

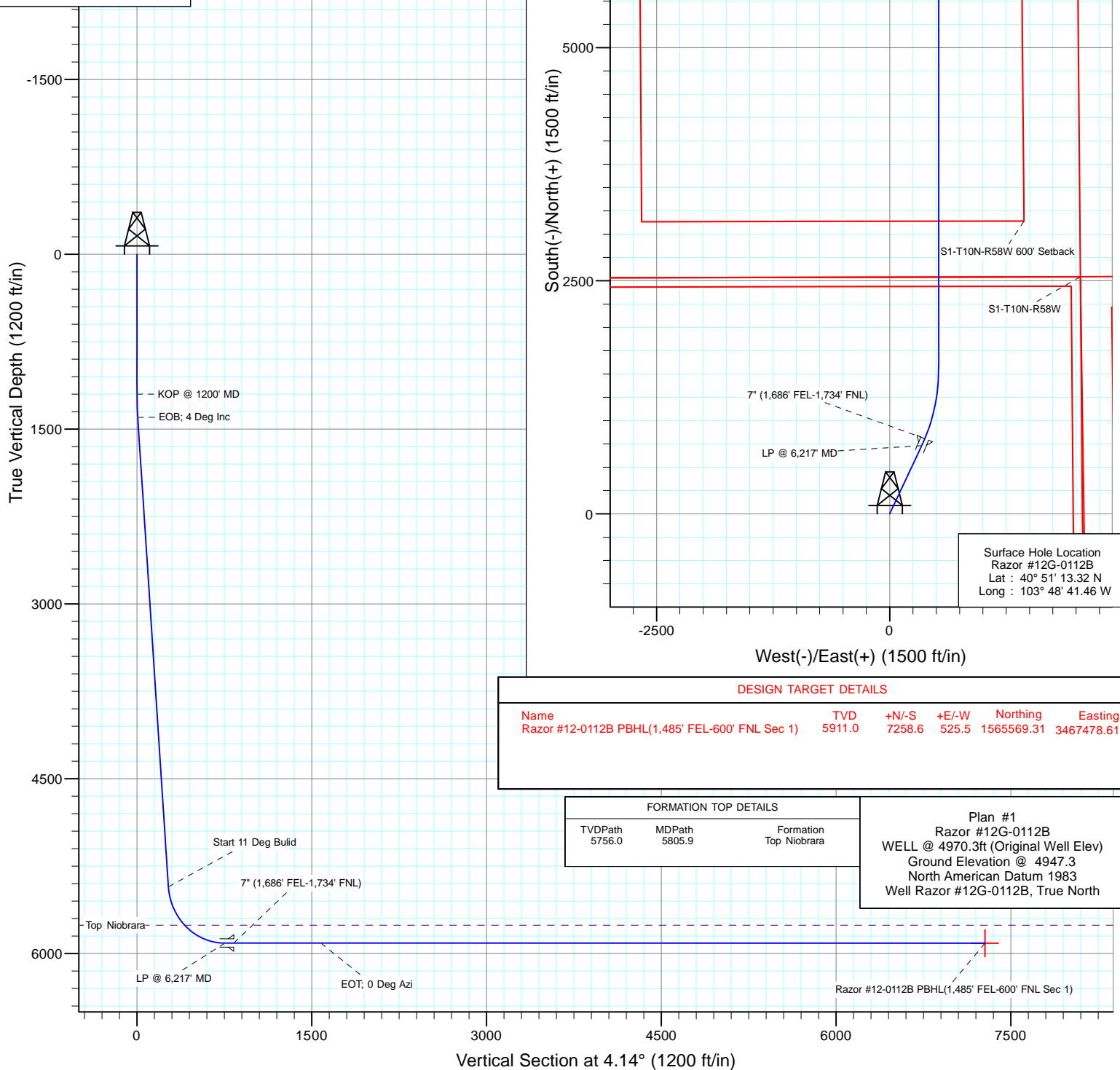
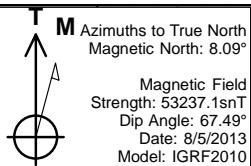


Project: Weld County, CO
Site: S12-T10N-R58W
Well: Razor #12G-0112B
Wellbore: HZ
Design: Plan #1



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1200.0	0.00	0.00	1200.0	0.0	0.0	0.00	0.00	0.0	KOP @ 1200' MD
3	1400.0	4.00	25.17	1399.8	6.3	3.0	2.00	25.17	6.5	EOB; 4 Deg Inc
4	5436.0	4.00	25.17	5426.0	261.1	122.7	0.00	0.00	269.3	Start 11 Deg Bulid
5	6217.8	90.00	25.17	5910.6	731.4	343.7	11.00	0.00	754.3	LP @ 6,217' MD
6	7056.7	90.00	0.00	5910.6	1543.5	525.0	3.00	-90.01	1577.4	EOT; 0 Deg Azi
7	12771.8	90.00	0.00	5911.0	7258.6	525.5	0.00	0.00	7277.6	PBHL @ 12,771' MD



DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
Razor #12-0112B PBHL(1,485' FEL-600' FNL Sec 1)	5911.0	7258.6	525.5	1565569.31	3467478.61

FORMATION TOP DETAILS

TVDPath	MDPath	Formation Top
5756.0	5805.9	Niobrara

Plan #1
Razor #12G-0112B
WELL @ 4970.3ft (Original Well Elev)
Ground Elevation @ 4947.3
North American Datum 1983
Well Razor #12G-0112B, True North

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #12G-0112B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4970.3ft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4970.3ft (Original Well Elev)
Site:	S12-T10N-R58W	North Reference:	True
Well:	Razor #12G-0112B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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

Site		S12-T10N-R58W			
Site Position:		Northing:	1,558,541.09 ft	Latitude:	40° 51' 16.04 N
From:	Lat/Long	Easting:	3,465,183.08 ft	Longitude:	103° 49' 6.23 W
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	1.09 °

Well	Razor #12G-0112B					
Well Position	+N/-S	0.0 ft	Northing:	1,558,301.99 ft	Latitude:	40° 51' 13.32 N
	+E/-W	0.0 ft	Easting:	3,467,091.44 ft	Longitude:	103° 48' 41.46 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,947.3 ft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	8/5/2013	8.08	67.49	53,237

Design	Plan #1				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.0	
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	4.14	

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,400.0	4.00	25.17	1,399.8	6.3	3.0	2.00	2.00	0.00	25.17	
5,436.0	4.00	25.17	5,426.0	261.1	122.7	0.00	0.00	0.00	0.00	
6,217.8	90.00	25.17	5,910.6	731.4	343.7	11.00	11.00	0.00	0.00	
7,056.7	90.00	0.00	5,910.6	1,543.5	525.0	3.00	0.00	-3.00	-90.01	
12,771.8	90.00	0.00	5,911.0	7,258.6	525.5	0.00	0.00	0.00	0.00	Razor #12-0112B PBI

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #12G-0112B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4970.3ft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4970.3ft (Original Well Elev)
Site:	S12-T10N-R58W	North Reference:	True
Well:	Razor #12G-0112B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	KOP @ 1200' MD
1,300.0	2.00	25.17	1,300.0	1.6	0.7	1.6	2.00	2.00	
1,400.0	4.00	25.17	1,399.8	6.3	3.0	6.5	2.00	2.00	EOB; 4 Deg Inc
1,500.0	4.00	25.17	1,499.6	12.6	5.9	13.0	0.00	0.00	
1,600.0	4.00	25.17	1,599.4	18.9	8.9	19.5	0.00	0.00	
1,700.0	4.00	25.17	1,699.1	25.3	11.9	26.0	0.00	0.00	
1,800.0	4.00	25.17	1,798.9	31.6	14.8	32.6	0.00	0.00	
1,900.0	4.00	25.17	1,898.6	37.9	17.8	39.1	0.00	0.00	
2,000.0	4.00	25.17	1,998.4	44.2	20.8	45.6	0.00	0.00	
2,100.0	4.00	25.17	2,098.1	50.5	23.7	52.1	0.00	0.00	
2,200.0	4.00	25.17	2,197.9	56.8	26.7	58.6	0.00	0.00	
2,300.0	4.00	25.17	2,297.6	63.1	29.7	65.1	0.00	0.00	
2,400.0	4.00	25.17	2,397.4	69.4	32.6	71.6	0.00	0.00	
2,500.0	4.00	25.17	2,497.2	75.8	35.6	78.1	0.00	0.00	
2,600.0	4.00	25.17	2,596.9	82.1	38.6	84.6	0.00	0.00	
2,700.0	4.00	25.17	2,696.7	88.4	41.5	91.2	0.00	0.00	
2,800.0	4.00	25.17	2,796.4	94.7	44.5	97.7	0.00	0.00	
2,900.0	4.00	25.17	2,896.2	101.0	47.5	104.2	0.00	0.00	
3,000.0	4.00	25.17	2,995.9	107.3	50.4	110.7	0.00	0.00	
3,100.0	4.00	25.17	3,095.7	113.6	53.4	117.2	0.00	0.00	
3,200.0	4.00	25.17	3,195.5	120.0	56.4	123.7	0.00	0.00	
3,300.0	4.00	25.17	3,295.2	126.3	59.3	130.2	0.00	0.00	
3,400.0	4.00	25.17	3,395.0	132.6	62.3	136.7	0.00	0.00	
3,500.0	4.00	25.17	3,494.7	138.9	65.3	143.2	0.00	0.00	
3,600.0	4.00	25.17	3,594.5	145.2	68.2	149.8	0.00	0.00	
3,700.0	4.00	25.17	3,694.2	151.5	71.2	156.3	0.00	0.00	
3,800.0	4.00	25.17	3,794.0	157.8	74.2	162.8	0.00	0.00	
3,900.0	4.00	25.17	3,893.7	164.1	77.1	169.3	0.00	0.00	
4,000.0	4.00	25.17	3,993.5	170.5	80.1	175.8	0.00	0.00	
4,100.0	4.00	25.17	4,093.3	176.8	83.1	182.3	0.00	0.00	
4,200.0	4.00	25.17	4,193.0	183.1	86.0	188.8	0.00	0.00	
4,300.0	4.00	25.17	4,292.8	189.4	89.0	195.3	0.00	0.00	
4,400.0	4.00	25.17	4,392.5	195.7	92.0	201.8	0.00	0.00	
4,500.0	4.00	25.17	4,492.3	202.0	94.9	208.4	0.00	0.00	
4,600.0	4.00	25.17	4,592.0	208.3	97.9	214.9	0.00	0.00	
4,700.0	4.00	25.17	4,691.8	214.7	100.9	221.4	0.00	0.00	
4,800.0	4.00	25.17	4,791.6	221.0	103.8	227.9	0.00	0.00	
4,900.0	4.00	25.17	4,891.3	227.3	106.8	234.4	0.00	0.00	
5,000.0	4.00	25.17	4,991.1	233.6	109.8	240.9	0.00	0.00	
5,100.0	4.00	25.17	5,090.8	239.9	112.7	247.4	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #12G-0112B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4970.3ft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4970.3ft (Original Well Elev)
Site:	S12-T10N-R58W	North Reference:	True
Well:	Razor #12G-0112B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
5,200.0	4.00	25.17	5,190.6	246.2	115.7	253.9	0.00	0.00	
5,300.0	4.00	25.17	5,290.3	252.5	118.7	260.4	0.00	0.00	
5,400.0	4.00	25.17	5,390.1	258.8	121.6	267.0	0.00	0.00	
5,436.0	4.00	25.17	5,426.0	261.1	122.7	269.3	0.00	0.00	Start 11 Deg Bulid
5,450.0	5.54	25.17	5,440.0	262.2	123.2	270.4	11.00	11.00	
5,500.0	11.04	25.17	5,489.4	268.7	126.3	277.1	11.00	11.00	
5,550.0	16.54	25.17	5,538.0	279.5	131.3	288.2	11.00	11.00	
5,600.0	22.04	25.17	5,585.1	294.4	138.4	303.6	11.00	11.00	
5,650.0	27.54	25.17	5,630.5	313.4	147.3	323.2	11.00	11.00	
5,700.0	33.04	25.17	5,673.7	336.2	158.0	346.7	11.00	11.00	
5,750.0	38.54	25.17	5,714.2	362.7	170.4	374.0	11.00	11.00	
5,800.0	44.04	25.17	5,751.8	392.5	184.4	404.8	11.00	11.00	
5,805.9	44.69	25.17	5,756.0	396.3	186.2	408.7	11.00	11.00	Top Niobrara
5,850.0	49.54	25.17	5,786.0	425.5	199.9	438.8	11.00	11.00	
5,900.0	55.04	25.17	5,816.6	461.3	216.8	475.7	11.00	11.00	
5,950.0	60.54	25.17	5,843.2	499.5	234.7	515.2	11.00	11.00	
6,000.0	66.04	25.17	5,865.7	539.9	253.7	556.8	11.00	11.00	
6,050.0	71.54	25.17	5,883.7	582.1	273.5	600.3	11.00	11.00	
6,100.0	77.04	25.17	5,897.3	625.7	294.0	645.2	11.00	11.00	
6,150.0	82.54	25.17	5,906.1	670.2	314.9	691.2	11.00	11.00	
6,200.0	88.04	25.17	5,910.2	715.3	336.1	737.7	11.00	11.00	
6,217.8	90.00	25.17	5,910.6	731.4	343.7	754.3	11.00	11.00	LP @ 6,217' MD
6,300.0	90.00	22.70	5,910.6	806.5	377.0	831.6	3.00	0.00	7" (1,686' FEL-1,734' FNL)
6,400.0	90.00	19.70	5,910.6	899.7	413.2	927.2	3.00	0.00	
6,500.0	90.00	16.70	5,910.6	994.7	444.4	1,024.2	3.00	0.00	
6,600.0	90.00	13.70	5,910.6	1,091.2	470.7	1,122.3	3.00	0.00	
6,700.0	90.00	10.70	5,910.6	1,188.9	491.8	1,221.3	3.00	0.00	
6,800.0	90.00	7.70	5,910.6	1,287.6	507.8	1,320.9	3.00	0.00	
6,900.0	90.00	4.70	5,910.6	1,387.0	518.6	1,420.8	3.00	0.00	
7,000.0	90.00	1.70	5,910.6	1,486.8	524.2	1,520.8	3.00	0.00	
7,056.7	90.00	0.00	5,910.6	1,543.5	525.0	1,577.4	3.00	0.00	EOT; 0 Deg Azi
7,100.0	90.00	0.00	5,910.6	1,586.8	525.0	1,620.6	0.00	0.00	
7,200.0	90.00	0.00	5,910.6	1,686.8	525.1	1,720.3	0.00	0.00	
7,300.0	90.00	0.00	5,910.6	1,786.8	525.1	1,820.1	0.00	0.00	
7,400.0	90.00	0.00	5,910.6	1,886.8	525.1	1,919.8	0.00	0.00	
7,500.0	90.00	0.00	5,910.6	1,986.8	525.1	2,019.6	0.00	0.00	
7,600.0	90.00	0.00	5,910.6	2,086.8	525.1	2,119.3	0.00	0.00	
7,700.0	90.00	0.00	5,910.6	2,186.8	525.1	2,219.0	0.00	0.00	
7,800.0	90.00	0.00	5,910.6	2,286.8	525.1	2,318.8	0.00	0.00	
7,900.0	90.00	0.00	5,910.6	2,386.8	525.1	2,418.5	0.00	0.00	
8,000.0	90.00	0.00	5,910.7	2,486.8	525.1	2,518.3	0.00	0.00	
8,100.0	90.00	0.00	5,910.7	2,586.8	525.1	2,618.0	0.00	0.00	
8,200.0	90.00	0.00	5,910.7	2,686.8	525.1	2,717.7	0.00	0.00	
8,300.0	90.00	0.00	5,910.7	2,786.8	525.1	2,817.5	0.00	0.00	
8,400.0	90.00	0.00	5,910.7	2,886.8	525.1	2,917.2	0.00	0.00	
8,500.0	90.00	0.00	5,910.7	2,986.8	525.1	3,017.0	0.00	0.00	
8,600.0	90.00	0.00	5,910.7	3,086.8	525.2	3,116.7	0.00	0.00	
8,700.0	90.00	0.00	5,910.7	3,186.8	525.2	3,216.4	0.00	0.00	
8,800.0	90.00	0.00	5,910.7	3,286.8	525.2	3,316.2	0.00	0.00	
8,900.0	90.00	0.00	5,910.7	3,386.8	525.2	3,415.9	0.00	0.00	
9,000.0	90.00	0.00	5,910.7	3,486.8	525.2	3,515.7	0.00	0.00	
9,100.0	90.00	0.00	5,910.7	3,586.8	525.2	3,615.4	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #12G-0112B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4970.3ft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4970.3ft (Original Well Elev)
Site:	S12-T10N-R58W	North Reference:	True
Well:	Razor #12G-0112B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
9,200.0	90.00	0.00	5,910.7	3,686.8	525.2	3,715.1	0.00	0.00	
9,300.0	90.00	0.00	5,910.8	3,786.8	525.2	3,814.9	0.00	0.00	
9,400.0	90.00	0.00	5,910.8	3,886.8	525.2	3,914.6	0.00	0.00	
9,500.0	90.00	0.00	5,910.8	3,986.8	525.2	4,014.3	0.00	0.00	
9,600.0	90.00	0.00	5,910.8	4,086.8	525.2	4,114.1	0.00	0.00	
9,700.0	90.00	0.00	5,910.8	4,186.8	525.2	4,213.8	0.00	0.00	
9,800.0	90.00	0.00	5,910.8	4,286.8	525.2	4,313.6	0.00	0.00	
9,900.0	90.00	0.00	5,910.8	4,386.8	525.3	4,413.3	0.00	0.00	
10,000.0	90.00	0.00	5,910.8	4,486.8	525.3	4,513.0	0.00	0.00	
10,100.0	90.00	0.00	5,910.8	4,586.8	525.3	4,612.8	0.00	0.00	
10,200.0	90.00	0.00	5,910.8	4,686.8	525.3	4,712.5	0.00	0.00	
10,300.0	90.00	0.00	5,910.8	4,786.8	525.3	4,812.3	0.00	0.00	
10,400.0	90.00	0.00	5,910.8	4,886.8	525.3	4,912.0	0.00	0.00	
10,500.0	90.00	0.00	5,910.8	4,986.8	525.3	5,011.7	0.00	0.00	
10,600.0	90.00	0.00	5,910.9	5,086.8	525.3	5,111.5	0.00	0.00	
10,700.0	90.00	0.00	5,910.9	5,186.8	525.3	5,211.2	0.00	0.00	
10,800.0	90.00	0.00	5,910.9	5,286.8	525.3	5,311.0	0.00	0.00	
10,900.0	90.00	0.00	5,910.9	5,386.8	525.3	5,410.7	0.00	0.00	
11,000.0	90.00	0.00	5,910.9	5,486.8	525.3	5,510.4	0.00	0.00	
11,100.0	90.00	0.00	5,910.9	5,586.8	525.3	5,610.2	0.00	0.00	
11,200.0	90.00	0.00	5,910.9	5,686.8	525.4	5,709.9	0.00	0.00	
11,300.0	90.00	0.00	5,910.9	5,786.8	525.4	5,809.7	0.00	0.00	
11,400.0	90.00	0.00	5,910.9	5,886.8	525.4	5,909.4	0.00	0.00	
11,500.0	90.00	0.00	5,910.9	5,986.8	525.4	6,009.1	0.00	0.00	
11,600.0	90.00	0.00	5,910.9	6,086.8	525.4	6,108.9	0.00	0.00	
11,700.0	90.00	0.00	5,910.9	6,186.8	525.4	6,208.6	0.00	0.00	
11,800.0	90.00	0.00	5,910.9	6,286.8	525.4	6,308.4	0.00	0.00	
11,900.0	90.00	0.00	5,910.9	6,386.8	525.4	6,408.1	0.00	0.00	
12,000.0	90.00	0.00	5,911.0	6,486.8	525.4	6,507.8	0.00	0.00	
12,100.0	90.00	0.00	5,911.0	6,586.8	525.4	6,607.6	0.00	0.00	
12,200.0	90.00	0.00	5,911.0	6,686.8	525.4	6,707.3	0.00	0.00	
12,300.0	90.00	0.00	5,911.0	6,786.8	525.4	6,807.1	0.00	0.00	
12,400.0	90.00	0.00	5,911.0	6,886.8	525.4	6,906.8	0.00	0.00	
12,500.0	90.00	0.00	5,911.0	6,986.8	525.5	7,006.5	0.00	0.00	
12,600.0	90.00	0.00	5,911.0	7,086.8	525.5	7,106.3	0.00	0.00	
12,700.0	90.00	0.00	5,911.0	7,186.8	525.5	7,206.0	0.00	0.00	
12,771.8	90.00	0.00	5,911.0	7,258.6	525.5	7,277.6	0.00	0.00	PBHL @ 12,771' MD

