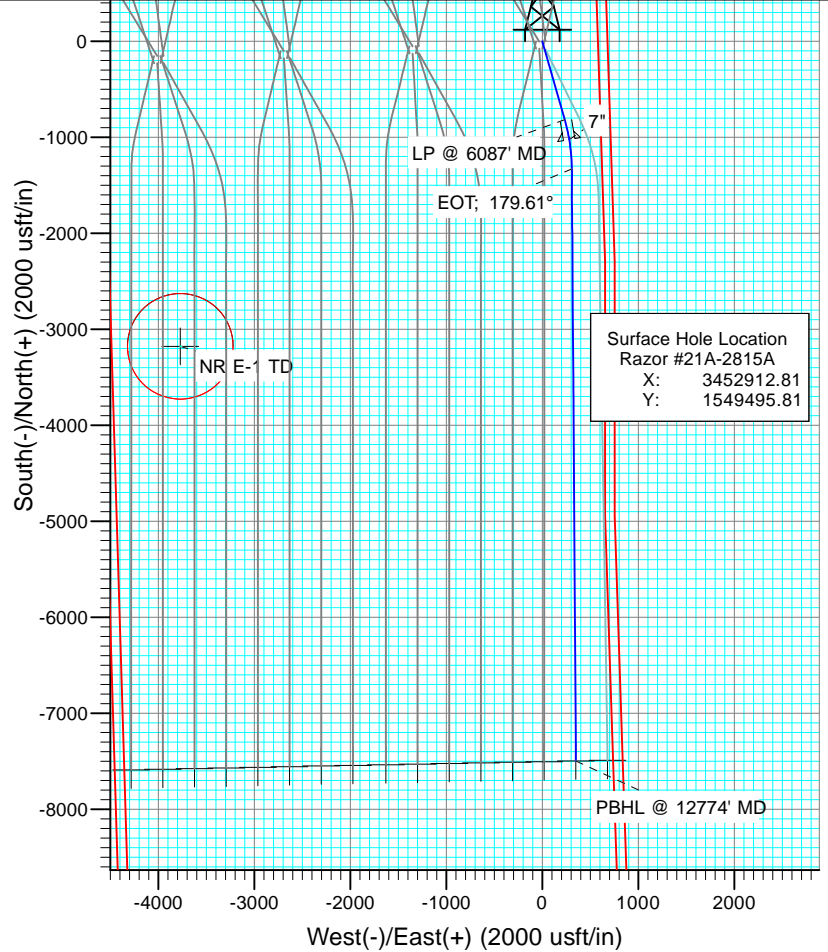
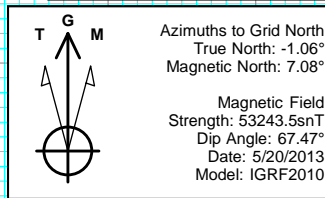


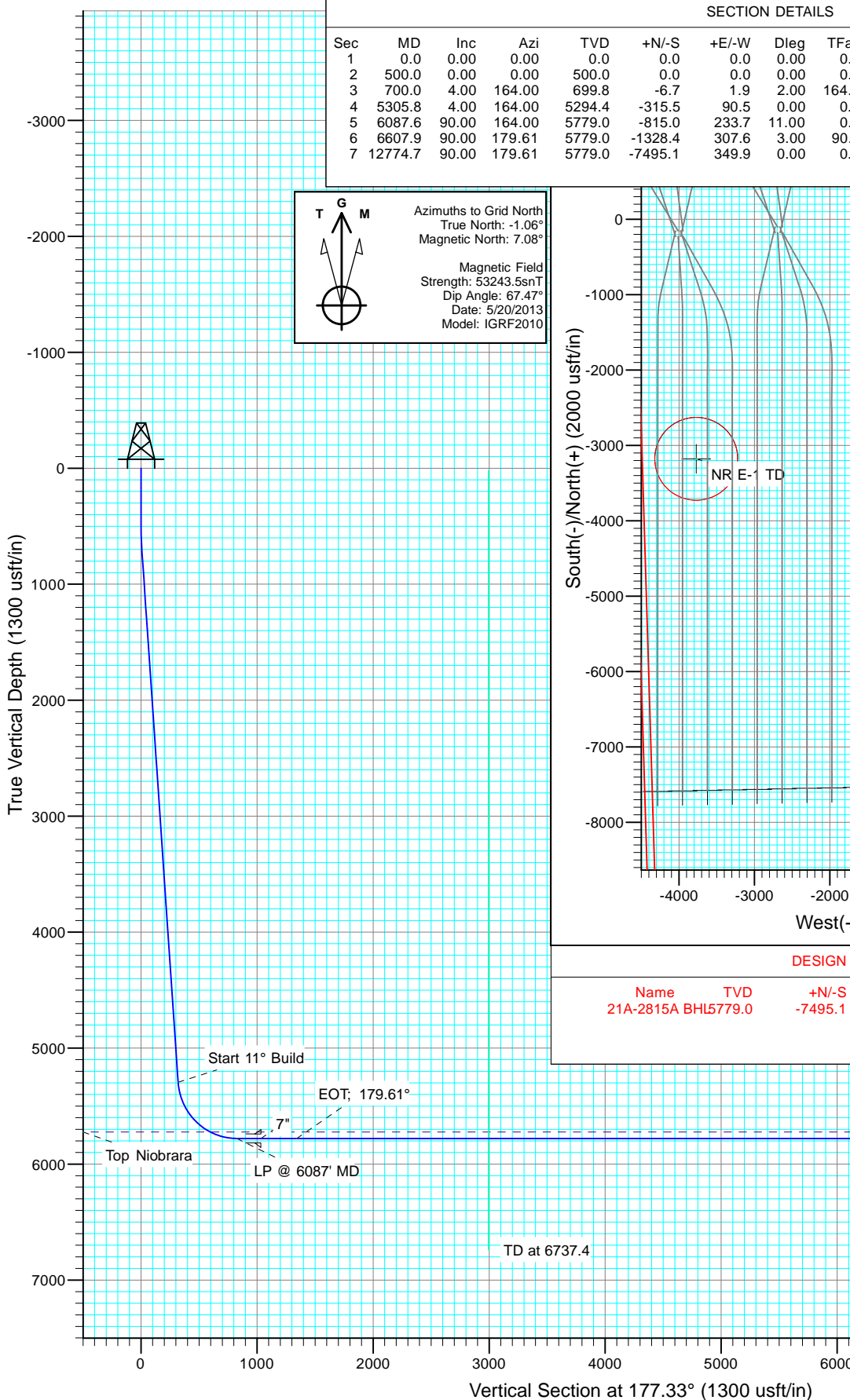
SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		KOP @ 500' MD
2	500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.0		EOB; 4°
3	700.0	4.00	164.00	699.8	-6.7	1.9	2.00	164.00	6.8		Start 11° Build
4	5305.8	4.00	164.00	5294.4	-315.5	90.5	0.00	0.00	319.4		LP @ 6087' MD
5	6087.6	90.00	164.00	5779.0	-815.0	233.7	11.00	0.00	825.0		EOT; 179.61°
6	6607.9	90.00	179.61	5779.0	-1328.4	307.6	3.00	90.00	1341.3		
7	12774.7	90.00	179.61	5779.0	-7495.1	349.9	0.00	0.00	7503.3	21A-2815A BHL	PBHL @ 12774' MD



DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
21A-2815A BHL	5779.0	-7495.1	349.9	1542000.72	3453262.69



Plan #2
 Razor #21A-2815A
 WELL @ 4848.4usft (Original Well Elev)
 Ground Elevation @ 4831.9
 North American Datum 1983
 Well Razor #21A-2815A, Grid North

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #21A-2815A
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4848.4usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4848.4usft (Original Well Elev)
Site:	S21-T10N-R58W	North Reference:	Grid
Well:	Razor #21A-2815A	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

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

Site		S21-T10N-R58W			
Site Position:		Northing:	1,549,494.62 usft	Latitude:	40.830272
From:	Lat/Long	Easting:	3,452,846.68 usft	Longitude:	-103.863561
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	1.06 °

Well	Razor #21A-2815A					
Well Position	+N/-S	0.0 usft	Northing:	1,549,495.81 usft	Latitude:	40.830272
	+E/-W	0.0 usft	Easting:	3,452,912.81 usft	Longitude:	-103.863322
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	4,831.9 usft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	5/20/2013	8.14	67.47	53,243

Design	Plan #2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.0	0.0	0.0	177.33

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.00	0.00	
700.0	4.00	164.00	699.8	-6.7	1.9	2.00	2.00	0.00	164.00	
5,305.8	4.00	164.00	5,294.4	-315.5	90.5	0.00	0.00	0.00	0.00	
6,087.6	90.00	164.00	5,779.0	-815.0	233.7	11.00	11.00	0.00	0.00	
6,607.9	90.00	179.61	5,779.0	-1,328.4	307.6	3.00	0.00	3.00	90.00	
12,774.7	90.00	179.61	5,779.0	-7,495.1	349.9	0.00	0.00	0.00	0.00	21A-2815A BHL

