



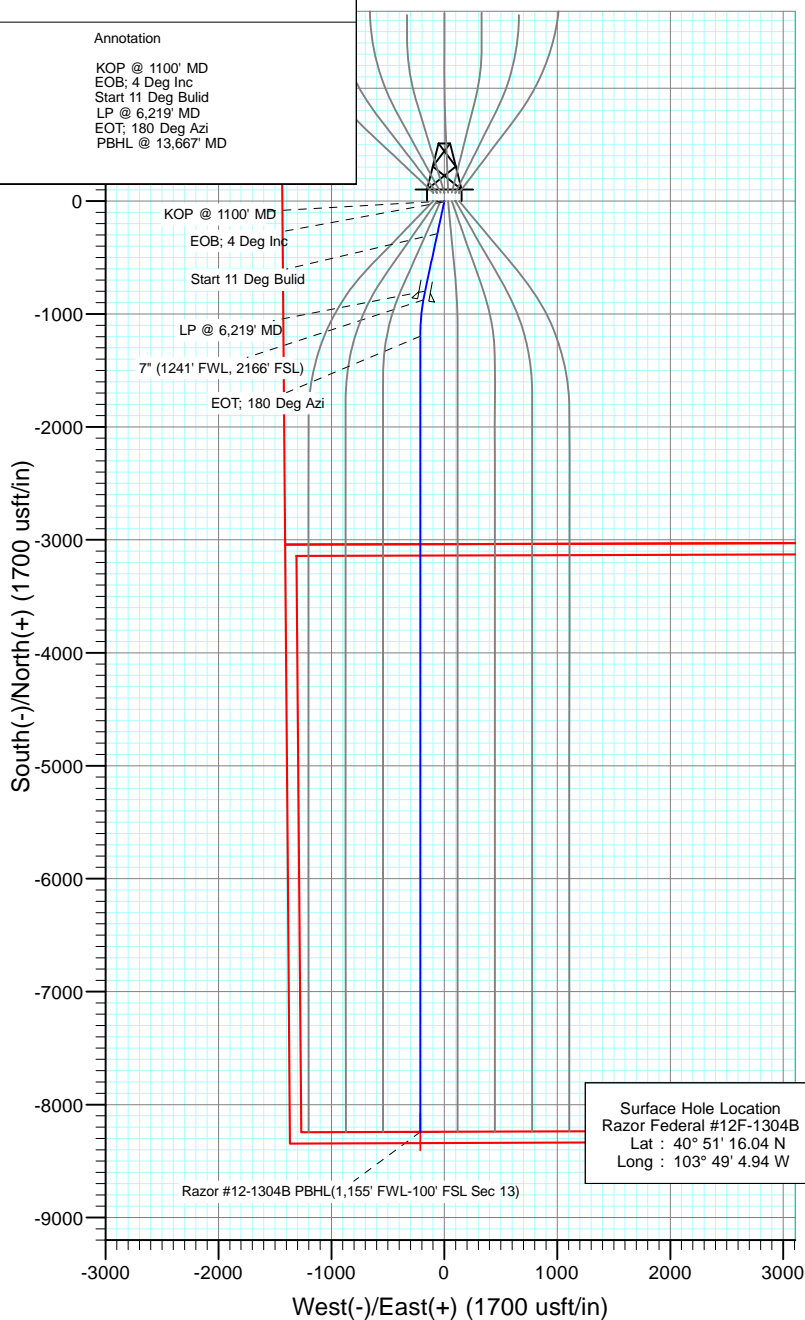
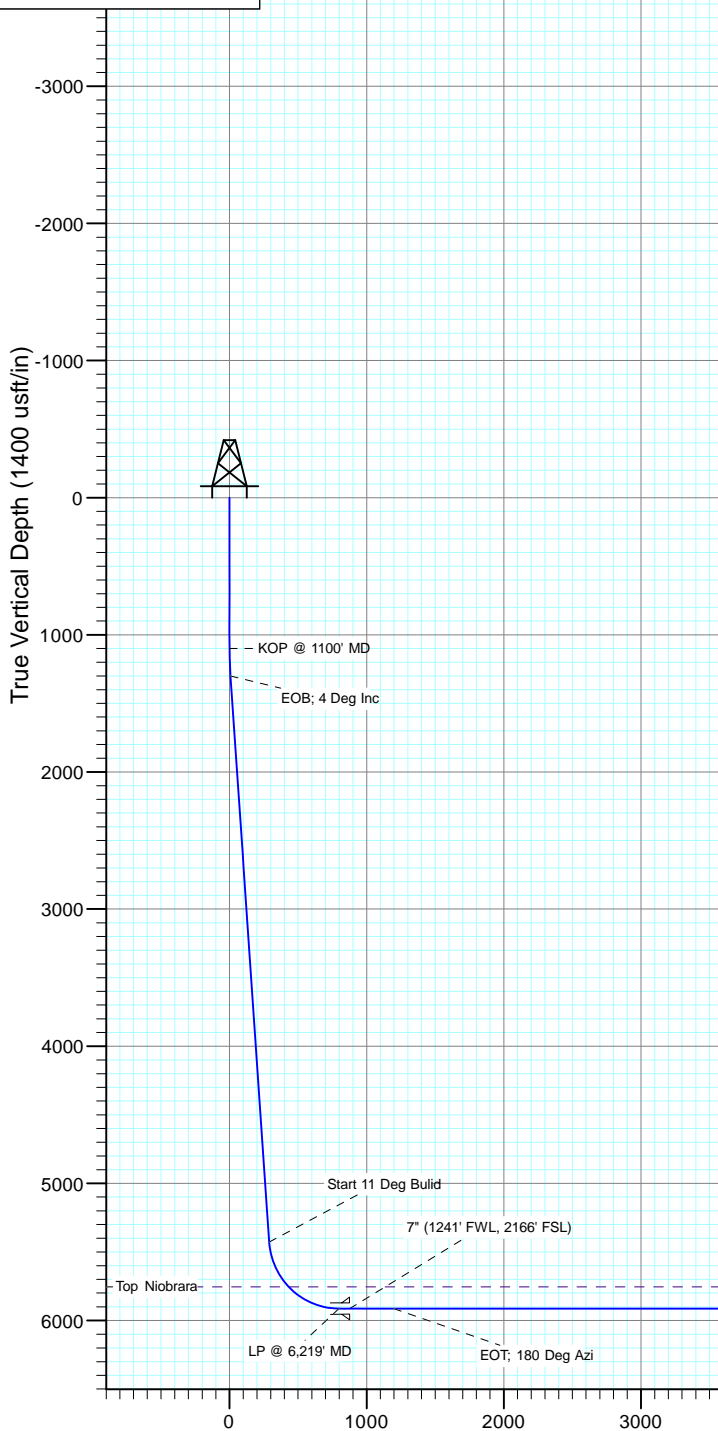
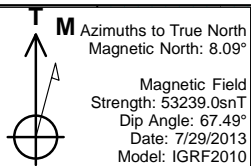
Project: Weld County, CO
Site: S12-T10N-R58W
Well: Razor Federal #12F-1304B
Wellbore: HZ
Design: Plan #3



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0
2	1100.0	0.00	0.00	1100.0	0.0	0.0	0.00	0.00	0.0
3	1300.0	4.00	192.10	1299.8	-6.8	-1.5	2.00	192.10	6.8
4	5438.0	4.00	192.10	5427.8	-289.1	-62.0	0.00	0.00	289.1
5	6219.8	90.00	192.10	5912.3	-797.1	-170.9	11.00	0.00	797.1
6	6623.3	90.00	180.00	5912.3	-1197.6	-213.3	3.00	-89.99	1197.6
7	13667.9	90.00	180.00	5912.0	-8242.2	-212.9	0.00	0.00	8242.2

Annotation
KOP @ 1100' MD
EOB; 4 Deg Inc
Start 11 Deg Build
LP @ 6,219' MD
EOT; 180 Deg Azi
PBHL @ 13,667' MD



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5755.0	5804.1	Top Niobrara

Plan #3
Razor Federal #12F-1304B
WELL @ 4953.6usft (Original Well Elev)
Ground Elevation @ 4936.8
North American Datum 1983
Well Razor Federal #12F-1304B, True North

Vertical Section at 180.00° (1400 usft/in)

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site:	S12-T10N-R58W	North Reference:	True
Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #3		

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

Site		S12-T10N-R58W			
Site Position:		Northing:	1,558,537.97 usft	Latitude:	40° 51' 16.04 N
From:	Lat/Long	Easting:	3,465,176.15 usft	Longitude:	103° 49' 6.23 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	1.09 °

Well	Razor Federal #12F-1304B					
Well Position	+N/-S	0.0 usft	Northing:	1,558,539.83 usft	Latitude:	40° 51' 16.04 N
	+E/-W	0.0 usft	Easting:	3,465,275.26 usft	Longitude:	103° 49' 4.94 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	4,936.8 usft

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

Design	Plan #3				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.0	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	180.00	

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,300.0	4.00	192.10	1,299.8	-6.8	-1.5	2.00	2.00	0.00	192.10	
5,438.0	4.00	192.10	5,427.8	-289.1	-62.0	0.00	0.00	0.00	0.00	
6,219.8	90.00	192.10	5,912.3	-797.1	-170.9	11.00	11.00	0.00	0.00	
6,623.3	90.00	180.00	5,912.3	-1,197.6	-213.3	3.00	0.00	-3.00	-89.99	
13,667.9	90.00	180.00	5,912.0	-8,242.2	-212.9	0.00	0.00	0.00	0.00	Razor #12-1304B PBI

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site:	S12-T10N-R58W	North Reference:	True
Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #3		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
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	KOP @ 1100' MD
1,200.0	2.00	192.10	1,200.0	-1.7	-0.4	1.7	2.00	2.00	
1,300.0	4.00	192.10	1,299.8	-6.8	-1.5	6.8	2.00	2.00	EOB; 4 Deg Inc
1,400.0	4.00	192.10	1,399.6	-13.6	-2.9	13.6	0.00	0.00	
1,500.0	4.00	192.10	1,499.4	-20.5	-4.4	20.5	0.00	0.00	
1,600.0	4.00	192.10	1,599.1	-27.3	-5.8	27.3	0.00	0.00	
1,700.0	4.00	192.10	1,698.9	-34.1	-7.3	34.1	0.00	0.00	
1,800.0	4.00	192.10	1,798.6	-40.9	-8.8	40.9	0.00	0.00	
1,900.0	4.00	192.10	1,898.4	-47.7	-10.2	47.7	0.00	0.00	
2,000.0	4.00	192.10	1,998.1	-54.6	-11.7	54.6	0.00	0.00	
2,100.0	4.00	192.10	2,097.9	-61.4	-13.2	61.4	0.00	0.00	
2,200.0	4.00	192.10	2,197.6	-68.2	-14.6	68.2	0.00	0.00	
2,300.0	4.00	192.10	2,297.4	-75.0	-16.1	75.0	0.00	0.00	
2,400.0	4.00	192.10	2,397.2	-81.9	-17.5	81.9	0.00	0.00	
2,500.0	4.00	192.10	2,496.9	-88.7	-19.0	88.7	0.00	0.00	
2,600.0	4.00	192.10	2,596.7	-95.5	-20.5	95.5	0.00	0.00	
2,700.0	4.00	192.10	2,696.4	-102.3	-21.9	102.3	0.00	0.00	
2,800.0	4.00	192.10	2,796.2	-109.1	-23.4	109.1	0.00	0.00	
2,900.0	4.00	192.10	2,895.9	-116.0	-24.9	116.0	0.00	0.00	
3,000.0	4.00	192.10	2,995.7	-122.8	-26.3	122.8	0.00	0.00	
3,100.0	4.00	192.10	3,095.5	-129.6	-27.8	129.6	0.00	0.00	
3,200.0	4.00	192.10	3,195.2	-136.4	-29.2	136.4	0.00	0.00	
3,300.0	4.00	192.10	3,295.0	-143.2	-30.7	143.2	0.00	0.00	
3,400.0	4.00	192.10	3,394.7	-150.1	-32.2	150.1	0.00	0.00	
3,500.0	4.00	192.10	3,494.5	-156.9	-33.6	156.9	0.00	0.00	
3,600.0	4.00	192.10	3,594.2	-163.7	-35.1	163.7	0.00	0.00	
3,700.0	4.00	192.10	3,694.0	-170.5	-36.6	170.5	0.00	0.00	
3,800.0	4.00	192.10	3,793.7	-177.3	-38.0	177.3	0.00	0.00	
3,900.0	4.00	192.10	3,893.5	-184.2	-39.5	184.2	0.00	0.00	
4,000.0	4.00	192.10	3,993.3	-191.0	-40.9	191.0	0.00	0.00	
4,100.0	4.00	192.10	4,093.0	-197.8	-42.4	197.8	0.00	0.00	
4,200.0	4.00	192.10	4,192.8	-204.6	-43.9	204.6	0.00	0.00	
4,300.0	4.00	192.10	4,292.5	-211.4	-45.3	211.4	0.00	0.00	
4,400.0	4.00	192.10	4,392.3	-218.3	-46.8	218.3	0.00	0.00	
4,500.0	4.00	192.10	4,492.0	-225.1	-48.3	225.1	0.00	0.00	
4,600.0	4.00	192.10	4,591.8	-231.9	-49.7	231.9	0.00	0.00	
4,700.0	4.00	192.10	4,691.6	-238.7	-51.2	238.7	0.00	0.00	
4,800.0	4.00	192.10	4,791.3	-245.5	-52.6	245.5	0.00	0.00	
4,900.0	4.00	192.10	4,891.1	-252.4	-54.1	252.4	0.00	0.00	
5,000.0	4.00	192.10	4,990.8	-259.2	-55.6	259.2	0.00	0.00	
5,100.0	4.00	192.10	5,090.6	-266.0	-57.0	266.0	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site:	S12-T10N-R58W	North Reference:	True
Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #3		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
5,200.0	4.00	192.10	5,190.3	-272.8	-58.5	272.8	0.00	0.00	
5,300.0	4.00	192.10	5,290.1	-279.7	-60.0	279.7	0.00	0.00	
5,400.0	4.00	192.10	5,389.9	-286.5	-61.4	286.5	0.00	0.00	
5,438.0	4.00	192.10	5,427.8	-289.1	-62.0	289.1	0.00	0.00	Start 11 Deg Bulid
5,450.0	5.32	192.10	5,439.7	-290.0	-62.2	290.0	11.00	11.00	
5,500.0	10.82	192.10	5,489.2	-296.9	-63.6	296.9	11.00	11.00	
5,550.0	16.32	192.10	5,537.8	-308.3	-66.1	308.3	11.00	11.00	
5,600.0	21.82	192.10	5,585.0	-324.3	-69.5	324.3	11.00	11.00	
5,650.0	27.32	192.10	5,630.5	-344.6	-73.9	344.6	11.00	11.00	
5,700.0	32.82	192.10	5,673.7	-369.1	-79.1	369.1	11.00	11.00	
5,750.0	38.32	192.10	5,714.4	-397.5	-85.2	397.5	11.00	11.00	
5,800.0	43.82	192.10	5,752.1	-429.7	-92.1	429.7	11.00	11.00	
5,804.1	44.27	192.10	5,755.0	-432.4	-92.7	432.4	11.00	11.00	Top Niobrara
5,850.0	49.32	192.10	5,786.4	-465.1	-99.7	465.1	11.00	11.00	
5,900.0	54.82	192.10	5,817.2	-503.7	-108.0	503.7	11.00	11.00	
5,950.0	60.32	192.10	5,844.0	-544.9	-116.8	544.9	11.00	11.00	
6,000.0	65.82	192.10	5,866.6	-588.5	-126.2	588.5	11.00	11.00	
6,050.0	71.32	192.10	5,884.9	-634.0	-135.9	634.0	11.00	11.00	
6,100.0	76.82	192.10	5,898.6	-681.0	-146.0	681.0	11.00	11.00	
6,150.0	82.32	192.10	5,907.6	-729.1	-156.3	729.1	11.00	11.00	
6,200.0	87.82	192.10	5,911.9	-777.7	-166.7	777.7	11.00	11.00	
6,219.8	90.00	192.10	5,912.3	-797.1	-170.9	797.1	11.00	11.00	LP @ 6,219' MD
6,300.0	90.00	189.69	5,912.3	-875.8	-186.0	875.8	3.00	0.00	7" (1241' FWL, 2166' FSL)
6,400.0	90.00	186.69	5,912.3	-974.8	-200.3	974.8	3.00	0.00	
6,500.0	90.00	183.69	5,912.3	-1,074.4	-209.3	1,074.4	3.00	0.00	
6,600.0	90.00	180.69	5,912.3	-1,174.3	-213.2	1,174.3	3.00	0.00	
6,623.3	90.00	180.00	5,912.3	-1,197.6	-213.3	1,197.6	3.00	0.00	EOT; 180 Deg Azi
6,700.0	90.00	180.00	5,912.3	-1,274.3	-213.3	1,274.3	0.00	0.00	
6,800.0	90.00	180.00	5,912.3	-1,374.3	-213.3	1,374.3	0.00	0.00	
6,900.0	90.00	180.00	5,912.3	-1,474.3	-213.3	1,474.3	0.00	0.00	
7,000.0	90.00	180.00	5,912.3	-1,574.3	-213.3	1,574.3	0.00	0.00	
7,100.0	90.00	180.00	5,912.3	-1,674.3	-213.3	1,674.3	0.00	0.00	
7,200.0	90.00	180.00	5,912.3	-1,774.3	-213.3	1,774.3	0.00	0.00	
7,300.0	90.00	180.00	5,912.3	-1,874.3	-213.3	1,874.3	0.00	0.00	
7,400.0	90.00	180.00	5,912.3	-1,974.3	-213.3	1,974.3	0.00	0.00	
7,500.0	90.00	180.00	5,912.3	-2,074.3	-213.3	2,074.3	0.00	0.00	
7,600.0	90.00	180.00	5,912.2	-2,174.3	-213.3	2,174.3	0.00	0.00	
7,700.0	90.00	180.00	5,912.2	-2,274.3	-213.3	2,274.3	0.00	0.00	
7,800.0	90.00	180.00	5,912.2	-2,374.3	-213.3	2,374.3	0.00	0.00	
7,900.0	90.00	180.00	5,912.2	-2,474.3	-213.2	2,474.3	0.00	0.00	
8,000.0	90.00	180.00	5,912.2	-2,574.3	-213.2	2,574.3	0.00	0.00	
8,100.0	90.00	180.00	5,912.2	-2,674.3	-213.2	2,674.3	0.00	0.00	
8,200.0	90.00	180.00	5,912.2	-2,774.3	-213.2	2,774.3	0.00	0.00	
8,300.0	90.00	180.00	5,912.2	-2,874.3	-213.2	2,874.3	0.00	0.00	
8,400.0	90.00	180.00	5,912.2	-2,974.3	-213.2	2,974.3	0.00	0.00	
8,500.0	90.00	180.00	5,912.2	-3,074.3	-213.2	3,074.3	0.00	0.00	
8,600.0	90.00	180.00	5,912.2	-3,174.3	-213.2	3,174.3	0.00	0.00	
8,700.0	90.00	180.00	5,912.2	-3,274.3	-213.2	3,274.3	0.00	0.00	
8,800.0	90.00	180.00	5,912.2	-3,374.3	-213.2	3,374.3	0.00	0.00	
8,900.0	90.00	180.00	5,912.2	-3,474.3	-213.2	3,474.3	0.00	0.00	
9,000.0	90.00	180.00	5,912.2	-3,574.3	-213.2	3,574.3	0.00	0.00	
9,100.0	90.00	180.00	5,912.2	-3,674.3	-213.2	3,674.3	0.00	0.00	

Cathedral Energy Services

Planning Report

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Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site:	S12-T10N-R58W	North Reference:	True
Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #3		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
9,200.0	90.00	180.00	5,912.2	-3,774.3	-213.2	3,774.3	0.00	0.00	
9,300.0	90.00	180.00	5,912.2	-3,874.3	-213.2	3,874.3	0.00	0.00	
9,400.0	90.00	180.00	5,912.2	-3,974.3	-213.2	3,974.3	0.00	0.00	
9,500.0	90.00	180.00	5,912.2	-4,074.3	-213.2	4,074.3	0.00	0.00	
9,600.0	90.00	180.00	5,912.2	-4,174.3	-213.2	4,174.3	0.00	0.00	
9,700.0	90.00	180.00	5,912.2	-4,274.3	-213.2	4,274.3	0.00	0.00	
9,800.0	90.00	180.00	5,912.2	-4,374.3	-213.1	4,374.3	0.00	0.00	
9,900.0	90.00	180.00	5,912.2	-4,474.3	-213.1	4,474.3	0.00	0.00	
10,000.0	90.00	180.00	5,912.1	-4,574.3	-213.1	4,574.3	0.00	0.00	
10,100.0	90.00	180.00	5,912.1	-4,674.3	-213.1	4,674.3	0.00	0.00	
10,200.0	90.00	180.00	5,912.1	-4,774.3	-213.1	4,774.3	0.00	0.00	
10,300.0	90.00	180.00	5,912.1	-4,874.3	-213.1	4,874.3	0.00	0.00	
10,400.0	90.00	180.00	5,912.1	-4,974.3	-213.1	4,974.3	0.00	0.00	
10,500.0	90.00	180.00	5,912.1	-5,074.3	-213.1	5,074.3	0.00	0.00	
10,600.0	90.00	180.00	5,912.1	-5,174.3	-213.1	5,174.3	0.00	0.00	
10,700.0	90.00	180.00	5,912.1	-5,274.3	-213.1	5,274.3	0.00	0.00	
10,800.0	90.00	180.00	5,912.1	-5,374.3	-213.1	5,374.3	0.00	0.00	
10,900.0	90.00	180.00	5,912.1	-5,474.3	-213.1	5,474.3	0.00	0.00	
11,000.0	90.00	180.00	5,912.1	-5,574.3	-213.1	5,574.3	0.00	0.00	
11,100.0	90.00	180.00	5,912.1	-5,674.3	-213.1	5,674.3	0.00	0.00	
11,200.0	90.00	180.00	5,912.1	-5,774.3	-213.1	5,774.3	0.00	0.00	
11,300.0	90.00	180.00	5,912.1	-5,874.3	-213.1	5,874.3	0.00	0.00	
11,400.0	90.00	180.00	5,912.1	-5,974.3	-213.1	5,974.3	0.00	0.00	
11,500.0	90.00	180.00	5,912.1	-6,074.3	-213.1	6,074.3	0.00	0.00	
11,600.0	90.00	180.00	5,912.1	-6,174.3	-213.0	6,174.3	0.00	0.00	
11,700.0	90.00	180.00	5,912.1	-6,274.3	-213.0	6,274.3	0.00	0.00	
11,800.0	90.00	180.00	5,912.1	-6,374.3	-213.0	6,374.3	0.00	0.00	
11,900.0	90.00	180.00	5,912.1	-6,474.3	-213.0	6,474.3	0.00	0.00	
12,000.0	90.00	180.00	5,912.1	-6,574.3	-213.0	6,574.3	0.00	0.00	
12,100.0	90.00	180.00	5,912.1	-6,674.3	-213.0	6,674.3	0.00	0.00	
12,200.0	90.00	180.00	5,912.1	-6,774.3	-213.0	6,774.3	0.00	0.00	
12,300.0	90.00	180.00	5,912.1	-6,874.3	-213.0	6,874.3	0.00	0.00	
12,400.0	90.00	180.00	5,912.1	-6,974.3	-213.0	6,974.3	0.00	0.00	
12,500.0	90.00	180.00	5,912.0	-7,074.3	-213.0	7,074.3	0.00	0.00	
12,600.0	90.00	180.00	5,912.0	-7,174.3	-213.0	7,174.3	0.00	0.00	
12,700.0	90.00	180.00	5,912.0	-7,274.3	-213.0	7,274.3	0.00	0.00	
12,800.0	90.00	180.00	5,912.0	-7,374.3	-213.0	7,374.3	0.00	0.00	
12,900.0	90.00	180.00	5,912.0	-7,474.3	-213.0	7,474.3	0.00	0.00	
13,000.0	90.00	180.00	5,912.0	-7,574.3	-213.0	7,574.3	0.00	0.00	
13,100.0	90.00	180.00	5,912.0	-7,674.3	-213.0	7,674.3	0.00	0.00	
13,200.0	90.00	180.00	5,912.0	-7,774.3	-213.0	7,774.3	0.00	0.00	
13,300.0	90.00	180.00	5,912.0	-7,874.3	-213.0	7,874.3	0.00	0.00	
13,400.0	90.00	180.00	5,912.0	-7,974.3	-212.9	7,974.3	0.00	0.00	
13,500.0	90.00	180.00	5,912.0	-8,074.3	-212.9	8,074.3	0.00	0.00	
13,600.0	90.00	180.00	5,912.0	-8,174.3	-212.9	8,174.3	0.00	0.00	
13,667.9	90.00	180.00	5,912.0	-8,242.2	-212.9	8,242.2	0.00	0.00	PBHL @ 13,667' MD

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site:	S12-T10N-R58W	North Reference:	True
Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #3		

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Razor #12-1304B PBHL	0.00	0.00	5,912.0	-8,242.2	-212.9	1,550,295.04	3,465,218.69	40° 49' 54.60 N	103° 49' 7.71 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
6,300.0	5,912.3	7" (1241' FWL, 2166' FSL)	0	0	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,804.1	5,755.0	Top Niobrara		0.00	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,100.0	1,100.0	0.0	0.0	KOP @ 1100' MD	
1,300.0	1,299.8	-6.8	-1.5	EOB; 4 Deg Inc	
5,438.0	5,427.8	-289.1	-62.0	Start 11 Deg Bulid	
6,219.8	5,912.3	-797.1	-170.9	LP @ 6,219' MD	
6,623.3	5,912.3	-1,197.6	-213.3	EOT; 180 Deg Azi	
13,667.9	5,912.0	-8,242.2	-212.9	PBHL @ 13,667' MD	

Whiting Petroleum Corporation

Weld County, CO

S12-T10N-R58W

Razor Federal #12F-1304B

HZ

Plan #3

Anticollision Report

11 November, 2013

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Reference	Plan #3		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0usft	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,356.1usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date	11/11/2013		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	13,667.8	Plan #3 (HZ)	ISCWSA MWD	MWD - ISCWSA

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S12-T10N-R58W						
Razor #12F-0101A - HZ - Plan #3	500.0	500.0	124.2	122.3	62.587	CC, ES
Razor #12F-0101A - HZ - Plan #3	5,300.0	5,259.6	641.2	617.3	26.808	SF
Razor #12F-0102B - HZ - Plan #3	500.0	500.0	99.9	97.9	50.321	CC, ES
Razor #12F-0102B - HZ - Plan #3	5,400.0	5,358.0	659.0	634.8	27.219	SF
Razor #12F-0103A - HZ - Plan #3	1,000.0	1,000.0	81.9	77.6	19.338	CC, ES
Razor #12F-0103A - HZ - Plan #3	1,200.0	1,194.1	90.0	84.9	17.680	SF
Razor #12F-0104B - HZ - Plan #3	800.0	800.0	74.9	71.6	22.470	CC, ES
Razor #12F-0104B - HZ - Plan #3	1,100.0	1,094.4	88.2	83.5	18.844	SF
Razor #12F-0105A - HZ - Plan #3	1,100.0	1,100.0	81.9	77.2	17.482	CC, ES
Razor #12F-0105A - HZ - Plan #3	1,200.0	1,197.4	85.1	80.0	16.693	SF
Razor #12F-0106B - HZ - Plan #3	700.0	700.0	99.4	96.5	34.459	CC, ES
Razor #12F-0106B - HZ - Plan #3	1,200.0	1,192.6	126.3	121.2	24.774	SF
Razor #12F-0107A - HZ - Plan #3	1,100.0	1,100.0	123.6	119.0	26.404	CC, ES
Razor #12F-0107A - HZ - Plan #3	1,300.0	1,295.9	130.5	125.0	23.781	SF
Razor #12F-0108B - HZ - Plan #3	800.0	800.0	151.2	147.9	45.357	CC, ES
Razor #12F-0108B - HZ - Plan #3	5,400.0	5,350.6	719.5	695.8	30.235	SF
Razor Federal #12F-1301A - HZ - Plan #3	1,000.0	1,000.0	99.1	94.9	23.420	CC, ES
Razor Federal #12F-1301A - HZ - Plan #3	13,667.9	13,915.9	995.2	682.0	3.177	SF
Razor Federal #12F-1302B - HZ - Plan #3	1,244.2	1,243.6	65.6	60.3	12.457	CC, ES
Razor Federal #12F-1302B - HZ - Plan #3	13,667.9	13,870.5	660.3	346.0	2.100	SF
Razor Federal #12F-1303A - HZ - Plan #3	500.0	500.0	33.0	31.1	16.646	CC, ES
Razor Federal #12F-1303A - HZ - Plan #3	13,667.9	13,608.3	344.9	41.6	1.137	Level 2, SF
Razor Federal #12F-1305A - HZ - Plan #3	900.0	900.0	33.0	29.3	8.734	CC
Razor Federal #12F-1305A - HZ - Plan #3	1,000.0	999.8	33.2	29.0	7.909	ES
Razor Federal #12F-1305A - HZ - Plan #3	13,667.9	13,541.6	344.9	39.8	1.130	Level 2, SF
Razor Federal #12F-1306B - HZ - Plan #3	1,000.0	1,000.0	65.3	61.1	15.432	CC, ES
Razor Federal #12F-1306B - HZ - Plan #3	13,667.9	13,695.8	659.6	342.8	2.082	SF
Razor Federal #12F-1307A - HZ - Plan #3	400.0	400.0	98.4	96.8	64.055	CC, ES
Razor Federal #12F-1307A - HZ - Plan #3	13,667.9	13,658.4	994.5	678.4	3.146	SF
Razor Federal #12F-1308B - HZ - Plan #3	866.7	866.7	131.4	127.8	36.166	CC
Razor Federal #12F-1308B - HZ - Plan #3	900.0	900.0	131.4	127.6	34.733	ES
Razor Federal #12F-1308B - HZ - Plan #3	13,667.9	13,925.4	1,319.9	1,001.9	4.151	SF

