

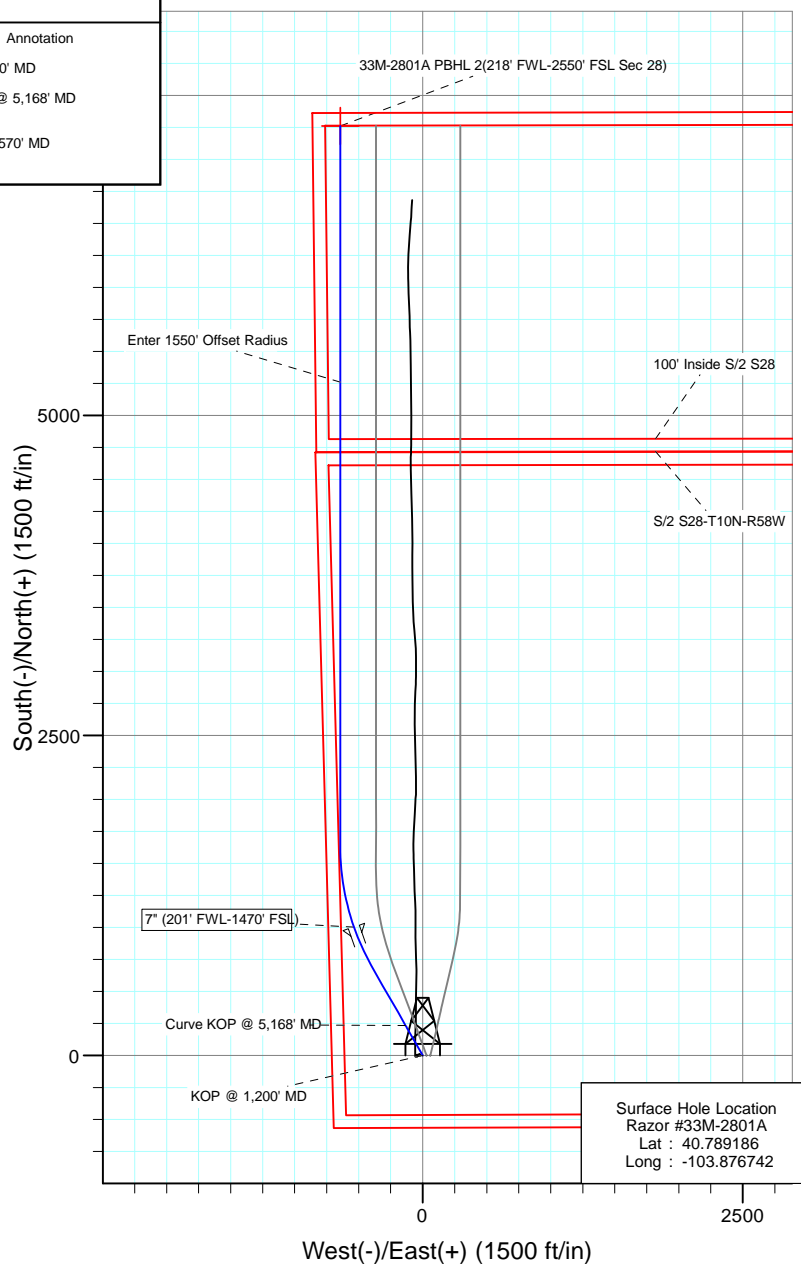
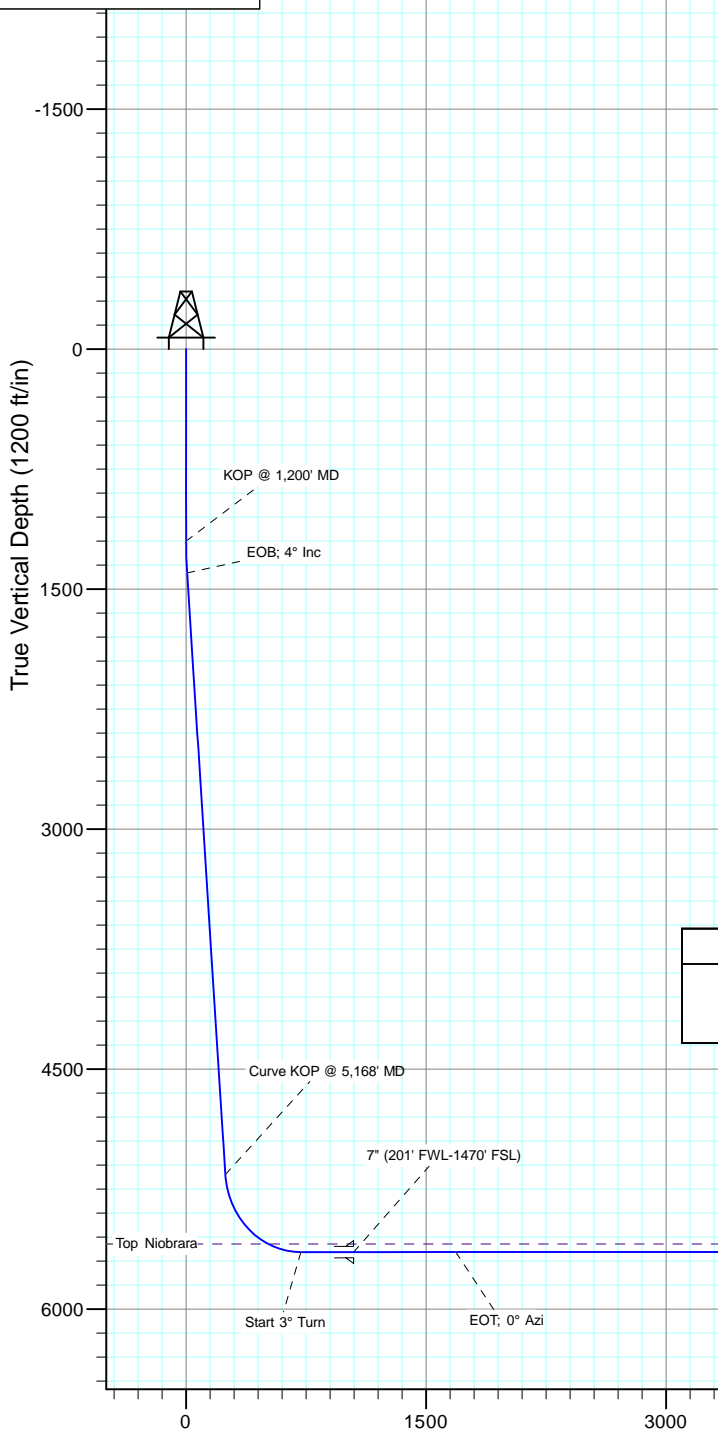
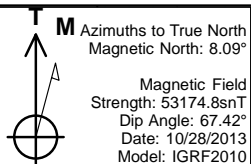