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Razor #12-0112B PBHL	0.00	0.00	5,911.0	7,258.6	525.5	1,565,569.31	3,467,478.61	40° 52' 25.04 N	103° 48' 34.62 W
- plan hits target center									
- Point									

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #12G-0112B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4970.3ft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4970.3ft (Original Well Elev)
Site:	S12-T10N-R58W	North Reference:	True
Well:	Razor #12G-0112B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
6,300.0	5,910.6	7" (1,686' FEL-1,734' FNL)	7.000	7.500

Formations				
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip Direction (°)
5,805.9	5,756.0	Top Niobrara		0.00

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,200.0	1,200.0	0.0	0.0	KOP @ 1200' MD
1,400.0	1,399.8	6.3	3.0	EOB; 4 Deg Inc
5,436.0	5,426.0	261.1	122.7	Start 11 Deg Bulid
6,217.8	5,910.6	731.4	343.7	LP @ 6,217' MD
7,056.7	5,910.6	1,543.5	525.0	EOT; 0 Deg Azi
12,771.8	5,911.0	7,258.6	525.5	PBHL @ 12,771' MD

Whiting Petroleum Corporation

Weld County, CO

S12-T10N-R58W

Razor #12G-0112B

HZ

Plan #1

Anticollision Report

06 August, 2013

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #12G-0112B
Project:	Weld County, CO	TVD Reference:	WELL @ 4970.3ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4970.3ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #12G-0112B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

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

Survey Tool Program		Date	8/6/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	12,771.2	Plan #1 (HZ)	ISCWSA MWD	MWD - ISCWSA	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance		Separation Factor	Warning
Offset Well - Wellbore - Design			Between Centres (ft)	Between Ellipses (ft)		
S12-T10N-R58W						
Razor #12G-0109A - HZ - Plan #1	900.0	900.0	98.4	94.6	26.096	CC, ES
Razor #12G-0109A - HZ - Plan #1	12,771.8	12,607.0	994.4	721.0	3.636	SF
Razor #12G-0110B - HZ - Plan #1	1,000.0	1,000.0	66.1	61.9	15.665	CC
Razor #12G-0110B - HZ - Plan #1	1,100.0	1,099.8	66.2	61.6	14.194	ES
Razor #12G-0110B - HZ - Plan #1	12,771.8	12,654.8	659.9	384.1	2.393	SF
Razor #12G-0111A - HZ - Plan #1	1,254.5	1,254.8	32.5	27.2	6.070	CC
Razor #12G-0111A - HZ - Plan #1	1,300.0	1,300.3	32.7	27.1	5.870	ES
Razor #12G-0111A - HZ - Plan #1	12,771.8	12,593.2	344.1	80.0	1.303	Level 3, SF
Razor #12G-1309A - HZ - Plan #1	1,200.0	1,200.0	124.2	119.1	24.240	CC, ES
Razor #12G-1309A - HZ - Plan #1	1,400.0	1,392.8	135.7	129.7	22.893	SF
Razor #12G-1310B - HZ - Plan #1	1,100.0	1,100.0	99.9	95.2	21.361	CC, ES
Razor #12G-1310B - HZ - Plan #1	1,300.0	1,295.0	106.3	100.8	19.367	SF
Razor #12G-1311A - HZ - Plan #1	1,000.0	1,000.0	81.8	77.6	19.369	CC, ES
Razor #12G-1311A - HZ - Plan #1	1,200.0	1,195.7	86.9	81.9	17.223	SF
Razor #12G-1312B - HZ - Plan #1	900.0	900.0	74.9	71.1	19.868	CC, ES
Razor #12G-1312B - HZ - Plan #1	1,200.0	1,194.9	87.0	82.0	17.384	SF