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0101A - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Between Centres (usft)	Between Ellipses (usft)						
0.0	0.0	0.0	0.0	0.0	0.0	-52.93	74.9	-99.1	124.2					
100.0	100.0	100.0	100.0	0.1	0.1	-52.93	74.9	-99.1	124.2	124.1	0.19	664.383		
200.0	200.0	200.0	200.0	0.3	0.3	-52.93	74.9	-99.1	124.2	123.6	0.64	195.186		
300.0	300.0	300.0	300.0	0.5	0.5	-52.93	74.9	-99.1	124.2	123.2	1.09	114.397		
400.0	400.0	400.0	400.0	0.8	0.8	-52.93	74.9	-99.1	124.2	122.7	1.54	80.909		
500.0	500.0	500.0	500.0	1.0	1.0	-52.93	74.9	-99.1	124.2	122.3	1.99	62.587 CC, ES		
600.0	600.0	595.8	595.8	1.2	1.2	-52.85	76.0	-100.3	125.9	123.5	2.42	51.977		
700.0	700.0	691.4	691.3	1.4	1.4	-52.62	79.3	-103.8	130.9	128.0	2.86	45.731		
800.0	800.0	790.8	790.4	1.7	1.7	-52.33	84.0	-108.8	137.8	134.5	3.31	41.617		
900.0	900.0	890.6	889.9	1.9	1.9	-52.06	88.8	-113.9	144.8	141.0	3.76	38.497		
1,000.0	1,000.0	990.3	989.5	2.1	2.1	-51.82	93.6	-119.0	151.7	147.5	4.21	36.028		
1,100.0	1,100.0	1,090.1	1,089.0	2.3	2.4	-51.59	98.3	-124.0	158.7	154.0	4.66	34.025		
1,200.0	1,200.0	1,189.8	1,188.4	2.5	2.6	-51.31	103.1	-129.1	166.4	161.3	5.07	32.801		
1,300.0	1,299.8	1,289.2	1,287.6	2.7	2.9	-51.03	107.8	-134.1	175.8	170.3	5.47	32.125		
1,400.0	1,399.6	1,388.4	1,386.6	2.9	3.1	-50.75	112.6	-139.2	186.2	180.3	5.88	31.648		
1,500.0	1,499.4	1,487.7	1,485.6	3.1	3.4	-50.47	117.3	-144.2	196.8	190.5	6.31	31.213		
1,600.0	1,599.1	1,587.0	1,584.6	3.3	3.6	-50.19	122.1	-149.3	207.6	200.8	6.74	30.821		
1,700.0	1,698.9	1,686.2	1,683.7	3.5	3.9	-50.00	126.8	-154.3	218.5	211.3	7.17	30.467		
1,800.0	1,798.6	1,785.5	1,782.7	3.7	4.1	-49.81	131.6	-159.4	229.5	221.9	7.61	30.149		
1,900.0	1,898.4	1,884.8	1,881.7	4.0	4.4	-49.62	136.3	-164.4	240.7	232.6	8.06	29.863		
2,000.0	1,998.1	1,984.0	1,980.7	4.2	4.6	-49.43	141.1	-169.4	251.9	243.4	8.51	29.605		
2,100.0	2,097.9	2,083.3	2,079.7	4.4	4.9	-49.24	145.8	-174.5	263.2	254.3	8.96	29.373		
2,200.0	2,197.6	2,182.5	2,178.8	4.7	5.2	-49.05	150.6	-179.5	274.6	265.2	9.42	29.162		
2,300.0	2,297.4	2,281.8	2,277.8	4.9	5.4	-48.86	155.3	-184.6	286.0	276.2	9.87	28.971		
2,400.0	2,397.2	2,381.1	2,376.8	5.2	5.7	-48.67	160.0	-189.6	297.5	287.2	10.33	28.797		
2,500.0	2,496.9	2,480.3	2,475.8	5.4	5.9	-48.48	164.8	-194.7	309.1	298.3	10.79	28.639		
2,600.0	2,596.7	2,579.6	2,574.8	5.7	6.2	-48.29	169.5	-199.7	320.7	309.4	11.25	28.494		
2,700.0	2,696.4	2,678.8	2,673.9	5.9	6.4	-48.10	174.3	-204.7	332.3	320.6	11.72	28.361		
2,800.0	2,796.2	2,778.1	2,772.9	6.2	6.7	-47.91	179.0	-209.8	344.0	331.8	12.18	28.238		
2,900.0	2,895.9	2,877.4	2,871.9	6.4	6.9	-47.72	183.8	-214.8	355.7	343.0	12.65	28.126		
3,000.0	2,895.7	2,876.6	2,870.9	6.7	7.2	-47.53	188.5	-219.9	367.4	354.3	13.11	28.021		
3,100.0	3,095.5	3,075.9	3,069.9	6.9	7.5	-47.34	193.3	-224.9	379.1	365.6	13.58	27.924		
3,200.0	3,195.2	3,175.2	3,169.0	7.2	7.7	-47.15	198.0	-230.0	390.9	376.9	14.04	27.835		
3,300.0	3,295.0	3,274.4	3,268.0	7.4	8.0	-46.96	202.7	-235.0	402.7	388.2	14.51	27.751		
3,400.0	3,394.7	3,373.7	3,367.0	7.7	8.2	-46.77	207.5	-240.0	414.5	399.5	14.98	27.673		
3,500.0	3,494.5	3,472.9	3,466.0	7.9	8.5	-46.58	212.2	-245.1	426.3	410.9	15.45	27.600		
3,600.0	3,594.2	3,572.2	3,565.0	8.2	8.7	-46.39	217.0	-250.1	438.2	422.3	15.92	27.532		
3,700.0	3,694.0	3,671.5	3,664.1	8.4	9.0	-46.20	221.7	-255.2	450.0	433.7	16.38	27.468		
3,800.0	3,793.7	3,770.7	3,763.1	8.7	9.2	-46.01	226.5	-260.2	461.9	445.1	16.85	27.408		
3,900.0	3,893.5	3,870.0	3,862.1	9.0	9.5	-45.82	231.2	-265.2	473.8	456.5	17.32	27.351		
4,000.0	3,993.3	3,969.2	3,961.1	9.2	9.8	-45.63	236.0	-270.3	485.7	467.9	17.79	27.298		
4,100.0	4,093.0	4,068.5	4,060.1	9.5	10.0	-45.44	240.7	-275.3	497.6	479.4	18.26	27.247		
4,200.0	4,192.8	4,167.8	4,159.2	9.7	10.3	-45.25	245.5	-280.4	509.5	490.8	18.73	27.200		
4,300.0	4,292.5	4,267.0	4,258.2	10.0	10.5	-45.06	250.2	-285.4	521.5	502.3	19.20	27.154		
4,400.0	4,392.3	4,366.3	4,357.2	10.3	10.8	-44.87	254.9	-290.5	533.4	513.7	19.67	27.112		
4,500.0	4,492.0	4,465.6	4,456.2	10.5	11.0	-44.68	259.7	-295.5	545.4	525.2	20.15	27.071		
4,600.0	4,591.8	4,564.8	4,555.2	10.8	11.3	-44.49	264.4	-300.5	557.3	536.7	20.62	27.032		
4,700.0	4,691.6	4,664.1	4,654.3	11.0	11.6	-44.30	269.2	-305.6	569.3	548.2	21.09	26.996		
4,800.0	4,791.3	4,763.3	4,753.3	11.3	11.8	-44.11	273.9	-310.6	581.3	559.7	21.56	26.961		
4,900.0	4,891.1	4,862.6	4,852.3	11.6	12.1	-43.92	278.7	-315.7	593.2	571.2	22.03	26.927		
5,000.0	4,990.8	4,961.9	4,951.3	11.8	12.3	-43.73	283.4	-320.7	605.2	582.7	22.50	26.895		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0101A - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,100.0	5,090.6	5,061.1	5,050.3	12.1	12.6	141.80	288.2	-325.8	617.2	594.2	22.97	26.865		
5,200.0	5,190.3	5,160.4	5,149.4	12.3	12.8	141.97	292.9	-330.8	629.2	605.8	23.45	26.836		
5,300.0	5,290.1	5,259.6	5,248.4	12.6	13.1	142.13	297.7	-335.8	641.2	617.3	23.92	26.808 SF		
5,400.0	5,389.9	5,350.0	5,338.5	12.9	13.3	142.27	302.1	-340.5	653.4	629.0	24.37	26.811		
5,500.0	5,489.2	5,400.0	5,388.0	13.2	13.5	141.34	306.9	-345.7	674.0	649.5	24.53	27.477		
5,600.0	5,585.0	5,432.8	5,420.0	13.6	13.6	138.48	311.8	-350.9	714.9	690.6	24.29	29.435		
5,700.0	5,673.7	5,466.7	5,452.5	14.2	13.8	133.54	318.3	-357.8	774.1	750.0	24.11	32.110		
5,800.0	5,752.1	5,500.0	5,483.8	15.0	13.9	125.67	326.1	-366.1	847.5	822.8	24.71	34.298		
5,900.0	5,817.2	5,500.0	5,483.8	16.0	13.9	111.02	326.1	-366.1	930.8	903.7	27.11	34.327		
6,000.0	5,866.6	5,521.2	5,503.3	17.2	14.1	92.12	331.8	-372.1	1,019.5	989.6	29.97	34.017		
6,100.0	5,898.6	5,524.4	5,506.3	18.5	14.1	69.00	332.7	-373.1	1,110.4	1,080.6	29.82	37.243		
6,200.0	5,911.9	5,521.3	5,503.4	20.0	14.1	49.62	331.8	-372.2	1,200.1	1,174.2	25.93	46.288		
6,300.0	5,912.3	5,500.0	5,483.8	21.4	13.9	41.56	326.1	-366.1	1,288.7	1,264.7	23.97	53.769		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0102B - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance					Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
0.0	0.0	0.0	0.0	0.0	0.0	-41.42	74.9	-66.1	99.9					
100.0	100.0	100.0	100.0	0.1	0.1	-41.42	74.9	-66.1	99.9	99.7	0.19	534.176		
200.0	200.0	200.0	200.0	0.3	0.3	-41.42	74.9	-66.1	99.9	99.3	0.64	156.933		
300.0	300.0	300.0	300.0	0.5	0.5	-41.42	74.9	-66.1	99.9	98.8	1.09	91.978		
400.0	400.0	400.0	400.0	0.8	0.8	-41.42	74.9	-66.1	99.9	98.4	1.54	65.052		
500.0	500.0	500.0	500.0	1.0	1.0	-41.42	74.9	-66.1	99.9	97.9	1.99	50.321	CC, ES	
600.0	600.0	596.6	596.6	1.2	1.2	-41.36	76.2	-67.1	101.6	99.2	2.43	41.880		
700.0	700.0	693.0	692.8	1.4	1.4	-41.19	80.0	-70.1	106.6	103.8	2.87	37.161		
800.0	800.0	792.5	792.1	1.7	1.7	-40.98	85.5	-74.3	113.6	110.3	3.32	34.206		
900.0	900.0	892.2	891.6	1.9	1.9	-40.79	91.0	-78.6	120.5	116.8	3.77	31.975		
1,000.0	1,000.0	992.0	991.1	2.1	2.1	-40.62	96.5	-82.8	127.5	123.3	4.22	30.208		
1,100.0	1,100.0	1,091.7	1,090.6	2.3	2.4	-40.47	102.0	-87.1	134.5	129.8	4.67	28.773		
1,200.0	1,200.0	1,191.4	1,190.0	2.5	2.6	127.99	107.5	-91.3	142.5	137.4	5.09	28.018		
1,300.0	1,299.8	1,290.8	1,289.2	2.7	2.9	129.48	113.0	-95.6	152.8	147.3	5.49	27.848		
1,400.0	1,399.6	1,390.0	1,388.1	2.9	3.1	131.38	118.5	-99.8	164.3	158.4	5.90	27.859		
1,500.0	1,499.4	1,489.2	1,487.1	3.1	3.4	133.02	124.0	-104.0	175.9	169.6	6.32	27.851		
1,600.0	1,599.1	1,588.4	1,586.1	3.3	3.6	134.47	129.4	-108.3	187.7	180.9	6.74	27.833		
1,700.0	1,698.9	1,687.6	1,685.0	3.5	3.9	135.74	134.9	-112.5	199.6	192.4	7.18	27.809		
1,800.0	1,798.6	1,786.8	1,784.0	3.7	4.1	136.87	140.4	-116.7	211.5	203.9	7.61	27.781		
1,900.0	1,898.4	1,886.0	1,882.9	4.0	4.4	137.88	145.9	-121.0	223.6	215.5	8.06	27.751		
2,000.0	1,998.1	1,985.2	1,981.9	4.2	4.7	138.78	151.3	-125.2	235.7	227.2	8.50	27.721		
2,100.0	2,097.9	2,084.4	2,080.8	4.4	4.9	139.60	156.8	-129.4	247.8	238.9	8.95	27.692		
2,200.0	2,197.6	2,183.6	2,179.8	4.7	5.2	140.34	162.3	-133.7	260.0	250.6	9.40	27.663		
2,300.0	2,297.4	2,282.8	2,278.8	4.9	5.4	141.01	167.8	-137.9	272.3	262.4	9.85	27.635		
2,400.0	2,397.2	2,382.0	2,377.7	5.2	5.7	141.63	173.2	-142.1	284.6	274.2	10.31	27.609		
2,500.0	2,496.9	2,481.2	2,476.7	5.4	5.9	142.19	178.7	-146.4	296.9	286.1	10.76	27.584		
2,600.0	2,596.7	2,580.4	2,575.6	5.7	6.2	142.71	184.2	-150.6	309.2	298.0	11.22	27.560		
2,700.0	2,696.4	2,679.6	2,674.6	5.9	6.4	143.19	189.7	-154.8	321.5	309.9	11.68	27.538		
2,800.0	2,796.2	2,778.8	2,773.5	6.2	6.7	143.64	195.1	-159.1	333.9	321.8	12.13	27.517		
2,900.0	2,895.9	2,878.0	2,872.5	6.4	6.9	144.05	200.6	-163.3	346.3	333.7	12.59	27.496		
3,000.0	2,995.7	2,977.2	2,971.5	6.7	7.2	144.44	206.1	-167.5	358.7	345.7	13.05	27.477		
3,100.0	3,095.5	3,076.4	3,070.4	6.9	7.5	144.79	211.6	-171.8	371.1	357.6	13.52	27.459		
3,200.0	3,195.2	3,175.6	3,169.4	7.2	7.7	145.13	217.0	-176.0	383.6	369.6	13.98	27.442		
3,300.0	3,295.0	3,274.8	3,268.3	7.4	8.0	145.44	222.5	-180.2	396.0	381.6	14.44	27.426		
3,400.0	3,394.7	3,374.0	3,367.3	7.7	8.2	145.74	228.0	-184.5	408.5	393.6	14.90	27.411		
3,500.0	3,494.5	3,473.2	3,466.3	7.9	8.5	146.02	233.4	-188.7	421.0	405.6	15.37	27.396		
3,600.0	3,594.2	3,572.4	3,565.2	8.2	8.7	146.28	238.9	-192.9	433.4	417.6	15.83	27.383		
3,700.0	3,694.0	3,671.6	3,664.2	8.4	9.0	146.53	244.4	-197.2	445.9	429.6	16.29	27.370		
3,800.0	3,793.7	3,770.8	3,763.1	8.7	9.2	146.76	249.9	-201.4	458.4	441.7	16.76	27.357		
3,900.0	3,893.5	3,870.0	3,862.1	9.0	9.5	146.98	255.3	-205.6	470.9	453.7	17.22	27.345		
4,000.0	3,993.3	3,969.2	3,961.0	9.2	9.7	147.19	260.8	-209.9	483.4	465.7	17.69	27.334		
4,100.0	4,093.0	4,068.4	4,060.0	9.5	10.0	147.39	266.3	-214.1	495.9	477.8	18.15	27.323		
4,200.0	4,192.8	4,167.6	4,159.0	9.7	10.3	147.58	271.8	-218.3	508.5	489.8	18.62	27.313		
4,300.0	4,292.5	4,266.8	4,257.9	10.0	10.5	147.76	277.2	-222.6	521.0	501.9	19.08	27.303		
4,400.0	4,392.3	4,366.0	4,356.9	10.3	10.8	147.93	282.7	-226.8	533.5	514.0	19.55	27.294		
4,500.0	4,492.0	4,465.2	4,455.8	10.5	11.0	148.09	288.2	-231.0	546.0	526.0	20.01	27.285		
4,600.0	4,591.8	4,564.4	4,554.8	10.8	11.3	148.25	293.7	-235.3	558.6	538.1	20.48	27.276		
4,700.0	4,691.6	4,663.6	4,653.7	11.0	11.5	148.40	299.1	-239.5	571.1	550.2	20.95	27.268		
4,800.0	4,791.3	4,762.8	4,752.7	11.3	11.8	148.54	304.6	-243.7	583.7	562.3	21.41	27.260		
4,900.0	4,891.1	4,862.0	4,851.7	11.6	12.0	148.68	310.1	-248.0	596.2	574.3	21.88	27.252		
5,000.0	4,990.8	4,961.2	4,950.6	11.8	12.3	148.81	315.6	-252.2	608.8	586.4	22.34	27.245		
5,100.0	5,090.6	5,060.4	5,049.6	12.1	12.6	148.94	321.0	-256.4	621.3	598.5	22.81	27.238		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0102B - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,190.3	5,159.6	5,148.5	12.3	12.8	149.06	326.5	-260.7	633.9	610.6	23.28	27.231		
5,300.0	5,290.1	5,258.8	5,247.5	12.6	13.1	149.18	332.0	-264.9	646.5	622.7	23.75	27.225		
5,400.0	5,389.9	5,358.0	5,346.5	12.9	13.3	149.29	337.4	-269.1	659.0	634.8	24.21	27.219 SF		
5,500.0	5,489.2	5,446.9	5,435.2	13.2	13.6	148.87	342.4	-273.0	674.8	650.4	24.40	27.658		
5,600.0	5,585.0	5,500.0	5,487.8	13.6	13.7	147.18	348.1	-277.4	710.5	686.5	23.97	29.636		
5,700.0	5,673.7	5,523.1	5,510.4	14.2	13.8	143.41	351.9	-280.3	766.2	742.9	23.31	32.871		
5,800.0	5,752.1	5,550.0	5,536.4	15.0	13.9	136.86	357.3	-284.5	838.3	815.1	23.22	36.109		
5,900.0	5,817.2	5,568.9	5,554.5	16.0	14.0	125.09	361.7	-287.9	922.1	897.1	25.05	36.818		
6,000.0	5,866.6	5,579.7	5,564.6	17.2	14.1	104.35	364.5	-290.1	1,013.0	983.7	29.32	34.545		
6,100.0	5,898.6	5,583.1	5,567.8	18.5	14.1	75.15	365.4	-290.8	1,106.9	1,076.0	30.95	35.770		
6,200.0	5,911.9	5,580.0	5,564.9	20.0	14.1	49.72	364.6	-290.1	1,200.2	1,174.1	26.16	45.880		
6,300.0	5,912.3	5,573.1	5,558.4	21.4	14.0	41.20	362.8	-288.7	1,292.3	1,268.3	24.02	53.790		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0103A - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
0.0	0.0	0.0	0.0	0.0	0.0	-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	437.715		
200.0	200.0	200.0	200.0	0.3	0.3	-23.81	74.9	-33.0	81.9	81.2	0.64	128.594		
300.0	300.0	300.0	300.0	0.5	0.5	-23.81	74.9	-33.0	81.9	80.8	1.09	75.368		
400.0	400.0	400.0	400.0	0.8	0.8	-23.81	74.9	-33.0	81.9	80.3	1.54	53.305		
500.0	500.0	500.0	500.0	1.0	1.0	-23.81	74.9	-33.0	81.9	79.9	1.99	41.234		
600.0	600.0	600.0	600.0	1.2	1.2	-23.81	74.9	-33.0	81.9	79.4	2.43	33.621		
700.0	700.0	700.0	700.0	1.4	1.4	-23.81	74.9	-33.0	81.9	79.0	2.88	28.381		
800.0	800.0	800.0	800.0	1.7	1.7	-23.81	74.9	-33.0	81.9	78.5	3.33	24.554		
900.0	900.0	900.0	900.0	1.9	1.9	-23.81	74.9	-33.0	81.9	78.1	3.78	21.636		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-23.81	74.9	-33.0	81.9	77.6	4.23	19.338 CC, ES		
1,100.0	1,100.0	1,097.2	1,097.2	2.3	2.3	-23.91	76.3	-33.8	83.5	78.9	4.68	17.870		
1,200.0	1,200.0	1,194.1	1,193.9	2.5	2.6	144.29	80.7	-36.2	90.0	84.9	5.09	17.680 SF		
1,300.0	1,299.8	1,293.2	1,292.8	2.7	2.8	145.54	86.7	-39.5	101.2	95.7	5.49	18.437		
1,400.0	1,399.6	1,392.4	1,391.7	2.9	3.0	147.13	92.8	-42.8	113.9	108.0	5.89	19.328		
1,500.0	1,499.4	1,491.5	1,490.6	3.1	3.2	148.40	98.8	-46.2	126.7	120.4	6.31	20.088		
1,600.0	1,599.1	1,590.6	1,589.5	3.3	3.5	149.43	104.9	-49.5	139.5	132.8	6.73	20.741		
1,700.0	1,698.9	1,689.8	1,688.4	3.5	3.7	150.29	111.0	-52.8	152.4	145.3	7.15	21.305		
1,800.0	1,798.6	1,788.9	1,787.3	3.7	4.0	151.02	117.0	-56.1	165.3	157.7	7.58	21.795		
1,900.0	1,898.4	1,888.1	1,886.2	4.0	4.2	151.64	123.1	-59.5	178.2	170.2	8.02	22.225		
2,000.0	1,998.1	1,987.2	1,985.1	4.2	4.4	152.18	129.2	-62.8	191.1	182.7	8.46	22.603		
2,100.0	2,097.9	2,086.4	2,084.1	4.4	4.7	152.65	135.2	-66.1	204.1	195.2	8.90	22.939		
2,200.0	2,197.6	2,185.5	2,183.0	4.7	4.9	153.06	141.3	-69.4	217.1	207.7	9.34	23.239		
2,300.0	2,297.4	2,284.7	2,281.9	4.9	5.2	153.43	147.4	-72.7	230.0	220.2	9.79	23.507		
2,400.0	2,397.2	2,383.8	2,380.8	5.2	5.4	153.76	153.4	-76.1	243.0	232.8	10.23	23.748		
2,500.0	2,496.9	2,483.0	2,479.7	5.4	5.7	154.05	159.5	-79.4	256.0	245.3	10.68	23.966		
2,600.0	2,596.7	2,582.1	2,578.6	5.7	5.9	154.32	165.6	-82.7	269.0	257.9	11.13	24.165		
2,700.0	2,696.4	2,681.2	2,677.5	5.9	6.2	154.56	171.6	-86.0	282.0	270.4	11.58	24.345		
2,800.0	2,796.2	2,780.4	2,776.4	6.2	6.4	154.78	177.7	-89.4	295.0	282.9	12.04	24.511		
2,900.0	2,895.9	2,879.5	2,875.3	6.4	6.7	154.98	183.8	-92.7	308.0	295.5	12.49	24.662		
3,000.0	2,995.7	2,978.7	2,974.2	6.7	6.9	155.17	189.8	-96.0	321.0	308.1	12.94	24.802		
3,100.0	3,095.5	3,077.8	3,073.1	6.9	7.2	155.34	195.9	-99.3	334.0	320.6	13.40	24.931		
3,200.0	3,195.2	3,177.0	3,172.0	7.2	7.4	155.50	202.0	-102.6	347.0	333.2	13.85	25.050		
3,300.0	3,295.0	3,276.1	3,270.9	7.4	7.7	155.64	208.0	-106.0	360.0	345.7	14.31	25.161		
3,400.0	3,394.7	3,375.3	3,369.8	7.7	7.9	155.78	214.1	-109.3	373.1	358.3	14.77	25.264		
3,500.0	3,494.5	3,474.4	3,468.7	7.9	8.2	155.91	220.2	-112.6	386.1	370.9	15.22	25.361		
3,600.0	3,594.2	3,573.5	3,567.6	8.2	8.5	156.03	226.2	-115.9	399.1	383.4	15.68	25.451		
3,700.0	3,694.0	3,672.7	3,666.5	8.4	8.7	156.14	232.3	-119.3	412.1	396.0	16.14	25.535		
3,800.0	3,793.7	3,771.8	3,765.4	8.7	9.0	156.24	238.4	-122.6	425.2	408.6	16.60	25.614		
3,900.0	3,893.5	3,871.0	3,864.3	9.0	9.2	156.34	244.4	-125.9	438.2	421.1	17.06	25.689		
4,000.0	3,993.3	3,970.1	3,963.2	9.2	9.5	156.43	250.5	-129.2	451.2	433.7	17.52	25.759		
4,100.0	4,093.0	4,069.3	4,062.1	9.5	9.7	156.52	256.6	-132.5	464.2	446.3	17.98	25.825		
4,200.0	4,192.8	4,168.4	4,161.0	9.7	10.0	156.60	262.6	-135.9	477.3	458.8	18.44	25.887		
4,300.0	4,292.5	4,267.6	4,259.9	10.0	10.2	156.68	268.7	-139.2	490.3	471.4	18.90	25.946		
4,400.0	4,392.3	4,366.7	4,358.8	10.3	10.5	156.76	274.8	-142.5	503.3	484.0	19.36	26.002		
4,500.0	4,492.0	4,465.9	4,457.7	10.5	10.7	156.83	280.8	-145.8	516.4	496.5	19.82	26.056		
4,600.0	4,591.8	4,565.0	4,556.6	10.8	11.0	156.89	286.9	-149.2	529.4	509.1	20.28	26.106		
4,700.0	4,691.6	4,664.1	4,655.5	11.0	11.2	156.96	292.9	-152.5	542.4	521.7	20.74	26.154		
4,800.0	4,791.3	4,763.3	4,754.4	11.3	11.5	157.02	299.0	-155.8	555.5	534.3	21.20	26.200		
4,900.0	4,891.1	4,862.4	4,853.4	11.6	11.7	157.08	305.1	-159.1	568.5	546.8	21.66	26.243		
5,000.0	4,990.8	4,961.6	4,952.3	11.8	12.0	157.13	311.1	-162.4	581.5	559.4	22.12	26.285		
5,100.0	5,090.6	5,060.7	5,051.2	12.1	12.3	157.19	317.2	-165.8	594.6	572.0	22.59	26.325		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0103A - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,190.3	5,159.9	5,150.1	12.3	12.5	157.24	323.3	-169.1	607.6	584.6	23.05	26.363		
5,300.0	5,290.1	5,259.0	5,249.0	12.6	12.8	157.29	329.3	-172.4	620.7	597.1	23.51	26.399		
5,400.0	5,389.9	5,350.0	5,339.7	12.9	13.0	157.32	335.1	-175.5	633.9	609.9	23.95	26.463		
5,500.0	5,489.2	5,400.0	5,389.2	13.2	13.2	156.63	341.3	-179.0	656.2	632.1	24.03	27.301		
5,600.0	5,585.0	5,431.5	5,419.9	13.6	13.3	154.50	347.3	-182.3	700.8	677.3	23.44	29.893		
5,700.0	5,673.7	5,450.0	5,437.8	14.2	13.3	150.30	351.7	-184.6	765.7	743.2	22.54	33.971		
5,800.0	5,752.1	5,500.0	5,485.0	15.0	13.6	143.74	366.1	-192.5	845.3	823.2	22.13	38.206		
5,900.0	5,817.2	5,500.0	5,485.0	16.0	13.6	128.16	366.1	-192.5	934.9	910.5	24.41	38.301		
6,000.0	5,866.6	5,500.0	5,485.0	17.2	13.6	96.13	366.1	-192.5	1,030.2	1,000.2	29.98	34.365		
6,100.0	5,898.6	5,500.0	5,485.0	18.5	13.6	57.09	366.1	-192.5	1,126.7	1,099.4	27.36	41.187		
6,200.0	5,911.9	5,500.0	5,485.0	20.0	13.6	34.59	366.1	-192.5	1,221.2	1,201.0	20.19	60.493		
6,300.0	5,912.3	5,500.0	5,485.0	21.4	13.6	26.76	366.1	-192.5	1,313.4	1,295.8	17.55	74.844		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0104B - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	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	400.570		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	74.9	0.0	74.9	74.3	0.64	117.682		
300.0	300.0	300.0	300.0	0.5	0.5	0.00	74.9	0.0	74.9	73.8	1.09	68.972		
400.0	400.0	400.0	400.0	0.8	0.8	0.00	74.9	0.0	74.9	73.4	1.54	48.781		
500.0	500.0	500.0	500.0	1.0	1.0	0.00	74.9	0.0	74.9	72.9	1.99	37.735		
600.0	600.0	600.0	600.0	1.2	1.2	0.00	74.9	0.0	74.9	72.5	2.43	30.768		
700.0	700.0	700.0	700.0	1.4	1.4	0.00	74.9	0.0	74.9	72.0	2.88	25.972		
800.0	800.0	800.0	800.0	1.7	1.7	0.00	74.9	0.0	74.9	71.6	3.33	22.470 CC, ES		
900.0	900.0	897.5	897.5	1.9	1.9	-0.36	76.5	-0.5	76.5	72.8	3.78	20.257		
1,000.0	1,000.0	994.8	994.7	2.1	2.1	-1.37	81.2	-1.9	81.4	77.2	4.23	19.269		
1,100.0	1,100.0	1,094.4	1,094.0	2.3	2.3	-2.59	87.9	-4.0	88.2	83.5	4.68	18.844 SF		
1,200.0	1,200.0	1,194.1	1,193.4	2.5	2.6	164.49	94.5	-6.0	96.6	91.5	5.10	18.942		
1,300.0	1,299.8	1,293.4	1,292.5	2.7	2.8	164.30	101.1	-8.1	108.4	102.9	5.50	19.720		
1,400.0	1,399.6	1,392.5	1,391.3	2.9	3.0	164.42	107.7	-10.1	121.9	116.0	5.90	20.645		
1,500.0	1,499.4	1,491.5	1,490.2	3.1	3.3	164.51	114.4	-12.1	135.4	129.0	6.32	21.426		
1,600.0	1,599.1	1,590.6	1,589.0	3.3	3.5	164.59	121.0	-14.1	148.8	142.1	6.74	22.090		
1,700.0	1,698.9	1,689.7	1,687.9	3.5	3.8	164.66	127.6	-16.2	162.3	155.1	7.16	22.661		
1,800.0	1,798.6	1,788.8	1,786.7	3.7	4.0	164.71	134.2	-18.2	175.8	168.2	7.59	23.155		
1,900.0	1,898.4	1,887.9	1,885.6	4.0	4.3	164.76	140.8	-20.2	189.2	181.2	8.02	23.585		
2,000.0	1,998.1	1,987.0	1,984.4	4.2	4.5	164.80	147.4	-22.3	202.7	194.2	8.46	23.963		
2,100.0	2,097.9	2,086.1	2,083.3	4.4	4.8	164.84	154.0	-24.3	216.2	207.3	8.90	24.297		
2,200.0	2,197.6	2,185.2	2,182.1	4.7	5.0	164.87	160.6	-26.3	229.6	220.3	9.34	24.594		
2,300.0	2,297.4	2,284.2	2,281.0	4.9	5.3	164.90	167.2	-28.3	243.1	233.3	9.78	24.859		
2,400.0	2,397.2	2,383.3	2,379.8	5.2	5.5	164.92	173.8	-30.4	256.6	246.4	10.22	25.097		
2,500.0	2,496.9	2,482.4	2,478.7	5.4	5.8	164.95	180.4	-32.4	270.1	259.4	10.67	25.311		
2,600.0	2,596.7	2,581.5	2,577.5	5.7	6.0	164.97	187.0	-34.4	283.5	272.4	11.12	25.506		
2,700.0	2,696.4	2,680.6	2,676.3	5.9	6.3	164.98	193.6	-36.5	297.0	285.4	11.56	25.683		
2,800.0	2,796.2	2,779.7	2,775.2	6.2	6.5	165.00	200.3	-38.5	310.5	298.5	12.01	25.845		
2,900.0	2,895.9	2,878.8	2,874.0	6.4	6.8	165.02	206.9	-40.5	323.9	311.5	12.46	25.993		
3,000.0	2,995.7	2,977.9	2,972.9	6.7	7.0	165.03	213.5	-42.5	337.4	324.5	12.91	26.129		
3,100.0	3,095.5	3,077.0	3,071.7	6.9	7.3	165.05	220.1	-44.6	350.9	337.5	13.36	26.255		
3,200.0	3,195.2	3,176.0	3,170.6	7.2	7.5	165.06	226.7	-46.6	364.4	350.5	13.82	26.371		
3,300.0	3,295.0	3,275.1	3,269.4	7.4	7.8	165.07	233.3	-48.6	377.8	363.6	14.27	26.479		
3,400.0	3,394.7	3,374.2	3,368.3	7.7	8.0	165.08	239.9	-50.7	391.3	376.6	14.72	26.579		
3,500.0	3,494.5	3,473.3	3,467.1	7.9	8.3	165.09	246.5	-52.7	404.8	389.6	15.18	26.672		
3,600.0	3,594.2	3,572.4	3,566.0	8.2	8.5	165.10	253.1	-54.7	418.2	402.6	15.63	26.759		
3,700.0	3,694.0	3,671.5	3,664.8	8.4	8.8	165.11	259.7	-56.8	431.7	415.6	16.08	26.841		
3,800.0	3,793.7	3,770.6	3,763.7	8.7	9.0	165.12	266.3	-58.8	445.2	428.6	16.54	26.918		
3,900.0	3,893.5	3,869.7	3,862.5	9.0	9.3	165.12	272.9	-60.8	458.6	441.7	16.99	26.989		
4,000.0	3,993.3	3,968.8	3,961.4	9.2	9.6	165.13	279.5	-62.8	472.1	454.7	17.45	27.057		
4,100.0	4,093.0	4,067.8	4,060.2	9.5	9.8	165.14	286.2	-64.9	485.6	467.7	17.90	27.121		
4,200.0	4,192.8	4,166.9	4,159.1	9.7	10.1	165.15	292.8	-66.9	499.1	480.7	18.36	27.181		
4,300.0	4,292.5	4,266.0	4,257.9	10.0	10.3	165.15	299.4	-68.9	512.5	493.7	18.82	27.238		
4,400.0	4,392.3	4,365.1	4,356.7	10.3	10.6	165.16	306.0	-71.0	526.0	506.7	19.27	27.292		
4,500.0	4,492.0	4,464.2	4,455.6	10.5	10.8	165.16	312.6	-73.0	539.5	519.7	19.73	27.343		
4,600.0	4,591.8	4,563.3	4,554.4	10.8	11.1	165.17	319.2	-75.0	552.9	532.8	20.19	27.392		
4,700.0	4,691.6	4,662.4	4,653.3	11.0	11.3	165.17	325.8	-77.0	566.4	545.8	20.64	27.438		
4,800.0	4,791.3	4,761.5	4,752.1	11.3	11.6	165.18	332.4	-79.1	579.9	558.8	21.10	27.482		
4,900.0	4,891.1	4,860.5	4,851.0	11.6	11.8	165.18	339.0	-81.1	593.4	571.8	21.56	27.524		
5,000.0	4,990.8	4,959.6	4,949.8	11.8	12.1	165.19	345.6	-83.1	606.8	584.8	22.02	27.564		
5,100.0	5,090.6	5,058.7	5,048.7	12.1	12.3	165.19	352.2	-85.2	620.3	597.8	22.47	27.602		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0104B - HZ - Plan #3													Offset Site Error: 0.0 usft
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,190.3	5,157.8	5,147.5	12.3	12.6	165.20	358.8	-87.2	633.8	610.8	22.93	27.638	
5,300.0	5,290.1	5,256.9	5,246.4	12.6	12.9	165.20	365.4	-89.2	647.2	623.8	23.39	27.673	
5,400.0	5,389.9	5,356.0	5,345.2	12.9	13.1	165.20	372.1	-91.2	660.7	636.9	23.85	27.707	
5,500.0	5,489.2	5,445.3	5,434.3	13.2	13.3	164.92	378.1	-93.1	677.8	653.8	23.96	28.285	
5,600.0	5,585.0	5,485.4	5,474.1	13.6	13.5	163.84	382.7	-94.5	716.1	692.9	23.21	30.861	
5,700.0	5,673.7	5,518.8	5,506.8	14.2	13.6	161.63	388.8	-96.4	776.3	754.5	21.86	35.516	
5,800.0	5,752.1	5,550.0	5,537.1	15.0	13.7	157.47	396.4	-98.7	853.6	833.2	20.36	41.915	
5,900.0	5,817.2	5,550.0	5,537.1	16.0	13.7	147.25	396.4	-98.7	942.7	922.2	20.43	46.132	
6,000.0	5,866.6	5,568.6	5,554.8	17.2	13.8	122.10	401.7	-100.3	1,038.4	1,011.9	26.51	39.175	
6,100.0	5,898.6	5,570.0	5,556.2	18.5	13.8	63.82	402.1	-100.5	1,136.8	1,107.6	29.27	38.842	
6,200.0	5,911.9	5,550.0	5,537.1	20.0	13.7	28.53	396.4	-98.7	1,234.4	1,216.7	17.72	69.665	
6,300.0	5,912.3	5,550.0	5,537.1	21.4	13.7	18.86	396.4	-98.7	1,329.3	1,315.2	14.05	94.590	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0105A - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis	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	437.715		
200.0	200.0	200.0	200.0	0.3	0.3	23.81	74.9	33.0	81.9	81.2	0.64	128.594		
300.0	300.0	300.0	300.0	0.5	0.5	23.81	74.9	33.0	81.9	80.8	1.09	75.368		
400.0	400.0	400.0	400.0	0.8	0.8	23.81	74.9	33.0	81.9	80.3	1.54	53.305		
500.0	500.0	500.0	500.0	1.0	1.0	23.81	74.9	33.0	81.9	79.9	1.99	41.234		
600.0	600.0	600.0	600.0	1.2	1.2	23.81	74.9	33.0	81.9	79.4	2.43	33.621		
700.0	700.0	700.0	700.0	1.4	1.4	23.81	74.9	33.0	81.9	79.0	2.88	28.381		
800.0	800.0	800.0	800.0	1.7	1.7	23.81	74.9	33.0	81.9	78.5	3.33	24.554		
900.0	900.0	900.0	900.0	1.9	1.9	23.81	74.9	33.0	81.9	78.1	3.78	21.636		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	23.81	74.9	33.0	81.9	77.6	4.23	19.338		
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	23.81	74.9	33.0	81.9	77.2	4.68	17.482 CC, ES		
1,200.0	1,200.0	1,197.4	1,197.4	2.5	2.6	-169.00	76.5	33.0	85.1	80.0	5.10	16.693 SF		
1,300.0	1,299.8	1,294.1	1,293.9	2.7	2.8	-170.83	81.5	32.8	94.9	89.4	5.49	17.275		
1,400.0	1,399.6	1,393.0	1,392.6	2.9	3.0	-172.88	88.3	32.5	108.2	102.3	5.90	18.342		
1,500.0	1,499.4	1,492.0	1,491.4	3.1	3.2	-174.49	95.2	32.3	121.6	115.3	6.31	19.277		
1,600.0	1,599.1	1,591.0	1,590.2	3.3	3.5	-175.77	102.1	32.0	135.2	128.4	6.73	20.092		
1,700.0	1,698.9	1,690.1	1,689.0	3.5	3.7	-176.82	109.1	31.7	148.7	141.6	7.15	20.805		
1,800.0	1,798.6	1,789.1	1,787.8	3.7	3.9	-177.70	116.0	31.5	162.3	154.8	7.57	21.432		
1,900.0	1,898.4	1,888.2	1,886.6	4.0	4.2	-178.44	122.9	31.2	176.0	168.0	8.00	21.987		
2,000.0	1,998.1	1,987.2	1,985.4	4.2	4.4	-179.07	129.8	30.9	189.6	181.2	8.44	22.481		
2,100.0	2,097.9	2,086.2	2,084.2	4.4	4.7	-179.62	136.7	30.7	203.3	194.4	8.87	22.922		
2,200.0	2,197.6	2,185.3	2,183.0	4.7	4.9	-179.90	143.6	30.4	217.0	207.7	9.31	23.319		
2,300.0	2,297.4	2,284.3	2,281.8	4.9	5.2	-179.48	150.5	30.1	230.7	221.0	9.74	23.676		
2,400.0	2,397.2	2,383.4	2,380.6	5.2	5.4	-179.11	157.4	29.9	244.4	234.3	10.19	24.000		
2,500.0	2,496.9	2,482.4	2,479.4	5.4	5.6	-178.77	164.3	29.6	258.2	247.6	10.63	24.295		
2,600.0	2,596.7	2,581.5	2,578.2	5.7	5.9	-178.47	171.2	29.3	271.9	260.9	11.07	24.564		
2,700.0	2,696.4	2,680.5	2,677.0	5.9	6.1	-178.20	178.1	29.1	285.7	274.2	11.51	24.811		
2,800.0	2,796.2	2,779.5	2,775.8	6.2	6.4	-177.95	185.0	28.8	299.4	287.5	11.96	25.038		
2,900.0	2,895.9	2,878.6	2,874.6	6.4	6.6	-177.73	191.9	28.5	313.2	300.8	12.40	25.247		
3,000.0	2,995.7	2,977.6	2,973.4	6.7	6.9	-177.52	198.8	28.3	326.9	314.1	12.85	25.440		
3,100.0	3,095.5	3,076.7	3,072.2	6.9	7.1	-177.33	205.7	28.0	340.7	327.4	13.30	25.619		
3,200.0	3,195.2	3,175.7	3,171.0	7.2	7.4	-177.15	212.6	27.8	354.5	340.7	13.75	25.786		
3,300.0	3,295.0	3,274.7	3,269.8	7.4	7.6	-176.99	219.5	27.5	368.3	354.1	14.20	25.941		
3,400.0	3,394.7	3,373.8	3,368.6	7.7	7.9	-176.84	226.4	27.2	382.0	367.4	14.64	26.086		
3,500.0	3,494.5	3,472.8	3,467.4	7.9	8.1	-176.70	233.3	27.0	395.8	380.7	15.09	26.222		
3,600.0	3,594.2	3,571.9	3,566.2	8.2	8.4	-176.57	240.2	26.7	409.6	394.0	15.54	26.349		
3,700.0	3,694.0	3,670.9	3,665.0	8.4	8.6	-176.45	247.1	26.4	423.4	407.4	16.00	26.468		
3,800.0	3,793.7	3,770.0	3,763.8	8.7	8.9	-176.34	254.0	26.2	437.1	420.7	16.45	26.581		
3,900.0	3,893.5	3,869.0	3,862.6	9.0	9.1	-176.23	260.9	25.9	450.9	434.0	16.90	26.687		
4,000.0	3,993.3	3,968.0	3,961.4	9.2	9.4	-176.13	267.8	25.6	464.7	447.4	17.35	26.787		
4,100.0	4,093.0	4,067.1	4,060.2	9.5	9.6	-176.03	274.7	25.4	478.5	460.7	17.80	26.882		
4,200.0	4,192.8	4,166.1	4,159.0	9.7	9.9	-175.94	281.6	25.1	492.3	474.0	18.25	26.971		
4,300.0	4,292.5	4,265.2	4,257.8	10.0	10.1	-175.86	288.5	24.8	506.1	487.4	18.70	27.056		
4,400.0	4,392.3	4,364.2	4,356.6	10.3	10.4	-175.78	295.5	24.6	519.9	500.7	19.16	27.137		
4,500.0	4,492.0	4,463.3	4,455.4	10.5	10.6	-175.70	302.4	24.3	533.7	514.1	19.61	27.214		
4,600.0	4,591.8	4,562.3	4,554.2	10.8	10.9	-175.63	309.3	24.0	547.5	527.4	20.06	27.287		
4,700.0	4,691.6	4,661.3	4,653.0	11.0	11.2	-175.56	316.2	23.8	561.3	540.7	20.52	27.356		
4,800.0	4,791.3	4,760.4	4,751.8	11.3	11.4	-175.50	323.1	23.5	575.1	554.1	20.97	27.423		
4,900.0	4,891.1	4,859.4	4,850.6	11.6	11.7	-175.43	330.0	23.2	588.8	567.4	21.42	27.486		
5,000.0	4,990.8	4,958.5	4,949.4	11.8	11.9	-175.37	336.9	23.0	602.6	580.8	21.88	27.547		
5,100.0	5,090.6	5,057.5	5,048.2	12.1	12.2	-175.32	343.8	22.7	616.4	594.1	22.33	27.605		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0105A - HZ - Plan #3													Offset Site Error: 0.0 usft
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,190.3	5,156.5	5,147.0	12.3	12.4	175.26	350.7	22.4	630.2	607.5	22.78	27.660	
5,300.0	5,290.1	5,255.6	5,245.8	12.6	12.7	175.21	357.6	22.2	644.0	620.8	23.24	27.714	
5,400.0	5,389.9	5,344.3	5,334.3	12.9	12.9	175.16	363.8	21.9	658.0	634.3	23.67	27.798	
5,500.0	5,489.2	5,400.0	5,389.4	13.2	13.1	174.94	371.6	21.6	681.2	657.5	23.71	28.736	
5,600.0	5,585.0	5,425.0	5,413.9	13.6	13.2	174.39	376.9	21.4	727.5	704.7	22.84	31.857	
5,700.0	5,673.7	5,450.0	5,438.0	14.2	13.3	173.31	383.5	21.2	795.0	773.8	21.24	37.430	
5,800.0	5,752.1	5,476.7	5,463.3	15.0	13.4	171.16	391.7	20.9	877.9	858.9	19.07	46.040	
5,900.0	5,817.2	5,500.0	5,485.1	16.0	13.5	165.87	400.0	20.6	971.3	954.3	16.95	57.301	
6,000.0	5,866.6	5,500.0	5,485.1	17.2	13.5	133.50	400.0	20.6	1,069.6	1,046.0	23.67	45.197	
6,100.0	5,898.6	5,500.0	5,485.1	18.5	13.5	22.54	400.0	20.6	1,169.2	1,153.8	15.43	75.753	
6,200.0	5,911.9	5,500.0	5,485.1	20.0	13.5	9.49	400.0	20.6	1,266.6	1,256.8	9.76	129.791	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0106B - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	41.09	74.9	65.3	99.4					
100.0	100.0	100.0	100.0	0.1	0.1	41.09	74.9	65.3	99.4	99.2	0.19	531.467		
200.0	200.0	200.0	200.0	0.3	0.3	41.09	74.9	65.3	99.4	98.8	0.64	156.137		
300.0	300.0	300.0	300.0	0.5	0.5	41.09	74.9	65.3	99.4	98.3	1.09	91.511		
400.0	400.0	400.0	400.0	0.8	0.8	41.09	74.9	65.3	99.4	97.9	1.54	64.722		
500.0	500.0	500.0	500.0	1.0	1.0	41.09	74.9	65.3	99.4	97.4	1.99	50.066		
600.0	600.0	600.0	600.0	1.2	1.2	41.09	74.9	65.3	99.4	97.0	2.43	40.822		
700.0	700.0	700.0	700.0	1.4	1.4	41.09	74.9	65.3	99.4	96.5	2.88	34.459	CC, ES	
800.0	800.0	797.0	796.9	1.7	1.7	40.67	76.5	65.7	100.9	97.6	3.33	30.323		
900.0	900.0	893.7	893.6	1.9	1.9	39.48	81.3	66.9	105.5	101.7	3.77	27.942		
1,000.0	1,000.0	993.2	992.9	2.1	2.1	37.95	88.0	68.6	111.8	107.6	4.23	26.448		
1,100.0	1,100.0	1,093.0	1,092.4	2.3	2.3	36.59	94.7	70.3	118.2	113.5	4.68	25.267		
1,200.0	1,200.0	1,192.6	1,191.7	2.5	2.6	-156.98	101.5	72.0	126.3	121.2	5.10	24.774	SF	
1,300.0	1,299.8	1,291.9	1,290.8	2.7	2.8	-158.78	108.2	73.7	137.7	132.2	5.50	25.057		
1,400.0	1,399.6	1,390.9	1,389.5	2.9	3.1	-160.60	114.9	75.4	150.9	145.0	5.90	25.562		
1,500.0	1,499.4	1,489.9	1,488.3	3.1	3.3	-162.13	121.6	77.1	164.1	157.8	6.31	25.994		
1,600.0	1,599.1	1,589.0	1,587.1	3.3	3.6	-163.43	128.3	78.8	177.5	170.8	6.73	26.364		
1,700.0	1,698.9	1,688.0	1,685.9	3.5	3.8	-164.54	135.0	80.5	191.0	183.8	7.16	26.686		
1,800.0	1,798.6	1,787.0	1,784.7	3.7	4.0	-165.51	141.7	82.2	204.5	196.9	7.58	26.966		
1,900.0	1,898.4	1,886.0	1,883.5	4.0	4.3	-166.36	148.4	83.9	218.0	210.0	8.01	27.212		
2,000.0	1,998.1	1,985.1	1,982.3	4.2	4.5	-167.11	155.1	85.6	231.6	223.2	8.45	27.428		
2,100.0	2,097.9	2,084.1	2,081.0	4.4	4.8	-167.78	161.8	87.3	245.3	236.4	8.88	27.620		
2,200.0	2,197.6	2,183.1	2,179.8	4.7	5.0	-168.38	168.4	89.0	259.0	249.6	9.32	27.792		
2,300.0	2,297.4	2,282.1	2,278.6	4.9	5.3	-168.91	175.1	90.7	272.6	262.9	9.76	27.946		
2,400.0	2,397.2	2,381.2	2,377.4	5.2	5.5	-169.40	181.8	92.4	286.4	276.2	10.20	28.084		
2,500.0	2,496.9	2,480.2	2,476.2	5.4	5.8	-169.84	188.5	94.1	300.1	289.5	10.64	28.209		
2,600.0	2,596.7	2,579.2	2,575.0	5.7	6.0	-170.24	195.2	95.7	313.8	302.8	11.08	28.323		
2,700.0	2,696.4	2,678.2	2,673.8	5.9	6.3	-170.61	201.9	97.4	327.6	316.1	11.52	28.427		
2,800.0	2,796.2	2,777.3	2,772.5	6.2	6.5	-170.95	208.6	99.1	341.4	329.4	11.97	28.522		
2,900.0	2,895.9	2,876.3	2,871.3	6.4	6.8	-171.26	215.3	100.8	355.2	342.8	12.42	28.609		
3,000.0	2,995.7	2,975.3	2,970.1	6.7	7.1	-171.55	222.0	102.5	369.0	356.1	12.86	28.689		
3,100.0	3,095.5	3,074.4	3,068.9	6.9	7.3	-171.82	228.7	104.2	382.8	369.5	13.31	28.763		
3,200.0	3,195.2	3,173.4	3,167.7	7.2	7.6	-172.07	235.4	105.9	396.6	382.8	13.76	28.831		
3,300.0	3,295.0	3,272.4	3,266.5	7.4	7.8	-172.30	242.1	107.6	410.4	396.2	14.20	28.895		
3,400.0	3,394.7	3,371.4	3,365.3	7.7	8.1	-172.52	248.8	109.3	424.2	409.6	14.65	28.954		
3,500.0	3,494.5	3,470.5	3,464.0	7.9	8.3	-172.72	255.5	111.0	438.1	423.0	15.10	29.009		
3,600.0	3,594.2	3,569.5	3,562.8	8.2	8.6	-172.91	262.2	112.7	451.9	436.4	15.55	29.060		
3,700.0	3,694.0	3,668.5	3,661.6	8.4	8.8	-173.09	268.9	114.4	465.7	449.7	16.00	29.108		
3,800.0	3,793.7	3,767.5	3,760.4	8.7	9.1	-173.26	275.6	116.1	479.6	463.1	16.45	29.154		
3,900.0	3,893.5	3,866.6	3,859.2	9.0	9.3	-173.42	282.3	117.8	493.4	476.5	16.90	29.196		
4,000.0	3,993.3	3,965.6	3,958.0	9.2	9.6	-173.58	289.0	119.5	507.3	489.9	17.35	29.236		
4,100.0	4,093.0	4,064.6	4,056.8	9.5	9.8	-173.72	295.7	121.1	521.2	503.3	17.80	29.274		
4,200.0	4,192.8	4,163.7	4,155.5	9.7	10.1	-173.85	302.4	122.8	535.0	516.8	18.25	29.309		
4,300.0	4,292.5	4,262.7	4,254.3	10.0	10.3	-173.98	309.1	124.5	548.9	530.2	18.71	29.343		
4,400.0	4,392.3	4,361.7	4,353.1	10.3	10.6	-174.11	315.8	126.2	562.7	543.6	19.16	29.375		
4,500.0	4,492.0	4,460.7	4,451.9	10.5	10.8	-174.22	322.5	127.9	576.6	557.0	19.61	29.405		
4,600.0	4,591.8	4,559.8	4,550.7	10.8	11.1	-174.33	329.2	129.6	590.5	570.4	20.06	29.434		
4,700.0	4,691.6	4,658.8	4,649.5	11.0	11.3	-174.44	335.9	131.3	604.3	583.8	20.51	29.461		
4,800.0	4,791.3	4,757.8	4,748.3	11.3	11.6	-174.54	342.6	133.0	618.2	597.3	20.97	29.487		
4,900.0	4,891.1	4,856.8	4,847.0	11.6	11.9	-174.64	349.3	134.7	632.1	610.7	21.42	29.512		
5,000.0	4,990.8	4,955.9	4,945.8	11.8	12.1	-174.73	356.0	136.4	646.0	624.1	21.87	29.536		
5,100.0	5,090.6	5,054.9	5,044.6	12.1	12.4	-174.82	362.7	138.1	659.9	637.5	22.32	29.558		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0106B - HZ - Plan #3													Offset Site Error: 0.0 usft
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	
5,200.0	5,190.3	5,153.9	5,143.4	12.3	12.6	-174.91	369.4	139.8	673.7	651.0	22.78	29.580	
5,300.0	5,290.1	5,253.0	5,242.2	12.6	12.9	-174.99	376.1	141.5	687.6	664.4	23.23	29.600	
5,400.0	5,389.9	5,352.0	5,341.0	12.9	13.1	-175.07	382.8	143.2	701.5	677.8	23.68	29.620	
5,500.0	5,489.2	5,443.8	5,432.5	13.2	13.4	-175.04	389.0	144.7	719.1	695.3	23.78	30.238	
5,600.0	5,585.0	5,481.8	5,470.3	13.6	13.5	-174.72	393.2	145.8	757.9	735.0	22.92	33.068	
5,700.0	5,673.7	5,500.0	5,488.2	14.2	13.5	-173.95	396.2	146.6	819.2	797.9	21.28	38.492	
5,800.0	5,752.1	5,550.0	5,536.9	15.0	13.7	-172.77	407.5	149.4	897.5	878.4	19.10	46.989	
5,900.0	5,817.2	5,550.0	5,536.9	16.0	13.7	-169.11	407.5	149.4	987.5	970.8	16.66	59.264	
6,000.0	5,866.6	5,550.0	5,536.9	17.2	13.7	-153.51	407.5	149.4	1,084.7	1,066.8	17.93	60.494	
6,100.0	5,898.6	5,550.0	5,536.9	18.5	13.7	-32.46	407.5	149.4	1,184.4	1,165.2	19.22	61.626	
6,200.0	5,911.9	5,550.0	5,536.9	20.0	13.7	-10.47	407.5	149.4	1,282.7	1,272.7	10.07	127.377	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0107A - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	52.71	74.9	98.4	123.6					
100.0	100.0	100.0	100.0	0.1	0.1	52.71	74.9	98.4	123.6	123.4	0.19	661.121		
200.0	200.0	200.0	200.0	0.3	0.3	52.71	74.9	98.4	123.6	123.0	0.64	194.228		
300.0	300.0	300.0	300.0	0.5	0.5	52.71	74.9	98.4	123.6	122.5	1.09	113.836		
400.0	400.0	400.0	400.0	0.8	0.8	52.71	74.9	98.4	123.6	122.1	1.54	80.511		
500.0	500.0	500.0	500.0	1.0	1.0	52.71	74.9	98.4	123.6	121.6	1.99	62.280		
600.0	600.0	600.0	600.0	1.2	1.2	52.71	74.9	98.4	123.6	121.2	2.43	50.780		
700.0	700.0	700.0	700.0	1.4	1.4	52.71	74.9	98.4	123.6	120.7	2.88	42.866		
800.0	800.0	800.0	800.0	1.7	1.7	52.71	74.9	98.4	123.6	120.3	3.33	37.086		
900.0	900.0	900.0	900.0	1.9	1.9	52.71	74.9	98.4	123.6	119.9	3.78	32.679		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	52.71	74.9	98.4	123.6	119.4	4.23	29.208		
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	52.71	74.9	98.4	123.6	119.0	4.68	26.404	CC, ES	
1,200.0	1,200.0	1,200.0	1,200.0	2.5	2.6	-139.89	74.9	98.4	125.0	119.9	5.10	24.491		
1,300.0	1,299.8	1,295.9	1,295.8	2.7	2.8	-141.55	76.3	99.1	130.5	125.0	5.49	23.781	SF	
1,400.0	1,399.6	1,391.0	1,390.9	2.9	3.0	-144.03	80.6	101.2	140.7	134.8	5.89	23.901		
1,500.0	1,499.4	1,489.6	1,489.2	3.1	3.2	-146.50	86.7	104.3	153.0	146.7	6.30	24.284		
1,600.0	1,599.1	1,588.7	1,588.0	3.3	3.4	-148.61	92.9	107.4	165.5	158.8	6.72	24.641		
1,700.0	1,698.9	1,687.7	1,686.8	3.5	3.7	-150.42	99.1	110.5	178.2	171.1	7.14	24.966		
1,800.0	1,798.6	1,786.8	1,785.6	3.7	3.9	-151.99	105.3	113.6	191.1	183.5	7.56	25.260		
1,900.0	1,898.4	1,885.8	1,884.4	4.0	4.1	-153.36	111.4	116.7	204.1	196.1	7.99	25.527		
2,000.0	1,998.1	1,984.8	1,983.3	4.2	4.4	-154.57	117.6	119.8	217.1	208.7	8.43	25.770		
2,100.0	2,097.9	2,083.9	2,082.1	4.4	4.6	-155.64	123.8	122.9	230.3	221.5	8.86	25.991		
2,200.0	2,197.6	2,182.9	2,180.9	4.7	4.9	-156.59	130.0	125.9	243.6	234.3	9.30	26.194		
2,300.0	2,297.4	2,282.0	2,279.7	4.9	5.1	-157.45	136.1	129.0	256.9	247.1	9.74	26.379		
2,400.0	2,397.2	2,381.0	2,378.5	5.2	5.4	-158.22	142.3	132.1	270.2	260.0	10.18	26.550		
2,500.0	2,496.9	2,480.0	2,477.3	5.4	5.6	-158.92	148.5	135.2	283.6	273.0	10.62	26.706		
2,600.0	2,596.7	2,579.1	2,576.1	5.7	5.8	-159.55	154.7	138.3	297.0	286.0	11.06	26.851		
2,700.0	2,696.4	2,678.1	2,674.9	5.9	6.1	-160.13	160.9	141.4	310.5	299.0	11.51	26.985		
2,800.0	2,796.2	2,777.2	2,773.7	6.2	6.3	-160.66	167.0	144.5	324.0	312.0	11.95	27.110		
2,900.0	2,895.9	2,876.2	2,872.5	6.4	6.6	-161.15	173.2	147.6	337.5	325.1	12.40	27.225		
3,000.0	2,995.7	2,975.3	2,971.3	6.7	6.8	-161.61	179.4	150.7	351.1	338.2	12.84	27.333		
3,100.0	3,095.5	3,074.3	3,070.1	6.9	7.1	-162.02	185.6	153.8	364.6	351.3	13.29	27.433		
3,200.0	3,195.2	3,173.3	3,168.9	7.2	7.3	-162.41	191.7	156.9	378.2	364.5	13.74	27.527		
3,300.0	3,295.0	3,272.4	3,267.7	7.4	7.6	-162.77	197.9	160.0	391.8	377.6	14.19	27.615		
3,400.0	3,394.7	3,371.4	3,366.5	7.7	7.8	-163.11	204.1	163.1	405.4	390.8	14.64	27.698		
3,500.0	3,494.5	3,470.5	3,465.3	7.9	8.1	-163.43	210.3	166.2	419.0	403.9	15.09	27.776		
3,600.0	3,594.2	3,569.5	3,564.1	8.2	8.3	-163.72	216.4	169.3	432.7	417.1	15.54	27.849		
3,700.0	3,694.0	3,668.6	3,662.9	8.4	8.6	-164.00	222.6	172.4	446.3	430.3	15.99	27.918		
3,800.0	3,793.7	3,767.6	3,761.7	8.7	8.8	-164.26	228.8	175.5	460.0	443.5	16.44	27.983		
3,900.0	3,893.5	3,866.6	3,860.5	9.0	9.1	-164.51	235.0	178.6	473.6	456.7	16.89	28.045		
4,000.0	3,993.3	3,965.7	3,959.3	9.2	9.3	-164.74	241.2	181.7	487.3	469.9	17.34	28.103		
4,100.0	4,093.0	4,064.7	4,058.1	9.5	9.6	-164.96	247.3	184.7	501.0	483.2	17.79	28.159		
4,200.0	4,192.8	4,163.8	4,156.9	9.7	9.8	-165.17	253.5	187.8	514.6	496.4	18.24	28.212		
4,300.0	4,292.5	4,262.8	4,255.7	10.0	10.1	-165.36	259.7	190.9	528.3	509.6	18.69	28.262		
4,400.0	4,392.3	4,361.9	4,354.5	10.3	10.3	-165.55	265.9	194.0	542.0	522.9	19.15	28.309		
4,500.0	4,492.0	4,460.9	4,453.3	10.5	10.6	-165.73	272.0	197.1	555.7	536.1	19.60	28.355		
4,600.0	4,591.8	4,559.9	4,552.1	10.8	10.8	-165.90	278.2	200.2	569.4	549.4	20.05	28.398		
4,700.0	4,691.6	4,659.0	4,650.9	11.0	11.1	-166.06	284.4	203.3	583.2	562.7	20.51	28.439		
4,800.0	4,791.3	4,758.0	4,749.7	11.3	11.3	-166.21	290.6	206.4	596.9	575.9	20.96	28.479		
4,900.0	4,891.1	4,857.1	4,848.5	11.6	11.6	-166.36	296.7	209.5	610.6	589.2	21.41	28.517		
5,000.0	4,990.8	4,956.1	4,947.3	11.8	11.8	-166.50	302.9	212.6	624.3	602.5	21.87	28.553		
5,100.0	5,090.6	5,055.1	5,046.1	12.1	12.1	-166.63	309.1	215.7	638.1	615.7	22.32	28.588		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0107A - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,190.3	5,154.2	5,144.9	12.3	12.4	-166.76	315.3	218.8	651.8	629.0	22.77	28.621		
5,300.0	5,290.1	5,253.2	5,243.7	12.6	12.6	-166.89	321.5	221.9	665.5	642.3	23.23	28.653		
5,400.0	5,389.9	5,343.1	5,333.3	12.9	12.8	-166.99	327.1	224.7	679.4	655.7	23.66	28.713		
5,500.0	5,489.2	5,384.9	5,374.8	13.2	13.0	-166.64	331.7	227.0	701.9	678.2	23.68	29.637		
5,600.0	5,585.0	5,422.0	5,411.1	13.6	13.1	-165.47	338.3	230.3	747.8	724.8	22.94	32.592		
5,700.0	5,673.7	5,450.0	5,438.2	14.2	13.2	-163.11	344.8	233.6	814.2	792.6	21.61	37.668		
5,800.0	5,752.1	5,472.9	5,460.0	15.0	13.3	-158.38	351.0	236.7	896.0	875.8	20.18	44.394		
5,900.0	5,817.2	5,500.0	5,485.4	16.0	13.4	-148.08	359.5	240.9	988.4	968.0	20.37	48.534		
6,000.0	5,866.6	5,500.0	5,485.4	17.2	13.4	-111.60	359.5	240.9	1,085.8	1,057.1	28.65	37.899		
6,100.0	5,898.6	5,500.0	5,485.4	18.5	13.4	-46.54	359.5	240.9	1,184.5	1,160.3	24.25	48.846		
6,200.0	5,911.9	5,500.0	5,485.4	20.0	13.4	-22.83	359.5	240.9	1,281.2	1,266.2	15.01	85.352		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0108B - HZ - Plan #3												Offset Site Error:	0.0 usft
Survey Program: O-ISCWSA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
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	151.0	0.19	808.576	
200.0	200.0	200.0	200.0	0.3	0.3	60.32	74.9	131.4	151.2	150.6	0.64	237.548	
300.0	300.0	300.0	300.0	0.5	0.5	60.32	74.9	131.4	151.2	150.1	1.09	139.225	
400.0	400.0	400.0	400.0	0.8	0.8	60.32	74.9	131.4	151.2	149.7	1.54	98.468	
500.0	500.0	500.0	500.0	1.0	1.0	60.32	74.9	131.4	151.2	149.2	1.99	76.170	
600.0	600.0	600.0	600.0	1.2	1.2	60.32	74.9	131.4	151.2	148.8	2.43	62.106	
700.0	700.0	700.0	700.0	1.4	1.4	60.32	74.9	131.4	151.2	148.3	2.88	52.426	
800.0	800.0	800.0	800.0	1.7	1.7	60.32	74.9	131.4	151.2	147.9	3.33	45.357 CC, ES	
900.0	900.0	895.3	895.3	1.9	1.9	60.09	76.1	132.3	152.7	149.0	3.77	40.504	
1,000.0	1,000.0	990.5	990.3	2.1	2.1	59.41	79.9	135.2	157.3	153.1	4.21	37.375	
1,100.0	1,100.0	1,089.7	1,089.4	2.3	2.3	58.50	85.4	139.4	163.8	159.1	4.66	35.161	
1,200.0	1,200.0	1,189.4	1,188.7	2.5	2.6	-134.76	91.0	143.6	171.5	166.5	5.07	33.814	
1,300.0	1,299.8	1,288.6	1,287.8	2.7	2.8	-136.55	96.5	147.7	181.9	176.4	5.47	33.258	
1,400.0	1,399.6	1,387.7	1,386.6	2.9	3.0	-138.61	102.0	151.9	193.7	187.8	5.87	32.976	
1,500.0	1,499.4	1,486.8	1,485.4	3.1	3.3	-140.43	107.5	156.1	205.7	199.4	6.29	32.720	
1,600.0	1,599.1	1,585.9	1,584.3	3.3	3.5	-142.05	113.0	160.3	217.9	211.2	6.71	32.490	
1,700.0	1,698.9	1,684.9	1,683.1	3.5	3.8	-143.50	118.5	164.4	230.3	223.2	7.13	32.283	
1,800.0	1,798.6	1,784.0	1,781.9	3.7	4.0	-144.80	124.0	168.6	242.8	235.2	7.56	32.100	
1,900.0	1,898.4	1,883.1	1,880.8	4.0	4.2	-145.97	129.5	172.8	255.4	247.4	8.00	31.936	
2,000.0	1,998.1	1,982.2	1,979.6	4.2	4.5	-147.03	135.1	176.9	268.1	259.7	8.43	31.789	
2,100.0	2,097.9	2,081.2	2,078.4	4.4	4.7	-148.00	140.6	181.1	280.9	272.0	8.87	31.658	
2,200.0	2,197.6	2,180.3	2,177.3	4.7	5.0	-148.88	146.1	185.3	293.8	284.4	9.31	31.539	
2,300.0	2,297.4	2,279.4	2,276.1	4.9	5.2	-149.69	151.6	189.5	306.7	296.9	9.76	31.432	
2,400.0	2,397.2	2,378.4	2,374.9	5.2	5.5	-150.43	157.1	193.6	319.7	309.5	10.20	31.335	
2,500.0	2,496.9	2,477.5	2,473.8	5.4	5.7	-151.12	162.6	197.8	332.7	322.0	10.65	31.248	
2,600.0	2,596.7	2,576.6	2,572.6	5.7	6.0	-151.75	168.1	202.0	345.8	334.7	11.09	31.167	
2,700.0	2,696.4	2,675.7	2,671.4	5.9	6.2	-152.34	173.6	206.1	358.9	347.3	11.54	31.094	
2,800.0	2,796.2	2,774.7	2,770.2	6.2	6.5	-152.88	179.1	210.3	372.0	360.0	11.99	31.027	
2,900.0	2,895.9	2,873.8	2,869.1	6.4	6.7	-153.39	184.6	214.5	385.2	372.7	12.44	30.965	
3,000.0	2,995.7	2,972.9	2,967.9	6.7	7.0	-153.87	190.1	218.7	398.4	385.5	12.89	30.908	
3,100.0	3,095.5	3,072.0	3,066.7	6.9	7.3	-154.31	195.7	222.8	411.6	398.3	13.34	30.855	
3,200.0	3,195.2	3,171.0	3,165.6	7.2	7.5	-154.73	201.2	227.0	424.9	411.1	13.79	30.806	
3,300.0	3,295.0	3,270.1	3,264.4	7.4	7.8	-155.12	206.7	231.2	438.1	423.9	14.24	30.761	
3,400.0	3,394.7	3,369.2	3,363.2	7.7	8.0	-155.49	212.2	235.3	451.4	436.7	14.70	30.719	
3,500.0	3,494.5	3,468.2	3,462.1	7.9	8.3	-155.83	217.7	239.5	464.7	449.6	15.15	30.679	
3,600.0	3,594.2	3,567.3	3,560.9	8.2	8.5	-156.16	223.2	243.7	478.0	462.4	15.60	30.642	
3,700.0	3,694.0	3,666.4	3,659.7	8.4	8.8	-156.47	228.7	247.9	491.4	475.3	16.05	30.607	
3,800.0	3,793.7	3,765.5	3,758.6	8.7	9.0	-156.77	234.2	252.0	504.7	488.2	16.51	30.575	
3,900.0	3,893.5	3,864.5	3,857.4	9.0	9.3	-157.04	239.7	256.2	518.1	501.1	16.96	30.544	
4,000.0	3,993.3	3,963.6	3,956.2	9.2	9.5	-157.31	245.2	260.4	531.5	514.1	17.42	30.515	
4,100.0	4,093.0	4,062.7	4,055.1	9.5	9.8	-157.56	250.8	264.5	544.9	527.0	17.87	30.488	
4,200.0	4,192.8	4,161.7	4,153.9	9.7	10.0	-157.80	256.3	268.7	558.2	539.9	18.33	30.462	
4,300.0	4,292.5	4,260.8	4,252.7	10.0	10.3	-158.03	261.8	272.9	571.7	552.9	18.78	30.437	
4,400.0	4,392.3	4,359.9	4,351.5	10.3	10.5	-158.25	267.3	277.1	585.1	565.8	19.24	30.414	
4,500.0	4,492.0	4,459.0	4,450.4	10.5	10.8	-158.45	272.8	281.2	598.5	578.8	19.69	30.392	
4,600.0	4,591.8	4,558.0	4,549.2	10.8	11.0	-158.65	278.3	285.4	611.9	591.8	20.15	30.371	
4,700.0	4,691.6	4,657.1	4,648.0	11.0	11.3	-158.84	283.8	289.6	625.3	604.7	20.60	30.351	
4,800.0	4,791.3	4,756.2	4,746.9	11.3	11.6	-159.03	289.3	293.7	638.8	617.7	21.06	30.332	
4,900.0	4,891.1	4,855.3	4,845.7	11.6	11.8	-159.20	294.8	297.9	652.2	630.7	21.52	30.314	
5,000.0	4,990.8	4,954.3	4,944.5	11.8	12.1	-159.37	300.3	302.1	665.7	643.7	21.97	30.297	
5,100.0	5,090.6	5,053.4	5,043.4	12.1	12.3	-159.53	305.9	306.3	679.1	656.7	22.43	30.280	