Project: Weld County, CO
Site: S33-T10N-R58W
Well: Razor #33M-2801A
Wellbore: HZ
Design: Plan #2



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1200.0	0.00	0.00	1200.0	0.0	0.0	0.00	0.00	0.0	KOP @ 1,200' MD
3	1400.0	4.00	330.22	1399.8	6.1	-3.5	2.00	330.22	6.3	EOB; 4° Inc
4	5168.0	4.00	330.22	5158.7	234.2	-134.0	0.00	0.00	245.1	Curve KOP @ 5,168' MD
5	5949.8	90.00	330.22	5643.2	685.2	-392.1	11.00	0.00	717.1	Start 3° Turn
6	6942.5	90.00	0.00	5643.2	1633.7	-644.3	3.00	90.00	1684.3	EOT; 0° Azi
7	12570.4	90.00	0.00	5643.0	7261.6	-644.3	0.00	0.00	7290.2	PBHL @ 12,570' MD



DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
33M-2801A PBHL 2(218' FWL-2550' FSL Sec 28)	5643.0	7261.6	-644.3	1541712.55	3448703.34

FORMATION TOP DETAILS

TVDPath	MDPath	Formation Top Niobrara
5593.0	5719.3	

Plan #2
Razor #33M-2801A
WELL @ 4746.2ft (Original Well Elev)
Ground Elevation @ 4729.4
North American Datum 1983
Well Razor #33M-2801A, True North

Vertical Section at 354.93° (1200 ft/in)

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #33M-2801A
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4746.2ft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4746.2ft (Original Well Elev)
Site:	S33-T10N-R58W	North Reference:	True
Well:	Razor #33M-2801A	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

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

Site		S33-T10N-R58W			
Site Position:		Northing:	1,534,463.93 ft	Latitude:	40.789186
From:	Lat/Long	Easting:	3,449,480.46 ft	Longitude:	-103.876742
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	1.05 °