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #12G-0112B
Project:	Weld County, CO	TVD Reference:	WELL @ 4970.3ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4970.3ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #12G-0112B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12G-0109A - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis			
0.0	0.0	0.0	0.0	0.0	0.0	-89.98	0.0	-98.4	98.4					
100.0	100.0	100.0	100.0	0.1	0.1	-89.98	0.0	-98.4	98.4	98.2	0.17	568.417		
200.0	200.0	200.0	200.0	0.3	0.3	-89.98	0.0	-98.4	98.4	97.7	0.62	157.993		
300.0	300.0	300.0	300.0	0.5	0.5	-89.98	0.0	-98.4	98.4	97.3	1.07	91.747		
400.0	400.0	400.0	400.0	0.8	0.8	-89.98	0.0	-98.4	98.4	96.8	1.52	64.643		
500.0	500.0	500.0	500.0	1.0	1.0	-89.98	0.0	-98.4	98.4	96.4	1.97	49.901		
600.0	600.0	600.0	600.0	1.2	1.2	-89.98	0.0	-98.4	98.4	95.9	2.42	40.634		
700.0	700.0	700.0	700.0	1.4	1.4	-89.98	0.0	-98.4	98.4	95.5	2.87	34.270		
800.0	800.0	800.0	800.0	1.7	1.7	-89.98	0.0	-98.4	98.4	95.0	3.32	29.630		
900.0	900.0	900.0	900.0	1.9	1.9	-89.98	0.0	-98.4	98.4	94.6	3.77	26.096 CC, ES		
1,000.0	1,000.0	998.9	998.8	2.1	2.1	-89.05	1.6	-98.9	98.9	94.7	4.21	23.472		
1,100.0	1,100.0	1,097.5	1,097.3	2.3	2.3	-86.32	6.5	-100.6	100.8	96.1	4.66	21.627		
1,200.0	1,200.0	1,197.2	1,196.8	2.6	2.6	-82.76	13.1	-102.8	103.7	98.5	5.11	20.271		
1,300.0	1,300.0	1,297.0	1,296.4	2.8	2.8	-105.40	19.7	-105.0	107.4	101.8	5.56	19.293		
1,400.0	1,399.8	1,396.9	1,396.0	3.0	3.0	-104.76	26.2	-107.3	112.1	106.1	6.02	18.622		
1,500.0	1,499.6	1,496.8	1,495.7	3.2	3.3	-105.07	32.8	-109.5	117.3	110.8	6.48	18.096		
1,600.0	1,599.4	1,596.7	1,595.3	3.5	3.5	-105.36	39.4	-111.7	122.4	115.5	6.95	17.625		
1,700.0	1,699.1	1,696.5	1,694.9	3.7	3.8	-105.63	46.0	-114.0	127.6	120.2	7.42	17.202		
1,800.0	1,798.9	1,796.4	1,794.5	3.9	4.0	-105.88	52.6	-116.2	132.8	124.9	7.90	16.822		
1,900.0	1,898.6	1,896.2	1,894.1	4.2	4.2	-106.11	59.2	-118.5	138.0	129.6	8.37	16.478		
2,000.0	1,998.4	1,996.1	1,993.8	4.4	4.5	-106.32	65.8	-120.7	143.2	134.3	8.86	16.167		
2,100.0	2,098.1	2,096.0	2,093.4	4.7	4.7	-106.51	72.4	-123.0	148.4	139.0	9.34	15.884		
2,200.0	2,197.9	2,195.8	2,193.0	4.9	5.0	-106.70	79.0	-125.2	153.6	143.8	9.83	15.626		
2,300.0	2,297.6	2,295.7	2,292.6	5.1	5.2	-106.87	85.6	-127.4	158.8	148.5	10.32	15.390		
2,400.0	2,397.4	2,395.6	2,392.2	5.4	5.5	-107.03	92.2	-129.7	164.0	153.2	10.81	15.173		
2,500.0	2,497.2	2,495.4	2,491.9	5.6	5.8	-107.18	98.8	-131.9	169.2	157.9	11.30	14.973		
2,600.0	2,596.9	2,595.3	2,591.5	5.9	6.0	-107.32	105.4	-134.2	174.4	162.6	11.79	14.788		
2,700.0	2,696.7	2,695.2	2,691.1	6.1	6.3	-107.45	112.0	-136.4	179.6	167.3	12.28	14.618		
2,800.0	2,796.4	2,795.0	2,790.7	6.4	6.5	-107.58	118.6	-138.6	184.8	172.0	12.78	14.459		
2,900.0	2,896.2	2,894.9	2,890.3	6.6	6.8	-107.70	125.2	-140.9	190.0	176.7	13.27	14.312		
3,000.0	2,995.9	2,994.7	2,990.0	6.9	7.0	-107.81	131.8	-143.1	195.2	181.4	13.77	14.174		
3,100.0	3,095.7	3,094.6	3,089.6	7.1	7.3	-107.92	138.4	-145.4	200.4	186.1	14.27	14.045		
3,200.0	3,195.5	3,194.5	3,189.2	7.4	7.5	-108.02	145.0	-147.6	205.6	190.8	14.76	13.925		
3,300.0	3,295.2	3,294.3	3,288.8	7.6	7.8	-108.12	151.6	-149.8	210.8	195.5	15.26	13.812		
3,400.0	3,395.0	3,394.2	3,388.5	7.9	8.0	-108.21	158.2	-152.1	216.0	200.2	15.76	13.706		
3,500.0	3,494.7	3,494.1	3,488.1	8.1	8.3	-108.29	164.8	-154.3	221.2	204.9	16.26	13.606		
3,600.0	3,594.5	3,593.9	3,587.7	8.4	8.5	-108.38	171.4	-156.6	226.4	209.7	16.76	13.511		
3,700.0	3,694.2	3,693.8	3,687.3	8.6	8.8	-108.46	178.0	-158.8	231.6	214.4	17.26	13.422		
3,800.0	3,794.0	3,793.7	3,786.9	8.9	9.0	-108.53	184.6	-161.0	236.8	219.1	17.76	13.338		
3,900.0	3,893.7	3,893.5	3,886.6	9.2	9.3	-108.61	191.1	-163.3	242.0	223.8	18.26	13.258		
4,000.0	3,993.5	3,993.4	3,986.2	9.4	9.6	-108.68	197.7	-165.5	247.2	228.5	18.76	13.182		
4,100.0	4,093.3	4,093.2	4,085.8	9.7	9.8	-108.74	204.3	-167.8	252.4	233.2	19.26	13.110		
4,200.0	4,193.0	4,193.1	4,185.4	9.9	10.1	-108.81	210.9	-170.0	257.7	237.9	19.76	13.041		
4,300.0	4,292.8	4,293.0	4,285.0	10.2	10.3	-108.87	217.5	-172.2	262.9	242.6	20.26	12.976		
4,400.0	4,392.5	4,392.8	4,384.7	10.4	10.6	-108.93	224.1	-174.5	268.1	247.3	20.76	12.914		
4,500.0	4,492.3	4,492.7	4,484.3	10.7	10.8	-108.99	230.7	-176.7	273.3	252.0	21.26	12.854		
4,600.0	4,592.0	4,592.6	4,583.9	10.9	11.1	-109.04	237.3	-179.0	278.5	256.7	21.76	12.798		
4,700.0	4,691.8	4,692.4	4,683.5	11.2	11.3	-109.09	243.9	-181.2	283.7	261.4	22.26	12.743		
4,800.0	4,791.6	4,792.3	4,783.1	11.4	11.6	-109.14	250.5	-183.4	288.9	266.2	22.76	12.692		
4,900.0	4,891.3	4,892.2	4,882.8	11.7	11.9	-109.19	257.1	-185.7	294.1	270.9	23.27	12.642		
5,000.0	4,991.1	4,992.0	4,982.4	12.0	12.1	-109.24	263.7	-187.9	299.3	275.6	23.77	12.594		
5,100.0	5,090.8	5,091.9	5,082.0	12.2	12.4	-109.29	270.3	-190.2	304.5	280.3	24.27	12.548		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #12G-0112B
Project:	Weld County, CO	TVD Reference:	WELL @ 4970.3ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4970.3ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #12G-0112B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12G-0109A - HZ - Plan #1												Offset Site Error: 0.0 ft	
Survey Program: 0-ISCSWA MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance					Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis		Separation Factor
5,200.0	5,190.6	5,191.8	5,181.6	12.5	12.6	-109.33	276.9	-192.4	309.8	285.0	24.77	12.504	
5,300.0	5,290.3	5,291.6	5,281.2	12.7	12.9	-109.37	283.5	-194.6	315.0	289.7	25.27	12.462	
5,400.0	5,390.1	5,380.6	5,369.8	13.0	13.1	-109.13	291.0	-197.2	321.1	295.3	25.76	12.463	
5,500.0	5,489.4	5,458.1	5,445.3	13.3	13.4	-106.73	307.4	-202.8	334.2	308.0	26.26	12.726	
5,600.0	5,585.1	5,532.4	5,514.4	13.7	13.8	-103.35	333.0	-211.4	358.9	332.1	26.89	13.348	
5,700.0	5,673.7	5,600.0	5,573.5	14.2	14.2	-99.53	364.1	-222.0	394.0	366.3	27.70	14.221	
5,800.0	5,751.8	5,668.7	5,628.6	15.0	14.7	-95.35	402.9	-235.2	437.4	408.7	28.79	15.195	
5,900.0	5,816.6	5,730.6	5,673.2	15.9	15.2	-90.74	443.3	-248.9	487.6	457.5	30.06	16.219	
6,000.0	5,865.7	5,788.5	5,710.2	17.0	15.8	-85.78	485.6	-263.3	542.6	511.2	31.45	17.254	
6,100.0	5,897.3	5,843.2	5,740.3	18.3	16.4	-80.62	528.8	-277.9	601.0	568.1	32.84	18.302	
6,200.0	5,910.2	5,900.0	5,766.4	19.7	17.1	-75.70	576.5	-294.2	661.2	627.0	34.22	19.321	
6,300.0	5,910.6	5,950.0	5,784.6	21.2	17.8	-77.35	620.6	-309.1	722.0	685.6	36.39	19.840	
6,400.0	5,910.6	6,008.2	5,800.1	22.5	18.6	-79.91	673.6	-327.2	781.9	743.2	38.75	20.180	
6,500.0	5,910.6	6,073.7	5,810.0	24.0	19.6	-81.64	735.0	-348.0	839.9	798.7	41.20	20.389	
6,600.0	5,910.6	6,172.2	5,812.1	25.5	21.0	-82.65	828.4	-378.9	894.8	850.7	44.05	20.310	
6,700.0	5,910.6	6,343.0	5,812.1	27.0	23.6	-83.48	993.6	-422.1	939.7	891.7	47.94	19.601	
6,800.0	5,910.6	6,531.9	5,812.1	28.5	26.5	-84.00	1,179.9	-452.4	971.2	918.8	52.38	18.540	
6,900.0	5,910.6	6,733.3	5,812.1	30.0	29.6	-84.25	1,380.9	-464.2	987.8	930.5	57.22	17.263	
7,000.0	5,910.6	6,839.3	5,812.1	31.6	31.4	-84.31	1,486.9	-464.2	993.3	932.8	60.56	16.402	
7,100.0	5,910.6	6,939.3	5,812.1	33.1	33.0	-84.31	1,586.9	-464.2	994.2	930.4	63.81	15.580	
7,200.0	5,910.6	7,039.3	5,812.1	34.7	34.7	-84.31	1,686.9	-464.2	994.2	927.0	67.15	14.805	
7,300.0	5,910.6	7,139.3	5,812.1	36.3	36.4	-84.31	1,786.9	-464.2	994.2	923.6	70.54	14.094	
7,400.0	5,910.6	7,239.3	5,812.1	38.0	38.1	-84.31	1,886.9	-464.2	994.2	920.2	73.97	13.440	
7,500.0	5,910.6	7,339.3	5,812.1	39.6	39.9	-84.31	1,986.9	-464.2	994.2	916.8	77.44	12.838	
7,600.0	5,910.6	7,439.3	5,812.1	41.3	41.6	-84.31	2,086.9	-464.2	994.2	913.3	80.95	12.282	
7,700.0	5,910.6	7,539.3	5,812.1	43.0	43.4	-84.31	2,186.9	-464.2	994.2	909.7	84.48	11.769	
7,800.0	5,910.6	7,639.3	5,812.1	44.7	45.2	-84.31	2,286.9	-464.2	994.2	906.2	88.03	11.294	
7,900.0	5,910.6	7,739.3	5,812.1	46.5	47.0	-84.31	2,386.9	-464.2	994.2	902.6	91.61	10.853	
8,000.0	5,910.7	7,839.3	5,812.1	48.2	48.8	-84.31	2,486.9	-464.2	994.2	899.0	95.21	10.443	
8,100.0	5,910.7	7,939.3	5,812.0	50.0	50.6	-84.31	2,586.9	-464.2	994.2	895.4	98.82	10.061	
8,200.0	5,910.7	8,039.3	5,812.0	51.8	52.5	-84.31	2,686.9	-464.2	994.2	891.8	102.45	9.705	
8,300.0	5,910.7	8,139.3	5,812.0	53.5	54.3	-84.31	2,786.9	-464.2	994.2	888.1	106.09	9.371	
8,400.0	5,910.7	8,239.3	5,812.0	55.3	56.1	-84.31	2,886.9	-464.2	994.2	884.5	109.75	9.059	
8,500.0	5,910.7	8,339.3	5,812.0	57.1	58.0	-84.31	2,986.9	-464.2	994.2	880.8	113.42	8.766	
8,600.0	5,910.7	8,439.3	5,812.0	58.9	59.8	-84.31	3,086.9	-464.2	994.2	877.2	117.09	8.491	
8,700.0	5,910.7	8,539.3	5,812.0	60.8	61.7	-84.30	3,186.9	-464.2	994.2	873.5	120.78	8.232	
8,800.0	5,910.7	8,639.3	5,812.0	62.6	63.5	-84.30	3,286.9	-464.2	994.3	869.8	124.47	7.988	
8,900.0	5,910.7	8,739.3	5,812.0	64.4	65.4	-84.30	3,386.9	-464.2	994.3	866.1	128.18	7.757	
9,000.0	5,910.7	8,839.3	5,812.0	66.2	67.2	-84.30	3,486.9	-464.2	994.3	862.4	131.89	7.539	
9,100.0	5,910.7	8,939.3	5,812.0	68.1	69.1	-84.30	3,586.9	-464.2	994.3	858.7	135.60	7.332	
9,200.0	5,910.7	9,039.3	5,812.0	69.9	71.0	-84.30	3,686.9	-464.2	994.3	854.9	139.33	7.136	
9,300.0	5,910.8	9,139.3	5,812.0	71.8	72.8	-84.30	3,786.9	-464.2	994.3	851.2	143.05	6.950	
9,400.0	5,910.8	9,239.3	5,812.0	73.6	74.7	-84.30	3,886.9	-464.1	994.3	847.5	146.79	6.774	
9,500.0	5,910.8	9,339.3	5,812.0	75.5	76.6	-84.30	3,986.9	-464.1	994.3	843.8	150.53	6.605	
9,600.0	5,910.8	9,439.3	5,812.0	77.3	78.5	-84.30	4,086.9	-464.1	994.3	840.0	154.27	6.445	
9,700.0	5,910.8	9,539.3	5,812.0	79.2	80.4	-84.30	4,186.9	-464.1	994.3	836.3	158.01	6.292	
9,800.0	5,910.8	9,639.3	5,812.0	81.1	82.2	-84.30	4,286.9	-464.1	994.3	832.5	161.76	6.147	
9,900.0	5,910.8	9,739.3	5,812.0	82.9	84.1	-84.30	4,386.9	-464.1	994.3	828.8	165.52	6.007	
10,000.0	5,910.8	9,839.3	5,812.0	84.8	86.0	-84.30	4,486.9	-464.1	994.3	825.0	169.27	5.874	
10,100.0	5,910.8	9,939.3	5,812.0	86.7	87.9	-84.30	4,586.9	-464.1	994.3	821.3	173.03	5.746	
10,200.0	5,910.8	10,039.3	5,812.0	88.5	89.8	-84.30	4,686.9	-464.1	994.3	817.5	176.80	5.624	
10,300.0	5,910.8	10,139.3	5,812.0	90.4	91.7	-84.30	4,786.9	-464.1	994.3	813.8	180.56	5.507	

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 #12G-0112B
Project:	Weld County, CO	TVD Reference:	WELL @ 4970.3ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4970.3ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #12G-0112B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12G-0109A - HZ - Plan #1												Offset Site Error: 0.0 ft	
Survey Program: 0-ISCWSA MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	
10,400.0	5,910.8	10,239.3	5,812.0	92.3	93.6	-84.30	4,886.9	-464.1	994.3	810.0	184.33	5.394	
10,500.0	5,910.8	10,339.3	5,812.0	94.2	95.5	-84.30	4,986.9	-464.1	994.3	806.2	188.10	5.286	
10,600.0	5,910.9	10,439.3	5,812.0	96.1	97.4	-84.30	5,086.9	-464.1	994.3	802.5	191.87	5.182	
10,700.0	5,910.9	10,539.3	5,812.0	97.9	99.2	-84.30	5,186.9	-464.1	994.3	798.7	195.65	5.082	
10,800.0	5,910.9	10,639.3	5,812.0	99.8	101.1	-84.30	5,286.9	-464.1	994.3	794.9	199.42	4.986	
10,900.0	5,910.9	10,739.3	5,812.0	101.7	103.0	-84.29	5,386.9	-464.1	994.3	791.1	203.20	4.893	
11,000.0	5,910.9	10,839.3	5,812.0	103.6	104.9	-84.29	5,486.9	-464.1	994.3	787.4	206.98	4.804	
11,100.0	5,910.9	10,939.3	5,812.0	105.5	106.8	-84.29	5,586.9	-464.1	994.4	783.6	210.76	4.718	
11,200.0	5,910.9	11,039.3	5,812.0	107.4	108.7	-84.29	5,686.9	-464.1	994.4	779.8	214.55	4.635	
11,300.0	5,910.9	11,139.3	5,812.0	109.3	110.6	-84.29	5,786.9	-464.1	994.4	776.0	218.33	4.554	
11,400.0	5,910.9	11,239.3	5,812.0	111.2	112.5	-84.29	5,886.9	-464.1	994.4	772.2	222.12	4.477	
11,500.0	5,910.9	11,339.3	5,812.0	113.0	114.4	-84.29	5,986.9	-464.1	994.4	768.5	225.91	4.402	
11,600.0	5,910.9	11,439.3	5,812.0	114.9	116.3	-84.29	6,086.9	-464.1	994.4	764.7	229.70	4.329	
11,700.0	5,910.9	11,539.3	5,812.0	116.8	118.2	-84.29	6,186.9	-464.1	994.4	760.9	233.49	4.259	
11,800.0	5,910.9	11,639.3	5,812.0	118.7	120.1	-84.29	6,286.9	-464.1	994.4	757.1	237.28	4.191	
11,900.0	5,910.9	11,739.3	5,812.0	120.6	122.1	-84.29	6,386.9	-464.0	994.4	753.3	241.07	4.125	
12,000.0	5,911.0	11,839.3	5,812.0	122.5	124.0	-84.29	6,486.9	-464.0	994.4	749.5	244.86	4.061	
12,100.0	5,911.0	11,939.3	5,812.0	124.4	125.9	-84.29	6,586.9	-464.0	994.4	745.7	248.66	3.999	
12,200.0	5,911.0	12,039.3	5,812.0	126.3	127.8	-84.29	6,686.9	-464.0	994.4	741.9	252.45	3.939	
12,300.0	5,911.0	12,139.3	5,812.0	128.2	129.7	-84.29	6,786.9	-464.0	994.4	738.2	256.25	3.881	
12,400.0	5,911.0	12,239.3	5,812.0	130.1	131.6	-84.29	6,886.9	-464.0	994.4	734.4	260.05	3.824	
12,500.0	5,911.0	12,339.3	5,812.0	132.0	133.5	-84.29	6,986.9	-464.0	994.4	730.6	263.85	3.769	
12,600.0	5,911.0	12,439.3	5,812.0	133.9	135.4	-84.29	7,086.9	-464.0	994.4	726.8	267.65	3.715	
12,700.0	5,911.0	12,539.3	5,812.0	135.8	137.2	-84.29	7,186.9	-464.0	994.4	723.1	271.31	3.665	
12,740.4	5,911.0	12,579.7	5,812.0	136.4	137.8	-84.29	7,227.3	-464.0	994.4	721.9	272.57	3.648	
12,771.8	5,911.0	12,607.0	5,812.0	136.9	138.2	-84.29	7,254.6	-464.0	994.4	721.0	273.48	3.636 SF	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #12G-0112B
Project:	Weld County, CO	TVD Reference:	WELL @ 4970.3ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4970.3ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #12G-0112B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12G-0110B - HZ - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-89.98	0.0	-66.1	66.1					
100.0	100.0	100.0	100.0	0.1	0.1	-89.98	0.0	-66.1	66.1	65.9	0.17	381.905		
200.0	200.0	200.0	200.0	0.3	0.3	-89.98	0.0	-66.1	66.1	65.5	0.62	106.152		
300.0	300.0	300.0	300.0	0.5	0.5	-89.98	0.0	-66.1	66.1	65.0	1.07	61.643		
400.0	400.0	400.0	400.0	0.8	0.8	-89.98	0.0	-66.1	66.1	64.6	1.52	43.432		
500.0	500.0	500.0	500.0	1.0	1.0	-89.98	0.0	-66.1	66.1	64.1	1.97	33.527		
600.0	600.0	600.0	600.0	1.2	1.2	-89.98	0.0	-66.1	66.1	63.7	2.42	27.301		
700.0	700.0	700.0	700.0	1.4	1.4	-89.98	0.0	-66.1	66.1	63.2	2.87	23.025		
800.0	800.0	800.0	800.0	1.7	1.7	-89.98	0.0	-66.1	66.1	62.8	3.32	19.907		
900.0	900.0	900.0	900.0	1.9	1.9	-89.98	0.0	-66.1	66.1	62.3	3.77	17.533		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-89.98	0.0	-66.1	66.1	61.9	4.22	15.665 CC		
1,100.0	1,100.0	1,099.8	1,099.8	2.3	2.3	-88.48	1.8	-66.2	66.2	61.6	4.67	14.194 ES		
1,200.0	1,200.0	1,199.3	1,199.2	2.6	2.6	-84.06	6.9	-66.6	67.0	61.9	5.12	13.095		
1,300.0	1,300.0	1,299.2	1,298.8	2.8	2.8	-104.86	13.9	-67.2	69.0	63.4	5.56	12.401		
1,400.0	1,399.8	1,399.1	1,398.4	3.0	3.0	-103.46	20.8	-67.7	72.1	66.1	6.02	11.988		
1,500.0	1,499.6	1,499.0	1,498.1	3.2	3.3	-103.52	27.8	-68.2	75.7	69.2	6.48	11.685		
1,600.0	1,599.4	1,599.0	1,597.8	3.5	3.5	-103.58	34.7	-68.8	79.3	72.3	6.95	11.411		
1,700.0	1,699.1	1,698.9	1,697.5	3.7	3.7	-103.63	41.7	-69.3	82.8	75.4	7.42	11.164		
1,800.0	1,798.9	1,798.8	1,797.2	3.9	4.0	-103.67	48.6	-69.8	86.4	78.5	7.90	10.940		
1,900.0	1,898.6	1,898.8	1,896.9	4.2	4.2	-103.71	55.6	-70.4	89.9	81.6	8.38	10.736		
2,000.0	1,998.4	1,998.7	1,996.6	4.4	4.5	-103.75	62.5	-70.9	93.5	84.6	8.86	10.551		
2,100.0	2,098.1	2,098.7	2,096.3	4.7	4.7	-103.79	69.5	-71.4	97.1	87.7	9.35	10.383		
2,200.0	2,197.9	2,198.6	2,196.0	4.9	5.0	-103.82	76.4	-72.0	100.6	90.8	9.84	10.228		
2,300.0	2,297.6	2,298.5	2,295.7	5.1	5.2	-103.86	83.4	-72.5	104.2	93.8	10.33	10.087		
2,400.0	2,397.4	2,398.5	2,395.4	5.4	5.5	-103.89	90.3	-73.0	107.7	96.9	10.82	9.956		
2,500.0	2,497.2	2,498.4	2,495.1	5.6	5.7	-103.91	97.3	-73.6	111.3	100.0	11.31	9.836		
2,600.0	2,596.9	2,598.3	2,594.8	5.9	6.0	-103.94	104.2	-74.1	114.9	103.0	11.81	9.725		
2,700.0	2,696.7	2,698.3	2,694.5	6.1	6.2	-103.96	111.2	-74.6	118.4	106.1	12.31	9.622		
2,800.0	2,796.4	2,798.2	2,794.2	6.4	6.5	-103.99	118.1	-75.2	122.0	109.2	12.80	9.526		
2,900.0	2,896.2	2,898.1	2,893.8	6.6	6.7	-104.01	125.1	-75.7	125.5	112.2	13.30	9.437		
3,000.0	2,995.9	2,998.1	2,993.5	6.9	7.0	-104.03	132.0	-76.2	129.1	115.3	13.80	9.353		
3,100.0	3,095.7	3,098.0	3,093.2	7.1	7.2	-104.05	139.0	-76.8	132.7	118.3	14.30	9.275		
3,200.0	3,195.5	3,198.0	3,192.9	7.4	7.5	-104.07	145.9	-77.3	136.2	121.4	14.80	9.202		
3,300.0	3,295.2	3,297.9	3,292.6	7.6	7.7	-104.08	152.9	-77.8	139.8	124.5	15.30	9.133		
3,400.0	3,395.0	3,397.8	3,392.3	7.9	8.0	-104.10	159.8	-78.4	143.3	127.5	15.80	9.069		
3,500.0	3,494.7	3,497.8	3,492.0	8.1	8.2	-104.12	166.8	-78.9	146.9	130.6	16.31	9.008		
3,600.0	3,594.5	3,597.7	3,591.7	8.4	8.5	-104.13	173.7	-79.5	150.4	133.6	16.81	8.950		
3,700.0	3,694.2	3,697.6	3,691.4	8.6	8.7	-104.15	180.7	-80.0	154.0	136.7	17.31	8.896		
3,800.0	3,794.0	3,797.6	3,791.1	8.9	9.0	-104.16	187.6	-80.5	157.6	139.8	17.82	8.845		
3,900.0	3,893.7	3,897.5	3,890.8	9.2	9.3	-104.17	194.6	-81.1	161.1	142.8	18.32	8.796		
4,000.0	3,993.5	3,997.4	3,990.5	9.4	9.5	-104.18	201.5	-81.6	164.7	145.9	18.82	8.749		
4,100.0	4,093.3	4,097.4	4,090.2	9.7	9.8	-104.20	208.5	-82.1	168.2	148.9	19.33	8.705		
4,200.0	4,193.0	4,197.3	4,189.9	9.9	10.0	-104.21	215.4	-82.7	171.8	152.0	19.83	8.664		
4,300.0	4,292.8	4,297.3	4,289.5	10.2	10.3	-104.22	222.4	-83.2	175.4	155.0	20.34	8.624		
4,400.0	4,392.5	4,397.2	4,389.2	10.4	10.5	-104.23	229.3	-83.7	178.9	158.1	20.84	8.586		
4,500.0	4,492.3	4,497.1	4,488.9	10.7	10.8	-104.24	236.3	-84.3	182.5	161.1	21.34	8.549		
4,600.0	4,592.0	4,597.1	4,588.6	10.9	11.0	-104.25	243.2	-84.8	186.0	164.2	21.85	8.515		
4,700.0	4,691.8	4,697.0	4,688.3	11.2	11.3	-104.26	250.2	-85.3	189.6	167.2	22.36	8.481		
4,800.0	4,791.6	4,796.9	4,788.0	11.4	11.5	-104.27	257.1	-85.9	193.2	170.3	22.86	8.449		
4,900.0	4,891.3	4,896.9	4,887.7	11.7	11.8	-104.28	264.1	-86.4	196.7	173.4	23.37	8.419		
5,000.0	4,991.1	4,996.8	4,987.4	12.0	12.1	-104.29	271.0	-86.9	200.3	176.4	23.87	8.390		
5,100.0	5,090.8	5,096.7	5,087.1	12.2	12.3	-104.29	278.0	-87.5	203.8	179.5	24.38	8.362		