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0108B - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,190.3	5,152.5	5,142.2	12.3	12.6	-159.69	311.4	310.4	692.6	669.7	22.89	30.265		
5,300.0	5,290.1	5,251.5	5,241.0	12.6	12.8	-159.83	316.9	314.6	706.1	682.7	23.34	30.249		
5,400.0	5,389.9	5,350.6	5,339.9	12.9	13.1	-159.98	322.4	318.8	719.5	695.8	23.80	30.235 SF		
5,500.0	5,489.2	5,442.6	5,431.6	13.2	13.3	-159.73	327.5	322.7	736.5	712.5	23.94	30.761		
5,600.0	5,585.0	5,480.4	5,469.1	13.6	13.4	-158.42	331.0	325.3	773.8	750.5	23.28	33.232		
5,700.0	5,673.7	5,500.0	5,488.5	14.2	13.5	-155.50	333.6	327.3	832.7	810.5	22.17	37.556		
5,800.0	5,752.1	5,550.0	5,537.0	15.0	13.7	-151.03	343.0	334.4	908.3	887.1	21.20	42.843		
5,900.0	5,817.2	5,550.0	5,537.0	16.0	13.7	-139.77	343.0	334.4	995.5	973.3	22.20	44.849		
6,000.0	5,866.6	5,550.0	5,537.0	17.2	13.7	-113.70	343.0	334.4	1,090.1	1,061.8	28.28	38.550		
6,100.0	5,898.6	5,550.0	5,537.0	18.5	13.7	-68.44	343.0	334.4	1,187.4	1,157.3	30.10	39.444		
6,200.0	5,911.9	5,550.0	5,537.0	20.0	13.7	-37.79	343.0	334.4	1,283.6	1,261.9	21.65	59.285		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1301A - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	0.0	-99.1	99.1					
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	0.0	-99.1	99.1	98.9	0.19	530.089		
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-99.1	99.1	98.5	0.64	155.737		
300.0	300.0	300.0	300.0	0.5	0.5	-89.99	0.0	-99.1	99.1	98.0	1.09	91.275		
400.0	400.0	400.0	400.0	0.8	0.8	-89.99	0.0	-99.1	99.1	97.6	1.54	64.555		
500.0	500.0	500.0	500.0	1.0	1.0	-89.99	0.0	-99.1	99.1	97.1	1.99	49.937		
600.0	600.0	600.0	600.0	1.2	1.2	-89.99	0.0	-99.1	99.1	96.7	2.43	40.716		
700.0	700.0	700.0	700.0	1.4	1.4	-89.99	0.0	-99.1	99.1	96.2	2.88	34.370		
800.0	800.0	800.0	800.0	1.7	1.7	-89.99	0.0	-99.1	99.1	95.8	3.33	29.736		
900.0	900.0	900.0	900.0	1.9	1.9	-89.99	0.0	-99.1	99.1	95.3	3.78	26.202		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-89.99	0.0	-99.1	99.1	94.9	4.23	23.420 CC, ES		
1,100.0	1,100.0	1,097.6	1,097.6	2.3	2.3	-90.67	-1.2	-100.3	100.3	95.7	4.65	21.559		
1,200.0	1,200.0	1,195.1	1,194.9	2.5	2.5	76.12	-4.8	-103.7	103.5	98.5	5.03	20.596		
1,300.0	1,299.8	1,294.9	1,294.5	2.7	2.7	76.17	-9.8	-108.6	107.3	101.9	5.39	19.894		
1,400.0	1,399.6	1,394.8	1,394.2	2.9	2.9	77.16	-14.8	-113.4	110.6	104.9	5.78	19.140		
1,500.0	1,499.4	1,494.7	1,493.8	3.1	3.1	78.09	-19.8	-118.3	114.0	107.8	6.19	18.429		
1,600.0	1,599.1	1,594.6	1,593.5	3.3	3.3	78.96	-24.8	-123.1	117.4	110.8	6.61	17.768		
1,700.0	1,698.9	1,694.6	1,693.2	3.5	3.6	79.79	-29.8	-128.0	120.9	113.8	7.04	17.158		
1,800.0	1,798.6	1,794.5	1,792.9	3.7	3.8	80.57	-34.8	-132.8	124.3	116.8	7.49	16.598		
1,900.0	1,898.4	1,894.4	1,892.6	4.0	4.0	81.31	-39.8	-137.7	127.8	119.9	7.95	16.085		
2,000.0	1,998.1	1,994.3	1,992.3	4.2	4.3	82.00	-44.8	-142.5	131.3	122.9	8.41	15.615		
2,100.0	2,097.9	2,094.3	2,091.9	4.4	4.5	82.67	-49.8	-147.4	134.8	126.0	8.88	15.185		
2,200.0	2,197.6	2,194.2	2,191.6	4.7	4.8	83.29	-54.8	-152.2	138.4	129.0	9.36	14.791		
2,300.0	2,297.4	2,294.1	2,291.3	4.9	5.0	83.89	-59.8	-157.1	141.9	132.1	9.84	14.429		
2,400.0	2,397.2	2,394.1	2,391.0	5.2	5.3	84.46	-64.9	-161.9	145.5	135.2	10.32	14.096		
2,500.0	2,496.9	2,494.0	2,490.7	5.4	5.5	85.00	-69.9	-166.8	149.1	138.3	10.81	13.790		
2,600.0	2,596.7	2,593.9	2,590.3	5.7	5.8	85.52	-74.9	-171.6	152.7	141.4	11.30	13.508		
2,700.0	2,696.4	2,693.8	2,690.0	5.9	6.0	86.01	-79.9	-176.4	156.3	144.5	11.80	13.246		
2,800.0	2,796.2	2,793.8	2,789.7	6.2	6.3	86.48	-84.9	-181.3	159.9	147.6	12.29	13.004		
2,900.0	2,895.9	2,893.7	2,889.4	6.4	6.5	86.92	-89.9	-186.1	163.5	150.7	12.79	12.780		
3,000.0	2,995.7	2,993.6	2,989.1	6.7	6.8	87.35	-94.9	-191.0	167.1	153.8	13.30	12.571		
3,100.0	3,095.5	3,093.5	3,088.8	6.9	7.0	87.76	-99.9	-195.8	170.8	157.0	13.80	12.376		
3,200.0	3,195.2	3,193.5	3,188.4	7.2	7.3	88.16	-104.9	-200.7	174.4	160.1	14.31	12.194		
3,300.0	3,295.0	3,293.4	3,288.1	7.4	7.6	88.53	-109.9	-205.5	178.1	163.3	14.81	12.024		
3,400.0	3,394.7	3,393.3	3,387.8	7.7	7.8	88.90	-114.9	-210.4	181.8	166.4	15.32	11.865		
3,500.0	3,494.5	3,493.2	3,487.5	7.9	8.1	89.24	-120.0	-215.2	185.4	169.6	15.83	11.715		
3,600.0	3,594.2	3,593.2	3,587.2	8.2	8.3	89.58	-125.0	-220.1	189.1	172.8	16.34	11.575		
3,700.0	3,694.0	3,693.1	3,686.9	8.4	8.6	89.90	-130.0	-224.9	192.8	176.0	16.85	11.442		
3,800.0	3,793.7	3,793.0	3,786.5	8.7	8.8	90.21	-135.0	-229.8	196.5	179.1	17.36	11.317		
3,900.0	3,893.5	3,892.9	3,886.2	9.0	9.1	90.51	-140.0	-234.6	200.2	182.3	17.88	11.199		
4,000.0	3,993.3	3,992.9	3,985.9	9.2	9.4	90.79	-145.0	-239.5	203.9	185.5	18.39	11.088		
4,100.0	4,093.0	4,092.8	4,085.6	9.5	9.6	91.07	-150.0	-244.3	207.6	188.7	18.90	10.982		
4,200.0	4,192.8	4,192.7	4,185.3	9.7	9.9	91.34	-155.0	-249.2	211.3	191.9	19.42	10.882		
4,300.0	4,292.5	4,292.7	4,285.0	10.0	10.1	91.60	-160.0	-254.0	215.1	195.1	19.94	10.787		
4,400.0	4,392.3	4,392.6	4,384.6	10.3	10.4	91.85	-165.0	-258.9	218.8	198.3	20.45	10.697		
4,500.0	4,492.0	4,492.5	4,484.3	10.5	10.7	92.09	-170.0	-263.7	222.5	201.5	20.97	10.611		
4,600.0	4,591.8	4,592.4	4,584.0	10.8	10.9	92.32	-175.1	-268.5	226.2	204.7	21.49	10.529		
4,700.0	4,691.6	4,692.4	4,683.7	11.0	11.2	92.55	-180.1	-273.4	230.0	208.0	22.00	10.451		
4,800.0	4,791.3	4,792.3	4,783.4	11.3	11.5	92.76	-185.1	-278.2	233.7	211.2	22.52	10.377		
4,900.0	4,891.1	4,892.2	4,883.1	11.6	11.7	92.97	-190.1	-283.1	237.4	214.4	23.04	10.306		
5,000.0	4,990.8	4,992.1	4,982.7	11.8	12.0	93.18	-195.1	-287.9	241.2	217.6	23.56	10.238		
5,100.0	5,090.6	5,092.1	5,082.4	12.1	12.2	93.38	-200.1	-292.8	244.9	220.9	24.08	10.173		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1301A - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,190.3	5,192.0	5,182.1	12.3	12.5	93.57	-205.1	-297.6	248.7	224.1	24.60	10.110		
5,300.0	5,290.1	5,291.9	5,281.8	12.6	12.8	93.76	-210.1	-302.5	252.4	227.3	25.12	10.051		
5,400.0	5,389.9	5,381.5	5,370.9	12.9	13.0	93.55	-216.0	-308.1	257.3	231.7	25.62	10.042		
5,500.0	5,489.2	5,460.7	5,447.9	13.2	13.3	90.97	-229.0	-320.7	269.1	242.9	26.16	10.285		
5,600.0	5,585.0	5,537.4	5,519.2	13.6	13.8	88.10	-249.5	-340.6	288.8	261.9	26.91	10.732		
5,700.0	5,673.7	5,611.6	5,583.3	14.2	14.3	85.56	-276.2	-366.5	315.2	287.3	27.88	11.308		
5,800.0	5,752.1	5,683.2	5,639.5	15.0	14.9	83.27	-308.0	-397.2	347.2	318.1	29.05	11.951		
5,900.0	5,817.2	5,750.0	5,686.1	16.0	15.5	81.02	-342.3	-430.4	383.6	353.2	30.40	12.619		
6,000.0	5,866.6	5,819.3	5,727.5	17.2	16.3	78.98	-382.2	-469.0	423.6	391.6	32.03	13.224		
6,100.0	5,898.6	5,884.8	5,759.6	18.5	17.1	76.89	-423.2	-508.7	466.2	432.3	33.85	13.771		
6,200.0	5,911.9	5,950.0	5,784.2	20.0	18.0	74.87	-466.6	-550.7	510.4	474.6	35.88	14.227		
6,300.0	5,912.3	6,015.2	5,801.0	21.4	19.0	76.51	-511.8	-594.5	558.3	520.1	38.21	14.610		
6,400.0	5,912.3	6,081.8	5,810.0	22.7	20.1	78.10	-559.2	-640.3	613.8	573.5	40.33	15.220		
6,500.0	5,912.3	6,170.4	5,811.3	24.1	21.5	79.01	-623.3	-701.4	675.1	632.5	42.58	15.856		
6,600.0	5,912.3	6,293.9	5,811.3	25.6	23.3	80.02	-717.0	-781.8	736.7	691.6	45.11	16.331		
6,700.0	5,912.3	6,427.0	5,811.3	27.1	25.4	81.14	-823.5	-861.6	796.0	747.6	48.40	16.447		
6,800.0	5,912.3	6,574.2	5,811.3	28.8	27.8	82.10	-947.5	-940.9	849.5	797.3	52.28	16.250		
6,900.0	5,912.3	6,736.0	5,811.3	30.5	30.4	82.84	-1,090.3	-1,016.7	896.2	839.6	56.52	15.855		
7,000.0	5,912.3	6,912.0	5,811.3	32.2	33.2	83.39	-1,252.4	-1,085.2	934.9	873.8	61.11	15.300		
7,100.0	5,912.3	7,100.8	5,811.3	34.0	36.2	83.79	-1,432.4	-1,141.7	964.7	898.8	65.97	14.625		
7,200.0	5,912.3	7,299.8	5,811.3	35.7	39.2	84.05	-1,627.3	-1,181.8	984.8	913.8	71.01	13.869		
7,300.0	5,912.3	7,505.3	5,811.3	37.5	42.2	84.17	-1,831.8	-1,201.7	994.4	918.3	76.12	13.065		
7,400.0	5,912.3	7,647.9	5,811.3	39.3	44.2	84.18	-1,974.4	-1,203.4	995.3	915.1	80.18	12.413		
7,500.0	5,912.3	7,747.9	5,811.3	41.1	45.7	84.18	-2,074.4	-1,203.4	995.3	911.7	83.59	11.907		
7,600.0	5,912.2	7,847.9	5,811.3	42.9	47.1	84.18	-2,174.4	-1,203.4	995.3	908.2	87.03	11.435		
7,700.0	5,912.2	7,947.9	5,811.2	44.7	48.6	84.18	-2,274.4	-1,203.4	995.3	904.8	90.51	10.996		
7,800.0	5,912.2	8,047.9	5,811.2	46.5	50.1	84.18	-2,374.4	-1,203.4	995.3	901.3	94.02	10.586		
7,900.0	5,912.2	8,147.9	5,811.2	48.4	51.6	84.18	-2,474.4	-1,203.4	995.3	897.7	97.55	10.203		
8,000.0	5,912.2	8,247.9	5,811.2	50.2	53.2	84.18	-2,574.4	-1,203.4	995.3	894.2	101.10	9.845		
8,100.0	5,912.2	8,347.9	5,811.2	52.1	54.8	84.18	-2,674.4	-1,203.4	995.3	890.6	104.67	9.509		
8,200.0	5,912.2	8,447.9	5,811.2	53.9	56.4	84.18	-2,774.4	-1,203.4	995.3	887.0	108.26	9.194		
8,300.0	5,912.2	8,547.9	5,811.2	55.8	58.0	84.18	-2,874.4	-1,203.4	995.3	883.4	111.86	8.897		
8,400.0	5,912.2	8,647.9	5,811.2	57.6	59.7	84.18	-2,974.4	-1,203.4	995.3	879.8	115.48	8.619		
8,500.0	5,912.2	8,747.9	5,811.2	59.5	61.3	84.18	-3,074.4	-1,203.4	995.3	876.2	119.11	8.356		
8,600.0	5,912.2	8,847.9	5,811.2	61.4	63.0	84.18	-3,174.4	-1,203.3	995.3	872.5	122.76	8.108		
8,700.0	5,912.2	8,947.9	5,811.2	63.2	64.7	84.18	-3,274.4	-1,203.3	995.3	868.9	126.41	7.873		
8,800.0	5,912.2	9,047.9	5,811.2	65.1	66.4	84.18	-3,374.4	-1,203.3	995.3	865.2	130.08	7.651		
8,900.0	5,912.2	9,147.9	5,811.2	67.0	68.1	84.18	-3,474.4	-1,203.3	995.3	861.5	133.75	7.441		
9,000.0	5,912.2	9,247.9	5,811.2	68.9	69.8	84.18	-3,574.4	-1,203.3	995.3	857.8	137.44	7.242		
9,100.0	5,912.2	9,347.9	5,811.2	70.8	71.6	84.18	-3,674.4	-1,203.3	995.3	854.1	141.13	7.052		
9,200.0	5,912.2	9,447.9	5,811.2	72.6	73.3	84.18	-3,774.4	-1,203.3	995.3	850.4	144.82	6.872		
9,300.0	5,912.2	9,547.9	5,811.2	74.5	75.1	84.18	-3,874.4	-1,203.3	995.3	846.7	148.53	6.701		
9,400.0	5,912.2	9,647.9	5,811.2	76.4	76.8	84.18	-3,974.4	-1,203.3	995.3	843.0	152.24	6.537		
9,500.0	5,912.2	9,747.9	5,811.2	78.3	78.6	84.18	-4,074.4	-1,203.3	995.3	839.3	155.96	6.382		
9,600.0	5,912.2	9,847.9	5,811.2	80.2	80.4	84.18	-4,174.4	-1,203.3	995.3	835.6	159.68	6.233		
9,700.0	5,912.2	9,947.9	5,811.2	82.1	82.1	84.18	-4,274.4	-1,203.3	995.3	831.9	163.41	6.091		
9,800.0	5,912.2	10,047.9	5,811.2	84.0	83.9	84.18	-4,374.4	-1,203.3	995.3	828.1	167.14	5.955		
9,900.0	5,912.2	10,147.9	5,811.2	85.9	85.7	84.18	-4,474.4	-1,203.3	995.3	824.4	170.87	5.825		
10,000.0	5,912.1	10,247.9	5,811.1	87.8	87.5	84.18	-4,574.4	-1,203.3	995.3	820.7	174.61	5.700		
10,100.0	5,912.1	10,347.9	5,811.1	89.7	89.3	84.18	-4,674.4	-1,203.3	995.3	816.9	178.36	5.580		
10,200.0	5,912.1	10,447.9	5,811.1	91.6	91.1	84.18	-4,774.4	-1,203.2	995.3	813.2	182.10	5.465		
10,300.0	5,912.1	10,547.9	5,811.1	93.5	93.0	84.18	-4,874.4	-1,203.2	995.3	809.4	185.85	5.355		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1301A - HZ - Plan #3												Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
10,400.0	5,912.1	10,647.9	5,811.1	95.4	94.8	84.18	-4,974.4	-1,203.2	995.3	805.7	189.61	5.249	
10,500.0	5,912.1	10,747.9	5,811.1	97.3	96.6	84.18	-5,074.4	-1,203.2	995.3	801.9	193.36	5.147	
10,600.0	5,912.1	10,847.9	5,811.1	99.2	98.4	84.18	-5,174.4	-1,203.2	995.3	798.1	197.12	5.049	
10,700.0	5,912.1	10,947.9	5,811.1	101.1	100.3	84.18	-5,274.4	-1,203.2	995.3	794.4	200.88	4.954	
10,800.0	5,912.1	11,047.9	5,811.1	103.0	102.1	84.18	-5,374.4	-1,203.2	995.3	790.6	204.65	4.863	
10,900.0	5,912.1	11,147.9	5,811.1	104.9	103.9	84.18	-5,474.4	-1,203.2	995.3	786.8	208.41	4.775	
11,000.0	5,912.1	11,247.9	5,811.1	106.8	105.8	84.18	-5,574.4	-1,203.2	995.3	783.1	212.18	4.691	
11,100.0	5,912.1	11,347.9	5,811.1	108.7	107.6	84.18	-5,674.4	-1,203.2	995.3	779.3	215.95	4.609	
11,200.0	5,912.1	11,447.9	5,811.1	110.6	109.5	84.18	-5,774.4	-1,203.2	995.3	775.5	219.72	4.530	
11,300.0	5,912.1	11,547.9	5,811.1	112.5	111.3	84.18	-5,874.4	-1,203.2	995.3	771.8	223.50	4.453	
11,400.0	5,912.1	11,647.9	5,811.1	114.4	113.2	84.18	-5,974.4	-1,203.2	995.3	768.0	227.27	4.379	
11,500.0	5,912.1	11,747.9	5,811.1	116.3	115.0	84.18	-6,074.4	-1,203.2	995.3	764.2	231.05	4.308	
11,600.0	5,912.1	11,847.9	5,811.1	118.2	116.9	84.18	-6,174.4	-1,203.2	995.3	760.4	234.83	4.238	
11,700.0	5,912.1	11,947.9	5,811.1	120.1	118.7	84.18	-6,274.4	-1,203.2	995.3	756.6	238.61	4.171	
11,800.0	5,912.1	12,047.9	5,811.1	122.1	120.6	84.18	-6,374.4	-1,203.1	995.3	752.9	242.39	4.106	
11,900.0	5,912.1	12,147.9	5,811.1	124.0	122.4	84.18	-6,474.4	-1,203.1	995.3	749.1	246.18	4.043	
12,000.0	5,912.1	12,247.9	5,811.1	125.9	124.3	84.18	-6,574.4	-1,203.1	995.2	745.3	249.96	3.982	
12,100.0	5,912.1	12,347.9	5,811.1	127.8	126.2	84.18	-6,674.4	-1,203.1	995.2	741.5	253.75	3.922	
12,200.0	5,912.1	12,447.9	5,811.1	129.7	128.0	84.18	-6,774.4	-1,203.1	995.2	737.7	257.54	3.865	
12,300.0	5,912.1	12,547.9	5,811.0	131.6	129.9	84.18	-6,874.4	-1,203.1	995.2	733.9	261.32	3.808	
12,400.0	5,912.1	12,647.9	5,811.0	133.5	131.8	84.18	-6,974.4	-1,203.1	995.2	730.1	265.11	3.754	
12,500.0	5,912.0	12,747.9	5,811.0	135.4	133.7	84.18	-7,074.4	-1,203.1	995.2	726.3	268.90	3.701	
12,600.0	5,912.0	12,847.9	5,811.0	137.3	135.5	84.18	-7,174.4	-1,203.1	995.2	722.6	272.70	3.650	
12,700.0	5,912.0	12,947.9	5,811.0	139.3	137.4	84.18	-7,274.4	-1,203.1	995.2	718.8	276.49	3.600	
12,800.0	5,912.0	13,047.9	5,811.0	141.2	139.3	84.18	-7,374.4	-1,203.1	995.2	715.0	280.28	3.551	
12,900.0	5,912.0	13,147.9	5,811.0	143.1	141.2	84.18	-7,474.4	-1,203.1	995.2	711.2	284.08	3.503	
13,000.0	5,912.0	13,247.9	5,811.0	145.0	143.0	84.18	-7,574.4	-1,203.1	995.2	707.4	287.87	3.457	
13,100.0	5,912.0	13,347.9	5,811.0	146.9	144.9	84.18	-7,674.4	-1,203.1	995.2	703.6	291.67	3.412	
13,200.0	5,912.0	13,447.9	5,811.0	148.8	146.8	84.18	-7,774.4	-1,203.1	995.2	699.8	295.46	3.368	
13,300.0	5,912.0	13,547.9	5,811.0	150.7	148.7	84.18	-7,874.4	-1,203.1	995.2	696.0	299.26	3.326	
13,400.0	5,912.0	13,647.9	5,811.0	152.6	150.6	84.18	-7,974.4	-1,203.1	995.2	692.2	303.06	3.284	
13,500.0	5,912.0	13,747.9	5,811.0	154.6	152.5	84.18	-8,074.4	-1,203.0	995.2	688.4	306.86	3.243	
13,600.0	5,912.0	13,847.9	5,811.0	156.5	154.3	84.18	-8,174.4	-1,203.0	995.2	684.6	310.66	3.204	
13,667.9	5,912.0	13,915.9	5,811.0	157.8	155.6	84.18	-8,242.3	-1,203.0	995.2	682.0	313.24	3.177 SF	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1302B - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	0.0	-66.1	66.1					
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	0.0	-66.1	66.1	65.9	0.19	353.396		
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-66.1	66.1	65.5	0.64	103.823		
300.0	300.0	300.0	300.0	0.5	0.5	-89.99	0.0	-66.1	66.1	65.0	1.09	60.850		
400.0	400.0	400.0	400.0	0.8	0.8	-89.99	0.0	-66.1	66.1	64.6	1.54	43.037		
500.0	500.0	500.0	500.0	1.0	1.0	-89.99	0.0	-66.1	66.1	64.1	1.99	33.291		
600.0	600.0	600.0	600.0	1.2	1.2	-89.99	0.0	-66.1	66.1	63.7	2.43	27.144		
700.0	700.0	700.0	700.0	1.4	1.4	-89.99	0.0	-66.1	66.1	63.2	2.88	22.913		
800.0	800.0	800.0	800.0	1.7	1.7	-89.99	0.0	-66.1	66.1	62.8	3.33	19.824		
900.0	900.0	900.0	900.0	1.9	1.9	-89.99	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	-89.99	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	-89.99	0.0	-66.1	66.1	61.4	4.68	14.114		
1,200.0	1,200.0	1,200.0	1,200.0	2.5	2.6	79.40	0.0	-66.1	65.7	60.6	5.10	12.884		
1,244.2	1,244.1	1,243.6	1,243.6	2.6	2.7	80.76	-0.3	-66.3	65.6	60.3	5.27	12.457	CC, ES	
1,300.0	1,299.8	1,298.7	1,298.7	2.7	2.8	82.59	-1.4	-67.1	65.8	60.4	5.47	12.029		
1,400.0	1,399.6	1,397.6	1,397.4	2.9	2.9	84.65	-5.6	-70.0	67.6	61.7	5.84	11.578		
1,500.0	1,499.4	1,497.5	1,497.1	3.1	3.1	85.30	-11.3	-74.0	70.2	64.0	6.22	11.283		
1,600.0	1,599.1	1,597.5	1,596.8	3.3	3.3	85.90	-17.0	-78.0	72.9	66.3	6.63	10.994		
1,700.0	1,698.9	1,697.4	1,696.5	3.5	3.5	86.46	-22.7	-82.0	75.6	68.5	7.05	10.714		
1,800.0	1,798.6	1,797.4	1,796.2	3.7	3.8	86.98	-28.4	-86.0	78.2	70.7	7.49	10.449		
1,900.0	1,898.4	1,897.3	1,896.0	4.0	4.0	87.47	-34.1	-90.0	80.9	73.0	7.93	10.200		
2,000.0	1,998.1	1,997.3	1,995.7	4.2	4.2	87.93	-39.9	-94.0	83.6	75.2	8.39	9.966		
2,100.0	2,097.9	2,097.3	2,095.4	4.4	4.4	88.35	-45.6	-97.9	86.3	77.4	8.85	9.748		
2,200.0	2,197.6	2,197.2	2,195.1	4.7	4.7	88.76	-51.3	-101.9	89.0	79.7	9.32	9.546		
2,300.0	2,297.4	2,297.2	2,294.8	4.9	4.9	89.13	-57.0	-105.9	91.7	81.9	9.80	9.358		
2,400.0	2,397.2	2,397.1	2,394.6	5.2	5.2	89.49	-62.7	-109.9	94.4	84.1	10.28	9.183		
2,500.0	2,496.9	2,497.1	2,494.3	5.4	5.4	89.83	-68.4	-113.9	97.1	86.3	10.76	9.020		
2,600.0	2,596.7	2,597.1	2,594.0	5.7	5.6	90.14	-74.2	-117.9	99.8	88.5	11.25	8.869		
2,700.0	2,696.4	2,697.0	2,693.7	5.9	5.9	90.45	-79.9	-121.9	102.5	90.8	11.74	8.728		
2,800.0	2,796.2	2,797.0	2,793.4	6.2	6.1	90.73	-85.6	-125.9	105.2	93.0	12.24	8.596		
2,900.0	2,895.9	2,897.0	2,893.1	6.4	6.4	91.00	-91.3	-129.9	107.9	95.2	12.74	8.473		
3,000.0	2,995.7	2,996.9	2,992.9	6.7	6.6	91.26	-97.0	-133.9	110.7	97.4	13.24	8.359		
3,100.0	3,095.5	3,096.9	3,092.6	6.9	6.9	91.51	-102.7	-137.9	113.4	99.6	13.74	8.251		
3,200.0	3,195.2	3,196.8	3,192.3	7.2	7.1	91.74	-108.4	-141.9	116.1	101.9	14.24	8.150		
3,300.0	3,295.0	3,296.8	3,292.0	7.4	7.4	91.96	-114.2	-145.9	118.8	104.1	14.75	8.056		
3,400.0	3,394.7	3,396.8	3,391.7	7.7	7.6	92.18	-119.9	-149.9	121.6	106.3	15.26	7.966		
3,500.0	3,494.5	3,496.7	3,491.5	7.9	7.9	92.38	-125.6	-153.9	124.3	108.5	15.77	7.882		
3,600.0	3,594.2	3,596.7	3,591.2	8.2	8.2	92.58	-131.3	-157.9	127.0	110.7	16.28	7.803		
3,700.0	3,694.0	3,696.6	3,690.9	8.4	8.4	92.76	-137.0	-161.9	129.7	113.0	16.79	7.728		
3,800.0	3,793.7	3,796.6	3,790.6	8.7	8.7	92.94	-142.7	-165.9	132.5	115.2	17.30	7.658		
3,900.0	3,893.5	3,896.6	3,890.3	9.0	8.9	93.12	-148.5	-169.9	135.2	117.4	17.81	7.591		
4,000.0	3,993.3	3,996.5	3,990.0	9.2	9.2	93.28	-154.2	-173.8	137.9	119.6	18.33	7.527		
4,100.0	4,093.0	4,096.5	4,089.8	9.5	9.4	93.44	-159.9	-177.8	140.7	121.8	18.84	7.467		
4,200.0	4,192.8	4,196.5	4,189.5	9.7	9.7	93.59	-165.6	-181.8	143.4	124.1	19.36	7.409		
4,300.0	4,292.5	4,296.4	4,289.2	10.0	10.0	93.74	-171.3	-185.8	146.2	126.3	19.87	7.355		
4,400.0	4,392.3	4,396.4	4,388.9	10.3	10.2	93.88	-177.0	-189.8	148.9	128.5	20.39	7.303		
4,500.0	4,492.0	4,496.3	4,488.6	10.5	10.5	94.02	-182.7	-193.8	151.6	130.7	20.91	7.253		
4,600.0	4,591.8	4,596.3	4,588.4	10.8	10.7	94.15	-188.5	-197.8	154.4	133.0	21.42	7.206		
4,700.0	4,691.6	4,696.3	4,688.1	11.0	11.0	94.28	-194.2	-201.8	157.1	135.2	21.94	7.161		
4,800.0	4,791.3	4,796.2	4,787.8	11.3	11.3	94.40	-199.9	-205.8	159.9	137.4	22.46	7.118		
4,900.0	4,891.1	4,896.2	4,887.5	11.6	11.5	94.52	-205.6	-209.8	162.6	139.6	22.98	7.076		
5,000.0	4,990.8	4,996.2	4,987.2	11.8	11.8	94.63	-211.3	-213.8	165.3	141.8	23.50	7.037		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1302B - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,100.0	5,090.6	5,096.1	5,086.9	12.1	12.0	94.74	-217.0	-217.8	168.1	144.1	24.02	6.999		
5,200.0	5,190.3	5,196.1	5,186.7	12.3	12.3	94.85	-222.8	-221.8	170.8	146.3	24.54	6.962		
5,300.0	5,290.1	5,296.0	5,286.4	12.6	12.6	94.96	-228.5	-225.8	173.6	148.5	25.06	6.927		
5,400.0	5,389.9	5,396.0	5,386.1	12.9	12.8	95.06	-234.2	-229.8	176.3	150.7	25.58	6.894		
5,500.0	5,489.2	5,490.5	5,480.1	13.2	13.1	95.09	-241.7	-235.0	180.3	154.2	26.13	6.898		
5,600.0	5,585.0	5,580.6	5,567.1	13.6	13.5	95.02	-260.5	-248.2	190.5	163.6	26.93	7.075		
5,700.0	5,673.7	5,670.0	5,648.3	14.2	14.0	94.77	-291.0	-269.4	207.3	179.3	28.01	7.401		
5,800.0	5,752.1	5,758.4	5,721.2	15.0	14.6	94.25	-331.8	-298.0	230.0	200.7	29.39	7.827		
5,900.0	5,817.2	5,846.0	5,784.1	16.0	15.4	93.38	-381.7	-332.9	258.0	226.9	31.12	8.290		
6,000.0	5,866.6	5,933.1	5,835.6	17.2	16.4	92.17	-439.2	-373.0	290.2	257.0	33.22	8.735		
6,100.0	5,898.6	6,020.3	5,874.8	18.5	17.5	90.67	-502.9	-417.6	325.6	290.0	35.63	9.140		
6,200.0	5,911.9	6,108.3	5,900.6	20.0	18.7	88.98	-571.8	-465.7	363.2	324.9	38.30	9.485		
6,300.0	5,912.3	6,198.2	5,912.1	21.4	20.1	89.97	-644.7	-516.7	403.4	362.6	40.86	9.872		
6,400.0	5,912.3	6,308.2	5,912.5	22.7	21.7	90.03	-736.0	-578.0	446.9	403.4	43.46	10.281		
6,500.0	5,912.3	6,427.9	5,912.5	24.1	23.5	90.03	-839.2	-638.8	489.6	443.6	46.08	10.626		
6,600.0	5,912.3	6,552.0	5,912.5	25.6	25.3	90.03	-949.9	-694.8	531.4	482.6	48.74	10.902		
6,700.0	5,912.3	6,681.4	5,912.5	27.1	27.3	90.03	-1,068.9	-745.5	570.4	518.3	52.10	10.948		
6,800.0	5,912.3	6,817.9	5,912.5	28.8	29.4	90.02	-1,197.9	-790.0	603.1	547.2	55.93	10.784		
6,900.0	5,912.3	6,960.6	5,912.5	30.5	31.6	90.02	-1,335.8	-826.6	628.8	568.8	59.93	10.492		
7,000.0	5,912.3	7,108.2	5,912.5	32.2	33.9	90.02	-1,480.9	-853.6	647.0	583.0	64.05	10.102		
7,100.0	5,912.3	7,259.3	5,912.5	34.0	36.2	90.02	-1,631.1	-869.4	657.6	589.3	68.26	9.634		
7,200.0	5,912.3	7,402.6	5,912.5	35.7	38.3	90.02	-1,774.3	-873.5	660.3	587.9	72.34	9.127		
7,300.0	5,912.3	7,502.6	5,912.5	37.5	39.8	90.02	-1,874.3	-873.5	660.3	584.5	75.77	8.714		
7,400.0	5,912.3	7,602.6	5,912.5	39.3	41.4	90.02	-1,974.3	-873.5	660.3	581.0	79.23	8.333		
7,500.0	5,912.3	7,702.6	5,912.5	41.1	42.9	90.02	-2,074.3	-873.5	660.3	577.5	82.73	7.980		
7,600.0	5,912.2	7,802.6	5,912.5	42.9	44.5	90.02	-2,174.3	-873.5	660.3	574.0	86.26	7.654		
7,700.0	5,912.2	7,902.6	5,912.5	44.7	46.2	90.02	-2,274.3	-873.5	660.3	570.4	89.82	7.351		
7,800.0	5,912.2	8,002.6	5,912.4	46.5	47.8	90.02	-2,374.3	-873.5	660.3	566.9	93.40	7.069		
7,900.0	5,912.2	8,102.6	5,912.4	48.4	49.5	90.02	-2,474.3	-873.5	660.3	563.3	97.00	6.807		
8,000.0	5,912.2	8,202.6	5,912.4	50.2	51.1	90.02	-2,574.3	-873.5	660.3	559.7	100.62	6.562		
8,100.0	5,912.2	8,302.6	5,912.4	52.1	52.8	90.02	-2,674.3	-873.5	660.3	556.0	104.25	6.333		
8,200.0	5,912.2	8,402.6	5,912.4	53.9	54.6	90.02	-2,774.3	-873.5	660.3	552.4	107.90	6.119		
8,300.0	5,912.2	8,502.6	5,912.4	55.8	56.3	90.02	-2,874.3	-873.5	660.3	548.7	111.56	5.918		
8,400.0	5,912.2	8,602.6	5,912.4	57.6	58.0	90.02	-2,974.3	-873.5	660.3	545.0	115.24	5.730		
8,500.0	5,912.2	8,702.6	5,912.4	59.5	59.8	90.02	-3,074.3	-873.5	660.3	541.3	118.92	5.552		
8,600.0	5,912.2	8,802.6	5,912.4	61.4	61.5	90.02	-3,174.3	-873.5	660.3	537.7	122.62	5.385		
8,700.0	5,912.2	8,902.6	5,912.4	63.2	63.3	90.02	-3,274.3	-873.5	660.3	534.0	126.32	5.227		
8,800.0	5,912.2	9,002.6	5,912.4	65.1	65.1	90.01	-3,374.3	-873.5	660.3	530.2	130.04	5.078		
8,900.0	5,912.2	9,102.6	5,912.4	67.0	66.9	90.01	-3,474.3	-873.5	660.3	526.5	133.76	4.936		
9,000.0	5,912.2	9,202.6	5,912.4	68.9	68.7	90.01	-3,574.3	-873.5	660.3	522.8	137.48	4.803		
9,100.0	5,912.2	9,302.6	5,912.3	70.8	70.5	90.01	-3,674.3	-873.5	660.3	519.1	141.22	4.676		
9,200.0	5,912.2	9,402.6	5,912.3	72.6	72.3	90.01	-3,774.3	-873.5	660.3	515.3	144.96	4.555		
9,300.0	5,912.2	9,502.6	5,912.3	74.5	74.1	90.01	-3,874.3	-873.5	660.3	511.6	148.70	4.440		
9,400.0	5,912.2	9,602.6	5,912.3	76.4	75.9	90.01	-3,974.3	-873.4	660.3	507.8	152.45	4.331		
9,500.0	5,912.2	9,702.6	5,912.3	78.3	77.7	90.01	-4,074.3	-873.4	660.3	504.1	156.20	4.227		
9,600.0	5,912.2	9,802.6	5,912.3	80.2	79.6	90.01	-4,174.3	-873.4	660.3	500.3	159.96	4.128		
9,700.0	5,912.2	9,902.6	5,912.3	82.1	81.4	90.01	-4,274.3	-873.4	660.3	496.6	163.72	4.033		
9,800.0	5,912.2	10,002.6	5,912.3	84.0	83.2	90.01	-4,374.3	-873.4	660.3	492.8	167.49	3.942		
9,900.0	5,912.2	10,102.6	5,912.3	85.9	85.1	90.01	-4,474.3	-873.4	660.3	489.0	171.26	3.855		
10,000.0	5,912.1	10,202.6	5,912.3	87.8	86.9	90.01	-4,574.3	-873.4	660.3	485.3	175.03	3.772		
10,100.0	5,912.1	10,302.6	5,912.3	89.7	88.8	90.01	-4,674.3	-873.4	660.3	481.5	178.81	3.693		
10,200.0	5,912.1	10,402.6	5,912.3	91.6	90.6	90.01	-4,774.3	-873.4	660.3	477.7	182.59	3.616		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1302B - HZ - Plan #3												Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
10,300.0	5,912.1	10,502.6	5,912.3	93.5	92.5	90.01	-4,874.3	-873.4	660.3	473.9	186.37	3.543	
10,400.0	5,912.1	10,602.6	5,912.2	95.4	94.3	90.01	-4,974.3	-873.4	660.3	470.1	190.15	3.472	
10,500.0	5,912.1	10,702.6	5,912.2	97.3	96.2	90.01	-5,074.3	-873.4	660.3	466.4	193.94	3.405	
10,600.0	5,912.1	10,802.6	5,912.2	99.2	98.0	90.01	-5,174.3	-873.4	660.3	462.6	197.73	3.339	
10,700.0	5,912.1	10,902.6	5,912.2	101.1	99.9	90.01	-5,274.3	-873.4	660.3	458.8	201.52	3.277	
10,800.0	5,912.1	11,002.6	5,912.2	103.0	101.8	90.01	-5,374.3	-873.4	660.3	455.0	205.31	3.216	
10,900.0	5,912.1	11,102.6	5,912.2	104.9	103.6	90.01	-5,474.3	-873.4	660.3	451.2	209.11	3.158	
11,000.0	5,912.1	11,202.6	5,912.2	106.8	105.5	90.01	-5,574.3	-873.4	660.3	447.4	212.90	3.101	
11,100.0	5,912.1	11,302.6	5,912.2	108.7	107.4	90.01	-5,674.3	-873.4	660.3	443.6	216.70	3.047	
11,200.0	5,912.1	11,402.6	5,912.2	110.6	109.3	90.01	-5,774.3	-873.4	660.3	439.8	220.50	2.995	
11,300.0	5,912.1	11,502.6	5,912.2	112.5	111.1	90.01	-5,874.3	-873.4	660.3	436.0	224.30	2.944	
11,400.0	5,912.1	11,602.6	5,912.2	114.4	113.0	90.01	-5,974.3	-873.4	660.3	432.2	228.10	2.895	
11,500.0	5,912.1	11,702.6	5,912.2	116.3	114.9	90.01	-6,074.3	-873.4	660.3	428.4	231.91	2.847	
11,600.0	5,912.1	11,802.6	5,912.2	118.2	116.8	90.01	-6,174.3	-873.4	660.3	424.6	235.71	2.801	
11,700.0	5,912.1	11,902.6	5,912.1	120.1	118.6	90.01	-6,274.3	-873.3	660.3	420.8	239.52	2.757	
11,800.0	5,912.1	12,002.6	5,912.1	122.1	120.5	90.01	-6,374.3	-873.3	660.3	417.0	243.33	2.714	
