8,200.0	5,912.4	7,946.9	5,811.0	51.1	52.3	-84.15	-2,571.7	182.5	995.1	892.1	102.97	9.664		
8,300.0	5,912.4	8,046.9	5,811.0	52.8	54.2	-84.15	-2,671.7	182.5	995.1	888.5	106.60	9.335		
8,400.0	5,912.4	8,146.9	5,811.0	54.5	56.0	-84.15	-2,771.7	182.5	995.1	884.9	110.25	9.026		
8,500.0	5,912.4	8,246.9	5,811.0	56.2	57.9	-84.15	-2,871.7	182.5	995.1	881.2	113.91	8.736		
8,600.0	5,912.4	8,346.9	5,811.0	58.0	59.8	-84.15	-2,971.7	182.5	995.1	877.5	117.58	8.463		
8,700.0	5,912.4	8,446.9	5,811.0	59.7	61.7	-84.15	-3,071.7	182.5	995.1	873.9	121.26	8.207		
8,800.0	5,912.4	8,546.9	5,811.0	61.5	63.5	-84.15	-3,171.7	182.6	995.1	870.2	124.95	7.964		
8,900.0	5,912.4	8,646.9	5,811.0	63.3	65.4	-84.16	-3,271.7	182.6	995.1	866.5	128.65	7.735		
9,000.0	5,912.4	8,746.9	5,811.0	65.0	67.3	-84.16	-3,371.7	182.6	995.1	862.8	132.35	7.519		
9,100.0	5,912.4	8,846.9	5,811.0	66.8	69.2	-84.16	-3,471.7	182.6	995.1	859.1	136.06	7.314		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1305A - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: O-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
9,200.0	5,912.4	8,946.9	5,811.0	68.6	71.1	-84.16	-3,571.7	182.6	995.1	855.3	139.78	7.119		
9,300.0	5,912.4	9,046.9	5,811.0	70.4	73.0	-84.16	-3,671.7	182.6	995.1	851.6	143.50	6.935		
9,400.0	5,912.4	9,146.9	5,811.0	72.2	74.9	-84.16	-3,771.7	182.6	995.1	847.9	147.23	6.759		
9,500.0	5,912.3	9,246.9	5,811.0	74.0	76.8	-84.16	-3,871.7	182.6	995.1	844.2	150.97	6.592		
9,600.0	5,912.3	9,346.9	5,811.0	75.9	78.7	-84.16	-3,971.7	182.6	995.1	840.4	154.71	6.432		
9,700.0	5,912.3	9,446.9	5,811.0	77.7	80.6	-84.16	-4,071.7	182.6	995.1	836.7	158.45	6.280		
9,800.0	5,912.3	9,546.9	5,811.0	79.5	82.5	-84.16	-4,171.7	182.6	995.1	832.9	162.20	6.135		
9,900.0	5,912.3	9,646.9	5,811.0	81.3	84.4	-84.16	-4,271.7	182.6	995.1	829.2	165.95	5.997		
10,000.0	5,912.3	9,746.9	5,811.0	83.2	86.3	-84.16	-4,371.7	182.6	995.1	825.4	169.70	5.864		
10,100.0	5,912.3	9,846.9	5,811.0	85.0	88.2	-84.16	-4,471.7	182.7	995.1	821.7	173.46	5.737		
10,200.0	5,912.3	9,946.9	5,811.0	86.9	90.1	-84.16	-4,571.7	182.7	995.2	817.9	177.22	5.615		
10,300.0	5,912.3	10,046.9	5,811.0	88.7	92.0	-84.16	-4,671.7	182.7	995.2	814.2	180.98	5.499		
10,400.0	5,912.3	10,146.9	5,811.0	90.6	93.9	-84.16	-4,771.7	182.7	995.2	810.4	184.75	5.386		
10,500.0	5,912.3	10,246.9	5,811.0	92.4	95.8	-84.16	-4,871.7	182.7	995.2	806.6	188.52	5.279		
10,600.0	5,912.3	10,346.9	5,811.0	94.3	97.7	-84.16	-4,971.7	182.7	995.2	802.9	192.29	5.175		
10,700.0	5,912.3	10,446.9	5,811.0	96.1	99.6	-84.16	-5,071.7	182.7	995.2	799.1	196.06	5.076		
10,800.0	5,912.2	10,546.9	5,811.0	98.0	101.5	-84.16	-5,171.7	182.7	995.2	795.3	199.84	4.980		
10,900.0	5,912.2	10,646.9	5,811.0	99.9	103.4	-84.16	-5,271.7	182.7	995.2	791.6	203.62	4.887		
11,000.0	5,912.2	10,746.9	5,811.0	101.7	105.3	-84.16	-5,371.7	182.7	995.2	787.8	207.40	4.798		
11,100.0	5,912.2	10,846.9	5,811.0	103.6	107.2	-84.16	-5,471.7	182.7	995.2	784.0	211.18	4.713		
11,200.0	5,912.2	10,946.9	5,811.0	105.5	109.1	-84.16	-5,571.7	182.7	995.2	780.2	214.96	4.630		
11,300.0	5,912.2	11,046.9	5,811.0	107.3	111.0	-84.16	-5,671.7	182.8	995.2	776.4	218.74	4.550		
11,400.0	5,912.2	11,146.9	5,811.0	109.2	113.0	-84.17	-5,771.7	182.8	995.2	772.7	222.53	4.472		
11,500.0	5,912.2	11,246.9	5,811.0	111.1	114.9	-84.17	-5,871.7	182.8	995.2	768.9	226.32	4.397		
11,600.0	5,912.2	11,346.9	5,811.0	113.0	116.8	-84.17	-5,971.7	182.8	995.2	765.1	230.11	4.325		
11,700.0	5,912.2	11,446.9	5,811.0	114.8	118.7	-84.17	-6,071.7	182.8	995.2	761.3	233.89	4.255		
11,800.0	5,912.2	11,546.9	5,811.0	116.7	120.6	-84.17	-6,171.7	182.8	995.2	757.5	237.69	4.187		
11,900.0	5,912.2	11,646.9	5,811.0	118.6	122.5	-84.17	-6,271.7	182.8	995.2	753.7	241.48	4.121		
12,000.0	5,912.2	11,746.9	5,811.0	120.5	124.4	-84.17	-6,371.7	182.8	995.2	749.9	245.27	4.058		
12,100.0	5,912.1	11,846.9	5,811.0	122.4	126.3	-84.17	-6,471.7	182.8	995.2	746.1	249.07	3.996		
12,200.0	5,912.1	11,946.9	5,811.0	124.3	128.2	-84.17	-6,571.7	182.8	995.2	742.3	252.86	3.936		
12,300.0	5,912.1	12,046.9	5,811.0	126.1	130.2	-84.17	-6,671.7	182.8	995.2	738.5	256.66	3.878		
12,400.0	5,912.1	12,146.9	5,811.0	128.0	132.1	-84.17	-6,771.7	182.8	995.2	734.8	260.45	3.821		
12,500.0	5,912.1	12,246.9	5,811.0	129.9	134.0	-84.17	-6,871.7	182.8	995.2	731.0	264.25	3.766		
12,600.0	5,912.1	12,346.9	5,811.0	131.8	135.9	-84.17	-6,971.7	182.9	995.2	727.2	268.05	3.713		
12,700.0	5,912.1	12,446.9	5,811.0	133.7	137.8	-84.17	-7,071.7	182.9	995.2	723.4	271.85	3.661		
12,800.0	5,912.1	12,546.9	5,811.0	135.6	139.7	-84.17	-7,171.7	182.9	995.2	719.6	275.65	3.610		
12,900.0	5,912.1	12,646.9	5,811.0	137.5	141.6	-84.17	-7,271.7	182.9	995.2	715.8	279.45	3.561		
13,000.0	5,912.1	12,746.9	5,811.0	139.4	143.5	-84.17	-7,371.7	182.9	995.2	712.0	283.25	3.514		
13,100.0	5,912.1	12,846.9	5,811.0	141.3	145.5	-84.17	-7,471.7	182.9	995.2	708.2	287.06	3.467		
13,200.0	5,912.1	12,946.9	5,811.0	143.2	147.4	-84.17	-7,571.7	182.9	995.2	704.4	290.86	3.422		
13,300.0	5,912.1	13,046.9	5,811.0	145.1	149.3	-84.17	-7,671.7	182.9	995.2	700.6	294.66	3.378		
13,400.0	5,912.0	13,146.9	5,811.0	146.9	151.2	-84.17	-7,771.7	182.9	995.2	696.8	298.47	3.334		
13,500.0	5,912.0	13,246.9	5,811.0	148.8	153.1	-84.17	-7,871.7	182.9	995.2	693.0	302.27	3.292		
13,600.0	5,912.0	13,346.9	5,811.0	150.7	155.0	-84.17	-7,971.7	182.9	995.2	689.2	306.08	3.252		
13,700.0	5,912.0	13,446.9	5,811.0	152.6	157.0	-84.17	-8,071.7	182.9	995.2	685.4	309.88	3.212		
13,800.0	5,912.0	13,546.9	5,811.0	154.5	158.9	-84.18	-8,171.7	182.9	995.2	681.5	313.69	3.173		
13,841.6	5,912.0	13,588.6	5,811.0	155.2	159.7	-84.18	-8,213.3	183.0	995.2	680.1	315.11	3.158		
13,872.5	5,912.0	13,617.4	5,811.0	155.7	160.2	-84.18	-8,242.1	183.0	995.2	679.1	316.16	3.148 SF		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1306B - HZ - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	90.01	0.0	131.4	131.4					
100.0	100.0	100.0	100.0	0.1	0.1	90.01	0.0	131.4	131.4	131.2	0.19	702.684		
200.0	200.0	200.0	200.0	0.3	0.3	90.01	0.0	131.4	131.4	130.8	0.64	206.438		
300.0	300.0	300.0	300.0	0.5	0.5	90.01	0.0	131.4	131.4	130.3	1.09	120.992		
400.0	400.0	400.0	400.0	0.8	0.8	90.01	0.0	131.4	131.4	129.9	1.54	85.573		
500.0	500.0	500.0	500.0	1.0	1.0	90.01	0.0	131.4	131.4	129.4	1.99	66.195		
600.0	600.0	600.0	600.0	1.2	1.2	90.01	0.0	131.4	131.4	129.0	2.43	53.973		