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #21A-2815A
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4848.4usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4848.4usft (Original Well Elev)
Site:	S21-T10N-R58W	North Reference:	Grid
Well:	Razor #21A-2815A	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	KOP @ 500' MD
600.0	2.00	164.00	600.0	-1.7	0.5	1.7	2.00	2.00	
700.0	4.00	164.00	699.8	-6.7	1.9	6.8	2.00	2.00	EOB; 4°
800.0	4.00	164.00	799.6	-13.4	3.8	13.6	0.00	0.00	
900.0	4.00	164.00	899.4	-20.1	5.8	20.4	0.00	0.00	
1,000.0	4.00	164.00	999.1	-26.8	7.7	27.2	0.00	0.00	
1,100.0	4.00	164.00	1,098.9	-33.5	9.6	33.9	0.00	0.00	
1,200.0	4.00	164.00	1,198.6	-40.2	11.5	40.7	0.00	0.00	
1,300.0	4.00	164.00	1,298.4	-46.9	13.5	47.5	0.00	0.00	
1,400.0	4.00	164.00	1,398.1	-53.6	15.4	54.3	0.00	0.00	
1,500.0	4.00	164.00	1,497.9	-60.4	17.3	61.1	0.00	0.00	
1,600.0	4.00	164.00	1,597.6	-67.1	19.2	67.9	0.00	0.00	
1,700.0	4.00	164.00	1,697.4	-73.8	21.2	74.7	0.00	0.00	
1,800.0	4.00	164.00	1,797.2	-80.5	23.1	81.5	0.00	0.00	
1,900.0	4.00	164.00	1,896.9	-87.2	25.0	88.2	0.00	0.00	
2,000.0	4.00	164.00	1,996.7	-93.9	26.9	95.0	0.00	0.00	
2,100.0	4.00	164.00	2,096.4	-100.6	28.8	101.8	0.00	0.00	
2,200.0	4.00	164.00	2,196.2	-107.3	30.8	108.6	0.00	0.00	
2,300.0	4.00	164.00	2,295.9	-114.0	32.7	115.4	0.00	0.00	
2,400.0	4.00	164.00	2,395.7	-120.7	34.6	122.2	0.00	0.00	
2,500.0	4.00	164.00	2,495.5	-127.4	36.5	129.0	0.00	0.00	
2,600.0	4.00	164.00	2,595.2	-134.1	38.5	135.8	0.00	0.00	
2,700.0	4.00	164.00	2,695.0	-140.8	40.4	142.5	0.00	0.00	
2,800.0	4.00	164.00	2,794.7	-147.5	42.3	149.3	0.00	0.00	
2,900.0	4.00	164.00	2,894.5	-154.2	44.2	156.1	0.00	0.00	
3,000.0	4.00	164.00	2,994.2	-160.9	46.1	162.9	0.00	0.00	
3,100.0	4.00	164.00	3,094.0	-167.6	48.1	169.7	0.00	0.00	
3,200.0	4.00	164.00	3,193.7	-174.3	50.0	176.5	0.00	0.00	
3,300.0	4.00	164.00	3,293.5	-181.0	51.9	183.3	0.00	0.00	
3,400.0	4.00	164.00	3,393.3	-187.8	53.8	190.1	0.00	0.00	
3,500.0	4.00	164.00	3,493.0	-194.5	55.8	196.8	0.00	0.00	
3,600.0	4.00	164.00	3,592.8	-201.2	57.7	203.6	0.00	0.00	
3,700.0	4.00	164.00	3,692.5	-207.9	59.6	210.4	0.00	0.00	
3,800.0	4.00	164.00	3,792.3	-214.6	61.5	217.2	0.00	0.00	
3,900.0	4.00	164.00	3,892.0	-221.3	63.5	224.0	0.00	0.00	
4,000.0	4.00	164.00	3,991.8	-228.0	65.4	230.8	0.00	0.00	
4,100.0	4.00	164.00	4,091.6	-234.7	67.3	237.6	0.00	0.00	
4,200.0	4.00	164.00	4,191.3	-241.4	69.2	244.4	0.00	0.00	
4,300.0	4.00	164.00	4,291.1	-248.1	71.1	251.2	0.00	0.00	
4,400.0	4.00	164.00	4,390.8	-254.8	73.1	257.9	0.00	0.00	
4,500.0	4.00	164.00	4,490.6	-261.5	75.0	264.7	0.00	0.00	
4,600.0	4.00	164.00	4,590.3	-268.2	76.9	271.5	0.00	0.00	
4,700.0	4.00	164.00	4,690.1	-274.9	78.8	278.3	0.00	0.00	
4,800.0	4.00	164.00	4,789.9	-281.6	80.8	285.1	0.00	0.00	
4,900.0	4.00	164.00	4,889.6	-288.3	82.7	291.9	0.00	0.00	
5,000.0	4.00	164.00	4,989.4	-295.0	84.6	298.7	0.00	0.00	
5,100.0	4.00	164.00	5,089.1	-301.7	86.5	305.5	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #21A-2815A
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4848.4usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4848.4usft (Original Well Elev)
Site:	S21-T10N-R58W	North Reference:	Grid
Well:	Razor #21A-2815A	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
5,200.0	4.00	164.00	5,188.9	-308.5	88.4	312.2	0.00	0.00	
5,300.0	4.00	164.00	5,288.6	-315.2	90.4	319.0	0.00	0.00	
5,305.8	4.00	164.00	5,294.4	-315.5	90.5	319.4	0.00	0.00	Start 11° Build
5,400.0	14.36	164.00	5,387.3	-330.0	94.6	334.0	11.00	11.00	
5,500.0	25.36	164.00	5,481.2	-362.6	104.0	367.0	11.00	11.00	
5,600.0	36.36	164.00	5,566.9	-411.8	118.1	416.9	11.00	11.00	
5,700.0	47.36	164.00	5,641.3	-475.9	136.5	481.7	11.00	11.00	
5,800.0	58.36	164.00	5,701.5	-552.4	158.4	559.2	11.00	11.00	
5,843.9	63.20	164.00	5,723.0	-589.2	169.0	596.5	11.00	11.00	Top Niobrara
5,900.0	69.36	164.00	5,745.5	-638.5	183.1	646.4	11.00	11.00	
6,000.0	80.36	164.00	5,771.6	-731.2	209.7	740.2	11.00	11.00	
6,087.6	90.00	164.00	5,779.0	-815.0	233.7	825.0	11.00	11.00	LP @ 6087' MD
6,100.0	90.00	164.37	5,779.0	-826.9	237.1	837.1	3.00	0.00	
6,200.0	90.00	167.37	5,779.0	-923.9	261.5	935.1	3.00	0.00	
6,300.0	90.00	170.37	5,779.0	-1,022.0	280.8	1,034.0	3.00	0.00	7"
6,400.0	90.00	173.37	5,779.0	-1,121.0	294.9	1,133.5	3.00	0.00	
6,500.0	90.00	176.37	5,779.0	-1,220.6	303.9	1,233.4	3.00	0.00	
6,600.0	90.00	179.37	5,779.0	-1,320.5	307.6	1,333.4	3.00	0.00	
6,607.9	90.00	179.61	5,779.0	-1,328.4	307.6	1,341.3	3.00	0.00	EOT; 179.61°
6,700.0	90.00	179.61	5,779.0	-1,420.5	308.3	1,433.3	0.00	0.00	
6,800.0	90.00	179.61	5,779.0	-1,520.5	309.0	1,533.2	0.00	0.00	
6,900.0	90.00	179.61	5,779.0	-1,620.5	309.6	1,633.2	0.00	0.00	
7,000.0	90.00	179.61	5,779.0	-1,720.5	310.3	1,733.1	0.00	0.00	
7,100.0	90.00	179.61	5,779.0	-1,820.5	311.0	1,833.0	0.00	0.00	
7,200.0	90.00	179.61	5,779.0	-1,920.5	311.7	1,932.9	0.00	0.00	
7,300.0	90.00	179.61	5,779.0	-2,020.5	312.4	2,032.8	0.00	0.00	
7,400.0	90.00	179.61	5,779.0	-2,120.5	313.1	2,132.8	0.00	0.00	
7,500.0	90.00	179.61	5,779.0	-2,220.5	313.8	2,232.7	0.00	0.00	
7,600.0	90.00	179.61	5,779.0	-2,320.5	314.4	2,332.6	0.00	0.00	
7,700.0	90.00	179.61	5,779.0	-2,420.5	315.1	2,432.5	0.00	0.00	
7,800.0	90.00	179.61	5,779.0	-2,520.5	315.8	2,532.5	0.00	0.00	
7,900.0	90.00	179.61	5,779.0	-2,620.5	316.5	2,632.4	0.00	0.00	
8,000.0	90.00	179.61	5,779.0	-2,720.5	317.2	2,732.3	0.00	0.00	
8,100.0	90.00	179.61	5,779.0	-2,820.5	317.9	2,832.2	0.00	0.00	
8,200.0	90.00	179.61	5,779.0	-2,920.5	318.5	2,932.1	0.00	0.00	
8,300.0	90.00	179.61	5,779.0	-3,020.5	319.2	3,032.1	0.00	0.00	
8,400.0	90.00	179.61	5,779.0	-3,120.5	319.9	3,132.0	0.00	0.00	
8,500.0	90.00	179.61	5,779.0	-3,220.5	320.6	3,231.9	0.00	0.00	
8,600.0	90.00	179.61	5,779.0	-3,320.5	321.3	3,331.8	0.00	0.00	
8,700.0	90.00	179.61	5,779.0	-3,420.4	322.0	3,431.7	0.00	0.00	
8,800.0	90.00	179.61	5,779.0	-3,520.4	322.7	3,531.7	0.00	0.00	
8,900.0	90.00	179.61	5,779.0	-3,620.4	323.3	3,631.6	0.00	0.00	
9,000.0	90.00	179.61	5,779.0	-3,720.4	324.0	3,731.5	0.00	0.00	
9,100.0	90.00	179.61	5,779.0	-3,820.4	324.7	3,831.4	0.00	0.00	
9,200.0	90.00	179.61	5,779.0	-3,920.4	325.4	3,931.3	0.00	0.00	
9,300.0	90.00	179.61	5,779.0	-4,020.4	326.1	4,031.3	0.00	0.00	
9,400.0	90.00	179.61	5,779.0	-4,120.4	326.8	4,131.2	0.00	0.00	
9,500.0	90.00	179.61	5,779.0	-4,220.4	327.5	4,231.1	0.00	0.00	
9,600.0	90.00	179.61	5,779.0	-4,320.4	328.1	4,331.0	0.00	0.00	
9,700.0	90.00	179.61	5,779.0	-4,420.4	328.8	4,430.9	0.00	0.00	
9,800.0	90.00	179.61	5,779.0	-4,520.4	329.5	4,530.9	0.00	0.00	
9,900.0	90.00	179.61	5,779.0	-4,620.4	330.2	4,630.8	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #21A-2815A
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4848.4usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4848.4usft (Original Well Elev)
Site:	S21-T10N-R58W	North Reference:	Grid
Well:	Razor #21A-2815A	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
10,000.0	90.00	179.61	5,779.0	-4,720.4	330.9	4,730.7	0.00	0.00	
10,100.0	90.00	179.61	5,779.0	-4,820.4	331.6	4,830.6	0.00	0.00	
10,200.0	90.00	179.61	5,779.0	-4,920.4	332.2	4,930.6	0.00	0.00	
10,300.0	90.00	179.61	5,779.0	-5,020.4	332.9	5,030.5	0.00	0.00	
10,400.0	90.00	179.61	5,779.0	-5,120.4	333.6	5,130.4	0.00	0.00	
10,500.0	90.00	179.61	5,779.0	-5,220.4	334.3	5,230.3	0.00	0.00	
10,600.0	90.00	179.61	5,779.0	-5,320.4	335.0	5,330.2	0.00	0.00	
10,700.0	90.00	179.61	5,779.0	-5,420.4	335.7	5,430.2	0.00	0.00	
10,800.0	90.00	179.61	5,779.0	-5,520.4	336.4	5,530.1	0.00	0.00	
10,900.0	90.00	179.61	5,779.0	-5,620.4	337.0	5,630.0	0.00	0.00	
11,000.0	90.00	179.61	5,779.0	-5,720.4	337.7	5,729.9	0.00	0.00	
11,100.0	90.00	179.61	5,779.0	-5,820.4	338.4	5,829.8	0.00	0.00	
11,200.0	90.00	179.61	5,779.0	-5,920.4	339.1	5,929.8	0.00	0.00	
11,300.0	90.00	179.61	5,779.0	-6,020.4	339.8	6,029.7	0.00	0.00	
11,400.0	90.00	179.61	5,779.0	-6,120.4	340.5	6,129.6	0.00	0.00	
11,500.0	90.00	179.61	5,779.0	-6,220.4	341.2	6,229.5	0.00	0.00	
11,600.0	90.00	179.61	5,779.0	-6,320.4	341.8	6,329.4	0.00	0.00	
11,700.0	90.00	179.61	5,779.0	-6,420.4	342.5	6,429.4	0.00	0.00	
11,800.0	90.00	179.61	5,779.0	-6,520.4	343.2	6,529.3	0.00	0.00	
11,900.0	90.00	179.61	5,779.0	-6,620.4	343.9	6,629.2	0.00	0.00	
12,000.0	90.00	179.61	5,779.0	-6,720.4	344.6	6,729.1	0.00	0.00	
12,100.0	90.00	179.61	5,779.0	-6,820.4	345.3	6,829.0	0.00	0.00	
12,200.0	90.00	179.61	5,779.0	-6,920.4	345.9	6,929.0	0.00	0.00	
12,300.0	90.00	179.61	5,779.0	-7,020.4	346.6	7,028.9	0.00	0.00	
12,400.0	90.00	179.61	5,779.0	-7,120.4	347.3	7,128.8	0.00	0.00	
12,500.0	90.00	179.61	5,779.0	-7,220.4	348.0	7,228.7	0.00	0.00	
12,600.0	90.00	179.61	5,779.0	-7,320.4	348.7	7,328.7	0.00	0.00	
12,700.0	90.00	179.61	5,779.0	-7,420.4	349.4	7,428.6	0.00	0.00	
12,774.7	90.00	179.61	5,779.0	-7,495.1	349.9	7,503.3	0.00	0.00	PBHL @ 12774' MD

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
21A-2815A BHL	0.00	0.00	5,779.0	-7,495.1	349.9	1,542,000.72	3,453,262.69	40.809686	-103.862558
- hit/miss target									
- Shape									
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
6,300.0	5,779.0	7"	0	0	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #21A-2815A
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4848.4usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4848.4usft (Original Well Elev)
Site:	S21-T10N-R58W	North Reference:	Grid
Well:	Razor #21A-2815A	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,843.9	5,723.0	Top Niobrara		0.00	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
500.0	500.0	0.0	0.0	KOP @ 500' MD	
700.0	699.8	-6.7	1.9	EOB; 4°	
5,305.8	5,294.4	-315.5	90.5	Start 11° Build	
6,087.6	5,779.0	-815.0	233.7	LP @ 6087' MD	
6,607.9	5,779.0	-1,328.4	307.6	EOT; 179.61°	
12,774.7	5,779.0	-7,495.1	349.9	PBHL @ 12774' MD	

Whiting Petroleum Corporation

Weld County, CO

S21-T10N-R58W

Razor #21A-2815A

HZ

Plan #2

Anticollision Report

30 May, 2013

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #21A-2815A
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.4usft (Original Well Elev)
Reference Site:	S21-T10N-R58W	MD Reference:	WELL @ 4848.4usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	Razor #21A-2815A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Reference	Plan #2		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 500.0usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	5/30/2013	
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	12,774.7	Plan #2 (HZ)	ISCWSA MWD	MWD - ISCWSA

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #21A-2815A
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.4usft (Original Well Elev)
Reference Site:	S21-T10N-R58W	MD Reference:	WELL @ 4848.4usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	Razor #21A-2815A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance		Separation Factor	Warning
			Between Centres (usft)	Between Ellipses (usft)		
S21-T10N-R58W						
Fregeau 1 (Existing) - Existing - ASSUMED VERTICAL						Out of range
Fregeau 2 (Existing) - Existing - ASSUMED VERTICAL						Out of range
Nelson Ranches E-1 (Existing) - Existing - ASSUMED VE						Out of range
Razor #21A-0913A - HZ - Plan #1	500.0	500.0	33.2	31.2	16.723	CC, ES
Razor #21A-0913A - HZ - Plan #1	700.0	697.9	40.5	37.7	14.375	SF
Razor #21A-0914B - HZ - Plan #1	1,084.0	1,083.4	83.9	79.3	18.367	CC
Razor #21A-0914B - HZ - Plan #1	1,100.0	1,099.2	83.9	79.3	18.075	ES
Razor #21A-0914B - HZ - Plan #1	1,400.0	1,396.3	94.7	88.7	15.641	SF
Razor #21A-0915A - HZ - Plan #1	721.9	721.6	31.8	28.9	10.915	CC, ES
Razor #21A-0915A - HZ - Plan #1	900.0	899.4	34.2	30.5	9.235	SF
Razor #21A-0916B - HZ - Plan #1	1,453.9	1,452.6	11.0	4.7	1.747	CC, ES, SF
Razor #21A-2813A - HZ - Plan #1	500.0	500.0	66.1	64.2	33.307	CC, ES
Razor #21A-2813A - HZ - Plan #1	5,305.8	5,303.3	226.9	201.4	8.893	SF
Razor #21A-2814B - HZ - Plan #1	773.7	769.6	77.1	74.0	25.112	CC
Razor #21A-2814B - HZ - Plan #1	12,774.7	12,748.9	341.2	62.0	1.222	Level 2, ES, SF
Razor #21A-2816B - HZ - Plan #2	1,202.0	1,196.8	57.1	52.1	11.612	CC
Razor #21A-2816B - HZ - Plan #2	5,550.0	5,530.5	68.3	40.7	2.474	ES
Razor #21A-2816B - HZ - Plan #2	12,774.7	12,871.7	341.0	63.5	1.229	Level 2, SF
Razor #21B-0909A - HZ - Plan #1						Out of range
Razor #21B-0910B - HZ - Plan #1						Out of range
Razor #21B-0911A - HZ - Plan #1						Out of range
Razor #21B-0912B - HZ - Plan #1						Out of range
Razor #21B-2809A - HZ - Plan #1						Out of range
Razor #21B-2810B - HZ - Plan #1						Out of range
Razor #21B-2811A - HZ - Plan #1						Out of range
Razor #21B-2812B - HZ - Plan #1						Out of range
Razor #21C-0905A - HZ - Plan #1						Out of range
Razor #21C-0906B - HZ - Plan #1						Out of range
Razor #21C-0907A - HZ - Plan #1						Out of range
Razor #21C-0908B - HZ - Plan #1						Out of range
Razor #21C-2805A - HZ - Plan #1						Out of range
Razor #21C-2806B - HZ - Plan #1						Out of range
Razor #21C-2807A - HZ - Plan #1						Out of range
Razor #21C-2808B - HZ - Plan #1						Out of range
Razor #21D-0901A - HZ - Plan #1						Out of range
Razor #21D-0902B - HZ - Plan #1						Out of range
Razor #21D-0903A - HZ - Plan #1						Out of range
Razor #21D-0904B - HZ - Plan #1						Out of range
Razor #21D-2801A - HZ - Plan #1						Out of range
Razor #21D-2802B - HZ - Plan #1						Out of range
Razor #21D-2803A - HZ - Plan #1						Out of range
Razor #21D-2804B - HZ - Plan #1						Out of range

