



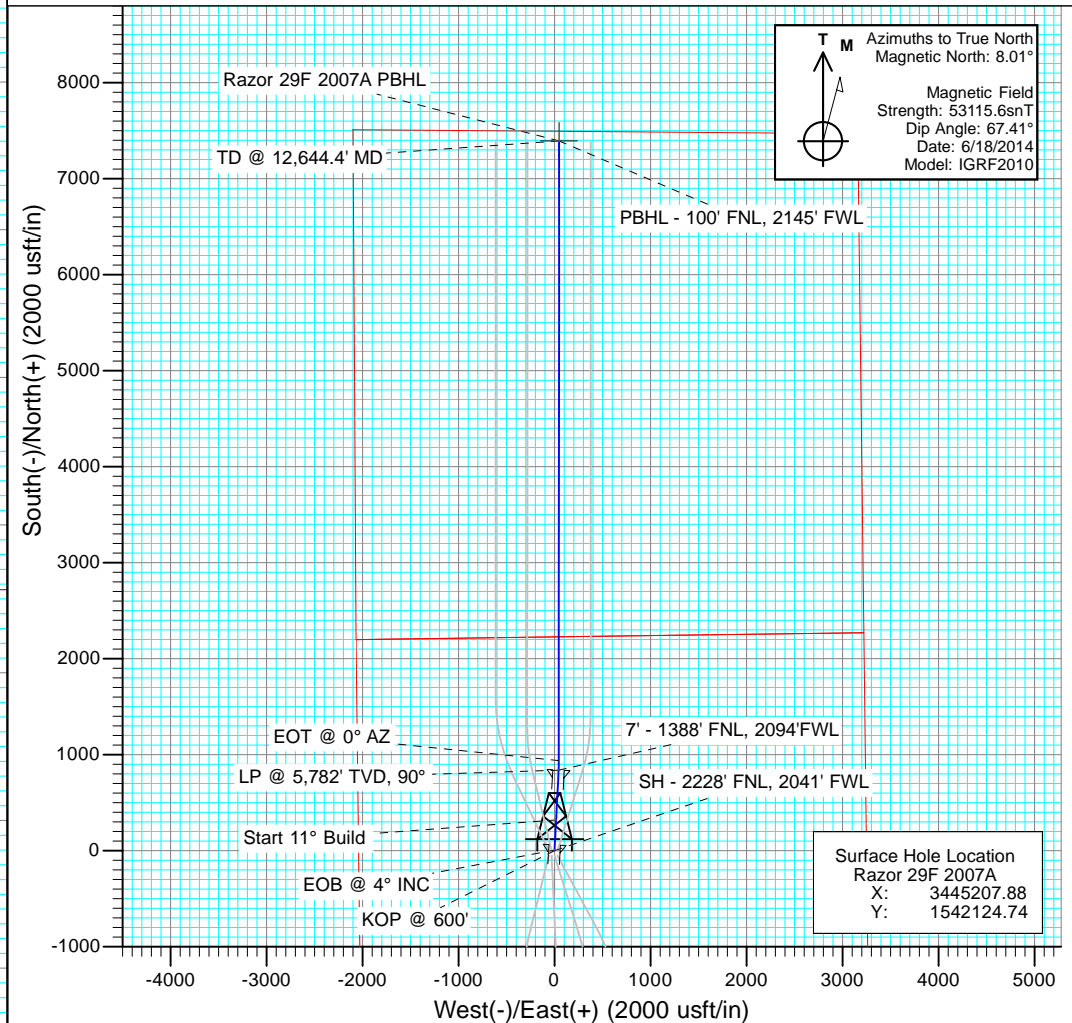
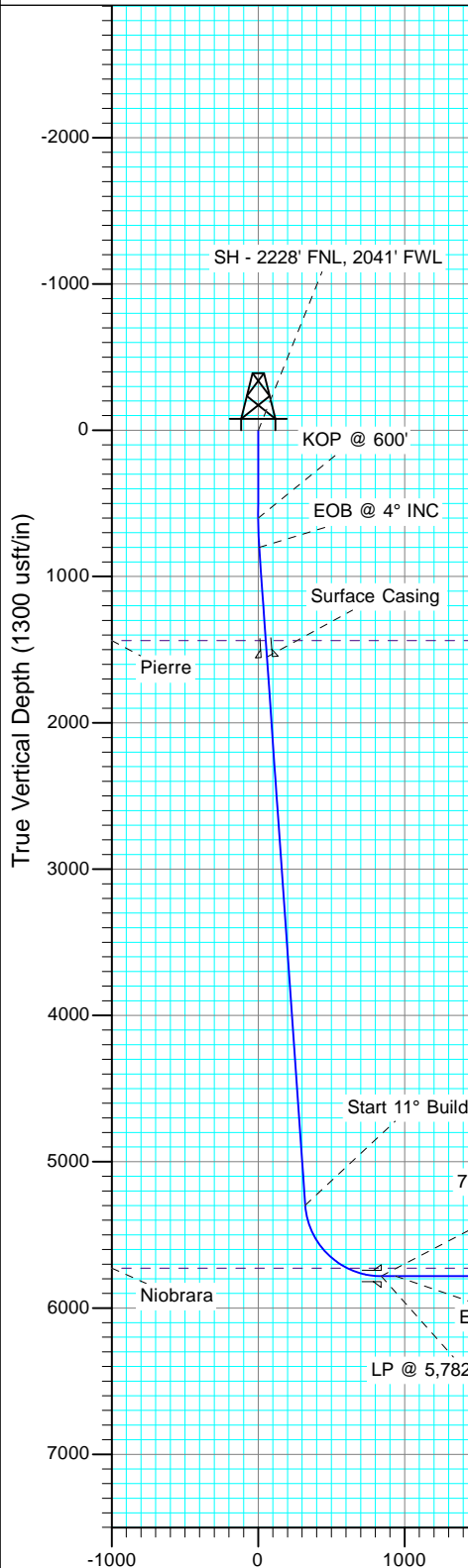
Project: Weld County, CO
Site: S29-T10N-R58W
Well: Razor 29F 2007A
Wellbore: HZ
Design: Plan #1



Plan #1
Razor 29F 2007A
145XXX; SC
KB=17' @ 4832.8usft (Cade #23)
Ground Elevation @ 4815.8
North American Datum 1983
Well Razor 29F 2007A, True North

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.0	
3	800.0	4.00	2.95	799.8	7.0	0.4	2.00	2.95	7.0	
4	5308.6	4.00	2.95	5297.5	321.1	16.5	0.00	0.00	321.2	
5	6090.4	90.00	2.95	5782.0	840.0	43.3	11.00	0.00	840.2	
6	6188.6	90.00	0.00	5782.0	938.1	45.8	3.00	-90.00	938.4	
7	12644.4	90.00	0.00	5782.0	7393.9	46.2	0.00	0.00	7394.1	Razor 29F 2007A PBHL



DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
Razor 29F 2007A PBHL	5782.0	7393.9	46.2	1549518.30	3445119.98

Vertical Section at 0.36° (1300 usft/in)

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor 29F 2007A
Company:	Whiting Petroleum Corporation	TVD Reference:	KB=17' @ 4832.8usft (Cade #23)
Project:	Weld County, CO	MD Reference:	KB=17' @ 4832.8usft (Cade #23)
Site:	S29-T10N-R58W	North Reference:	True
Well:	Razor 29F 2007A	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		S29-T10N-R58W			
Site Position:		Northing:	1,542,123.68 usft	Latitude:	40.810431
From:	Lat/Long	Easting:	3,445,148.09 usft	Longitude:	-103.891858
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	1.04 °

Well	Razor 29F 2007A					
Well Position	+N/-S	0.0 usft	Northing:	1,542,124.74 usft	Latitude:	40.810431
	+E/-W	0.0 usft	Easting:	3,445,207.88 usft	Longitude:	-103.891642
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	4,815.8 usft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/18/2014	8.01	67.41	53,116

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	0.36

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.00	0.00	
800.0	4.00	2.95	799.8	7.0	0.4	2.00	2.00	0.00	2.95	
5,308.6	4.00	2.95	5,297.5	321.1	16.5	0.00	0.00	0.00	0.00	
6,090.4	90.00	2.95	5,782.0	840.0	43.3	11.00	11.00	0.00	0.00	
6,188.6	90.00	0.00	5,782.0	938.1	45.8	3.00	0.00	-3.00	-90.00	
12,644.4	90.00	0.00	5,782.0	7,393.9	46.2	0.00	0.00	0.00	0.00	Razor 29F 2007A PBI

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor 29F 2007A
Company:	Whiting Petroleum Corporation	TVD Reference:	KB=17' @ 4832.8usft (Cade #23)
Project:	Weld County, CO	MD Reference:	KB=17' @ 4832.8usft (Cade #23)
Site:	S29-T10N-R58W	North Reference:	True
Well:	Razor 29F 2007A	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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	
0.5	0.00	0.00	0.5	0.0	0.0	0.0	0.00	0.00	SH - 2228' FNL, 2041' FWL
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	KOP @ 600'
700.0	2.00	2.95	700.0	1.7	0.1	1.7	2.00	2.00	
800.0	4.00	2.95	799.8	7.0	0.4	7.0	2.00	2.00	EOB @ 4° INC
900.0	4.00	2.95	899.6	13.9	0.7	13.9	0.00	0.00	
1,000.0	4.00	2.95	999.4	20.9	1.1	20.9	0.00	0.00	
1,100.0	4.00	2.95	1,099.1	27.9	1.4	27.9	0.00	0.00	
1,200.0	4.00	2.95	1,198.9	34.8	1.8	34.8	0.00	0.00	
1,300.0	4.00	2.95	1,298.6	41.8	2.2	41.8	0.00	0.00	
1,400.0	4.00	2.95	1,398.4	48.8	2.5	48.8	0.00	0.00	
1,438.7	4.00	2.95	1,437.0	51.5	2.7	51.5	0.00	0.00	Pierre
1,500.0	4.00	2.95	1,498.1	55.7	2.9	55.8	0.00	0.00	
1,552.0	4.00	2.95	1,550.0	59.4	3.1	59.4	0.00	0.00	Surface Casing
1,600.0	4.00	2.95	1,597.9	62.7	3.2	62.7	0.00	0.00	
1,700.0	4.00	2.95	1,697.6	69.7	3.6	69.7	0.00	0.00	
1,800.0	4.00	2.95	1,797.4	76.6	3.9	76.7	0.00	0.00	
1,900.0	4.00	2.95	1,897.2	83.6	4.3	83.6	0.00	0.00	
2,000.0	4.00	2.95	1,996.9	90.6	4.7	90.6	0.00	0.00	
2,100.0	4.00	2.95	2,096.7	97.5	5.0	97.6	0.00	0.00	
2,200.0	4.00	2.95	2,196.4	104.5	5.4	104.5	0.00	0.00	
2,300.0	4.00	2.95	2,296.2	111.5	5.7	111.5	0.00	0.00	
2,400.0	4.00	2.95	2,395.9	118.4	6.1	118.5	0.00	0.00	
2,500.0	4.00	2.95	2,495.7	125.4	6.5	125.4	0.00	0.00	
2,600.0	4.00	2.95	2,595.5	132.4	6.8	132.4	0.00	0.00	
2,700.0	4.00	2.95	2,695.2	139.3	7.2	139.4	0.00	0.00	
2,800.0	4.00	2.95	2,795.0	146.3	7.5	146.3	0.00	0.00	
2,900.0	4.00	2.95	2,894.7	153.3	7.9	153.3	0.00	0.00	
3,000.0	4.00	2.95	2,994.5	160.2	8.3	160.3	0.00	0.00	
3,100.0	4.00	2.95	3,094.2	167.2	8.6	167.2	0.00	0.00	
3,200.0	4.00	2.95	3,194.0	174.2	9.0	174.2	0.00	0.00	
3,300.0	4.00	2.95	3,293.7	181.1	9.3	181.2	0.00	0.00	
3,400.0	4.00	2.95	3,393.5	188.1	9.7	188.2	0.00	0.00	
3,500.0	4.00	2.95	3,493.3	195.1	10.1	195.1	0.00	0.00	
3,600.0	4.00	2.95	3,593.0	202.0	10.4	202.1	0.00	0.00	
3,700.0	4.00	2.95	3,692.8	209.0	10.8	209.1	0.00	0.00	
3,800.0	4.00	2.95	3,792.5	216.0	11.1	216.0	0.00	0.00	
3,900.0	4.00	2.95	3,892.3	222.9	11.5	223.0	0.00	0.00	
4,000.0	4.00	2.95	3,992.0	229.9	11.8	230.0	0.00	0.00	
4,100.0	4.00	2.95	4,091.8	236.9	12.2	236.9	0.00	0.00	
4,200.0	4.00	2.95	4,191.6	243.8	12.6	243.9	0.00	0.00	
4,300.0	4.00	2.95	4,291.3	250.8	12.9	250.9	0.00	0.00	
4,400.0	4.00	2.95	4,391.1	257.8	13.3	257.8	0.00	0.00	
4,500.0	4.00	2.95	4,490.8	264.7	13.6	264.8	0.00	0.00	
4,600.0	4.00	2.95	4,590.6	271.7	14.0	271.8	0.00	0.00	
4,700.0	4.00	2.95	4,690.3	278.7	14.4	278.7	0.00	0.00	
4,800.0	4.00	2.95	4,790.1	285.6	14.7	285.7	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor 29F 2007A
Company:	Whiting Petroleum Corporation	TVD Reference:	KB=17' @ 4832.8usft (Cade #23)
Project:	Weld County, CO	MD Reference:	KB=17' @ 4832.8usft (Cade #23)
Site:	S29-T10N-R58W	North Reference:	True
Well:	Razor 29F 2007A	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
4,900.0	4.00	2.95	4,889.9	292.6	15.1	292.7	0.00	0.00	
5,000.0	4.00	2.95	4,989.6	299.6	15.4	299.6	0.00	0.00	
5,100.0	4.00	2.95	5,089.4	306.5	15.8	306.6	0.00	0.00	
5,200.0	4.00	2.95	5,189.1	313.5	16.2	313.6	0.00	0.00	
5,308.6	4.00	2.95	5,297.5	321.1	16.5	321.2	0.00	0.00	Start 11° Build
5,350.0	8.55	2.95	5,338.6	325.6	16.8	325.7	11.00	11.00	
5,400.0	14.05	2.95	5,387.6	335.4	17.3	335.5	11.00	11.00	
5,450.0	19.55	2.95	5,435.5	349.8	18.0	349.9	11.00	11.00	
5,500.0	25.05	2.95	5,481.7	368.7	19.0	368.8	11.00	11.00	
5,550.0	30.55	2.95	5,525.9	392.0	20.2	392.1	11.00	11.00	
5,600.0	36.05	2.95	5,567.7	419.4	21.6	419.6	11.00	11.00	
5,650.0	41.55	2.95	5,606.6	450.7	23.2	450.8	11.00	11.00	
5,700.0	47.05	2.95	5,642.4	485.6	25.0	485.7	11.00	11.00	
5,750.0	52.55	2.95	5,674.7	523.7	27.0	523.9	11.00	11.00	
5,800.0	58.05	2.95	5,703.1	564.7	29.1	564.9	11.00	11.00	
5,850.0	63.55	2.95	5,727.5	608.3	31.3	608.5	11.00	11.00	
5,851.2	63.68	2.95	5,728.0	609.3	31.4	609.5	11.00	11.00	Niobrara
5,900.0	69.05	2.95	5,747.6	654.0	33.7	654.2	11.00	11.00	
5,950.0	74.55	2.95	5,763.2	701.4	36.1	701.6	11.00	11.00	
6,000.0	80.05	2.95	5,774.2	750.1	38.7	750.4	11.00	11.00	
6,050.0	85.55	2.95	5,780.4	799.6	41.2	799.9	11.00	11.00	
6,090.4	90.00	2.95	5,782.0	840.0	43.3	840.2	11.00	11.00	LP @ 5,782' TVD, 90° - 7' - 1388' FNL, 2094'FV
6,100.0	90.00	2.66	5,782.0	849.5	43.8	849.8	2.99	0.02	
6,188.6	90.00	0.00	5,782.0	938.1	45.8	938.4	3.00	0.00	EOT @ 0° AZ
6,200.0	90.00	0.00	5,782.0	949.5	45.8	949.8	0.00	0.00	
6,300.0	90.00	0.00	5,782.0	1,049.5	45.8	1,049.8	0.00	0.00	
6,400.0	90.00	0.00	5,782.0	1,149.5	45.8	1,149.8	0.00	0.00	
6,500.0	90.00	0.00	5,782.0	1,249.5	45.8	1,249.8	0.00	0.00	
6,600.0	90.00	0.00	5,782.0	1,349.5	45.8	1,349.8	0.00	0.00	
6,700.0	90.00	0.00	5,782.0	1,449.5	45.8	1,449.8	0.00	0.00	
6,800.0	90.00	0.00	5,782.0	1,549.5	45.9	1,549.8	0.00	0.00	
6,900.0	90.00	0.00	5,782.0	1,649.5	45.9	1,649.8	0.00	0.00	
7,000.0	90.00	0.00	5,782.0	1,749.5	45.9	1,749.8	0.00	0.00	
7,100.0	90.00	0.00	5,782.0	1,849.5	45.9	1,849.8	0.00	0.00	
7,200.0	90.00	0.00	5,782.0	1,949.5	45.9	1,949.8	0.00	0.00	
7,300.0	90.00	0.00	5,782.0	2,049.5	45.9	2,049.8	0.00	0.00	
7,400.0	90.00	0.00	5,782.0	2,149.5	45.9	2,149.8	0.00	0.00	
7,500.0	90.00	0.00	5,782.0	2,249.5	45.9	2,249.8	0.00	0.00	
7,600.0	90.00	0.00	5,782.0	2,349.5	45.9	2,349.7	0.00	0.00	
7,700.0	90.00	0.00	5,782.0	2,449.5	45.9	2,449.7	0.00	0.00	
7,800.0	90.00	0.00	5,782.0	2,549.5	45.9	2,549.7	0.00	0.00	
7,900.0	90.00	0.00	5,782.0	2,649.5	45.9	2,649.7	0.00	0.00	
8,000.0	90.00	0.00	5,782.0	2,749.5	45.9	2,749.7	0.00	0.00	
8,100.0	90.00	0.00	5,782.0	2,849.5	45.9	2,849.7	0.00	0.00	
8,200.0	90.00	0.00	5,782.0	2,949.5	45.9	2,949.7	0.00	0.00	
8,300.0	90.00	0.00	5,782.0	3,049.5	45.9	3,049.7	0.00	0.00	
8,400.0	90.00	0.00	5,782.0	3,149.5	46.0	3,149.7	0.00	0.00	
8,500.0	90.00	0.00	5,782.0	3,249.5	46.0	3,249.7	0.00	0.00	
8,600.0	90.00	0.00	5,782.0	3,349.5	46.0	3,349.7	0.00	0.00	
8,700.0	90.00	0.00	5,782.0	3,449.5	46.0	3,449.7	0.00	0.00	
8,800.0	90.00	0.00	5,782.0	3,549.5	46.0	3,549.7	0.00	0.00	
8,900.0	90.00	0.00	5,782.0	3,649.5	46.0	3,649.7	0.00	0.00	