Well	Razor #33M-2801A					
Well Position	+N/-S	0.0 ft	Northing:	1,534,463.93 ft	Latitude:	40.789186
	+E/-W	0.0 ft	Easting:	3,449,480.46 ft	Longitude:	-103.876742
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,729.4 ft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/28/2013	8.09	67.42	53,175

Design	Plan #2				
Audit Notes:					
Version:	Phase:	PLAN		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	354.93	

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,400.0	4.00	330.22	1,399.8	6.1	-3.5	2.00	2.00	0.00	330.22	
5,168.0	4.00	330.22	5,158.7	234.2	-134.0	0.00	0.00	0.00	0.00	
5,949.8	90.00	330.22	5,643.2	685.2	-392.1	11.00	11.00	0.00	0.00	
6,942.5	90.00	0.00	5,643.2	1,633.7	-644.3	3.00	0.00	3.00	90.00	
12,570.4	90.00	0.00	5,643.0	7,261.6	-644.3	0.00	0.00	0.00	0.00	33M-2801A PBHL 2(2

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #33M-2801A
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4746.2ft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4746.2ft (Original Well Elev)
Site:	S33-T10N-R58W	North Reference:	True
Well:	Razor #33M-2801A	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	KOP @ 1,200' MD
1,300.0	2.00	330.22	1,300.0	1.5	-0.9	1.6	2.00	2.00	
1,400.0	4.00	330.22	1,399.8	6.1	-3.5	6.3	2.00	2.00	EOB; 4° Inc
1,500.0	4.00	330.22	1,499.6	12.1	-6.9	12.7	0.00	0.00	
1,600.0	4.00	330.22	1,599.4	18.2	-10.4	19.0	0.00	0.00	
1,700.0	4.00	330.22	1,699.1	24.2	-13.9	25.4	0.00	0.00	
1,800.0	4.00	330.22	1,798.9	30.3	-17.3	31.7	0.00	0.00	
1,900.0	4.00	330.22	1,898.6	36.3	-20.8	38.0	0.00	0.00	
2,000.0	4.00	330.22	1,998.4	42.4	-24.3	44.4	0.00	0.00	
2,100.0	4.00	330.22	2,098.1	48.4	-27.7	50.7	0.00	0.00	
2,200.0	4.00	330.22	2,197.9	54.5	-31.2	57.0	0.00	0.00	
2,300.0	4.00	330.22	2,297.6	60.5	-34.6	63.4	0.00	0.00	
2,400.0	4.00	330.22	2,397.4	66.6	-38.1	69.7	0.00	0.00	
2,500.0	4.00	330.22	2,497.2	72.7	-41.6	76.0	0.00	0.00	
2,600.0	4.00	330.22	2,596.9	78.7	-45.0	82.4	0.00	0.00	
2,700.0	4.00	330.22	2,696.7	84.8	-48.5	88.7	0.00	0.00	
2,800.0	4.00	330.22	2,796.4	90.8	-52.0	95.1	0.00	0.00	
2,900.0	4.00	330.22	2,896.2	96.9	-55.4	101.4	0.00	0.00	
3,000.0	4.00	330.22	2,995.9	102.9	-58.9	107.7	0.00	0.00	
3,100.0	4.00	330.22	3,095.7	109.0	-62.4	114.1	0.00	0.00	
3,200.0	4.00	330.22	3,195.5	115.0	-65.8	120.4	0.00	0.00	
3,300.0	4.00	330.22	3,295.2	121.1	-69.3	126.7	0.00	0.00	
3,400.0	4.00	330.22	3,395.0	127.1	-72.8	133.1	0.00	0.00	
3,500.0	4.00	330.22	3,494.7	133.2	-76.2	139.4	0.00	0.00	
3,600.0	4.00	330.22	3,594.5	139.3	-79.7	145.8	0.00	0.00	
3,700.0	4.00	330.22	3,694.2	145.3	-83.2	152.1	0.00	0.00	
3,800.0	4.00	330.22	3,794.0	151.4	-86.6	158.4	0.00	0.00	
3,900.0	4.00	330.22	3,893.8	157.4	-90.1	164.8	0.00	0.00	
4,000.0	4.00	330.22	3,993.5	163.5	-93.5	171.1	0.00	0.00	
4,100.0	4.00	330.22	4,093.3	169.5	-97.0	177.4	0.00	0.00	
4,200.0	4.00	330.22	4,193.0	175.6	-100.5	183.8	0.00	0.00	
4,300.0	4.00	330.22	4,292.8	181.6	-103.9	190.1	0.00	0.00	
4,400.0	4.00	330.22	4,392.5	187.7	-107.4	196.4	0.00	0.00	
4,500.0	4.00	330.22	4,492.3	193.7	-110.9	202.8	0.00	0.00	