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #21A-2815A
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.4usft (Original Well Elev)
Reference Site:	S21-T10N-R58W	MD Reference:	WELL @ 4848.4usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	Razor #21A-2815A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21A-0913A - HZ - Plan #1													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-91.04	-0.6	-33.2	33.2					
100.0	100.0	100.0	100.0	0.1	0.1	-91.04	-0.6	-33.2	33.2	33.0	0.19	176.945		
200.0	200.0	200.0	200.0	0.3	0.3	-91.04	-0.6	-33.2	33.2	32.6	0.64	52.116		
300.0	300.0	300.0	300.0	0.5	0.5	-91.04	-0.6	-33.2	33.2	32.1	1.09	30.558		
400.0	400.0	400.0	400.0	0.8	0.8	-91.04	-0.6	-33.2	33.2	31.7	1.54	21.617		
500.0	500.0	500.0	500.0	1.0	1.0	-91.04	-0.6	-33.2	33.2	31.2	1.99	16.723	CC, ES	
600.0	600.0	599.3	599.3	1.2	1.2	110.16	0.9	-34.1	34.7	32.3	2.41	14.418		
700.0	699.8	697.9	697.7	1.4	1.4	122.93	5.2	-36.8	40.5	37.7	2.82	14.375	SF	
800.0	799.6	796.9	796.5	1.6	1.7	134.82	11.1	-40.3	50.6	47.4	3.25	15.580		
900.0	899.4	896.0	895.3	1.8	1.9	142.57	17.0	-43.9	62.2	58.5	3.68	16.889		
1,000.0	999.1	995.0	994.1	2.0	2.1	147.83	23.0	-47.5	74.5	70.4	4.12	18.095		
1,100.0	1,098.9	1,094.1	1,092.9	2.3	2.4	151.59	28.9	-51.1	87.3	82.7	4.56	19.155		
1,200.0	1,198.6	1,193.1	1,191.7	2.5	2.6	154.38	34.8	-54.7	100.3	95.3	5.00	20.072		
1,300.0	1,298.4	1,292.1	1,290.5	2.8	2.9	156.53	40.7	-58.3	113.5	108.1	5.44	20.865		
1,400.0	1,398.1	1,391.2	1,389.3	3.0	3.1	158.22	46.6	-61.9	126.8	120.9	5.88	21.552		
1,500.0	1,497.9	1,490.2	1,488.1	3.3	3.4	159.60	52.5	-65.4	140.3	133.9	6.33	22.151		
1,600.0	1,597.6	1,589.3	1,586.9	3.5	3.6	160.73	58.4	-69.0	153.8	147.0	6.78	22.676		
1,700.0	1,697.4	1,688.3	1,685.7	3.8	3.9	161.68	64.3	-72.6	167.3	160.1	7.23	23.139		
1,800.0	1,797.2	1,787.4	1,784.5	4.1	4.1	162.49	70.2	-76.2	180.9	173.2	7.68	23.550		
1,900.0	1,896.9	1,886.4	1,883.4	4.3	4.4	163.19	76.1	-79.8	194.5	186.3	8.13	23.917		
2,000.0	1,996.7	1,985.4	1,982.2	4.6	4.6	163.79	82.0	-83.4	208.1	199.5	8.58	24.247		
2,100.0	2,096.4	2,084.5	2,081.0	4.8	4.9	164.32	87.9	-87.0	221.8	212.7	9.04	24.544		
2,200.0	2,196.2	2,183.5	2,179.8	5.1	5.2	164.79	93.8	-90.6	235.4	225.9	9.49	24.813		
2,300.0	2,295.9	2,282.6	2,278.6	5.4	5.4	165.21	99.7	-94.1	249.1	239.2	9.94	25.057		
2,400.0	2,395.7	2,381.6	2,377.4	5.6	5.7	165.58	105.6	-97.7	262.8	252.4	10.40	25.281		
2,500.0	2,495.5	2,480.7	2,476.2	5.9	5.9	165.92	111.5	-101.3	276.5	265.7	10.85	25.486		
2,600.0	2,595.2	2,579.7	2,575.0	6.1	6.2	166.22	117.4	-104.9	290.2	278.9	11.30	25.675		
2,700.0	2,695.0	2,678.8	2,673.8	6.4	6.4	166.50	123.3	-108.5	304.0	292.2	11.76	25.849		
2,800.0	2,794.7	2,777.8	2,772.6	6.7	6.7	166.75	129.2	-112.1	317.7	305.5	12.21	26.010		
2,900.0	2,894.5	2,876.8	2,871.4	6.9	6.9	166.98	135.1	-115.7	331.4	318.7	12.67	26.159		
3,000.0	2,994.2	2,975.9	2,970.2	7.2	7.2	167.20	141.0	-119.3	345.1	332.0	13.12	26.299		
3,100.0	3,094.0	3,074.9	3,069.0	7.5	7.4	167.39	146.9	-122.8	358.9	345.3	13.58	26.428		
3,200.0	3,193.7	3,174.0	3,167.8	7.7	7.7	167.58	152.9	-126.4	372.6	358.6	14.04	26.550		
3,300.0	3,293.5	3,273.0	3,266.6	8.0	7.9	167.75	158.8	-130.0	386.4	371.9	14.49	26.664		
3,400.0	3,393.3	3,372.1	3,365.4	8.2	8.2	167.91	164.7	-133.6	400.1	385.2	14.95	26.770		
3,500.0	3,493.0	3,471.1	3,464.2	8.5	8.5	168.05	170.6	-137.2	413.9	398.5	15.40	26.871		
3,600.0	3,592.8	3,570.2	3,563.0	8.8	8.7	168.19	176.5	-140.8	427.7	411.8	15.86	26.965		
3,700.0	3,692.5	3,669.2	3,661.8	9.0	9.0	168.32	182.4	-144.4	441.4	425.1	16.32	27.055		
3,800.0	3,792.3	3,768.2	3,760.6	9.3	9.2	168.44	188.3	-148.0	455.2	438.4	16.77	27.139		
3,900.0	3,892.0	3,867.3	3,859.4	9.6	9.5	168.56	194.2	-151.5	468.9	451.7	17.23	27.219		
4,000.0	3,991.8	3,966.3	3,958.2	9.8	9.7	168.67	200.1	-155.1	482.7	465.0	17.68	27.295		
4,100.0	4,091.6	4,065.4	4,057.0	10.1	10.0	168.77	206.0	-158.7	496.5	478.3	18.14	27.367		

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 #21A-2815A
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.4usft (Original Well Elev)
Reference Site:	S21-T10N-R58W	MD Reference:	WELL @ 4848.4usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	Razor #21A-2815A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21A-0914B - HZ - Plan #1														Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD														Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-139.52	-75.9	-64.8	99.8						
100.0	100.0	100.0	100.0	0.1	0.1	-139.52	-75.9	-64.8	99.8	99.6	0.19	531.498			
200.0	200.0	200.0	200.0	0.3	0.3	-139.52	-75.9	-64.8	99.8	99.1	0.64	156.544			
300.0	300.0	300.0	300.0	0.5	0.5	-139.52	-75.9	-64.8	99.8	98.7	1.09	91.789			
400.0	400.0	400.0	400.0	0.8	0.8	-139.52	-75.9	-64.8	99.8	98.2	1.54	64.931			
500.0	500.0	500.0	500.0	1.0	1.0	-139.52	-75.9	-64.8	99.8	97.8	1.99	50.232			
600.0	600.0	600.0	600.0	1.2	1.2	57.34	-75.9	-64.8	98.8	96.4	2.41	41.000			
700.0	699.8	699.8	699.8	1.4	1.4	60.01	-75.9	-64.8	96.1	93.3	2.82	34.030			
800.0	799.6	800.9	800.9	1.6	1.7	64.79	-74.2	-65.3	92.1	88.8	3.26	28.258			
900.0	899.4	901.2	901.0	1.8	1.9	72.11	-69.2	-67.0	87.7	84.0	3.71	23.658			
1,000.0	999.1	1,000.2	999.8	2.0	2.1	81.07	-62.6	-69.1	84.7	80.6	4.17	20.312			
1,084.0	1,082.9	1,083.4	1,082.7	2.2	2.3	88.92	-57.1	-70.9	83.9	79.3	4.57	18.367 CC			
1,100.0	1,098.9	1,099.2	1,098.6	2.3	2.4	90.43	-56.0	-71.3	83.9	79.3	4.64	18.075 ES			
1,200.0	1,198.6	1,198.3	1,197.4	2.5	2.6	99.71	-49.5	-73.4	85.5	80.3	5.12	16.690			
1,300.0	1,298.4	1,297.3	1,296.2	2.8	2.8	108.46	-42.9	-75.6	89.1	83.5	5.59	15.938			
1,400.0	1,398.1	1,396.3	1,395.0	3.0	3.1	116.35	-36.3	-77.7	94.7	88.7	6.06	15.641 SF			
1,500.0	1,497.9	1,495.4	1,493.7	3.3	3.3	123.26	-29.8	-79.9	101.9	95.4	6.51	15.652			
1,600.0	1,597.6	1,594.4	1,592.5	3.5	3.6	129.20	-23.2	-82.0	110.4	103.5	6.96	15.862			
1,700.0	1,697.4	1,693.4	1,691.3	3.8	3.8	134.25	-16.7	-84.2	120.0	112.6	7.41	16.193			
1,800.0	1,797.2	1,792.4	1,790.1	4.1	4.1	138.54	-10.1	-86.3	130.3	122.4	7.85	16.592			
1,900.0	1,896.9	1,891.5	1,888.9	4.3	4.3	142.19	-3.5	-88.5	141.2	132.9	8.29	17.025			
2,000.0	1,996.7	1,990.5	1,987.7	4.6	4.6	145.31	3.0	-90.6	152.6	143.9	8.74	17.471			
2,100.0	2,096.4	2,089.5	2,086.5	4.8	4.8	147.99	9.6	-92.8	164.4	155.2	9.18	17.914			
2,200.0	2,196.2	2,188.5	2,185.2	5.1	5.1	150.30	16.2	-94.9	176.5	166.9	9.62	18.348			
2,300.0	2,295.9	2,287.6	2,284.0	5.4	5.3	152.32	22.7	-97.1	188.9	178.8	10.06	18.766			
2,400.0	2,395.7	2,386.6	2,382.8	5.6	5.6	154.09	29.3	-99.2	201.4	190.9	10.51	19.167			
2,500.0	2,495.5	2,485.6	2,481.6	5.9	5.8	155.65	35.9	-101.4	214.2	203.2	10.95	19.550			
2,600.0	2,595.2	2,584.7	2,580.4	6.1	6.1	157.04	42.4	-103.5	227.0	215.6	11.40	19.913			
2,700.0	2,695.0	2,683.7	2,679.2	6.4	6.3	158.27	49.0	-105.7	240.0	228.2	11.85	20.257			
2,800.0	2,794.7	2,782.7	2,778.0	6.7	6.6	159.38	55.5	-107.8	253.1	240.8	12.30	20.584			
2,900.0	2,894.5	2,881.7	2,876.7	6.9	6.8	160.38	62.1	-110.0	266.3	253.5	12.74	20.893			
3,000.0	2,994.2	2,980.8	2,975.5	7.2	7.1	161.29	68.7	-112.1	279.5	266.3	13.19	21.185			
3,100.0	3,094.0	3,079.8	3,074.3	7.5	7.3	162.11	75.2	-114.3	292.8	279.2	13.64	21.463			
3,200.0	3,193.7	3,178.8	3,173.1	7.7	7.6	162.87	81.8	-116.4	306.2	292.1	14.09	21.725			
3,300.0	3,293.5	3,277.8	3,271.9	8.0	7.8	163.56	88.4	-118.6	319.6	305.0	14.54	21.974			
3,400.0	3,393.3	3,376.9	3,370.7	8.2	8.1	164.19	94.9	-120.7	333.0	318.0	14.99	22.211			
3,500.0	3,493.0	3,475.9	3,469.5	8.5	8.3	164.78	101.5	-122.9	346.5	331.1	15.44	22.435			
3,600.0	3,592.8	3,574.9	3,568.2	8.8	8.6	165.32	108.1	-125.1	360.0	344.1	15.90	22.648			
3,700.0	3,692.5	3,674.0	3,667.0	9.0	8.9	165.82	114.6	-127.2	373.6	357.2	16.35	22.851			
3,800.0	3,792.3	3,773.0	3,765.8	9.3	9.1	166.28	121.2	-129.4	387.1	370.3	16.80	23.044			
3,900.0	3,892.0	3,872.0	3,864.6	9.6	9.4	166.72	127.8	-131.5	400.7	383.5	17.25	23.228			
4,000.0	3,991.8	3,971.0	3,963.4	9.8	9.6	167.13	134.3	-133.7	414.4	396.6	17.70	23.404			
4,100.0	4,091.6	4,070.1	4,062.2	10.1	9.9	167.51	140.9	-135.8	428.0	409.8	18.16	23.572			
4,200.0	4,191.3	4,169.1	4,161.0	10.3	10.1	167.86	147.4	-138.0	441.6	423.0	18.61	23.732			
4,300.0	4,291.1	4,268.1	4,259.7	10.6	10.4	168.20	154.0	-140.1	455.3	436.2	19.06	23.885			
4,400.0	4,390.8	4,367.1	4,358.5	10.9	10.6	168.52	160.6	-142.3	469.0	449.5	19.52	24.031			
4,500.0	4,490.6	4,466.2	4,457.3	11.1	10.9	168.81	167.1	-144.4	482.7	462.7	19.97	24.172			
4,600.0	4,590.3	4,565.2	4,556.1	11.4	11.1	169.10	173.7	-146.6	496.4	476.0	20.42	24.306			