Cathedral Energy Services

Planning Report

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Well:	Razor 29F 2007A	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
9,000.0	90.00	0.00	5,782.0	3,749.5	46.0	3,749.7	0.00	0.00	
9,100.0	90.00	0.00	5,782.0	3,849.5	46.0	3,849.7	0.00	0.00	
9,200.0	90.00	0.00	5,782.0	3,949.5	46.0	3,949.7	0.00	0.00	
9,300.0	90.00	0.00	5,782.0	4,049.5	46.0	4,049.7	0.00	0.00	
9,400.0	90.00	0.00	5,782.0	4,149.5	46.0	4,149.7	0.00	0.00	
9,500.0	90.00	0.00	5,782.0	4,249.5	46.0	4,249.7	0.00	0.00	
9,600.0	90.00	0.00	5,782.0	4,349.5	46.0	4,349.7	0.00	0.00	
9,700.0	90.00	0.00	5,782.0	4,449.5	46.0	4,449.7	0.00	0.00	
9,800.0	90.00	0.00	5,782.0	4,549.5	46.0	4,549.7	0.00	0.00	
9,900.0	90.00	0.00	5,782.0	4,649.5	46.0	4,649.7	0.00	0.00	
10,000.0	90.00	0.00	5,782.0	4,749.5	46.1	4,749.7	0.00	0.00	
10,100.0	90.00	0.00	5,782.0	4,849.5	46.1	4,849.7	0.00	0.00	
10,200.0	90.00	0.00	5,782.0	4,949.5	46.1	4,949.7	0.00	0.00	
10,300.0	90.00	0.00	5,782.0	5,049.5	46.1	5,049.7	0.00	0.00	
10,400.0	90.00	0.00	5,782.0	5,149.5	46.1	5,149.7	0.00	0.00	
10,500.0	90.00	0.00	5,782.0	5,249.5	46.1	5,249.7	0.00	0.00	
10,600.0	90.00	0.00	5,782.0	5,349.5	46.1	5,349.7	0.00	0.00	
10,700.0	90.00	0.00	5,782.0	5,449.5	46.1	5,449.7	0.00	0.00	
10,800.0	90.00	0.00	5,782.0	5,549.5	46.1	5,549.7	0.00	0.00	
10,900.0	90.00	0.00	5,782.0	5,649.5	46.1	5,649.7	0.00	0.00	
11,000.0	90.00	0.00	5,782.0	5,749.5	46.1	5,749.7	0.00	0.00	
11,100.0	90.00	0.00	5,782.0	5,849.5	46.1	5,849.7	0.00	0.00	
11,200.0	90.00	0.00	5,782.0	5,949.5	46.1	5,949.7	0.00	0.00	
11,300.0	90.00	0.00	5,782.0	6,049.5	46.1	6,049.7	0.00	0.00	
11,400.0	90.00	0.00	5,782.0	6,149.5	46.1	6,149.7	0.00	0.00	
11,500.0	90.00	0.00	5,782.0	6,249.5	46.1	6,249.7	0.00	0.00	
11,600.0	90.00	0.00	5,782.0	6,349.5	46.2	6,349.7	0.00	0.00	
11,700.0	90.00	0.00	5,782.0	6,449.5	46.2	6,449.7	0.00	0.00	
11,800.0	90.00	0.00	5,782.0	6,549.5	46.2	6,549.7	0.00	0.00	
11,900.0	90.00	0.00	5,782.0	6,649.5	46.2	6,649.7	0.00	0.00	
12,000.0	90.00	0.00	5,782.0	6,749.5	46.2	6,749.7	0.00	0.00	
12,100.0	90.00	0.00	5,782.0	6,849.5	46.2	6,849.7	0.00	0.00	
12,200.0	90.00	0.00	5,782.0	6,949.5	46.2	6,949.7	0.00	0.00	
12,300.0	90.00	0.00	5,782.0	7,049.5	46.2	7,049.7	0.00	0.00	
12,400.0	90.00	0.00	5,782.0	7,149.5	46.2	7,149.7	0.00	0.00	
12,500.0	90.00	0.00	5,782.0	7,249.5	46.2	7,249.7	0.00	0.00	
12,600.0	90.00	0.00	5,782.0	7,349.5	46.2	7,349.7	0.00	0.00	
12,644.4	90.00	0.00	5,782.0	7,393.9	46.2	7,394.1	0.00	0.00	PBHL - 100' FNL, 2145' FWL

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Razor 29F 2007A PBHL	0.00	0.00	5,782.0	7,393.9	46.2	1,549,518.30	3,445,119.98	40.830725	-103.891475
- hit/miss target									
- Shape									
- plan hits target center									
- Point									

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor 29F 2007A
Company:	Whiting Petroleum Corporation	TVD Reference:	KB=17' @ 4832.8usft (Cade #23)
Project:	Weld County, CO	MD Reference:	KB=17' @ 4832.8usft (Cade #23)
Site:	S29-T10N-R58W	North Reference:	True
Well:	Razor 29F 2007A	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,552.0	1,550.0	Surface Casing	0	0	
6,090.4	5,782.0	7' - 1388' FNL, 2094'FWL	0	0	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,438.7	1,437.0	Pierre			
5,851.2	5,728.0	Niobrara			

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
0.5	0.5	0.0	0.0	SH - 2228' FNL, 2041' FWL	
600.0	600.0	0.0	0.0	KOP @ 600'	
800.0	799.8	7.0	0.4	EOB @ 4° INC	
5,308.6	5,297.5	321.1	16.5	Start 11° Build	
6,090.4	5,782.0	840.0	43.3	LP @ 5,782' TVD, 90°	
6,188.6	5,782.0	938.1	45.8	EOT @ 0° AZ	
12,644.4	5,782.0	7,393.9	46.2	PBHL - 100' FNL, 2145' FWL	
12,644.4	5,782.0	7,393.9	46.2	TD @ 12,644.4' MD	

Whiting Petroleum Corporation

Weld County, CO

S29-T10N-R58W

Razor 29F 2007A

HZ

Plan #1

Anticollision Report

19 June, 2014

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor 29F 2007A
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4832.8usft (Cade #23)
Reference Site:	S29-T10N-R58W	MD Reference:	KB=17' @ 4832.8usft (Cade #23)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor 29F 2007A	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 #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0usft	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,550.0usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date	6/19/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	12,644.3	Plan #1 (HZ)	ISCWSA MWD	MWD - ISCWSA

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S29-T10N-R58W						
Razor 29F 2005A - HZ - Plan #1	400.0	400.0	59.8	58.3	38.950	CC, ES
Razor 29F 2005A - HZ - Plan #1	12,644.4	12,740.4	659.5	377.0	2.335	SF
Razor 29F 2006B - HZ - Plan #1	500.0	500.0	29.9	27.9	15.064	CC, ES
Razor 29F 2006B - HZ - Plan #1	12,644.4	12,734.6	338.3	61.6	1.223	Level 2, SF
Razor 29F 2008B - HZ - Plan #1	400.0	400.0	30.2	28.6	19.655	CC, ES
Razor 29F 2008B - HZ - Plan #1	12,644.4	12,745.4	338.3	62.8	1.228	Level 2, SF
Razor 29F 3205A - HZ - Plan #1	400.0	400.0	77.9	76.3	50.732	CC, ES
Razor 29F 3205A - HZ - Plan #1	1,800.0	1,784.5	230.4	222.7	29.660	SF
Razor 29F 3206B - HZ - Plan #1	600.0	600.0	58.2	55.7	23.899	CC, ES
Razor 29F 3206B - HZ - Plan #1	700.0	698.2	61.2	58.3	21.387	SF
Razor 29F 3207A - HZ - Plan #1	500.0	500.0	49.9	47.9	25.154	CC, ES
Razor 29F 3207A - HZ - Plan #1	700.0	696.3	58.2	55.4	20.565	SF
Razor 29F 3208B - HZ - Plan #1	400.0	400.0	58.3	56.8	37.987	CC, ES
Razor 29F 3208B - HZ - Plan #1	800.0	794.5	85.0	81.7	26.013	SF

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor 29F 2007A
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4832.8usft (Cade #23)
Reference Site:	S29-T10N-R58W	MD Reference:	KB=17' @ 4832.8usft (Cade #23)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor 29F 2007A	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S29-T10N-R58W - Razor 29F 2005A - 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							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-89.98	0.0	-59.8	59.8					
100.0	100.0	100.0	100.0	0.1	0.1	-89.98	0.0	-59.8	59.8	59.6	0.19	320.515		
200.0	200.0	200.0	200.0	0.3	0.3	-89.98	0.0	-59.8	59.8	59.2	0.64	94.003		
300.0	300.0	300.0	300.0	0.5	0.5	-89.98	0.0	-59.8	59.8	58.7	1.09	55.078		
400.0	400.0	400.0	400.0	0.8	0.8	-89.98	0.0	-59.8	59.8	58.3	1.54	38.950	CC, ES	
500.0	500.0	499.1	499.1	1.0	1.0	-88.52	1.6	-60.5	60.6	58.6	1.98	30.566		
600.0	600.0	597.9	597.7	1.2	1.2	-84.37	6.2	-62.7	63.1	60.6	2.43	25.951		
700.0	700.0	697.7	697.3	1.4	1.5	-83.61	12.5	-65.7	66.7	63.8	2.89	23.114		
800.0	799.8	797.7	797.0	1.7	1.7	-83.11	18.8	-68.7	70.1	66.8	3.35	20.948		
900.0	899.6	897.6	896.7	1.9	1.9	-84.07	25.1	-71.7	73.3	69.5	3.82	19.200		
1,000.0	999.4	997.5	996.4	2.1	2.2	-84.95	31.4	-74.7	76.6	72.3	4.30	17.807		
1,100.0	1,099.1	1,097.5	1,096.1	2.4	2.4	-85.76	37.7	-77.7	79.8	75.0	4.79	16.678		
1,200.0	1,198.9	1,197.4	1,195.8	2.6	2.7	-86.51	43.9	-80.7	83.1	77.8	5.28	15.746		
1,300.0	1,298.6	1,297.4	1,295.5	2.9	2.9	-87.20	50.2	-83.7	86.3	80.6	5.77	14.967		
1,400.0	1,398.4	1,397.3	1,395.2	3.1	3.2	-87.84	56.5	-86.7	89.6	83.3	6.26	14.307		
1,500.0	1,498.1	1,497.2	1,494.9	3.4	3.5	-88.43	62.8	-89.7	92.9	86.1	6.76	13.741		
1,600.0	1,597.9	1,597.2	1,594.6	3.6	3.7	-88.98	69.1	-92.7	96.2	88.9	7.26	13.251		
1,700.0	1,697.6	1,697.1	1,694.3	3.9	4.0	-89.50	75.4	-95.7	99.5	91.7	7.76	12.823		
1,800.0	1,797.4	1,797.1	1,794.0	4.1	4.2	-89.98	81.7	-98.7	102.8	94.6	8.26	12.446		
1,900.0	1,897.2	1,897.0	1,893.7	4.4	4.5	-90.44	88.0	-101.7	106.1	97.4	8.76	12.111		
2,000.0	1,996.9	1,997.0	1,993.4	4.6	4.7	-90.86	94.3	-104.7	109.5	100.2	9.27	11.812		
2,100.0	2,096.7	2,096.9	2,093.1	4.9	5.0	-91.26	100.6	-107.7	112.8	103.0	9.77	11.543		
2,200.0	2,196.4	2,196.8	2,192.8	5.1	5.2	-91.64	106.9	-110.7	116.1	105.9	10.28	11.301		
2,300.0	2,296.2	2,296.8	2,292.5	5.4	5.5	-91.99	113.2	-113.7	119.5	108.7	10.78	11.081		
2,400.0	2,395.9	2,396.7	2,392.2	5.6	5.8	-92.33	119.5	-116.7	122.8	111.5	11.29	10.881		
2,500.0	2,495.7	2,496.7	2,491.9	5.9	6.0	-92.65	125.8	-119.7	126.2	114.4	11.80	10.698		
2,600.0	2,595.5	2,596.6	2,591.6	6.1	6.3	-92.95	132.1	-122.7	129.5	117.2	12.30	10.531		
2,700.0	2,695.2	2,696.5	2,691.3	6.4	6.5	-93.24	138.4	-125.7	132.9	120.1	12.81	10.376		
2,800.0	2,795.0	2,796.5	2,791.0	6.7	6.8	-93.51	144.7	-128.7	136.3	123.0	13.32	10.233		
2,900.0	2,894.7	2,896.4	2,890.7	6.9	7.0	-93.77	151.0	-131.7	139.6	125.8	13.82	10.101		
3,000.0	2,994.5	2,996.4	2,990.4	7.2	7.3	-94.02	157.2	-134.7	143.0	128.7	14.33	9.978		
3,100.0	3,094.2	3,096.3	3,090.1	7.4	7.5	-94.26	163.5	-137.7	146.4	131.5	14.84	9.864		
3,200.0	3,194.0	3,196.3	3,189.8	7.7	7.8	-94.48	169.8	-140.6	149.7	134.4	15.35	9.757		
3,300.0	3,293.7	3,296.2	3,289.5	7.9	8.1	-94.70	176.1	-143.6	153.1	137.3	15.86	9.657		
3,400.0	3,393.5	3,396.1	3,389.2	8.2	8.3	-94.90	182.4	-146.6	156.5	140.1	16.36	9.564		
3,500.0	3,493.3	3,496.1	3,488.9	8.4	8.6	-95.10	188.7	-149.6	159.9	143.0	16.87	9.476		
3,600.0	3,593.0	3,596.0	3,588.6	8.7	8.8	-95.29	195.0	-152.6	163.3	145.9	17.38	9.393		
3,700.0	3,692.8	3,696.0	3,688.3	9.0	9.1	-95.47	201.3	-155.6	166.6	148.8	17.89	9.315		
3,800.0	3,792.5	3,795.9	3,788.0	9.2	9.3	-95.65	207.6	-158.6	170.0	151.6	18.40	9.242		
3,900.0	3,892.3	3,895.8	3,887.7	9.5	9.6	-95.81	213.9	-161.6	173.4	154.5	18.91	9.172		
4,000.0	3,992.0	3,995.8	3,987.4	9.7	9.9	-95.98	220.2	-164.6	176.8	157.4	19.42	9.106		
4,100.0	4,091.8	4,095.7	4,087.0	10.0	10.1	-96.13	226.5	-167.6	180.2	160.3	19.92	9.044		
4,200.0	4,191.6	4,195.7	4,186.7	10.2	10.4	-96.28	232.8	-170.6	183.6	163.1	20.43	8.984		
4,300.0	4,291.3	4,295.6	4,286.4	10.5	10.6	-96.42	239.1	-173.6	187.0	166.0	20.94	8.928		
4,400.0	4,391.1	4,395.6	4,386.1	10.7	10.9	-96.56	245.4	-176.6	190.4	168.9	21.45	8.874		
4,500.0	4,490.8	4,495.5	4,485.8	11.0	11.1	-96.70	251.7	-179.6	193.8	171.8	21.96	8.823		
4,600.0	4,590.6	4,595.4	4,585.5	11.3	11.4	-96.83	258.0	-182.6	197.1	174.7	22.47	8.774		
4,700.0	4,690.3	4,695.4	4,685.2	11.5	11.7	-96.95	264.3	-185.6	200.5	177.6	22.98	8.727		
4,800.0	4,790.1	4,795.3	4,784.9	11.8	11.9	-97.07	270.6	-188.6	203.9	180.5	23.49	8.683		
4,900.0	4,889.9	4,895.3	4,884.6	12.0	12.2	-97.19	276.8	-191.6	207.3	183.3	24.00	8.640		
5,000.0	4,989.6	4,995.2	4,984.3	12.3	12.4	-97.30	283.1	-194.6	210.7	186.2	24.51	8.599		
5,100.0	5,089.4	5,095.1	5,084.0	12.5	12.7	-97.41	289.4	-197.6	214.1	189.1	25.02	8.560		