700.0	700.0	700.0	700.0	1.4	1.4	90.01	0.0	131.4	131.4	128.5	2.88	45.561		
800.0	800.0	800.0	800.0	1.7	1.7	90.01	0.0	131.4	131.4	128.1	3.33	39.417		
900.0	900.0	900.0	900.0	1.9	1.9	90.01	0.0	131.4	131.4	127.6	3.78	34.733		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	90.01	0.0	131.4	131.4	127.2	4.23	31.045 CC, ES		
1,100.0	1,100.0	1,098.5	1,098.4	2.3	2.3	90.70	-1.6	132.0	132.0	127.3	4.65	28.375		
1,200.0	1,200.0	1,196.7	1,196.5	2.6	2.5	92.74	-6.4	133.6	133.8	128.8	5.05	26.496		
1,300.0	1,300.0	1,296.4	1,296.0	2.8	2.7	-120.08	-12.9	136.0	137.5	132.1	5.44	25.286		
1,400.0	1,399.8	1,396.3	1,395.6	2.9	2.9	-119.25	-19.5	138.3	143.0	137.2	5.81	24.594		
1,500.0	1,499.6	1,496.1	1,495.2	3.1	3.1	-119.16	-26.1	140.6	149.4	143.2	6.21	24.050		
1,600.0	1,599.4	1,595.9	1,594.7	3.3	3.3	-119.07	-32.6	142.9	155.7	149.1	6.62	23.513		
1,700.0	1,699.1	1,695.7	1,694.3	3.5	3.5	-119.00	-39.2	145.2	162.1	155.0	7.05	22.993		
1,800.0	1,798.9	1,795.5	1,793.8	3.8	3.8	-118.93	-45.8	147.5	168.5	161.0	7.49	22.499		
1,900.0	1,898.6	1,895.2	1,893.4	4.0	4.0	-118.86	-52.3	149.8	174.8	166.9	7.93	22.034		
2,000.0	1,998.4	1,995.0	1,992.9	4.2	4.2	-118.80	-58.9	152.1	181.2	172.8	8.39	21.597		
2,100.0	2,098.1	2,094.8	2,092.5	4.4	4.5	-118.74	-65.5	154.5	187.6	178.7	8.85	21.189		
2,200.0	2,197.9	2,194.6	2,192.1	4.7	4.7	-118.69	-72.0	156.8	193.9	184.6	9.32	20.809		
2,300.0	2,297.6	2,294.4	2,291.6	4.9	5.0	-118.64	-78.6	159.1	200.3	190.5	9.79	20.455		
2,400.0	2,397.4	2,394.2	2,391.2	5.2	5.2	-118.59	-85.2	161.4	206.7	196.4	10.27	20.125		
2,500.0	2,497.2	2,494.0	2,490.7	5.4	5.5	-118.55	-91.7	163.7	213.0	202.3	10.75	19.818		
2,600.0	2,596.9	2,593.8	2,590.3	5.6	5.7	-118.51	-98.3	166.0	219.4	208.2	11.23	19.532		
2,700.0	2,696.7	2,693.6	2,689.8	5.9	6.0	-118.47	-104.9	168.3	225.8	214.0	11.72	19.264		
2,800.0	2,796.4	2,793.4	2,789.4	6.1	6.2	-118.43	-111.4	170.6	232.1	219.9	12.21	19.014		
2,900.0	2,896.2	2,893.2	2,888.9	6.4	6.5	-118.40	-118.0	173.0	238.5	225.8	12.70	18.780		
3,000.0	2,995.9	2,993.0	2,988.5	6.6	6.7	-118.36	-124.6	175.3	244.9	231.7	13.19	18.561		
3,100.0	3,095.7	3,092.8	3,088.0	6.9	7.0	-118.33	-131.1	177.6	251.2	237.5	13.69	18.355		
3,200.0	3,195.5	3,192.6	3,187.6	7.1	7.2	-118.30	-137.7	179.9	257.6	243.4	14.18	18.161		
3,300.0	3,295.2	3,292.4	3,287.1	7.4	7.5	-118.27	-144.3	182.2	264.0	249.3	14.68	17.979		
3,400.0	3,395.0	3,392.2	3,386.7	7.7	7.8	-118.25	-150.8	184.5	270.3	255.1	15.18	17.808		
3,500.0	3,494.7	3,492.0	3,486.3	7.9	8.0	-118.22	-157.4	186.8	276.7	261.0	15.68	17.646		
3,600.0	3,594.5	3,591.8	3,585.8	8.2	8.3	-118.19	-164.0	189.1	283.1	266.9	16.18	17.493		
3,700.0	3,694.2	3,691.6	3,685.4	8.4	8.5	-118.17	-170.5	191.5	289.4	272.7	16.68	17.348		
3,800.0	3,794.0	3,791.4	3,784.9	8.7	8.8	-118.15	-177.1	193.8	295.8	278.6	17.19	17.211		
3,900.0	3,893.7	3,891.2	3,884.5	8.9	9.0	-118.13	-183.7	196.1	302.2	284.5	17.69	17.080		
4,000.0	3,993.5	3,991.0	3,984.0	9.2	9.3	-118.11	-190.2	198.4	308.5	290.3	18.19	16.957		
4,100.0	4,093.3	4,090.8	4,083.6	9.4	9.6	-118.09	-196.8	200.7	314.9	296.2	18.70	16.839		
4,200.0	4,193.0	4,190.6	4,183.1	9.7	9.8	-118.07	-203.4	203.0	321.3	302.1	19.21	16.727		
4,300.0	4,292.8	4,290.4	4,282.7	10.0	10.1	-118.05	-209.9	205.3	327.6	307.9	19.71	16.621		
4,400.0	4,392.5	4,390.2	4,382.2	10.2	10.3	-118.03	-216.5	207.6	334.0	313.8	20.22	16.519		
4,500.0	4,492.3	4,490.0	4,481.8	10.5	10.6	-118.01	-223.1	210.0	340.4	319.6	20.73	16.422		
4,600.0	4,592.0	4,589.8	4,581.3	10.7	10.9	-118.00	-229.6	212.3	346.7	325.5	21.23	16.329		
4,700.0	4,691.8	4,689.6	4,680.9	11.0	11.1	-117.98	-236.2	214.6	353.1	331.4	21.74	16.240		
4,800.0	4,791.6	4,789.4	4,780.5	11.3	11.4	-117.97	-242.8	216.9	359.5	337.2	22.25	16.155		
4,900.0	4,891.3	4,889.2	4,880.0	11.5	11.6	-117.95	-249.3	219.2	365.8	343.1	22.76	16.074		
5,000.0	4,991.1	4,989.0	4,979.6	11.8	11.9	-117.94	-255.9	221.5	372.2	348.9	23.27	15.995		
5,100.0	5,090.8	5,088.8	5,079.1	12.0	12.2	-117.92	-262.5	223.8	378.6	354.8	23.78	15.920		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1306B - HZ - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,190.6	5,188.5	5,178.7	12.3	12.4	-117.91	-269.0	226.1	384.9	360.7	24.29	15.848		
5,300.0	5,290.3	5,288.3	5,278.2	12.6	12.7	-117.90	-275.6	228.5	391.3	366.5	24.80	15.779		
5,400.0	5,390.1	5,388.1	5,377.8	12.8	13.0	-117.88	-282.2	230.8	397.7	372.4	25.31	15.713		
5,438.0	5,428.0	5,426.1	5,415.6	12.9	13.1	-117.88	-284.7	231.6	400.1	374.6	25.50	15.688		
5,450.0	5,440.0	5,438.0	5,427.5	13.0	13.1	-117.82	-285.4	231.9	400.9	375.4	25.56	15.688		
5,500.0	5,489.4	5,475.0	5,464.3	13.1	13.2	-117.42	-289.1	233.2	406.5	380.8	25.75	15.789		
5,550.0	5,538.0	5,511.5	5,500.2	13.3	13.3	-116.76	-295.1	235.3	415.9	389.9	25.95	16.028		
5,600.0	5,585.3	5,550.0	5,537.5	13.6	13.5	-115.86	-304.0	238.5	428.8	402.7	26.18	16.381		
5,650.0	5,630.7	5,581.9	5,567.8	13.9	13.6	-114.60	-313.4	241.8	445.2	418.7	26.43	16.842		
5,700.0	5,674.0	5,615.4	5,599.0	14.2	13.8	-113.08	-325.0	245.9	464.7	438.0	26.75	17.370		
5,750.0	5,714.6	5,650.0	5,630.2	14.6	14.0	-111.30	-339.0	250.8	487.2	460.1	27.16	17.939		
5,800.0	5,752.3	5,678.6	5,655.3	15.0	14.2	-109.08	-352.1	255.4	512.4	484.7	27.66	18.528		
5,850.0	5,786.7	5,708.1	5,680.3	15.5	14.4	-106.58	-366.9	260.6	540.0	511.6	28.33	19.060		
5,900.0	5,817.4	5,736.2	5,703.2	16.0	14.6	-103.73	-382.2	266.0	569.7	540.6	29.13	19.555		
5,950.0	5,844.2	5,762.8	5,724.1	16.6	14.9	-100.54	-397.7	271.5	601.3	571.2	30.04	20.014		
6,000.0	5,866.8	5,788.0	5,743.1	17.2	15.1	-97.01	-413.3	276.9	634.4	603.4	31.03	20.447		
6,050.0	5,885.1	5,811.7	5,760.2	17.9	15.3	-93.16	-428.8	282.4	668.8	636.8	32.03	20.878		
6,100.0	5,898.8	5,834.1	5,775.6	18.6	15.5	-89.05	-444.1	287.8	704.3	671.3	33.01	21.336		
6,150.0	5,907.9	5,850.0	5,786.2	19.4	15.7	-84.36	-455.3	291.7	740.5	706.7	33.84	21.885		
6,200.0	5,912.2	5,874.8	5,801.9	20.1	15.9	-80.26	-473.4	298.1	777.3	742.7	34.62	22.451		
6,219.8	5,912.5	5,882.2	5,806.4	20.4	16.0	-78.47	-479.0	300.1	792.0	757.1	34.86	22.716		
6,300.0	5,912.5	5,914.1	5,824.9	21.6	16.4	-81.21	-503.5	308.7	851.4	814.6	36.79	23.143		
6,400.0	5,912.5	5,960.8	5,849.0	23.0	16.9	-84.25	-541.1	322.0	924.8	885.7	39.08	23.666		
6,500.0	5,912.5	6,015.7	5,872.6	24.5	17.7	-86.75	-587.9	338.4	996.6	955.1	41.41	24.066		
6,600.0	5,912.5	6,079.4	5,893.3	26.0	18.6	-88.59	-644.7	358.4	1,065.8	1,022.0	43.83	24.317		
6,700.0	5,912.5	6,151.2	5,907.5	27.6	19.6	-89.67	-711.0	381.8	1,131.8	1,085.4	46.39	24.400		