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 #21A-2815A
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.4usft (Original Well Elev)
Reference Site:	S21-T10N-R58W	MD Reference:	WELL @ 4848.4usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	Razor #21A-2815A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21A-0915A - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
0.0	0.0	0.0	0.0	0.0	0.0	88.96	0.6	32.9	32.9					
100.0	100.0	100.0	100.0	0.1	0.1	88.96	0.6	32.9	32.9	32.7	0.19	175.471		
200.0	200.0	200.0	200.0	0.3	0.3	88.96	0.6	32.9	32.9	32.3	0.64	51.682		
300.0	300.0	300.0	300.0	0.5	0.5	88.96	0.6	32.9	32.9	31.8	1.09	30.304		
400.0	400.0	400.0	400.0	0.8	0.8	88.96	0.6	32.9	32.9	31.4	1.54	21.436		
500.0	500.0	500.0	500.0	1.0	1.0	88.96	0.6	32.9	32.9	30.9	1.99	16.584		
600.0	600.0	600.0	600.0	1.2	1.2	-78.02	0.6	32.9	32.5	30.1	2.41	13.506		
700.0	699.8	699.8	699.8	1.4	1.4	-87.26	0.6	32.9	31.9	29.0	2.82	11.294		
721.9	721.6	721.6	721.6	1.4	1.5	-90.00	0.6	32.9	31.8	28.9	2.91	10.915 CC, ES		
800.0	799.6	799.6	799.6	1.6	1.7	-99.70	0.6	32.9	32.3	29.0	3.25	9.920		
900.0	899.4	899.4	899.4	1.8	1.9	-111.29	0.6	32.9	34.2	30.5	3.70	9.235 SF		
1,000.0	999.1	998.2	998.2	2.0	2.1	-123.17	2.3	32.7	38.4	34.2	4.14	9.264		
1,100.0	1,098.9	1,096.4	1,096.3	2.3	2.3	-134.98	7.3	32.0	46.6	42.0	4.58	10.172		
1,200.0	1,198.6	1,195.4	1,195.0	2.5	2.6	-143.96	14.1	31.1	57.9	52.9	5.02	11.521		
1,300.0	1,298.4	1,294.5	1,293.8	2.8	2.8	-149.94	21.0	30.2	70.1	64.6	5.46	12.830		
1,400.0	1,398.1	1,393.5	1,392.6	3.0	3.0	-154.12	27.8	29.3	82.8	76.9	5.90	14.030		
1,500.0	1,497.9	1,492.5	1,491.4	3.3	3.3	-157.18	34.7	28.4	95.9	89.5	6.35	15.110		
1,600.0	1,597.6	1,591.6	1,590.2	3.5	3.5	-159.50	41.5	27.5	109.1	102.3	6.79	16.075		
1,700.0	1,697.4	1,690.6	1,689.0	3.8	3.7	-161.32	48.4	26.6	122.5	115.3	7.23	16.938		
1,800.0	1,797.2	1,789.6	1,787.8	4.1	4.0	-162.77	55.2	25.7	136.0	128.3	7.68	17.710		
1,900.0	1,896.9	1,888.7	1,886.6	4.3	4.2	-163.97	62.1	24.8	149.6	141.5	8.13	18.404		
2,000.0	1,996.7	1,987.7	1,985.4	4.6	4.5	-164.96	68.9	23.9	163.2	154.6	8.58	19.029		
2,100.0	2,096.4	2,086.7	2,084.1	4.8	4.7	-165.81	75.7	23.0	176.9	167.8	9.03	19.595		
2,200.0	2,196.2	2,185.7	2,182.9	5.1	5.0	-166.53	82.6	22.1	190.5	181.1	9.48	20.110		
2,300.0	2,295.9	2,284.8	2,281.7	5.4	5.2	-167.15	89.4	21.2	204.3	194.3	9.93	20.579		
2,400.0	2,395.7	2,383.8	2,380.5	5.6	5.5	-167.70	96.3	20.2	218.0	207.6	10.38	21.009		
2,500.0	2,495.5	2,482.8	2,479.3	5.9	5.7	-168.18	103.1	19.3	231.7	220.9	10.83	21.403		
2,600.0	2,595.2	2,581.9	2,578.1	6.1	6.0	-168.61	110.0	18.4	245.5	234.2	11.28	21.767		
2,700.0	2,695.0	2,680.9	2,676.9	6.4	6.2	-168.99	116.8	17.5	259.3	247.6	11.73	22.102		
2,800.0	2,794.7	2,779.9	2,775.7	6.7	6.5	-169.33	123.7	16.6	273.1	260.9	12.18	22.414		
2,900.0	2,894.5	2,879.0	2,874.5	6.9	6.7	-169.64	130.5	15.7	286.9	274.2	12.64	22.703		
3,000.0	2,994.2	2,978.0	2,973.3	7.2	7.0	-169.93	137.4	14.8	300.7	287.6	13.09	22.972		
3,100.0	3,094.0	3,077.0	3,072.1	7.5	7.2	-170.18	144.2	13.9	314.5	301.0	13.54	23.223		
3,200.0	3,193.7	3,176.1	3,170.8	7.7	7.5	-170.42	151.1	13.0	328.3	314.3	14.00	23.458		
3,300.0	3,293.5	3,275.1	3,269.6	8.0	7.7	-170.64	157.9	12.1	342.1	327.7	14.45	23.679		
3,400.0	3,393.3	3,374.1	3,368.4	8.2	8.0	-170.84	164.8	11.2	356.0	341.1	14.90	23.886		
3,500.0	3,493.0	3,473.2	3,467.2	8.5	8.2	-171.02	171.6	10.3	369.8	354.4	15.36	24.080		
3,600.0	3,592.8	3,572.2	3,566.0	8.8	8.5	-171.19	178.5	9.4	383.6	367.8	15.81	24.264		
3,700.0	3,692.5	3,671.2	3,664.8	9.0	8.7	-171.35	185.3	8.4	397.5	381.2	16.26	24.437		
3,800.0	3,792.3	3,770.3	3,763.6	9.3	9.0	-171.50	192.2	7.5	411.3	394.6	16.72	24.601		
3,900.0	3,892.0	3,869.3	3,862.4	9.6	9.2	-171.64	199.0	6.6	425.2	408.0	17.17	24.757		
4,000.0	3,991.8	3,968.3	3,961.2	9.8	9.5	-171.77	205.9	5.7	439.0	421.4	17.63	24.904		
4,100.0	4,091.6	4,067.4	4,060.0	10.1	9.7	-171.89	212.7	4.8	452.8	434.8	18.08	25.044		
4,200.0	4,191.3	4,166.4	4,158.8	10.3	10.0	-172.01	219.6	3.9	466.7	448.2	18.54	25.177		
4,300.0	4,291.1	4,265.4	4,257.5	10.6	10.2	-172.12	226.4	3.0	480.6	461.6	18.99	25.304		
4,400.0	4,390.8	4,364.5	4,356.3	10.9	10.5	-172.22	233.3	2.1	494.4	475.0	19.45	25.424		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #21A-2815A
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.4usft (Original Well Elev)
Reference Site:	S21-T10N-R58W	MD Reference:	WELL @ 4848.4usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	Razor #21A-2815A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21A-0916B - HZ - Plan #1													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	178.94	-74.7	1.4	74.7					
100.0	100.0	100.0	100.0	0.1	0.1	178.94	-74.7	1.4	74.7	74.5	0.19	397.985		
200.0	200.0	200.0	200.0	0.3	0.3	178.94	-74.7	1.4	74.7	74.1	0.64	117.220		
300.0	300.0	300.0	300.0	0.5	0.5	178.94	-74.7	1.4	74.7	73.6	1.09	68.732		
400.0	400.0	400.0	400.0	0.8	0.8	178.94	-74.7	1.4	74.7	73.2	1.54	48.620		
500.0	500.0	500.0	500.0	1.0	1.0	178.94	-74.7	1.4	74.7	72.7	1.99	37.614		
600.0	600.0	600.0	600.0	1.2	1.2	15.30	-74.7	1.4	73.0	70.6	2.41	30.275		
700.0	699.8	699.8	699.8	1.4	1.4	16.50	-74.7	1.4	68.0	65.2	2.82	24.063		
800.0	799.6	799.6	799.6	1.6	1.7	18.35	-74.7	1.4	61.3	58.1	3.25	18.888		
900.0	899.4	899.4	899.4	1.8	1.9	20.65	-74.7	1.4	54.7	51.1	3.68	14.882		
1,000.0	999.1	999.1	999.1	2.0	2.1	23.57	-74.7	1.4	48.3	44.2	4.12	11.721		
1,100.0	1,098.9	1,098.9	1,098.9	2.3	2.3	27.37	-74.7	1.4	42.0	37.4	4.57	9.191		
1,200.0	1,198.6	1,199.8	1,199.8	2.5	2.6	32.73	-73.0	1.8	34.2	29.2	5.03	6.799		
1,300.0	1,298.4	1,300.1	1,300.0	2.8	2.8	42.84	-67.9	3.0	23.5	18.0	5.52	4.255		
1,400.0	1,398.1	1,399.2	1,398.8	3.0	3.0	71.49	-61.2	4.6	13.2	7.1	6.05	2.180		
1,453.9	1,451.9	1,452.6	1,452.1	3.2	3.1	104.67	-57.5	5.4	11.0	4.7	6.30	1.747 CC, ES, SF		
1,500.0	1,497.9	1,498.3	1,497.7	3.3	3.2	133.86	-54.4	6.1	12.6	6.2	6.43	1.965		
1,600.0	1,597.6	1,597.4	1,596.5	3.5	3.5	165.22	-47.7	7.7	22.5	15.8	6.79	3.321		
1,700.0	1,697.4	1,696.5	1,695.4	3.8	3.7	176.13	-41.0	9.3	34.9	27.7	7.22	4.837		
1,800.0	1,797.2	1,795.6	1,794.2	4.1	4.0	-178.74	-34.2	10.9	47.9	40.2	7.67	6.247		
1,900.0	1,896.9	1,894.7	1,893.1	4.3	4.2	-175.81	-27.5	12.5	61.1	53.0	8.12	7.524		
2,000.0	1,996.7	1,993.8	1,991.9	4.6	4.4	-173.93	-20.8	14.1	74.4	65.8	8.57	8.677		
2,100.0	2,096.4	2,092.8	2,090.7	4.8	4.7	-172.61	-14.1	15.7	87.7	78.7	9.02	9.720		
2,200.0	2,196.2	2,191.9	2,189.6	5.1	4.9	-171.65	-7.3	17.2	101.1	91.6	9.48	10.665		
2,300.0	2,295.9	2,291.0	2,288.4	5.4	5.2	-170.91	-0.6	18.8	114.5	104.6	9.93	11.526		
2,400.0	2,395.7	2,390.1	2,387.3	5.6	5.4	-170.32	6.1	20.4	127.9	117.5	10.39	12.312		
2,500.0	2,495.5	2,489.2	2,486.1	5.9	5.7	-169.85	12.9	22.0	141.3	130.5	10.84	13.032		
2,600.0	2,595.2	2,588.3	2,585.0	6.1	5.9	-169.46	19.6	23.6	154.8	143.5	11.30	13.695		
2,700.0	2,695.0	2,687.4	2,683.8	6.4	6.2	-169.13	26.3	25.2	168.2	156.4	11.76	14.307		
2,800.0	2,794.7	2,786.5	2,782.7	6.7	6.4	-168.85	33.0	26.7	181.6	169.4	12.21	14.872		
2,900.0	2,894.5	2,885.6	2,881.5	6.9	6.6	-168.60	39.8	28.3	195.1	182.4	12.67	15.397		
3,000.0	2,994.2	2,984.6	2,980.4	7.2	6.9	-168.39	46.5	29.9	208.5	195.4	13.13	15.886		
3,100.0	3,094.0	3,083.7	3,079.2	7.5	7.1	-168.21	53.2	31.5	222.0	208.4	13.58	16.341		
3,200.0	3,193.7	3,182.8	3,178.1	7.7	7.4	-168.04	60.0	33.1	235.4	221.4	14.04	16.767		
3,300.0	3,293.5	3,281.9	3,276.9	8.0	7.6	-167.90	66.7	34.7	248.9	234.4	14.50	17.166		
3,400.0	3,393.3	3,381.0	3,375.8	8.2	7.9	-167.77	73.4	36.2	262.3	247.4	14.96	17.540		
3,500.0	3,493.0	3,480.1	3,474.6	8.5	8.1	-167.65	80.1	37.8	275.8	260.4	15.41	17.892		
3,600.0	3,592.8	3,579.2	3,573.5	8.8	8.4	-167.54	86.9	39.4	289.3	273.4	15.87	18.224		
3,700.0	3,692.5	3,678.3	3,672.3	9.0	8.6	-167.44	93.6	41.0	302.7	286.4	16.33	18.537		
3,800.0	3,792.3	3,777.4	3,771.2	9.3	8.9	-167.35	100.3	42.6	316.2	299.4	16.79	18.833		
3,900.0	3,892.0	3,876.4	3,870.0	9.6	9.1	-167.27	107.1	44.2	329.6	312.4	17.25	19.113		
4,000.0	3,991.8	3,975.5	3,968.9	9.8	9.4	-167.20	113.8	45.8	343.1	325.4	17.71	19.378		
4,100.0	4,091.6	4,074.6	4,067.7	10.1	9.7	-167.13	120.5	47.3	356.6	338.4	18.16	19.630		
4,200.0	4,191.3	4,173.7	4,166.5	10.3	9.9	-167.06	127.2	48.9	370.0	351.4	18.62	19.870		
4,300.0	4,291.1	4,272.8	4,265.4	10.6	10.2	-167.00	134.0	50.5	383.5	364.4	19.08	20.098		
4,400.0	4,390.8	4,371.9	4,364.2	10.9	10.4	-166.94	140.7	52.1	396.9	377.4	19.54	20.315		
4,500.0	4,490.6	4,471.0	4,463.1	11.1	10.7	-166.89	147.4	53.7	410.4	390.4	20.00	20.522		
4,600.0	4,590.3	4,570.1	4,561.9	11.4	10.9	-166.84	154.1	55.3	423.9	403.4	20.46	20.720		
4,700.0	4,690.1	4,669.2	4,660.8	11.7	11.2	-166.80	160.9	56.8	437.3	416.4	20.92	20.909		
4,800.0	4,789.9	4,768.2	4,759.6	11.9	11.4	-166.75	167.6	58.4	450.8	429.4	21.38	21.090		
4,900.0	4,889.6	4,867.3	4,858.5	12.2	11.7	-166.71	174.3	60.0	464.3	442.4	21.83	21.263		
5,000.0	4,989.4	4,966.4	4,957.3	12.5	11.9	-166.67	181.1	61.6	477.7	455.4	22.29	21.430		