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 29F 2007A
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4832.8usft (Cade #23)
Reference Site:	S29-T10N-R58W	MD Reference:	KB=17' @ 4832.8usft (Cade #23)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor 29F 2007A	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S29-T10N-R58W - Razor 29F 2005A - 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						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	5,189.1	5,195.1	5,183.7	12.8	12.9	-97.52	295.7	-200.6	217.5	192.0	25.53	8.522		
5,300.0	5,288.9	5,295.0	5,283.4	13.0	13.2	-97.62	302.0	-203.6	220.9	194.9	26.04	8.486		
5,400.0	5,387.6	5,383.6	5,371.1	13.4	13.5	-97.50	312.4	-208.5	227.6	201.0	26.60	8.553		
5,500.0	5,481.7	5,469.4	5,453.2	13.8	13.9	-97.15	334.9	-219.2	242.3	214.9	27.41	8.842		
5,600.0	5,567.7	5,554.0	5,528.9	14.5	14.4	-96.48	368.7	-235.3	264.7	236.3	28.46	9.302		
5,700.0	5,642.4	5,637.1	5,596.5	15.3	15.0	-95.40	412.2	-256.0	294.1	264.3	29.81	9.866		
5,800.0	5,703.1	5,718.7	5,654.6	16.3	15.8	-93.87	463.9	-280.6	329.3	297.9	31.45	10.471		
5,900.0	5,747.6	5,800.0	5,702.9	17.5	16.6	-91.94	522.8	-308.7	369.4	336.0	33.39	11.063		
6,000.0	5,774.2	5,879.8	5,739.8	18.9	17.7	-89.65	586.6	-339.1	413.0	377.5	35.58	11.608		
6,100.0	5,782.0	5,961.1	5,765.9	20.3	18.8	-87.73	656.1	-372.1	459.0	421.0	38.00	12.079		
6,200.0	5,782.0	6,047.8	5,780.2	21.7	20.2	-89.78	733.2	-408.9	503.5	462.8	40.71	12.367		
6,300.0	5,782.0	6,156.9	5,782.0	23.2	21.8	-90.00	832.1	-454.7	545.7	501.9	43.75	12.473		
6,400.0	5,782.0	6,288.9	5,782.0	24.9	23.9	-90.00	954.9	-503.1	582.4	535.2	47.20	12.338		
6,500.0	5,782.0	6,427.8	5,782.0	26.5	26.1	-90.00	1,087.4	-544.7	612.4	561.4	50.95	12.019		
6,600.0	5,782.0	6,572.4	5,782.0	28.2	28.5	-90.00	1,228.1	-577.7	635.2	580.3	54.94	11.563		
6,700.0	5,782.0	6,721.4	5,782.0	29.9	30.9	-90.00	1,375.4	-600.4	650.5	591.4	59.09	11.008		
6,800.0	5,782.0	6,873.1	5,782.0	31.6	33.3	-90.00	1,526.6	-611.7	657.9	594.6	63.36	10.385		
6,900.0	5,782.0	6,996.0	5,782.0	33.4	35.3	-90.00	1,649.5	-612.8	658.7	591.5	67.17	9.806		
7,000.0	5,782.0	7,096.0	5,782.0	35.2	36.9	-90.00	1,749.5	-612.9	658.7	588.1	70.64	9.325		
7,100.0	5,782.0	7,196.0	5,782.0	37.0	38.6	-90.00	1,849.5	-612.9	658.7	584.6	74.14	8.885		
7,200.0	5,782.0	7,296.0	5,782.0	38.8	40.2	-90.00	1,949.5	-612.9	658.7	581.1	77.67	8.481		
7,300.0	5,782.0	7,396.0	5,782.0	40.6	41.9	-90.00	2,049.5	-612.9	658.8	577.5	81.23	8.110		
7,400.0	5,782.0	7,496.0	5,782.0	42.4	43.6	-90.00	2,149.5	-612.9	658.8	574.0	84.82	7.767		
7,500.0	5,782.0	7,596.0	5,782.0	44.2	45.4	-90.00	2,249.5	-612.9	658.8	570.4	88.43	7.450		
7,600.0	5,782.0	7,696.0	5,782.0	46.1	47.1	-90.00	2,349.5	-612.9	658.8	566.7	92.05	7.157		
7,700.0	5,782.0	7,796.0	5,782.0	47.9	48.9	-90.00	2,449.5	-612.9	658.8	563.1	95.69	6.885		
7,800.0	5,782.0	7,896.0	5,782.0	49.8	50.6	-90.00	2,549.5	-612.9	658.8	559.5	99.35	6.631		
7,900.0	5,782.0	7,996.0	5,782.0	51.6	52.4	-90.00	2,649.5	-612.9	658.8	555.8	103.02	6.395		
8,000.0	5,782.0	8,096.0	5,782.0	53.5	54.2	-90.00	2,749.5	-612.9	658.9	552.1	106.71	6.174		
8,100.0	5,782.0	8,196.0	5,782.0	55.4	56.0	-90.00	2,849.5	-612.9	658.9	548.5	110.40	5.968		
8,200.0	5,782.0	8,296.0	5,782.0	57.2	57.8	-90.00	2,949.5	-612.9	658.9	544.8	114.10	5.774		
8,300.0	5,782.0	8,396.0	5,782.0	59.1	59.6	-90.00	3,049.5	-612.9	658.9	541.1	117.82	5.593		
8,400.0	5,782.0	8,496.0	5,782.0	61.0	61.4	-90.00	3,149.5	-613.0	658.9	537.4	121.54	5.421		
8,500.0	5,782.0	8,596.0	5,782.0	62.8	63.3	-90.00	3,249.5	-613.0	658.9	533.7	125.26	5.260		
8,600.0	5,782.0	8,696.0	5,782.0	64.7	65.1	-90.00	3,349.5	-613.0	658.9	529.9	129.00	5.108		
8,700.0	5,782.0	8,796.0	5,782.0	66.6	66.9	-90.00	3,449.5	-613.0	658.9	526.2	132.74	4.964		
8,800.0	5,782.0	8,896.0	5,782.0	68.5	68.8	-90.00	3,549.5	-613.0	659.0	522.5	136.49	4.828		
8,900.0	5,782.0	8,996.0	5,782.0	70.4	70.6	-90.00	3,649.5	-613.0	659.0	518.7	140.24	4.699		
9,000.0	5,782.0	9,096.0	5,782.0	72.3	72.5	-90.00	3,749.5	-613.0	659.0	515.0	143.99	4.577		
9,100.0	5,782.0	9,196.0	5,782.0	74.2	74.3	-90.00	3,849.5	-613.0	659.0	511.2	147.75	4.460		
9,200.0	5,782.0	9,296.0	5,782.0	76.0	76.2	-90.00	3,949.5	-613.0	659.0	507.5	151.52	4.349		
9,300.0	5,782.0	9,396.0	5,782.0	77.9	78.0	-90.00	4,049.5	-613.0	659.0	503.7	155.29	4.244		
9,400.0	5,782.0	9,496.0	5,782.0	79.8	79.9	-90.00	4,149.5	-613.0	659.0	500.0	159.06	4.143		
9,500.0	5,782.0	9,596.0	5,782.0	81.7	81.8	-90.00	4,249.5	-613.0	659.1	496.2	162.83	4.047		
9,600.0	5,782.0	9,696.0	5,782.0	83.6	83.6	-90.00	4,349.5	-613.0	659.1	492.5	166.61	3.956		
9,700.0	5,782.0	9,796.0	5,782.0	85.5	85.5	-90.00	4,449.5	-613.0	659.1	488.7	170.39	3.868		
9,800.0	5,782.0	9,896.0	5,782.0	87.4	87.4	-90.00	4,549.5	-613.1	659.1	484.9	174.17	3.784		
9,900.0	5,782.0	9,996.0	5,782.0	89.3	89.2	-90.00	4,649.5	-613.1	659.1	481.1	177.96	3.704		
10,000.0	5,782.0	10,096.0	5,782.0	91.2	91.1	-90.00	4,749.5	-613.1	659.1	477.4	181.75	3.627		
10,100.0	5,782.0	10,196.0	5,782.0	93.1	93.0	-90.00	4,849.5	-613.1	659.1	473.6	185.54	3.553		
10,200.0	5,782.0	10,296.0	5,782.0	95.0	94.9	-90.00	4,949.5	-613.1	659.1	469.8	189.33	3.481		
10,300.0	5,782.0	10,396.0	5,782.0	96.9	96.7	-90.00	5,049.5	-613.1	659.2	466.0	193.13	3.413		

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 29F 2007A
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4832.8usft (Cade #23)
Reference Site:	S29-T10N-R58W	MD Reference:	KB=17' @ 4832.8usft (Cade #23)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor 29F 2007A	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S29-T10N-R58W - Razor 29F 2005A - 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		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)					
10,400.0	5,782.0	10,496.0	5,782.0	98.8	98.6	-90.00	5,149.5	-613.1	659.2	462.3	196.92	3.347	
10,500.0	5,782.0	10,596.0	5,782.0	100.7	100.5	-90.00	5,249.5	-613.1	659.2	458.5	200.72	3.284	
10,600.0	5,782.0	10,696.0	5,782.0	102.6	102.4	-90.00	5,349.5	-613.1	659.2	454.7	204.52	3.223	
10,700.0	5,782.0	10,796.0	5,782.0	104.5	104.3	-90.00	5,449.5	-613.1	659.2	450.9	208.32	3.164	
10,800.0	5,782.0	10,896.0	5,782.0	106.5	106.2	-90.00	5,549.5	-613.1	659.2	447.1	212.12	3.108	
10,900.0	5,782.0	10,996.0	5,782.0	108.4	108.1	-90.00	5,649.5	-613.1	659.2	443.3	215.93	3.053	
11,000.0	5,782.0	11,096.0	5,782.0	110.3	110.0	-90.00	5,749.5	-613.1	659.3	439.5	219.73	3.000	
11,100.0	5,782.0	11,196.0	5,782.0	112.2	111.8	-90.00	5,849.5	-613.1	659.3	435.7	223.54	2.949	
11,200.0	5,782.0	11,296.0	5,782.0	114.1	113.7	-90.00	5,949.5	-613.2	659.3	431.9	227.35	2.900	
11,300.0	5,782.0	11,396.0	5,782.0	116.0	115.6	-90.00	6,049.5	-613.2	659.3	428.1	231.16	2.852	
11,400.0	5,782.0	11,496.0	5,782.0	117.9	117.5	-90.00	6,149.5	-613.2	659.3	424.3	234.96	2.806	
11,500.0	5,782.0	11,596.0	5,782.0	119.8	119.4	-90.00	6,249.5	-613.2	659.3	420.5	238.78	2.761	
11,600.0	5,782.0	11,696.0	5,782.0	121.7	121.3	-90.00	6,349.5	-613.2	659.3	416.7	242.59	2.718	
11,700.0	5,782.0	11,796.0	5,782.0	123.6	123.2	-90.00	6,449.5	-613.2	659.3	412.9	246.40	2.676	
11,800.0	5,782.0	11,896.0	5,782.0	125.5	125.1	-90.00	6,549.5	-613.2	659.4	409.1	250.21	2.635	
11,900.0	5,782.0	11,996.0	5,782.0	127.4	127.0	-90.00	6,649.5	-613.2	659.4	405.3	254.03	2.596	
12,000.0	5,782.0	12,096.0	5,782.0	129.4	128.9	-90.00	6,749.5	-613.2	659.4	401.5	257.84	2.557	
12,100.0	5,782.0	12,196.0	5,782.0	131.3	130.8	-90.00	6,849.5	-613.2	659.4	397.7	261.66	2.520	
12,200.0	5,782.0	12,296.0	5,782.0	133.2	132.7	-90.00	6,949.5	-613.2	659.4	393.9	265.48	2.484	
12,300.0	5,782.0	12,396.0	5,782.0	135.1	134.6	-90.00	7,049.5	-613.2	659.4	390.1	269.29	2.449	
12,400.0	5,782.0	12,496.0	5,782.0	137.0	136.5	-90.00	7,149.5	-613.2	659.4	386.3	273.11	2.415	
12,500.0	5,782.0	12,596.0	5,782.0	138.9	138.4	-90.00	7,249.5	-613.2	659.5	382.5	276.93	2.381	
12,600.0	5,782.0	12,696.0	5,782.0	140.8	140.3	-90.00	7,349.5	-613.3	659.5	378.7	280.75	2.349	
12,644.4	5,782.0	12,740.4	5,782.0	141.7	141.1	-90.00	7,393.9	-613.3	659.5	377.0	282.45	2.335 SF	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor 29F 2007A
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4832.8usft (Cade #23)
Reference Site:	S29-T10N-R58W	MD Reference:	KB=17' @ 4832.8usft (Cade #23)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor 29F 2007A	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S29-T10N-R58W - Razor 29F 2006B - 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						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-89.98	0.0	-29.9	29.9					
100.0	100.0	100.0	100.0	0.1	0.1	-89.98	0.0	-29.9	29.9	29.7	0.19	160.258		
200.0	200.0	200.0	200.0	0.3	0.3	-89.98	0.0	-29.9	29.9	29.3	0.64	47.001		
300.0	300.0	300.0	300.0	0.5	0.5	-89.98	0.0	-29.9	29.9	28.8	1.09	27.539		
400.0	400.0	400.0	400.0	0.8	0.8	-89.98	0.0	-29.9	29.9	28.4	1.54	19.475		
500.0	500.0	500.0	500.0	1.0	1.0	-89.98	0.0	-29.9	29.9	27.9	1.98	15.064	CC, ES	
600.0	600.0	599.7	599.7	1.2	1.2	-86.79	1.7	-30.3	30.4	27.9	2.43	12.478		
700.0	700.0	699.3	699.1	1.4	1.4	-83.91	6.7	-31.5	32.0	29.1	2.88	11.110		
800.0	799.8	799.2	798.8	1.7	1.7	-81.79	13.5	-33.2	34.2	30.8	3.34	10.231		
900.0	899.6	899.2	898.6	1.9	1.9	-82.69	20.3	-34.8	36.1	32.3	3.81	9.476		
1,000.0	999.4	999.2	998.3	2.1	2.2	-83.51	27.1	-36.4	38.0	33.8	4.29	8.870		
1,100.0	1,099.1	1,099.2	1,098.0	2.4	2.4	-84.24	33.9	-38.1	40.0	35.2	4.77	8.376		
1,200.0	1,198.9	1,199.2	1,197.8	2.6	2.7	-84.90	40.6	-39.7	41.9	36.7	5.26	7.967		
1,300.0	1,298.6	1,299.1	1,297.5	2.9	2.9	-85.51	47.4	-41.4	43.9	38.1	5.76	7.623		
1,400.0	1,398.4	1,399.1	1,397.3	3.1	3.2	-86.06	54.2	-43.0	45.9	39.6	6.25	7.332		
1,500.0	1,498.1	1,499.1	1,497.0	3.4	3.4	-86.57	61.0	-44.6	47.8	41.1	6.75	7.081		
1,600.0	1,597.9	1,599.1	1,596.7	3.6	3.7	-87.04	67.8	-46.3	49.8	42.5	7.25	6.864		
1,700.0	1,697.6	1,699.1	1,696.5	3.9	3.9	-87.47	74.5	-47.9	51.8	44.0	7.76	6.673		
1,800.0	1,797.4	1,799.0	1,796.2	4.1	4.2	-87.87	81.3	-49.6	53.7	45.5	8.26	6.506		
1,900.0	1,897.2	1,899.0	1,895.9	4.4	4.4	-88.24	88.1	-51.2	55.7	46.9	8.76	6.357		
2,000.0	1,996.9	1,999.0	1,995.7	4.6	4.7	-88.59	94.9	-52.8	57.7	48.4	9.27	6.224		
2,100.0	2,096.7	2,099.0	2,095.4	4.9	4.9	-88.91	101.6	-54.5	59.7	49.9	9.77	6.104		
2,200.0	2,196.4	2,199.0	2,195.1	5.1	5.2	-89.22	108.4	-56.1	61.6	51.4	10.28	5.996		
2,300.0	2,296.2	2,298.9	2,294.9	5.4	5.4	-89.50	115.2	-57.8	63.6	52.8	10.79	5.898		
2,400.0	2,395.9	2,398.9	2,394.6	5.6	5.7	-89.77	122.0	-59.4	65.6	54.3	11.30	5.809		
2,500.0	2,495.7	2,498.9	2,494.4	5.9	6.0	-90.02	128.8	-61.0	67.6	55.8	11.80	5.727		
2,600.0	2,595.5	2,598.9	2,594.1	6.1	6.2	-90.26	135.5	-62.7	69.6	57.3	12.31	5.652		
2,700.0	2,695.2	2,698.9	2,693.8	6.4	6.5	-90.48	142.3	-64.3	71.6	58.8	12.82	5.583		
2,800.0	2,795.0	2,798.8	2,793.6	6.7	6.7	-90.69	149.1	-66.0	73.6	60.2	13.33	5.519		
2,900.0	2,894.7	2,898.8	2,893.3	6.9	7.0	-90.89	155.9	-67.6	75.6	61.7	13.84	5.460		
3,000.0	2,994.5	2,998.8	2,993.0	7.2	7.2	-91.08	162.7	-69.2	77.6	63.2	14.35	5.405		
3,100.0	3,094.2	3,098.8	3,092.8	7.4	7.5	-91.26	169.4	-70.9	79.5	64.7	14.86	5.354		
3,200.0	3,194.0	3,198.8	3,192.5	7.7	7.7	-91.43	176.2	-72.5	81.5	66.2	15.37	5.306		
3,300.0	3,293.7	3,298.7	3,292.2	7.9	8.0	-91.60	183.0	-74.2	83.5	67.7	15.88	5.261		
3,400.0	3,393.5	3,398.7	3,392.0	8.2	8.3	-91.75	189.8	-75.8	85.5	69.1	16.39	5.219		
3,500.0	3,493.3	3,498.7	3,491.7	8.4	8.5	-91.90	196.5	-77.4	87.5	70.6	16.90	5.180		
3,600.0	3,593.0	3,598.7	3,591.5	8.7	8.8	-92.04	203.3	-79.1	89.5	72.1	17.41	5.143		
3,700.0	3,692.8	3,698.7	3,691.2	9.0	9.0	-92.18	210.1	-80.7	91.5	73.6	17.92	5.107		
3,800.0	3,792.5	3,798.6	3,790.9	9.2	9.3	-92.31	216.9	-82.4	93.5	75.1	18.43	5.074		
3,900.0	3,892.3	3,898.6	3,890.7	9.5	9.5	-92.43	223.7	-84.0	95.5	76.6	18.94	5.043		
4,000.0	3,992.0	3,998.6	3,990.4	9.7	9.8	-92.55	230.4	-85.6	97.5	78.1	19.45	5.013		
4,100.0	4,091.8	4,098.6	4,090.1	10.0	10.0	-92.67	237.2	-87.3	99.5	79.5	19.96	4.985		
4,200.0	4,191.6	4,198.6	4,189.9	10.2	10.3	-92.78	244.0	-88.9	101.5	81.0	20.47	4.958		
4,300.0	4,291.3	4,298.5	4,289.6	10.5	10.6	-92.89	250.8	-90.6	103.5	82.5	20.98	4.933		
4,400.0	4,391.1	4,398.5	4,389.3	10.7	10.8	-92.99	257.6	-92.2	105.5	84.0	21.49	4.909		
4,500.0	4,490.8	4,498.5	4,489.1	11.0	11.1	-93.09	264.3	-93.8	107.5	85.5	22.00	4.886		
4,600.0	4,590.6	4,598.5	4,588.8	11.3	11.3	-93.18	271.1	-95.5	109.5	87.0	22.51	4.864		
4,700.0	4,690.3	4,698.5	4,688.6	11.5	11.6	-93.27	277.9	-97.1	111.5	88.5	23.02	4.843		
4,800.0	4,790.1	4,798.4	4,788.3	11.8	11.8	-93.36	284.7	-98.8	113.5	90.0	23.54	4.822		
4,900.0	4,889.9	4,898.4	4,888.0	12.0	12.1	-93.45	291.4	-100.4	115.5	91.5	24.05	4.803		
5,000.0	4,989.6	4,998.4	4,987.8	12.3	12.4	-93.53	298.2	-102.0	117.5	92.9	24.56	4.785		
5,100.0	5,089.4	5,098.4	5,087.5	12.5	12.6	-93.61	305.0	-103.7	119.5	94.4	25.07	4.767		