6,800.0	5,912.5	6,244.4	5,912.1	29.1	21.1	-89.97	-798.8	412.5	1,193.9	1,144.7	49.27	24.231		
6,900.0	5,912.5	6,481.4	5,912.1	30.7	24.5	-89.97	-1,027.4	474.3	1,245.8	1,191.7	54.08	23.034		
7,000.0	5,912.5	6,758.4	5,912.1	32.2	28.8	-89.98	-1,301.9	509.9	1,280.8	1,220.8	60.01	21.343		
7,100.0	5,912.5	6,929.4	5,912.1	33.7	31.5	-89.98	-1,472.8	513.0	1,299.2	1,234.7	64.51	20.140		
7,200.0	5,912.5	7,028.6	5,912.1	35.3	33.1	-89.98	-1,572.1	513.0	1,311.5	1,243.7	67.82	19.336		
7,300.0	5,912.5	7,128.4	5,912.1	36.8	34.8	-89.98	-1,671.8	512.9	1,318.5	1,247.5	71.02	18.565		
7,384.9	5,912.5	7,213.3	5,912.1	38.0	36.3	-89.98	-1,756.7	512.9	1,320.4	1,246.8	73.62	17.935		
7,400.0	5,912.5	7,228.4	5,912.1	38.3	36.6	-89.98	-1,771.8	512.9	1,320.4	1,246.3	74.13	17.811		
7,500.0	5,912.5	7,328.4	5,912.1	39.8	38.3	-89.98	-1,871.8	512.9	1,320.4	1,242.8	77.55	17.026		
7,600.0	5,912.5	7,428.4	5,912.1	41.3	40.1	-89.98	-1,971.8	512.9	1,320.4	1,239.4	81.01	16.299		
7,700.0	5,912.5	7,528.4	5,912.1	42.9	41.8	-89.98	-2,071.8	512.9	1,320.4	1,235.9	84.50	15.625		
7,800.0	5,912.5	7,628.4	5,912.1	44.5	43.6	-89.98	-2,171.8	512.9	1,320.4	1,232.3	88.03	15.000		
7,900.0	5,912.5	7,728.4	5,912.1	46.1	45.4	-89.98	-2,271.8	512.9	1,320.4	1,228.8	91.58	14.418		
8,000.0	5,912.5	7,828.4	5,912.1	47.8	47.2	-89.98	-2,371.8	512.9	1,320.4	1,225.2	95.15	13.877		
8,100.0	5,912.4	7,928.4	5,912.1	49.4	49.0	-89.98	-2,471.8	512.9	1,320.3	1,221.6	98.74	13.372		
8,200.0	5,912.4	8,028.4	5,912.1	51.1	50.9	-89.98	-2,571.8	512.9	1,320.3	1,218.0	102.36	12.900		
8,300.0	5,912.4	8,128.4	5,912.1	52.8	52.7	-89.98	-2,671.8	512.9	1,320.3	1,214.3	105.99	12.458		
8,400.0	5,912.4	8,228.4	5,912.1	54.5	54.5	-89.98	-2,771.8	512.9	1,320.3	1,210.7	109.63	12.043		
8,500.0	5,912.4	8,328.4	5,912.0	56.2	56.4	-89.98	-2,871.8	512.9	1,320.3	1,207.0	113.29	11.654		
8,600.0	5,912.4	8,428.4	5,912.0	58.0	58.2	-89.98	-2,971.8	512.9	1,320.3	1,203.3	116.96	11.289		
8,700.0	5,912.4	8,528.4	5,912.0	59.7	60.1	-89.98	-3,071.8	512.9	1,320.3	1,199.7	120.64	10.944		
8,800.0	5,912.4	8,628.4	5,912.0	61.5	61.9	-89.98	-3,171.8	512.9	1,320.3	1,196.0	124.33	10.619		
8,900.0	5,912.4	8,728.4	5,912.0	63.3	63.8	-89.99	-3,271.8	512.9	1,320.3	1,192.2	128.03	10.312		
9,000.0	5,912.4	8,828.4	5,912.0	65.0	65.7	-89.99	-3,371.8	512.9	1,320.3	1,188.5	131.74	10.022		
9,100.0	5,912.4	8,928.4	5,912.0	66.8	67.5	-89.99	-3,471.8	512.9	1,320.3	1,184.8	135.46	9.747		
9,200.0	5,912.4	9,028.4	5,912.0	68.6	69.4	-89.99	-3,571.8	512.9	1,320.3	1,181.1	139.18	9.486		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1306B - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
9,300.0	5,912.4	9,128.4	5,912.0	70.4	71.3	-89.99	-3,671.8	512.9	1,320.2	1,177.3	142.91	9.238		
9,400.0	5,912.4	9,228.4	5,912.0	72.2	73.1	-89.99	-3,771.8	512.9	1,320.2	1,173.6	146.65	9.003		
9,500.0	5,912.3	9,328.4	5,912.0	74.0	75.0	-89.99	-3,871.8	512.9	1,320.2	1,169.8	150.39	8.779		
9,600.0	5,912.3	9,428.4	5,912.0	75.9	76.9	-89.99	-3,971.8	512.9	1,320.2	1,166.1	154.14	8.565		
9,700.0	5,912.3	9,528.4	5,912.0	77.7	78.8	-89.99	-4,071.8	512.9	1,320.2	1,162.3	157.89	8.362		
9,800.0	5,912.3	9,628.4	5,912.0	79.5	80.7	-89.99	-4,171.8	512.9	1,320.2	1,158.6	161.65	8.167		
9,900.0	5,912.3	9,728.4	5,912.0	81.3	82.5	-89.99	-4,271.8	512.9	1,320.2	1,154.8	165.41	7.982		
10,000.0	5,912.3	9,828.4	5,912.0	83.2	84.4	-89.99	-4,371.8	512.9	1,320.2	1,151.0	169.17	7.804		
10,100.0	5,912.3	9,928.4	5,912.0	85.0	86.3	-89.99	-4,471.8	512.9	1,320.2	1,147.2	172.94	7.634		
10,200.0	5,912.3	10,028.4	5,912.0	86.9	88.2	-89.99	-4,571.8	512.9	1,320.2	1,143.5	176.71	7.471		
10,300.0	5,912.3	10,128.4	5,912.0	88.7	90.1	-89.99	-4,671.8	512.8	1,320.2	1,139.7	180.48	7.315		
10,400.0	5,912.3	10,228.4	5,912.0	90.6	92.0	-89.99	-4,771.8	512.8	1,320.2	1,135.9	184.26	7.165		
10,500.0	5,912.3	10,328.4	5,912.0	92.4	93.9	-89.99	-4,871.8	512.8	1,320.2	1,132.1	188.04	7.021		
10,600.0	5,912.3	10,428.4	5,912.0	94.3	95.8	-89.99	-4,971.8	512.8	1,320.1	1,128.3	191.82	6.882		
10,700.0	5,912.3	10,528.4	5,912.0	96.1	97.7	-89.99	-5,071.8	512.8	1,320.1	1,124.5	195.61	6.749		
10,800.0	5,912.2	10,628.4	5,912.0	98.0	99.6	-89.99	-5,171.8	512.8	1,320.1	1,120.7	199.39	6.621		
10,900.0	5,912.2	10,728.4	5,912.0	99.9	101.5	-89.99	-5,271.8	512.8	1,320.1	1,116.9	203.18	6.497		
11,000.0	5,912.2	10,828.4	5,912.0	101.7	103.4	-89.99	-5,371.8	512.8	1,320.1	1,113.1	206.98	6.378		
11,100.0	5,912.2	10,928.4	5,912.0	103.6	105.3	-89.99	-5,471.8	512.8	1,320.1	1,109.3	210.77	6.263		
11,200.0	5,912.2	11,028.4	5,912.0	105.5	107.2	-89.99	-5,571.8	512.8	1,320.1	1,105.5	214.56	6.152		
11,300.0	5,912.2	11,128.4	5,912.0	107.3	109.1	-89.99	-5,671.8	512.8	1,320.1	1,101.7	218.36	6.045		
11,400.0	5,912.2	11,228.4	5,912.0	109.2	111.0	-89.99	-5,771.8	512.8	1,320.1	1,097.9	222.16	5.942		
11,500.0	5,912.2	11,328.4	5,912.0	111.1	112.9	-89.99	-5,871.8	512.8	1,320.1	1,094.1	225.96	5.842		
11,600.0	5,912.2	11,428.4	5,912.0	113.0	114.8	-89.99	-5,971.8	512.8	1,320.1	1,090.3	229.76	5.745		
11,700.0	5,912.2	11,528.4	5,912.0	114.8	116.7	-89.99	-6,071.8	512.8	1,320.1	1,086.5	233.56	5.652		
11,800.0	5,912.2	11,628.4	5,912.0	116.7	118.6	-89.99	-6,171.8	512.8	1,320.0	1,082.7	237.37	5.561		
11,900.0	5,912.2	11,728.4	5,912.0	118.6	120.5	-89.99	-6,271.8	512.8	1,320.0	1,078.9	241.17	5.473		
12,000.0	5,912.2	11,828.4	5,912.0	120.5	122.4	-89.99	-6,371.8	512.8	1,320.0	1,075.1	244.98	5.388		
12,100.0	5,912.1	11,928.4	5,912.0	122.4	124.3	-89.99	-6,471.8	512.8	1,320.0	1,071.2	248.79	5.306		
12,200.0	5,912.1	12,028.4	5,912.0	124.3	126.2	-90.00	-6,571.8	512.8	1,320.0	1,067.4	252.59	5.226		
12,300.0	5,912.1	12,128.4	5,912.0	126.1	128.1	-90.00	-6,671.8	512.8	1,320.0	1,063.6	256.40	5.148		
12,400.0	5,912.1	12,228.4	5,912.0	128.0	130.0	-90.00	-6,771.8	512.8	1,320.0	1,059.8	260.22	5.073		
12,500.0	5,912.1	12,328.4	5,912.0	129.9	131.9	-90.00	-6,871.8	512.8	1,320.0	1,056.0	264.03	4.999		
12,600.0	5,912.1	12,428.4	5,912.0	131.8	133.8	-90.00	-6,971.8	512.8	1,320.0	1,052.1	267.84	4.928		
12,700.0	5,912.1	12,528.4	5,912.0	133.7	135.8	-90.00	-7,071.8	512.8	1,320.0	1,048.3	271.65	4.859		
12,800.0	5,912.1	12,628.4	5,912.0	135.6	137.7	-90.00	-7,171.8	512.8	1,320.0	1,044.5	275.47	4.792		
12,900.0	5,912.1	12,728.4	5,912.0	137.5	139.6	-90.00	-7,271.8	512.8	1,320.0	1,040.7	279.28	4.726		
13,000.0	5,912.1	12,828.4	5,912.0	139.4	141.5	-90.00	-7,371.8	512.8	1,320.0	1,036.9	283.10	4.662		