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 #21A-2815A
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.4usft (Original Well Elev)
Reference Site:	S21-T10N-R58W	MD Reference:	WELL @ 4848.4usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	Razor #21A-2815A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21A-0916B - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance								
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning	
5,100.0	5,089.1	5,065.5	5,056.2	12.7	12.2	-166.64	187.8	63.2	491.2	468.4	22.75	21.589		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #21A-2815A
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.4usft (Original Well Elev)
Reference Site:	S21-T10N-R58W	MD Reference:	WELL @ 4848.4usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	Razor #21A-2815A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21A-2813A - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: 0-ISCSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-91.04	-1.2	-66.1	66.1					
100.0	100.0	100.0	100.0	0.1	0.1	-91.04	-1.2	-66.1	66.1	66.0	0.19	352.416		
200.0	200.0	200.0	200.0	0.3	0.3	-91.04	-1.2	-66.1	66.1	65.5	0.64	103.798		
300.0	300.0	300.0	300.0	0.5	0.5	-91.04	-1.2	-66.1	66.1	65.1	1.09	60.862		
400.0	400.0	400.0	400.0	0.8	0.8	-91.04	-1.2	-66.1	66.1	64.6	1.54	43.053		
500.0	500.0	500.0	500.0	1.0	1.0	-91.04	-1.2	-66.1	66.1	64.2	1.99	33.307 CC, ES		
600.0	600.0	600.0	600.0	1.2	1.2	106.40	-1.2	-66.1	66.6	64.2	2.41	27.659		
700.0	699.8	699.8	699.8	1.4	1.4	110.58	-1.2	-66.1	68.3	65.5	2.82	24.209		
800.0	799.6	799.6	799.6	1.6	1.7	115.85	-1.2	-66.1	71.0	67.8	3.25	21.851		
900.0	899.4	899.4	899.4	1.8	1.9	120.68	-1.2	-66.1	74.3	70.7	3.69	20.136		
1,000.0	999.1	999.1	999.1	2.0	2.1	125.08	-1.2	-66.1	78.1	74.0	4.14	18.879		
1,100.0	1,098.9	1,098.9	1,098.9	2.3	2.3	129.05	-1.2	-66.1	82.4	77.8	4.59	17.945		
1,200.0	1,198.6	1,198.6	1,198.6	2.5	2.6	132.62	-1.2	-66.1	86.9	81.9	5.04	17.245		
1,300.0	1,298.4	1,299.2	1,299.2	2.8	2.8	134.81	-2.9	-66.5	91.3	85.9	5.47	16.705		
1,400.0	1,398.1	1,400.0	1,399.9	3.0	2.9	134.75	-8.0	-67.8	94.9	89.0	5.88	16.138		
1,500.0	1,497.9	1,500.0	1,499.6	3.3	3.1	133.71	-14.8	-69.4	98.0	91.7	6.31	15.536		
1,600.0	1,597.6	1,599.9	1,599.2	3.5	3.3	132.73	-21.5	-71.1	101.2	94.4	6.75	14.986		
1,700.0	1,697.4	1,699.8	1,698.9	3.8	3.5	131.81	-28.3	-72.7	104.3	97.1	7.20	14.485		
1,800.0	1,797.2	1,799.8	1,798.6	4.1	3.7	130.95	-35.1	-74.4	107.5	99.9	7.66	14.031		
1,900.0	1,896.9	1,899.7	1,898.3	4.3	4.0	130.13	-41.8	-76.0	110.7	102.6	8.13	13.618		
2,000.0	1,996.7	1,999.6	1,998.0	4.6	4.2	129.37	-48.6	-77.7	114.0	105.4	8.61	13.242		
2,100.0	2,096.4	2,099.6	2,097.7	4.8	4.4	128.64	-55.4	-79.3	117.3	108.2	9.09	12.900		
2,200.0	2,196.2	2,199.5	2,197.4	5.1	4.6	127.95	-62.2	-81.0	120.5	111.0	9.58	12.587		
2,300.0	2,295.9	2,299.4	2,297.1	5.4	4.9	127.30	-68.9	-82.6	123.8	113.8	10.07	12.302		
2,400.0	2,395.7	2,399.4	2,396.8	5.6	5.1	126.69	-75.7	-84.3	127.1	116.6	10.56	12.040		
2,500.0	2,495.5	2,499.3	2,496.5	5.9	5.4	126.10	-82.5	-85.9	130.5	119.4	11.06	11.800		
2,600.0	2,595.2	2,599.3	2,596.2	6.1	5.6	125.55	-89.3	-87.6	133.8	122.2	11.56	11.578		
2,700.0	2,695.0	2,699.2	2,695.9	6.4	5.8	125.02	-96.0	-89.2	137.1	125.1	12.06	11.374		
2,800.0	2,794.7	2,799.1	2,795.6	6.7	6.1	124.51	-102.8	-90.9	140.5	127.9	12.56	11.185		
2,900.0	2,894.5	2,899.1	2,895.2	6.9	6.3	124.03	-109.6	-92.5	143.9	130.8	13.07	11.009		
3,000.0	2,994.2	2,999.0	2,994.9	7.2	6.6	123.58	-116.3	-94.2	147.3	133.7	13.58	10.847		
3,100.0	3,094.0	3,098.9	3,094.6	7.5	6.8	123.14	-123.1	-95.9	150.7	136.6	14.09	10.695		
3,200.0	3,193.7	3,198.9	3,194.3	7.7	7.1	122.72	-129.9	-97.5	154.0	139.5	14.60	10.554		
3,300.0	3,293.5	3,298.8	3,294.0	8.0	7.3	122.32	-136.7	-99.2	157.5	142.3	15.11	10.422		
3,400.0	3,393.3	3,398.7	3,393.7	8.2	7.6	121.94	-143.4	-100.8	160.9	145.2	15.62	10.298		
3,500.0	3,493.0	3,498.7	3,493.4	8.5	7.9	121.57	-150.2	-102.5	164.3	148.2	16.14	10.182		
3,600.0	3,592.8	3,598.6	3,593.1	8.8	8.1	121.22	-157.0	-104.1	167.7	151.1	16.65	10.073		
3,700.0	3,692.5	3,698.5	3,692.8	9.0	8.4	120.88	-163.8	-105.8	171.1	154.0	17.17	9.970		
3,800.0	3,792.3	3,798.5	3,792.5	9.3	8.6	120.56	-170.5	-107.4	174.6	156.9	17.68	9.874		
3,900.0	3,892.0	3,898.4	3,892.2	9.6	8.9	120.24	-177.3	-109.1	178.0	159.8	18.20	9.782		
4,000.0	3,991.8	3,998.4	3,991.9	9.8	9.1	119.94	-184.1	-110.7	181.5	162.8	18.72	9.696		
4,100.0	4,091.6	4,098.3	4,091.6	10.1	9.4	119.66	-190.8	-112.4	184.9	165.7	19.23	9.614		
4,200.0	4,191.3	4,198.2	4,191.3	10.3	9.6	119.38	-197.6	-114.0	188.4	168.6	19.75	9.537		
4,300.0	4,291.1	4,298.2	4,290.9	10.6	9.9	119.11	-204.4	-115.7	191.9	171.6	20.27	9.464		
4,400.0	4,390.8	4,398.1	4,390.6	10.9	10.2	118.85	-211.2	-117.3	195.3	174.5	20.79	9.394		
4,500.0	4,490.6	4,498.0	4,490.3	11.1	10.4	118.60	-217.9	-119.0	198.8	177.5	21.31	9.328		
4,600.0	4,590.3	4,598.0	4,590.0	11.4	10.7	118.36	-224.7	-120.6	202.3	180.4	21.83	9.265		
4,700.0	4,690.1	4,697.9	4,689.7	11.7	10.9	118.13	-231.5	-122.3	205.7	183.4	22.35	9.204		
4,800.0	4,789.9	4,797.8	4,789.4	11.9	11.2	117.90	-238.3	-123.9	209.2	186.3	22.87	9.147		
4,900.0	4,889.6	4,897.8	4,889.1	12.2	11.5	117.68	-245.0	-125.6	212.7	189.3	23.39	9.092		
5,000.0	4,989.4	4,997.7	4,988.8	12.5	11.7	117.47	-251.8	-127.2	216.2	192.3	23.92	9.040		
5,100.0	5,089.1	5,097.7	5,088.5	12.7	12.0	117.27	-258.6	-128.9	219.7	195.2	24.44	8.990		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #21A-2815A
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.4usft (Original Well Elev)
Reference Site:	S21-T10N-R58W	MD Reference:	WELL @ 4848.4usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	Razor #21A-2815A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21A-2813A - HZ - Plan #1												Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	
5,200.0	5,188.9	5,197.6	5,188.2	13.0	12.2	117.07	-265.3	-130.5	223.2	198.2	24.96	8.942	8.893 SF
5,305.8	5,294.4	5,303.3	5,293.7	13.3	12.5	116.87	-272.5	-132.3	226.9	201.4	25.51	8.893	
5,350.0	5,338.3	5,346.5	5,336.6	13.4	12.6	116.52	-277.1	-133.4	229.3	203.6	25.74	8.909	
5,400.0	5,387.3	5,395.1	5,384.2	13.6	12.8	115.82	-286.4	-135.7	234.4	208.3	26.05	8.999	
5,450.0	5,435.1	5,443.4	5,430.4	13.8	13.0	114.83	-299.8	-138.9	241.7	215.3	26.40	9.156	
5,500.0	5,481.2	5,491.0	5,474.6	14.1	13.3	113.58	-317.1	-143.1	251.3	224.5	26.82	9.370	
5,550.0	5,525.3	5,538.1	5,516.5	14.5	13.6	112.10	-338.0	-148.2	263.1	235.8	27.33	9.628	
5,600.0	5,566.9	5,584.5	5,555.7	14.8	13.9	110.42	-362.1	-154.1	276.9	249.0	27.93	9.916	
5,650.0	5,605.7	5,630.1	5,592.0	15.3	14.3	108.57	-389.0	-160.7	292.6	264.0	28.65	10.214	
5,700.0	5,641.3	5,675.1	5,625.2	15.7	14.6	106.59	-418.4	-167.8	310.1	280.6	29.51	10.507	
5,750.0	5,673.3	5,719.3	5,655.2	16.3	15.1	104.50	-449.9	-175.5	329.1	298.6	30.49	10.793	
5,800.0	5,701.5	5,763.0	5,682.0	16.9	15.5	102.32	-483.3	-183.7	349.5	317.9	31.58	11.067	
5,850.0	5,725.7	5,806.0	5,705.6	17.5	16.0	100.07	-518.4	-192.2	371.1	338.3	32.77	11.326	
5,900.0	5,745.5	5,848.7	5,725.9	18.2	16.5	97.78	-554.8	-201.1	393.7	359.7	34.03	11.569	
5,950.0	5,760.9	5,891.0	5,742.9	18.9	17.0	95.47	-592.4	-210.3	417.1	381.7	35.36	11.795	
6,000.0	5,771.6	5,933.2	5,756.7	19.6	17.6	93.16	-631.1	-219.7	441.1	404.4	36.73	12.009	
6,050.0	5,777.6	5,975.4	5,767.3	20.4	18.2	90.88	-670.8	-229.4	465.5	427.4	38.13	12.209	
6,087.6	5,779.0	6,007.3	5,773.0	21.0	18.6	89.19	-701.3	-236.8	484.1	444.9	39.19	12.351	
6,100.0	5,779.0	6,017.8	5,774.5	21.2	18.8	89.40	-711.4	-239.3	490.2	450.6	39.56	12.391	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #21A-2815A
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.4usft (Original Well Elev)
Reference Site:	S21-T10N-R58W	MD Reference:	WELL @ 4848.4usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	Razor #21A-2815A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21A-2814B - HZ - Plan #1													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-157.08	-75.3	-31.8	81.7					
100.0	100.0	100.0	100.0	0.1	0.1	-157.08	-75.3	-31.8	81.7	81.5	0.19	435.491		
200.0	200.0	200.0	200.0	0.3	0.3	-157.08	-75.3	-31.8	81.7	81.1	0.64	128.266		
300.0	300.0	300.0	300.0	0.5	0.5	-157.08	-75.3	-31.8	81.7	80.6	1.09	75.209		
400.0	400.0	400.0	400.0	0.8	0.8	-157.08	-75.3	-31.8	81.7	80.2	1.54	53.202		
500.0	500.0	500.0	500.0	1.0	1.0	-157.08	-75.3	-31.8	81.7	79.7	1.99	41.159		
600.0	600.0	600.0	600.0	1.2	1.2	39.71	-75.3	-31.8	80.4	78.0	2.41	33.344		
700.0	699.8	697.5	697.5	1.4	1.4	41.59	-76.9	-31.7	77.9	75.1	2.79	27.924		
773.7	773.4	769.6	769.5	1.5	1.5	42.87	-80.3	-31.5	77.1	74.0	3.07	25.112 CC		
800.0	799.6	795.2	795.1	1.6	1.6	43.16	-81.9	-31.4	77.2	74.0	3.17	24.352		
900.0	899.4	895.1	894.7	1.8	1.8	44.07	-88.9	-31.0	78.1	74.5	3.58	21.832		
1,000.0	999.1	995.1	994.4	2.0	2.0	44.95	-95.8	-30.6	79.1	75.1	4.01	19.743		
1,100.0	1,098.9	1,095.1	1,094.2	2.3	2.2	45.82	-102.8	-30.2	80.1	75.6	4.45	18.004		
1,200.0	1,198.6	1,195.1	1,193.9	2.5	2.5	46.66	-109.8	-29.8	81.0	76.1	4.90	16.547		
1,300.0	1,298.4	1,295.0	1,293.7	2.8	2.7	47.48	-116.7	-29.4	82.0	76.7	5.36	15.314		
1,400.0	1,398.1	1,395.0	1,393.4	3.0	3.0	48.28	-123.7	-29.0	83.1	77.2	5.82	14.262		
1,500.0	1,497.9	1,495.0	1,493.2	3.3	3.2	49.06	-130.7	-28.6	84.1	77.8	6.30	13.357		
1,600.0	1,597.6	1,595.0	1,592.9	3.5	3.4	49.82	-137.6	-28.2	85.2	78.4	6.77	12.571		
1,700.0	1,697.4	1,695.0	1,692.7	3.8	3.7	50.57	-144.6	-27.8	86.2	79.0	7.26	11.884		
1,800.0	1,797.2	1,795.0	1,792.4	4.1	4.0	51.29	-151.5	-27.4	87.3	79.6	7.74	11.279		
1,900.0	1,896.9	1,895.0	1,892.1	4.3	4.2	52.00	-158.5	-27.0	88.4	80.2	8.23	10.743		
2,000.0	1,996.7	1,995.0	1,991.9	4.6	4.5	52.69	-165.5	-26.6	89.5	80.8	8.72	10.265		
2,100.0	2,096.4	2,095.0	2,091.6	4.8	4.7	53.36	-172.4	-26.2	90.6	81.4	9.22	9.837		
2,200.0	2,196.2	2,194.9	2,191.4	5.1	5.0	54.02	-179.4	-25.8	91.8	82.1	9.71	9.451		
2,300.0	2,295.9	2,294.9	2,291.1	5.4	5.2	54.66	-186.4	-25.4	92.9	82.7	10.21	9.102		
2,400.0	2,395.7	2,394.9	2,390.9	5.6	5.5	55.29	-193.3	-25.0	94.1	83.4	10.71	8.784		
2,500.0	2,495.5	2,494.9	2,490.6	5.9	5.8	55.90	-200.3	-24.6	95.3	84.0	11.21	8.495		
2,600.0	2,595.2	2,594.9	2,590.4	6.1	6.0	56.49	-207.2	-24.2	96.4	84.7	11.72	8.231		
2,700.0	2,695.0	2,694.9	2,690.1	6.4	6.3	57.07	-214.2	-23.8	97.6	85.4	12.22	7.988		
2,800.0	2,794.7	2,794.9	2,789.8	6.7	6.5	57.64	-221.2	-23.4	98.8	86.1	12.73	7.764		
2,900.0	2,894.5	2,894.9	2,889.6	6.9	6.8	58.19	-228.1	-23.0	100.0	86.8	13.24	7.557		
3,000.0	2,994.2	2,994.8	2,989.3	7.2	7.1	58.73	-235.1	-22.6	101.3	87.5	13.75	7.365		
3,100.0	3,094.0	3,094.8	3,089.1	7.5	7.3	59.25	-242.1	-22.2	102.5	88.2	14.26	7.188		
3,200.0	3,193.7	3,194.8	3,188.8	7.7	7.6	59.77	-249.0	-21.8	103.7	88.9	14.77	7.022		
3,300.0	3,293.5	3,294.8	3,288.6	8.0	7.9	60.27	-256.0	-21.4	105.0	89.7	15.28	6.868		
3,400.0	3,393.3	3,394.8	3,388.3	8.2	8.1	60.76	-263.0	-21.0	106.2	90.4	15.80	6.723		
3,500.0	3,493.0	3,494.8	3,488.1	8.5	8.4	61.24	-269.9	-20.6	107.5	91.2	16.31	6.588		
3,600.0	3,592.8	3,594.8	3,587.8	8.8	8.6	61.71	-276.9	-20.2	108.7	91.9	16.83	6.461		
3,700.0	3,692.5	3,694.8	3,687.5	9.0	8.9	62.16	-283.8	-19.8	110.0	92.7	17.35	6.342		
3,800.0	3,792.3	3,794.7	3,787.3	9.3	9.2	62.61	-290.8	-19.4	111.3	93.4	17.86	6.230		
3,900.0	3,892.0	3,894.7	3,887.0	9.6	9.4	63.05	-297.8	-19.0	112.6	94.2	18.38	6.124		
4,000.0	3,991.8	3,994.7	3,986.8	9.8	9.7	63.47	-304.7	-18.6	113.9	95.0	18.90	6.025		
4,100.0	4,091.6	4,094.7	4,086.5	10.1	10.0	63.89	-311.7	-18.2	115.2	95.7	19.42	5.930		
4,200.0	4,191.3	4,194.7	4,186.3	10.3	10.2	64.30	-318.7	-17.8	116.5	96.5	19.94	5.841		
4,300.0	4,291.1	4,294.7	4,286.0	10.6	10.5	64.69	-325.6	-17.4	117.8	97.3	20.46	5.756		
4,400.0	4,390.8	4,394.7	4,385.8	10.9	10.7	65.08	-332.6	-17.0	119.1	98.1	20.98	5.676		
4,500.0	4,490.6	4,494.7	4,485.5	11.1	11.0	65.46	-339.5	-16.6	120.4	98.9	21.50	5.600		
4,600.0	4,590.3	4,594.7	4,585.2	11.4	11.3	65.84	-346.5	-16.2	121.7	99.7	22.03	5.527		
4,700.0	4,690.1	4,694.6	4,685.0	11.7	11.5	66.20	-353.5	-15.8	123.1	100.5	22.55	5.458		
4,800.0	4,789.9	4,794.6	4,784.7	11.9	11.8	66.56	-360.4	-15.4	124.4	101.3	23.07	5.392		
4,900.0	4,889.6	4,894.6	4,884.5	12.2	12.1	66.91	-367.4	-15.0	125.8	102.2	23.60	5.329		
5,000.0	4,989.4	4,994.6	4,984.2	12.5	12.3	67.25	-374.4	-14.6	127.1	103.0	24.12	5.269		