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 #12G-0112B
Project:	Weld County, CO	TVD Reference:	WELL @ 4970.3ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4970.3ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #12G-0112B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12G-0110B - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
5,200.0	5,190.6	5,196.7	5,186.8	12.5	12.6	-104.30	285.0	-88.0	207.4	182.5	24.88	8.335		
5,300.0	5,290.3	5,296.6	5,286.5	12.7	12.8	-104.31	291.9	-88.5	211.0	185.6	25.39	8.309		
5,400.0	5,390.1	5,396.6	5,386.2	13.0	13.1	-104.32	298.9	-89.1	214.5	188.6	25.90	8.284		
5,500.0	5,489.4	5,490.6	5,479.7	13.3	13.3	-104.09	308.1	-89.8	219.8	193.4	26.41	8.323		
5,600.0	5,585.1	5,579.8	5,565.8	13.7	13.7	-103.30	330.8	-91.5	233.6	206.5	27.09	8.621		
5,700.0	5,673.7	5,667.5	5,645.5	14.2	14.2	-101.97	367.1	-94.3	255.8	227.8	28.00	9.134		
5,800.0	5,751.8	5,753.2	5,716.4	15.0	14.7	-100.10	414.9	-98.0	285.5	256.3	29.19	9.781		
5,900.0	5,816.6	5,837.0	5,777.2	15.9	15.4	-97.74	472.2	-102.4	321.8	291.1	30.72	10.475		
6,000.0	5,865.7	5,919.2	5,827.2	17.0	16.3	-94.96	537.2	-107.4	363.2	330.6	32.55	11.157		
6,100.0	5,897.3	6,000.0	5,865.8	18.3	17.2	-91.86	607.9	-112.9	408.5	373.8	34.64	11.791		
6,200.0	5,910.2	6,082.0	5,893.2	19.7	18.2	-88.64	684.9	-118.8	456.2	419.3	36.93	12.353		
6,300.0	5,910.6	6,166.9	5,908.5	21.2	19.4	-89.73	768.1	-125.2	503.7	464.2	39.48	12.758		
6,400.0	5,910.6	6,272.2	5,911.1	22.5	20.9	-90.06	873.0	-132.5	546.4	504.0	42.34	12.904		
6,500.0	5,910.6	6,394.0	5,911.1	24.0	22.6	-90.05	994.7	-134.8	579.2	533.7	45.51	12.727		
6,600.0	5,910.6	6,490.4	5,911.1	25.5	24.1	-90.05	1,091.2	-134.8	605.4	556.9	48.57	12.465		
6,700.0	5,910.6	6,588.2	5,911.1	27.0	25.7	-90.05	1,188.9	-134.8	626.6	574.9	51.70	12.120		
6,800.0	5,910.6	6,686.9	5,911.1	28.5	27.3	-90.04	1,287.6	-134.8	642.6	587.7	54.85	11.715		
6,900.0	5,910.6	6,786.3	5,911.1	30.0	29.0	-90.04	1,387.0	-134.8	653.4	595.4	57.98	11.268		
7,000.0	5,910.6	6,886.1	5,911.1	31.6	30.7	-90.04	1,486.9	-134.8	659.0	597.9	61.07	10.790		
7,100.0	5,910.6	6,986.1	5,911.1	33.1	32.5	-90.04	1,586.9	-134.8	659.8	595.6	64.24	10.270		
7,200.0	5,910.6	7,086.1	5,911.1	34.7	34.2	-90.04	1,686.9	-134.7	659.8	592.2	67.64	9.754		
7,300.0	5,910.6	7,186.1	5,911.1	36.3	36.0	-90.04	1,786.9	-134.7	659.8	588.7	71.09	9.282		
7,400.0	5,910.6	7,286.1	5,911.1	38.0	37.8	-90.04	1,886.9	-134.7	659.8	585.2	74.57	8.848		
7,500.0	5,910.6	7,386.1	5,911.1	39.6	39.6	-90.04	1,986.9	-134.7	659.8	581.7	78.09	8.450		
7,600.0	5,910.6	7,486.1	5,911.1	41.3	41.4	-90.04	2,086.9	-134.7	659.8	578.2	81.63	8.082		
7,700.0	5,910.6	7,586.1	5,911.1	43.0	43.2	-90.04	2,186.9	-134.7	659.8	574.6	85.21	7.744		
7,800.0	5,910.6	7,686.1	5,911.1	44.7	45.1	-90.04	2,286.9	-134.7	659.8	571.0	88.80	7.430		
7,900.0	5,910.6	7,786.1	5,911.1	46.5	46.9	-90.04	2,386.9	-134.7	659.8	567.4	92.42	7.140		
8,000.0	5,910.7	7,886.1	5,911.1	48.2	48.8	-90.03	2,486.9	-134.7	659.8	563.8	96.05	6.870		
8,100.0	5,910.7	7,986.1	5,911.1	50.0	50.6	-90.03	2,586.9	-134.7	659.8	560.1	99.70	6.618		
8,200.0	5,910.7	8,086.1	5,911.0	51.8	52.5	-90.03	2,686.9	-134.7	659.8	556.5	103.36	6.384		
8,300.0	5,910.7	8,186.1	5,911.0	53.5	54.3	-90.03	2,786.9	-134.7	659.8	552.8	107.04	6.164		
8,400.0	5,910.7	8,286.1	5,911.0	55.3	56.2	-90.03	2,886.9	-134.7	659.8	549.1	110.72	5.959		
8,500.0	5,910.7	8,386.1	5,911.0	57.1	58.1	-90.03	2,986.9	-134.7	659.8	545.4	114.42	5.767		
8,600.0	5,910.7	8,486.1	5,911.0	58.9	59.9	-90.03	3,086.9	-134.7	659.8	541.7	118.13	5.586		
8,700.0	5,910.7	8,586.1	5,911.0	60.8	61.8	-90.03	3,186.9	-134.7	659.8	538.0	121.84	5.415		
8,800.0	5,910.7	8,686.1	5,911.0	62.6	63.7	-90.03	3,286.9	-134.7	659.8	534.3	125.56	5.255		
8,900.0	5,910.7	8,786.1	5,911.0	64.4	65.6	-90.03	3,386.9	-134.7	659.8	530.5	129.29	5.103		
9,000.0	5,910.7	8,886.1	5,911.0	66.2	67.5	-90.03	3,486.9	-134.6	659.8	526.8	133.03	4.960		
9,100.0	5,910.7	8,986.1	5,911.0	68.1	69.3	-90.03	3,586.9	-134.6	659.8	523.1	136.77	4.824		
9,200.0	5,910.7	9,086.1	5,911.0	69.9	71.2	-90.03	3,686.9	-134.6	659.8	519.3	140.52	4.696		
9,300.0	5,910.8	9,186.1	5,911.0	71.8	73.1	-90.02	3,786.9	-134.6	659.8	515.6	144.27	4.574		
9,400.0	5,910.8	9,286.1	5,911.0	73.6	75.0	-90.02	3,886.9	-134.6	659.8	511.8	148.03	4.457		
9,500.0	5,910.8	9,386.1	5,911.0	75.5	76.9	-90.02	3,986.9	-134.6	659.8	508.1	151.79	4.347		
9,600.0	5,910.8	9,486.1	5,911.0	77.3	78.8	-90.02	4,086.9	-134.6	659.8	504.3	155.56	4.242		
9,700.0	5,910.8	9,586.1	5,911.0	79.2	80.7	-90.02	4,186.9	-134.6	659.9	500.5	159.33	4.141		
9,800.0	5,910.8	9,686.1	5,911.0	81.1	82.6	-90.02	4,286.9	-134.6	659.9	496.8	163.10	4.046		
9,900.0	5,910.8	9,786.1	5,911.0	82.9	84.5	-90.02	4,386.9	-134.6	659.9	493.0	166.88	3.954		
10,000.0	5,910.8	9,886.1	5,911.0	84.8	86.4	-90.02	4,486.9	-134.6	659.9	489.2	170.66	3.867		
10,100.0	5,910.8	9,986.1	5,911.0	86.7	88.3	-90.02	4,586.9	-134.6	659.9	485.4	174.44	3.783		
10,200.0	5,910.8	10,086.1	5,911.0	88.5	90.2	-90.02	4,686.9	-134.6	659.9	481.6	178.22	3.702		
10,300.0	5,910.8	10,186.1	5,911.0	90.4	92.1	-90.02	4,786.9	-134.6	659.9	477.9	182.01	3.625		