4,600.0	4.00	330.22	4,592.1	199.8	-114.3	209.1	0.00	0.00	
4,700.0	4.00	330.22	4,691.8	205.9	-117.8	215.5	0.00	0.00	
4,800.0	4.00	330.22	4,791.6	211.9	-121.3	221.8	0.00	0.00	
4,900.0	4.00	330.22	4,891.3	218.0	-124.7	228.1	0.00	0.00	
5,000.0	4.00	330.22	4,991.1	224.0	-128.2	234.5	0.00	0.00	
5,100.0	4.00	330.22	5,090.8	230.1	-131.7	240.8	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #33M-2801A
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4746.2ft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4746.2ft (Original Well Elev)
Site:	S33-T10N-R58W	North Reference:	True
Well:	Razor #33M-2801A	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
5,168.0	4.00	330.22	5,158.7	234.2	-134.0	245.1	0.00	0.00	Curve KOP @ 5,168' MD
5,200.0	7.52	330.22	5,190.5	237.0	-135.6	248.0	11.00	11.00	
5,300.0	18.52	330.22	5,287.8	256.5	-146.8	268.5	11.00	11.00	
5,400.0	29.52	330.22	5,379.0	291.8	-167.0	305.4	11.00	11.00	
5,500.0	40.52	330.22	5,460.8	341.5	-195.4	357.4	11.00	11.00	
5,600.0	51.52	330.22	5,530.1	403.9	-231.1	422.7	11.00	11.00	
5,700.0	62.52	330.22	5,584.4	476.6	-272.7	498.8	11.00	11.00	
5,719.3	64.64	330.22	5,593.0	491.5	-281.3	514.5	11.01	11.01	Top Niobrara
5,800.0	73.52	330.22	5,621.8	556.9	-318.7	582.9	11.00	11.00	
5,900.0	84.52	330.22	5,640.8	642.0	-367.4	672.0	11.00	11.00	
5,949.8	90.00	330.22	5,643.2	685.2	-392.1	717.1	11.00	11.00	Start 3° Turn
6,000.0	90.00	331.73	5,643.2	729.0	-416.4	763.0	3.00	0.00	
6,100.0	90.00	334.73	5,643.2	818.3	-461.5	855.9	3.00	0.00	
6,200.0	90.00	337.73	5,643.2	909.8	-501.8	950.6	3.00	0.00	
6,300.0	90.00	340.73	5,643.2	1,003.3	-537.3	1,046.9	3.00	0.00	7" (201' FWL-1470' FSL)
6,400.0	90.00	343.73	5,643.2	1,098.5	-567.8	1,144.4	3.00	0.00	
6,500.0	90.00	346.73	5,643.2	1,195.2	-593.3	1,243.0	3.00	0.00	
6,600.0	90.00	349.73	5,643.2	1,293.1	-613.7	1,342.3	3.00	0.00	
6,700.0	90.00	352.73	5,643.2	1,391.9	-628.9	1,442.0	3.00	0.00	
6,800.0	90.00	355.73	5,643.2	1,491.4	-639.0	1,542.0	3.00	0.00	
6,900.0	90.00	358.73	5,643.2	1,591.3	-643.8	1,641.9	3.00	0.00	
6,942.5	90.00	0.00	5,643.2	1,633.7	-644.3	1,684.3	3.00	0.00	EOT; 0° Azi
7,000.0	90.00	0.00	5,643.2	1,691.3	-644.3	1,741.6	0.00	0.00	
7,100.0	90.00	0.00	5,643.2	1,791.3	-644.3	1,841.2	0.00	0.00	
7,200.0	90.00	0.00	5,643.2	1,891.3	-644.3	1,940.8	0.00	0.00	
7,300.0	90.00	0.00	5,643.2	1,991.3	-644.3	2,040.4	0.00	0.00	
7,400.0	90.00	0.00	5,643.2	2,091.3	-644.3	2,140.0	0.00	0.00	
7,500.0	90.00	0.00	5,643.2	2,191.3	-644.3	2,239.6	0.00	0.00	
7,600.0	90.00	0.00	5,643.2	2,291.3	-644.3	2,339.2	0.00	0.00	
7,700.0	90.00	0.00	5,643.2	2,391.3	-644.3	2,438.8	0.00	0.00	
7,800.0	90.00	0.00	5,643.2	2,491.3	-644.3	2,538.5	0.00	0.00	
7,900.0	90.00	0.00	5,643.2	2,591.3	-644.3	2,638.1	0.00	0.00	
8,000.0	90.00	0.00	5,643.2	2,691.3	-644.3	2,737.7	0.00	0.00	
8,100.0	90.00	0.00	5,643.2	2,791.3	-644.3	2,837.3	0.00	0.00	
8,200.0	90.00	0.00	5,643.2	2,891.3	-644.3	2,936.9	0.00	0.00	
8,300.0	90.00	0.00	5,643.1	2,991.3	-644.3	3,036.5	0.00	0.00	
8,400.0	90.00	0.00	5,643.1	3,091.3	-644.3	3,136.1	0.00	0.00	