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 #21A-2815A
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.4usft (Original Well Elev)
Reference Site:	S21-T10N-R58W	MD Reference:	WELL @ 4848.4usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	Razor #21A-2815A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21A-2814B - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis	Factor		
5,100.0	5,089.1	5,094.6	5,084.0	12.7	12.6	67.58	-381.3	-14.2	128.5	103.8	24.65	5.212		
5,200.0	5,188.9	5,194.6	5,183.7	13.0	12.9	67.91	-388.3	-13.8	129.8	104.6	25.17	5.157		
5,305.8	5,294.4	5,300.4	5,289.2	13.3	13.1	68.25	-395.7	-13.4	131.2	105.5	25.73	5.102		
5,350.0	5,338.3	5,344.5	5,333.3	13.4	13.2	69.16	-398.7	-13.2	131.2	105.2	26.00	5.045		
5,400.0	5,387.3	5,393.9	5,382.5	13.6	13.4	72.17	-402.2	-13.0	129.7	103.2	26.42	4.908		
5,450.0	5,435.1	5,437.8	5,426.1	13.8	13.5	75.94	-407.2	-12.7	128.3	101.4	26.91	4.767		
5,473.6	5,457.1	5,458.7	5,446.7	14.0	13.6	77.82	-410.8	-12.5	128.1	100.9	27.18	4.713		
5,500.0	5,481.2	5,482.3	5,469.7	14.1	13.7	79.98	-415.9	-12.2	128.3	100.8	27.49	4.668		
5,550.0	5,525.3	5,527.3	5,512.9	14.5	13.9	84.15	-428.6	-11.5	130.0	101.8	28.17	4.615		
5,600.0	5,566.9	5,573.0	5,555.5	14.8	14.1	88.27	-445.1	-10.5	133.3	104.4	28.90	4.613		
5,650.0	5,605.7	5,619.4	5,597.0	15.3	14.4	92.21	-465.7	-9.3	138.4	108.7	29.68	4.663		
5,700.0	5,641.3	5,666.5	5,637.2	15.7	14.8	95.83	-490.3	-7.9	145.1	114.7	30.47	4.763		
5,750.0	5,673.3	5,714.4	5,675.5	16.3	15.2	99.05	-518.9	-6.2	153.4	122.1	31.27	4.906		
5,800.0	5,701.5	5,763.1	5,711.7	16.9	15.6	101.82	-551.5	-4.4	163.1	131.0	32.09	5.083		
5,850.0	5,725.7	5,812.9	5,745.3	17.5	16.1	104.12	-588.0	-2.3	173.9	141.0	32.94	5.281		
5,900.0	5,745.5	5,863.6	5,775.8	18.2	16.6	105.98	-628.4	0.1	185.8	151.9	33.86	5.488		
5,950.0	5,760.9	5,915.4	5,802.8	18.9	17.3	107.41	-672.6	2.6	198.4	163.6	34.85	5.693		
6,000.0	5,771.6	5,968.4	5,825.7	19.6	17.9	108.45	-720.3	5.4	211.6	175.7	35.95	5.886		
6,050.0	5,777.6	6,022.7	5,844.0	20.4	18.7	109.14	-771.3	8.3	225.2	188.0	37.16	6.060		
6,087.6	5,779.0	6,064.4	5,854.4	21.0	19.3	109.46	-811.7	10.6	235.5	197.4	38.15	6.174		
6,100.0	5,779.0	6,078.4	5,857.1	21.2	19.5	109.82	-825.3	11.4	238.8	200.4	38.44	6.212		
6,200.0	5,779.0	6,189.8	5,866.0	22.5	21.1	109.89	-936.0	17.7	259.1	217.7	41.43	6.254		
6,300.0	5,779.0	6,276.9	5,866.0	24.0	22.3	108.69	-1,023.1	20.1	274.8	230.5	44.33	6.200		
6,400.0	5,779.0	6,374.8	5,866.0	25.5	23.8	107.68	-1,121.0	20.1	288.3	240.8	47.52	6.067		
6,500.0	5,779.0	6,474.4	5,866.0	27.0	25.4	107.08	-1,220.6	20.1	296.8	246.2	50.64	5.861		
6,607.9	5,779.0	6,582.2	5,866.0	28.6	27.2	106.84	-1,328.4	20.1	300.4	246.6	53.86	5.578		
6,700.0	5,779.0	6,674.3	5,866.0	30.1	28.8	106.80	-1,420.5	20.1	301.0	244.2	56.85	5.295		
6,800.0	5,779.0	6,774.3	5,866.0	31.8	30.5	106.77	-1,520.5	20.1	301.7	241.5	60.19	5.012		
6,900.0	5,779.0	6,874.3	5,866.0	33.5	32.3	106.73	-1,620.5	20.1	302.4	238.8	63.58	4.756		
7,000.0	5,779.0	6,974.3	5,866.0	35.3	34.0	106.69	-1,720.5	20.1	303.0	236.0	67.00	4.523		
7,100.0	5,779.0	7,074.3	5,866.0	37.0	35.8	106.65	-1,820.5	20.1	303.7	233.2	70.45	4.310		
7,200.0	5,779.0	7,174.3	5,866.0	38.8	37.6	106.62	-1,920.5	20.1	304.3	230.4	73.93	4.116		
7,300.0	5,779.0	7,274.3	5,866.0	40.6	39.4	106.58	-2,020.5	20.1	305.0	227.6	77.43	3.939		
7,400.0	5,779.0	7,374.3	5,866.0	42.4	41.3	106.54	-2,120.5	20.1	305.6	224.7	80.96	3.775		
7,500.0	5,779.0	7,474.3	5,866.0	44.2	43.1	106.51	-2,220.5	20.1	306.3	221.8	84.50	3.625		
7,600.0	5,779.0	7,574.3	5,866.0	46.0	44.9	106.47	-2,320.5	20.1	307.0	218.9	88.05	3.486		
7,700.0	5,779.0	7,674.3	5,866.0	47.8	46.8	106.43	-2,420.5	20.1	307.6	216.0	91.62	3.357		
7,800.0	5,779.0	7,774.3	5,866.0	49.6	48.6	106.40	-2,520.5	20.1	308.3	213.1	95.20	3.238		
7,900.0	5,779.0	7,874.3	5,866.0	51.5	50.5	106.36	-2,620.5	20.1	308.9	210.1	98.80	3.127		
8,000.0	5,779.0	7,974.3	5,866.0	53.3	52.3	106.33	-2,720.5	20.1	309.6	207.2	102.40	3.023		
8,100.0	5,779.0	8,074.3	5,866.0	55.2	54.2	106.29	-2,820.5	20.1	310.3	204.2	106.02	2.926		
8,200.0	5,779.0	8,174.3	5,866.0	57.0	56.0	106.25	-2,920.5	20.1	310.9	201.3	109.64	2.836		
8,300.0	5,779.0	8,274.3	5,866.0	58.9	57.9	106.22	-3,020.5	20.1	311.6	198.3	113.27	2.751		
8,400.0	5,779.0	8,374.3	5,866.0	60.7	59.8	106.18	-3,120.4	20.1	312.2	195.3	116.90	2.671		
8,500.0	5,779.0	8,474.3	5,866.0	62.6	61.7	106.15	-3,220.4	20.1	312.9	192.3	120.55	2.596		
8,600.0	5,779.0	8,574.3	5,866.0	64.5	63.5	106.11	-3,320.4	20.1	313.6	189.4	124.20	2.525		
8,700.0	5,779.0	8,674.3	5,866.0	66.3	65.4	106.08	-3,420.4	20.1	314.2	186.4	127.85	2.458		
8,800.0	5,779.0	8,774.3	5,866.0	68.2	67.3	106.04	-3,520.4	20.1	314.9	183.4	131.51	2.394		
8,900.0	5,779.0	8,874.3	5,866.0	70.1	69.2	106.01	-3,620.4	20.1	315.5	180.4	135.18	2.334		
9,000.0	5,779.0	8,974.3	5,866.0	72.0	71.1	105.97	-3,720.4	20.0	316.2	177.3	138.85	2.277		
9,100.0	5,779.0	9,074.3	5,866.0	73.9	72.9	105.94	-3,820.4	20.0	316.8	174.3	142.52	2.223		
9,200.0	5,779.0	9,174.3	5,866.0	75.7	74.8	105.91	-3,920.4	20.0	317.5	171.3	146.20	2.172		