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 #12G-0112B
Project:	Weld County, CO	TVD Reference:	WELL @ 4970.3ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4970.3ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #12G-0112B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12G-0110B - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Separation Factor		
10,400.0	5,910.8	10,286.1	5,911.0	92.3	94.0	-90.02	4,886.9	-134.6	659.9	474.1	185.80	3.551		
10,500.0	5,910.8	10,386.1	5,911.0	94.2	95.9	-90.02	4,986.9	-134.6	659.9	470.3	189.59	3.480		
10,600.0	5,910.9	10,486.1	5,911.0	96.1	97.8	-90.02	5,086.9	-134.6	659.9	466.5	193.38	3.412		
10,700.0	5,910.9	10,586.1	5,911.0	97.9	99.7	-90.01	5,186.9	-134.6	659.9	462.7	197.18	3.347		
10,800.0	5,910.9	10,686.1	5,911.0	99.8	101.6	-90.01	5,286.9	-134.5	659.9	458.9	200.98	3.283		
10,900.0	5,910.9	10,786.1	5,911.0	101.7	103.5	-90.01	5,386.9	-134.5	659.9	455.1	204.78	3.222		
11,000.0	5,910.9	10,886.1	5,911.0	103.6	105.4	-90.01	5,486.9	-134.5	659.9	451.3	208.58	3.164		
11,100.0	5,910.9	10,986.1	5,911.0	105.5	107.3	-90.01	5,586.9	-134.5	659.9	447.5	212.38	3.107		
11,200.0	5,910.9	11,086.1	5,911.0	107.4	109.2	-90.01	5,686.9	-134.5	659.9	443.7	216.18	3.052		
11,300.0	5,910.9	11,186.1	5,911.0	109.3	111.1	-90.01	5,786.9	-134.5	659.9	439.9	219.99	3.000		
11,400.0	5,910.9	11,286.1	5,911.0	111.2	113.0	-90.01	5,886.9	-134.5	659.9	436.1	223.79	2.949		
11,500.0	5,910.9	11,386.1	5,911.0	113.0	114.9	-90.01	5,986.9	-134.5	659.9	432.3	227.60	2.899		
11,600.0	5,910.9	11,486.1	5,911.0	114.9	116.9	-90.01	6,086.9	-134.5	659.9	428.5	231.41	2.852		
11,700.0	5,910.9	11,586.1	5,911.0	116.8	118.8	-90.01	6,186.9	-134.5	659.9	424.7	235.22	2.805		
11,800.0	5,910.9	11,686.1	5,911.0	118.7	120.7	-90.01	6,286.9	-134.5	659.9	420.9	239.03	2.761		
11,900.0	5,910.9	11,786.1	5,911.0	120.6	122.6	-90.01	6,386.9	-134.5	659.9	417.1	242.84	2.717		
12,000.0	5,911.0	11,886.1	5,911.0	122.5	124.5	-90.01	6,486.9	-134.5	659.9	413.2	246.66	2.675		
12,100.0	5,911.0	11,986.1	5,911.0	124.4	126.4	-90.00	6,586.9	-134.5	659.9	409.4	250.47	2.635		
12,200.0	5,911.0	12,086.1	5,911.0	126.3	128.3	-90.00	6,686.9	-134.5	659.9	405.6	254.29	2.595		
12,300.0	5,911.0	12,186.1	5,911.0	128.2	130.2	-90.00	6,786.9	-134.5	659.9	401.8	258.10	2.557		
12,400.0	5,911.0	12,286.1	5,911.0	130.1	132.1	-90.00	6,886.9	-134.5	659.9	398.0	261.92	2.520		
12,500.0	5,911.0	12,386.1	5,911.0	132.0	134.0	-90.00	6,986.9	-134.5	659.9	394.2	265.74	2.483		
12,600.0	5,911.0	12,486.1	5,911.0	133.9	136.0	-90.00	7,086.9	-134.5	659.9	390.4	269.55	2.448		
12,700.0	5,911.0	12,586.1	5,911.0	135.8	137.9	-90.00	7,186.9	-134.4	659.9	386.5	273.37	2.414		
12,741.1	5,911.0	12,627.2	5,911.0	136.5	138.7	-90.00	7,227.9	-134.4	659.9	385.1	274.80	2.401		
12,771.8	5,911.0	12,654.8	5,911.0	136.9	139.2	-90.00	7,255.6	-134.4	659.9	384.1	275.81	2.393 SF		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #12G-0112B
Project:	Weld County, CO	TVD Reference:	WELL @ 4970.3ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4970.3ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #12G-0112B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12G-0111A - HZ - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	0.0	-33.0	33.0					
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	0.0	-33.0	33.0	32.9	0.17	190.953		
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-33.0	33.0	32.4	0.62	53.076		
300.0	300.0	300.0	300.0	0.5	0.5	-89.99	0.0	-33.0	33.0	32.0	1.07	30.821		
400.0	400.0	400.0	400.0	0.8	0.8	-89.99	0.0	-33.0	33.0	31.5	1.52	21.716		
500.0	500.0	500.0	500.0	1.0	1.0	-89.99	0.0	-33.0	33.0	31.1	1.97	16.764		
600.0	600.0	600.0	600.0	1.2	1.2	-89.99	0.0	-33.0	33.0	30.6	2.42	13.651		
700.0	700.0	700.0	700.0	1.4	1.4	-89.99	0.0	-33.0	33.0	30.2	2.87	11.513		
800.0	800.0	800.0	800.0	1.7	1.7	-89.99	0.0	-33.0	33.0	29.7	3.32	9.954		
900.0	900.0	900.0	900.0	1.9	1.9	-89.99	0.0	-33.0	33.0	29.3	3.77	8.767		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-89.99	0.0	-33.0	33.0	28.8	4.22	7.832		
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	-89.99	0.0	-33.0	33.0	28.4	4.67	7.078		
1,200.0	1,200.0	1,200.2	1,200.2	2.6	2.6	-86.99	1.7	-32.7	32.7	27.6	5.12	6.389		
1,254.5	1,254.5	1,254.8	1,254.7	2.7	2.7	-108.79	4.1	-32.1	32.5	27.2	5.36	6.070 CC		
1,300.0	1,300.0	1,300.3	1,300.1	2.8	2.8	-105.92	6.8	-31.5	32.7	27.1	5.56	5.870 ES		
1,400.0	1,399.8	1,400.3	1,399.9	3.0	3.0	-102.61	13.6	-29.9	33.7	27.7	6.01	5.606		
1,500.0	1,499.6	1,500.2	1,499.6	3.2	3.2	-102.34	20.4	-28.4	35.2	28.7	6.47	5.439		
1,600.0	1,599.4	1,600.2	1,599.3	3.5	3.5	-102.08	27.2	-26.8	36.7	29.7	6.93	5.288		
1,700.0	1,699.1	1,700.2	1,699.1	3.7	3.7	-101.85	34.0	-25.3	38.1	30.7	7.40	5.152		
1,800.0	1,798.9	1,800.2	1,798.8	3.9	4.0	-101.64	40.8	-23.7	39.6	31.8	7.88	5.029		
1,900.0	1,898.6	1,900.2	1,898.6	4.2	4.2	-101.44	47.6	-22.1	41.1	32.8	8.36	4.918		
2,000.0	1,998.4	2,000.2	1,998.3	4.4	4.4	-101.25	54.4	-20.6	42.6	33.8	8.85	4.817		
2,100.0	2,098.1	2,100.2	2,098.1	4.7	4.7	-101.08	61.2	-19.0	44.1	34.8	9.33	4.725		
2,200.0	2,197.9	2,200.2	2,197.8	4.9	4.9	-100.91	68.0	-17.5	45.6	35.8	9.82	4.641		
2,300.0	2,297.6	2,300.2	2,297.6	5.1	5.2	-100.76	74.8	-15.9	47.1	36.8	10.31	4.564		
2,400.0	2,397.4	2,400.1	2,397.3	5.4	5.4	-100.62	81.6	-14.4	48.6	37.7	10.81	4.493		
2,500.0	2,497.2	2,500.1	2,497.1	5.6	5.7	-100.49	88.4	-12.8	50.0	38.7	11.30	4.427		
2,600.0	2,596.9	2,600.1	2,596.8	5.9	5.9	-100.36	95.2	-11.3	51.5	39.7	11.80	4.367		
2,700.0	2,696.7	2,700.1	2,696.5	6.1	6.2	-100.24	102.0	-9.7	53.0	40.7	12.30	4.311		
2,800.0	2,796.4	2,800.1	2,796.3	6.4	6.4	-100.13	108.8	-8.1	54.5	41.7	12.80	4.259		
2,900.0	2,896.2	2,900.1	2,896.0	6.6	6.7	-100.02	115.6	-6.6	56.0	42.7	13.30	4.211		
3,000.0	2,995.9	3,000.1	2,995.8	6.9	6.9	-99.92	122.4	-5.0	57.5	43.7	13.80	4.166		
3,100.0	3,095.7	3,100.1	3,095.5	7.1	7.2	-99.83	129.2	-3.5	59.0	44.7	14.30	4.124		
3,200.0	3,195.5	3,200.1	3,195.3	7.4	7.4	-99.73	136.0	-1.9	60.5	45.7	14.80	4.085		
3,300.0	3,295.2	3,300.0	3,295.0	7.6	7.7	-99.65	142.8	-0.4	62.0	46.6	15.31	4.048		
3,400.0	3,395.0	3,400.0	3,394.8	7.9	7.9	-99.56	149.6	1.2	63.4	47.6	15.81	4.013		
3,500.0	3,494.7	3,500.0	3,494.5	8.1	8.2	-99.49	156.4	2.7	64.9	48.6	16.31	3.980		
3,600.0	3,594.5	3,600.0	3,594.2	8.4	8.4	-99.41	163.2	4.3	66.4	49.6	16.82	3.949		
3,700.0	3,694.2	3,700.0	3,694.0	8.6	8.7	-99.34	170.0	5.9	67.9	50.6	17.32	3.920		
3,800.0	3,794.0	3,800.0	3,793.7	8.9	8.9	-99.27	176.8	7.4	69.4	51.6	17.83	3.892		
3,900.0	3,893.7	3,900.0	3,893.5	9.2	9.2	-99.20	183.6	9.0	70.9	52.6	18.34	3.866		
4,000.0	3,993.5	4,000.0	3,993.2	9.4	9.5	-99.14	190.4	10.5	72.4	53.5	18.84	3.841		
4,100.0	4,093.3	4,100.0	4,093.0	9.7	9.7	-99.08	197.2	12.1	73.9	54.5	19.35	3.818		
4,200.0	4,193.0	4,199.9	4,192.7	9.9	10.0	-99.02	204.0	13.6	75.4	55.5	19.86	3.795		
4,300.0	4,292.8	4,299.9	4,292.5	10.2	10.2	-98.96	210.8	15.2	76.8	56.5	20.36	3.774		
4,400.0	4,392.5	4,399.9	4,392.2	10.4	10.5	-98.91	217.6	16.8	78.3	57.5	20.87	3.754		
4,500.0	4,492.3	4,499.9	4,492.0	10.7	10.7	-98.86	224.4	18.3	79.8	58.5	21.38	3.734		
4,600.0	4,592.0	4,599.9	4,591.7	10.9	11.0	-98.81	231.2	19.9	81.3	59.4	21.89	3.716		
4,700.0	4,691.8	4,699.9	4,691.4	11.2	11.2	-98.76	238.0	21.4	82.8	60.4	22.39	3.698		
4,800.0	4,791.6	4,799.9	4,791.2	11.4	11.5	-98.71	244.8	23.0	84.3	61.4	22.90	3.681		
4,900.0	4,891.3	4,899.9	4,890.9	11.7	11.7	-98.67	251.6	24.5	85.8	62.4	23.41	3.665		
5,000.0	4,991.1	4,999.9	4,990.7	12.0	12.0	-98.62	258.4	26.1	87.3	63.4	23.92	3.649		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #12G-0112B
Project:	Weld County, CO	TVD Reference:	WELL @ 4970.3ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4970.3ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #12G-0112B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12G-0111A - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning	
5,100.0	5,090.8	5,099.8	5,090.4	12.2	12.3	-98.58	265.2	27.6	88.8	64.3	24.43	3.634		
5,200.0	5,190.6	5,199.8	5,190.2	12.5	12.5	-98.54	272.0	29.2	90.3	65.3	24.94	3.620		
5,300.0	5,290.3	5,299.8	5,289.9	12.7	12.8	-98.50	278.8	30.8	91.8	66.3	25.45	3.606		
5,400.0	5,390.1	5,398.8	5,388.3	13.0	13.0	-96.30	289.0	33.1	93.6	67.6	25.99	3.600		
5,500.0	5,489.4	5,494.0	5,479.7	13.3	13.4	-86.52	314.4	38.9	99.1	72.5	26.62	3.722		
5,600.0	5,585.1	5,586.0	5,562.1	13.7	13.9	-77.91	354.0	48.0	110.7	83.3	27.35	4.047		
5,700.0	5,673.7	5,675.3	5,634.1	14.2	14.6	-71.78	405.3	59.7	126.5	98.4	28.09	4.502		
5,800.0	5,751.8	5,762.2	5,694.5	15.0	15.3	-67.78	466.0	73.6	144.8	115.9	28.89	5.013		
5,900.0	5,816.6	5,850.0	5,744.2	15.9	16.2	-65.38	536.5	89.7	164.4	134.5	29.89	5.500		
6,000.0	5,865.7	5,930.8	5,778.6	17.0	17.2	-64.10	607.6	106.0	184.3	153.1	31.19	5.917		
6,100.0	5,897.3	6,013.5	5,801.7	18.3	18.2	-63.63	684.9	123.7	204.1	171.1	32.97	6.189		
6,200.0	5,910.2	6,095.7	5,812.0	19.7	19.4	-63.77	764.4	141.9	223.1	187.9	35.25	6.331		
6,300.0	5,910.6	6,182.0	5,812.5	21.2	20.6	-65.63	848.7	160.1	241.7	203.6	38.16	6.334		
6,400.0	5,910.6	6,269.4	5,812.5	22.5	21.8	-67.47	934.9	174.9	260.1	219.0	41.02	6.339		
6,500.0	5,910.6	6,356.2	5,812.5	24.0	23.0	-69.01	1,021.0	185.6	278.0	234.1	43.87	6.338		
6,600.0	5,910.6	6,442.3	5,812.5	25.5	24.3	-70.32	1,106.8	192.4	295.5	248.8	46.68	6.329		
6,700.0	5,910.6	6,527.8	5,812.5	27.0	25.5	-71.44	1,192.3	195.3	312.3	262.9	49.46	6.315		
6,800.0	5,910.6	6,623.2	5,812.5	28.5	27.0	-72.43	1,287.6	195.4	327.4	275.1	52.37	6.252		
6,900.0	5,910.6	6,722.6	5,812.5	30.0	28.7	-73.07	1,387.0	195.4	337.7	282.5	55.25	6.113		
7,000.0	5,910.6	6,822.4	5,812.5	31.6	30.3	-73.38	1,486.9	195.4	343.1	285.1	57.99	5.916		
7,100.0	5,910.6	6,922.4	5,812.5	33.1	32.0	-73.43	1,586.9	195.4	343.9	283.0	60.88	5.649		
7,200.0	5,910.6	7,022.4	5,812.5	34.7	33.7	-73.43	1,686.9	195.4	343.9	279.8	64.12	5.363		
7,300.0	5,910.6	7,122.4	5,812.5	36.3	35.5	-73.42	1,786.9	195.4	343.9	276.5	67.42	5.101		
7,400.0	5,910.6	7,222.4	5,812.5	38.0	37.2	-73.42	1,886.9	195.4	343.9	273.2	70.75	4.861		
7,500.0	5,910.6	7,322.4	5,812.5	39.6	39.0	-73.42	1,986.9	195.5	343.9	269.8	74.12	4.640		
7,600.0	5,910.6	7,422.4	5,812.5	41.3	40.8	-73.41	2,086.9	195.5	343.9	266.4	77.53	4.436		
7,700.0	5,910.6	7,522.4	5,812.4	43.0	42.6	-73.41	2,186.9	195.5	343.9	263.0	80.95	4.249		
7,800.0	5,910.6	7,622.4	5,812.4	44.7	44.4	-73.41	2,286.9	195.5	343.9	259.5	84.40	4.075		
7,900.0	5,910.6	7,722.4	5,812.4	46.5	46.2	-73.41	2,386.9	195.5	343.9	256.1	87.88	3.914		
8,000.0	5,910.7	7,822.4	5,812.4	48.2	48.0	-73.40	2,486.9	195.5	343.9	252.6	91.37	3.764		
8,100.0	5,910.7	7,922.4	5,812.4	50.0	49.9	-73.40	2,586.9	195.5	343.9	249.1	94.87	3.625		
8,200.0	5,910.7	8,022.4	5,812.4	51.8	51.7	-73.40	2,686.9	195.5	343.9	245.6	98.39	3.496		
8,300.0	5,910.7	8,122.4	5,812.4	53.5	53.6	-73.40	2,786.9	195.5	344.0	242.0	101.93	3.375		
8,400.0	5,910.7	8,222.4	5,812.4	55.3	55.4	-73.39	2,886.9	195.5	344.0	238.5	105.47	3.261		
8,500.0	5,910.7	8,322.4	5,812.4	57.1	57.3	-73.39	2,986.9	195.5	344.0	234.9	109.03	3.155		
8,600.0	5,910.7	8,422.4	5,812.4	58.9	59.1	-73.39	3,086.9	195.5	344.0	231.4	112.59	3.055		
8,700.0	5,910.7	8,522.4	5,812.4	60.8	61.0	-73.39	3,186.9	195.6	344.0	227.8	116.17	2.961		
8,800.0	5,910.7	8,622.4	5,812.4	62.6	62.8	-73.38	3,286.9	195.6	344.0	224.2	119.75	2.872		
8,900.0	5,910.7	8,722.4	5,812.3	64.4	64.7	-73.38	3,386.9	195.6	344.0	220.6	123.34	2.789		
9,000.0	5,910.7	8,822.4	5,812.3	66.2	66.6	-73.38	3,486.9	195.6	344.0	217.0	126.93	2.710		
9,100.0	5,910.7	8,922.4	5,812.3	68.1	68.5	-73.38	3,586.9	195.6	344.0	213.4	130.54	2.635		
9,200.0	5,910.7	9,022.4	5,812.3	69.9	70.3	-73.37	3,686.9	195.6	344.0	209.8	134.14	2.564		
9,300.0	5,910.8	9,122.4	5,812.3	71.8	72.2	-73.37	3,786.9	195.6	344.0	206.2	137.76	2.497		
9,400.0	5,910.8	9,222.4	5,812.3	73.6	74.1	-73.37	3,886.9	195.6	344.0	202.6	141.37	2.433		
9,500.0	5,910.8	9,322.4	5,812.3	75.5	76.0	-73.37	3,986.9	195.6	344.0	199.0	144.99	2.372		
9,600.0	5,910.8	9,422.4	5,812.3	77.3	77.9	-73.36	4,086.9	195.6	344.0	195.4	148.62	2.315		
9,700.0	5,910.8	9,522.4	5,812.3	79.2	79.8	-73.36	4,186.9	195.6	344.0	191.8	152.25	2.259		
9,800.0	5,910.8	9,622.4	5,812.3	81.1	81.7	-73.36	4,286.9	195.7	344.0	188.1	155.88	2.207		
9,900.0	5,910.8	9,722.4	5,812.3	82.9	83.5	-73.35	4,386.9	195.7	344.0	184.5	159.52	2.157		
10,000.0	5,910.8	9,822.4	5,812.2	84.8	85.4	-73.35	4,486.9	195.7	344.0	180.9	163.15	2.109		
10,100.0	5,910.8	9,922.4	5,812.2	86.7	87.3	-73.35	4,586.9	195.7	344.0	177.2	166.80	2.063		
10,200.0	5,910.8	10,022.4	5,812.2	88.5	89.2	-73.35	4,686.9	195.7	344.0	173.6	170.44	2.018		