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 29F 2007A
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4832.8usft (Cade #23)
Reference Site:	S29-T10N-R58W	MD Reference:	KB=17' @ 4832.8usft (Cade #23)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor 29F 2007A	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S29-T10N-R58W - Razor 29F 2006B - 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						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	5,189.1	5,198.4	5,187.2	12.8	12.9	-93.68	311.8	-105.3	121.5	95.9	25.58	4.750		
5,300.0	5,288.9	5,298.3	5,287.0	13.0	13.1	-93.76	318.6	-107.0	123.5	97.4	26.09	4.734		
5,400.0	5,387.6	5,397.3	5,385.7	13.4	13.4	-97.02	325.4	-108.6	126.3	99.6	26.67	4.736		
5,500.0	5,481.7	5,493.5	5,480.0	13.8	13.7	-102.48	342.8	-112.8	134.4	107.0	27.39	4.905		
5,600.0	5,567.7	5,591.6	5,571.2	14.5	14.2	-106.55	377.7	-121.3	148.9	120.6	28.25	5.271		
5,700.0	5,642.4	5,691.6	5,655.6	15.3	14.9	-108.90	429.6	-133.8	168.9	139.6	29.30	5.765		
5,800.0	5,703.1	5,793.7	5,729.6	16.3	15.8	-109.66	497.7	-150.3	193.3	162.6	30.74	6.290		
5,900.0	5,747.6	5,897.8	5,789.5	17.5	16.9	-109.11	580.3	-170.3	220.9	188.2	32.69	6.758		
6,000.0	5,774.2	6,004.3	5,832.1	18.9	18.3	-107.58	674.9	-193.2	250.5	215.3	35.22	7.114		
6,100.0	5,782.0	6,113.5	5,854.3	20.3	19.9	-105.64	778.7	-218.3	280.9	242.7	38.20	7.353		
6,200.0	5,782.0	6,227.1	5,857.0	21.7	21.5	-104.50	889.2	-244.0	305.4	263.9	41.46	7.366		
6,300.0	5,782.0	6,344.3	5,857.0	23.2	23.2	-103.59	1,004.6	-264.3	322.3	277.5	44.75	7.202		
6,400.0	5,782.0	6,463.6	5,857.0	24.9	25.0	-103.04	1,123.1	-277.8	333.2	285.1	48.15	6.921		
6,500.0	5,782.0	6,584.1	5,857.0	26.5	26.8	-102.81	1,243.5	-283.8	338.1	286.5	51.62	6.549		
6,600.0	5,782.0	6,690.2	5,857.0	28.2	28.5	-102.80	1,349.5	-284.1	338.3	283.4	54.94	6.158		
6,700.0	5,782.0	6,790.2	5,857.0	29.9	30.2	-102.80	1,449.5	-284.1	338.3	280.1	58.26	5.808		
6,800.0	5,782.0	6,890.2	5,857.0	31.6	31.8	-102.80	1,549.5	-284.1	338.3	276.7	61.63	5.490		
6,900.0	5,782.0	6,990.2	5,857.0	33.4	33.6	-102.80	1,649.5	-284.1	338.3	273.3	65.04	5.202		
7,000.0	5,782.0	7,090.2	5,857.0	35.2	35.3	-102.80	1,749.5	-284.1	338.3	269.8	68.50	4.940		
7,100.0	5,782.0	7,190.2	5,857.0	37.0	37.0	-102.80	1,849.5	-284.1	338.3	266.4	71.98	4.701		
7,200.0	5,782.0	7,290.2	5,857.0	38.8	38.8	-102.80	1,949.5	-284.0	338.3	262.9	75.49	4.482		
7,300.0	5,782.0	7,390.2	5,857.0	40.6	40.6	-102.80	2,049.5	-284.0	338.3	259.3	79.02	4.282		
7,400.0	5,782.0	7,490.2	5,857.0	42.4	42.4	-102.80	2,149.5	-284.0	338.3	255.8	82.57	4.098		
7,500.0	5,782.0	7,590.2	5,857.0	44.2	44.2	-102.80	2,249.5	-284.0	338.3	252.2	86.14	3.928		
7,600.0	5,782.0	7,690.2	5,857.0	46.1	46.0	-102.80	2,349.5	-284.0	338.3	248.6	89.72	3.771		
7,700.0	5,782.0	7,790.2	5,857.0	47.9	47.8	-102.80	2,449.5	-284.0	338.3	245.0	93.32	3.625		
7,800.0	5,782.0	7,890.2	5,857.0	49.8	49.7	-102.80	2,549.5	-284.0	338.3	241.4	96.93	3.490		
7,900.0	5,782.0	7,990.2	5,857.0	51.6	51.5	-102.80	2,649.5	-284.0	338.3	237.8	100.56	3.365		
8,000.0	5,782.0	8,090.2	5,857.0	53.5	53.3	-102.80	2,749.5	-284.0	338.3	234.1	104.19	3.247		
8,100.0	5,782.0	8,190.2	5,857.0	55.4	55.2	-102.80	2,849.5	-284.0	338.3	230.5	107.83	3.138		
8,200.0	5,782.0	8,290.2	5,857.0	57.2	57.0	-102.80	2,949.5	-284.0	338.3	226.9	111.48	3.035		
8,300.0	5,782.0	8,390.2	5,857.0	59.1	58.9	-102.80	3,049.5	-284.0	338.3	223.2	115.13	2.939		
8,400.0	5,782.0	8,490.2	5,857.0	61.0	60.7	-102.80	3,149.5	-284.0	338.3	219.5	118.79	2.848		
8,500.0	5,782.0	8,590.2	5,857.0	62.8	62.6	-102.80	3,249.5	-284.0	338.3	215.9	122.46	2.763		
8,600.0	5,782.0	8,690.2	5,857.0	64.7	64.5	-102.80	3,349.5	-283.9	338.3	212.2	126.14	2.682		
8,700.0	5,782.0	8,790.2	5,857.0	66.6	66.4	-102.80	3,449.5	-283.9	338.3	208.5	129.81	2.606		
8,800.0	5,782.0	8,890.2	5,857.0	68.5	68.2	-102.80	3,549.5	-283.9	338.3	204.8	133.50	2.534		
8,900.0	5,782.0	8,990.2	5,857.0	70.4	70.1	-102.80	3,649.5	-283.9	338.3	201.1	137.19	2.466		
9,000.0	5,782.0	9,090.2	5,857.0	72.3	72.0	-102.80	3,749.5	-283.9	338.3	197.4	140.88	2.402		
9,100.0	5,782.0	9,190.2	5,857.0	74.2	73.9	-102.81	3,849.5	-283.9	338.3	193.8	144.57	2.340		
9,200.0	5,782.0	9,290.2	5,857.0	76.0	75.7	-102.81	3,949.5	-283.9	338.3	190.1	148.27	2.282		
9,300.0	5,782.0	9,390.2	5,857.0	77.9	77.6	-102.81	4,049.5	-283.9	338.3	186.4	151.97	2.226		
9,400.0	5,782.0	9,490.2	5,857.0	79.8	79.5	-102.81	4,149.5	-283.9	338.3	182.6	155.67	2.173		
9,500.0	5,782.0	9,590.2	5,857.0	81.7	81.4	-102.81	4,249.5	-283.9	338.3	178.9	159.38	2.123		
9,600.0	5,782.0	9,690.2	5,857.0	83.6	83.3	-102.81	4,349.5	-283.9	338.3	175.2	163.09	2.074		
9,700.0	5,782.0	9,790.2	5,857.0	85.5	85.2	-102.81	4,449.5	-283.9	338.3	171.5	166.80	2.028		
9,800.0	5,782.0	9,890.2	5,857.0	87.4	87.1	-102.81	4,549.5	-283.9	338.3	167.8	170.51	1.984		
9,900.0	5,782.0	9,990.2	5,857.0	89.3	89.0	-102.81	4,649.5	-283.9	338.3	164.1	174.23	1.942		
10,000.0	5,782.0	10,090.2	5,857.0	91.2	90.9	-102.81	4,749.5	-283.8	338.3	160.4	177.95	1.901		
10,100.0	5,782.0	10,190.2	5,857.0	93.1	92.8	-102.81	4,849.5	-283.8	338.3	156.6	181.67	1.862		
10,200.0	5,782.0	10,290.2	5,857.0	95.0	94.7	-102.81	4,949.5	-283.8	338.3	152.9	185.39	1.825		
10,300.0	5,782.0	10,390.2	5,857.0	96.9	96.5	-102.81	5,049.5	-283.8	338.3	149.2	189.11	1.789		