11,900.0	5,912.1	12,102.6	5,912.1	124.0	122.4	90.01	-6,474.3	-873.3	660.3	413.2	247.13	2.672	
12,000.0	5,912.1	12,202.6	5,912.1	125.9	124.3	90.01	-6,574.3	-873.3	660.3	409.4	250.94	2.631	
12,100.0	5,912.1	12,302.6	5,912.1	127.8	126.2	90.00	-6,674.3	-873.3	660.3	405.6	254.75	2.592	
12,200.0	5,912.1	12,402.6	5,912.1	129.7	128.1	90.00	-6,774.3	-873.3	660.3	401.7	258.57	2.554	
12,300.0	5,912.1	12,502.6	5,912.1	131.6	130.0	90.00	-6,874.3	-873.3	660.3	397.9	262.38	2.517	
12,400.0	5,912.1	12,602.6	5,912.1	133.5	131.9	90.00	-6,974.3	-873.3	660.3	394.1	266.19	2.481	
12,500.0	5,912.0	12,702.6	5,912.1	135.4	133.7	90.00	-7,074.3	-873.3	660.3	390.3	270.01	2.446	
12,600.0	5,912.0	12,802.6	5,912.1	137.3	135.6	90.00	-7,174.3	-873.3	660.3	386.5	273.82	2.411	
12,700.0	5,912.0	12,902.6	5,912.1	139.3	137.5	90.00	-7,274.3	-873.3	660.3	382.7	277.64	2.378	
12,800.0	5,912.0	13,002.6	5,912.1	141.2	139.4	90.00	-7,374.3	-873.3	660.3	378.9	281.45	2.346	
12,900.0	5,912.0	13,102.6	5,912.1	143.1	141.3	90.00	-7,474.3	-873.3	660.3	375.0	285.27	2.315	
13,000.0	5,912.0	13,202.6	5,912.1	145.0	143.2	90.00	-7,574.3	-873.3	660.3	371.2	289.09	2.284	
13,100.0	5,912.0	13,302.6	5,912.0	146.9	145.1	90.00	-7,674.3	-873.3	660.3	367.4	292.91	2.254	
13,200.0	5,912.0	13,402.6	5,912.0	148.8	147.0	90.00	-7,774.3	-873.3	660.3	363.6	296.73	2.225	
13,300.0	5,912.0	13,502.6	5,912.0	150.7	148.9	90.00	-7,874.3	-873.3	660.3	359.8	300.55	2.197	
13,400.0	5,912.0	13,602.6	5,912.0	152.6	150.8	90.00	-7,974.3	-873.3	660.3	356.0	304.37	2.169	
13,500.0	5,912.0	13,702.6	5,912.0	154.6	152.7	90.00	-8,074.3	-873.3	660.3	352.1	308.19	2.143	
13,600.0	5,912.0	13,802.6	5,912.0	156.5	154.6	90.00	-8,174.3	-873.3	660.3	348.3	312.00	2.116	
13,667.9	5,912.0	13,870.5	5,912.0	157.8	155.6	90.00	-8,242.3	-873.3	660.3	346.0	314.37	2.100 SF	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1303A - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-89.97	0.0	-33.0	33.0					
100.0	100.0	100.0	100.0	0.1	0.1	-89.97	0.0	-33.0	33.0	32.9	0.19	176.696		
200.0	200.0	200.0	200.0	0.3	0.3	-89.97	0.0	-33.0	33.0	32.4	0.64	51.912		
300.0	300.0	300.0	300.0	0.5	0.5	-89.97	0.0	-33.0	33.0	32.0	1.09	30.425		
400.0	400.0	400.0	400.0	0.8	0.8	-89.97	0.0	-33.0	33.0	31.5	1.54	21.518		
500.0	500.0	500.0	500.0	1.0	1.0	-89.97	0.0	-33.0	33.0	31.1	1.99	16.646	CC, ES	
600.0	600.0	599.5	599.5	1.2	1.2	-92.65	-1.6	-33.7	33.8	31.4	2.41	14.032		
700.0	700.0	698.7	698.6	1.4	1.4	-99.95	-6.3	-35.8	36.4	33.6	2.82	12.907		
800.0	800.0	798.5	798.1	1.7	1.6	-108.12	-12.6	-38.7	40.7	37.5	3.25	12.532		
900.0	900.0	898.2	897.6	1.9	1.8	-114.62	-19.0	-41.5	45.7	42.0	3.68	12.408		
1,000.0	1,000.0	998.0	997.1	2.1	2.0	-119.80	-25.4	-44.3	51.1	47.0	4.12	12.413		
1,100.0	1,100.0	1,097.8	1,096.6	2.3	2.3	-123.96	-31.7	-47.1	56.9	52.3	4.56	12.482		
1,200.0	1,200.0	1,197.6	1,196.2	2.5	2.5	41.55	-38.1	-49.9	61.6	56.6	4.98	12.371		
1,300.0	1,299.8	1,297.6	1,296.0	2.7	2.8	41.53	-44.5	-52.8	63.7	58.4	5.38	11.854		
1,400.0	1,399.6	1,397.6	1,395.7	2.9	3.0	42.56	-50.9	-55.6	64.6	58.8	5.79	11.148		
1,500.0	1,499.4	1,497.6	1,495.5	3.1	3.3	43.57	-57.2	-58.4	65.5	59.2	6.22	10.521		
1,600.0	1,599.1	1,597.6	1,595.2	3.3	3.5	44.55	-63.6	-61.2	66.3	59.7	6.66	9.963		
1,700.0	1,698.9	1,697.5	1,695.0	3.5	3.8	45.50	-70.0	-64.1	67.3	60.1	7.11	9.464		
1,800.0	1,798.6	1,797.5	1,794.7	3.7	4.1	46.43	-76.4	-66.9	68.2	60.6	7.56	9.018		
1,900.0	1,898.4	1,897.5	1,894.4	4.0	4.3	47.34	-82.7	-69.7	69.1	61.1	8.02	8.618		
2,000.0	1,998.1	1,997.5	1,994.2	4.2	4.6	48.21	-89.1	-72.5	70.1	61.6	8.49	8.257		
2,100.0	2,097.9	2,097.5	2,093.9	4.4	4.8	49.07	-95.5	-75.4	71.0	62.1	8.96	7.931		
2,200.0	2,197.6	2,197.5	2,193.7	4.7	5.1	49.90	-101.9	-78.2	72.0	62.6	9.43	7.636		
2,300.0	2,297.4	2,297.5	2,293.4	4.9	5.4	50.71	-108.2	-81.0	73.0	63.1	9.91	7.367		
2,400.0	2,397.2	2,397.5	2,393.2	5.2	5.6	51.50	-114.6	-83.8	74.1	63.7	10.40	7.122		
2,500.0	2,496.9	2,497.5	2,492.9	5.4	5.9	52.26	-121.0	-86.7	75.1	64.2	10.89	6.898		
2,600.0	2,596.7	2,597.5	2,592.7	5.7	6.1	53.01	-127.4	-89.5	76.1	64.8	11.38	6.692		
2,700.0	2,696.4	2,697.4	2,692.4	5.9	6.4	53.73	-133.8	-92.3	77.2	65.3	11.87	6.503		
2,800.0	2,796.2	2,797.4	2,792.2	6.2	6.7	54.44	-140.1	-95.1	78.3	65.9	12.37	6.328		
2,900.0	2,895.9	2,897.4	2,891.9	6.4	6.9	55.12	-146.5	-98.0	79.3	66.5	12.87	6.167		
3,000.0	2,995.7	2,997.4	2,991.7	6.7	7.2	55.79	-152.9	-100.8	80.4	67.1	13.37	6.017		
3,100.0	3,095.5	3,097.4	3,091.4	6.9	7.5	56.44	-159.3	-103.6	81.5	67.7	13.87	5.879		
3,200.0	3,195.2	3,197.4	3,191.1	7.2	7.7	57.07	-165.6	-106.5	82.6	68.3	14.37	5.750		
3,300.0	3,295.0	3,297.4	3,290.9	7.4	8.0	57.68	-172.0	-109.3	83.8	68.9	14.88	5.629		
3,400.0	3,394.7	3,397.4	3,390.6	7.7	8.2	58.28	-178.4	-112.1	84.9	69.5	15.39	5.517		
3,500.0	3,494.5	3,497.4	3,490.4	7.9	8.5	58.86	-184.8	-114.9	86.0	70.1	15.90	5.412		
3,600.0	3,594.2	3,597.3	3,590.1	8.2	8.8	59.43	-191.1	-117.8	87.2	70.8	16.41	5.313		
3,700.0	3,694.0	3,697.3	3,689.9	8.4	9.0	59.98	-197.5	-120.6	88.4	71.4	16.92	5.221		
3,800.0	3,793.7	3,797.3	3,789.6	8.7	9.3	60.52	-203.9	-123.4	89.5	72.1	17.44	5.134		
3,900.0	3,893.5	3,897.3	3,889.4	9.0	9.6	61.05	-210.3	-126.2	90.7	72.7	17.95	5.052		
4,000.0	3,993.3	3,997.3	3,989.1	9.2	9.8	61.56	-216.7	-129.1	91.9	73.4	18.47	4.975		
4,100.0	4,093.0	4,097.3	4,088.9	9.5	10.1	62.06	-223.0	-131.9	93.1	74.1	18.98	4.902		
4,200.0	4,192.8	4,197.3	4,188.6	9.7	10.3	62.54	-229.4	-134.7	94.3	74.8	19.50	4.833		
4,300.0	4,292.5	4,297.3	4,288.4	10.0	10.6	63.01	-235.8	-137.5	95.5	75.4	20.02	4.768		
4,400.0	4,392.3	4,397.3	4,388.1	10.3	10.9	63.48	-242.2	-140.4	96.7	76.1	20.54	4.706		
4,500.0	4,492.0	4,497.3	4,487.8	10.5	11.1	63.93	-248.5	-143.2	97.9	76.8	21.06	4.647		
4,600.0	4,591.8	4,597.2	4,587.6	10.8	11.4	64.36	-254.9	-146.0	99.1	77.5	21.58	4.592		
4,700.0	4,691.6	4,697.2	4,687.3	11.0	11.7	64.79	-261.3	-148.8	100.3	78.2	22.10	4.539		
4,800.0	4,791.3	4,797.2	4,787.1	11.3	11.9	65.21	-267.7	-151.7	101.6	78.9	22.62	4.488		
4,900.0	4,891.1	4,897.2	4,886.8	11.6	12.2	65.62	-274.0	-154.5	102.8	79.6	23.15	4.441		
5,000.0	4,990.8	4,997.2	4,986.6	11.8	12.5	66.02	-280.4	-157.3	104.0	80.4	23.67	4.395		
5,100.0	5,090.6	5,097.2	5,086.3	12.1	12.7	66.41	-286.8	-160.1	105.3	81.1	24.19	4.351		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1303A - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,190.3	5,197.2	5,186.1	12.3	13.0	66.78	-293.2	-163.0	106.5	81.8	24.72	4.310		
5,300.0	5,290.1	5,297.2	5,285.8	12.6	13.3	67.16	-299.5	-165.8	107.8	82.5	25.24	4.270		
5,400.0	5,389.9	5,390.7	5,378.9	12.9	13.5	66.35	-307.9	-169.5	110.8	85.0	25.73	4.305		
5,500.0	5,489.2	5,477.6	5,462.9	13.2	13.9	61.09	-327.9	-178.4	121.7	95.7	26.08	4.669		
5,600.0	5,585.0	5,562.4	5,540.2	13.6	14.4	57.30	-359.4	-192.4	135.4	109.0	26.43	5.123		
5,700.0	5,673.7	5,645.4	5,609.6	14.2	15.0	55.44	-401.0	-210.9	150.0	123.1	26.81	5.593		
5,800.0	5,752.1	5,727.2	5,670.0	15.0	15.8	55.02	-451.2	-233.2	164.7	137.3	27.38	6.014		
5,900.0	5,817.2	5,808.0	5,720.5	16.0	16.7	55.66	-508.7	-258.8	179.2	150.9	28.36	6.320		
6,000.0	5,866.6	5,888.3	5,760.5	17.2	17.6	57.07	-572.2	-287.1	193.5	163.5	29.96	6.458		
6,100.0	5,898.6	5,968.4	5,789.2	18.5	18.7	59.05	-640.5	-317.5	207.4	175.1	32.30	6.419		
6,200.0	5,911.9	6,050.0	5,806.4	20.0	19.9	61.51	-713.3	-349.9	220.9	185.6	35.34	6.252		
6,300.0	5,912.3	6,133.7	5,811.1	21.4	21.2	64.21	-789.6	-383.7	238.3	199.7	38.58	6.176		
6,400.0	5,912.3	6,244.0	5,811.1	22.7	22.7	66.50	-891.9	-424.9	260.0	218.1	41.82	6.216		
6,500.0	5,912.3	6,356.0	5,811.1	24.1	24.3	68.40	-998.0	-460.6	281.4	236.5	44.92	6.265		
6,600.0	5,912.3	6,469.7	5,811.1	25.6	25.9	70.00	-1,107.8	-490.4	302.5	254.6	47.96	6.308		
6,700.0	5,912.3	6,585.6	5,811.1	27.1	27.7	71.40	-1,221.2	-514.0	321.7	270.3	51.41	6.257		
6,800.0	5,912.3	6,703.9	5,811.1	28.8	29.4	72.33	-1,338.3	-531.0	335.3	280.3	55.04	6.093		
6,900.0	5,912.3	6,824.0	5,811.1	30.5	31.3	72.83	-1,457.9	-540.7	343.1	284.5	58.65	5.851		
7,000.0	5,912.3	6,940.4	5,811.1	32.2	33.1	72.94	-1,574.3	-543.1	345.0	282.9	62.14	5.552		
7,100.0	5,912.3	7,040.4	5,811.1	34.0	34.7	72.94	-1,674.3	-543.1	345.0	279.6	65.44	5.272		
7,200.0	5,912.3	7,140.4	5,811.1	35.7	36.3	72.95	-1,774.3	-543.1	345.0	276.2	68.79	5.016		
7,300.0	5,912.3	7,240.4	5,811.1	37.5	38.0	72.95	-1,874.3	-543.1	345.0	272.8	72.17	4.780		
7,400.0	5,912.3	7,340.4	5,811.1	39.3	39.7	72.95	-1,974.3	-543.1	345.0	269.4	75.59	4.564		
7,500.0	5,912.3	7,440.4	5,811.1	41.1	41.4	72.95	-2,074.3	-543.1	345.0	266.0	79.03	4.366		
7,600.0	5,912.2	7,540.4	5,811.1	42.9	43.1	72.95	-2,174.3	-543.1	345.0	262.5	82.49	4.182		
7,700.0	5,912.2	7,640.4	5,811.1	44.7	44.9	72.95	-2,274.3	-543.1	345.0	259.0	85.97	4.013		
7,800.0	5,912.2	7,740.4	5,811.1	46.5	46.6	72.95	-2,374.3	-543.1	345.0	255.5	89.47	3.856		
7,900.0	5,912.2	7,840.4	5,811.1	48.4	48.4	72.95	-2,474.3	-543.1	345.0	252.0	92.99	3.710		
8,000.0	5,912.2	7,940.4	5,811.1	50.2	50.2	72.95	-2,574.3	-543.1	345.0	248.5	96.52	3.574		
8,100.0	5,912.2	8,040.4	5,811.1	52.1	52.0	72.95	-2,674.3	-543.1	345.0	244.9	100.06	3.448		
8,200.0	5,912.2	8,140.4	5,811.1	53.9	53.8	72.95	-2,774.3	-543.1	345.0	241.4	103.61	3.330		
8,300.0	5,912.2	8,240.4	5,811.1	55.8	55.6	72.95	-2,874.3	-543.1	345.0	237.8	107.17	3.219		
8,400.0	5,912.2	8,340.4	5,811.1	57.6	57.4	72.95	-2,974.3	-543.0	345.0	234.2	110.75	3.115		
8,500.0	5,912.2	8,440.4	5,811.1	59.5	59.2	72.95	-3,074.3	-543.0	345.0	230.7	114.33	3.018		
8,600.0	5,912.2	8,540.4	5,811.1	61.4	61.0	72.95	-3,174.3	-543.0	345.0	227.1	117.91	2.926		
8,700.0	5,912.2	8,640.4	5,811.0	63.2	62.9	72.95	-3,274.3	-543.0	345.0	223.5	121.51	2.839		
8,800.0	5,912.2	8,740.4	5,811.0	65.1	64.7	72.95	-3,374.3	-543.0	345.0	219.9	125.11	2.757		
8,900.0	5,912.2	8,840.4	5,811.0	67.0	66.6	72.95	-3,474.3	-543.0	345.0	216.3	128.72	2.680		
9,000.0	5,912.2	8,940.4	5,811.0	68.9	68.4	72.95	-3,574.3	-543.0	345.0	212.7	132.33	2.607		
9,100.0	5,912.2	9,040.4	5,811.0	70.8	70.3	72.95	-3,674.3	-543.0	345.0	209.0	135.94	2.538		
9,200.0	5,912.2	9,140.4	5,811.0	72.6	72.1	72.95	-3,774.3	-543.0	345.0	205.4	139.56	2.472		
9,300.0	5,912.2	9,240.4	5,811.0	74.5	74.0	72.95	-3,874.3	-543.0	345.0	201.8	143.19	2.409		
9,400.0	5,912.2	9,340.4	5,811.0	76.4	75.8	72.95	-3,974.3	-543.0	345.0	198.2	146.82	2.350		
9,500.0	5,912.2	9,440.4	5,811.0	78.3	77.7	72.95	-4,074.3	-543.0	345.0	194.5	150.45	2.293		
9,600.0	5,912.2	9,540.4	5,811.0	80.2	79.6	72.96	-4,174.3	-543.0	345.0	190.9	154.08	2.239		
9,700.0	5,912.2	9,640.4	5,811.0	82.1	81.4	72.96	-4,274.3	-543.0	345.0	187.2	157.72	2.187		
9,800.0	5,912.2	9,740.4	5,811.0	84.0	83.3	72.96	-4,374.3	-543.0	345.0	183.6	161.36	2.138		
9,900.0	5,912.2	9,840.4	5,811.0	85.9	85.2	72.96	-4,474.3	-543.0	345.0	180.0	165.00	2.091		
10,000.0	5,912.1	9,940.4	5,811.0	87.8	87.1	72.96	-4,574.3	-542.9	345.0	176.3	168.65	2.045		
10,100.0	5,912.1	10,040.4	5,811.0	89.7	88.9	72.96	-4,674.3	-542.9	345.0	172.7	172.30	2.005		
10,200.0	5,912.1	10,140.4	5,811.0	91.6	90.8	72.96	-4,774.3	-542.9	345.0	169.0	175.95	1.961		
10,300.0	5,912.1	10,240.4	5,811.0	93.5	92.7	72.96	-4,874.3	-542.9	345.0	165.4	179.60	1.921		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1303A - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
10,400.0	5,912.1	10,340.4	5,811.0	95.4	94.6	72.96	-4,974.3	-542.9	345.0	161.7	183.26	1.882		
10,500.0	5,912.1	10,440.4	5,811.0	97.3	96.5	72.96	-5,074.3	-542.9	345.0	158.0	186.91	1.846		
10,600.0	5,912.1	10,540.4	5,811.0	99.2	98.4	72.96	-5,174.3	-542.9	345.0	154.4	190.57	1.810		
10,700.0	5,912.1	10,640.4	5,811.0	101.1	100.3	72.96	-5,274.3	-542.9	344.9	150.7	194.23	1.776		
10,800.0	5,912.1	10,740.4	5,811.0	103.0	102.1	72.96	-5,374.3	-542.9	344.9	147.1	197.89	1.743		
10,900.0	5,912.1	10,840.4	5,811.0	104.9	104.0	72.96	-5,474.3	-542.9	344.9	143.4	201.55	1.711		
11,000.0	5,912.1	10,940.4	5,811.0	106.8	105.9	72.96	-5,574.3	-542.9	344.9	139.7	205.22	1.681		
11,100.0	5,912.1	11,040.4	5,811.0	108.7	107.8	72.96	-5,674.3	-542.9	344.9	136.1	208.88	1.651		
11,200.0	5,912.1	11,140.4	5,811.0	110.6	109.7	72.96	-5,774.3	-542.9	344.9	132.4	212.55	1.623		
11,300.0	5,912.1	11,240.4	5,811.0	112.5	111.6	72.96	-5,874.3	-542.9	344.9	128.7	216.21	1.595		
11,400.0	5,912.1	11,340.4	5,811.0	114.4	113.5	72.96	-5,974.3	-542.9	344.9	125.1	219.88	1.569		
11,500.0	5,912.1	11,440.4	5,811.0	116.3	115.4	72.96	-6,074.3	-542.8	344.9	121.4	223.55	1.543		
11,600.0	5,912.1	11,540.4	5,811.0	118.2	117.3	72.96	-6,174.3	-542.8	344.9	117.7	227.22	1.518		
11,700.0	5,912.1	11,640.4	5,811.0	120.1	119.2	72.96	-6,274.3	-542.8	344.9	114.0	230.89	1.494	Level 3	
11,800.0	5,912.1	11,740.4	5,811.0	122.1	121.1	72.96	-6,374.3	-542.8	344.9	110.4	234.57	1.470	Level 3	
11,900.0	5,912.1	11,840.4	5,811.0	124.0	123.0	72.96	-6,474.3	-542.8	344.9	106.7	238.24	1.448	Level 3	
12,000.0	5,912.1	11,940.4	5,811.0	125.9	124.9	72.96	-6,574.3	-542.8	344.9	103.0	241.91	1.426	Level 3	
12,100.0	5,912.1	12,040.4	5,811.0	127.8	126.8	72.97	-6,674.3	-542.8	344.9	99.3	245.59	1.404	Level 3	
12,200.0	5,912.1	12,140.4	5,811.0	129.7	128.7	72.97	-6,774.3	-542.8	344.9	95.7	249.26	1.384	Level 3	
12,300.0	5,912.1	12,240.4	5,811.0	131.6	130.6	72.97	-6,874.3	-542.8	344.9	92.0	252.94	1.364	Level 3	
12,400.0	5,912.1	12,340.4	5,811.0	133.5	132.5	72.97	-6,974.3	-542.8	344.9	88.3	256.62	1.344	Level 3	
12,500.0	5,912.0	12,440.4	5,811.0	135.4	134.4	72.97	-7,074.3	-542.8	344.9	84.6	260.30	1.325	Level 3	
12,600.0	5,912.0	12,540.4	5,811.0	137.3	136.3	72.97	-7,174.3	-542.8	344.9	80.9	263.97	1.307	Level 3	
12,700.0	5,912.0	12,640.4	5,811.0	139.3	138.2	72.97	-7,274.3	-542.8	344.9	77.3	267.65	1.289	Level 3	
12,800.0	5,912.0	12,740.4	5,811.0	141.2	140.1	72.97	-7,374.3	-542.8	344.9	73.6	271.33	1.271	Level 3	
12,900.0	5,912.0	12,840.4	5,811.0	143.1	142.0	72.97	-7,474.3	-542.8	344.9	69.9	275.01	1.254	Level 3	
13,000.0	5,912.0	12,940.4	5,811.0	145.0	143.9	72.97	-7,574.3	-542.8	344.9	66.2	278.69	1.238	Level 2	
13,100.0	5,912.0	13,040.4	5,811.0	146.9	145.8	72.97	-7,674.3	-542.7	344.9	62.5	282.37	1.221	Level 2	
13,200.0	5,912.0	13,140.4	5,811.0	148.8	147.8	72.97	-7,774.3	-542.7	344.9	58.9	286.05	1.206	Level 2	
13,300.0	5,912.0	13,240.4	5,811.0	150.7	149.7	72.97	-7,874.3	-542.7	344.9	55.2	289.74	1.190	Level 2	
13,400.0	5,912.0	13,340.4	5,811.0	152.6	151.6	72.97	-7,974.3	-542.7	344.9	51.5	293.42	1.175	Level 2	
13,500.0	5,912.0	13,440.4	5,811.0	154.6	153.5	72.97	-8,074.3	-542.7	344.9	47.8	297.10	1.161	Level 2	
13,600.0	5,912.0	13,540.4	5,811.0	156.5	155.4	72.97	-8,174.3	-542.7	344.9	44.1	300.79	1.147	Level 2	
13,667.9	5,912.0	13,608.3	5,811.0	157.8	156.7	72.97	-8,242.2	-542.7	344.9	41.6	303.29	1.137	Level 2, SF	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1305A - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	89.97	0.0	33.0	33.0					
100.0	100.0	100.0	100.0	0.1	0.1	89.97	0.0	33.0	33.0	32.9	0.19	176.696		
200.0	200.0	200.0	200.0	0.3	0.3	89.97	0.0	33.0	33.0	32.4	0.64	51.912		
300.0	300.0	300.0	300.0	0.5	0.5	89.97	0.0	33.0	33.0	32.0	1.09	30.425		
400.0	400.0	400.0	400.0	0.8	0.8	89.97	0.0	33.0	33.0	31.5	1.54	21.518		
500.0	500.0	500.0	500.0	1.0	1.0	89.97	0.0	33.0	33.0	31.1	1.99	16.646		
600.0	600.0	600.0	600.0	1.2	1.2	89.97	0.0	33.0	33.0	30.6	2.43	13.572		
700.0	700.0	700.0	700.0	1.4	1.4	89.97	0.0	33.0	33.0	30.2	2.88	11.457		
800.0	800.0	800.0	800.0	1.7	1.7	89.97	0.0	33.0	33.0	29.7	3.33	9.912		
900.0	900.0	900.0	900.0	1.9	1.9	89.97	0.0	33.0	33.0	29.3	3.78	8.734 CC		
1,000.0	1,000.0	999.8	999.8	2.1	2.1	92.96	-1.7	33.2	33.2	29.0	4.20	7.909 ES		
1,100.0	1,100.0	1,099.5	1,099.3	2.3	2.3	101.57	-6.9	33.7	34.4	29.8	4.60	7.468		
1,200.0	1,200.0	1,199.3	1,198.9	2.5	2.5	-82.78	-13.8	34.3	36.8	31.8	4.99	7.365		
1,300.0	1,299.8	1,299.3	1,298.6	2.7	2.7	-81.04	-20.8	35.0	39.0	33.7	5.37	7.270		
1,400.0	1,399.6	1,399.2	1,398.4	2.9	2.9	-81.93	-27.7	35.6	41.0	35.3	5.77	7.116		
1,500.0	1,499.4	1,499.2	1,498.1	3.1	3.1	-82.73	-34.7	36.2	43.0	36.9	6.18	6.962		
1,600.0	1,599.1	1,599.2	1,597.8	3.3	3.3	-83.47	-41.6	36.9	45.1	38.5	6.62	6.813		
1,700.0	1,698.9	1,699.2	1,697.6	3.5	3.6	-84.14	-48.6	37.5	47.1	40.0	7.06	6.670		
1,800.0	1,798.6	1,799.2	1,797.3	3.7	3.8	-84.75	-55.5	38.1	49.1	41.6	7.52	6.537		
1,900.0	1,898.4	1,899.1	1,897.0	4.0	4.0	-85.32	-62.4	38.8	51.2	43.2	7.98	6.412		
2,000.0	1,998.1	1,999.1	1,996.8	4.2	4.3	-85.84	-69.4	39.4	53.2	44.8	8.46	6.295		
2,100.0	2,097.9	2,099.1	2,096.5	4.4	4.5	-86.32	-76.3	40.1	55.3	46.4	8.94	6.188		
2,200.0	2,197.6	2,199.1	2,196.2	4.7	4.8	-86.77	-83.3	40.7	57.4	47.9	9.42	6.088		
2,300.0	2,297.4	2,299.0	2,296.0	4.9	5.0	-87.19	-90.2	41.3	59.4	49.5	9.91	5.996		
2,400.0	2,397.2	2,399.0	2,395.7	5.2	5.3	-87.58	-97.2	42.0	61.5	51.1	10.40	5.910		
2,500.0	2,496.9	2,499.0	2,495.4	5.4	5.5	-87.94	-104.1	42.6	63.5	52.6	10.90	5.830		
2,600.0	2,596.7	2,599.0	2,595.2	5.7	5.8	-88.29	-111.1	43.2	65.6	54.2	11.40	5.757		
2,700.0	2,696.4	2,699.0	2,694.9	5.9	6.0	-88.61	-118.0	43.9	67.7	55.8	11.90	5.688		
2,800.0	2,796.2	2,798.9	2,794.6	6.2	6.3	-88.91	-124.9	44.5	69.8	57.4	12.40	5.624		
2,900.0	2,895.9	2,898.9	2,894.4	6.4	6.5	-89.19	-131.9	45.2	71.8	58.9	12.91	5.564		
3,000.0	2,995.7	2,998.9	2,994.1	6.7	6.8	-89.46	-138.8	45.8	73.9	60.5	13.42	5.508		
3,100.0	3,095.5	3,098.9	3,093.8	6.9	7.1	-89.71	-145.8	46.4	76.0	62.1	13.93	5.456		
3,200.0	3,195.2	3,198.9	3,193.6	7.2	7.3	-89.95	-152.7	47.1	78.1	63.6	14.44	5.407		
3,300.0	3,295.0	3,298.8	3,293.3	7.4	7.6	-90.18	-159.7	47.7	80.1	65.2	14.95	5.361		
3,400.0	3,394.7	3,398.8	3,393.0	7.7	7.8	-90.40	-166.6	48.4	82.2	66.8	15.46	5.318		
3,500.0	3,494.5	3,498.8	3,492.8	7.9	8.1	-90.60	-173.6	49.0	84.3	68.3	15.98	5.277		
3,600.0	3,594.2	3,598.8	3,592.5	8.2	8.4	-90.80	-180.5	49.6	86.4	69.9	16.49	5.238		
3,700.0	3,694.0	3,698.7	3,692.2	8.4	8.6	-90.98	-187.5	50.3	88.5	71.5	17.01	5.202		
3,800.0	3,793.7	3,798.7	3,792.0	8.7	8.9	-91.16	-194.4	50.9	90.6	73.0	17.52	5.168		
3,900.0	3,893.5	3,898.7	3,891.7	9.0	9.1	-91.33	-201.3	51.5	92.7	74.6	18.04	5.135		
4,000.0	3,993.3	3,998.7	3,991.4	9.2	9.4	-91.49	-208.3	52.2	94.7	76.2	18.56	5.104		
4,100.0	4,093.0	4,098.7	4,091.2	9.5	9.7	-91.65	-215.2	52.8	96.8	77.7	19.08	5.075		
4,200.0	4,192.8	4,198.6	4,190.9	9.7	9.9	-91.80	-222.2	53.5	98.9	79.3	19.60	5.047		
4,300.0	4,292.5	4,298.6	4,290.7	10.0	10.2	-91.94	-229.1	54.1	101.0	80.9	20.12	5.021		
4,400.0	4,392.3	4,398.6	4,390.4	10.3	10.4	-92.08	-236.1	54.7	103.1	82.5	20.64	4.995		
4,500.0	4,492.0	4,498.6	4,490.1	10.5	10.7	-92.21	-243.0	55.4	105.2	84.0	21.16	4.971		
4,600.0	4,591.8	4,598.5	4,589.9	10.8	11.0	-92.33	-250.0	56.0	107.3	85.6	21.68	4.948		
4,700.0	4,691.6	4,698.5	4,689.6	11.0	11.2	-92.46	-256.9	56.7	109.4	87.2	22.20	4.926		
4,800.0	4,791.3	4,798.5	4,789.3	11.3	11.5	-92.57	-263.8	57.3	111.5	88.7	22.72	4.905		
4,900.0	4,891.1	4,898.5	4,889.1	11.6	11.8	-92.68	-270.8	57.9	113.6	90.3	23.24	4.885		
5,000.0	4,990.8	4,998.5	4,988.8	11.8	12.0	-92.79	-277.7	58.6	115.6	91.9	23.77	4.866		
5,100.0	5,090.6	5,098.4	5,088.5	12.1	12.3	-92.90	-284.7	59.2	117.7	93.4	24.29	4.847		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1305A - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning	
5,200.0	5,190.3	5,198.4	5,188.3	12.3	12.5	-93.00	-291.6	59.8	119.8	95.0	24.81	4.830		
5,300.0	5,290.1	5,298.4	5,288.0	12.6	12.8	-93.10	-298.6	60.5	121.9	96.6	25.34	4.813		
5,400.0	5,389.9	5,394.8	5,383.8	12.9	13.1	-91.76	-308.4	61.4	124.9	99.0	25.87	4.829		
5,500.0	5,489.2	5,486.0	5,471.7	13.2	13.5	-85.10	-332.5	63.6	133.3	106.8	26.44	5.040		
5,600.0	5,585.0	5,574.3	5,551.4	13.6	14.0	-79.19	-369.9	67.0	147.9	120.7	27.19	5.438		
5,700.0	5,673.7	5,660.0	5,621.7	14.2	14.7	-74.97	-418.6	71.5	166.9	138.8	28.09	5.941		
5,800.0	5,752.1	5,743.4	5,681.5	15.0	15.4	-72.18	-476.4	76.8	188.9	159.8	29.17	6.477		
5,900.0	5,817.2	5,825.0	5,730.3	16.0	16.3	-70.43	-541.3	82.8	212.9	182.4	30.55	6.970		
6,000.0	5,866.6	5,905.2	5,767.8	17.2	17.3	-69.42	-611.8	89.3	238.1	205.8	32.29	7.375		
6,100.0	5,898.6	5,984.6	5,793.8	18.5	18.4	-68.94	-686.5	96.1	263.8	229.4	34.43	7.664		
6,200.0	5,911.9	6,063.8	5,808.1	20.0	19.5	-68.85	-764.0	103.2	289.6	252.6	36.95	7.837		
6,300.0	5,912.3	6,154.4	5,811.1	21.4	20.9	-70.72	-854.1	111.2	314.8	274.6	40.14	7.842		
6,400.0	5,912.3	6,271.5	5,811.1	22.7	22.5	-72.12	-971.1	116.2	332.3	288.9	43.40	7.655		
6,500.0	5,912.3	6,374.8	5,811.1	24.1	24.1	-72.70	-1,074.4	116.3	341.0	294.5	46.48	7.336		
6,600.0	5,912.3	6,474.7	5,811.0	25.6	25.7	-72.92	-1,174.3	116.3	344.7	295.2	49.49	6.965		
6,700.0	5,912.3	6,574.7	5,811.0	27.1	27.4	-72.93	-1,274.3	116.3	344.8	292.2	52.60	6.555		
6,800.0	5,912.3	6,674.7	5,811.0	28.8	29.2	-72.93	-1,374.3	116.3	344.8	288.9	55.88	6.171		
6,900.0	5,912.3	6,774.7	5,811.0	30.5	30.9	-72.93	-1,474.3	116.3	344.8	285.6	59.20	5.824		
7,000.0	5,912.3	6,874.7	5,811.0	32.2	32.7	-72.93	-1,574.3	116.3	344.8	282.2	62.57	5.511		
7,100.0	5,912.3	6,974.7	5,811.0	34.0	34.4	-72.93	-1,674.3	116.3	344.8	278.8	65.97	5.226		
7,200.0	5,912.3	7,074.7	5,811.0	35.7	36.2	-72.93	-1,774.3	116.3	344.8	275.4	69.41	4.968		
7,300.0	5,912.3	7,174.7	5,811.0	37.5	38.1	-72.93	-1,874.3	116.4	344.8	271.9	72.87	4.732		
7,400.0	5,912.3	7,274.7	5,811.0	39.3	39.9	-72.93	-1,974.3	116.4	344.8	268.5	76.36	4.516		
7,500.0	5,912.3	7,374.7	5,811.0	41.1	41.7	-72.93	-2,074.3	116.4	344.8	265.0	79.86	4.318		
7,600.0	5,912.2	7,474.7	5,811.0	42.9	43.5	-72.93	-2,174.3	116.4	344.8	261.4	83.38	4.136		
7,700.0	5,912.2	7,574.7	5,811.0	44.7	45.4	-72.93	-2,274.3	116.4	344.8	257.9	86.92	3.967		
7,800.0	5,912.2	7,674.7	5,811.0	46.5	47.2	-72.94	-2,374.3	116.4	344.8	254.4	90.47	3.812		
7,900.0	5,912.2	7,774.7	5,811.0	48.4	49.1	-72.94	-2,474.3	116.4	344.8	250.8	94.03	3.667		
8,000.0	5,912.2	7,874.7	5,811.0	50.2	50.9	-72.94	-2,574.3	116.4	344.8	247.2	97.60	3.533		
8,100.0	5,912.2	7,974.7	5,811.0	52.1	52.8	-72.94	-2,674.3	116.4	344.8	243.7	101.18	3.408		
8,200.0	5,912.2	8,074.7	5,811.0	53.9	54.7	-72.94	-2,774.3	116.4	344.8	240.1	104.77	3.291		
8,300.0	5,912.2	8,174.7	5,811.0	55.8	56.5	-72.94	-2,874.3	116.4	344.8	236.5	108.36	3.182		
8,400.0	5,912.2	8,274.7	5,811.0	57.6	58.4	-72.94	-2,974.3	116.4	344.8	232.9	111.97	3.080		
8,500.0	5,912.2	8,374.7	5,811.0	59.5	60.3	-72.94	-3,074.3	116.4	344.8	229.3	115.58	2.984		
8,600.0	5,912.2	8,474.7	5,811.0	61.4	62.2	-72.94	-3,174.3	116.5	344.8	225.6	119.19	2.893		
8,700.0	5,912.2	8,574.7	5,811.0	63.2	64.1	-72.94	-3,274.3	116.5	344.8	222.0	122.81	2.808		
8,800.0	5,912.2	8,674.7	5,811.0	65.1	65.9	-72.94	-3,374.3	116.5	344.8	218.4	126.44	2.727		
8,900.0	5,912.2	8,774.7	5,811.0	67.0	67.8	-72.94	-3,474.3	116.5	344.8	214.8	130.07	2.651		
9,000.0	5,912.2	8,874.7	5,811.0	68.9	69.7	-72.94	-3,574.3	116.5	344.8	211.1	133.70	2.579		
9,100.0	5,912.2	8,974.7	5,811.0	70.8	71.6	-72.94	-3,674.3	116.5	344.8	207.5	137.34	2.511		
9,200.0	5,912.2	9,074.7	5,811.0	72.6	73.5	-72.94	-3,774.3	116.5	344.8	203.9	140.98	2.446		
9,300.0	5,912.2	9,174.7	5,811.0	74.5	75.4	-72.94	-3,874.3	116.5	344.8	200.2	144.62	2.384		
9,400.0	5,912.2	9,274.7	5,811.0	76.4	77.3	-72.95	-3,974.3	116.5	344.8	196.6	148.27	2.326		
9,500.0	5,912.2	9,374.7	5,811.0	78.3	79.2	-72.95	-4,074.3	116.5	344.8	192.9	151.92	2.270		
9,600.0	5,912.2	9,474.7	5,811.0	80.2	81.1	-72.95	-4,174.3	116.5	344.8	189.3	155.57	2.217		
9,700.0	5,912.2	9,574.7	5,811.0	82.1	83.0	-72.95	-4,274.3	116.5	344.8	185.6	159.22	2.166		
9,800.0	5,912.2	9,674.7	5,811.0	84.0	84.9	-72.95	-4,374.3	116.5	344.9	182.0	162.88	2.117		
9,900.0	5,912.2	9,774.7	5,811.0	85.9	86.8	-72.95	-4,474.3	116.6	344.9	178.3	166.54	2.071		
10,000.0	5,912.1	9,874.7	5,811.0	87.8	88.7	-72.95	-4,574.3	116.6	344.9	174.7	170.20	2.026		
10,100.0	5,912.1	9,974.7	5,811.0	89.7	90.6	-72.95	-4,674.3	116.6	344.9	171.0	173.86	1.984		
10,200.0	5,912.1	10,074.7	5,811.0	91.6	92.5	-72.95	-4,774.3	116.6	344.9	167.3	177.52	1.943		
10,300.0	5,912.1	10,174.7	5,811.0	93.5	94.4	-72.95	-4,874.3	116.6	344.9	163.7	181.19	1.903		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1305A - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
10,400.0	5,912.1	10,274.7	5,811.0	95.4	96.3	-72.95	-4,974.3	116.6	344.9	160.0	184.85	1.866		
10,500.0	5,912.1	10,374.7	5,811.0	97.3	98.2	-72.95	-5,074.3	116.6	344.9	156.3	188.52	1.829		
10,600.0	5,912.1	10,474.7	5,811.0	99.2	100.1	-72.95	-5,174.3	116.6	344.9	152.7	192.19	1.794		
10,700.0	5,912.1	10,574.7	5,811.0	101.1	102.0	-72.95	-5,274.3	116.6	344.9	149.0	195.86	1.761		
10,800.0	5,912.1	10,674.7	5,811.0	103.0	103.9	-72.95	-5,374.3	116.6	344.9	145.3	199.53	1.728		
10,900.0	5,912.1	10,774.7	5,811.0	104.9	105.8	-72.95	-5,474.3	116.6	344.9	141.7	203.20	1.697		
11,000.0	5,912.1	10,874.7	5,811.0	106.8	107.8	-72.96	-5,574.3	116.6	344.9	138.0	206.88	1.667		
11,100.0	5,912.1	10,974.7	5,811.0	108.7	109.7	-72.96	-5,674.3	116.6	344.9	134.3	210.55	1.638		
11,200.0	5,912.1	11,074.7	5,811.0	110.6	111.6	-72.96	-5,774.3	116.7	344.9	130.6	214.23	1.610		
11,300.0	5,912.1	11,174.7	5,811.0	112.5	113.5	-72.96	-5,874.3	116.7	344.9	127.0	217.90	1.583		
11,400.0	5,912.1	11,274.7	5,811.0	114.4	115.4	-72.96	-5,974.3	116.7	344.9	123.3	221.58	1.556		