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 #12G-0112B
Project:	Weld County, CO	TVD Reference:	WELL @ 4970.3ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4970.3ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #12G-0112B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12G-0111A - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Separation Factor		
10,300.0	5,910.8	10,122.4	5,812.2	90.4	91.1	-73.34	4,786.9	195.7	344.0	169.9	174.09	1.976		
10,400.0	5,910.8	10,222.4	5,812.2	92.3	93.0	-73.34	4,886.9	195.7	344.0	166.3	177.74	1.936		
10,500.0	5,910.8	10,322.4	5,812.2	94.2	94.9	-73.34	4,986.9	195.7	344.0	162.6	181.39	1.897		
10,600.0	5,910.9	10,422.4	5,812.2	96.1	96.8	-73.34	5,086.9	195.7	344.0	159.0	185.04	1.859		
10,700.0	5,910.9	10,522.4	5,812.2	97.9	98.7	-73.33	5,186.9	195.7	344.0	155.3	188.69	1.823		
10,800.0	5,910.9	10,622.4	5,812.2	99.8	100.6	-73.33	5,286.9	195.7	344.0	151.7	192.35	1.789		
10,900.0	5,910.9	10,722.4	5,812.2	101.7	102.5	-73.33	5,386.9	195.7	344.0	148.0	196.01	1.755		
11,000.0	5,910.9	10,822.4	5,812.2	103.6	104.4	-73.33	5,486.9	195.8	344.1	144.4	199.67	1.723		
11,100.0	5,910.9	10,922.4	5,812.2	105.5	106.3	-73.32	5,586.9	195.8	344.1	140.7	203.33	1.692		
11,200.0	5,910.9	11,022.4	5,812.1	107.4	108.2	-73.32	5,686.9	195.8	344.1	137.1	206.99	1.662		
11,300.0	5,910.9	11,122.4	5,812.1	109.3	110.1	-73.32	5,786.9	195.8	344.1	133.4	210.66	1.633		
11,400.0	5,910.9	11,222.4	5,812.1	111.2	112.0	-73.32	5,886.9	195.8	344.1	129.7	214.32	1.605		
11,500.0	5,910.9	11,322.4	5,812.1	113.0	113.9	-73.31	5,986.9	195.8	344.1	126.1	217.99	1.578		
11,600.0	5,910.9	11,422.4	5,812.1	114.9	115.8	-73.31	6,086.9	195.8	344.1	122.4	221.65	1.552		
11,700.0	5,910.9	11,522.4	5,812.1	116.8	117.7	-73.31	6,186.9	195.8	344.1	118.8	225.32	1.527		
11,800.0	5,910.9	11,622.4	5,812.1	118.7	119.7	-73.31	6,286.9	195.8	344.1	115.1	228.99	1.503		
11,900.0	5,910.9	11,722.4	5,812.1	120.6	121.6	-73.30	6,386.9	195.8	344.1	111.4	232.66	1.479 Level 3		
12,000.0	5,911.0	11,822.4	5,812.1	122.5	123.5	-73.30	6,486.9	195.8	344.1	107.8	236.33	1.456 Level 3		
12,100.0	5,911.0	11,922.4	5,812.1	124.4	125.4	-73.30	6,586.9	195.8	344.1	104.1	240.01	1.434 Level 3		
12,200.0	5,911.0	12,022.4	5,812.1	126.3	127.3	-73.30	6,686.9	195.9	344.1	100.4	243.68	1.412 Level 3		
12,300.0	5,911.0	12,122.4	5,812.1	128.2	129.2	-73.29	6,786.9	195.9	344.1	96.8	247.35	1.391 Level 3		
12,400.0	5,911.0	12,222.4	5,812.0	130.1	131.1	-73.29	6,886.9	195.9	344.1	93.1	251.03	1.371 Level 3		
12,500.0	5,911.0	12,322.4	5,812.0	132.0	133.0	-73.29	6,986.9	195.9	344.1	89.4	254.70	1.351 Level 3		
12,600.0	5,911.0	12,422.4	5,812.0	133.9	134.9	-73.28	7,086.9	195.9	344.1	85.7	258.38	1.332 Level 3		
12,700.0	5,911.0	12,522.4	5,812.0	135.8	136.8	-73.28	7,186.9	195.9	344.1	82.1	261.98	1.314 Level 3		
12,741.5	5,911.0	12,563.9	5,812.0	136.5	137.4	-73.28	7,228.3	195.9	344.1	80.9	263.23	1.307 Level 3		
12,771.8	5,911.0	12,593.2	5,812.0	136.9	137.9	-73.28	7,257.6	195.9	344.1	80.0	264.12	1.303 Level 3, SF		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #12G-0112B
Project:	Weld County, CO	TVD Reference:	WELL @ 4970.3ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4970.3ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #12G-0112B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12G-1309A - HZ - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-127.06	-74.9	-99.1	124.2					
100.0	100.0	100.0	100.0	0.1	0.1	-127.06	-74.9	-99.1	124.2	124.0	0.18	690.041		
200.0	200.0	200.0	200.0	0.3	0.3	-127.06	-74.9	-99.1	124.2	123.6	0.63	197.322		
300.0	300.0	300.0	300.0	0.5	0.5	-127.06	-74.9	-99.1	124.2	123.1	1.08	115.121		
400.0	400.0	400.0	400.0	0.8	0.8	-127.06	-74.9	-99.1	124.2	122.7	1.53	81.266		
500.0	500.0	500.0	500.0	1.0	1.0	-127.06	-74.9	-99.1	124.2	122.2	1.98	62.799		
600.0	600.0	600.0	600.0	1.2	1.2	-127.06	-74.9	-99.1	124.2	121.8	2.43	51.170		
700.0	700.0	700.0	700.0	1.4	1.4	-127.06	-74.9	-99.1	124.2	121.3	2.88	43.176		
800.0	800.0	800.0	800.0	1.7	1.7	-127.06	-74.9	-99.1	124.2	120.9	3.33	37.341		
900.0	900.0	900.0	900.0	1.9	1.9	-127.06	-74.9	-99.1	124.2	120.4	3.78	32.896		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-127.06	-74.9	-99.1	124.2	120.0	4.23	29.397		
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	-127.06	-74.9	-99.1	124.2	119.6	4.68	26.570		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-127.06	-74.9	-99.1	124.2	119.1	5.12	24.240 CC, ES		
1,300.0	1,300.0	1,296.7	1,296.7	2.8	2.8	-153.05	-76.5	-99.5	127.1	121.5	5.54	22.945		
1,400.0	1,399.8	1,392.8	1,392.7	3.0	2.9	-155.28	-81.2	-100.4	135.7	129.7	5.93	22.893 SF		
1,500.0	1,499.6	1,491.6	1,491.2	3.2	3.1	-158.07	-88.0	-101.8	147.6	141.3	6.33	23.325		
1,600.0	1,599.4	1,590.6	1,590.0	3.5	3.3	-160.44	-94.7	-103.2	159.9	153.2	6.74	23.730		
1,700.0	1,699.1	1,689.7	1,688.8	3.7	3.5	-162.48	-101.5	-104.6	172.4	165.3	7.16	24.100		
1,800.0	1,798.9	1,788.7	1,787.6	3.9	3.7	-164.24	-108.3	-106.0	185.1	177.6	7.58	24.438		
1,900.0	1,898.6	1,887.7	1,886.4	4.2	3.9	-165.77	-115.0	-107.4	198.0	190.0	8.00	24.746		
2,000.0	1,998.4	1,986.8	1,985.2	4.4	4.1	-167.12	-121.8	-108.8	211.0	202.5	8.43	25.028		
2,100.0	2,098.1	2,085.8	2,084.0	4.7	4.4	-168.31	-128.6	-110.2	224.0	215.2	8.86	25.285		
2,200.0	2,197.9	2,184.9	2,182.8	4.9	4.6	-169.36	-135.3	-111.5	237.2	227.9	9.29	25.521		
2,300.0	2,297.6	2,283.9	2,281.6	5.1	4.8	-170.31	-142.1	-112.9	250.4	240.7	9.73	25.738		
2,400.0	2,397.4	2,382.9	2,380.4	5.4	5.1	-171.16	-148.9	-114.3	263.7	253.6	10.17	25.938		
2,500.0	2,497.2	2,482.0	2,479.2	5.6	5.3	-171.93	-155.6	-115.7	277.1	266.5	10.61	26.122		
2,600.0	2,596.9	2,581.0	2,578.0	5.9	5.6	-172.63	-162.4	-117.1	290.4	279.4	11.05	26.292		
2,700.0	2,696.7	2,680.1	2,676.8	6.1	5.8	-173.27	-169.2	-118.5	303.9	292.4	11.49	26.450		
2,800.0	2,796.4	2,779.1	2,775.6	6.4	6.0	-173.85	-175.9	-119.9	317.3	305.4	11.93	26.596		
2,900.0	2,896.2	2,878.1	2,874.4	6.6	6.3	-174.39	-182.7	-121.3	330.8	318.5	12.38	26.733		
3,000.0	2,995.9	2,977.2	2,973.2	6.9	6.5	-174.88	-189.5	-122.7	344.3	331.5	12.82	26.860		
3,100.0	3,095.7	3,076.2	3,072.0	7.1	6.8	-175.34	-196.2	-124.0	357.9	344.6	13.27	26.978		
3,200.0	3,195.5	3,175.3	3,170.8	7.4	7.0	-175.76	-203.0	-125.4	371.4	357.7	13.71	27.089		
3,300.0	3,295.2	3,274.3	3,269.6	7.6	7.3	-176.16	-209.8	-126.8	385.0	370.9	14.16	27.193		
3,400.0	3,395.0	3,373.3	3,368.4	7.9	7.5	-176.52	-216.5	-128.2	398.6	384.0	14.61	27.291		
3,500.0	3,494.7	3,472.4	3,467.2	8.1	7.8	-176.87	-223.3	-129.6	412.2	397.2	15.05	27.382		
3,600.0	3,594.5	3,571.4	3,566.0	8.4	8.0	-177.19	-230.1	-131.0	425.8	410.3	15.50	27.469		
3,700.0	3,694.2	3,670.5	3,664.8	8.6	8.3	-177.49	-236.8	-132.4	439.5	423.5	15.95	27.551		
3,800.0	3,794.0	3,769.5	3,763.6	8.9	8.5	-177.77	-243.6	-133.8	453.1	436.7	16.40	27.628		
3,900.0	3,893.7	3,868.5	3,862.4	9.2	8.8	-178.04	-250.4	-135.2	466.8	449.9	16.85	27.701		
4,000.0	3,993.5	3,967.6	3,961.2	9.4	9.1	-178.29	-257.1	-136.6	480.5	463.2	17.30	27.770		
4,100.0	4,093.3	4,066.6	4,060.0	9.7	9.3	-178.53	-263.9	-137.9	494.1	476.4	17.75	27.835		
4,200.0	4,193.0	4,165.7	4,158.8	9.9	9.6	-178.75	-270.7	-139.3	507.8	489.6	18.20	27.897		
4,300.0	4,292.8	4,264.7	4,257.6	10.2	9.8	-178.96	-277.5	-140.7	521.5	502.8	18.65	27.957		
4,400.0	4,392.5	4,363.7	4,356.4	10.4	10.1	-179.16	-284.2	-142.1	535.2	516.1	19.11	28.013		
4,500.0	4,492.3	4,462.8	4,455.2	10.7	10.3	-179.36	-291.0	-143.5	548.9	529.3	19.56	28.067		
4,600.0	4,592.0	4,561.8	4,554.0	10.9	10.6	-179.54	-297.8	-144.9	562.6	542.6	20.01	28.118		
4,700.0	4,691.8	4,660.9	4,652.8	11.2	10.8	-179.71	-304.5	-146.3	576.3	555.9	20.46	28.167		
4,800.0	4,791.6	4,759.9	4,751.6	11.4	11.1	-179.88	-311.3	-147.7	590.0	569.1	20.91	28.213		
4,900.0	4,891.3	4,858.9	4,850.4	11.7	11.4	-179.96	-318.1	-149.1	603.8	582.4	21.37	28.258		
5,000.0	4,991.1	4,958.0	4,949.2	12.0	11.6	-179.81	-324.8	-150.4	617.5	595.7	21.82	28.301		
5,100.0	5,090.8	5,057.0	5,048.0	12.2	11.9	-179.67	-331.6	-151.8	631.2	609.0	22.27	28.342		

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 #12G-0112B
Project:	Weld County, CO	TVD Reference:	WELL @ 4970.3ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4970.3ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #12G-0112B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12G-1309A - HZ - Plan #1												Offset Site Error:		0.0 ft	
Survey Program: 0-ISWWSA MWD												Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor				
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)					
5,200.0	5,190.6	5,156.1	5,146.8	12.5	12.1	179.53	-338.4	-153.2	645.0	622.2	22.72	28.381			
5,300.0	5,290.3	5,255.1	5,245.6	12.7	12.4	179.40	-345.1	-154.6	658.7	635.5	23.18	28.419			
5,400.0	5,390.1	5,344.6	5,334.8	13.0	12.6	179.28	-351.3	-155.9	672.6	649.0	23.61	28.486			
5,500.0	5,489.4	5,400.0	5,389.7	13.3	12.8	179.12	-358.7	-157.4	695.8	672.1	23.63	29.442			
5,600.0	5,585.1	5,424.8	5,413.9	13.7	12.9	178.93	-363.9	-158.5	742.2	719.4	22.75	32.630			
5,700.0	5,673.7	5,450.0	5,438.2	14.2	13.0	178.58	-370.3	-159.8	809.7	788.6	21.10	38.367			
5,800.0	5,751.8	5,476.1	5,463.1	15.0	13.1	177.92	-378.2	-161.4	892.7	873.9	18.79	47.514			
5,900.0	5,816.6	5,500.0	5,485.4	15.9	13.2	176.33	-386.4	-163.1	986.1	970.2	15.97	61.759			
6,000.0	5,865.7	5,500.0	5,485.4	17.0	13.2	165.56	-386.4	-163.1	1,084.6	1,070.1	14.49	74.875			
6,100.0	5,897.3	5,500.0	5,485.4	18.3	13.2	6.27	-386.4	-163.1	1,184.4	1,174.0	10.41	113.828			
6,200.0	5,910.2	5,500.0	5,485.4	19.7	13.2	2.50	-386.4	-163.1	1,281.9	1,273.7	8.18	156.647			