13,100.0	5,912.1	12,928.4	5,912.0	141.3	143.4	-90.00	-7,471.8	512.8	1,319.9	1,033.0	286.92	4.600		
13,200.0	5,912.1	13,028.4	5,912.0	143.2	145.3	-90.00	-7,571.8	512.8	1,319.9	1,029.2	290.73	4.540		
13,300.0	5,912.1	13,128.4	5,912.0	145.1	147.2	-90.00	-7,671.8	512.8	1,319.9	1,025.4	294.55	4.481		
13,400.0	5,912.0	13,228.4	5,912.0	146.9	149.1	-90.00	-7,771.8	512.7	1,319.9	1,021.5	298.37	4.424		
13,500.0	5,912.0	13,328.4	5,912.0	148.8	151.0	-90.00	-7,871.8	512.7	1,319.9	1,017.7	302.19	4.368		
13,600.0	5,912.0	13,428.4	5,912.0	150.7	152.9	-90.00	-7,971.8	512.7	1,319.9	1,013.9	306.01	4.313		
13,700.0	5,912.0	13,528.4	5,912.0	152.6	154.9	-90.00	-8,071.8	512.7	1,319.9	1,010.1	309.83	4.260		
13,800.0	5,912.0	13,628.4	5,912.0	154.5	156.7	-90.00	-8,171.8	512.7	1,319.9	1,006.3	313.55	4.209		
13,852.4	5,912.0	13,680.7	5,912.0	155.4	157.5	-90.00	-8,224.1	512.7	1,319.9	1,004.7	315.18	4.188		
13,872.5	5,912.0	13,695.8	5,912.0	155.7	157.7	-90.00	-8,239.2	512.7	1,319.9	1,004.2	315.74	4.180 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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1307A - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	65.52	74.9	164.4	180.7					
100.0	100.0	100.0	100.0	0.1	0.1	65.52	74.9	164.4	180.7	180.5	0.19	966.203		
200.0	200.0	200.0	200.0	0.3	0.3	65.52	74.9	164.4	180.7	180.1	0.64	283.864		
300.0	300.0	300.0	300.0	0.5	0.5	65.52	74.9	164.4	180.7	179.6	1.09	166.370		
400.0	400.0	400.0	400.0	0.8	0.8	65.52	74.9	164.4	180.7	179.2	1.54	117.666 CC		
500.0	500.0	499.4	499.3	1.0	1.0	66.07	73.4	165.3	180.9	178.9	1.96	92.273 ES		
600.0	600.0	598.5	598.3	1.2	1.2	67.69	68.9	167.9	181.5	179.1	2.38	76.275		
700.0	700.0	698.3	697.9	1.4	1.4	69.85	62.9	171.3	182.5	179.7	2.82	64.745		
800.0	800.0	798.0	797.4	1.7	1.6	71.99	56.8	174.8	183.8	180.5	3.27	56.184		
900.0	900.0	897.8	896.9	1.9	1.8	74.10	50.8	178.2	185.4	181.6	3.73	49.649		
1,000.0	1,000.0	997.5	996.4	2.1	2.1	76.17	44.7	181.7	187.2	183.0	4.20	44.541		
1,100.0	1,100.0	1,097.3	1,095.9	2.3	2.3	78.19	38.7	185.2	189.2	184.5	4.68	40.467		
1,200.0	1,200.0	1,197.0	1,195.4	2.6	2.6	80.17	32.7	188.6	191.5	186.3	5.15	37.161		
1,300.0	1,300.0	1,296.8	1,295.0	2.8	2.9	-133.16	26.6	192.1	195.2	189.6	5.60	34.853		
1,400.0	1,399.8	1,396.6	1,394.5	2.9	3.1	-132.31	20.6	195.5	201.3	195.3	6.02	33.419		
1,500.0	1,499.6	1,496.3	1,494.0	3.1	3.4	-131.96	14.6	199.0	208.7	202.2	6.46	32.292		
1,600.0	1,599.4	1,596.0	1,593.4	3.3	3.6	-131.63	8.5	202.4	216.0	209.1	6.91	31.267		
1,700.0	1,699.1	1,695.8	1,692.9	3.5	3.9	-131.32	2.5	205.9	223.4	216.1	7.36	30.337		
1,800.0	1,798.9	1,795.5	1,792.4	3.8	4.1	-131.03	-3.6	209.4	230.8	223.0	7.83	29.492		
1,900.0	1,898.6	1,895.2	1,891.9	4.0	4.4	-130.75	-9.6	212.8	238.2	229.9	8.29	28.722		
2,000.0	1,998.4	1,994.9	1,991.4	4.2	4.7	-130.50	-15.6	216.3	245.6	236.8	8.76	28.021		
2,100.0	2,098.1	2,094.6	2,090.8	4.4	4.9	-130.26	-21.7	219.7	253.0	243.7	9.24	27.380		
2,200.0	2,197.9	2,194.4	2,190.3	4.7	5.2	-130.03	-27.7	223.2	260.4	250.6	9.72	26.789		
2,300.0	2,297.6	2,294.1	2,289.8	4.9	5.4	-129.82	-33.7	226.6	267.8	257.6	10.20	26.246		
2,400.0	2,397.4	2,393.8	2,389.3	5.2	5.7	-129.61	-39.8	230.1	275.2	264.5	10.69	25.747		
2,500.0	2,497.2	2,493.5	2,488.7	5.4	6.0	-129.42	-45.8	233.6	282.6	271.4	11.17	25.285		
2,600.0	2,596.9	2,593.2	2,588.2	5.6	6.2	-129.24	-51.8	237.0	290.0	278.3	11.66	24.859		
2,700.0	2,696.7	2,693.0	2,687.7	5.9	6.5	-129.06	-57.9	240.5	297.4	285.2	12.16	24.463		
2,800.0	2,796.4	2,792.7	2,787.2	6.1	6.8	-128.90	-63.9	243.9	304.8	292.1	12.65	24.096		
2,900.0	2,896.2	2,892.4	2,886.7	6.4	7.0	-128.74	-70.0	247.4	312.2	299.1	13.14	23.754		
3,000.0	2,995.9	2,992.1	2,986.1	6.6	7.3	-128.59	-76.0	250.8	319.6	306.0	13.64	23.434		
3,100.0	3,095.7	3,091.8	3,085.6	6.9	7.5	-128.45	-82.0	254.3	327.1	312.9	14.14	23.136		
3,200.0	3,195.5	3,191.6	3,185.1	7.1	7.8	-128.31	-88.1	257.8	334.5	319.8	14.63	22.856		
3,300.0	3,295.2	3,291.3	3,284.6	7.4	8.1	-128.18	-94.1	261.2	341.9	326.8	15.13	22.593		
3,400.0	3,395.0	3,391.0	3,384.1	7.7	8.3	-128.06	-100.1	264.7	349.3	333.7	15.63	22.346		
3,500.0	3,494.7	3,490.7	3,483.5	7.9	8.6	-127.94	-106.2	268.1	356.8	340.6	16.13	22.114		
3,600.0	3,594.5	3,590.5	3,583.0	8.2	8.9	-127.82	-112.2	271.6	364.2	347.6	16.63	21.894		
3,700.0	3,694.2	3,690.2	3,682.5	8.4	9.1	-127.71	-118.2	275.0	371.6	354.5	17.14	21.687		
3,800.0	3,794.0	3,789.9	3,782.0	8.7	9.4	-127.60	-124.3	278.5	379.1	361.4	17.64	21.491		
3,900.0	3,893.7	3,889.6	3,881.4	8.9	9.6	-127.50	-130.3	282.0	386.5	368.4	18.14	21.305		
4,000.0	3,993.5	3,989.3	3,980.9	9.2	9.9	-127.40	-136.4	285.4	393.9	375.3	18.64	21.129		
4,100.0	4,093.3	4,089.1	4,080.4	9.4	10.2	-127.31	-142.4	288.9	401.4	382.2	19.15	20.962		
4,200.0	4,193.0	4,188.8	4,179.9	9.7	10.4	-127.22	-148.4	292.3	408.8	389.1	19.65	20.803		
4,300.0	4,292.8	4,288.5	4,279.4	10.0	10.7	-127.13	-154.5	295.8	416.2	396.1	20.16	20.651		
4,400.0	4,392.5	4,388.2	4,378.8	10.2	11.0	-127.05	-160.5	299.2	423.7	403.0	20.66	20.507		
4,500.0	4,492.3	4,487.9	4,478.3	10.5	11.2	-126.96	-166.5	302.7	431.1	410.0	21.17	20.369		
4,600.0	4,592.0	4,587.7	4,577.8	10.7	11.5	-126.88	-172.6	306.2	438.6	416.9	21.67	20.237		
4,700.0	4,691.8	4,687.4	4,677.3	11.0	11.8	-126.81	-178.6	309.6	446.0	423.8	22.18	20.112		
4,800.0	4,791.6	4,787.1	4,776.7	11.3	12.0	-126.73	-184.6	313.1	453.4	430.8	22.68	19.991		
4,900.0	4,891.3	4,886.8	4,876.2	11.5	12.3	-126.66	-190.7	316.5	460.9	437.7	23.19	19.876		
5,000.0	4,991.1	4,986.5	4,975.7	11.8	12.5	-126.59	-196.7	320.0	468.3	444.6	23.69	19.765		
5,100.0	5,090.8	5,086.3	5,075.2	12.0	12.8	-126.53	-202.8	323.4	475.8	451.6	24.20	19.659		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1307A - HZ - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,190.6	5,186.0	5,174.7	12.3	13.1	-126.46	-208.8	326.9	483.2	458.5	24.71	19.557		
5,300.0	5,290.3	5,285.7	5,274.1	12.6	13.3	-126.40	-214.8	330.4	490.7	465.5	25.21	19.459		
5,400.0	5,390.1	5,370.6	5,358.7	12.8	13.6	-126.24	-220.8	333.8	498.8	473.1	25.70	19.412		
5,438.0	5,428.0	5,400.0	5,387.7	12.9	13.7	-125.96	-224.9	336.1	503.3	477.4	25.88	19.443		
5,450.0	5,440.0	5,400.0	5,387.7	13.0	13.7	-125.81	-224.9	336.1	504.9	479.0	25.90	19.496		
5,500.0	5,489.4	5,437.5	5,424.3	13.1	13.8	-124.55	-232.2	340.3	514.5	488.4	26.08	19.726		
5,550.0	5,538.0	5,469.6	5,455.0	13.3	14.0	-123.03	-240.2	344.9	528.2	502.0	26.23	20.139		