11,500.0	5,912.1	11,374.7	5,811.0	116.3	117.3	-72.96	-6,074.3	116.7	344.9	119.6	225.26	1.531		
11,600.0	5,912.1	11,474.7	5,811.0	118.2	119.2	-72.96	-6,174.3	116.7	344.9	115.9	228.93	1.506		
11,700.0	5,912.1	11,574.7	5,811.0	120.1	121.1	-72.96	-6,274.3	116.7	344.9	112.3	232.61	1.483 Level 3		
11,800.0	5,912.1	11,674.7	5,811.0	122.1	123.0	-72.96	-6,374.3	116.7	344.9	108.6	236.29	1.460 Level 3		
11,900.0	5,912.1	11,774.7	5,811.0	124.0	124.9	-72.96	-6,474.3	116.7	344.9	104.9	239.98	1.437 Level 3		
12,000.0	5,912.1	11,874.7	5,811.0	125.9	126.9	-72.96	-6,574.3	116.7	344.9	101.2	243.66	1.415 Level 3		
12,100.0	5,912.1	11,974.7	5,811.0	127.8	128.8	-72.96	-6,674.3	116.7	344.9	97.5	247.34	1.394 Level 3		
12,200.0	5,912.1	12,074.7	5,811.0	129.7	130.7	-72.96	-6,774.3	116.7	344.9	93.9	251.02	1.374 Level 3		
12,300.0	5,912.1	12,174.7	5,811.0	131.6	132.6	-72.96	-6,874.3	116.7	344.9	90.2	254.70	1.354 Level 3		
12,400.0	5,912.1	12,274.7	5,811.0	133.5	134.5	-72.96	-6,974.3	116.7	344.9	86.5	258.39	1.335 Level 3		
12,500.0	5,912.0	12,374.7	5,811.0	135.4	136.4	-72.96	-7,074.3	116.8	344.9	82.8	262.07	1.316 Level 3		
12,600.0	5,912.0	12,474.7	5,811.0	137.3	138.3	-72.97	-7,174.3	116.8	344.9	79.1	265.76	1.298 Level 3		
12,700.0	5,912.0	12,574.7	5,811.0	139.3	140.3	-72.97	-7,274.3	116.8	344.9	75.4	269.44	1.280 Level 3		
12,800.0	5,912.0	12,674.7	5,811.0	141.2	142.2	-72.97	-7,374.3	116.8	344.9	71.8	273.13	1.263 Level 3		
12,900.0	5,912.0	12,774.7	5,811.0	143.1	144.1	-72.97	-7,474.3	116.8	344.9	68.1	276.81	1.246 Level 2		
13,000.0	5,912.0	12,874.7	5,811.0	145.0	146.0	-72.97	-7,574.3	116.8	344.9	64.4	280.50	1.230 Level 2		
13,100.0	5,912.0	12,974.7	5,811.0	146.9	147.9	-72.97	-7,674.3	116.8	344.9	60.7	284.19	1.214 Level 2		
13,200.0	5,912.0	13,074.7	5,811.0	148.8	149.8	-72.97	-7,774.3	116.8	344.9	57.0	287.87	1.198 Level 2		
13,300.0	5,912.0	13,174.7	5,811.0	150.7	151.7	-72.97	-7,874.3	116.8	344.9	53.3	291.56	1.183 Level 2		
13,400.0	5,912.0	13,274.7	5,811.0	152.6	153.7	-72.97	-7,974.3	116.8	344.9	49.6	295.25	1.168 Level 2		
13,500.0	5,912.0	13,374.7	5,811.0	154.6	155.6	-72.97	-8,074.3	116.8	344.9	46.0	298.94	1.154 Level 2		
13,600.0	5,912.0	13,474.7	5,811.0	156.5	157.5	-72.97	-8,174.3	116.8	344.9	42.3	302.63	1.140 Level 2		
13,639.2	5,912.0	13,513.9	5,811.0	157.2	158.2	-72.97	-8,213.5	116.8	344.9	40.8	304.05	1.134 Level 2		
13,667.9	5,912.0	13,541.6	5,811.0	157.8	158.8	-72.97	-8,241.2	116.8	344.9	39.8	305.11	1.130 Level 2, SF		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1306B - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: O-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance					Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
0.0	0.0	0.0	0.0	0.0	0.0	90.01	0.0	65.3	65.3					
100.0	100.0	100.0	100.0	0.1	0.1	90.01	0.0	65.3	65.3	65.1	0.19	349.287		
200.0	200.0	200.0	200.0	0.3	0.3	90.01	0.0	65.3	65.3	64.7	0.64	102.615		
300.0	300.0	300.0	300.0	0.5	0.5	90.01	0.0	65.3	65.3	64.2	1.09	60.142		
400.0	400.0	400.0	400.0	0.8	0.8	90.01	0.0	65.3	65.3	63.8	1.54	42.536		
500.0	500.0	500.0	500.0	1.0	1.0	90.01	0.0	65.3	65.3	63.3	1.99	32.904		
600.0	600.0	600.0	600.0	1.2	1.2	90.01	0.0	65.3	65.3	62.9	2.43	26.829		
700.0	700.0	700.0	700.0	1.4	1.4	90.01	0.0	65.3	65.3	62.4	2.88	22.647		
800.0	800.0	800.0	800.0	1.7	1.7	90.01	0.0	65.3	65.3	62.0	3.33	19.593		
900.0	900.0	900.0	900.0	1.9	1.9	90.01	0.0	65.3	65.3	61.5	3.78	17.265		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	90.01	0.0	65.3	65.3	61.1	4.23	15.432 CC, ES		
1,100.0	1,100.0	1,099.2	1,099.2	2.3	2.3	91.42	-1.6	65.9	65.9	61.3	4.65	14.167		
1,200.0	1,200.0	1,198.3	1,198.1	2.5	2.5	-98.03	-6.5	67.6	68.2	63.1	5.02	13.566		
1,300.0	1,299.8	1,298.2	1,297.8	2.7	2.7	-96.98	-13.0	69.9	71.7	66.3	5.39	13.302		
1,400.0	1,399.6	1,398.1	1,397.5	2.9	2.9	-97.42	-19.6	72.2	75.4	69.6	5.78	13.058		
1,500.0	1,499.4	1,498.0	1,497.1	3.1	3.1	-97.82	-26.2	74.5	79.2	73.0	6.18	12.804		
1,600.0	1,599.1	1,598.0	1,596.8	3.3	3.3	-98.17	-32.8	76.9	82.9	76.3	6.61	12.550		
1,700.0	1,698.9	1,697.9	1,696.5	3.5	3.5	-98.50	-39.3	79.2	86.7	79.6	7.05	12.303		
1,800.0	1,798.6	1,797.8	1,796.2	3.7	3.8	-98.80	-45.9	81.5	90.4	82.9	7.49	12.067		
1,900.0	1,898.4	1,897.7	1,895.9	4.0	4.0	-99.08	-52.5	83.8	94.2	86.2	7.95	11.845		
2,000.0	1,998.1	1,997.7	1,995.6	4.2	4.2	-99.34	-59.1	86.1	98.0	89.5	8.42	11.636		
2,100.0	2,097.9	2,097.6	2,095.2	4.4	4.5	-99.57	-65.6	88.4	101.7	92.8	8.89	11.440		
2,200.0	2,197.6	2,197.5	2,194.9	4.7	4.7	-99.79	-72.2	90.7	105.5	96.1	9.37	11.258		
2,300.0	2,297.4	2,297.5	2,294.6	4.9	5.0	-100.00	-78.8	93.1	109.3	99.4	9.85	11.088		
2,400.0	2,397.2	2,397.4	2,394.3	5.2	5.2	-100.19	-85.4	95.4	113.0	102.7	10.34	10.930		
2,500.0	2,496.9	2,497.3	2,494.0	5.4	5.5	-100.37	-91.9	97.7	116.8	106.0	10.83	10.783		
2,600.0	2,596.7	2,597.2	2,593.7	5.7	5.7	-100.54	-98.5	100.0	120.6	109.2	11.33	10.645		
2,700.0	2,696.4	2,697.2	2,693.4	5.9	6.0	-100.69	-105.1	102.3	124.3	112.5	11.82	10.517		
2,800.0	2,796.2	2,797.1	2,793.0	6.2	6.2	-100.84	-111.7	104.6	128.1	115.8	12.32	10.397		
2,900.0	2,895.9	2,897.0	2,892.7	6.4	6.5	-100.98	-118.2	107.0	131.9	119.1	12.82	10.285		
3,000.0	2,995.7	2,997.0	2,992.4	6.7	6.7	-101.11	-124.8	109.3	135.6	122.3	13.33	10.180		
3,100.0	3,095.5	3,096.9	3,092.1	6.9	7.0	-101.24	-131.4	111.6	139.4	125.6	13.83	10.081		
3,200.0	3,195.2	3,196.8	3,191.8	7.2	7.2	-101.36	-138.0	113.9	143.2	128.9	14.34	9.989		
3,300.0	3,295.0	3,296.7	3,291.5	7.4	7.5	-101.47	-144.5	116.2	147.0	132.1	14.84	9.902		
3,400.0	3,394.7	3,396.7	3,391.2	7.7	7.8	-101.58	-151.1	118.5	150.8	135.4	15.35	9.820		
3,500.0	3,494.5	3,496.6	3,490.8	7.9	8.0	-101.68	-157.7	120.8	154.5	138.7	15.86	9.742		
3,600.0	3,594.2	3,596.5	3,590.5	8.2	8.3	-101.77	-164.3	123.2	158.3	141.9	16.37	9.669		
3,700.0	3,694.0	3,696.4	3,690.2	8.4	8.5	-101.86	-170.8	125.5	162.1	145.2	16.88	9.600		
3,800.0	3,793.7	3,796.4	3,789.9	8.7	8.8	-101.95	-177.4	127.8	165.9	148.5	17.40	9.534		
3,900.0	3,893.5	3,896.3	3,889.6	9.0	9.1	-102.04	-184.0	130.1	169.6	151.7	17.91	9.472		
4,000.0	3,993.3	3,996.2	3,989.3	9.2	9.3	-102.12	-190.6	132.4	173.4	155.0	18.42	9.413		
4,100.0	4,093.0	4,096.2	4,088.9	9.5	9.6	-102.19	-197.1	134.7	177.2	158.3	18.94	9.356		
4,200.0	4,192.8	4,196.1	4,188.6	9.7	9.8	-102.27	-203.7	137.1	181.0	161.5	19.45	9.303		
4,300.0	4,292.5	4,296.0	4,288.3	10.0	10.1	-102.34	-210.3	139.4	184.8	164.8	19.97	9.252		
4,400.0	4,392.3	4,395.9	4,388.0	10.3	10.4	-102.41	-216.9	141.7	188.5	168.0	20.49	9.203		
4,500.0	4,492.0	4,495.9	4,487.7	10.5	10.6	-102.47	-223.4	144.0	192.3	171.3	21.00	9.157		
4,600.0	4,591.8	4,595.8	4,587.4	10.8	10.9	-102.53	-230.0	146.3	196.1	174.6	21.52	9.113		
4,700.0	4,691.6	4,695.7	4,687.1	11.0	11.1	-102.59	-236.6	148.6	199.9	177.8	22.04	9.070		
4,800.0	4,791.3	4,795.7	4,786.7	11.3	11.4	-102.65	-243.2	151.0	203.7	181.1	22.55	9.030		
4,900.0	4,891.1	4,895.6	4,886.4	11.6	11.7	-102.71	-249.7	153.3	207.4	184.4	23.07	8.991		
5,000.0	4,990.8	4,995.5	4,986.1	11.8	11.9	-102.76	-256.3	155.6	211.2	187.6	23.59	8.954		
5,100.0	5,090.6	5,095.4	5,085.8	12.1	12.2	-102.81	-262.9	157.9	215.0	190.9	24.11	8.918		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1306B - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning	
5,200.0	5,190.3	5,195.4	5,185.5	12.3	12.4	-102.86	-269.5	160.2	218.8	194.2	24.63	8.883		
5,300.0	5,290.1	5,295.3	5,285.2	12.6	12.7	-102.91	-276.0	162.5	222.6	197.4	25.15	8.850		
5,400.0	5,389.9	5,395.2	5,384.8	12.9	13.0	-102.96	-282.6	164.8	226.3	200.7	25.67	8.819		
5,500.0	5,489.2	5,488.1	5,477.3	13.2	13.2	-102.78	-291.0	167.8	231.8	205.6	26.20	8.848		
5,600.0	5,585.0	5,574.9	5,561.3	13.6	13.6	-102.10	-311.2	174.9	245.9	219.0	26.92	9.135		
5,700.0	5,673.7	5,660.0	5,639.1	14.2	14.1	-100.93	-343.5	186.3	268.9	241.0	27.90	9.638		
5,800.0	5,752.1	5,743.1	5,708.7	15.0	14.7	-99.22	-386.1	201.3	299.8	270.6	29.16	10.278		
5,900.0	5,817.2	5,824.1	5,768.8	16.0	15.4	-96.98	-437.1	219.3	337.4	306.6	30.79	10.959		
6,000.0	5,866.6	5,903.2	5,818.8	17.2	16.2	-94.27	-495.0	239.6	380.6	347.8	32.76	11.618		
6,100.0	5,898.6	5,981.3	5,858.4	18.5	17.2	-91.18	-558.3	261.9	427.9	392.9	35.00	12.224		
6,200.0	5,911.9	6,059.3	5,887.5	20.0	18.3	-87.89	-626.6	286.0	477.9	440.5	37.43	12.767		
6,300.0	5,912.3	6,140.9	5,906.1	21.4	19.5	-89.23	-701.4	312.3	528.1	487.9	40.18	13.142		
6,400.0	5,912.3	6,232.7	5,912.1	22.7	20.9	-89.97	-787.7	342.7	574.3	531.2	43.12	13.320		
6,500.0	5,912.3	6,367.0	5,912.1	24.1	22.8	-89.98	-916.1	381.9	612.1	565.4	46.70	13.106		
6,600.0	5,912.3	6,510.6	5,912.1	25.6	25.0	-89.98	-1,056.1	413.8	638.0	587.5	50.54	12.624		
6,700.0	5,912.3	6,660.1	5,912.0	27.1	27.2	-89.98	-1,203.9	435.7	652.8	598.3	54.54	11.971		
6,800.0	5,912.3	6,812.1	5,912.0	28.8	29.6	-89.98	-1,355.5	446.1	659.7	601.0	58.69	11.240		
6,900.0	5,912.3	6,930.9	5,912.0	30.5	31.5	-89.98	-1,474.3	446.9	660.2	597.8	62.37	10.585		
7,000.0	5,912.3	7,030.9	5,912.0	32.2	33.2	-89.98	-1,574.3	446.9	660.2	594.3	65.82	10.029		
7,100.0	5,912.3	7,130.9	5,912.0	34.0	34.9	-89.98	-1,674.3	446.9	660.1	590.8	69.32	9.523		
7,200.0	5,912.3	7,230.9	5,912.0	35.7	36.6	-89.98	-1,774.3	446.9	660.1	587.3	72.86	9.061		
7,300.0	5,912.3	7,330.9	5,912.0	37.5	38.3	-89.98	-1,874.3	446.8	660.1	583.7	76.42	8.638		
7,400.0	5,912.3	7,430.9	5,912.0	39.3	40.1	-89.98	-1,974.3	446.8	660.1	580.1	80.01	8.251		
7,500.0	5,912.3	7,530.9	5,912.0	41.1	41.9	-89.98	-2,074.3	446.8	660.1	576.5	83.62	7.894		
7,600.0	5,912.2	7,630.9	5,912.0	42.9	43.7	-89.98	-2,174.3	446.8	660.1	572.8	87.26	7.565		
7,700.0	5,912.2	7,730.9	5,912.0	44.7	45.5	-89.98	-2,274.3	446.8	660.1	569.2	90.91	7.261		
7,800.0	5,912.2	7,830.9	5,912.0	46.5	47.3	-89.98	-2,374.3	446.8	660.1	565.5	94.57	6.980		
7,900.0	5,912.2	7,930.9	5,912.0	48.4	49.1	-89.98	-2,474.3	446.8	660.1	561.8	98.25	6.718		
8,000.0	5,912.2	8,030.9	5,912.0	50.2	50.9	-89.98	-2,574.3	446.8	660.1	558.1	101.95	6.475		
8,100.0	5,912.2	8,130.9	5,912.0	52.1	52.7	-89.98	-2,674.3	446.8	660.1	554.4	105.65	6.248		
8,200.0	5,912.2	8,230.9	5,912.0	53.9	54.6	-89.98	-2,774.3	446.8	660.0	550.7	109.36	6.035		
8,300.0	5,912.2	8,330.9	5,912.0	55.8	56.4	-89.98	-2,874.3	446.8	660.0	547.0	113.08	5.837		
8,400.0	5,912.2	8,430.9	5,912.0	57.6	58.3	-89.98	-2,974.3	446.8	660.0	543.2	116.81	5.650		
8,500.0	5,912.2	8,530.9	5,912.0	59.5	60.1	-89.98	-3,074.3	446.8	660.0	539.5	120.55	5.475		
8,600.0	5,912.2	8,630.9	5,912.0	61.4	62.0	-89.99	-3,174.3	446.8	660.0	535.7	124.29	5.310		
8,700.0	5,912.2	8,730.9	5,912.0	63.2	63.8	-89.99	-3,274.3	446.8	660.0	532.0	128.04	5.154		
8,800.0	5,912.2	8,830.9	5,912.0	65.1	65.7	-89.99	-3,374.3	446.8	660.0	528.2	131.80	5.008		
8,900.0	5,912.2	8,930.9	5,912.0	67.0	67.6	-89.99	-3,474.3	446.8	660.0	524.4	135.56	4.869		
9,000.0	5,912.2	9,030.9	5,912.0	68.9	69.4	-89.99	-3,574.3	446.8	660.0	520.7	139.32	4.737		
9,100.0	5,912.2	9,130.9	5,912.0	70.8	71.3	-89.99	-3,674.3	446.8	660.0	516.9	143.09	4.612		
9,200.0	5,912.2	9,230.9	5,912.0	72.6	73.2	-89.99	-3,774.3	446.8	660.0	513.1	146.87	4.494		
9,300.0	5,912.2	9,330.9	5,912.0	74.5	75.1	-89.99	-3,874.3	446.8	659.9	509.3	150.64	4.381		
9,400.0	5,912.2	9,430.9	5,912.0	76.4	76.9	-89.99	-3,974.3	446.8	659.9	505.5	154.42	4.274		
9,500.0	5,912.2	9,530.9	5,912.0	78.3	78.8	-89.99	-4,074.3	446.8	659.9	501.7	158.20	4.171		
9,600.0	5,912.2	9,630.9	5,912.0	80.2	80.7	-89.99	-4,174.3	446.8	659.9	497.9	161.99	4.074		
9,700.0	5,912.2	9,730.9	5,912.0	82.1	82.6	-89.99	-4,274.3	446.8	659.9	494.1	165.78	3.981		
9,800.0	5,912.2	9,830.9	5,912.0	84.0	84.5	-89.99	-4,374.3	446.8	659.9	490.3	169.57	3.892		
9,900.0	5,912.2	9,930.9	5,912.0	85.9	86.4	-89.99	-4,474.3	446.8	659.9	486.5	173.36	3.806		
10,000.0	5,912.1	10,030.9	5,912.0	87.8	88.3	-89.99	-4,574.3	446.8	659.9	482.7	177.16	3.725		
10,100.0	5,912.1	10,130.9	5,912.0	89.7	90.2	-89.99	-4,674.3	446.7	659.9	478.9	180.96	3.647		
10,200.0	5,912.1	10,230.9	5,912.0	91.6	92.0	-89.99	-4,774.3	446.7	659.9	475.1	184.76	3.572		
10,300.0	5,912.1	10,330.9	5,912.0	93.5	93.9	-89.99	-4,874.3	446.7	659.9	471.3	188.56	3.500		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1306B - HZ - Plan #3												Offset Site Error: 0.0 usft	
Survey Program: 0-ISCWSA MWD												Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	
10,400.0	5,912.1	10,430.9	5,912.0	95.4	95.8	-89.99	-4,974.3	446.7	659.8	467.5	192.36	3.430	
10,500.0	5,912.1	10,530.9	5,912.0	97.3	97.7	-89.99	-5,074.3	446.7	659.8	463.7	196.16	3.364	
10,600.0	5,912.1	10,630.9	5,912.0	99.2	99.6	-89.99	-5,174.3	446.7	659.8	459.9	199.97	3.300	
10,700.0	5,912.1	10,730.9	5,912.0	101.1	101.5	-89.99	-5,274.3	446.7	659.8	456.0	203.78	3.238	
10,800.0	5,912.1	10,830.9	5,912.0	103.0	103.4	-89.99	-5,374.3	446.7	659.8	452.2	207.59	3.179	
10,900.0	5,912.1	10,930.9	5,912.0	104.9	105.3	-89.99	-5,474.3	446.7	659.8	448.4	211.40	3.121	
11,000.0	5,912.1	11,030.9	5,912.0	106.8	107.2	-89.99	-5,574.3	446.7	659.8	444.6	215.21	3.066	
11,100.0	5,912.1	11,130.9	5,912.0	108.7	109.1	-89.99	-5,674.3	446.7	659.8	440.8	219.02	3.012	
11,200.0	5,912.1	11,230.9	5,912.0	110.6	111.0	-89.99	-5,774.3	446.7	659.8	436.9	222.83	2.961	
11,300.0	5,912.1	11,330.9	5,912.0	112.5	112.9	-89.99	-5,874.3	446.7	659.8	433.1	226.65	2.911	
11,400.0	5,912.1	11,430.9	5,912.0	114.4	114.8	-89.99	-5,974.3	446.7	659.8	429.3	230.46	2.863	
11,500.0	5,912.1	11,530.9	5,912.0	116.3	116.7	-89.99	-6,074.3	446.7	659.8	425.5	234.28	2.816	
11,600.0	5,912.1	11,630.9	5,912.0	118.2	118.6	-89.99	-6,174.3	446.7	659.7	421.6	238.10	2.771	
11,700.0	5,912.1	11,730.9	5,912.0	120.1	120.5	-89.99	-6,274.3	446.7	659.7	417.8	241.91	2.727	
11,800.0	5,912.1	11,830.9	5,912.0	122.1	122.5	-89.99	-6,374.3	446.7	659.7	414.0	245.73	2.685	
11,900.0	5,912.1	11,930.9	5,912.0	124.0	124.4	-89.99	-6,474.3	446.7	659.7	410.2	249.55	2.644	
12,000.0	5,912.1	12,030.9	5,912.0	125.9	126.3	-90.00	-6,574.3	446.7	659.7	406.3	253.37	2.604	
12,100.0	5,912.1	12,130.9	5,912.0	127.8	128.2	-90.00	-6,674.3	446.7	659.7	402.5	257.19	2.565	
12,200.0	5,912.1	12,230.9	5,912.0	129.7	130.1	-90.00	-6,774.3	446.7	659.7	398.7	261.01	2.527	
12,300.0	5,912.1	12,330.9	5,912.0	131.6	132.0	-90.00	-6,874.3	446.7	659.7	394.8	264.84	2.491	
12,400.0	5,912.1	12,430.9	5,912.0	133.5	133.9	-90.00	-6,974.3	446.7	659.7	391.0	268.66	2.455	
12,500.0	5,912.0	12,530.9	5,912.0	135.4	135.8	-90.00	-7,074.3	446.7	659.7	387.2	272.48	2.421	
12,600.0	5,912.0	12,630.9	5,912.0	137.3	137.7	-90.00	-7,174.3	446.7	659.7	383.3	276.31	2.387	
12,700.0	5,912.0	12,730.9	5,912.0	139.3	139.6	-90.00	-7,274.3	446.7	659.6	379.5	280.13	2.355	
12,800.0	5,912.0	12,830.9	5,912.0	141.2	141.5	-90.00	-7,374.3	446.7	659.6	375.7	283.96	2.323	
12,900.0	5,912.0	12,930.9	5,912.0	143.1	143.4	-90.00	-7,474.3	446.6	659.6	371.8	287.78	2.292	
13,000.0	5,912.0	13,030.9	5,912.0	145.0	145.4	-90.00	-7,574.3	446.6	659.6	368.0	291.61	2.262	
13,100.0	5,912.0	13,130.9	5,912.0	146.9	147.3	-90.00	-7,674.3	446.6	659.6	364.2	295.43	2.233	
13,200.0	5,912.0	13,230.9	5,912.0	148.8	149.2	-90.00	-7,774.3	446.6	659.6	360.3	299.26	2.204	
13,300.0	5,912.0	13,330.9	5,912.0	150.7	151.1	-90.00	-7,874.3	446.6	659.6	356.5	303.09	2.176	
13,400.0	5,912.0	13,430.9	5,912.0	152.6	153.0	-90.00	-7,974.3	446.6	659.6	352.7	306.92	2.149	
13,500.0	5,912.0	13,530.9	5,912.0	154.6	154.9	-90.00	-8,074.3	446.6	659.6	348.8	310.74	2.123	
13,600.0	5,912.0	13,630.9	5,912.0	156.5	156.7	-90.00	-8,174.3	446.6	659.6	345.1	314.46	2.097	
13,649.9	5,912.0	13,680.8	5,912.0	157.4	157.5	-90.00	-8,224.2	446.6	659.6	343.4	316.18	2.086	
13,667.9	5,912.0	13,695.8	5,912.0	157.8	157.7	-90.00	-8,239.2	446.6	659.6	342.8	316.78	2.082 SF	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1307A - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	89.99	0.0	98.4	98.4					
100.0	100.0	100.0	100.0	0.1	0.1	89.99	0.0	98.4	98.4	98.2	0.19	525.979		
200.0	200.0	200.0	200.0	0.3	0.3	89.99	0.0	98.4	98.4	97.7	0.64	154.529		
300.0	300.0	300.0	300.0	0.5	0.5	89.99	0.0	98.4	98.4	97.3	1.09	90.568		
400.0	400.0	400.0	400.0	0.8	0.8	89.99	0.0	98.4	98.4	96.8	1.54	64.055 CC, ES		
500.0	500.0	498.3	498.3	1.0	1.0	90.84	-1.4	99.2	99.2	97.3	1.96	50.705		
600.0	600.0	596.3	596.2	1.2	1.2	93.27	-5.8	101.7	101.9	99.6	2.37	42.966		
700.0	700.0	696.0	695.6	1.4	1.4	96.43	-11.9	105.2	105.9	103.1	2.81	37.670		
800.0	800.0	795.8	795.1	1.7	1.6	99.35	-17.9	108.6	110.2	106.9	3.26	33.777		
900.0	900.0	895.5	894.6	1.9	1.8	102.05	-23.9	112.1	114.7	111.0	3.72	30.847		
1,000.0	1,000.0	995.3	994.2	2.1	2.1	104.54	-30.0	115.5	119.5	115.3	4.18	28.591		
1,100.0	1,100.0	1,095.0	1,093.7	2.3	2.3	106.84	-36.0	119.0	124.5	119.8	4.64	26.817		
1,200.0	1,200.0	1,194.9	1,193.3	2.5	2.6	-83.82	-42.0	122.5	129.4	124.4	5.04	25.659		
1,300.0	1,299.8	1,294.8	1,292.9	2.7	2.8	-83.96	-48.1	125.9	134.1	128.6	5.46	24.563		
1,400.0	1,399.6	1,394.6	1,392.5	2.9	3.1	-84.89	-54.1	129.4	138.5	132.7	5.89	23.523		
1,500.0	1,499.4	1,494.5	1,492.2	3.1	3.4	-85.77	-60.2	132.8	143.0	136.7	6.33	22.583		
1,600.0	1,599.1	1,594.4	1,591.8	3.3	3.6	-86.59	-66.2	136.3	147.6	140.8	6.79	21.737		
1,700.0	1,698.9	1,694.3	1,691.4	3.5	3.9	-87.36	-72.3	139.8	152.1	144.9	7.25	20.975		
1,800.0	1,798.6	1,794.1	1,791.1	3.7	4.1	-88.09	-78.3	143.2	156.7	149.0	7.72	20.288		
1,900.0	1,898.4	1,894.0	1,890.7	4.0	4.4	-88.78	-84.4	146.7	161.3	153.1	8.20	19.668		
2,000.0	1,998.1	1,993.9	1,990.3	4.2	4.7	-89.42	-90.4	150.2	166.0	157.3	8.69	19.107		
2,100.0	2,097.9	2,093.8	2,090.0	4.4	4.9	-90.04	-96.5	153.6	170.6	161.4	9.17	18.598		
2,200.0	2,197.6	2,193.6	2,189.6	4.7	5.2	-90.62	-102.5	157.1	175.3	165.6	9.66	18.136		
2,300.0	2,297.4	2,293.5	2,289.2	4.9	5.4	-91.17	-108.6	160.5	180.0	169.8	10.16	17.714		
2,400.0	2,397.2	2,393.4	2,388.9	5.2	5.7	-91.69	-114.6	164.0	184.7	174.0	10.66	17.328		
2,500.0	2,496.9	2,493.3	2,488.5	5.4	6.0	-92.19	-120.6	167.5	189.4	178.2	11.16	16.974		
2,600.0	2,596.7	2,593.1	2,588.1	5.7	6.2	-92.66	-126.7	170.9	194.1	182.5	11.66	16.649		
2,700.0	2,696.4	2,693.0	2,687.7	5.9	6.5	-93.11	-132.7	174.4	198.9	186.7	12.16	16.349		
2,800.0	2,796.2	2,792.9	2,787.4	6.2	6.8	-93.54	-138.8	177.9	203.6	190.9	12.67	16.072		
2,900.0	2,895.9	2,892.8	2,887.0	6.4	7.0	-93.95	-144.8	181.3	208.4	195.2	13.18	15.815		
3,000.0	2,995.7	2,992.6	2,986.6	6.7	7.3	-94.34	-150.9	184.8	213.2	199.5	13.68	15.577		
3,100.0	3,095.5	3,092.5	3,086.3	6.9	7.5	-94.71	-156.9	188.2	217.9	203.7	14.19	15.355		
3,200.0	3,195.2	3,192.4	3,185.9	7.2	7.8	-95.07	-163.0	191.7	222.7	208.0	14.70	15.148		
3,300.0	3,295.0	3,292.3	3,285.5	7.4	8.1	-95.41	-169.0	195.2	227.5	212.3	15.22	14.954		
3,400.0	3,394.7	3,392.1	3,385.2	7.7	8.3	-95.74	-175.1	198.6	232.3	216.6	15.73	14.773		
3,500.0	3,494.5	3,492.0	3,484.8	7.9	8.6	-96.06	-181.1	202.1	237.2	220.9	16.24	14.603		
3,600.0	3,594.2	3,591.9	3,584.4	8.2	8.9	-96.36	-187.1	205.6	242.0	225.2	16.75	14.443		
3,700.0	3,694.0	3,691.8	3,684.1	8.4	9.1	-96.65	-193.2	209.0	246.8	229.5	17.27	14.293		
3,800.0	3,793.7	3,791.6	3,783.7	8.7	9.4	-96.93	-199.2	212.5	251.6	233.9	17.78	14.151		
3,900.0	3,893.5	3,891.5	3,883.3	9.0	9.7	-97.20	-205.3	215.9	256.5	238.2	18.30	14.018		
4,000.0	3,993.3	3,991.4	3,983.0	9.2	9.9	-97.46	-211.3	219.4	261.3	242.5	18.81	13.891		
4,100.0	4,093.0	4,091.3	4,082.6	9.5	10.2	-97.71	-217.4	222.9	266.2	246.9	19.33	13.771		
4,200.0	4,192.8	4,191.1	4,182.2	9.7	10.4	-97.95	-223.4	226.3	271.1	251.2	19.85	13.658		
4,300.0	4,292.5	4,291.0	4,281.9	10.0	10.7	-98.18	-229.5	229.8	275.9	255.6	20.36	13.550		
4,400.0	4,392.3	4,390.9	4,381.5	10.3	11.0	-98.40	-235.5	233.3	280.8	259.9	20.88	13.448		
4,500.0	4,492.0	4,490.8	4,481.1	10.5	11.2	-98.62	-241.6	236.7	285.7	264.3	21.40	13.350		
4,600.0	4,591.8	4,590.6	4,580.8	10.8	11.5	-98.83	-247.6	240.2	290.5	268.6	21.91	13.257		
4,700.0	4,691.6	4,690.5	4,680.4	11.0	11.8	-99.03	-253.6	243.6	295.4	273.0	22.43	13.169		
4,800.0	4,791.3	4,790.4	4,780.0	11.3	12.0	-99.23	-259.7	247.1	300.3	277.3	22.95	13.084		
4,900.0	4,891.1	4,890.3	4,879.7	11.6	12.3	-99.42	-265.7	250.6	305.2	281.7	23.47	13.003		
5,000.0	4,990.8	4,990.1	4,979.3	11.8	12.6	-99.60	-271.8	254.0	310.1	286.1	23.99	12.926		
5,100.0	5,090.6	5,090.0	5,078.9	12.1	12.8	-99.78	-277.8	257.5	315.0	290.4	24.51	12.852		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1307A - HZ - Plan #3												Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,190.3	5,189.9	5,178.6	12.3	13.1	-99.95	-283.9	261.0	319.8	294.8	25.02	12.781	
5,300.0	5,290.1	5,289.8	5,278.2	12.6	13.3	-100.12	-289.9	264.4	324.7	299.2	25.54	12.713	
5,400.0	5,389.9	5,376.7	5,364.8	12.9	13.6	-100.05	-296.4	268.1	330.7	304.6	26.04	12.697	
5,500.0	5,489.2	5,450.0	5,436.3	13.2	13.9	-98.06	-310.0	275.9	343.9	317.3	26.55	12.954	
5,600.0	5,585.0	5,520.9	5,502.8	13.6	14.3	-95.33	-331.2	288.0	367.0	339.7	27.24	13.473	
5,700.0	5,673.7	5,588.5	5,562.5	14.2	14.7	-92.44	-358.6	303.7	398.8	370.7	28.14	14.174	
5,800.0	5,752.1	5,650.0	5,612.9	15.0	15.2	-89.24	-389.1	321.2	438.0	408.8	29.22	14.988	
5,900.0	5,817.2	5,713.0	5,659.9	16.0	15.8	-85.93	-425.5	342.1	483.1	452.6	30.53	15.826	
6,000.0	5,866.6	5,770.2	5,697.8	17.2	16.4	-82.26	-462.6	363.3	532.8	500.9	31.98	16.664	
6,100.0	5,898.6	5,824.5	5,729.3	18.5	17.1	-78.36	-500.9	385.3	585.9	552.4	33.50	17.490	
6,200.0	5,911.9	5,876.3	5,754.9	20.0	17.7	-74.35	-540.1	407.7	641.1	606.1	35.06	18.290	
6,300.0	5,912.3	5,929.3	5,776.4	21.4	18.5	-76.34	-582.1	431.7	697.4	659.9	37.54	18.579	
6,400.0	5,912.3	5,989.1	5,794.5	22.7	19.4	-79.17	-631.5	460.0	753.5	713.3	40.17	18.756	
6,500.0	5,912.3	6,055.1	5,806.8	24.1	20.4	-81.12	-687.8	492.3	808.0	765.1	42.88	18.845	
6,600.0	5,912.3	6,132.7	5,810.8	25.6	21.7	-82.18	-754.9	530.7	859.9	814.2	45.75	18.798	
6,700.0	5,912.3	6,297.4	5,810.8	27.1	24.3	-82.93	-901.7	605.3	905.1	855.2	49.88	18.147	
6,800.0	5,912.3	6,476.3	5,810.8	28.8	27.1	-83.46	-1,067.8	671.7	942.0	887.6	54.47	17.295	
6,900.0	5,912.3	6,667.5	5,810.8	30.5	30.2	-83.83	-1,251.3	725.1	969.9	910.4	59.45	16.314	
7,000.0	5,912.3	6,868.3	5,810.8	32.2	33.5	-84.06	-1,448.7	761.2	987.8	923.1	64.68	15.271	
7,100.0	5,912.3	7,074.6	5,810.8	34.0	36.8	-84.15	-1,654.3	776.5	995.2	925.2	69.99	14.218	
7,200.0	5,912.3	7,194.6	5,810.8	35.7	38.7	-84.15	-1,774.4	776.9	995.3	921.5	73.78	13.490	
7,300.0	5,912.3	7,294.6	5,810.8	37.5	40.3	-84.15	-1,874.4	776.9	995.3	918.0	77.28	12.880	
7,400.0	5,912.3	7,394.6	5,810.8	39.3	41.9	-84.15	-1,974.4	776.8	995.3	914.5	80.81	12.317	
7,500.0	5,912.3	7,494.6	5,810.8	41.1	43.6	-84.15	-2,074.4	776.8	995.3	910.9	84.36	11.798	
7,600.0	5,912.2	7,594.6	5,810.8	42.9	45.3	-84.15	-2,174.4	776.8	995.3	907.3	87.94	11.318	
7,700.0	5,912.2	7,694.6	5,810.8	44.7	47.0	-84.15	-2,274.4	776.8	995.3	903.7	91.54	10.873	
7,800.0	5,912.2	7,794.6	5,810.8	46.5	48.7	-84.15	-2,374.4	776.8	995.2	900.1	95.15	10.459	
7,900.0	5,912.2	7,894.6	5,810.9	48.4	50.5	-84.15	-2,474.4	776.8	995.2	896.4	98.79	10.075	
8,000.0	5,912.2	7,994.6	5,810.9	50.2	52.2	-84.15	-2,574.4	776.8	995.2	892.8	102.43	9.716	
8,100.0	5,912.2	8,094.6	5,810.9	52.1	54.0	-84.15	-2,674.4	776.8	995.2	889.1	106.09	9.380	
8,200.0	5,912.2	8,194.6	5,810.9	53.9	55.8	-84.15	-2,774.4	776.8	995.2	885.4	109.77	9.067	
8,300.0	5,912.2	8,294.6	5,810.9	55.8	57.6	-84.16	-2,874.4	776.8	995.2	881.7	113.45	8.772	
8,400.0	5,912.2	8,394.6	5,810.9	57.6	59.4	-84.16	-2,974.4	776.8	995.2	878.0	117.14	8.496	
8,500.0	5,912.2	8,494.6	5,810.9	59.5	61.2	-84.16	-3,074.4	776.8	995.2	874.3	120.84	8.235	
8,600.0	5,912.2	8,594.6	5,810.9	61.4	63.0	-84.16	-3,174.4	776.8	995.1	870.6	124.55	7.990	
8,700.0	5,912.2	8,694.6	5,810.9	63.2	64.8	-84.16	-3,274.4	776.8	995.1	866.9	128.26	7.759	
8,800.0	5,912.2	8,794.6	5,810.9	65.1	66.6	-84.16	-3,374.4	776.7	995.1	863.1	131.98	7.540	
8,900.0	5,912.2	8,894.6	5,810.9	67.0	68.4	-84.16	-3,474.4	776.7	995.1	859.4	135.71	7.333	
9,000.0	5,912.2	8,994.6	5,810.9	68.9	70.3	-84.16	-3,574.4	776.7	995.1	855.6	139.44	7.136	
9,100.0	5,912.2	9,094.6	5,810.9	70.8	72.1	-84.16	-3,674.4	776.7	995.1	851.9	143.18	6.950	
9,200.0	5,912.2	9,194.6	5,810.9	72.6	73.9	-84.16	-3,774.4	776.7	995.1	848.1	146.92	6.773	
9,300.0	5,912.2	9,294.6	5,810.9	74.5	75.8	-84.16	-3,874.4	776.7	995.1	844.4	150.67	6.604	
9,400.0	5,912.2	9,394.6	5,810.9	76.4	77.6	-84.16	-3,974.4	776.7	995.0	840.6	154.42	6.444	
9,500.0	5,912.2	9,494.6	5,810.9	78.3	79.5	-84.16	-4,074.4	776.7	995.0	836.8	158.18	6.291	
9,600.0	5,912.2	9,594.6	5,810.9	80.2	81.3	-84.16	-4,174.4	776.7	995.0	833.1	161.93	6.145	
9,700.0	5,912.2	9,694.6	5,810.9	82.1	83.2	-84.16	-4,274.4	776.7	995.0	829.3	165.69	6.005	
9,800.0	5,912.2	9,794.6	5,810.9	84.0	85.0	-84.16	-4,374.4	776.7	995.0	825.5	169.46	5.872	
9,900.0	5,912.2	9,894.6	5,810.9	85.9	86.9	-84.16	-4,474.4	776.7	995.0	821.7	173.23	5.744	
10,000.0	5,912.1	9,994.6	5,810.9	87.8	88.8	-84.16	-4,574.4	776.7	995.0	818.0	177.00	5.621	
10,100.0	5,912.1	10,094.6	5,810.9	89.7	90.6	-84.16	-4,674.4	776.7	994.9	814.2	180.77	5.504	
10,200.0	5,912.1	10,194.6	5,810.9	91.6	92.5	-84.16	-4,774.4	776.6	994.9	810.4	184.54	5.391	
10,300.0	5,912.1	10,294.6	5,810.9	93.5	94.4	-84.16	-4,874.4	776.6	994.9	806.6	188.32	5.283	