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 29F 2007A
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4832.8usft (Cade #23)
Reference Site:	S29-T10N-R58W	MD Reference:	KB=17' @ 4832.8usft (Cade #23)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor 29F 2007A	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S29-T10N-R58W - Razor 29F 2006B - 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 Uncertainty Axis	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
10,400.0	5,782.0	10,490.2	5,857.0	98.8	98.4	-102.81	5,149.5	-283.8	338.3	145.5	192.83	1.754	
10,500.0	5,782.0	10,590.2	5,857.0	100.7	100.3	-102.81	5,249.5	-283.8	338.3	141.8	196.56	1.721	
10,600.0	5,782.0	10,690.2	5,857.0	102.6	102.2	-102.81	5,349.5	-283.8	338.3	138.0	200.28	1.689	
10,700.0	5,782.0	10,790.2	5,857.0	104.5	104.1	-102.81	5,449.5	-283.8	338.3	134.3	204.01	1.658	
10,800.0	5,782.0	10,890.2	5,857.0	106.5	106.0	-102.81	5,549.5	-283.8	338.3	130.6	207.74	1.629	
10,900.0	5,782.0	10,990.2	5,857.0	108.4	107.9	-102.81	5,649.5	-283.8	338.3	126.8	211.47	1.600	
11,000.0	5,782.0	11,090.2	5,857.0	110.3	109.9	-102.81	5,749.5	-283.8	338.3	123.1	215.20	1.572	
11,100.0	5,782.0	11,190.2	5,857.0	112.2	111.8	-102.81	5,849.5	-283.8	338.3	119.4	218.93	1.545	
11,200.0	5,782.0	11,290.2	5,857.0	114.1	113.7	-102.81	5,949.5	-283.8	338.3	115.6	222.67	1.519	
11,300.0	5,782.0	11,390.2	5,857.0	116.0	115.6	-102.81	6,049.5	-283.8	338.3	111.9	226.40	1.494 Level 3	
11,400.0	5,782.0	11,490.2	5,857.0	117.9	117.5	-102.81	6,149.5	-283.7	338.3	108.2	230.14	1.470 Level 3	
11,500.0	5,782.0	11,590.2	5,857.0	119.8	119.4	-102.81	6,249.5	-283.7	338.3	104.4	233.87	1.447 Level 3	
11,600.0	5,782.0	11,690.2	5,857.0	121.7	121.3	-102.81	6,349.5	-283.7	338.3	100.7	237.61	1.424 Level 3	
11,700.0	5,782.0	11,790.2	5,857.0	123.6	123.2	-102.81	6,449.5	-283.7	338.3	97.0	241.35	1.402 Level 3	
11,800.0	5,782.0	11,890.2	5,857.0	125.5	125.1	-102.81	6,549.5	-283.7	338.3	93.2	245.08	1.380 Level 3	
11,900.0	5,782.0	11,990.2	5,857.0	127.4	127.0	-102.81	6,649.5	-283.7	338.3	89.5	248.82	1.360 Level 3	
12,000.0	5,782.0	12,090.2	5,857.0	129.4	128.9	-102.81	6,749.5	-283.7	338.3	85.7	252.56	1.339 Level 3	
12,100.0	5,782.0	12,190.2	5,857.0	131.3	130.8	-102.81	6,849.5	-283.7	338.3	82.0	256.30	1.320 Level 3	
12,200.0	5,782.0	12,290.2	5,857.0	133.2	132.7	-102.81	6,949.5	-283.7	338.3	78.3	260.04	1.301 Level 3	
12,300.0	5,782.0	12,390.2	5,857.0	135.1	134.6	-102.81	7,049.5	-283.7	338.3	74.5	263.78	1.282 Level 3	
12,400.0	5,782.0	12,490.2	5,857.0	137.0	136.5	-102.81	7,149.5	-283.7	338.3	70.8	267.52	1.265 Level 3	
12,500.0	5,782.0	12,590.2	5,857.0	138.9	138.5	-102.81	7,249.5	-283.7	338.3	67.0	271.26	1.247 Level 2	
12,600.0	5,782.0	12,690.2	5,857.0	140.8	140.4	-102.81	7,349.5	-283.7	338.3	63.3	275.01	1.230 Level 2	
12,644.4	5,782.0	12,734.6	5,857.0	141.7	141.2	-102.81	7,394.0	-283.7	338.3	61.6	276.67	1.223 Level 2, SF	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor 29F 2007A
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4832.8usft (Cade #23)
Reference Site:	S29-T10N-R58W	MD Reference:	KB=17' @ 4832.8usft (Cade #23)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor 29F 2007A	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S29-T10N-R58W - Razor 29F 2008B - 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		
0.0	0.0	0.0	0.0	0.0	0.0	90.01	0.0	30.2	30.2					
100.0	100.0	100.0	100.0	0.1	0.1	90.01	0.0	30.2	30.2	30.0	0.19	161.741		
200.0	200.0	200.0	200.0	0.3	0.3	90.01	0.0	30.2	30.2	29.5	0.64	47.437		
300.0	300.0	300.0	300.0	0.5	0.5	90.01	0.0	30.2	30.2	29.1	1.09	27.794		
400.0	400.0	400.0	400.0	0.8	0.8	90.01	0.0	30.2	30.2	28.6	1.54	19.655 CC, ES		
500.0	500.0	499.6	499.6	1.0	1.0	86.93	1.6	30.7	30.7	28.8	1.98	15.501		
600.0	600.0	599.0	598.9	1.2	1.2	78.46	6.6	32.2	32.9	30.5	2.44	13.521		
700.0	700.0	698.9	698.5	1.4	1.5	68.44	13.2	34.3	36.2	33.3	2.89	12.496		
800.0	799.8	798.9	798.2	1.7	1.7	67.24	19.9	36.4	38.3	35.0	3.35	11.429		
900.0	899.6	898.9	898.0	1.9	1.9	68.51	26.5	38.5	39.9	36.1	3.83	10.424		
1,000.0	999.4	998.8	997.7	2.1	2.2	69.68	33.2	40.6	41.4	37.1	4.30	9.626		
1,100.0	1,099.1	1,098.8	1,097.4	2.4	2.4	70.76	39.8	42.7	43.0	38.2	4.79	8.980		
1,200.0	1,198.9	1,198.8	1,197.2	2.6	2.7	71.77	46.5	44.8	44.6	39.3	5.28	8.448		
1,300.0	1,298.6	1,298.8	1,296.9	2.9	2.9	72.71	53.2	46.9	46.2	40.4	5.77	8.004		
1,400.0	1,398.4	1,398.8	1,396.7	3.1	3.2	73.59	59.8	49.0	47.8	41.5	6.26	7.628		
1,500.0	1,498.1	1,498.8	1,496.4	3.4	3.4	74.41	66.5	51.1	49.4	42.6	6.76	7.307		
1,600.0	1,597.9	1,598.7	1,596.1	3.6	3.7	75.17	73.1	53.2	51.0	43.8	7.26	7.029		
1,700.0	1,697.6	1,698.7	1,695.9	3.9	4.0	75.89	79.8	55.2	52.7	44.9	7.76	6.786		
1,800.0	1,797.4	1,798.7	1,795.6	4.1	4.2	76.57	86.4	57.3	54.3	46.0	8.26	6.573		
1,900.0	1,897.2	1,898.7	1,895.4	4.4	4.5	77.20	93.1	59.4	56.0	47.2	8.77	6.384		
2,000.0	1,996.9	1,998.7	1,995.1	4.6	4.7	77.80	99.7	61.5	57.6	48.3	9.27	6.216		
2,100.0	2,096.7	2,098.7	2,094.9	4.9	5.0	78.37	106.4	63.6	59.3	49.5	9.78	6.064		
2,200.0	2,196.4	2,198.6	2,194.6	5.1	5.2	78.90	113.0	65.7	61.0	50.7	10.28	5.928		
2,300.0	2,296.2	2,298.6	2,294.3	5.4	5.5	79.41	119.7	67.8	62.6	51.8	10.79	5.805		
2,400.0	2,395.9	2,398.6	2,394.1	5.6	5.7	79.89	126.3	69.9	64.3	53.0	11.30	5.693		
2,500.0	2,495.7	2,498.6	2,493.8	5.9	6.0	80.35	133.0	72.0	66.0	54.2	11.80	5.591		
2,600.0	2,595.5	2,598.6	2,593.6	6.1	6.2	80.78	139.6	74.1	67.7	55.4	12.31	5.497		
2,700.0	2,695.2	2,698.6	2,693.3	6.4	6.5	81.19	146.3	76.2	69.4	56.5	12.82	5.411		
2,800.0	2,795.0	2,798.6	2,793.0	6.7	6.8	81.58	153.0	78.3	71.1	57.7	13.33	5.331		
2,900.0	2,894.7	2,898.5	2,892.8	6.9	7.0	81.96	159.6	80.3	72.8	58.9	13.84	5.258		
3,000.0	2,994.5	2,998.5	2,992.5	7.2	7.3	82.32	166.3	82.4	74.5	60.1	14.35	5.189		
3,100.0	3,094.2	3,098.5	3,092.3	7.4	7.5	82.66	172.9	84.5	76.2	61.3	14.86	5.126		
3,200.0	3,194.0	3,198.5	3,192.0	7.7	7.8	82.98	179.6	86.6	77.9	62.5	15.37	5.067		
3,300.0	3,293.7	3,298.5	3,291.7	7.9	8.0	83.29	186.2	88.7	79.6	63.7	15.88	5.012		
3,400.0	3,393.5	3,398.5	3,391.5	8.2	8.3	83.59	192.9	90.8	81.3	64.9	16.39	4.960		
3,500.0	3,493.3	3,498.4	3,491.2	8.4	8.6	83.88	199.5	92.9	83.0	66.1	16.90	4.911		
3,600.0	3,593.0	3,598.4	3,591.0	8.7	8.8	84.15	206.2	95.0	84.7	67.3	17.41	4.866		
3,700.0	3,692.8	3,698.4	3,690.7	9.0	9.1	84.42	212.8	97.1	86.4	68.5	17.92	4.823		
3,800.0	3,792.5	3,798.4	3,790.4	9.2	9.3	84.67	219.5	99.2	88.1	69.7	18.43	4.783		
3,900.0	3,892.3	3,898.4	3,890.2	9.5	9.6	84.92	226.1	101.3	89.9	70.9	18.94	4.744		
4,000.0	3,992.0	3,998.4	3,989.9	9.7	9.8	85.15	232.8	103.4	91.6	72.1	19.45	4.708		
4,100.0	4,091.8	4,098.4	4,089.7	10.0	10.1	85.38	239.5	105.4	93.3	73.3	19.96	4.674		
4,200.0	4,191.6	4,198.3	4,189.4	10.2	10.3	85.60	246.1	107.5	95.0	74.6	20.47	4.641		
4,300.0	4,291.3	4,298.3	4,289.2	10.5	10.6	85.81	252.8	109.6	96.7	75.8	20.98	4.611		
4,400.0	4,391.1	4,398.3	4,388.9	10.7	10.9	86.01	259.4	111.7	98.5	77.0	21.49	4.581		
4,500.0	4,490.8	4,498.3	4,488.6	11.0	11.1	86.21	266.1	113.8	100.2	78.2	22.01	4.553		
4,600.0	4,590.6	4,598.3	4,588.4	11.3	11.4	86.39	272.7	115.9	101.9	79.4	22.52	4.527		
4,700.0	4,690.3	4,698.3	4,688.1	11.5	11.6	86.58	279.4	118.0	103.7	80.6	23.03	4.501		
4,800.0	4,790.1	4,798.2	4,787.9	11.8	11.9	86.75	286.0	120.1	105.4	81.9	23.54	4.477		
4,900.0	4,889.9	4,898.2	4,887.6	12.0	12.1	86.93	292.7	122.2	107.1	83.1	24.05	4.454		
5,000.0	4,989.6	4,998.2	4,987.3	12.3	12.4	87.09	299.3	124.3	108.9	84.3	24.56	4.432		
5,100.0	5,089.4	5,098.2	5,087.1	12.5	12.6	87.25	306.0	126.4	110.6	85.5	25.07	4.410		

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 29F 2007A
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4832.8usft (Cade #23)
Reference Site:	S29-T10N-R58W	MD Reference:	KB=17' @ 4832.8usft (Cade #23)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor 29F 2007A	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S29-T10N-R58W - Razor 29F 2008B - 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							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	5,189.1	5,198.2	5,186.8	12.8	12.9	87.41	312.6	128.5	112.3	86.7	25.59	4.390		
5,300.0	5,288.9	5,298.2	5,286.6	13.0	13.2	87.56	319.3	130.5	114.1	88.0	26.10	4.370		
5,400.0	5,387.6	5,397.0	5,385.2	13.4	13.4	91.33	326.0	132.7	115.8	89.1	26.71	4.335		
5,500.0	5,481.7	5,492.2	5,478.6	13.8	13.8	97.89	342.8	137.9	121.8	94.3	27.50	4.427		
5,600.0	5,567.7	5,589.6	5,569.2	14.5	14.3	103.28	376.3	148.5	134.0	105.6	28.42	4.714		
5,700.0	5,642.4	5,689.1	5,653.5	15.3	14.9	106.94	426.7	164.3	151.6	122.1	29.50	5.140		
5,800.0	5,703.1	5,791.1	5,727.7	16.3	15.8	108.87	493.0	185.2	173.5	142.6	30.86	5.621		
5,900.0	5,747.6	5,895.5	5,788.3	17.5	16.9	109.31	574.0	210.6	198.4	165.7	32.70	6.067		
6,000.0	5,774.2	6,002.7	5,831.6	18.9	18.3	108.59	667.3	239.9	225.1	190.0	35.08	6.417		
6,100.0	5,782.0	6,112.8	5,854.3	20.3	19.8	107.32	769.9	272.2	252.5	214.6	37.90	6.663		
6,200.0	5,782.0	6,224.6	5,857.0	21.7	21.4	106.15	876.7	304.8	279.3	238.6	40.72	6.860		
6,300.0	5,782.0	6,338.4	5,857.0	23.2	23.0	104.67	987.1	332.3	302.7	258.7	44.00	6.880		
6,400.0	5,782.0	6,455.2	5,857.0	24.9	24.7	103.70	1,102.0	353.7	320.4	273.0	47.37	6.763		
6,500.0	5,782.0	6,574.3	5,857.0	26.5	26.4	103.10	1,220.1	368.2	332.3	281.4	50.85	6.535		
6,600.0	5,782.0	6,694.7	5,857.0	28.2	28.3	102.83	1,340.3	375.3	338.0	283.6	54.38	6.216		
6,700.0	5,782.0	6,803.9	5,857.0	29.9	30.0	102.80	1,449.5	376.1	338.6	280.8	57.78	5.860		
6,800.0	5,782.0	6,903.9	5,857.0	31.6	31.6	102.80	1,549.5	376.1	338.6	277.5	61.11	5.541		
6,900.0	5,782.0	7,003.9	5,857.0	33.4	33.3	102.80	1,649.5	376.1	338.6	274.1	64.48	5.252		
7,000.0	5,782.0	7,103.9	5,857.0	35.2	35.0	102.80	1,749.5	376.1	338.6	270.7	67.89	4.988		
7,100.0	5,782.0	7,203.9	5,857.0	37.0	36.7	102.80	1,849.5	376.1	338.6	267.3	71.34	4.746		
7,200.0	5,782.0	7,303.9	5,857.0	38.8	38.4	102.80	1,949.5	376.1	338.6	263.8	74.82	4.526		
7,300.0	5,782.0	7,403.9	5,857.0	40.6	40.2	102.80	2,049.5	376.1	338.6	260.3	78.32	4.323		
7,400.0	5,782.0	7,503.9	5,857.0	42.4	41.9	102.80	2,149.5	376.1	338.6	256.7	81.85	4.137		
7,500.0	5,782.0	7,603.9	5,857.0	44.2	43.7	102.80	2,249.5	376.1	338.6	253.2	85.39	3.965		
7,600.0	5,782.0	7,703.9	5,857.0	46.1	45.5	102.80	2,349.5	376.1	338.6	249.6	88.96	3.806		
7,700.0	5,782.0	7,803.9	5,857.0	47.9	47.3	102.80	2,449.5	376.1	338.6	246.0	92.53	3.659		
7,800.0	5,782.0	7,903.9	5,857.0	49.8	49.1	102.80	2,549.5	376.1	338.6	242.4	96.13	3.522		
7,900.0	5,782.0	8,003.9	5,857.0	51.6	50.9	102.80	2,649.5	376.1	338.6	238.8	99.73	3.395		
8,000.0	5,782.0	8,103.9	5,857.0	53.5	52.7	102.80	2,749.5	376.1	338.5	235.2	103.35	3.276		
8,100.0	5,782.0	8,203.9	5,857.0	55.4	54.5	102.80	2,849.5	376.1	338.5	231.6	106.98	3.165		
8,200.0	5,782.0	8,303.9	5,857.0	57.2	56.4	102.80	2,949.5	376.1	338.5	227.9	110.61	3.061		
8,300.0	5,782.0	8,403.9	5,857.0	59.1	58.2	102.80	3,049.5	376.1	338.5	224.3	114.25	2.963		
8,400.0	5,782.0	8,503.9	5,857.0	61.0	60.1	102.80	3,149.5	376.1	338.5	220.6	117.90	2.871		
8,500.0	5,782.0	8,603.9	5,857.0	62.8	61.9	102.80	3,249.5	376.1	338.5	217.0	121.56	2.785		
8,600.0	5,782.0	8,703.9	5,857.0	64.7	63.8	102.80	3,349.5	376.1	338.5	213.3	125.22	2.703		
8,700.0	5,782.0	8,803.9	5,857.0	66.6	65.6	102.80	3,449.5	376.1	338.5	209.6	128.89	2.626		
8,800.0	5,782.0	8,903.9	5,857.0	68.5	67.5	102.80	3,549.5	376.1	338.5	205.9	132.57	2.553		
8,900.0	5,782.0	9,003.9	5,857.0	70.4	69.3	102.80	3,649.5	376.1	338.5	202.3	136.24	2.484		
9,000.0	5,782.0	9,103.9	5,857.0	72.3	71.2	102.80	3,749.5	376.1	338.5	198.6	139.93	2.419		
9,100.0	5,782.0	9,203.9	5,857.0	74.2	73.1	102.80	3,849.5	376.1	338.5	194.9	143.61	2.357		
9,200.0	5,782.0	9,303.9	5,857.0	76.0	75.0	102.80	3,949.5	376.1	338.5	191.2	147.30	2.298		
9,300.0	5,782.0	9,403.9	5,857.0	77.9	76.8	102.80	4,049.5	376.1	338.5	187.5	151.00	2.242		
9,400.0	5,782.0	9,503.9	5,857.0	79.8	78.7	102.80	4,149.5	376.1	338.5	183.8	154.69	2.188		
9,500.0	5,782.0	9,603.9	5,857.0	81.7	80.6	102.80	4,249.5	376.1	338.5	180.1	158.39	2.137		
9,600.0	5,782.0	9,703.9	5,857.0	83.6	82.5	102.80	4,349.5	376.1	338.5	176.4	162.10	2.088		
9,700.0	5,782.0	9,803.9	5,857.0	85.5	84.3	102.81	4,449.5	376.1	338.5	172.7	165.80	2.041		
9,800.0	5,782.0	9,903.9	5,857.0	87.4	86.2	102.81	4,549.5	376.1	338.4	168.9	169.51	1.997		
9,900.0	5,782.0	10,003.9	5,857.0	89.3	88.1	102.81	4,649.5	376.1	338.4	165.2	173.22	1.954		
10,000.0	5,782.0	10,103.9	5,857.0	91.2	90.0	102.81	4,749.5	376.1	338.4	161.5	176.93	1.913		
10,100.0	5,782.0	10,203.9	5,857.0	93.1	91.9	102.81	4,849.5	376.1	338.4	157.8	180.65	1.873		
10,200.0	5,782.0	10,303.9	5,857.0	95.0	93.8	102.81	4,949.5	376.1	338.4	154.1	184.36	1.836		
10,300.0	5,782.0	10,403.9	5,857.0	96.9	95.7	102.81	5,049.5	376.1	338.4	150.3	188.08	1.799		