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #12G-0112B
Project:	Weld County, CO	TVD Reference:	WELL @ 4970.3ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4970.3ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #12G-0112B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12G-1310B - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-138.57	-74.9	-66.1	99.9					
100.0	100.0	100.0	100.0	0.1	0.1	-138.57	-74.9	-66.1	99.9	99.7	0.18	554.742		
200.0	200.0	200.0	200.0	0.3	0.3	-138.57	-74.9	-66.1	99.9	99.2	0.63	158.632		
300.0	300.0	300.0	300.0	0.5	0.5	-138.57	-74.9	-66.1	99.9	98.8	1.08	92.549		
400.0	400.0	400.0	400.0	0.8	0.8	-138.57	-74.9	-66.1	99.9	98.3	1.53	65.332		
500.0	500.0	500.0	500.0	1.0	1.0	-138.57	-74.9	-66.1	99.9	97.9	1.98	50.486		
600.0	600.0	600.0	600.0	1.2	1.2	-138.57	-74.9	-66.1	99.9	97.4	2.43	41.137		
700.0	700.0	700.0	700.0	1.4	1.4	-138.57	-74.9	-66.1	99.9	97.0	2.88	34.710		
800.0	800.0	800.0	800.0	1.7	1.7	-138.57	-74.9	-66.1	99.9	96.5	3.33	30.020		
900.0	900.0	900.0	900.0	1.9	1.9	-138.57	-74.9	-66.1	99.9	96.1	3.78	26.446		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-138.57	-74.9	-66.1	99.9	95.6	4.23	23.633		
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	-138.57	-74.9	-66.1	99.9	95.2	4.68	21.361	CC, ES	
1,200.0	1,200.0	1,197.7	1,197.6	2.6	2.5	-139.26	-76.5	-65.9	101.0	95.9	5.09	19.839		
1,300.0	1,300.0	1,295.0	1,294.8	2.8	2.7	-166.61	-81.5	-65.4	106.3	100.8	5.49	19.367	SF	
1,400.0	1,399.8	1,394.1	1,393.8	3.0	2.9	-169.56	-88.3	-64.7	116.5	110.6	5.89	19.774		
1,500.0	1,499.6	1,493.2	1,492.6	3.2	3.1	-172.18	-95.2	-63.9	128.7	122.4	6.30	20.417		
1,600.0	1,599.4	1,592.3	1,591.5	3.5	3.3	-174.34	-102.1	-63.2	141.1	134.4	6.72	20.994		
1,700.0	1,699.1	1,691.4	1,690.3	3.7	3.5	-176.15	-109.0	-62.5	153.7	146.6	7.15	21.510		
1,800.0	1,798.9	1,790.5	1,789.2	3.9	3.7	-177.69	-115.8	-61.8	166.4	158.8	7.57	21.972		
1,900.0	1,898.6	1,889.6	1,888.0	4.2	3.9	-179.01	-122.7	-61.1	179.2	171.2	8.01	22.388		
2,000.0	1,998.4	1,988.7	1,986.9	4.4	4.2	179.85	-129.6	-60.3	192.1	183.7	8.44	22.762		
2,100.0	2,098.1	2,087.8	2,085.7	4.7	4.4	178.85	-136.5	-59.6	205.1	196.2	8.88	23.101		
2,200.0	2,197.9	2,186.9	2,184.6	4.9	4.6	177.97	-143.3	-58.9	218.1	208.8	9.32	23.408		
2,300.0	2,297.6	2,286.0	2,283.4	5.1	4.9	177.19	-150.2	-58.2	231.2	221.4	9.76	23.688		
2,400.0	2,397.4	2,385.1	2,382.3	5.4	5.1	176.49	-157.1	-57.4	244.3	234.1	10.20	23.943		
2,500.0	2,497.2	2,484.2	2,481.2	5.6	5.4	175.87	-164.0	-56.7	257.4	246.7	10.65	24.176		
2,600.0	2,596.9	2,583.3	2,580.0	5.9	5.6	175.30	-170.8	-56.0	270.5	259.5	11.09	24.391		
2,700.0	2,696.7	2,682.4	2,678.9	6.1	5.9	174.79	-177.7	-55.3	283.7	272.2	11.54	24.588		
2,800.0	2,796.4	2,781.5	2,777.7	6.4	6.1	174.32	-184.6	-54.6	296.9	284.9	11.99	24.770		
2,900.0	2,896.2	2,880.6	2,876.6	6.6	6.4	173.89	-191.5	-53.8	310.1	297.7	12.44	24.939		
3,000.0	2,995.9	2,979.7	2,975.4	6.9	6.6	173.50	-198.3	-53.1	323.4	310.5	12.89	25.096		
3,100.0	3,095.7	3,078.8	3,074.3	7.1	6.9	173.14	-205.2	-52.4	336.6	323.3	13.34	25.241		
3,200.0	3,195.5	3,177.9	3,173.2	7.4	7.1	172.80	-212.1	-51.7	349.9	336.1	13.79	25.377		
3,300.0	3,295.2	3,277.0	3,272.0	7.6	7.4	172.49	-219.0	-50.9	363.2	348.9	14.24	25.504		
3,400.0	3,395.0	3,376.1	3,370.9	7.9	7.6	172.21	-225.8	-50.2	376.4	361.8	14.69	25.623		
3,500.0	3,494.7	3,475.2	3,469.7	8.1	7.9	171.94	-232.7	-49.5	389.7	374.6	15.14	25.734		
3,600.0	3,594.5	3,574.3	3,568.6	8.4	8.1	171.69	-239.6	-48.8	403.0	387.4	15.60	25.838		
3,700.0	3,694.2	3,673.4	3,667.4	8.6	8.4	171.45	-246.5	-48.1	416.3	400.3	16.05	25.937		
3,800.0	3,794.0	3,772.5	3,766.3	8.9	8.6	171.23	-253.3	-47.3	429.6	413.1	16.51	26.030		
3,900.0	3,893.7	3,871.6	3,865.1	9.2	8.9	171.03	-260.2	-46.6	443.0	426.0	16.96	26.117		
4,000.0	3,993.5	3,970.7	3,964.0	9.4	9.1	170.83	-267.1	-45.9	456.3	438.9	17.42	26.200		
4,100.0	4,093.3	4,069.8	4,062.9	9.7	9.4	170.65	-274.0	-45.2	469.6	451.7	17.87	26.279		
4,200.0	4,193.0	4,168.9	4,161.7	9.9	9.7	170.47	-280.8	-44.4	482.9	464.6	18.33	26.353		
4,300.0	4,292.8	4,268.0	4,260.6	10.2	9.9	170.31	-287.7	-43.7	496.3	477.5	18.78	26.424		
4,400.0	4,392.5	4,367.1	4,359.4	10.4	10.2	170.15	-294.6	-43.0	509.6	490.4	19.24	26.491		
4,500.0	4,492.3	4,466.1	4,458.3	10.7	10.4	170.00	-301.5	-42.3	523.0	503.3	19.69	26.555		
4,600.0	4,592.0	4,565.2	4,557.1	10.9	10.7	169.86	-308.3	-41.6	536.3	516.2	20.15	26.615		
4,700.0	4,691.8	4,664.3	4,656.0	11.2	10.9	169.73	-315.2	-40.8	549.7	529.0	20.61	26.674		
4,800.0	4,791.6	4,763.4	4,754.8	11.4	11.2	169.60	-322.1	-40.1	563.0	541.9	21.06	26.729		
4,900.0	4,891.3	4,862.5	4,853.7	11.7	11.5	169.48	-329.0	-39.4	576.4	554.8	21.52	26.782		
5,000.0	4,991.1	4,961.6	4,952.6	12.0	11.7	169.37	-335.8	-38.7	589.7	567.7	21.98	26.833		
5,100.0	5,090.8	5,060.7	5,051.4	12.2	12.0	169.26	-342.7	-37.9	603.1	580.6	22.43	26.881		

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 #12G-0112B
Project:	Weld County, CO	TVD Reference:	WELL @ 4970.3ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4970.3ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #12G-0112B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12G-1310B - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISWWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)				
5,200.0	5,190.6	5,159.8	5,150.3	12.5	12.2	169.15	-349.6	-37.2	616.4	593.5	22.89	26.928		
5,300.0	5,290.3	5,258.9	5,249.1	12.7	12.5	169.05	-356.5	-36.5	629.8	606.5	23.35	26.972		
5,400.0	5,390.1	5,358.0	5,348.0	13.0	12.8	168.95	-363.3	-35.8	643.2	619.4	23.81	27.015		
5,500.0	5,489.4	5,445.9	5,435.6	13.3	13.0	168.64	-369.5	-35.1	660.5	636.6	23.90	27.632		
5,600.0	5,585.1	5,500.0	5,489.2	13.7	13.2	167.75	-376.9	-34.3	699.8	676.7	23.12	30.268		
5,700.0	5,673.7	5,521.3	5,510.0	14.2	13.2	165.90	-381.4	-33.9	760.6	739.0	21.60	35.208		
5,800.0	5,751.8	5,550.0	5,537.8	15.0	13.4	162.37	-388.7	-33.1	838.7	818.9	19.76	42.449		
5,900.0	5,816.6	5,550.0	5,537.8	15.9	13.4	153.64	-388.7	-33.1	928.8	909.9	18.89	49.165		
6,000.0	5,865.7	5,571.9	5,558.6	17.0	13.5	129.05	-395.3	-32.4	1,025.1	1,000.5	24.58	41.698		
6,100.0	5,897.3	5,573.1	5,559.8	18.3	13.5	56.95	-395.7	-32.4	1,124.1	1,096.7	27.41	41.017		
6,200.0	5,910.2	5,568.3	5,555.2	19.7	13.5	23.68	-394.2	-32.5	1,221.8	1,206.4	15.37	79.492		
6,300.0	5,910.6	5,550.0	5,537.8	21.2	13.4	12.55	-388.7	-33.1	1,317.4	1,306.1	11.30	116.598		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #12G-0112B
Project:	Weld County, CO	TVD Reference:	WELL @ 4970.3ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4970.3ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #12G-0112B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12G-1311A - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	-156.19	-74.9	-33.0	81.8					
100.0	100.0	100.0	100.0	0.1	0.1	-156.19	-74.9	-33.0	81.8	81.7	0.18	454.645		
200.0	200.0	200.0	200.0	0.3	0.3	-156.19	-74.9	-33.0	81.8	81.2	0.63	130.009		
300.0	300.0	300.0	300.0	0.5	0.5	-156.19	-74.9	-33.0	81.8	80.8	1.08	75.849		
400.0	400.0	400.0	400.0	0.8	0.8	-156.19	-74.9	-33.0	81.8	80.3	1.53	53.544		
500.0	500.0	500.0	500.0	1.0	1.0	-156.19	-74.9	-33.0	81.8	79.9	1.98	41.376		
600.0	600.0	600.0	600.0	1.2	1.2	-156.19	-74.9	-33.0	81.8	79.4	2.43	33.714		
700.0	700.0	700.0	700.0	1.4	1.4	-156.19	-74.9	-33.0	81.8	79.0	2.88	28.447		
800.0	800.0	800.0	800.0	1.7	1.7	-156.19	-74.9	-33.0	81.8	78.5	3.33	24.603		
900.0	900.0	900.0	900.0	1.9	1.9	-156.19	-74.9	-33.0	81.8	78.1	3.78	21.674		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-156.19	-74.9	-33.0	81.8	77.6	4.23	19.369 CC, ES		
1,100.0	1,100.0	1,097.9	1,097.9	2.3	2.3	-156.99	-76.5	-32.5	83.1	78.4	4.64	17.890		
1,200.0	1,200.0	1,195.7	1,195.5	2.6	2.5	-159.24	-81.2	-30.8	86.9	81.9	5.05	17.223 SF		
1,300.0	1,300.0	1,295.2	1,294.8	2.8	2.7	172.89	-87.7	-28.4	94.0	88.6	5.46	17.226		
1,400.0	1,399.8	1,394.6	1,393.9	3.0	2.9	170.86	-94.2	-26.0	104.8	98.9	5.87	17.842		
1,500.0	1,499.6	1,493.7	1,492.9	3.2	3.1	169.39	-100.7	-23.6	117.3	111.0	6.29	18.641		
1,600.0	1,599.4	1,592.9	1,591.8	3.5	3.3	168.21	-107.2	-21.3	129.9	123.2	6.72	19.332		
1,700.0	1,699.1	1,692.1	1,690.7	3.7	3.5	167.24	-113.7	-18.9	142.6	135.4	7.15	19.933		
1,800.0	1,798.9	1,791.2	1,789.6	3.9	3.8	166.43	-120.2	-16.6	155.2	147.7	7.59	20.460		
1,900.0	1,898.6	1,890.4	1,888.6	4.2	4.0	165.74	-126.7	-14.2	168.0	159.9	8.03	20.924		
2,000.0	1,998.4	1,989.6	1,987.5	4.4	4.2	165.14	-133.2	-11.8	180.7	172.2	8.47	21.336		
2,100.0	2,098.1	2,088.8	2,086.4	4.7	4.5	164.63	-139.7	-9.5	193.4	184.5	8.91	21.702		
2,200.0	2,197.9	2,187.9	2,185.4	4.9	4.7	164.18	-146.2	-7.1	206.2	196.8	9.36	22.031		
2,300.0	2,297.6	2,287.1	2,284.3	5.1	5.0	163.78	-152.7	-4.7	219.0	209.2	9.81	22.326		
2,400.0	2,397.4	2,386.3	2,383.2	5.4	5.2	163.42	-159.2	-2.4	231.7	221.5	10.26	22.594		
2,500.0	2,497.2	2,485.4	2,482.1	5.6	5.4	163.10	-165.7	0.0	244.5	233.8	10.71	22.836		
2,600.0	2,596.9	2,584.6	2,581.1	5.9	5.7	162.82	-172.2	2.4	257.3	246.2	11.16	23.057		
2,700.0	2,696.7	2,683.8	2,680.0	6.1	5.9	162.56	-178.7	4.7	270.1	258.5	11.61	23.260		
2,800.0	2,796.4	2,782.9	2,778.9	6.4	6.2	162.32	-185.2	7.1	282.9	270.9	12.07	23.445		
2,900.0	2,896.2	2,882.1	2,877.9	6.6	6.4	162.11	-191.7	9.5	295.7	283.2	12.52	23.616		
3,000.0	2,995.9	2,981.3	2,976.8	6.9	6.7	161.91	-198.2	11.8	308.6	295.6	12.98	23.774		
3,100.0	3,095.7	3,080.5	3,075.7	7.1	7.0	161.73	-204.7	14.2	321.4	307.9	13.43	23.920		
3,200.0	3,195.5	3,179.6	3,174.6	7.4	7.2	161.56	-211.2	16.6	334.2	320.3	13.89	24.056		
3,300.0	3,295.2	3,278.8	3,273.6	7.6	7.5	161.41	-217.7	18.9	347.0	332.7	14.35	24.182		
3,400.0	3,395.0	3,378.0	3,372.5	7.9	7.7	161.26	-224.2	21.3	359.8	345.0	14.81	24.300		
3,500.0	3,494.7	3,477.1	3,471.4	8.1	8.0	161.13	-230.7	23.7	372.7	357.4	15.27	24.410		
3,600.0	3,594.5	3,576.3	3,570.4	8.4	8.2	161.00	-237.2	26.0	385.5	369.8	15.73	24.514		
3,700.0	3,694.2	3,675.5	3,669.3	8.6	8.5	160.89	-243.7	28.4	398.3	382.1	16.19	24.610		
3,800.0	3,794.0	3,774.7	3,768.2	8.9	8.7	160.78	-250.2	30.8	411.2	394.5	16.64	24.702		
3,900.0	3,893.7	3,873.8	3,867.1	9.2	9.0	160.67	-256.7	33.1	424.0	406.9	17.10	24.787		
4,000.0	3,993.5	3,973.0	3,966.1	9.4	9.3	160.57	-263.2	35.5	436.8	419.3	17.57	24.868		
4,100.0	4,093.3	4,072.2	4,065.0	9.7	9.5	160.48	-269.7	37.9	449.7	431.6	18.03	24.945		
4,200.0	4,193.0	4,171.3	4,163.9	9.9	9.8	160.40	-276.2	40.2	462.5	444.0	18.49	25.017		
4,300.0	4,292.8	4,270.5	4,262.9	10.2	10.0	160.31	-282.7	42.6	475.3	456.4	18.95	25.086		
4,400.0	4,392.5	4,369.7	4,361.8	10.4	10.3	160.24	-289.2	45.0	488.2	468.8	19.41	25.151		
4,500.0	4,492.3	4,468.8	4,460.7	10.7	10.5	160.16	-295.7	47.3	501.0	481.1	19.87	25.213		
4,600.0	4,592.0	4,568.0	4,559.6	10.9	10.8	160.09	-302.2	49.7	513.8	493.5	20.33	25.272		
4,700.0	4,691.8	4,667.2	4,658.6	11.2	11.1	160.03	-308.7	52.1	526.7	505.9	20.79	25.328		
4,800.0	4,791.6	4,766.4	4,757.5	11.4	11.3	159.96	-315.2	54.4	539.5	518.3	21.26	25.381		
4,900.0	4,891.3	4,865.5	4,856.4	11.7	11.6	159.90	-321.7	56.8	552.4	530.7	21.72	25.432		
5,000.0	4,991.1	4,964.7	4,955.4	12.0	11.8	159.85	-328.2	59.2	565.2	543.0	22.18	25.481		
5,100.0	5,090.8	5,063.9	5,054.3	12.2	12.1	159.79	-334.7	61.5	578.1	555.4	22.64	25.528		