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1307A - HZ - Plan #3												Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	
10,400.0	5,912.1	10,394.6	5,810.9	95.4	96.3	-84.16	-4,974.4	776.6	994.9	802.8	192.10	5.179	
10,500.0	5,912.1	10,494.6	5,810.9	97.3	98.1	-84.16	-5,074.4	776.6	994.9	799.0	195.88	5.079	
10,600.0	5,912.1	10,594.6	5,810.9	99.2	100.0	-84.16	-5,174.4	776.6	994.9	795.2	199.66	4.983	
10,700.0	5,912.1	10,694.6	5,810.9	101.1	101.9	-84.16	-5,274.4	776.6	994.9	791.4	203.44	4.890	
10,800.0	5,912.1	10,794.6	5,810.9	103.0	103.8	-84.16	-5,374.4	776.6	994.9	787.6	207.23	4.801	
10,900.0	5,912.1	10,894.6	5,810.9	104.9	105.7	-84.16	-5,474.4	776.6	994.8	783.8	211.01	4.715	
11,000.0	5,912.1	10,994.6	5,810.9	106.8	107.5	-84.16	-5,574.4	776.6	994.8	780.0	214.80	4.631	
11,100.0	5,912.1	11,094.6	5,810.9	108.7	109.4	-84.16	-5,674.4	776.6	994.8	776.2	218.59	4.551	
11,200.0	5,912.1	11,194.6	5,810.9	110.6	111.3	-84.16	-5,774.4	776.6	994.8	772.4	222.38	4.473	
11,300.0	5,912.1	11,294.6	5,810.9	112.5	113.2	-84.16	-5,874.4	776.6	994.8	768.6	226.17	4.398	
11,400.0	5,912.1	11,394.6	5,810.9	114.4	115.1	-84.16	-5,974.4	776.6	994.8	764.8	229.97	4.326	
11,500.0	5,912.1	11,494.6	5,810.9	116.3	117.0	-84.16	-6,074.4	776.6	994.8	761.0	233.76	4.255	
11,600.0	5,912.1	11,594.6	5,810.9	118.2	118.9	-84.16	-6,174.4	776.5	994.7	757.2	237.56	4.187	
11,700.0	5,912.1	11,694.6	5,810.9	120.1	120.8	-84.17	-6,274.4	776.5	994.7	753.4	241.35	4.121	
11,800.0	5,912.1	11,794.6	5,810.9	122.1	122.7	-84.17	-6,374.4	776.5	994.7	749.6	245.15	4.058	
11,900.0	5,912.1	11,894.6	5,810.9	124.0	124.5	-84.17	-6,474.4	776.5	994.7	745.8	248.95	3.996	
12,000.0	5,912.1	11,994.6	5,810.9	125.9	126.4	-84.17	-6,574.4	776.5	994.7	741.9	252.75	3.936	
12,100.0	5,912.1	12,094.6	5,811.0	127.8	128.3	-84.17	-6,674.4	776.5	994.7	738.1	256.55	3.877	
12,200.0	5,912.1	12,194.6	5,811.0	129.7	130.2	-84.17	-6,774.4	776.5	994.7	734.3	260.35	3.821	
12,300.0	5,912.1	12,294.6	5,811.0	131.6	132.1	-84.17	-6,874.4	776.5	994.7	730.5	264.15	3.765	
12,400.0	5,912.1	12,394.6	5,811.0	133.5	134.0	-84.17	-6,974.4	776.5	994.6	726.7	267.95	3.712	
12,500.0	5,912.0	12,494.6	5,811.0	135.4	135.9	-84.17	-7,074.4	776.5	994.6	722.9	271.76	3.660	
12,600.0	5,912.0	12,594.6	5,811.0	137.3	137.8	-84.17	-7,174.4	776.5	994.6	719.1	275.56	3.609	
12,700.0	5,912.0	12,694.6	5,811.0	139.3	139.7	-84.17	-7,274.4	776.5	994.6	715.2	279.36	3.560	
12,800.0	5,912.0	12,794.6	5,811.0	141.2	141.6	-84.17	-7,374.4	776.5	994.6	711.4	283.17	3.512	
12,900.0	5,912.0	12,894.6	5,811.0	143.1	143.5	-84.17	-7,474.4	776.5	994.6	707.6	286.97	3.466	
13,000.0	5,912.0	12,994.6	5,811.0	145.0	145.4	-84.17	-7,574.4	776.4	994.6	703.8	290.78	3.420	
13,100.0	5,912.0	13,094.6	5,811.0	146.9	147.3	-84.17	-7,674.4	776.4	994.5	700.0	294.59	3.376	
13,200.0	5,912.0	13,194.6	5,811.0	148.8	149.2	-84.17	-7,774.4	776.4	994.5	696.1	298.39	3.333	
13,300.0	5,912.0	13,294.6	5,811.0	150.7	151.1	-84.17	-7,874.4	776.4	994.5	692.3	302.20	3.291	
13,400.0	5,912.0	13,394.6	5,811.0	152.6	153.0	-84.17	-7,974.4	776.4	994.5	688.5	306.01	3.250	
13,500.0	5,912.0	13,494.6	5,811.0	154.6	154.9	-84.17	-8,074.4	776.4	994.5	684.7	309.82	3.210	
13,600.0	5,912.0	13,594.6	5,811.0	156.5	156.8	-84.17	-8,174.4	776.4	994.5	680.9	313.63	3.171	
13,650.0	5,912.0	13,644.6	5,811.0	157.4	157.8	-84.17	-8,224.4	776.4	994.5	679.0	315.51	3.152	
13,667.9	5,912.0	13,658.4	5,811.0	157.8	158.1	-84.17	-8,238.2	776.4	994.5	678.4	316.13	3.146 SF	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1308B - HZ - Plan #3													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	90.01	0.0	131.4	131.4					
100.0	100.0	100.0	100.0	0.1	0.1	90.01	0.0	131.4	131.4	131.2	0.19	702.683		
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		
866.7	866.7	866.7	866.7	1.8	1.8	90.01	0.0	131.4	131.4	127.8	3.63	36.166 CC		
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 ES		
1,000.0	1,000.0	997.1	997.1	2.1	2.1	90.55	-1.3	132.5	132.5	128.3	4.20	31.533		
1,100.0	1,100.0	1,094.0	1,093.8	2.3	2.3	92.14	-5.1	135.6	135.8	131.2	4.61	29.497		
1,200.0	1,200.0	1,193.6	1,193.2	2.5	2.5	-98.46	-10.4	140.1	140.9	135.9	4.99	28.202		
1,300.0	1,299.8	1,293.4	1,292.8	2.7	2.7	-98.40	-15.7	144.5	146.4	141.1	5.37	27.262		
1,400.0	1,399.6	1,393.3	1,392.4	2.9	2.9	-99.09	-21.1	149.0	152.3	146.5	5.77	26.399		
1,500.0	1,499.4	1,493.1	1,492.0	3.1	3.1	-99.73	-26.4	153.5	158.1	152.0	6.18	25.578		
1,600.0	1,599.1	1,592.9	1,591.5	3.3	3.3	-100.33	-31.8	157.9	164.0	157.4	6.61	24.808		
1,700.0	1,698.9	1,692.7	1,691.1	3.5	3.6	-100.88	-37.1	162.4	169.9	162.9	7.05	24.094		
1,800.0	1,798.6	1,792.5	1,790.7	3.7	3.8	-101.40	-42.4	166.9	175.8	168.3	7.50	23.435		
1,900.0	1,898.4	1,892.3	1,890.2	4.0	4.1	-101.88	-47.8	171.3	181.7	173.8	7.96	22.829		
2,000.0	1,998.1	1,992.1	1,989.8	4.2	4.3	-102.34	-53.1	175.8	187.7	179.2	8.43	22.272		
2,100.0	2,097.9	2,092.0	2,089.4	4.4	4.6	-102.76	-58.5	180.2	193.6	184.7	8.90	21.761		
2,200.0	2,197.6	2,191.8	2,188.9	4.7	4.8	-103.16	-63.8	184.7	199.6	190.2	9.37	21.291		
2,300.0	2,297.4	2,291.6	2,288.5	4.9	5.1	-103.54	-69.2	189.2	205.5	195.7	9.85	20.858		
2,400.0	2,397.2	2,391.4	2,388.1	5.2	5.3	-103.89	-74.5	193.6	211.5	201.2	10.34	20.460		
2,500.0	2,496.9	2,491.2	2,487.7	5.4	5.6	-104.23	-79.8	198.1	217.5	206.7	10.83	20.091		
2,600.0	2,596.7	2,591.0	2,587.2	5.7	5.8	-104.55	-85.2	202.6	223.5	212.2	11.31	19.751		
2,700.0	2,696.4	2,690.8	2,686.8	5.9	6.1	-104.85	-90.5	207.0	229.5	217.7	11.81	19.435		
2,800.0	2,796.2	2,790.6	2,786.4	6.2	6.3	-105.13	-95.9	211.5	235.5	223.2	12.30	19.142		
2,900.0	2,895.9	2,890.5	2,885.9	6.4	6.6	-105.41	-101.2	216.0	241.5	228.7	12.80	18.869		
3,000.0	2,995.7	2,990.3	2,985.5	6.7	6.8	-105.66	-106.6	220.4	247.5	234.2	13.30	18.614		
3,100.0	3,095.5	3,090.1	3,085.1	6.9	7.1	-105.91	-111.9	224.9	253.5	239.7	13.79	18.377		
3,200.0	3,195.2	3,189.9	3,184.6	7.2	7.4	-106.15	-117.2	229.4	259.5	245.2	14.30	18.154		
3,300.0	3,295.0	3,289.7	3,284.2	7.4	7.6	-106.37	-122.6	233.8	265.5	250.8	14.80	17.946		
3,400.0	3,394.7	3,389.5	3,383.8	7.7	7.9	-106.58	-127.9	238.3	271.6	256.3	15.30	17.750		
3,500.0	3,494.5	3,489.3	3,483.4	7.9	8.1	-106.79	-133.3	242.7	277.6	261.8	15.80	17.566		
3,600.0	3,594.2	3,589.1	3,582.9	8.2	8.4	-106.98	-138.6	247.2	283.6	267.3	16.31	17.392		
3,700.0	3,694.0	3,689.0	3,682.5	8.4	8.6	-107.17	-144.0	251.7	289.7	272.9	16.81	17.228		
3,800.0	3,793.7	3,788.8	3,782.1	8.7	8.9	-107.35	-149.3	256.1	295.7	278.4	17.32	17.074		
3,900.0	3,893.5	3,888.6	3,881.6	9.0	9.2	-107.53	-154.6	260.6	301.8	283.9	17.83	16.927		
4,000.0	3,993.3	3,988.4	3,981.2	9.2	9.4	-107.69	-160.0	265.1	307.8	289.5	18.33	16.788		
4,100.0	4,093.0	4,088.2	4,080.8	9.5	9.7	-107.85	-165.3	269.5	313.9	295.0	18.84	16.657		
4,200.0	4,192.8	4,188.0	4,180.3	9.7	9.9	-108.01	-170.7	274.0	319.9	300.6	19.35	16.532		
4,300.0	4,292.5	4,287.8	4,279.9	10.0	10.2	-108.15	-176.0	278.5	326.0	306.1	19.86	16.413		
4,400.0	4,392.3	4,387.7	4,379.5	10.3	10.5	-108.30	-181.4	282.9	332.0	311.7	20.37	16.300		
4,500.0	4,492.0	4,487.5	4,479.1	10.5	10.7	-108.43	-186.7	287.4	338.1	317.2	20.88	16.192		
4,600.0	4,591.8	4,587.3	4,578.6	10.8	11.0	-108.57	-192.0	291.9	344.1	322.8	21.39	16.089		
4,700.0	4,691.6	4,687.1	4,678.2	11.0	11.2	-108.70	-197.4	296.3	350.2	328.3	21.90	15.991		
4,800.0	4,791.3	4,786.9	4,777.8	11.3	11.5	-108.82	-202.7	300.8	356.3	333.9	22.41	15.897		
4,900.0	4,891.1	4,886.7	4,877.3	11.6	11.8	-108.94	-208.1	305.2	362.3	339.4	22.92	15.807		
5,000.0	4,990.8	4,986.5	4,976.9	11.8	12.0	-109.06	-213.4	309.7	368.4	345.0	23.43	15.721		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1308B - HZ - Plan #3												Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.0	5,090.6	5,086.3	5,076.5	12.1	12.3	-109.17	-218.8	314.2	374.5	350.5	23.95	15.638	
5,200.0	5,190.3	5,186.2	5,176.0	12.3	12.6	-109.28	-224.1	318.6	380.5	356.1	24.46	15.559	
5,300.0	5,290.1	5,286.0	5,275.6	12.6	12.8	-109.38	-229.5	323.1	386.6	361.6	24.97	15.483	
5,400.0	5,389.9	5,385.8	5,375.2	12.9	13.1	-109.48	-234.8	327.6	392.7	367.2	25.48	15.410	
5,500.0	5,489.2	5,471.7	5,460.8	13.2	13.3	-109.19	-240.2	332.1	400.8	374.8	25.95	15.445	
5,600.0	5,585.0	5,540.8	5,528.4	13.6	13.6	-108.02	-250.8	340.9	420.8	394.4	26.47	15.900	
5,700.0	5,673.7	5,600.0	5,584.5	14.2	13.9	-105.76	-265.3	353.0	453.3	426.2	27.14	16.702	
5,800.0	5,752.1	5,668.2	5,646.1	15.0	14.3	-102.86	-287.8	371.9	496.6	468.5	28.14	17.649	
5,900.0	5,817.2	5,724.9	5,693.9	16.0	14.7	-98.63	-311.2	391.4	549.2	519.8	29.42	18.666	
6,000.0	5,866.6	5,776.5	5,734.2	17.2	15.1	-93.23	-335.7	411.9	609.0	578.1	30.95	19.677	
6,100.0	5,898.6	5,822.9	5,767.7	18.5	15.6	-86.75	-360.4	432.5	674.2	641.7	32.51	20.736	
6,200.0	5,911.9	5,864.3	5,795.1	20.0	16.0	-79.47	-384.2	452.4	742.9	709.0	33.87	21.936	
6,300.0	5,912.3	5,904.6	5,819.3	21.4	16.5	-80.75	-408.9	473.1	813.1	777.2	35.84	22.689	
6,400.0	5,912.3	5,950.0	5,843.5	22.7	17.1	-83.77	-438.4	497.7	883.0	845.1	37.91	23.291	
6,500.0	5,912.3	6,009.1	5,869.8	24.1	17.9	-86.53	-479.0	531.6	951.5	911.3	40.14	23.703	
6,600.0	5,912.3	6,074.8	5,891.7	25.6	18.9	-88.48	-526.5	571.3	1,017.6	975.1	42.50	23.945	
6,700.0	5,912.3	6,148.0	5,906.9	27.1	20.0	-89.62	-581.4	617.2	1,081.6	1,036.6	45.00	24.036	
6,800.0	5,912.3	6,230.8	5,911.8	28.8	21.4	-89.97	-644.8	670.1	1,145.7	1,097.9	47.77	23.982	
6,900.0	5,912.3	6,440.2	5,911.8	30.5	24.9	-89.97	-813.2	794.3	1,205.1	1,152.7	52.47	22.966	
7,000.0	5,912.3	6,684.6	5,911.8	32.2	29.1	-89.97	-1,025.6	915.0	1,254.6	1,196.4	58.20	21.558	
7,100.0	5,912.3	6,963.5	5,911.8	34.0	34.0	-89.98	-1,284.3	1,018.2	1,291.8	1,226.8	64.94	19.891	
7,200.0	5,912.3	7,270.5	5,911.8	35.7	39.1	-89.98	-1,583.2	1,087.0	1,314.3	1,241.9	72.34	18.167	
7,300.0	5,912.3	7,562.6	5,911.8	37.5	43.6	-89.98	-1,874.4	1,107.3	1,320.6	1,241.3	79.32	16.648	
7,400.0	5,912.3	7,662.6	5,911.8	39.3	45.1	-89.98	-1,974.4	1,107.3	1,320.6	1,237.8	82.81	15.948	
7,500.0	5,912.3	7,762.6	5,911.8	41.1	46.7	-89.98	-2,074.4	1,107.3	1,320.6	1,234.3	86.32	15.299	
7,600.0	5,912.2	7,862.6	5,911.8	42.9	48.2	-89.98	-2,174.4	1,107.3	1,320.6	1,230.7	89.85	14.697	
7,700.0	5,912.2	7,962.6	5,911.8	44.7	49.8	-89.98	-2,274.4	1,107.3	1,320.6	1,227.1	93.42	14.136	
7,800.0	5,912.2	8,062.6	5,911.8	46.5	51.4	-89.98	-2,374.4	1,107.3	1,320.5	1,223.5	97.00	13.614	
7,900.0	5,912.2	8,162.6	5,911.8	48.4	53.1	-89.98	-2,474.4	1,107.3	1,320.5	1,219.9	100.61	13.126	
8,000.0	5,912.2	8,262.6	5,911.8	50.2	54.7	-89.98	-2,574.4	1,107.3	1,320.5	1,216.3	104.23	12.670	
8,100.0	5,912.2	8,362.6	5,911.8	52.1	56.4	-89.98	-2,674.4	1,107.3	1,320.5	1,212.7	107.86	12.242	
8,200.0	5,912.2	8,462.6	5,911.8	53.9	58.1	-89.98	-2,774.4	1,107.3	1,320.5	1,209.0	111.52	11.841	
8,300.0	5,912.2	8,562.6	5,911.8	55.8	59.8	-89.98	-2,874.4	1,107.3	1,320.5	1,205.3	115.18	11.465	
8,400.0	5,912.2	8,662.6	5,911.8	57.6	61.5	-89.98	-2,974.4	1,107.3	1,320.5	1,201.6	118.85	11.110	
8,500.0	5,912.2	8,762.6	5,911.9	59.5	63.2	-89.98	-3,074.4	1,107.3	1,320.5	1,197.9	122.54	10.776	
8,600.0	5,912.2	8,862.6	5,911.9	61.4	64.9	-89.98	-3,174.4	1,107.2	1,320.5	1,194.2	126.24	10.460	
8,700.0	5,912.2	8,962.6	5,911.9	63.2	66.7	-89.99	-3,274.4	1,107.2	1,320.4	1,190.5	129.94	10.162	
8,800.0	5,912.2	9,062.6	5,911.9	65.1	68.4	-89.99	-3,374.4	1,107.2	1,320.4	1,186.8	133.65	9.880	
8,900.0	5,912.2	9,162.6	5,911.9	67.0	70.2	-89.99	-3,474.4	1,107.2	1,320.4	1,183.0	137.37	9.612	
9,000.0	5,912.2	9,262.6	5,911.9	68.9	72.0	-89.99	-3,574.4	1,107.2	1,320.4	1,179.3	141.10	9.358	
9,100.0	5,912.2	9,362.6	5,911.9	70.8	73.7	-89.99	-3,674.4	1,107.2	1,320.4	1,175.6	144.83	9.117	
9,200.0	5,912.2	9,462.6	5,911.9	72.6	75.5	-89.99	-3,774.4	1,107.2	1,320.4	1,171.8	148.57	8.887	
9,300.0	5,912.2	9,562.6	5,911.9	74.5	77.3	-89.99	-3,874.4	1,107.2	1,320.4	1,168.1	152.31	8.669	
9,400.0	5,912.2	9,662.6	5,911.9	76.4	79.1	-89.99	-3,974.4	1,107.2	1,320.4	1,164.3	156.06	8.460	
9,500.0	5,912.2	9,762.6	5,911.9	78.3	80.9	-89.99	-4,074.4	1,107.2	1,320.4	1,160.5	159.82	8.262	
9,600.0	5,912.2	9,862.6	5,911.9	80.2	82.7	-89.99	-4,174.4	1,107.2	1,320.3	1,156.8	163.57	8.072	
9,700.0	5,912.2	9,962.6	5,911.9	82.1	84.5	-89.99	-4,274.4	1,107.2	1,320.3	1,153.0	167.34	7.890	
9,800.0	5,912.2	10,062.6	5,911.9	84.0	86.4	-89.99	-4,374.4	1,107.2	1,320.3	1,149.2	171.10	7.717	
9,900.0	5,912.2	10,162.6	5,911.9	85.9	88.2	-89.99	-4,474.4	1,107.2	1,320.3	1,145.4	174.87	7.550	
10,000.0	5,912.1	10,262.6	5,911.9	87.8	90.0	-89.99	-4,574.4	1,107.2	1,320.3	1,141.7	178.64	7.391	
10,100.0	5,912.1	10,362.6	5,911.9	89.7	91.8	-89.99	-4,674.4	1,107.2	1,320.3	1,137.9	182.42	7.238	
10,200.0	5,912.1	10,462.6	5,911.9	91.6	93.7	-89.99	-4,774.4	1,107.2	1,320.3	1,134.1	186.19	7.091	