5,600.0	5,585.3	5,500.0	5,483.6	13.6	14.1	-121.19	-249.3	350.1	545.9	519.5	26.38	20.698		
5,650.0	5,630.7	5,530.1	5,511.2	13.9	14.3	-119.00	-259.7	356.0	567.2	540.6	26.57	21.348		
5,700.0	5,674.0	5,550.0	5,529.0	14.2	14.4	-116.35	-267.3	360.4	591.9	565.1	26.78	22.097		
5,750.0	5,714.6	5,584.6	5,559.2	14.6	14.7	-113.49	-281.9	368.8	619.3	592.1	27.18	22.784		
5,800.0	5,752.3	5,609.3	5,580.1	15.0	14.9	-110.12	-293.5	375.4	649.4	621.7	27.67	23.471		
5,850.0	5,786.7	5,632.5	5,599.0	15.5	15.1	-106.32	-305.0	382.0	681.7	653.3	28.35	24.045		
5,900.0	5,817.4	5,650.0	5,612.9	16.0	15.2	-101.93	-314.3	387.3	715.9	686.7	29.15	24.557		
5,950.0	5,844.2	5,673.7	5,631.2	16.6	15.4	-97.42	-327.4	394.8	751.6	721.5	30.06	25.005		
6,000.0	5,866.8	5,700.0	5,650.6	17.2	15.7	-92.83	-342.8	403.6	788.6	757.6	30.98	25.454		
6,050.0	5,885.1	5,700.0	5,650.6	17.9	15.7	-86.46	-342.8	403.6	826.5	794.7	31.71	26.065		
6,100.0	5,898.8	5,723.5	5,667.2	18.6	15.9	-81.48	-357.2	411.9	864.8	832.5	32.38	26.708		
6,150.0	5,907.9	5,736.9	5,676.3	19.4	16.1	-75.85	-365.7	416.8	903.6	870.9	32.75	27.595		
6,200.0	5,912.2	5,750.0	5,685.0	20.1	16.2	-70.39	-374.3	421.7	942.5	909.6	32.86	28.683		
6,219.8	5,912.5	5,750.0	5,685.0	20.4	16.2	-67.89	-374.3	421.7	957.9	925.1	32.73	29.264		
6,300.0	5,912.5	5,770.8	5,698.2	21.6	16.4	-70.54	-388.2	429.6	1,020.1	985.3	34.74	29.364		
6,400.0	5,912.5	5,800.0	5,715.7	23.0	16.8	-73.62	-408.5	441.3	1,097.6	1,060.5	37.10	29.585		
6,500.0	5,912.5	5,827.5	5,730.9	24.5	17.1	-76.12	-428.3	452.6	1,174.4	1,135.1	39.35	29.849		
6,600.0	5,912.5	5,863.4	5,749.0	26.0	17.6	-78.56	-455.3	468.1	1,250.3	1,208.7	41.62	30.038		
6,700.0	5,912.5	5,900.0	5,765.1	27.6	18.1	-80.54	-483.7	484.4	1,324.6	1,280.8	43.82	30.229		
6,800.0	5,912.5	5,950.0	5,783.4	29.1	18.8	-82.42	-524.1	507.5	1,396.9	1,350.8	46.11	30.292		
6,900.0	5,912.5	6,007.3	5,798.7	30.7	19.7	-83.89	-572.0	534.9	1,466.7	1,418.3	48.45	30.273		
7,000.0	5,912.5	6,067.0	5,808.2	32.2	20.6	-84.84	-623.1	564.2	1,533.7	1,482.9	50.79	30.197		
7,100.0	5,912.5	6,201.0	5,810.8	33.7	22.8	-85.49	-740.2	629.3	1,597.1	1,543.0	54.11	29.513		
7,200.0	5,912.5	6,788.9	5,810.8	35.3	32.2	-86.32	-1,295.3	815.5	1,640.7	1,575.7	64.98	25.249		
7,300.0	5,912.5	7,167.0	5,810.8	36.8	38.2	-86.47	-1,671.9	843.0	1,651.7	1,578.4	73.24	22.551		
7,384.9	5,912.5	7,251.9	5,810.8	38.0	39.6	-86.48	-1,756.8	842.9	1,653.5	1,577.5	76.07	21.737		
7,400.0	5,912.5	7,267.0	5,810.8	38.3	39.8	-86.48	-1,771.9	842.9	1,653.5	1,577.0	76.58	21.593		
7,500.0	5,912.5	7,367.0	5,810.9	39.8	41.5	-86.48	-1,871.9	842.9	1,653.5	1,573.6	79.95	20.682		
7,600.0	5,912.5	7,467.0	5,810.9	41.3	43.2	-86.48	-1,971.9	842.9	1,653.5	1,570.1	83.37	19.834		
7,700.0	5,912.5	7,567.0	5,810.9	42.9	44.8	-86.48	-2,071.9	842.9	1,653.5	1,566.7	86.82	19.045		
7,800.0	5,912.5	7,667.0	5,810.9	44.5	46.5	-86.48	-2,171.9	842.9	1,653.5	1,563.2	90.31	18.309		
7,900.0	5,912.5	7,767.0	5,810.9	46.1	48.3	-86.48	-2,271.9	842.9	1,653.5	1,559.7	93.82	17.623		
8,000.0	5,912.5	7,867.0	5,810.9	47.8	50.0	-86.48	-2,371.9	842.9	1,653.5	1,556.1	97.36	16.982		
8,100.0	5,912.4	7,967.0	5,810.9	49.4	51.8	-86.48	-2,471.9	842.9	1,653.4	1,552.5	100.93	16.382		
8,200.0	5,912.4	8,067.0	5,810.9	51.1	53.5	-86.48	-2,571.9	842.9	1,653.4	1,548.9	104.51	15.821		
8,300.0	5,912.4	8,167.0	5,810.9	52.8	55.3	-86.48	-2,671.9	842.9	1,653.4	1,545.3	108.11	15.293		
8,400.0	5,912.4	8,267.0	5,810.9	54.5	57.1	-86.48	-2,771.9	842.9	1,653.4	1,541.7	111.73	14.798		
8,500.0	5,912.4	8,367.0	5,810.9	56.2	58.9	-86.48	-2,871.9	842.9	1,653.4	1,538.0	115.37	14.332		
8,600.0	5,912.4	8,467.0	5,810.9	58.0	60.7	-86.48	-2,971.9	842.9	1,653.4	1,534.4	119.01	13.893		
8,700.0	5,912.4	8,567.0	5,810.9	59.7	62.5	-86.48	-3,071.9	842.9	1,653.4	1,530.7	122.67	13.478		
8,800.0	5,912.4	8,667.0	5,810.9	61.5	64.3	-86.48	-3,171.9	842.9	1,653.4	1,527.0	126.34	13.087		
8,900.0	5,912.4	8,767.0	5,810.9	63.3	66.1	-86.48	-3,271.9	842.8	1,653.4	1,523.3	130.02	12.716		
9,000.0	5,912.4	8,867.0	5,810.9	65.0	67.9	-86.48	-3,371.9	842.8	1,653.3	1,519.6	133.71	12.365		
9,100.0	5,912.4	8,967.0	5,810.9	66.8	69.7	-86.48	-3,471.9	842.8	1,653.3	1,515.9	137.41	12.032		
9,200.0	5,912.4	9,067.0	5,810.9	68.6	71.6	-86.48	-3,571.9	842.8	1,653.3	1,512.2	141.11	11.716		

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1307A - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning	
9,300.0	5,912.4	9,167.0	5,810.9	70.4	73.4	-86.48	-3,671.9	842.8	1,653.3	1,508.5	144.82	11.416		
9,400.0	5,912.4	9,267.0	5,810.9	72.2	75.3	-86.48	-3,771.9	842.8	1,653.3	1,504.7	148.54	11.130		
9,500.0	5,912.3	9,367.0	5,810.9	74.0	77.1	-86.48	-3,871.9	842.8	1,653.3	1,501.0	152.27	10.858		
9,600.0	5,912.3	9,467.0	5,810.9	75.9	79.0	-86.48	-3,971.9	842.8	1,653.3	1,497.3	156.00	10.598		
9,700.0	5,912.3	9,567.0	5,810.9	77.7	80.8	-86.48	-4,071.9	842.8	1,653.3	1,493.5	159.73	10.350		
9,800.0	5,912.3	9,667.0	5,810.9	79.5	82.7	-86.48	-4,171.9	842.8	1,653.2	1,489.8	163.47	10.113		
9,900.0	5,912.3	9,767.0	5,810.9	81.3	84.5	-86.48	-4,271.9	842.8	1,653.2	1,486.0	167.22	9.887		
10,000.0	5,912.3	9,867.0	5,810.9	83.2	86.4	-86.48	-4,371.9	842.8	1,653.2	1,482.3	170.97	9.670		
10,100.0	5,912.3	9,967.0	5,810.9	85.0	88.3	-86.48	-4,471.9	842.8	1,653.2	1,478.5	174.72	9.462		
10,200.0	5,912.3	10,067.0	5,810.9	86.9	90.1	-86.48	-4,571.9	842.8	1,653.2	1,474.7	178.48	9.263		
10,300.0	5,912.3	10,167.0	5,810.9	88.7	92.0	-86.48	-4,671.9	842.8	1,653.2	1,470.9	182.24	9.072		
10,400.0	5,912.3	10,267.0	5,810.9	90.6	93.9	-86.49	-4,771.9	842.7	1,653.2	1,467.2	186.00	8.888		
10,500.0	5,912.3	10,367.0	5,810.9	92.4	95.7	-86.49	-4,871.9	842.7	1,653.2	1,463.4	189.77	8.712		
10,600.0	5,912.3	10,467.0	5,810.9	94.3	97.6	-86.49	-4,971.9	842.7	1,653.1	1,459.6	193.54	8.542		
10,700.0	5,912.3	10,567.0	5,810.9	96.1	99.5	-86.49	-5,071.9	842.7	1,653.1	1,455.8	197.31	8.378		
10,800.0	5,912.2	10,667.0	5,810.9	98.0	101.4	-86.49	-5,171.9	842.7	1,653.1	1,452.0	201.08	8.221		
10,900.0	5,912.2	10,767.0	5,810.9	99.9	103.3	-86.49	-5,271.9	842.7	1,653.1	1,448.2	204.86	8.069		
11,000.0	5,912.2	10,867.0	5,810.9	101.7	105.1	-86.49	-5,371.9	842.7	1,653.1	1,444.5	208.64	7.923		
11,100.0	5,912.2	10,967.0	5,810.9	103.6	107.0	-86.49	-5,471.9	842.7	1,653.1	1,440.7	212.42	7.782		
11,200.0	5,912.2	11,067.0	5,810.9	105.5	108.9	-86.49	-5,571.9	842.7	1,653.1	1,436.9	216.20	7.646		