8,500.0	90.00	0.00	5,643.1	3,191.3	-644.3	3,235.7	0.00	0.00	
8,600.0	90.00	0.00	5,643.1	3,291.3	-644.3	3,335.3	0.00	0.00	
8,700.0	90.00	0.00	5,643.1	3,391.3	-644.3	3,434.9	0.00	0.00	
8,800.0	90.00	0.00	5,643.1	3,491.3	-644.3	3,534.5	0.00	0.00	
8,900.0	90.00	0.00	5,643.1	3,591.3	-644.3	3,634.2	0.00	0.00	
9,000.0	90.00	0.00	5,643.1	3,691.3	-644.3	3,733.8	0.00	0.00	
9,100.0	90.00	0.00	5,643.1	3,791.3	-644.3	3,833.4	0.00	0.00	
9,200.0	90.00	0.00	5,643.1	3,891.3	-644.3	3,933.0	0.00	0.00	
9,300.0	90.00	0.00	5,643.1	3,991.3	-644.3	4,032.6	0.00	0.00	
9,400.0	90.00	0.00	5,643.1	4,091.3	-644.3	4,132.2	0.00	0.00	
9,500.0	90.00	0.00	5,643.1	4,191.3	-644.3	4,231.8	0.00	0.00	
9,600.0	90.00	0.00	5,643.1	4,291.3	-644.3	4,331.4	0.00	0.00	
9,700.0	90.00	0.00	5,643.1	4,391.3	-644.3	4,431.0	0.00	0.00	
9,800.0	90.00	0.00	5,643.1	4,491.3	-644.3	4,530.6	0.00	0.00	
9,900.0	90.00	0.00	5,643.1	4,591.3	-644.3	4,630.2	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #33M-2801A
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4746.2ft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4746.2ft (Original Well Elev)
Site:	S33-T10N-R58W	North Reference:	True
Well:	Razor #33M-2801A	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
10,000.0	90.00	0.00	5,643.1	4,691.3	-644.3	4,729.9	0.00	0.00	
10,100.0	90.00	0.00	5,643.1	4,791.3	-644.3	4,829.5	0.00	0.00	
10,200.0	90.00	0.00	5,643.1	4,891.3	-644.3	4,929.1	0.00	0.00	
10,300.0	90.00	0.00	5,643.1	4,991.3	-644.3	5,028.7	0.00	0.00	
10,400.0	90.00	0.00	5,643.1	5,091.3	-644.3	5,128.3	0.00	0.00	
10,500.0	90.00	0.00	5,643.1	5,191.3	-644.3	5,227.9	0.00	0.00	
10,569.7	90.00	0.00	5,643.1	5,261.0	-644.3	5,297.3	0.00	0.00	Enter 1550' Offset Radius
10,600.0	90.00	0.00	5,643.1	5,291.3	-644.3	5,327.5	0.00	0.00	
10,700.0	90.00	0.00	5,643.1	5,391.3	-644.3	5,427.1	0.00	0.00	
10,800.0	90.00	0.00	5,643.1	5,491.3	-644.3	5,526.7	0.00	0.00	
10,900.0	90.00	0.00	5,643.1	5,591.3	-644.3	5,626.3	0.00	0.00	
11,000.0	90.00	0.00	5,643.1	5,691.3	-644.3	5,725.9	0.00	0.00	
11,100.0	90.00	0.00	5,643.1	5,791.3	-644.3	5,825.6	0.00	0.00	
11,200.0	90.00	0.00	5,643.1	5,891.3	-644.3	5,925.2	0.00	0.00	
11,300.0	90.00	0.00	5,643.1	5,991.3	-644.3	6,024.8	0.00	0.00	
11,400.0	90.00	0.00	5,643.0	6,091.3	-644.3	6,124.4	0.00	0.00	
11,500.0	90.00	0.00	5,643.0	6,191.3	-644.3	6,224.0	0.00	0.00	
11,600.0	90.00	0.00	5,643.0	6,291.3	-644.3	6,323.6	0.00	0.00	
11,700.0	90.00	0.00	5,643.0	6,391.3	-644.3	6,423.2	0.00	0.00	
11,800.0	90.00	0.00	5,643.0	6,491.3	-644.3	6,522.8	0.00	0.00	
11,900.0	90.00	0.00	5,643.0	6,591.3	-644.3	6,622.4	0.00	0.00	
12,000.0	90.00	0.00	5,643.0	6,691.3	-644.3	6,722.0	0.00	0.00	
12,100.0	90.00	0.00	5,643.0	6,791.3	-644.3	6,821.6	0.00	0.00	
12,200.0	90.00	0.00	5,643.0	6,891.3	-644.3	6,921.2	0.00	0.00	
12,300.0	90.00	0.00	5,643.0	6,991.3	-644.3	7,020.9	0.00	0.00	
12,400.0	90.00	0.00	5,643.0	7,091.3	-644.3	7,120.5	0.00	0.00	
12,500.0	90.00	0.00	5,643.0	7,191.3	-644.3	7,220.1	0.00	0.00	
12,570.4	90.00	0.00	5,643.0	7,261.6	-644.3	7,290.2	0.00	0.00	PBHL @ 12,570' MD