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 #12G-0112B
Project:	Weld County, CO	TVD Reference:	WELL @ 4970.3ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4970.3ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #12G-0112B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12G-1311A - HZ - Plan #1												Offset Site Error: 0.0 ft	
Survey Program: 0-ISWWSA MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	
5,200.0	5,190.6	5,163.0	5,153.2	12.5	12.4	159.74	-341.2	63.9	590.9	567.8	23.11	25.572	
5,300.0	5,290.3	5,262.2	5,252.1	12.7	12.6	159.69	-347.7	66.3	603.7	580.2	23.57	25.615	
5,400.0	5,390.1	5,350.0	5,339.7	13.0	12.9	159.64	-353.6	68.4	616.8	592.8	24.01	25.693	
5,500.0	5,489.4	5,400.0	5,389.2	13.3	13.0	158.88	-360.2	70.8	639.2	615.2	24.06	26.567	
5,600.0	5,585.1	5,450.0	5,437.8	13.7	13.2	156.87	-371.2	74.8	684.7	661.3	23.43	29.217	
5,700.0	5,673.7	5,470.7	5,457.5	14.2	13.3	153.04	-377.0	76.9	749.7	727.3	22.34	33.560	
5,800.0	5,751.8	5,500.0	5,485.0	15.0	13.5	146.12	-386.6	80.4	830.0	808.4	21.63	38.375	
5,900.0	5,816.6	5,500.0	5,485.0	15.9	13.5	130.31	-386.6	80.4	920.5	896.8	23.66	38.897	
6,000.0	5,865.7	5,519.1	5,502.6	17.0	13.6	99.56	-393.5	82.9	1,016.0	986.4	29.61	34.309	
6,100.0	5,897.3	5,519.7	5,503.2	18.3	13.6	57.09	-393.8	83.0	1,113.1	1,085.9	27.25	40.844	
6,200.0	5,910.2	5,500.0	5,485.0	19.7	13.5	31.49	-386.6	80.4	1,208.4	1,189.7	18.66	64.775	
6,300.0	5,910.6	5,500.0	5,485.0	21.2	13.5	23.71	-386.6	80.4	1,300.9	1,284.9	16.01	81.250	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #12G-0112B
Project:	Weld County, CO	TVD Reference:	WELL @ 4970.3ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4970.3ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #12G-0112B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12G-1312B - HZ - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-74.9	0.0	74.9					
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-74.9	0.0	74.9	74.7	0.17	432.767		
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-74.9	0.0	74.9	74.3	0.62	120.289		
300.0	300.0	300.0	300.0	0.5	0.5	180.00	-74.9	0.0	74.9	73.8	1.07	69.852		
400.0	400.0	400.0	400.0	0.8	0.8	180.00	-74.9	0.0	74.9	73.4	1.52	49.216		
500.0	500.0	500.0	500.0	1.0	1.0	180.00	-74.9	0.0	74.9	72.9	1.97	37.992		
600.0	600.0	600.0	600.0	1.2	1.2	180.00	-74.9	0.0	74.9	72.5	2.42	30.937		
700.0	700.0	700.0	700.0	1.4	1.4	180.00	-74.9	0.0	74.9	72.0	2.87	26.092		
800.0	800.0	800.0	800.0	1.7	1.7	180.00	-74.9	0.0	74.9	71.6	3.32	22.559		
900.0	900.0	900.0	900.0	1.9	1.9	180.00	-74.9	0.0	74.9	71.1	3.77	19.868	CC, ES	
1,000.0	1,000.0	997.8	997.7	2.1	2.1	179.36	-76.3	0.9	76.4	72.2	4.19	18.229		
1,100.0	1,100.0	1,095.3	1,095.1	2.3	2.3	177.59	-80.6	3.4	80.8	76.2	4.59	17.598		
1,200.0	1,200.0	1,194.9	1,194.5	2.6	2.5	175.42	-86.6	6.9	87.0	82.0	5.01	17.384	SF	
1,300.0	1,300.0	1,294.6	1,294.0	2.8	2.7	148.84	-92.6	10.5	94.8	89.4	5.43	17.464		
1,400.0	1,399.8	1,394.0	1,393.1	3.0	2.9	148.62	-98.5	14.0	105.6	99.8	5.85	18.051		
1,500.0	1,499.6	1,493.3	1,492.1	3.2	3.1	148.97	-104.5	17.6	117.9	111.6	6.28	18.774		
1,600.0	1,599.4	1,592.5	1,591.1	3.5	3.3	149.26	-110.4	21.1	130.2	123.5	6.72	19.388		
1,700.0	1,699.1	1,691.7	1,690.1	3.7	3.6	149.50	-116.4	24.6	142.5	135.4	7.16	19.916		
1,800.0	1,798.9	1,791.0	1,789.1	3.9	3.8	149.70	-122.3	28.1	154.8	147.2	7.60	20.372		
1,900.0	1,898.6	1,890.2	1,888.1	4.2	4.0	149.87	-128.3	31.7	167.1	159.0	8.04	20.771		
2,000.0	1,998.4	1,989.5	1,987.1	4.4	4.3	150.02	-134.3	35.2	179.4	170.9	8.49	21.121		
2,100.0	2,098.1	2,088.7	2,086.1	4.7	4.5	150.15	-140.2	38.7	191.7	182.7	8.94	21.431		
2,200.0	2,197.9	2,187.9	2,185.1	4.9	4.8	150.26	-146.2	42.3	204.0	194.6	9.40	21.707		
2,300.0	2,297.6	2,287.2	2,284.1	5.1	5.0	150.36	-152.1	45.8	216.3	206.4	9.85	21.954		
2,400.0	2,397.4	2,386.4	2,383.1	5.4	5.3	150.45	-158.1	49.3	228.6	218.3	10.31	22.176		
2,500.0	2,497.2	2,485.7	2,482.1	5.6	5.5	150.53	-164.0	52.9	240.9	230.1	10.77	22.376		
2,600.0	2,596.9	2,584.9	2,581.1	5.9	5.8	150.60	-170.0	56.4	253.2	242.0	11.22	22.558		
2,700.0	2,696.7	2,684.1	2,680.1	6.1	6.0	150.67	-175.9	59.9	265.5	253.8	11.68	22.724		
2,800.0	2,796.4	2,783.4	2,779.1	6.4	6.3	150.73	-181.9	63.5	277.8	265.6	12.14	22.876		
2,900.0	2,896.2	2,882.6	2,878.1	6.6	6.5	150.78	-187.8	67.0	290.1	277.5	12.60	23.016		
3,000.0	2,995.9	2,981.9	2,977.1	6.9	6.8	150.83	-193.8	70.5	302.4	289.3	13.07	23.144		
3,100.0	3,095.7	3,081.1	3,076.1	7.1	7.0	150.88	-199.8	74.1	314.7	301.2	13.53	23.263		
3,200.0	3,195.5	3,180.3	3,175.1	7.4	7.3	150.92	-205.7	77.6	327.0	313.0	13.99	23.373		
3,300.0	3,295.2	3,279.6	3,274.1	7.6	7.6	150.96	-211.7	81.1	339.3	324.8	14.45	23.475		
3,400.0	3,395.0	3,378.8	3,373.1	7.9	7.8	151.00	-217.6	84.6	351.6	336.7	14.92	23.570		
3,500.0	3,494.7	3,478.1	3,472.1	8.1	8.1	151.03	-223.6	88.2	363.9	348.5	15.38	23.658		
3,600.0	3,594.5	3,577.3	3,571.1	8.4	8.3	151.07	-229.5	91.7	376.2	360.4	15.85	23.741		
3,700.0	3,694.2	3,676.5	3,670.1	8.6	8.6	151.10	-235.5	95.2	388.5	372.2	16.31	23.819		
3,800.0	3,794.0	3,775.8	3,769.1	8.9	8.8	151.13	-241.4	98.8	400.8	384.0	16.78	23.892		
3,900.0	3,893.7	3,875.0	3,868.1	9.2	9.1	151.15	-247.4	102.3	413.1	395.9	17.24	23.961		
4,000.0	3,993.5	3,974.3	3,967.1	9.4	9.4	151.18	-253.3	105.8	425.4	407.7	17.71	24.025		
4,100.0	4,093.3	4,073.5	4,066.1	9.7	9.6	151.20	-259.3	109.4	437.7	419.5	18.17	24.086		
4,200.0	4,193.0	4,172.7	4,165.1	9.9	9.9	151.22	-265.3	112.9	450.0	431.4	18.64	24.144		
4,300.0	4,292.8	4,272.0	4,264.1	10.2	10.1	151.24	-271.2	116.4	462.3	443.2	19.10	24.199		
4,400.0	4,392.5	4,371.2	4,363.1	10.4	10.4	151.26	-277.2	120.0	474.6	455.0	19.57	24.251		
4,500.0	4,492.3	4,470.5	4,462.1	10.7	10.7	151.28	-283.1	123.5	486.9	466.9	20.04	24.300		
4,600.0	4,592.0	4,569.7	4,561.1	10.9	10.9	151.30	-289.1	127.0	499.2	478.7	20.50	24.347		
4,700.0	4,691.8	4,668.9	4,660.1	11.2	11.2	151.32	-295.0	130.6	511.5	490.6	20.97	24.391		
4,800.0	4,791.6	4,768.2	4,759.1	11.4	11.4	151.34	-301.0	134.1	523.8	502.4	21.44	24.433		
4,900.0	4,891.3	4,867.4	4,858.1	11.7	11.7	151.35	-306.9	137.6	536.1	514.2	21.91	24.474		
5,000.0	4,991.1	4,966.7	4,957.1	12.0	12.0	151.37	-312.9	141.1	548.4	526.1	22.37	24.512		
5,100.0	5,090.8	5,065.9	5,056.1	12.2	12.2	151.38	-318.8	144.7	560.7	537.9	22.84	24.549		

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 #12G-0112B
Project:	Weld County, CO	TVD Reference:	WELL @ 4970.3ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4970.3ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #12G-0112B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12G-1312B - HZ - Plan #1											Offset Site Error:		0.0 ft	
Survey Program: 0-ISWWSA MWD											Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,190.6	5,165.1	5,155.1	12.5	12.5	151.39	-324.8	148.2	573.0	549.7	23.31	24.585		
5,300.0	5,290.3	5,264.4	5,254.1	12.7	12.7	151.41	-330.7	151.7	585.3	561.6	23.78	24.619		
5,400.0	5,390.1	5,363.6	5,353.1	13.0	13.0	151.42	-336.7	155.3	597.6	573.4	24.24	24.651		
5,500.0	5,489.4	5,450.0	5,439.2	13.3	13.2	150.92	-342.0	158.4	613.6	589.2	24.41	25.141		
5,600.0	5,585.1	5,500.0	5,488.7	13.7	13.4	149.15	-348.1	162.1	650.2	626.3	23.91	27.198		
5,700.0	5,673.7	5,531.9	5,519.8	14.2	13.5	145.49	-354.2	165.6	707.3	684.2	23.11	30.613		
5,800.0	5,751.8	5,550.0	5,537.3	15.0	13.6	138.52	-358.3	168.1	781.0	758.2	22.81	34.247		
5,900.0	5,816.6	5,581.4	5,567.1	15.9	13.8	127.00	-366.7	173.1	865.8	841.5	24.36	35.539		
6,000.0	5,865.7	5,600.0	5,584.5	17.0	13.9	106.09	-372.4	176.5	957.8	929.0	28.80	33.255		
6,100.0	5,897.3	5,600.0	5,584.5	18.3	13.9	74.03	-372.4	176.5	1,052.5	1,022.0	30.56	34.438		
6,200.0	5,910.2	5,600.0	5,584.5	19.7	13.9	47.69	-372.4	176.5	1,146.6	1,121.4	25.15	45.587		
6,300.0	5,910.6	5,600.0	5,584.5	21.2	13.9	39.63	-372.4	176.5	1,239.5	1,216.3	23.18	53.482		
6,400.0	5,910.6	5,579.4	5,565.3	22.5	13.7	30.13	-366.2	172.7	1,334.0	1,314.0	19.93	66.948		

Cathedral Energy Services

Anticollision Report

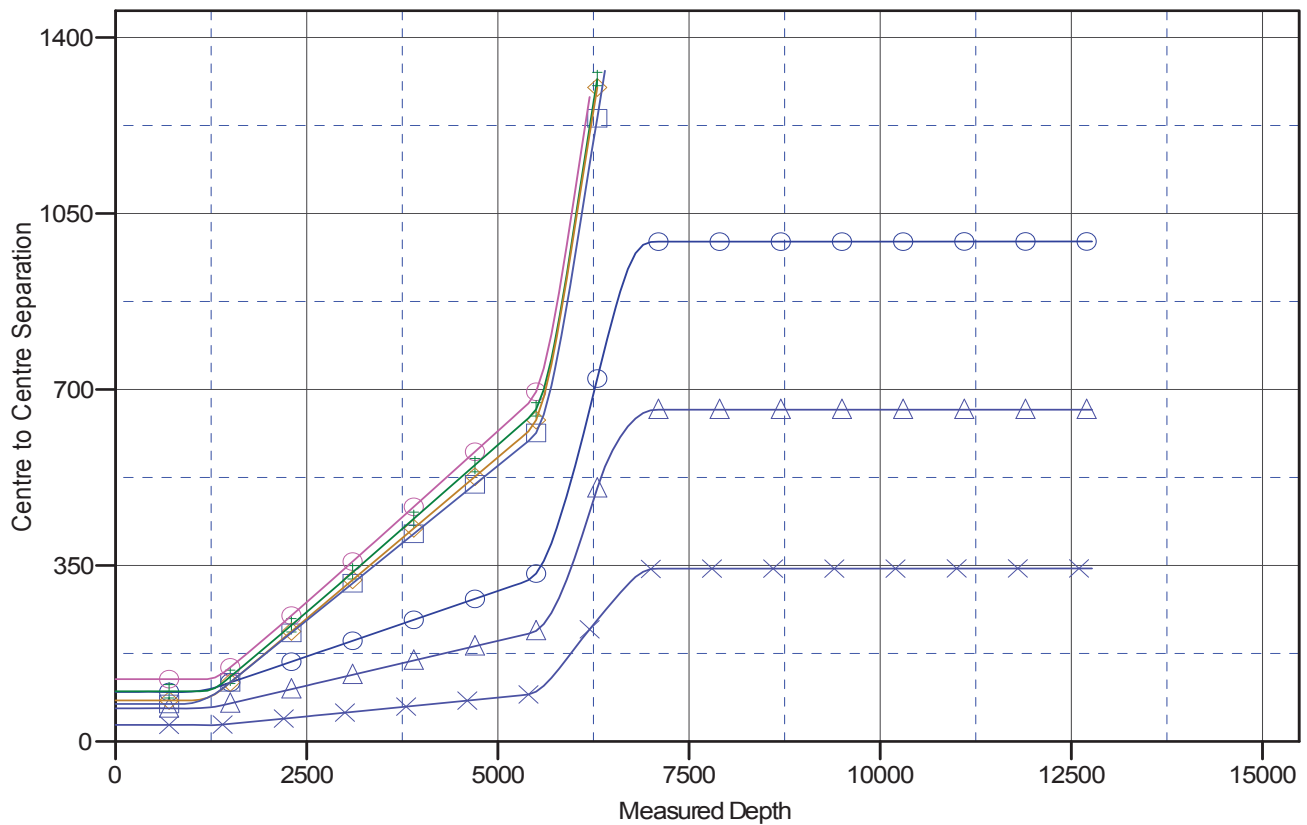
Company: Whiting Petroleum Corporation
Project: Weld County, CO
Reference Site: S12-T10N-R58W
Site Error: 0.0ft
Reference Well: Razor #12G-0112B
Well Error: 0.0ft
Reference Wellbore: HZ
Reference Design: Plan #1

Local Co-ordinate Reference: Well Razor #12G-0112B
TVD Reference: WELL @ 4970.3ft (Original Well Elev)
MD Reference: WELL @ 4970.3ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Reference Depths are relative to WELL @ 4970.3ft (Original Well Elev)
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000 °

Coordinates are relative to: Razor #12G-0112B
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 1.09°

Ladder Plot



LEGEND

- Razor #12G-0109A, HZ, Plan #1 V0
- △ Razor #12G-0110B, HZ, Plan #1 V0
- × Razor #12G-0111A, HZ, Plan #1 V0
- Razor #12G-1309A, HZ, Plan #1 V0
- △ Razor #12G-1310B, HZ, Plan #1 V0
- Razor #12G-1311A, HZ, Plan #1 V0
- △ Razor #12G-1312B, HZ, Plan #1 V0