11,300.0	5,912.2	11,167.0	5,810.9	107.3	110.8	-86.49	-5,671.9	842.7	1,653.1	1,433.1	219.99	7.514		
11,400.0	5,912.2	11,267.0	5,810.9	109.2	112.7	-86.49	-5,771.9	842.7	1,653.0	1,429.3	223.78	7.387		
11,500.0	5,912.2	11,367.0	5,810.9	111.1	114.6	-86.49	-5,871.9	842.7	1,653.0	1,425.5	227.56	7.264		
11,600.0	5,912.2	11,467.0	5,810.9	113.0	116.5	-86.49	-5,971.9	842.7	1,653.0	1,421.7	231.35	7.145		
11,700.0	5,912.2	11,567.0	5,810.9	114.8	118.3	-86.49	-6,071.9	842.7	1,653.0	1,417.9	235.15	7.030		
11,800.0	5,912.2	11,667.0	5,811.0	116.7	120.2	-86.49	-6,171.9	842.6	1,653.0	1,414.1	238.94	6.918		
11,900.0	5,912.2	11,767.0	5,811.0	118.6	122.1	-86.49	-6,271.9	842.6	1,653.0	1,410.3	242.74	6.810		
12,000.0	5,912.2	11,867.0	5,811.0	120.5	124.0	-86.49	-6,371.9	842.6	1,653.0	1,406.4	246.53	6.705		
12,100.0	5,912.1	11,967.0	5,811.0	122.4	125.9	-86.49	-6,471.9	842.6	1,653.0	1,402.6	250.33	6.603		
12,200.0	5,912.1	12,067.0	5,811.0	124.3	127.8	-86.49	-6,571.9	842.6	1,653.0	1,398.8	254.13	6.504		
12,300.0	5,912.1	12,167.0	5,811.0	126.1	129.7	-86.49	-6,671.9	842.6	1,652.9	1,395.0	257.93	6.409		
12,400.0	5,912.1	12,267.0	5,811.0	128.0	131.6	-86.49	-6,771.9	842.6	1,652.9	1,391.2	261.73	6.315		
12,500.0	5,912.1	12,367.0	5,811.0	129.9	133.5	-86.49	-6,871.9	842.6	1,652.9	1,387.4	265.53	6.225		
12,600.0	5,912.1	12,467.0	5,811.0	131.8	135.4	-86.49	-6,971.9	842.6	1,652.9	1,383.6	269.33	6.137		
12,700.0	5,912.1	12,567.0	5,811.0	133.7	137.3	-86.49	-7,071.9	842.6	1,652.9	1,379.8	273.14	6.051		
12,800.0	5,912.1	12,667.0	5,811.0	135.6	139.2	-86.49	-7,171.9	842.6	1,652.9	1,375.9	276.94	5.968		
12,900.0	5,912.1	12,767.0	5,811.0	137.5	141.1	-86.49	-7,271.9	842.6	1,652.9	1,372.1	280.75	5.887		
13,000.0	5,912.1	12,867.0	5,811.0	139.4	143.0	-86.49	-7,371.9	842.6	1,652.9	1,368.3	284.56	5.809		
13,100.0	5,912.1	12,967.0	5,811.0	141.3	144.9	-86.49	-7,471.9	842.6	1,652.8	1,364.5	288.36	5.732		
13,200.0	5,912.1	13,067.0	5,811.0	143.2	146.8	-86.49	-7,571.9	842.6	1,652.8	1,360.7	292.17	5.657		
13,300.0	5,912.1	13,167.0	5,811.0	145.1	148.7	-86.49	-7,671.9	842.5	1,652.8	1,356.8	295.98	5.584		
13,400.0	5,912.0	13,267.0	5,811.0	146.9	150.6	-86.49	-7,771.9	842.5	1,652.8	1,353.0	299.79	5.513		
13,500.0	5,912.0	13,367.0	5,811.0	148.8	152.5	-86.50	-7,871.9	842.5	1,652.8	1,349.2	303.60	5.444		
13,600.0	5,912.0	13,467.0	5,811.0	150.7	154.4	-86.50	-7,971.9	842.5	1,652.8	1,345.4	307.41	5.376		
13,700.0	5,912.0	13,567.0	5,811.0	152.6	156.3	-86.50	-8,071.9	842.5	1,652.8	1,341.5	311.22	5.311		
13,800.0	5,912.0	13,667.0	5,811.0	154.5	158.2	-86.50	-8,171.9	842.5	1,652.8	1,337.7	315.04	5.246		
13,852.8	5,912.0	13,719.8	5,811.0	155.4	159.2	-86.50	-8,224.7	842.5	1,652.7	1,335.9	316.86	5.216		
13,872.5	5,912.0	13,734.0	5,811.0	155.7	159.5	-86.50	-8,238.9	842.5	1,652.8	1,335.3	317.45	5.206 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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal#12F-1308B - HZ - Plan #1														Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	90.01	0.0	197.5	197.5						
100.0	100.0	100.0	100.0	0.1	0.1	90.01	0.0	197.5	197.5	197.3	0.19	1,056.081			
200.0	200.0	200.0	200.0	0.3	0.3	90.01	0.0	197.5	197.5	196.9	0.64	310.261			
300.0	300.0	300.0	300.0	0.5	0.5	90.01	0.0	197.5	197.5	196.4	1.09	181.842			
400.0	400.0	400.0	400.0	0.8	0.8	90.01	0.0	197.5	197.5	196.0	1.54	128.609			
500.0	500.0	500.0	500.0	1.0	1.0	90.01	0.0	197.5	197.5	195.5	1.99	99.486			
600.0	600.0	600.0	600.0	1.2	1.2	90.01	0.0	197.5	197.5	195.1	2.43	81.117			
700.0	700.0	700.0	700.0	1.4	1.4	90.01	0.0	197.5	197.5	194.6	2.88	68.474			
800.0	800.0	800.0	800.0	1.7	1.7	90.01	0.0	197.5	197.5	194.2	3.33	59.241			
900.0	900.0	900.0	900.0	1.9	1.9	90.01	0.0	197.5	197.5	193.7	3.78	52.202 CC, ES			
1,000.0	1,000.0	995.7	995.7	2.1	2.1	90.36	-1.3	198.5	198.6	194.4	4.20	47.284			
1,100.0	1,100.0	1,091.2	1,091.1	2.3	2.3	91.40	-4.9	201.6	201.8	197.2	4.60	43.864			
1,200.0	1,200.0	1,190.6	1,190.2	2.6	2.5	92.84	-10.2	206.0	206.5	201.5	5.02	41.117			
1,300.0	1,300.0	1,290.4	1,289.7	2.8	2.7	-121.03	-15.6	210.5	212.2	206.8	5.42	39.167			
1,400.0	1,399.8	1,390.1	1,389.2	2.9	2.9	-120.75	-20.9	214.9	219.7	213.9	5.80	37.860			
1,500.0	1,499.6	1,489.7	1,488.6	3.1	3.1	-121.00	-26.2	219.4	228.1	221.9	6.21	36.763			
1,600.0	1,599.4	1,589.4	1,588.0	3.3	3.3	-121.22	-31.6	223.9	236.6	229.9	6.62	35.724			
1,700.0	1,699.1	1,689.0	1,687.4	3.5	3.6	-121.44	-36.9	228.3	245.0	237.9	7.05	34.750			
1,800.0	1,798.9	1,788.6	1,786.8	3.8	3.8	-121.63	-42.2	232.8	253.4	245.9	7.49	33.843			
1,900.0	1,898.6	1,888.3	1,886.2	4.0	4.1	-121.82	-47.6	237.2	261.8	253.9	7.93	33.004			
2,000.0	1,998.4	1,987.9	1,985.6	4.2	4.3	-121.99	-52.9	241.7	270.3	261.9	8.39	32.228			
2,100.0	2,098.1	2,087.6	2,085.0	4.4	4.5	-122.15	-58.2	246.1	278.7	269.9	8.84	31.511			
2,200.0	2,197.9	2,187.2	2,184.4	4.7	4.8	-122.31	-63.6	250.6	287.1	277.8	9.31	30.848			
2,300.0	2,297.6	2,286.8	2,283.8	4.9	5.0	-122.45	-68.9	255.1	295.6	285.8	9.78	30.236			
2,400.0	2,397.4	2,386.5	2,383.2	5.2	5.3	-122.59	-74.2	259.5	304.0	293.8	10.25	29.669			
2,500.0	2,497.2	2,486.1	2,482.6	5.4	5.5	-122.72	-79.6	264.0	312.5	301.7	10.72	29.143			
2,600.0	2,596.9	2,585.8	2,582.0	5.6	5.8	-122.84	-84.9	268.4	320.9	309.7	11.20	28.655			
2,700.0	2,696.7	2,685.4	2,681.4	5.9	6.1	-122.95	-90.2	272.9	329.3	317.7	11.68	28.201			
2,800.0	2,796.4	2,785.0	2,780.8	6.1	6.3	-123.06	-95.6	277.3	337.8	325.6	12.16	27.778			
2,900.0	2,896.2	2,884.7	2,880.2	6.4	6.6	-123.17	-100.9	281.8	346.2	333.6	12.64	27.384			
3,000.0	2,995.9	2,984.3	2,979.6	6.6	6.8	-123.27	-106.2	286.2	354.7	341.5	13.13	27.015			
3,100.0	3,095.7	3,084.0	3,079.0	6.9	7.1	-123.36	-111.6	290.7	363.1	349.5	13.62	26.670			
3,200.0	3,195.5	3,183.6	3,178.4	7.1	7.3	-123.45	-116.9	295.2	371.6	357.5	14.10	26.346			
3,300.0	3,295.2	3,283.2	3,277.8	7.4	7.6	-123.54	-122.3	299.6	380.0	365.4	14.59	26.041			
3,400.0	3,395.0	3,382.9	3,377.2	7.7	7.9	-123.62	-127.6	304.1	388.5	373.4	15.08	25.755			
3,500.0	3,494.7	3,482.5	3,476.6	7.9	8.1	-123.70	-132.9	308.5	396.9	381.4	15.58	25.485			
3,600.0	3,594.5	3,582.2	3,576.0	8.2	8.4	-123.78	-138.3	313.0	405.4	389.3	16.07	25.230			
3,700.0	3,694.2	3,681.8	3,675.4	8.4	8.6	-123.85	-143.6	317.4	413.8	397.3	16.56	24.989			
3,800.0	3,794.0	3,781.5	3,774.8	8.7	8.9	-123.92	-148.9	321.9	422.3	405.2	17.05	24.761			
3,900.0	3,893.7	3,881.1	3,874.2	8.9	9.1	-123.99	-154.3	326.4	430.7	413.2	17.55	24.545			