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12F-1308B - HZ - Plan #3												Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
10,300.0	5,912.1	10,562.6	5,911.9	93.5	95.5	-89.99	-4,874.4	1,107.1	1,320.3	1,130.3	189.97	6.950	
10,400.0	5,912.1	10,662.6	5,911.9	95.4	97.4	-89.99	-4,974.4	1,107.1	1,320.3	1,126.5	193.76	6.814	
10,500.0	5,912.1	10,762.6	5,911.9	97.3	99.2	-89.99	-5,074.4	1,107.1	1,320.2	1,122.7	197.54	6.683	
10,600.0	5,912.1	10,862.6	5,911.9	99.2	101.0	-89.99	-5,174.4	1,107.1	1,320.2	1,118.9	201.33	6.558	
10,700.0	5,912.1	10,962.6	5,911.9	101.1	102.9	-89.99	-5,274.4	1,107.1	1,320.2	1,115.1	205.12	6.436	
10,800.0	5,912.1	11,062.6	5,911.9	103.0	104.7	-89.99	-5,374.4	1,107.1	1,320.2	1,111.3	208.91	6.319	
10,900.0	5,912.1	11,162.6	5,911.9	104.9	106.6	-89.99	-5,474.4	1,107.1	1,320.2	1,107.5	212.70	6.207	
11,000.0	5,912.1	11,262.6	5,911.9	106.8	108.5	-89.99	-5,574.4	1,107.1	1,320.2	1,103.7	216.50	6.098	
11,100.0	5,912.1	11,362.6	5,911.9	108.7	110.3	-89.99	-5,674.4	1,107.1	1,320.2	1,099.9	220.30	5.993	
11,200.0	5,912.1	11,462.6	5,911.9	110.6	112.2	-89.99	-5,774.4	1,107.1	1,320.2	1,096.1	224.10	5.891	
11,300.0	5,912.1	11,562.6	5,911.9	112.5	114.0	-89.99	-5,874.4	1,107.1	1,320.1	1,092.3	227.90	5.793	
11,400.0	5,912.1	11,662.6	5,911.9	114.4	115.9	-89.99	-5,974.4	1,107.1	1,320.1	1,088.4	231.70	5.698	
11,500.0	5,912.1	11,762.6	5,911.9	116.3	117.8	-89.99	-6,074.4	1,107.1	1,320.1	1,084.6	235.50	5.606	
11,600.0	5,912.1	11,862.6	5,911.9	118.2	119.7	-89.99	-6,174.4	1,107.1	1,320.1	1,080.8	239.30	5.516	
11,700.0	5,912.1	11,962.6	5,911.9	120.1	121.5	-89.99	-6,274.4	1,107.1	1,320.1	1,077.0	243.11	5.430	
11,800.0	5,912.1	12,062.6	5,911.9	122.1	123.4	-89.99	-6,374.4	1,107.1	1,320.1	1,073.2	246.92	5.346	
11,900.0	5,912.1	12,162.6	5,911.9	124.0	125.3	-89.99	-6,474.4	1,107.0	1,320.1	1,069.4	250.72	5.265	
12,000.0	5,912.1	12,262.6	5,912.0	125.9	127.1	-89.99	-6,574.4	1,107.0	1,320.1	1,065.5	254.53	5.186	
12,100.0	5,912.1	12,362.6	5,912.0	127.8	129.0	-90.00	-6,674.4	1,107.0	1,320.1	1,061.7	258.34	5.110	
12,200.0	5,912.1	12,462.6	5,912.0	129.7	130.9	-90.00	-6,774.4	1,107.0	1,320.0	1,057.9	262.15	5.035	
12,300.0	5,912.1	12,562.6	5,912.0	131.6	132.8	-90.00	-6,874.4	1,107.0	1,320.0	1,054.1	265.97	4.963	
12,400.0	5,912.1	12,662.6	5,912.0	133.5	134.7	-90.00	-6,974.4	1,107.0	1,320.0	1,050.2	269.78	4.893	
12,500.0	5,912.0	12,762.6	5,912.0	135.4	136.5	-90.00	-7,074.4	1,107.0	1,320.0	1,046.4	273.59	4.825	
12,600.0	5,912.0	12,862.6	5,912.0	137.3	138.4	-90.00	-7,174.4	1,107.0	1,320.0	1,042.6	277.41	4.758	
12,700.0	5,912.0	12,962.6	5,912.0	139.3	140.3	-90.00	-7,274.4	1,107.0	1,320.0	1,038.8	281.22	4.694	
12,800.0	5,912.0	13,062.6	5,912.0	141.2	142.2	-90.00	-7,374.4	1,107.0	1,320.0	1,034.9	285.04	4.631	
12,900.0	5,912.0	13,162.6	5,912.0	143.1	144.1	-90.00	-7,474.4	1,107.0	1,320.0	1,031.1	288.85	4.570	
13,000.0	5,912.0	13,262.6	5,912.0	145.0	146.0	-90.00	-7,574.4	1,107.0	1,320.0	1,027.3	292.67	4.510	
13,100.0	5,912.0	13,362.6	5,912.0	146.9	147.9	-90.00	-7,674.4	1,107.0	1,319.9	1,023.5	296.49	4.452	
13,200.0	5,912.0	13,462.6	5,912.0	148.8	149.7	-90.00	-7,774.4	1,107.0	1,319.9	1,019.6	300.31	4.395	
13,300.0	5,912.0	13,562.6	5,912.0	150.7	151.6	-90.00	-7,874.4	1,107.0	1,319.9	1,015.8	304.13	4.340	
13,400.0	5,912.0	13,662.6	5,912.0	152.6	153.5	-90.00	-7,974.4	1,107.0	1,319.9	1,012.0	307.95	4.286	
13,500.0	5,912.0	13,762.6	5,912.0	154.6	155.4	-90.00	-8,074.4	1,107.0	1,319.9	1,008.1	311.77	4.234	
13,600.0	5,912.0	13,862.6	5,912.0	156.5	157.3	-90.00	-8,174.4	1,106.9	1,319.9	1,004.3	315.59	4.182	
13,649.5	5,912.0	13,912.2	5,912.0	157.4	158.2	-90.00	-8,223.9	1,106.9	1,319.9	1,002.5	317.42	4.158	
13,667.9	5,912.0	13,925.4	5,912.0	157.8	158.4	-90.00	-8,237.1	1,106.9	1,319.9	1,001.9	317.99	4.151 SF	