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 #21A-2815A
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.4usft (Original Well Elev)
Reference Site:	S21-T10N-R58W	MD Reference:	WELL @ 4848.4usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	Razor #21A-2815A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21A-2814B - HZ - Plan #1												Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
9,300.0	5,779.0	9,274.3	5,866.0	77.6	76.7	105.87	-4,020.4	20.0	318.2	168.3	149.88	2.123	
9,400.0	5,779.0	9,374.3	5,866.0	79.5	78.6	105.84	-4,120.4	20.0	318.8	165.3	153.57	2.076	
9,500.0	5,779.0	9,474.3	5,866.0	81.4	80.5	105.81	-4,220.4	20.0	319.5	162.2	157.25	2.032	
9,600.0	5,779.0	9,574.3	5,866.0	83.3	82.4	105.77	-4,320.4	20.0	320.2	159.2	160.95	1.989	
9,700.0	5,779.0	9,674.3	5,866.0	85.2	84.3	105.74	-4,420.4	20.0	320.8	156.2	164.64	1.949	
9,800.0	5,779.0	9,774.3	5,866.0	87.1	86.2	105.70	-4,520.4	20.0	321.5	153.1	168.34	1.910	
9,900.0	5,779.0	9,874.3	5,866.0	89.0	88.1	105.67	-4,620.4	20.0	322.1	150.1	172.04	1.872	
10,000.0	5,779.0	9,974.3	5,866.0	90.9	90.0	105.64	-4,720.4	20.0	322.8	147.1	175.74	1.837	
10,100.0	5,779.0	10,074.3	5,866.0	92.7	91.9	105.61	-4,820.4	20.0	323.5	144.0	179.45	1.803	
10,200.0	5,779.0	10,174.3	5,866.0	94.6	93.8	105.57	-4,920.4	20.0	324.1	141.0	183.15	1.770	
10,300.0	5,779.0	10,274.2	5,866.0	96.5	95.7	105.54	-5,020.4	20.0	324.8	137.9	186.86	1.738	
10,400.0	5,779.0	10,374.2	5,866.0	98.4	97.6	105.51	-5,120.4	20.0	325.4	134.9	190.58	1.708	
10,500.0	5,779.0	10,474.2	5,866.0	100.3	99.5	105.48	-5,220.4	20.0	326.1	131.8	194.29	1.678	
10,600.0	5,779.0	10,574.2	5,866.0	102.2	101.4	105.44	-5,320.4	20.0	326.8	128.8	198.01	1.650	
10,700.0	5,779.0	10,674.2	5,866.0	104.1	103.3	105.41	-5,420.4	20.0	327.4	125.7	201.73	1.623	
10,800.0	5,779.0	10,774.2	5,866.0	106.0	105.2	105.38	-5,520.4	20.0	328.1	122.6	205.45	1.597	
10,900.0	5,779.0	10,874.2	5,866.0	107.9	107.1	105.35	-5,620.4	20.0	328.8	119.6	209.17	1.572	
11,000.0	5,779.0	10,974.2	5,866.0	109.8	109.0	105.32	-5,720.4	20.0	329.4	116.5	212.89	1.547	
11,100.0	5,779.0	11,074.2	5,866.0	111.7	110.9	105.28	-5,820.4	20.0	330.1	113.5	216.62	1.524	
11,200.0	5,779.0	11,174.2	5,866.0	113.6	112.8	105.25	-5,920.4	20.0	330.7	110.4	220.34	1.501	
11,300.0	5,779.0	11,274.2	5,866.0	115.5	114.7	105.22	-6,020.4	20.0	331.4	107.3	224.07	1.479	Level 3
11,400.0	5,779.0	11,374.2	5,866.0	117.4	116.6	105.19	-6,120.4	20.0	332.1	104.3	227.80	1.458	Level 3
11,500.0	5,779.0	11,474.2	5,866.0	119.3	118.5	105.16	-6,220.4	20.0	332.7	101.2	231.53	1.437	Level 3
11,600.0	5,779.0	11,574.2	5,866.0	121.3	120.4	105.13	-6,320.4	20.0	333.4	98.1	235.27	1.417	Level 3
11,700.0	5,779.0	11,674.2	5,866.0	123.2	122.3	105.10	-6,420.4	20.0	334.1	95.0	239.00	1.398	Level 3
11,800.0	5,779.0	11,774.2	5,866.0	125.1	124.2	105.07	-6,520.4	20.0	334.7	92.0	242.74	1.379	Level 3
11,900.0	5,779.0	11,874.2	5,866.0	127.0	126.2	105.04	-6,620.4	20.0	335.4	88.9	246.48	1.361	Level 3
12,000.0	5,779.0	11,974.2	5,866.0	128.9	128.1	105.01	-6,720.4	20.0	336.0	85.8	250.22	1.343	Level 3
12,100.0	5,779.0	12,074.2	5,866.0	130.8	130.0	104.98	-6,820.4	20.0	336.7	82.7	253.96	1.326	Level 3
12,200.0	5,779.0	12,174.2	5,866.0	132.7	131.9	104.95	-6,920.4	20.0	337.4	79.7	257.70	1.309	Level 3
12,300.0	5,779.0	12,274.2	5,866.0	134.6	133.8	104.92	-7,020.4	20.0	338.0	76.6	261.44	1.293	Level 3
12,400.0	5,779.0	12,374.2	5,866.0	136.5	135.7	104.89	-7,120.4	20.0	338.7	73.5	265.18	1.277	Level 3
12,500.0	5,779.0	12,474.2	5,866.0	138.4	137.6	104.86	-7,220.4	20.0	339.4	70.4	268.93	1.262	Level 3
12,600.0	5,779.0	12,574.2	5,866.0	140.3	139.5	104.83	-7,320.4	20.0	340.0	67.3	272.67	1.247	Level 2
12,700.0	5,779.0	12,674.2	5,866.0	142.2	141.4	104.80	-7,420.3	20.0	340.7	64.3	276.42	1.232	Level 2
12,774.7	5,779.0	12,748.9	5,866.0	143.7	142.8	104.77	-7,495.1	20.0	341.2	62.0	279.22	1.222	Level 2, ES, SF

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #21A-2815A
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.4usft (Original Well Elev)
Reference Site:	S21-T10N-R58W	MD Reference:	WELL @ 4848.4usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	Razor #21A-2815A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21A-2816B - HZ - Plan #2													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	157.90	-85.0	34.5	91.7					
100.0	100.0	100.0	100.0	0.1	0.1	157.90	-85.0	34.5	91.7	91.5	0.19	488.688		
200.0	200.0	200.0	200.0	0.3	0.3	157.90	-85.0	34.5	91.7	91.1	0.64	143.935		
300.0	300.0	300.0	300.0	0.5	0.5	157.90	-85.0	34.5	91.7	90.6	1.09	84.396		
400.0	400.0	400.0	400.0	0.8	0.8	157.90	-85.0	34.5	91.7	90.2	1.54	59.701		
500.0	500.0	500.0	500.0	1.0	1.0	157.90	-85.0	34.5	91.7	89.7	1.99	46.186		
600.0	600.0	600.0	600.0	1.2	1.2	-6.22	-85.0	34.5	90.0	87.6	2.41	37.314		
700.0	699.8	699.8	699.8	1.4	1.4	-6.62	-85.0	34.5	84.8	82.0	2.82	30.021		
800.0	799.6	799.6	799.6	1.6	1.7	-7.21	-85.0	34.5	77.9	74.6	3.24	24.005		
900.0	899.4	899.4	899.4	1.8	1.9	-7.92	-85.0	34.5	70.9	67.3	3.67	19.320		
1,000.0	999.1	999.1	999.1	2.0	2.1	-8.78	-85.0	34.5	64.0	59.9	4.11	15.594		
1,100.0	1,098.9	1,096.9	1,096.9	2.3	2.3	-9.82	-86.5	35.2	58.8	54.3	4.51	13.033		
1,200.0	1,198.6	1,194.9	1,194.7	2.5	2.5	-11.01	-90.9	37.4	57.1	52.1	4.91	11.630		
1,202.0	1,200.6	1,196.8	1,196.7	2.5	2.5	-11.04	-91.1	37.5	57.1	52.1	4.91	11.612 CC		
1,300.0	1,298.4	1,294.8	1,294.4	2.8	2.7	-12.22	-97.2	40.5	57.2	51.9	5.31	10.766		
1,400.0	1,398.1	1,394.8	1,394.1	3.0	2.9	-13.43	-103.5	43.5	57.4	51.6	5.73	10.015		
1,500.0	1,497.9	1,494.8	1,493.9	3.3	3.1	-14.62	-109.7	46.6	57.5	51.4	6.15	9.357		
1,600.0	1,597.6	1,594.8	1,593.6	3.5	3.3	-15.81	-116.0	49.6	57.8	51.2	6.58	8.779		
1,700.0	1,697.4	1,694.8	1,693.4	3.8	3.5	-16.99	-122.3	52.7	58.0	51.0	7.01	8.269		
1,800.0	1,797.2	1,794.7	1,793.1	4.1	3.8	-18.16	-128.5	55.8	58.3	50.8	7.45	7.816		
1,900.0	1,896.9	1,894.7	1,892.9	4.3	4.0	-19.32	-134.8	58.8	58.6	50.7	7.90	7.412		
2,000.0	1,996.7	1,994.7	1,992.6	4.6	4.2	-20.47	-141.1	61.9	58.9	50.5	8.35	7.051		
2,100.0	2,096.4	2,094.7	2,092.4	4.8	4.5	-21.60	-147.3	64.9	59.2	50.4	8.80	6.726		
2,200.0	2,196.2	2,194.7	2,192.1	5.1	4.7	-22.72	-153.6	68.0	59.6	50.3	9.26	6.433		
2,300.0	2,295.9	2,294.7	2,291.9	5.4	5.0	-23.83	-159.9	71.0	59.9	50.2	9.72	6.167		
2,400.0	2,395.7	2,394.7	2,391.6	5.6	5.2	-24.92	-166.2	74.1	60.3	50.2	10.18	5.926		
2,500.0	2,495.5	2,494.7	2,491.4	5.9	5.5	-26.00	-172.4	77.2	60.8	50.1	10.65	5.706		
2,600.0	2,595.2	2,594.7	2,591.1	6.1	5.7	-27.06	-178.7	80.2	61.2	50.1	11.12	5.504		
2,700.0	2,695.0	2,694.7	2,690.9	6.4	6.0	-28.11	-185.0	83.3	61.7	50.1	11.60	5.320		
2,800.0	2,794.7	2,794.7	2,790.6	6.7	6.2	-29.14	-191.2	86.3	62.2	50.1	12.07	5.150		
2,900.0	2,894.5	2,894.7	2,890.4	6.9	6.5	-30.15	-197.5	89.4	62.7	50.1	12.55	4.993		
3,000.0	2,994.2	2,994.7	2,990.1	7.2	6.7	-31.15	-203.8	92.4	63.2	50.2	13.04	4.849		
3,100.0	3,094.0	3,094.7	3,089.9	7.5	7.0	-32.13	-210.0	95.5	63.8	50.2	13.52	4.715		
3,200.0	3,193.7	3,194.6	3,189.6	7.7	7.3	-33.10	-216.3	98.6	64.3	50.3	14.01	4.591		
3,300.0	3,293.5	3,294.6	3,289.4	8.0	7.5	-34.04	-222.6	101.6	64.9	50.4	14.50	4.476		
3,400.0	3,393.3	3,394.6	3,389.1	8.2	7.8	-34.97	-228.8	104.7	65.5	50.5	14.99	4.369		
3,500.0	3,493.0	3,494.6	3,488.9	8.5	8.0	-35.88	-235.1	107.7	66.1	50.6	15.49	4.269		
3,600.0	3,592.8	3,594.6	3,588.6	8.8	8.3	-36.78	-241.4	110.8	66.7	50.8	15.99	4.175		
3,700.0	3,692.5	3,694.6	3,688.4	9.0	8.5	-37.66	-247.7	113.8	67.4	50.9	16.49	4.088		
3,800.0	3,792.3	3,794.6	3,788.1	9.3	8.8	-38.52	-253.9	116.9	68.1	51.1	16.99	4.007		
3,900.0	3,892.0	3,894.6	3,887.9	9.6	9.1	-39.37	-260.2	120.0	68.7	51.2	17.49	3.930		
4,000.0	3,991.8	3,994.6	3,987.6	9.8	9.3	-40.19	-266.5	123.0	69.4	51.4	18.00	3.858		
4,100.0	4,091.6	4,094.6	4,087.4	10.1	9.6	-41.01	-272.7	126.1	70.1	51.6	18.50	3.791		
4,200.0	4,191.3	4,194.6	4,187.1	10.3	9.8	-41.80	-279.0	129.1	70.9	51.9	19.01	3.727		
4,300.0	4,291.1	4,294.6	4,286.9	10.6	10.1	-42.58	-285.3	132.2	71.6	52.1	19.52	3.667		
4,400.0	4,390.8	4,394.6	4,386.6	10.9	10.4	-43.34	-291.5	135.3	72.3	52.3	20.04	3.611		
4,500.0	4,490.6	4,494.5	4,486.4	11.1	10.6	-44.09	-297.8	138.3	73.1	52.6	20.55	3.557		
4,600.0	4,590.3	4,594.5	4,586.1	11.4	10.9	-44.82	-304.1	141.4	73.9	52.8	21.07	3.507		
4,700.0	4,690.1	4,694.5	4,685.9	11.7	11.1	-45.54	-310.3	144.4	74.7	53.1	21.58	3.459		
4,800.0	4,789.9	4,794.5	4,785.6	11.9	11.4	-46.24	-316.6	147.5	75.5	53.4	22.10	3.414		
4,900.0	4,889.6	4,894.5	4,885.4	12.2	11.7	-46.93	-322.9	150.5	76.3	53.6	22.62	3.372		
5,000.0	4,989.4	4,994.5	4,985.1	12.5	11.9	-47.60	-329.2	153.6	77.1	53.9	23.14	3.331		