4,000.0	3,993.5	3,980.7	3,973.6	9.2	9.4	-124.05	-159.6	330.8	439.2	421.1	18.04	24.340			
4,100.0	4,093.3	4,080.4	4,073.0	9.4	9.7	-124.12	-164.9	335.3	447.6	429.1	18.54	24.145			
4,200.0	4,193.0	4,180.0	4,172.4	9.7	9.9	-124.18	-170.3	339.7	456.1	437.1	19.04	23.960			
4,300.0	4,292.8	4,279.7	4,271.7	10.0	10.2	-124.23	-175.6	344.2	464.6	445.0	19.53	23.783			
4,400.0	4,392.5	4,379.3	4,371.1	10.2	10.4	-124.29	-180.9	348.6	473.0	453.0	20.03	23.615			
4,500.0	4,492.3	4,478.9	4,470.5	10.5	10.7	-124.34	-186.3	353.1	481.5	460.9	20.53	23.455			
4,600.0	4,592.0	4,578.6	4,569.9	10.7	11.0	-124.40	-191.6	357.6	489.9	468.9	21.03	23.301			
4,700.0	4,691.8	4,678.2	4,669.3	11.0	11.2	-124.45	-196.9	362.0	498.4	476.9	21.52	23.155			
4,800.0	4,791.6	4,777.9	4,768.7	11.3	11.5	-124.49	-202.3	366.5	506.8	484.8	22.02	23.014			
4,900.0	4,891.3	4,877.5	4,868.1	11.5	11.7	-124.54	-207.6	370.9	515.3	492.8	22.52	22.880			
5,000.0	4,991.1	4,977.1	4,967.5	11.8	12.0	-124.59	-212.9	375.4	523.8	500.7	23.02	22.751			
5,100.0	5,090.8	5,076.8	5,066.9	12.0	12.3	-124.63	-218.3	379.8	532.2	508.7	23.52	22.628			

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal#12F-1308B - HZ - Plan #1												Offset Site Error: 0.0 ft	
Survey Program: 0-ISCWSA MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance					Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis		Separation Factor
5,200.0	5,190.6	5,176.4	5,166.3	12.3	12.5	-124.67	-223.6	384.3	540.7	516.7	24.02	22.509	
5,300.0	5,290.3	5,276.1	5,265.7	12.6	12.8	-124.71	-228.9	388.8	549.1	524.6	24.52	22.395	
5,400.0	5,390.1	5,375.7	5,365.1	12.8	13.1	-124.75	-234.3	393.2	557.6	532.6	25.02	22.285	
5,438.0	5,428.0	5,413.6	5,402.9	12.9	13.2	-124.77	-236.3	394.9	560.8	535.6	25.21	22.245	
5,450.0	5,440.0	5,425.5	5,414.8	13.0	13.2	-124.69	-236.9	395.4	561.9	536.7	25.26	22.248	
5,500.0	5,489.4	5,450.0	5,439.2	13.1	13.3	-124.16	-238.3	396.6	568.8	543.4	25.36	22.429	
5,550.0	5,538.0	5,488.4	5,477.3	13.3	13.4	-123.46	-242.2	399.8	579.7	554.3	25.48	22.749	
5,600.0	5,585.3	5,516.0	5,504.4	13.6	13.5	-122.33	-246.2	403.2	595.1	569.5	25.58	23.265	
5,650.0	5,630.7	5,550.0	5,537.3	13.9	13.6	-120.98	-252.7	408.6	614.5	588.7	25.71	23.895	
5,700.0	5,674.0	5,567.5	5,554.0	14.2	13.7	-118.92	-256.7	412.0	637.4	611.5	25.87	24.634	
5,750.0	5,714.6	5,600.0	5,584.5	14.6	13.9	-116.83	-265.3	419.1	663.9	637.7	26.17	25.371	
5,800.0	5,752.3	5,612.7	5,596.2	15.0	13.9	-113.68	-269.0	422.2	693.2	666.6	26.57	26.084	
5,850.0	5,786.7	5,632.6	5,614.4	15.5	14.1	-110.25	-275.3	427.5	725.2	698.0	27.18	26.683	
5,900.0	5,817.4	5,650.0	5,630.0	16.0	14.2	-106.17	-281.2	432.4	759.6	731.5	28.02	27.111	
5,950.0	5,844.2	5,666.9	5,644.9	16.6	14.3	-101.54	-287.3	437.6	795.8	766.8	29.00	27.443	
6,000.0	5,866.8	5,681.1	5,657.2	17.2	14.4	-96.23	-292.8	442.1	833.6	803.5	30.04	27.753	
6,050.0	5,885.1	5,700.0	5,673.2	17.9	14.5	-90.87	-300.4	448.5	872.6	841.6	31.01	28.140	
6,100.0	5,898.8	5,700.0	5,673.2	18.6	14.5	-83.66	-300.4	448.5	912.4	880.7	31.70	28.785	
6,150.0	5,907.9	5,711.9	5,683.2	19.4	14.6	-77.33	-305.5	452.7	952.7	920.6	32.08	29.695	
6,200.0	5,912.2	5,718.1	5,688.3	20.1	14.7	-70.61	-308.2	455.0	993.2	961.2	32.00	31.037	
6,219.8	5,912.5	5,720.0	5,689.9	20.4	14.7	-67.98	-309.0	455.7	1,009.2	977.4	31.85	31.691	
6,300.0	5,912.5	5,727.6	5,696.0	21.6	14.7	-69.85	-312.4	458.5	1,074.1	1,040.6	33.54	32.026	
6,400.0	5,912.5	5,739.1	5,705.3	23.0	14.8	-72.16	-317.6	462.9	1,155.2	1,119.7	35.54	32.501	
6,500.0	5,912.5	5,750.0	5,713.9	24.5	14.9	-74.17	-322.7	467.1	1,236.2	1,198.7	37.48	32.982	
6,600.0	5,912.5	5,770.5	5,729.7	26.0	15.1	-76.58	-332.7	475.5	1,316.6	1,277.1	39.49	33.345	
6,700.0	5,912.5	5,791.3	5,745.3	27.6	15.3	-78.67	-343.3	484.4	1,396.3	1,354.9	41.38	33.745	
6,800.0	5,912.5	5,816.4	5,763.2	29.1	15.5	-80.67	-356.8	495.6	1,475.0	1,431.8	43.21	34.134	
6,900.0	5,912.5	5,850.0	5,785.9	30.7	15.9	-82.72	-375.8	511.5	1,552.4	1,507.4	45.02	34.483	
7,000.0	5,912.5	5,882.8	5,806.5	32.2	16.2	-84.36	-395.4	527.8	1,628.2	1,581.4	46.72	34.852	
7,100.0	5,912.5	5,926.2	5,831.2	33.7	16.8	-86.01	-422.7	550.7	1,702.0	1,653.5	48.43	35.144	
7,200.0	5,912.5	5,977.8	5,856.6	35.3	17.4	-87.46	-457.2	579.5	1,773.4	1,723.2	50.17	35.350	
7,300.0	5,912.5	6,038.3	5,880.5	36.8	18.3	-88.66	-499.9	615.1	1,842.0	1,790.0	51.98	35.434	
7,384.9	5,912.5	6,096.8	5,897.3	38.0	19.2	-89.40	-542.8	651.0	1,897.6	1,844.0	53.63	35.384	
7,400.0	5,912.5	6,107.8	5,899.8	38.3	19.4	-89.50	-551.0	657.9	1,907.2	1,853.2	54.01	35.312	
7,500.0	5,912.5	6,182.7	5,910.5	39.8	20.6	-89.92	-607.9	705.4	1,971.3	1,914.7	56.62	34.819	
7,600.0	5,912.5	7,660.1	5,911.8	41.3	45.1	-89.98	-1,971.9	1,173.4	1,980.9	1,897.1	83.81	23.635	
7,700.0	5,912.5	7,760.1	5,911.8	42.9	46.6	-89.98	-2,071.9	1,173.4	1,980.9	1,893.7	87.20	22.716	
7,800.0	5,912.5	7,860.1	5,911.8	44.5	48.2	-89.98	-2,171.9	1,173.4	1,980.8	1,890.2	90.63	21.857	
7,900.0	5,912.5	7,960.1	5,911.8	46.1	49.8	-89.98	-2,271.9	1,173.4	1,980.8	1,886.7	94.09	21.053	
8,000.0	5,912.5	8,060.1	5,911.8	47.8	51.4	-89.98	-2,371.9	1,173.4	1,980.8	1,883.2	97.58	20.300	
8,100.0	5,912.4	8,160.1	5,911.8	49.4	53.0	-89.98	-2,471.9	1,173.4	1,980.8	1,879.7	101.10	19.593	
8,200.0	5,912.4	8,260.1	5,911.8	51.1	54.7	-89.98	-2,571.9	1,173.4	1,980.8	1,876.2	104.64	18.930	
8,300.0	5,912.4	8,360.1	5,911.9	52.8	56.4	-89.98	-2,671.9	1,173.4	1,980.8	1,872.6	108.20	18.306	
8,400.0	5,912.4	8,460.1	5,911.9	54.5	58.0	-89.98	-2,771.9	1,173.4	1,980.8	1,869.0	111.78	17.720	
8,500.0	5,912.4	8,560.1	5,911.9	56.2	59.7	-89.98	-2,871.9	1,173.4	1,980.8	1,865.4	115.39	17.167	
8,600.0	5,912.4	8,660.1	5,911.9	58.0	61.4	-89.98	-2,971.9	1,173.4	1,980.8	1,861.8	119.00	16.645	
8,700.0	5,912.4	8,760.1	5,911.9	59.7	63.2	-89.98	-3,071.9	1,173.4	1,980.7	1,858.1	122.63	16.152	
8,800.0	5,912.4	8,860.1	5,911.9	61.5	64.9	-89.98	-3,171.9	1,173.3	1,980.7	1,854.5	126.28	15.686	
8,900.0	5,912.4	8,960.1	5,911.9	63.3	66.6	-89.98	-3,271.9	1,173.3	1,980.7	1,850.8	129.93	15.244	
9,000.0	5,912.4	9,060.1	5,911.9	65.0	68.4	-89.99	-3,371.9	1,173.3	1,980.7	1,847.1	133.60	14.826	
9,100.0	5,912.4	9,160.1	5,911.9	66.8	70.2	-89.99	-3,471.9	1,173.3	1,980.7	1,843.4	137.27	14.429	
9,200.0	5,912.4	9,260.1	5,911.9	68.6	71.9	-89.99	-3,571.9	1,173.3	1,980.7	1,839.7	140.96	14.052	

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-1302B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12F-1302B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal#12F-1308B - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning	