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 29F 2007A
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4832.8usft (Cade #23)
Reference Site:	S29-T10N-R58W	MD Reference:	KB=17' @ 4832.8usft (Cade #23)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor 29F 2007A	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S29-T10N-R58W - Razor 29F 2008B - 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
10,400.0	5,782.0	10,503.9	5,857.0	98.8	97.6	102.81	5,149.5	376.1	338.4	146.6	191.80	1.764	
10,500.0	5,782.0	10,603.9	5,857.0	100.7	99.5	102.81	5,249.5	376.1	338.4	142.9	195.52	1.731	
10,600.0	5,782.0	10,703.9	5,857.0	102.6	101.4	102.81	5,349.5	376.1	338.4	139.2	199.24	1.698	
10,700.0	5,782.0	10,803.9	5,857.0	104.5	103.3	102.81	5,449.5	376.1	338.4	135.4	202.96	1.667	
10,800.0	5,782.0	10,903.9	5,857.0	106.5	105.2	102.81	5,549.5	376.1	338.4	131.7	206.69	1.637	
10,900.0	5,782.0	11,003.9	5,857.0	108.4	107.0	102.81	5,649.5	376.1	338.4	128.0	210.41	1.608	
11,000.0	5,782.0	11,103.9	5,857.0	110.3	108.9	102.81	5,749.5	376.1	338.4	124.2	214.14	1.580	
11,100.0	5,782.0	11,203.9	5,857.0	112.2	110.8	102.81	5,849.5	376.1	338.4	120.5	217.87	1.553	
11,200.0	5,782.0	11,303.9	5,857.0	114.1	112.7	102.81	5,949.5	376.1	338.4	116.8	221.60	1.527	
11,300.0	5,782.0	11,403.9	5,857.0	116.0	114.6	102.81	6,049.5	376.1	338.4	113.0	225.33	1.502	
11,400.0	5,782.0	11,503.9	5,857.0	117.9	116.5	102.81	6,149.5	376.1	338.4	109.3	229.06	1.477	Level 3
11,500.0	5,782.0	11,603.9	5,857.0	119.8	118.4	102.81	6,249.5	376.1	338.4	105.6	232.79	1.453	Level 3
11,600.0	5,782.0	11,703.9	5,857.0	121.7	120.4	102.81	6,349.5	376.1	338.4	101.8	236.52	1.431	Level 3
11,700.0	5,782.0	11,803.9	5,857.0	123.6	122.3	102.81	6,449.5	376.1	338.3	98.1	240.26	1.408	Level 3
11,800.0	5,782.0	11,903.9	5,857.0	125.5	124.2	102.81	6,549.5	376.1	338.3	94.3	243.99	1.387	Level 3
11,900.0	5,782.0	12,003.9	5,857.0	127.4	126.1	102.81	6,649.5	376.1	338.3	90.6	247.73	1.366	Level 3
12,000.0	5,782.0	12,103.9	5,857.0	129.4	128.0	102.81	6,749.5	376.1	338.3	86.9	251.46	1.345	Level 3
12,100.0	5,782.0	12,203.9	5,857.0	131.3	129.9	102.81	6,849.5	376.1	338.3	83.1	255.20	1.326	Level 3
12,200.0	5,782.0	12,303.9	5,857.0	133.2	131.8	102.81	6,949.5	376.1	338.3	79.4	258.94	1.307	Level 3
12,300.0	5,782.0	12,403.9	5,857.0	135.1	133.7	102.81	7,049.5	376.1	338.3	75.6	262.67	1.288	Level 3
12,400.0	5,782.0	12,503.9	5,857.0	137.0	135.6	102.81	7,149.5	376.1	338.3	71.9	266.41	1.270	Level 3
12,500.0	5,782.0	12,603.9	5,857.0	138.9	137.5	102.81	7,249.5	376.1	338.3	68.1	270.15	1.252	Level 3
12,600.0	5,782.0	12,703.9	5,857.0	140.8	139.4	102.81	7,349.5	376.1	338.3	64.4	273.89	1.235	Level 2
12,633.8	5,782.0	12,737.6	5,857.0	141.5	140.0	102.81	7,383.3	376.1	338.3	63.1	275.15	1.229	Level 2
12,644.4	5,782.0	12,745.4	5,857.0	141.7	140.2	102.81	7,391.0	376.1	338.3	62.8	275.50	1.228	Level 2, SF

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor 29F 2007A
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4832.8usft (Cade #23)
Reference Site:	S29-T10N-R58W	MD Reference:	KB=17' @ 4832.8usft (Cade #23)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor 29F 2007A	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S29-T10N-R58W - Razor 29F 3205A - 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							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	-129.85	-49.9	-59.8	77.9					
100.0	100.0	100.0	100.0	0.1	0.1	-129.85	-49.9	-59.8	77.9	77.7	0.19	417.472		
200.0	200.0	200.0	200.0	0.3	0.3	-129.85	-49.9	-59.8	77.9	77.2	0.64	122.439		
300.0	300.0	300.0	300.0	0.5	0.5	-129.85	-49.9	-59.8	77.9	76.8	1.09	71.740		
400.0	400.0	400.0	400.0	0.8	0.8	-129.85	-49.9	-59.8	77.9	76.3	1.54	50.732 CC, ES		
500.0	500.0	497.8	497.8	1.0	1.0	-130.56	-51.5	-60.2	79.3	77.3	1.96	40.528		
600.0	600.0	595.4	595.3	1.2	1.2	-132.56	-56.4	-61.4	83.5	81.1	2.37	35.196		
700.0	700.0	694.9	694.5	1.4	1.4	-138.62	-63.1	-63.0	90.7	87.9	2.81	32.240		
800.0	799.8	794.2	793.5	1.7	1.6	-142.46	-69.8	-64.7	100.8	97.6	3.26	30.918		
900.0	899.6	893.2	892.3	1.9	1.8	-146.19	-76.5	-66.3	112.9	109.2	3.71	30.460		
1,000.0	999.4	992.2	991.1	2.1	2.1	-149.20	-83.2	-68.0	125.2	121.1	4.15	30.164		
1,100.0	1,099.1	1,091.3	1,089.9	2.4	2.3	-151.66	-90.0	-69.6	137.9	133.3	4.60	29.973		
1,200.0	1,198.9	1,190.3	1,188.7	2.6	2.6	-153.71	-96.7	-71.3	150.8	145.7	5.05	29.848		
1,300.0	1,298.6	1,289.3	1,287.5	2.9	2.8	-155.43	-103.4	-72.9	163.8	158.3	5.50	29.767		
1,400.0	1,398.4	1,388.4	1,386.3	3.1	3.1	-156.90	-110.1	-74.6	177.0	171.0	5.96	29.715		
1,500.0	1,498.1	1,487.4	1,485.1	3.4	3.3	-158.16	-116.8	-76.2	190.2	183.8	6.41	29.684		
1,600.0	1,597.9	1,586.5	1,583.9	3.6	3.6	-159.26	-123.5	-77.9	203.6	196.7	6.86	29.667		
1,700.0	1,697.6	1,685.5	1,682.7	3.9	3.8	-160.23	-130.2	-79.5	217.0	209.7	7.32	29.660		
1,800.0	1,797.4	1,784.5	1,781.5	4.1	4.1	-161.08	-136.9	-81.2	230.4	222.7	7.77	29.660 SF		
1,900.0	1,897.2	1,883.6	1,880.3	4.4	4.4	-161.84	-143.6	-82.8	244.0	235.7	8.22	29.665		
2,000.0	1,996.9	1,982.6	1,979.1	4.6	4.6	-162.51	-150.3	-84.5	257.5	248.8	8.68	29.673		
2,100.0	2,096.7	2,081.6	2,077.9	4.9	4.9	-163.13	-157.0	-86.1	271.1	261.9	9.13	29.685		
2,200.0	2,196.4	2,180.7	2,176.7	5.1	5.1	-163.68	-163.7	-87.8	284.7	275.1	9.59	29.698		
2,300.0	2,296.2	2,279.7	2,275.5	5.4	5.4	-164.18	-170.5	-89.5	298.3	288.2	10.04	29.712		
2,400.0	2,395.9	2,378.7	2,374.2	5.6	5.7	-164.64	-177.2	-91.1	311.9	301.4	10.49	29.728		
2,500.0	2,495.7	2,477.8	2,473.0	5.9	5.9	-165.06	-183.9	-92.8	325.6	314.6	10.95	29.744		
2,600.0	2,595.5	2,576.8	2,571.8	6.1	6.2	-165.44	-190.6	-94.4	339.3	327.9	11.40	29.761		
2,700.0	2,695.2	2,675.8	2,670.6	6.4	6.4	-165.80	-197.3	-96.1	353.0	341.1	11.85	29.778		
2,800.0	2,795.0	2,774.9	2,769.4	6.7	6.7	-166.13	-204.0	-97.7	366.7	354.3	12.31	29.795		
2,900.0	2,894.7	2,873.9	2,868.2	6.9	7.0	-166.43	-210.7	-99.4	380.4	367.6	12.76	29.813		
3,000.0	2,994.5	2,973.0	2,967.0	7.2	7.2	-166.72	-217.4	-101.0	394.1	380.9	13.21	29.830		
3,100.0	3,094.2	3,072.0	3,065.8	7.4	7.5	-166.98	-224.1	-102.7	407.8	394.2	13.66	29.847		
3,200.0	3,194.0	3,171.0	3,164.6	7.7	7.7	-167.23	-230.8	-104.3	421.6	407.4	14.12	29.865		
3,300.0	3,293.7	3,270.1	3,263.4	7.9	8.0	-167.46	-237.5	-106.0	435.3	420.7	14.57	29.882		
3,400.0	3,393.5	3,369.1	3,362.2	8.2	8.3	-167.68	-244.2	-107.6	449.1	434.0	15.02	29.900		
3,500.0	3,493.3	3,468.1	3,461.0	8.4	8.5	-167.89	-251.0	-109.3	462.8	447.4	15.47	29.917		
3,600.0	3,593.0	3,567.2	3,559.8	8.7	8.8	-168.08	-257.7	-110.9	476.6	460.7	15.92	29.934		
3,700.0	3,692.8	3,666.2	3,658.6	9.0	9.0	-168.26	-264.4	-112.6	490.4	474.0	16.37	29.951		
3,800.0	3,792.5	3,765.2	3,757.4	9.2	9.3	-168.44	-271.1	-114.2	504.1	487.3	16.82	29.968		
3,900.0	3,892.3	3,864.3	3,856.2	9.5	9.6	-168.60	-277.8	-115.9	517.9	500.6	17.27	29.984		
4,000.0	3,992.0	3,963.3	3,955.0	9.7	9.8	-168.75	-284.5	-117.5	531.7	514.0	17.72	30.001		
4,100.0	4,091.8	4,062.3	4,053.7	10.0	10.1	-168.90	-291.2	-119.2	545.5	527.3	18.17	30.018		
4,200.0	4,191.6	4,161.4	4,152.5	10.2	10.4	-169.04	-297.9	-120.8	559.3	540.7	18.62	30.034		
4,300.0	4,291.3	4,260.4	4,251.3	10.5	10.6	-169.17	-304.6	-122.5	573.1	554.0	19.07	30.050		
4,400.0	4,391.1	4,359.5	4,350.1	10.7	10.9	-169.30	-311.3	-124.1	586.9	567.3	19.52	30.057		
4,500.0	4,490.8	4,458.5	4,448.9	11.0	11.1	-169.42	-318.0	-125.8	600.7	580.7	19.98	30.063		
4,600.0	4,590.6	4,557.5	4,547.7	11.3	11.4	-169.54	-324.7	-127.4	614.5	594.0	20.44	30.068		
4,700.0	4,690.3	4,656.6	4,646.5	11.5	11.7	-169.65	-331.5	-129.1	628.3	607.4	20.89	30.073		
4,800.0	4,790.1	4,755.6	4,745.3	11.8	11.9	-169.75	-338.2	-130.7	642.1	620.7	21.35	30.078		
4,900.0	4,889.9	4,854.6	4,844.1	12.0	12.2	-169.85	-344.9	-132.4	655.9	634.1	21.80	30.082		
5,000.0	4,989.6	4,953.7	4,942.9	12.3	12.5	-169.95	-351.6	-134.0	669.7	647.4	22.26	30.087		
5,100.0	5,089.4	5,052.7	5,041.7	12.5	12.7	-170.04	-358.3	-135.7	683.5	660.8	22.71	30.091		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor 29F 2007A
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4832.8usft (Cade #23)
Reference Site:	S29-T10N-R58W	MD Reference:	KB=17' @ 4832.8usft (Cade #23)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor 29F 2007A	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S29-T10N-R58W - Razor 29F 3205A - 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	5,189.1	5,151.7	5,140.5	12.8	13.0	-170.13	-365.0	-137.3	697.3	674.2	23.17	30.095		
5,300.0	5,288.9	5,250.8	5,239.3	13.0	13.2	-170.22	-371.7	-139.0	711.1	687.5	23.63	30.099		
5,400.0	5,387.6	5,325.4	5,313.7	13.4	13.4	-169.94	-377.0	-140.3	733.3	709.9	23.42	31.312		
5,500.0	5,481.7	5,350.0	5,338.1	13.8	13.5	-169.00	-380.0	-141.0	779.0	756.7	22.31	34.914		
5,600.0	5,567.7	5,400.0	5,387.1	14.5	13.7	-167.47	-389.4	-143.3	845.0	824.4	20.60	41.016		
5,700.0	5,642.4	5,400.0	5,387.1	15.3	13.7	-163.46	-389.4	-143.3	926.9	908.3	18.58	49.877		
5,800.0	5,703.1	5,424.6	5,410.8	16.3	13.8	-154.81	-395.8	-144.9	1,018.9	1,000.9	18.06	56.410		
5,900.0	5,747.6	5,430.1	5,416.1	17.5	13.8	-119.00	-397.3	-145.3	1,116.8	1,088.9	27.91	40.015		
6,000.0	5,774.2	5,429.3	5,415.3	18.9	13.8	-38.98	-397.1	-145.2	1,216.0	1,194.5	21.51	56.532		
6,100.0	5,782.0	5,423.2	5,409.5	20.3	13.8	-19.31	-395.4	-144.8	1,313.1	1,300.4	12.69	103.497		
6,200.0	5,782.0	5,400.0	5,387.1	21.7	13.7	-25.58	-389.4	-143.3	1,408.7	1,392.3	16.44	85.698		
6,300.0	5,782.0	5,400.0	5,387.1	23.2	13.7	-25.58	-389.4	-143.3	1,504.1	1,486.8	17.30	86.928		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor 29F 2007A
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4832.8usft (Cade #23)
Reference Site:	S29-T10N-R58W	MD Reference:	KB=17' @ 4832.8usft (Cade #23)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor 29F 2007A	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S29-T10N-R58W - Razor 29F 3206B - 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							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	-149.08	-49.9	-29.9	58.2					
100.0	100.0	100.0	100.0	0.1	0.1	-149.08	-49.9	-29.9	58.2	58.0	0.19	311.844		
200.0	200.0	200.0	200.0	0.3	0.3	-149.08	-49.9	-29.9	58.2	57.5	0.64	91.460		
300.0	300.0	300.0	300.0	0.5	0.5	-149.08	-49.9	-29.9	58.2	57.1	1.09	53.588		
400.0	400.0	400.0	400.0	0.8	0.8	-149.08	-49.9	-29.9	58.2	56.6	1.54	37.896		
500.0	500.0	500.0	500.0	1.0	1.0	-149.08	-49.9	-29.9	58.2	56.2	1.98	29.313		
600.0	600.0	600.0	600.0	1.2	1.2	-149.08	-49.9	-29.9	58.2	55.7	2.43	23.899 CC, ES		
700.0	700.0	698.2	698.2	1.4	1.4	-153.62	-51.6	-29.8	61.2	58.3	2.86	21.387 SF		
800.0	799.8	795.7	795.6	1.7	1.6	-157.57	-56.6	-29.6	70.4	67.1	3.29	21.416		
900.0	899.6	894.7	894.3	1.9	1.8	-161.64	-63.5	-29.3	83.2	79.5	3.71	22.412		
1,000.0	999.4	993.7	993.1	2.1	2.0	-164.63	-70.4	-29.0	96.3	92.2	4.14	23.264		
1,100.0	1,099.1	1,092.7	1,091.9	2.4	2.2	-166.89	-77.3	-28.7	109.6	105.0	4.57	23.970		
1,200.0	1,198.9	1,191.8	1,190.6	2.6	2.5	-168.66	-84.2	-28.3	123.0	118.0	5.01	24.560		
1,300.0	1,298.6	1,290.8	1,289.4	2.9	2.7	-170.08	-91.1	-28.0	136.6	131.1	5.45	25.057		
1,400.0	1,398.4	1,389.8	1,388.2	3.1	2.9	-171.25	-98.0	-27.7	150.2	144.3	5.89	25.481		
1,500.0	1,498.1	1,488.8	1,487.0	3.4	3.2	-172.22	-104.9	-27.4	163.8	157.5	6.34	25.844		
1,600.0	1,597.9	1,587.9	1,585.8	3.6	3.4	-173.04	-111.8	-27.1	177.5	170.7	6.78	26.162		
1,700.0	1,697.6	1,686.9	1,684.6	3.9	3.7	-173.75	-118.7	-26.8	191.2	184.0	7.23	26.440		
1,800.0	1,797.4	1,785.9	1,783.4	4.1	3.9	-174.36	-125.6	-26.5	205.0	197.3	7.68	26.685		
1,900.0	1,897.2	1,885.0	1,882.2	4.4	4.2	-174.89	-132.5	-26.1	218.7	210.6	8.13	26.904		
2,000.0	1,996.9	1,984.0	1,980.9	4.6	4.4	-175.36	-139.4	-25.8	232.5	223.9	8.58	27.099		
2,100.0	2,096.7	2,083.0	2,079.7	4.9	4.7	-175.78	-146.3	-25.5	246.3	237.3	9.03	27.276		
2,200.0	2,196.4	2,182.1	2,178.5	5.1	4.9	-176.15	-153.2	-25.2	260.1	250.6	9.48	27.436		
2,300.0	2,296.2	2,281.1	2,277.3	5.4	5.2	-176.49	-160.1	-24.9	273.9	264.0	9.93	27.581		
2,400.0	2,395.9	2,380.1	2,376.1	5.6	5.5	-176.79	-167.0	-24.6	287.7	277.4	10.38	27.715		
2,500.0	2,495.7	2,479.1	2,474.9	5.9	5.7	-177.07	-173.9	-24.3	301.6	290.7	10.83	27.838		
2,600.0	2,595.5	2,578.2	2,573.7	6.1	6.0	-177.32	-180.8	-24.0	315.4	304.1	11.28	27.951		
2,700.0	2,695.2	2,677.2	2,672.5	6.4	6.2	-177.55	-187.7	-23.6	329.3	317.5	11.74	28.057		
2,800.0	2,795.0	2,776.2	2,771.3	6.7	6.5	-177.76	-194.6	-23.3	343.1	330.9	12.19	28.155		
2,900.0	2,894.7	2,875.3	2,870.0	6.9	6.8	-177.96	-201.5	-23.0	357.0	344.3	12.64	28.246		
3,000.0	2,994.5	2,974.3	2,968.8	7.2	7.0	-178.14	-208.4	-22.7	370.8	357.7	13.09	28.332		
3,100.0	3,094.2	3,073.3	3,067.6	7.4	7.3	-178.30	-215.3	-22.4	384.7	371.1	13.54	28.413		
3,200.0	3,194.0	3,172.3	3,166.4	7.7	7.5	-178.46	-222.2	-22.1	398.5	384.5	13.99	28.489		
3,300.0	3,293.7	3,271.4	3,265.2	7.9	7.8	-178.61	-229.1	-21.8	412.4	398.0	14.44	28.560		
3,400.0	3,393.5	3,370.4	3,364.0	8.2	8.0	-178.74	-236.0	-21.4	426.3	411.4	14.89	28.628		
3,500.0	3,493.3	3,469.4	3,462.8	8.4	8.3	-178.87	-242.9	-21.1	440.1	424.8	15.34	28.693		
3,600.0	3,593.0	3,568.5	3,561.6	8.7	8.6	-178.99	-249.8	-20.8	454.0	438.2	15.79	28.754		
3,700.0	3,692.8	3,667.5	3,660.3	9.0	8.8	-179.10	-256.7	-20.5	467.9	451.6	16.24	28.812		
3,800.0	3,792.5	3,766.5	3,759.1	9.2	9.1	-179.21	-263.6	-20.2	481.7	465.1	16.69	28.868		
3,900.0	3,892.3	3,865.5	3,857.9	9.5	9.4	-179.31	-270.5	-19.9	495.6	478.5	17.14	28.922		
4,000.0	3,992.0	3,964.6	3,956.7	9.7	9.6	-179.40	-277.4	-19.6	509.5	491.9	17.59	28.973		
4,100.0	4,091.8	4,063.6	4,055.5	10.0	9.9	-179.49	-284.3	-19.3	523.4	505.3	18.03	29.022		
4,200.0	4,191.6	4,162.6	4,154.3	10.2	10.1	-179.58	-291.2	-18.9	537.3	518.8	18.48	29.065		
4,300.0	4,291.3	4,261.7	4,253.1	10.5	10.4	-179.66	-298.1	-18.6	551.1	532.2	18.94	29.100		
4,400.0	4,391.1	4,360.7	4,351.9	10.7	10.7	-179.73	-305.0	-18.3	565.0	545.6	19.39	29.134		
4,500.0	4,490.8	4,459.7	4,450.6	11.0	10.9	-179.81	-311.9	-18.0	578.9	559.0	19.85	29.166		
4,600.0	4,590.6	4,558.8	4,549.4	11.3	11.2	-179.88	-318.8	-17.7	592.8	572.5	20.30	29.197		
4,700.0	4,690.3	4,657.8	4,648.2	11.5	11.4	-179.94	-325.7	-17.4	606.7	585.9	20.76	29.226		
4,800.0	4,790.1	4,756.8	4,747.0	11.8	11.7	-179.99	-332.6	-17.1	620.5	599.3	21.21	29.254		
4,900.0	4,889.9	4,855.8	4,845.8	12.0	12.0	-179.93	-339.5	-16.7	634.4	612.8	21.67	29.281		
5,000.0	4,989.6	4,954.9	4,944.6	12.3	12.2	-179.87	-346.4	-16.4	648.3	626.2	22.12	29.306		
5,100.0	5,089.4	5,053.9	5,043.4	12.5	12.5	-179.82	-353.3	-16.1	662.2	639.6	22.58	29.331		