Cathedral Energy Services

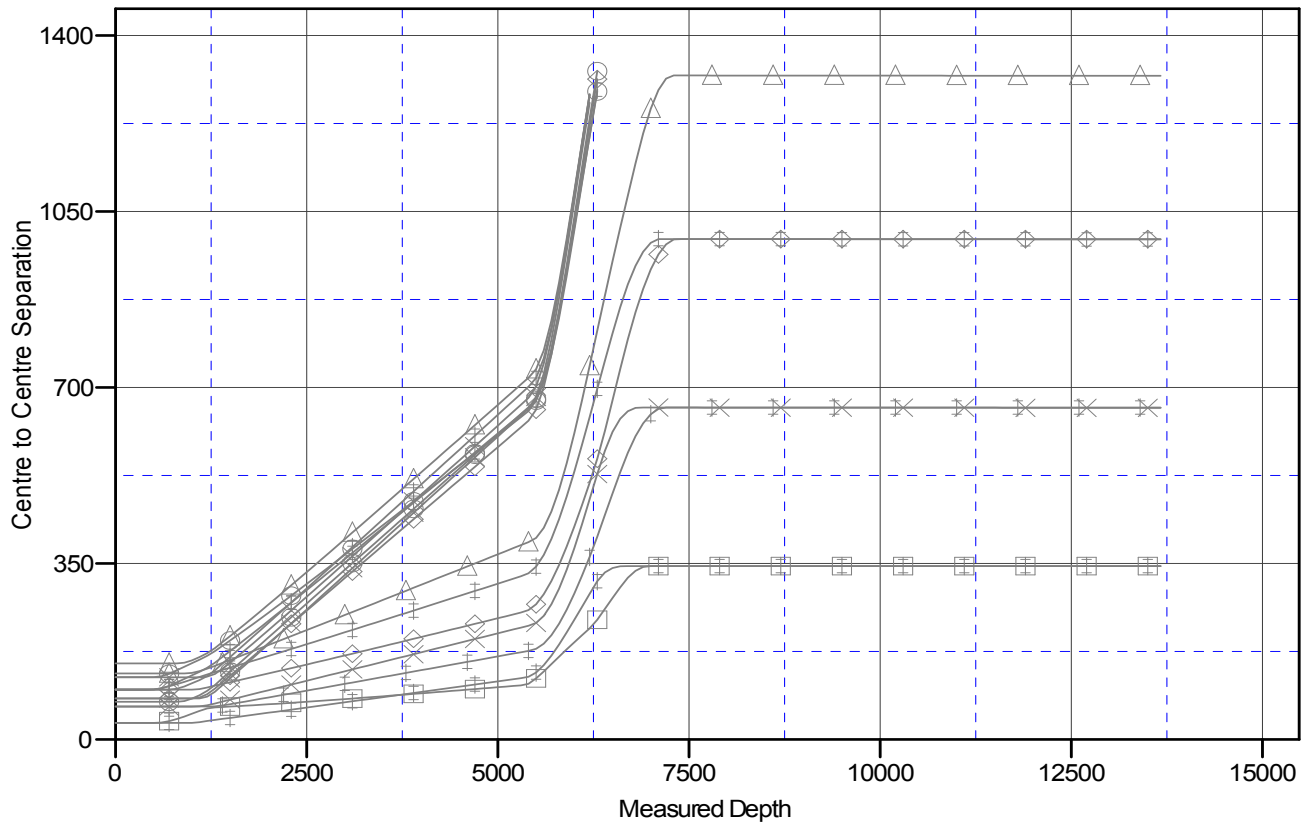
Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12F-1304B
Project:	Weld County, CO	TVD Reference:	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor Federal #12F-1304B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4953.6usft (Original Well Ele
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.00 W °

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

Ladder Plot



LEGEND

✕ Razor#12F-0107A, HZ, Plan #3 V0	✕ Razor#12F-0102B, HZ, Plan #3 V0	✕ Razor Federal#12F-1306B, HZ, Plan #3 V0
✕ Razor#12F-0106B, HZ, Plan #3 V0	✕ Razor#12F-0101A, HZ, Plan #3 V0	✕ Razor Federal#12F-1305A, HZ, Plan #3 V0
✕ Razor#12F-0105A, HZ, Plan #3 V0	✕ Razor#12F-0108B, HZ, Plan #3 V0	✕ Razor Federal#12F-1303A, HZ, Plan #3 V0
✕ Razor#12F-0104B, HZ, Plan #3 V0	✕ Razor Federal#12F-1308B, HZ, Plan #3 V0	✕ Razor Federal#12F-1302B, HZ, Plan #3 V0
✕ Razor#12F-0103A, HZ, Plan #3 V0	✕ Razor Federal#12F-1307A, HZ, Plan #3 V0	✕ Razor Federal#12F-1301A, HZ, Plan #3 V0