9,300.0	5,912.4	9,360.1	5,911.9	70.4	73.7	-89.99	-3,671.9	1,173.3	1,980.7	1,836.0	144.65	13.693		
9,400.0	5,912.4	9,460.1	5,911.9	72.2	75.5	-89.99	-3,771.9	1,173.3	1,980.7	1,832.3	148.36	13.351		
9,500.0	5,912.3	9,560.1	5,911.9	74.0	77.3	-89.99	-3,871.9	1,173.3	1,980.7	1,828.6	152.07	13.025		
9,600.0	5,912.3	9,660.1	5,911.9	75.9	79.1	-89.99	-3,971.9	1,173.3	1,980.7	1,824.9	155.78	12.714		
9,700.0	5,912.3	9,760.1	5,911.9	77.7	80.9	-89.99	-4,071.9	1,173.3	1,980.6	1,821.1	159.50	12.418		
9,800.0	5,912.3	9,860.1	5,911.9	79.5	82.7	-89.99	-4,171.9	1,173.3	1,980.6	1,817.4	163.23	12.134		
9,900.0	5,912.3	9,960.1	5,911.9	81.3	84.5	-89.99	-4,271.9	1,173.3	1,980.6	1,813.7	166.96	11.863		
10,000.0	5,912.3	10,060.1	5,911.9	83.2	86.3	-89.99	-4,371.9	1,173.3	1,980.6	1,809.9	170.70	11.603		
10,100.0	5,912.3	10,160.1	5,911.9	85.0	88.1	-89.99	-4,471.9	1,173.3	1,980.6	1,806.2	174.45	11.354		
10,200.0	5,912.3	10,260.1	5,911.9	86.9	90.0	-89.99	-4,571.9	1,173.3	1,980.6	1,802.4	178.19	11.115		
10,300.0	5,912.3	10,360.1	5,911.9	88.7	91.8	-89.99	-4,671.9	1,173.3	1,980.6	1,798.6	181.94	10.886		
10,400.0	5,912.3	10,460.1	5,911.9	90.6	93.6	-89.99	-4,771.9	1,173.3	1,980.6	1,794.9	185.70	10.665		
10,500.0	5,912.3	10,560.1	5,911.9	92.4	95.5	-89.99	-4,871.9	1,173.2	1,980.6	1,791.1	189.46	10.454		
10,600.0	5,912.3	10,660.1	5,911.9	94.3	97.3	-89.99	-4,971.9	1,173.2	1,980.5	1,787.3	193.22	10.250		
10,700.0	5,912.3	10,760.1	5,911.9	96.1	99.2	-89.99	-5,071.9	1,173.2	1,980.5	1,783.6	196.99	10.054		
10,800.0	5,912.2	10,860.1	5,911.9	98.0	101.0	-89.99	-5,171.9	1,173.2	1,980.5	1,779.8	200.76	9.865		
10,900.0	5,912.2	10,960.1	5,911.9	99.9	102.8	-89.99	-5,271.9	1,173.2	1,980.5	1,776.0	204.53	9.683		
11,000.0	5,912.2	11,060.1	5,911.9	101.7	104.7	-89.99	-5,371.9	1,173.2	1,980.5	1,772.2	208.30	9.508		
11,100.0	5,912.2	11,160.1	5,911.9	103.6	106.6	-89.99	-5,471.9	1,173.2	1,980.5	1,768.4	212.08	9.339		
11,200.0	5,912.2	11,260.1	5,911.9	105.5	108.4	-89.99	-5,571.9	1,173.2	1,980.5	1,764.6	215.86	9.175		
11,300.0	5,912.2	11,360.1	5,911.9	107.3	110.3	-89.99	-5,671.9	1,173.2	1,980.5	1,760.8	219.64	9.017		
11,400.0	5,912.2	11,460.1	5,911.9	109.2	112.1	-89.99	-5,771.9	1,173.2	1,980.5	1,757.0	223.42	8.864		
11,500.0	5,912.2	11,560.1	5,911.9	111.1	114.0	-89.99	-5,871.9	1,173.2	1,980.5	1,753.2	227.21	8.716		
11,600.0	5,912.2	11,660.1	5,911.9	113.0	115.9	-89.99	-5,971.9	1,173.2	1,980.4	1,749.4	231.00	8.574		
11,700.0	5,912.2	11,760.1	5,911.9	114.8	117.7	-89.99	-6,071.9	1,173.2	1,980.4	1,745.6	234.78	8.435		
11,800.0	5,912.2	11,860.1	5,912.0	116.7	119.6	-89.99	-6,171.9	1,173.2	1,980.4	1,741.8	238.58	8.301		
11,900.0	5,912.2	11,960.1	5,912.0	118.6	121.5	-89.99	-6,271.9	1,173.2	1,980.4	1,738.0	242.37	8.171		
12,000.0	5,912.2	12,060.1	5,912.0	120.5	123.3	-89.99	-6,371.9	1,173.2	1,980.4	1,734.2	246.16	8.045		
12,100.0	5,912.1	12,160.1	5,912.0	122.4	125.2	-89.99	-6,471.9	1,173.2	1,980.4	1,730.4	249.96	7.923		
12,200.0	5,912.1	12,260.1	5,912.0	124.3	127.1	-89.99	-6,571.9	1,173.2	1,980.4	1,726.6	253.76	7.804		
12,300.0	5,912.1	12,360.1	5,912.0	126.1	129.0	-90.00	-6,671.9	1,173.1	1,980.4	1,722.8	257.56	7.689		
12,400.0	5,912.1	12,460.1	5,912.0	128.0	130.9	-90.00	-6,771.9	1,173.1	1,980.4	1,719.0	261.36	7.577		
12,500.0	5,912.1	12,560.1	5,912.0	129.9	132.7	-90.00	-6,871.9	1,173.1	1,980.3	1,715.2	265.16	7.469		
12,600.0	5,912.1	12,660.1	5,912.0	131.8	134.6	-90.00	-6,971.9	1,173.1	1,980.3	1,711.4	268.96	7.363		
12,700.0	5,912.1	12,760.1	5,912.0	133.7	136.5	-90.00	-7,071.9	1,173.1	1,980.3	1,707.6	272.76	7.260		
12,800.0	5,912.1	12,860.1	5,912.0	135.6	138.4	-90.00	-7,171.9	1,173.1	1,980.3	1,703.7	276.57	7.160		
12,900.0	5,912.1	12,960.1	5,912.0	137.5	140.3	-90.00	-7,271.9	1,173.1	1,980.3	1,699.9	280.37	7.063		
13,000.0	5,912.1	13,060.1	5,912.0	139.4	142.1	-90.00	-7,371.9	1,173.1	1,980.3	1,696.1	284.18	6.968		
13,100.0	5,912.1	13,160.1	5,912.0	141.3	144.0	-90.00	-7,471.9	1,173.1	1,980.3	1,692.3	287.99	6.876		
13,200.0	5,912.1	13,260.1	5,912.0	143.2	145.9	-90.00	-7,571.9	1,173.1	1,980.3	1,688.5	291.80	6.786		
13,300.0	5,912.1	13,360.1	5,912.0	145.1	147.8	-90.00	-7,671.9	1,173.1	1,980.3	1,684.7	295.61	6.699		
13,400.0	5,912.0	13,460.1	5,912.0	146.9	149.7	-90.00	-7,771.9	1,173.1	1,980.3	1,680.8	299.42	6.614		
13,500.0	5,912.0	13,560.1	5,912.0	148.8	151.6	-90.00	-7,871.9	1,173.1	1,980.2	1,677.0	303.23	6.531		
13,600.0	5,912.0	13,660.1	5,912.0	150.7	153.5	-90.00	-7,971.9	1,173.1	1,980.2	1,673.2	307.04	6.449		
13,700.0	5,912.0	13,760.1	5,912.0	152.6	155.4	-90.00	-8,071.9	1,173.1	1,980.2	1,669.4	310.85	6.370		
13,800.0	5,912.0	13,860.1	5,912.0	154.5	157.3	-90.00	-8,171.9	1,173.1	1,980.2	1,665.5	314.67	6.293		
13,851.9	5,912.0	13,912.0	5,912.0	155.4	158.2	-90.00	-8,223.7	1,173.1	1,980.2	1,663.8	316.41	6.258		
13,872.5	5,912.0	13,925.4	5,912.0	155.7	158.4	-90.00	-8,237.2	1,173.1	1,980.2	1,663.3	316.96	6.248 SF		

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

Cathedral Energy Services

Anticollision Report

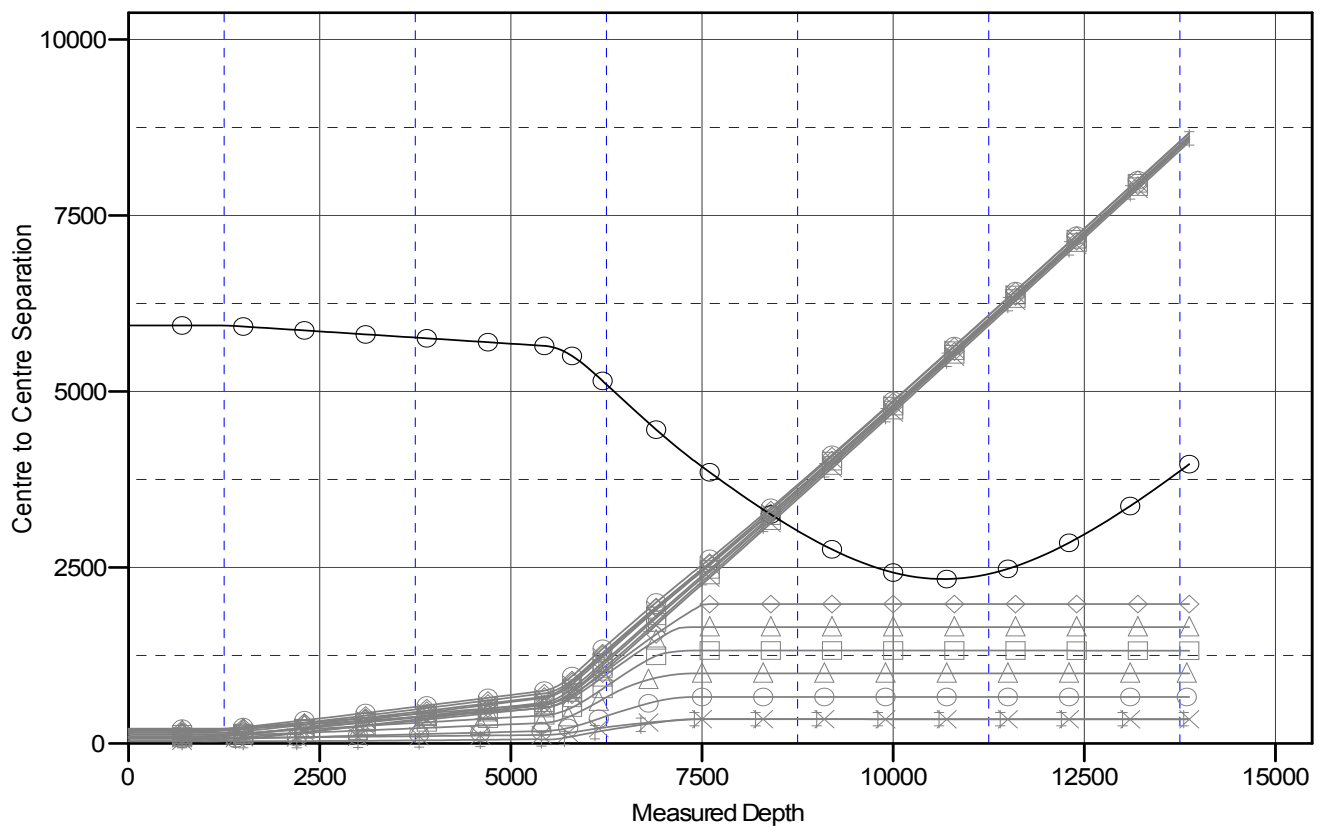
Company: Whiting Petroleum Corporation
Project: Weld County, CO
Reference Site: S12-T10N-R58W
Site Error: 0.0ft
Reference Well: Razor Federal #12F-1302B
Well Error: 0.0ft
Reference Wellbore: HZ
Reference Design: Plan #2

Local Co-ordinate Reference: Well Razor Federal #12F-1302B
TVD Reference: WELL @ 4953.6ft (Original Well Elev)
MD Reference: WELL @ 4953.6ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Reference Depths are relative to WELL @ 4953.6ft (Original Well Elev)
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000 °

Coordinates are relative to: Razor Federal #12F-1302B
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 1.09°

Ladder Plot



LEGEND

razor#12F-1306B, HZ, Plan #1 V0	○ Razor#12F-0107A, HZ, Plan #2 V0	▣ Razor#12F-0103A, HZ, Plan #2 V0
razor#12F-1304B, HZ, Plan #1 V0	◇ Razor Federal#12F-1308B, HZ, Plan #1 V0	● ALLAN 1 (EXISTING), DAVIS OIL WELL N
razor#12F-1308B, HZ, Plan #2 V0	✕ Razor Federal#12F-1301A, HZ, Plan #2 V0	▣ Razor#12F-0101A, HZ, Plan #2 V0
razor#12F-1306B, HZ, Plan #2 V0	✕ Razor#12F-0102B, HZ, Plan #2 V0	◇ Razor#12F-0105A, HZ, Plan #2 V0
razor#12F-1305A, HZ, Plan #1 V0	✕ Razor Federal#12F-1303A, HZ, Plan #1 V0	
razor#12F-1307A, HZ, Plan #1 V0	✕ Razor#12F-0104B, HZ, Plan #2 V0	