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 29F 2007A
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4832.8usft (Cade #23)
Reference Site:	S29-T10N-R58W	MD Reference:	KB=17' @ 4832.8usft (Cade #23)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor 29F 2007A	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S29-T10N-R58W - Razor 29F 3206B - 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	5,189.1	5,152.9	5,142.2	12.8	12.7	179.76	-360.2	-15.8	676.1	653.1	23.03	29.355		
5,300.0	5,288.9	5,252.0	5,240.9	13.0	13.0	179.71	-367.1	-15.5	690.0	666.5	23.49	29.377		
5,400.0	5,387.6	5,349.4	5,338.2	13.4	13.3	179.65	-373.9	-15.2	711.7	688.4	23.31	30.528		
5,500.0	5,481.7	5,400.0	5,388.6	13.8	13.4	179.60	-377.7	-15.0	753.0	730.8	22.18	33.941		
5,600.0	5,567.7	5,450.0	5,438.0	14.5	13.6	179.49	-385.1	-14.7	815.7	795.4	20.27	40.235		
5,700.0	5,642.4	5,450.0	5,438.0	15.3	13.6	179.33	-385.1	-14.7	895.2	877.6	17.56	50.976		
5,800.0	5,703.1	5,475.9	5,463.3	16.3	13.7	178.92	-390.8	-14.4	986.1	971.8	14.34	68.760		
5,900.0	5,747.6	5,482.9	5,470.0	17.5	13.7	177.08	-392.5	-14.3	1,083.8	1,072.9	10.91	99.309		
6,000.0	5,774.2	5,500.0	5,486.5	18.9	13.8	4.26	-397.2	-14.1	1,184.0	1,176.2	7.84	151.042		
6,100.0	5,782.0	5,478.0	5,465.3	20.3	13.7	-0.08	-391.3	-14.4	1,281.9	1,275.9	5.98	214.423		
6,200.0	5,782.0	5,471.2	5,458.7	21.7	13.7	-10.55	-389.6	-14.5	1,378.9	1,369.8	9.12	151.172		
6,300.0	5,782.0	5,450.0	5,438.0	23.2	13.6	-9.96	-385.1	-14.7	1,476.5	1,466.9	9.58	154.175		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor 29F 2007A
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4832.8usft (Cade #23)
Reference Site:	S29-T10N-R58W	MD Reference:	KB=17' @ 4832.8usft (Cade #23)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor 29F 2007A	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S29-T10N-R58W - Razor 29F 3207A - 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							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	180.00	-49.9	0.0	49.9					
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-49.9	0.0	49.9	49.7	0.19	267.600		
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-49.9	0.0	49.9	49.3	0.64	78.483		
300.0	300.0	300.0	300.0	0.5	0.5	180.00	-49.9	0.0	49.9	48.8	1.09	45.985		
400.0	400.0	400.0	400.0	0.8	0.8	180.00	-49.9	0.0	49.9	48.4	1.54	32.519		
500.0	500.0	500.0	500.0	1.0	1.0	180.00	-49.9	0.0	49.9	47.9	1.98	25.154 CC, ES		
600.0	600.0	598.3	598.3	1.2	1.2	179.44	-51.5	0.5	51.6	49.2	2.41	21.426		
700.0	700.0	696.3	696.1	1.4	1.4	175.15	-56.3	2.0	58.2	55.4	2.83	20.565 SF		
800.0	799.8	795.5	795.1	1.7	1.6	173.97	-62.9	4.1	70.2	66.9	3.28	21.415		
900.0	899.6	894.5	893.9	1.9	1.8	173.29	-69.5	6.1	83.8	80.1	3.70	22.635		
1,000.0	999.4	993.6	992.7	2.1	2.0	172.81	-76.1	8.2	97.5	93.4	4.14	23.566		
1,100.0	1,099.1	1,092.7	1,091.5	2.4	2.3	172.44	-82.7	10.2	111.2	106.6	4.58	24.293		
1,200.0	1,198.9	1,191.7	1,190.4	2.6	2.5	172.15	-89.3	12.3	124.9	119.9	5.02	24.875		
1,300.0	1,298.6	1,290.8	1,289.2	2.9	2.8	171.92	-95.9	14.4	138.6	133.1	5.47	25.351		
1,400.0	1,398.4	1,389.8	1,388.0	3.1	3.0	171.73	-102.5	16.4	152.3	146.4	5.91	25.745		
1,500.0	1,498.1	1,488.9	1,486.8	3.4	3.3	171.58	-109.1	18.5	166.0	159.6	6.36	26.078		
1,600.0	1,597.9	1,587.9	1,585.6	3.6	3.5	171.44	-115.7	20.6	179.7	172.8	6.82	26.363		
1,700.0	1,697.6	1,687.0	1,684.4	3.9	3.8	171.33	-122.3	22.6	193.4	186.1	7.27	26.609		
1,800.0	1,797.4	1,786.1	1,783.3	4.1	4.0	171.23	-128.9	24.7	207.1	199.3	7.72	26.824		
1,900.0	1,897.2	1,885.1	1,882.1	4.4	4.3	171.14	-135.5	26.7	220.8	212.6	8.17	27.014		
2,000.0	1,996.9	1,984.2	1,980.9	4.6	4.5	171.07	-142.1	28.8	234.4	225.8	8.63	27.183		
2,100.0	2,096.7	2,083.2	2,079.7	4.9	4.8	171.00	-148.7	30.9	248.1	239.1	9.08	27.334		
2,200.0	2,196.4	2,182.3	2,178.5	5.1	5.0	170.94	-155.3	32.9	261.8	252.3	9.53	27.470		
2,300.0	2,296.2	2,281.3	2,277.3	5.4	5.3	170.88	-161.9	35.0	275.5	265.6	9.99	27.594		
2,400.0	2,395.9	2,380.4	2,376.1	5.6	5.6	170.83	-168.5	37.0	289.2	278.8	10.44	27.706		
2,500.0	2,495.7	2,479.5	2,475.0	5.9	5.8	170.79	-175.1	39.1	302.9	292.0	10.89	27.810		
2,600.0	2,595.5	2,578.5	2,573.8	6.1	6.1	170.74	-181.7	41.2	316.6	305.3	11.35	27.905		
2,700.0	2,695.2	2,677.6	2,672.6	6.4	6.3	170.71	-188.3	43.2	330.3	318.5	11.80	27.994		
2,800.0	2,795.0	2,776.6	2,771.4	6.7	6.6	170.67	-194.9	45.3	344.0	331.8	12.25	28.076		
2,900.0	2,894.7	2,875.7	2,870.2	6.9	6.9	170.64	-201.4	47.3	357.7	345.0	12.71	28.152		
3,000.0	2,994.5	2,974.7	2,969.0	7.2	7.1	170.61	-208.0	49.4	371.4	358.3	13.16	28.224		
3,100.0	3,094.2	3,073.8	3,067.9	7.4	7.4	170.58	-214.6	51.5	385.1	371.5	13.61	28.291		
3,200.0	3,194.0	3,172.9	3,166.7	7.7	7.6	170.55	-221.2	53.5	398.8	384.8	14.07	28.354		
3,300.0	3,293.7	3,271.9	3,265.5	7.9	7.9	170.53	-227.8	55.6	412.5	398.0	14.52	28.414		
3,400.0	3,393.5	3,371.0	3,364.3	8.2	8.2	170.51	-234.4	57.6	426.2	411.3	14.97	28.471		
3,500.0	3,493.3	3,470.0	3,463.1	8.4	8.4	170.49	-241.0	59.7	439.9	424.5	15.42	28.525		
3,600.0	3,593.0	3,569.1	3,561.9	8.7	8.7	170.47	-247.6	61.8	453.6	437.8	15.87	28.576		
3,700.0	3,692.8	3,668.1	3,660.8	9.0	8.9	170.45	-254.2	63.8	467.3	451.0	16.33	28.625		
3,800.0	3,792.5	3,767.2	3,759.6	9.2	9.2	170.43	-260.8	65.9	481.0	464.3	16.78	28.671		
3,900.0	3,892.3	3,866.3	3,858.4	9.5	9.5	170.41	-267.4	67.9	494.7	477.5	17.23	28.716		
4,000.0	3,992.0	3,965.3	3,957.2	9.7	9.7	170.40	-274.0	70.0	508.4	490.8	17.68	28.759		
4,100.0	4,091.8	4,064.4	4,056.0	10.0	10.0	170.38	-280.6	72.1	522.1	504.0	18.13	28.799		
4,200.0	4,191.6	4,163.4	4,154.8	10.2	10.3	170.37	-287.2	74.1	535.8	517.2	18.59	28.829		
4,300.0	4,291.3	4,262.5	4,253.6	10.5	10.5	170.35	-293.8	76.2	549.5	530.5	19.04	28.857		
4,400.0	4,391.1	4,361.5	4,352.5	10.7	10.8	170.34	-300.4	78.2	563.2	543.7	19.50	28.884		
4,500.0	4,490.8	4,460.6	4,451.3	11.0	11.0	170.33	-307.0	80.3	576.9	557.0	19.96	28.910		
4,600.0	4,590.6	4,559.7	4,550.1	11.3	11.3	170.32	-313.6	82.4	590.6	570.2	20.41	28.934		
4,700.0	4,690.3	4,658.7	4,648.9	11.5	11.6	170.31	-320.2	84.4	604.3	583.5	20.87	28.957		
4,800.0	4,790.1	4,757.8	4,747.7	11.8	11.8	170.30	-326.8	86.5	618.0	596.7	21.33	28.979		
4,900.0	4,889.9	4,856.8	4,846.5	12.0	12.1	170.29	-333.4	88.6	631.7	609.9	21.78	29.001		
5,000.0	4,989.6	4,955.9	4,945.4	12.3	12.3	170.28	-340.0	90.6	645.4	623.2	22.24	29.021		
5,100.0	5,089.4	5,054.9	5,044.2	12.5	12.6	170.27	-346.5	92.7	659.1	636.4	22.70	29.040		