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
33M-2801A PBHL(158' F - hit/miss target - Shape - Point	0.00	1.05	5,643.0	7,261.6	-704.3	1,541,711.46	3,448,643.40	40.809117	-103.879286
- plan misses target center by 60.0ft at 12570.4ft MD (5643.0 TVD, 7261.6 N, -644.3 E)									
33M-2801A PBHL 2(218 - plan hits target center - Point	0.00	1.05	5,643.0	7,261.6	-644.3	1,541,712.55	3,448,703.34	40.809117	-103.879069

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,300.0	5,643.2	7" (201' FWL-1470' FSL)	7.000	7.500	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #33M-2801A
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4746.2ft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4746.2ft (Original Well Elev)
Site:	S33-T10N-R58W	North Reference:	True
Well:	Razor #33M-2801A	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
5,719.3	5,593.0	Top Niobrara		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,200.0	1,200.0	0.0	0.0	KOP @ 1,200' MD	
1,400.0	1,399.8	6.1	-3.5	EOB; 4° Inc	
5,168.0	5,158.7	234.2	-134.0	Curve KOP @ 5,168' MD	
5,949.8	5,643.2	685.2	-392.1	Start 3° Turn	
6,942.5	5,643.2	1,633.7	-644.3	EOT; 0° Azi	
10,569.7	5,643.1	5,261.0	-644.3	Enter 1550' Offset Radius	
12,570.4	5,643.0	7,261.6	-644.3	PBHL @ 12,570' MD	

Whiting Petroleum Corporation

Weld County, CO

S33-T10N-R58W

Razor #33M-2801A

HZ

Plan #2

Anticollision Report

27 November, 2013

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #33M-2801A
Project:	Weld County, CO	TVD Reference:	WELL @ 4746.2ft (Original Well Elev)
Reference Site:	S33-T10N-R58W	MD Reference:	WELL @ 4746.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #33M-2801A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Reference	Plan #2		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	11/22/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	12,570.1	Plan #2 (HZ)	ISCWSA MWD	MWD - ISCWSA	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S33-T10N-R58W						
Razor #33M-2803A - HZ - Plan #1	1,304.2	1,304.7	29.1	23.5	5.194	CC
Razor #33M-2803A - HZ - Plan #1	12,570.4	12,478.6	279.8	3.4	1.012	Level 2, ES, SF
Razor #33M-2804B - HZ - Plan #1	1,000.0	1,000.0	60.1	55.9	14.196	CC
Razor #33M-2804B - HZ - Plan #1	1,100.0	1,099.5	60.5	55.8	12.928	ES
Razor #33M-2804B - HZ - Plan #1	12,570.4	12,523.1	942.6	667.7	3.429	SF
Razor #33M-2813H(EXISTING) - EXISTING - EXISTING	1,581.0	1,580.9	19.9	13.3	3.015	CC, ES
Razor #33M-2813H(EXISTING) - EXISTING - EXISTING	12,000.0	12,149.1	563.6	317.3	2.288	SF