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 #21A-2815A
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.4usft (Original Well Elev)
Reference Site:	S21-T10N-R58W	MD Reference:	WELL @ 4848.4usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	Razor #21A-2815A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21A-2816B - HZ - Plan #2													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,100.0	5,089.1	5,094.5	5,084.9	12.7	12.2	-48.26	-335.4	156.7	77.9	54.3	23.66	3.293		
5,200.0	5,188.9	5,194.5	5,184.6	13.0	12.5	-48.90	-341.7	159.7	78.8	54.6	24.18	3.256		
5,305.8	5,294.4	5,300.3	5,290.1	13.3	12.7	-49.57	-348.3	162.9	79.7	54.9	24.74	3.220		
5,350.0	5,338.3	5,344.4	5,334.2	13.4	12.8	-50.95	-351.1	164.3	78.8	53.8	25.01	3.153		
5,400.0	5,387.3	5,393.8	5,383.4	13.6	13.0	-55.45	-354.2	165.8	75.3	49.9	25.44	2.960		
5,450.0	5,435.1	5,438.7	5,428.0	13.8	13.1	-61.69	-358.9	168.1	71.3	45.3	26.00	2.743		
5,500.0	5,481.2	5,484.3	5,472.6	14.1	13.3	-69.02	-367.2	172.1	68.9	42.1	26.74	2.575		
5,538.4	5,515.3	5,519.7	5,506.7	14.4	13.5	-75.19	-376.0	176.5	68.2	40.8	27.40	2.490		
5,550.0	5,525.3	5,530.5	5,516.9	14.5	13.5	-77.10	-379.1	178.0	68.3	40.7	27.61	2.474 ES		
5,600.0	5,566.9	5,577.4	5,560.4	14.8	13.8	-85.35	-394.8	185.6	69.9	41.4	28.50	2.454		
5,650.0	5,605.7	5,625.1	5,602.9	15.3	14.1	-93.15	-414.3	195.1	73.8	44.6	29.27	2.523		
5,700.0	5,641.3	5,673.6	5,643.9	15.7	14.4	-100.02	-437.6	206.5	79.9	50.0	29.87	2.673		
5,750.0	5,673.3	5,723.0	5,682.9	16.3	14.8	-105.73	-464.7	219.7	87.6	57.3	30.32	2.891		
5,800.0	5,701.5	5,773.3	5,719.6	16.9	15.3	-110.26	-495.7	234.8	96.9	66.2	30.69	3.156		
5,850.0	5,725.7	5,824.7	5,753.4	17.5	15.8	-113.73	-530.4	251.7	107.1	76.1	31.07	3.449		
5,900.0	5,745.5	5,877.1	5,783.8	18.2	16.4	-116.29	-568.7	270.4	118.2	86.7	31.53	3.748		
5,950.0	5,760.9	5,930.5	5,810.3	18.9	17.1	-118.09	-610.5	290.8	129.7	97.6	32.15	4.036		
6,000.0	5,771.6	5,985.2	5,832.3	19.6	17.8	-119.27	-655.4	312.7	141.6	108.6	32.94	4.298		
6,050.0	5,777.6	6,041.0	5,849.2	20.4	18.6	-119.94	-703.2	336.0	153.5	119.5	33.94	4.522		
6,087.6	5,779.0	6,083.9	5,858.3	21.0	19.3	-120.16	-740.8	354.4	162.3	127.5	34.82	4.662		
6,100.0	5,779.0	6,098.1	5,860.5	21.2	19.5	-120.45	-753.5	360.6	165.2	130.2	35.05	4.714		
6,200.0	5,779.0	6,211.4	5,866.0	22.5	21.3	-118.58	-855.2	409.7	185.1	146.9	38.22	4.844		
6,300.0	5,779.0	6,318.9	5,866.0	24.0	22.8	-115.75	-954.0	452.2	203.9	162.3	41.65	4.896		
6,400.0	5,779.0	6,427.9	5,866.0	25.5	24.5	-113.44	-1,056.4	489.5	222.7	177.7	44.97	4.953		
6,500.0	5,779.0	6,538.3	5,866.0	27.0	26.2	-111.52	-1,162.1	521.2	241.3	193.2	48.16	5.011		
6,607.9	5,779.0	6,659.0	5,866.0	28.6	28.1	-109.81	-1,279.6	548.9	261.1	209.6	51.46	5.073		
6,700.0	5,779.0	6,763.8	5,866.0	30.1	29.8	-108.58	-1,382.8	566.8	275.4	220.4	54.96	5.011		
6,800.0	5,779.0	6,879.4	5,866.0	31.8	31.7	-107.79	-1,497.6	580.0	285.6	226.9	58.72	4.864		
6,900.0	5,779.0	6,996.1	5,866.0	33.5	33.5	-107.46	-1,614.1	586.3	290.1	227.7	62.37	4.651		
7,000.0	5,779.0	7,098.1	5,866.0	35.3	35.1	-107.40	-1,716.1	588.0	291.0	225.3	65.73	4.427		
7,100.0	5,779.0	7,198.1	5,866.0	37.0	36.8	-107.35	-1,816.1	589.6	291.8	222.7	69.12	4.223		
7,200.0	5,779.0	7,298.1	5,866.0	38.8	38.5	-107.29	-1,916.1	591.1	292.7	220.2	72.54	4.035		
7,300.0	5,779.0	7,398.1	5,866.0	40.6	40.2	-107.24	-2,016.0	592.7	293.6	217.6	75.99	3.863		
7,400.0	5,779.0	7,498.1	5,866.0	42.4	41.9	-107.19	-2,116.0	594.3	294.4	215.0	79.46	3.705		
7,500.0	5,779.0	7,598.1	5,866.0	44.2	43.6	-107.14	-2,216.0	595.9	295.3	212.3	82.96	3.560		
7,600.0	5,779.0	7,698.0	5,866.0	46.0	45.4	-107.09	-2,316.0	597.5	296.2	209.7	86.48	3.425		
7,700.0	5,779.0	7,798.0	5,866.0	47.8	47.1	-107.03	-2,416.0	599.1	297.0	207.0	90.01	3.300		
7,800.0	5,779.0	7,898.0	5,866.0	49.6	48.9	-106.98	-2,516.0	600.7	297.9	204.3	93.56	3.184		
7,900.0	5,779.0	7,998.0	5,866.0	51.5	50.7	-106.93	-2,615.9	602.2	298.7	201.6	97.13	3.076		
8,000.0	5,779.0	8,098.0	5,866.0	53.3	52.5	-106.88	-2,715.9	603.8	299.6	198.9	100.71	2.975		
8,100.0	5,779.0	8,198.0	5,866.0	55.2	54.3	-106.83	-2,815.9	605.4	300.5	196.2	104.30	2.881		
8,200.0	5,779.0	8,298.0	5,866.0	57.0	56.1	-106.78	-2,915.9	607.0	301.3	193.4	107.90	2.793		
8,300.0	5,779.0	8,398.0	5,866.0	58.9	57.9	-106.73	-3,015.9	608.6	302.2	190.7	111.51	2.710		
8,400.0	5,779.0	8,498.0	5,866.0	60.7	59.7	-106.69	-3,115.9	610.2	303.0	187.9	115.13	2.632		
8,500.0	5,779.0	8,598.0	5,866.0	62.6	61.6	-106.64	-3,215.8	611.8	303.9	185.2	118.76	2.559		
8,600.0	5,779.0	8,698.0	5,866.0	64.5	63.4	-106.59	-3,315.8	613.3	304.8	182.4	122.39	2.490		
8,700.0	5,779.0	8,798.0	5,866.0	66.3	65.3	-106.54	-3,415.8	614.9	305.6	179.6	126.03	2.425		
8,800.0	5,779.0	8,898.0	5,866.0	68.2	67.1	-106.49	-3,515.8	616.5	306.5	176.8	129.68	2.363		
8,900.0	5,779.0	8,998.0	5,866.0	70.1	68.9	-106.44	-3,615.8	618.1	307.4	174.0	133.34	2.305		
9,000.0	5,779.0	9,098.0	5,866.0	72.0	70.8	-106.40	-3,715.8	619.7	308.2	171.2	137.00	2.250		
9,100.0	5,779.0	9,198.0	5,866.0	73.9	72.7	-106.35	-3,815.7	621.3	309.1	168.4	140.66	2.197		
9,200.0	5,779.0	9,298.0	5,866.0	75.7	74.5	-106.30	-3,915.7	622.9	310.0	165.6	144.34	2.147		

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 #21A-2815A
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.4usft (Original Well Elev)
Reference Site:	S21-T10N-R58W	MD Reference:	WELL @ 4848.4usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	Razor #21A-2815A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21A-2816B - HZ - Plan #2												Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
9,300.0	5,779.0	9,398.0	5,866.0	77.6	76.4	-106.26	-4,015.7	624.4	310.8	162.8	148.01	2.100	
9,400.0	5,779.0	9,498.0	5,866.0	79.5	78.2	-106.21	-4,115.7	626.0	311.7	160.0	151.69	2.055	
9,500.0	5,779.0	9,598.0	5,866.0	81.4	80.1	-106.16	-4,215.7	627.6	312.6	157.2	155.38	2.012	
9,600.0	5,779.0	9,698.0	5,866.0	83.3	82.0	-106.12	-4,315.7	629.2	313.4	154.4	159.07	1.970	
9,700.0	5,779.0	9,798.0	5,866.0	85.2	83.9	-106.07	-4,415.6	630.8	314.3	151.5	162.76	1.931	
9,800.0	5,779.0	9,898.0	5,866.0	87.1	85.7	-106.03	-4,515.6	632.4	315.1	148.7	166.45	1.893	
9,900.0	5,779.0	9,998.0	5,866.0	89.0	87.6	-105.98	-4,615.6	634.0	316.0	145.9	170.15	1.857	
10,000.0	5,779.0	10,098.0	5,866.0	90.9	89.5	-105.94	-4,715.6	635.5	316.9	143.0	173.86	1.823	
10,100.0	5,779.0	10,197.9	5,866.0	92.7	91.4	-105.89	-4,815.6	637.1	317.7	140.2	177.56	1.789	
10,200.0	5,779.0	10,297.9	5,866.0	94.6	93.3	-105.85	-4,915.6	638.7	318.6	137.3	181.27	1.758	
10,300.0	5,779.0	10,397.9	5,866.0	96.5	95.1	-105.80	-5,015.5	640.3	319.5	134.5	184.98	1.727	
10,400.0	5,779.0	10,497.9	5,866.0	98.4	97.0	-105.76	-5,115.5	641.9	320.3	131.6	188.70	1.698	
10,500.0	5,779.0	10,597.9	5,866.0	100.3	98.9	-105.72	-5,215.5	643.5	321.2	128.8	192.42	1.669	
10,600.0	5,779.0	10,697.9	5,866.0	102.2	100.8	-105.67	-5,315.5	645.1	322.1	125.9	196.14	1.642	
10,700.0	5,779.0	10,797.9	5,866.0	104.1	102.7	-105.63	-5,415.5	646.6	322.9	123.1	199.86	1.616	
10,800.0	5,779.0	10,897.9	5,866.0	106.0	104.6	-105.59	-5,515.5	648.2	323.8	120.2	203.58	1.591	
10,900.0	5,779.0	10,997.9	5,866.0	107.9	106.5	-105.54	-5,615.4	649.8	324.7	117.4	207.31	1.566	
11,000.0	5,779.0	11,097.9	5,866.0	109.8	108.4	-105.50	-5,715.4	651.4	325.6	114.5	211.04	1.543	
11,100.0	5,779.0	11,197.9	5,866.0	111.7	110.3	-105.46	-5,815.4	653.0	326.4	111.7	214.77	1.520	
11,200.0	5,779.0	11,297.9	5,866.0	113.6	112.1	-105.42	-5,915.4	654.6	327.3	108.8	218.50	1.498 Level 3	
11,300.0	5,779.0	11,397.9	5,866.0	115.5	114.0	-105.37	-6,015.4	656.2	328.2	105.9	222.24	1.477 Level 3	
11,400.0	5,779.0	11,497.9	5,866.0	117.4	115.9	-105.33	-6,115.4	657.7	329.0	103.1	225.97	1.456 Level 3	
11,500.0	5,779.0	11,597.9	5,866.0	119.3	117.8	-105.29	-6,215.3	659.3	329.9	100.2	229.71	1.436 Level 3	
11,600.0	5,779.0	11,697.9	5,866.0	121.3	119.7	-105.25	-6,315.3	660.9	330.8	97.3	233.45	1.417 Level 3	
11,700.0	5,779.0	11,797.9	5,866.0	123.2	121.6	-105.21	-6,415.3	662.5	331.6	94.4	237.20	1.398 Level 3	
11,800.0	5,779.0	11,897.9	5,866.0	125.1	123.5	-105.17	-6,515.3	664.1	332.5	91.6	240.94	1.380 Level 3	
11,900.0	5,779.0	11,997.9	5,866.0	127.0	125.4	-105.13	-6,615.3	665.7	333.4	88.7	244.69	1.362 Level 3	
12,000.0	5,779.0	12,097.9	5,866.0	128.9	127.3	-105.09	-6,715.3	667.3	334.2	85.8	248.43	1.345 Level 3	
12,100.0	5,779.0	12,197.9	5,866.0	130.8	129.2	-105.05	-6,815.2	668.8	335.1	82.9	252.18	1.329 Level 3	
12,200.0	5,779.0	12,297.9	5,866.0	132.7	131.1	-105.01	-6,915.2	670.4	336.0	80.0	255.93	1.313 Level 3	
12,300.0	5,779.0	12,397.9	5,866.0	134.6	133.0	-104.97	-7,015.2	672.0	336.9	77.2	259.69	1.297 Level 3	
12,400.0	5,779.0	12,497.9	5,866.0	136.5	134.9	-104.93	-7,115.2	673.6	337.7	74.3	263.44	1.282 Level 3	
12,500.0	5,779.0	12,597.9	5,866.0	138.4	136.8	-104.89	-7,215.2	675.2	338.6	71.4	267.19	1.267 Level 3	
12,600.0	5,779.0	12,697.8	5,866.0	140.3	138.7	-104.85	-7,315.2	676.8	339.5	68.5	270.95	1.253 Level 3	
12,700.0	5,779.0	12,797.8	5,866.0	142.2	140.7	-104.81	-7,415.1	678.4	340.3	65.6	274.71	1.239 Level 2	
12,774.7	5,779.0	12,871.7	5,866.0	143.7	142.1	-104.78	-7,489.0	679.5	341.0	63.5	277.50	1.229 Level 2, SF	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #21A-2815A
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.4usft (Original Well Elev)
Reference Site:	S21-T10N-R58W	MD Reference:	WELL @ 4848.4usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	Razor #21A-2815A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4848.4usft (Original Well Ele
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Razor #21A-2815A
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.06°