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 29F 2007A
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4832.8usft (Cade #23)
Reference Site:	S29-T10N-R58W	MD Reference:	KB=17' @ 4832.8usft (Cade #23)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor 29F 2007A	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S29-T10N-R58W - Razor 29F 3207A - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: 0-ISWWSA 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		
5,200.0	5,189.1	5,154.0	5,143.0	12.8	12.9	170.26	-353.1	94.7	672.8	649.7	23.15	29.059		
5,300.0	5,288.9	5,253.1	5,241.8	13.0	13.1	170.25	-359.7	96.8	686.5	662.9	23.61	29.077		
5,400.0	5,387.6	5,326.7	5,315.3	13.4	13.3	169.89	-364.9	98.4	708.7	685.3	23.40	30.280		
5,500.0	5,481.7	5,350.0	5,338.4	13.8	13.4	168.90	-367.7	99.3	754.6	732.3	22.28	33.861		
5,600.0	5,567.7	5,400.0	5,387.4	14.5	13.6	167.18	-377.1	102.2	820.6	800.0	20.56	39.903		
5,700.0	5,642.4	5,400.0	5,387.4	15.3	13.6	163.01	-377.1	102.2	902.8	884.3	18.52	48.756		
5,800.0	5,703.1	5,429.1	5,415.4	16.3	13.7	154.07	-384.5	104.5	994.8	976.8	17.95	55.411		
5,900.0	5,747.6	5,450.0	5,435.2	17.5	13.8	122.31	-390.8	106.5	1,092.9	1,066.3	26.68	40.962		
6,000.0	5,774.2	5,450.0	5,435.2	18.9	13.8	42.58	-390.8	106.5	1,192.2	1,169.2	22.98	51.887		
6,100.0	5,782.0	5,427.9	5,414.3	20.3	13.7	17.78	-384.2	104.4	1,288.8	1,276.8	11.99	107.499		
6,200.0	5,782.0	5,420.1	5,406.8	21.7	13.7	8.79	-382.1	103.8	1,384.6	1,376.0	8.67	159.697		
6,300.0	5,782.0	5,400.0	5,387.4	23.2	13.6	8.14	-377.1	102.2	1,481.2	1,472.1	9.11	162.534		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor 29F 2007A
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4832.8usft (Cade #23)
Reference Site:	S29-T10N-R58W	MD Reference:	KB=17' @ 4832.8usft (Cade #23)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor 29F 2007A	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S29-T10N-R58W - Razor 29F 3208B - 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		
0.0	0.0	0.0	0.0	0.0	0.0	148.84	-49.9	30.2	58.3					
100.0	100.0	100.0	100.0	0.1	0.1	148.84	-49.9	30.2	58.3	58.1	0.19	312.591		
200.0	200.0	200.0	200.0	0.3	0.3	148.84	-49.9	30.2	58.3	57.7	0.64	91.679		
300.0	300.0	300.0	300.0	0.5	0.5	148.84	-49.9	30.2	58.3	57.2	1.09	53.717		
400.0	400.0	400.0	400.0	0.8	0.8	148.84	-49.9	30.2	58.3	56.8	1.54	37.987 CC, ES		
500.0	500.0	498.0	497.9	1.0	1.0	148.92	-51.4	31.0	60.0	58.1	1.96	30.655		
600.0	600.0	595.7	595.6	1.2	1.2	149.12	-55.8	33.4	65.1	62.8	2.38	27.402		
700.0	700.0	695.2	694.8	1.4	1.4	147.07	-61.9	36.7	73.6	70.7	2.82	26.093		
800.0	799.8	794.5	793.9	1.7	1.6	149.00	-68.0	40.0	85.0	81.7	3.27	26.013 SF		
900.0	899.6	893.6	892.8	1.9	1.8	151.06	-74.1	43.2	98.0	94.3	3.71	26.441		
1,000.0	999.4	992.7	991.6	2.1	2.1	152.64	-80.1	46.5	111.1	106.9	4.15	26.766		
1,100.0	1,099.1	1,091.8	1,090.5	2.4	2.3	153.89	-86.2	49.8	124.2	119.6	4.60	27.020		
1,200.0	1,198.9	1,190.9	1,189.3	2.6	2.6	154.90	-92.3	53.1	137.4	132.4	5.05	27.225		
1,300.0	1,298.6	1,290.0	1,288.2	2.9	2.8	155.73	-98.4	56.4	150.7	145.2	5.50	27.392		
1,400.0	1,398.4	1,389.1	1,387.1	3.1	3.1	156.42	-104.5	59.7	163.9	158.0	5.95	27.532		
1,500.0	1,498.1	1,488.2	1,485.9	3.4	3.3	157.01	-110.5	63.0	177.2	170.8	6.41	27.651		
1,600.0	1,597.9	1,587.3	1,584.8	3.6	3.6	157.52	-116.6	66.3	190.5	183.7	6.86	27.754		
1,700.0	1,697.6	1,686.4	1,683.6	3.9	3.9	157.97	-122.7	69.6	203.8	196.5	7.32	27.843		
1,800.0	1,797.4	1,785.5	1,782.5	4.1	4.1	158.36	-128.8	72.9	217.2	209.4	7.78	27.922		
1,900.0	1,897.2	1,884.6	1,881.3	4.4	4.4	158.70	-134.9	76.1	230.5	222.3	8.23	27.993		
2,000.0	1,996.9	1,983.7	1,980.2	4.6	4.6	159.01	-140.9	79.4	243.8	235.2	8.69	28.056		
2,100.0	2,096.7	2,082.8	2,079.0	4.9	4.9	159.28	-147.0	82.7	257.2	248.0	9.15	28.113		
2,200.0	2,196.4	2,181.9	2,177.9	5.1	5.2	159.53	-153.1	86.0	270.5	260.9	9.61	28.166		
2,300.0	2,296.2	2,281.0	2,276.8	5.4	5.4	159.75	-159.2	89.3	283.9	273.8	10.06	28.214		
2,400.0	2,395.9	2,380.1	2,375.6	5.6	5.7	159.96	-165.2	92.6	297.3	286.7	10.52	28.258		
2,500.0	2,495.7	2,479.2	2,474.5	5.9	5.9	160.14	-171.3	95.9	310.6	299.7	10.98	28.300		
2,600.0	2,595.5	2,578.3	2,573.3	6.1	6.2	160.31	-177.4	99.2	324.0	312.6	11.43	28.338		
2,700.0	2,695.2	2,677.4	2,672.2	6.4	6.5	160.47	-183.5	102.5	337.4	325.5	11.89	28.375		
2,800.0	2,795.0	2,776.5	2,771.0	6.7	6.7	160.62	-189.6	105.8	350.7	338.4	12.35	28.409		
2,900.0	2,894.7	2,875.6	2,869.9	6.9	7.0	160.75	-195.6	109.0	364.1	351.3	12.80	28.441		
3,000.0	2,994.5	2,974.7	2,968.8	7.2	7.2	160.88	-201.7	112.3	377.5	364.2	13.26	28.472		
3,100.0	3,094.2	3,073.8	3,067.6	7.4	7.5	160.99	-207.8	115.6	390.9	377.2	13.71	28.501		
3,200.0	3,194.0	3,172.9	3,166.5	7.7	7.8	161.10	-213.9	118.9	404.3	390.1	14.17	28.529		
3,300.0	3,293.7	3,272.0	3,265.3	7.9	8.0	161.20	-220.0	122.2	417.6	403.0	14.63	28.556		
3,400.0	3,393.5	3,371.1	3,364.2	8.2	8.3	161.30	-226.0	125.5	431.0	415.9	15.08	28.582		
3,500.0	3,493.3	3,470.2	3,463.0	8.4	8.5	161.39	-232.1	128.8	444.4	428.9	15.54	28.607		
3,600.0	3,593.0	3,569.3	3,561.9	8.7	8.8	161.47	-238.2	132.1	457.8	441.8	15.99	28.631		
3,700.0	3,692.8	3,668.4	3,660.8	9.0	9.1	161.55	-244.3	135.4	471.2	454.7	16.44	28.654		
3,800.0	3,792.5	3,767.5	3,759.6	9.2	9.3	161.63	-250.4	138.7	484.6	467.7	16.90	28.677		
3,900.0	3,892.3	3,866.6	3,858.5	9.5	9.6	161.70	-256.4	141.9	498.0	480.6	17.35	28.698		
4,000.0	3,992.0	3,965.7	3,957.3	9.7	9.8	161.77	-262.5	145.2	511.3	493.5	17.80	28.720		
4,100.0	4,091.8	4,064.8	4,056.2	10.0	10.1	161.83	-268.6	148.5	524.7	506.5	18.26	28.734		
4,200.0	4,191.6	4,163.9	4,155.0	10.2	10.4	161.89	-274.7	151.8	538.1	519.4	18.72	28.744		
4,300.0	4,291.3	4,263.0	4,253.9	10.5	10.6	161.95	-280.8	155.1	551.5	532.3	19.18	28.754		
4,400.0	4,391.1	4,362.1	4,352.7	10.7	10.9	162.01	-286.8	158.4	564.9	545.3	19.64	28.763		
4,500.0	4,490.8	4,461.2	4,451.6	11.0	11.2	162.06	-292.9	161.7	578.3	558.2	20.10	28.772		
4,600.0	4,590.6	4,560.3	4,550.5	11.3	11.4	162.11	-299.0	165.0	591.7	571.1	20.56	28.781		
4,700.0	4,690.3	4,659.4	4,649.3	11.5	11.7	162.16	-305.1	168.3	605.1	584.1	21.02	28.789		
4,800.0	4,790.1	4,758.5	4,748.2	11.8	11.9	162.20	-311.2	171.6	618.5	597.0	21.48	28.796		
4,900.0	4,889.9	4,857.6	4,847.0	12.0	12.2	162.25	-317.2	174.8	631.9	609.9	21.94	28.804		
5,000.0	4,989.6	4,956.7	4,945.9	12.3	12.5	162.29	-323.3	178.1	645.3	622.9	22.40	28.811		
5,100.0	5,089.4	5,055.8	5,044.7	12.5	12.7	162.33	-329.4	181.4	658.7	635.8	22.86	28.818		

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 29F 2007A
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4832.8usft (Cade #23)
Reference Site:	S29-T10N-R58W	MD Reference:	KB=17' @ 4832.8usft (Cade #23)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor 29F 2007A	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S29-T10N-R58W - Razor 29F 3208B - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: 0-ISWWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,189.1	5,154.9	5,143.6	12.8	13.0	162.37	-335.5	184.7	672.0	648.7	23.32	28.824		
5,300.0	5,288.9	5,254.0	5,242.5	13.0	13.3	162.40	-341.6	188.0	685.4	661.7	23.78	28.830		
5,400.0	5,387.6	5,351.6	5,339.8	13.4	13.5	161.96	-347.5	191.2	706.3	682.7	23.66	29.857		
5,500.0	5,481.7	5,400.0	5,388.1	13.8	13.6	160.74	-350.7	193.0	746.1	723.4	22.71	32.858		
5,600.0	5,567.7	5,450.0	5,437.6	14.5	13.8	158.44	-357.2	196.5	806.6	785.4	21.26	37.939		
5,700.0	5,642.4	5,465.5	5,452.7	15.3	13.9	153.32	-360.1	198.0	883.7	863.8	19.94	44.322		
5,800.0	5,703.1	5,481.3	5,468.1	16.3	13.9	142.69	-363.4	199.8	972.5	951.7	20.82	46.710		
5,900.0	5,747.6	5,500.0	5,486.1	17.5	14.0	118.01	-367.8	202.2	1,068.1	1,040.6	27.58	38.723		
6,000.0	5,774.2	5,500.0	5,486.1	18.9	14.0	67.30	-367.8	202.2	1,166.0	1,135.7	30.35	38.420		
6,100.0	5,782.0	5,500.0	5,486.1	20.3	14.0	35.98	-367.8	202.2	1,262.8	1,242.0	20.79	60.726		
6,200.0	5,782.0	5,479.2	5,466.0	21.7	13.9	25.96	-362.9	199.6	1,358.6	1,341.7	16.91	80.359		
6,300.0	5,782.0	5,473.1	5,460.1	23.2	13.9	25.44	-361.6	198.8	1,455.4	1,437.9	17.50	83.145		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor 29F 2007A
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4832.8usft (Cade #23)
Reference Site:	S29-T10N-R58W	MD Reference:	KB=17' @ 4832.8usft (Cade #23)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor 29F 2007A	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 #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB=17' @ 4832.8usft (Cade #23)

Offset Depths are relative to Offset Datum

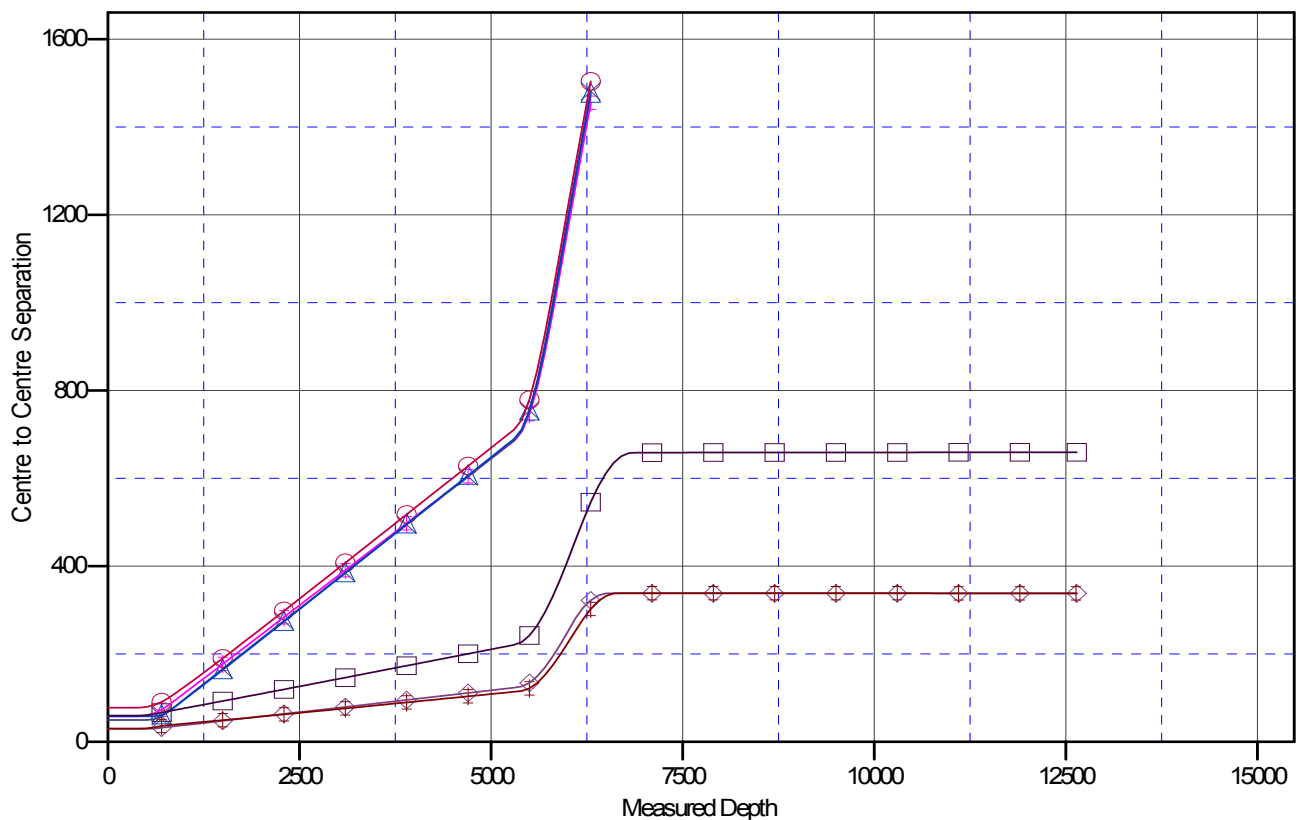
Central Meridian is -105.500000 °

Coordinates are relative to: Razor 29F 2007A

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 1.04°

Ladder Plot



LEGEND

- ◆ Razor 29F 2006B, HZ, Plan #1 V0
- ▲ Razor 29F 3206B, HZ, Plan #1 V0
- ◆ Razor 29F 2008B, HZ, Plan #1 V0
- ◆ Razor 29F 3208B, HZ, Plan #1 V0
- ◆ Razor 29F 2005A, HZ, Plan #1 V0
- ◆ Razor 29F 3207A, HZ, Plan #1 V0
- ◆ Razor 29F 3205A, HZ, Plan #1 V0