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #33M-2801A
Project:	Weld County, CO	TVD Reference:	WELL @ 4746.2ft (Original Well Elev)
Reference Site:	S33-T10N-R58W	MD Reference:	WELL @ 4746.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #33M-2801A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S33-T10N-R58W - Razor #33M-2803A - HZ - Plan #1														Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance					Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
0.0	0.0	0.0	0.0	0.0	0.0	90.01	0.0	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	161.403			
200.0	200.0	200.0	200.0	0.3	0.3	90.01	0.0	30.2	30.2	29.5	0.64	47.418			
300.0	300.0	300.0	300.0	0.5	0.5	90.01	0.0	30.2	30.2	29.1	1.09	27.791			
400.0	400.0	400.0	400.0	0.8	0.8	90.01	0.0	30.2	30.2	28.6	1.54	19.656			
500.0	500.0	500.0	500.0	1.0	1.0	90.01	0.0	30.2	30.2	28.2	1.99	15.205			
600.0	600.0	600.0	600.0	1.2	1.2	90.01	0.0	30.2	30.2	27.7	2.43	12.397			
700.0	700.0	700.0	700.0	1.4	1.4	90.01	0.0	30.2	30.2	27.3	2.88	10.465			
800.0	800.0	800.0	800.0	1.7	1.7	90.01	0.0	30.2	30.2	26.8	3.33	9.054			
900.0	900.0	900.0	900.0	1.9	1.9	90.01	0.0	30.2	30.2	26.4	3.78	7.978			
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	90.01	0.0	30.2	30.2	26.0	4.23	7.131			
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	90.01	0.0	30.2	30.2	25.5	4.68	6.446			
1,200.0	1,200.0	1,200.3	1,200.3	2.6	2.6	86.83	1.6	29.6	29.6	24.5	5.13	5.772			
1,300.0	1,300.0	1,300.5	1,300.3	2.8	2.8	109.77	6.6	27.8	29.1	23.5	5.58	5.211			
1,304.2	1,304.2	1,304.7	1,304.5	2.8	2.8	109.48	6.8	27.6	29.1	23.5	5.59	5.194 CC			
1,400.0	1,399.8	1,400.5	1,400.1	3.0	3.0	106.01	13.1	25.3	29.6	23.6	6.03	4.920			
1,500.0	1,499.6	1,500.5	1,499.8	3.2	3.3	105.59	19.7	22.9	30.8	24.3	6.48	4.748			
1,600.0	1,599.4	1,600.5	1,599.6	3.5	3.5	105.20	26.2	20.5	31.9	25.0	6.95	4.593			
1,700.0	1,699.1	1,700.5	1,699.3	3.7	3.7	104.84	32.7	18.1	33.0	25.6	7.42	4.454			
1,800.0	1,798.9	1,800.5	1,799.1	3.9	4.0	104.50	39.3	15.7	34.2	26.3	7.90	4.329			
1,900.0	1,898.6	1,900.5	1,898.8	4.2	4.2	104.18	45.8	13.2	35.3	26.9	8.38	4.216			
2,000.0	1,998.4	2,000.4	1,998.6	4.4	4.5	103.88	52.4	10.8	36.5	27.6	8.86	4.114			
2,100.0	2,098.1	2,100.4	2,098.3	4.7	4.7	103.60	58.9	8.4	37.6	28.2	9.35	4.021			
2,200.0	2,197.9	2,200.4	2,198.1	4.9	4.9	103.34	65.4	6.0	38.7	28.9	9.84	3.936			
2,300.0	2,297.6	2,300.4	2,297.8	5.2	5.2	103.09	72.0	3.6	39.9	29.5	10.33	3.859			
2,400.0	2,397.4	2,400.4	2,397.6	5.4	5.4	102.86	78.5	1.1	41.0	30.2	10.83	3.788			
2,500.0	2,497.2	2,500.4	2,497.3	5.7	5.7	102.64	85.1	-1.3	42.2	30.8	11.32	3.723			
2,600.0	2,596.9	2,600.4	2,597.1	5.9	5.9	102.43	91.6	-3.7	43.3	31.5	11.82	3.662			
2,700.0	2,696.7	2,700.4	2,696.8	6.2	6.2	102.23	98.2	-6.1	44.4	32.1	12.32	3.607			
2,800.0	2,796.4	2,800.4	2,796.6	6.4	6.4	102.04	104.7	-8.5	45.6	32.8	12.82	3.555			
2,900.0	2,896.2	2,900.4	2,896.3	6.7	6.7	101.86	111.2	-11.0	46.7	33.4	13.32	3.507			
3,000.0	2,995.9	3,000.4	2,996.1	6.9	6.9	101.69	117.8	-13.4	47.9	34.0	13.83	3.462			
3,100.0	3,095.7	3,100.4	3,095.8	7.2	7.2	101.52	124.3	-15.8	49.0	34.7	14.33	3.421			
3,200.0	3,195.5	3,200.4	3,195.6	7.4	7.5	101.37	130.9	-18.2	50.2	35.3	14.83	3.382			
3,300.0	3,295.2	3,300.4	3,295.3	7.7	7.7	101.22	137.4	-20.6	51.3	36.0	15.34	3.345			
3,400.0	3,395.0	3,400.4	3,395.1	7.9	8.0	101.08	144.0	-23.1	52.5	36.6	15.84	3.311			
3,500.0	3,494.7	3,500.3	3,494.8	8.2	8.2	100.94	150.5	-25.5	53.6	37.2	16.35	3.278			
3,600.0	3,594.5	3,600.3	3,594.6	8.4	8.5	100.81	157.0	-27.9	54.7	37.9	16.86	3.248			
3,700.0	3,694.2	3,700.3	3,694.3	8.7	8.7	100.68	163.6	-30.3	55.9	38.5	17.36	3.219			
3,800.0	3,794.0	3,800.3	3,794.1	8.9	9.0	100.56	170.1	-32.7	57.0	39.2	17.87	3.192			
3,900.0	3,893.8	3,900.3	3,893.8	9.2	9.2	100.45	176.7	-35.2	58.2	39.8	18.38	3.166			
4,000.0	3,993.5	4,000.3	3,993.6	9.4	9.5	100.34	183.2	-37.6	59.3	40.4	18.89	3.141			
4,100.0	4,093.3	4,100.3	4,093.3	9.7	9.7	100.23	189.7	-40.0	60.5	41.1	19.40	3.118			
4,200.0	4,193.0	4,200.3	4,193.1	10.0	10.0	100.13	196.3	-42.4	61.6	41.7	19.90	3.096			
4,300.0	4,292.8	4,300.3	4,292.8	10.2	10.2	100.03	202.8	-44.8	62.8	42.4	20.41	3.075			
4,400.0	4,392.5	4,400.3	4,392.6	10.5	10.5	99.93	209.4	-47.3	63.9	43.0	20.92	3.055			
4,500.0	4,492.3	4,500.3	4,492.3	10.7	10.8	99.84	215.9	-49.7	65.1	43.6	21.43	3.036			
4,600.0	4,592.1	4,600.3	4,592.1	11.0	11.0	99.75	222.5	-52.1	66.2	44.3	21.94	3.018			
4,700.0	4,691.8	4,700.3	4,691.8	11.2	11.3	99.67	229.0	-54.5	67.4	44.9	22.45	3.001			
4,800.0	4,791.6	4,800.3	4,791.6	11.5	11.5	99.58	235.5	-56.9	68.5	45.6	22.96	2.984			
4,900.0	4,891.3	4,900.3	4,891.3	11.7	11.8	99.50	242.1	-59.4	69.7	46.2	23.47	2.968			
5,000.0	4,991.1	5,000.3	4,991.1	12.0	12.0	99.43	248.6	-61.8	70.8	46.8	23.98	2.953			

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 #33M-2801A
Project:	Weld County, CO	TVD Reference:	WELL @ 4746.2ft (Original Well Elev)
Reference Site:	S33-T10N-R58W	MD Reference:	WELL @ 4746.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #33M-2801A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S33-T10N-R58W - Razor #33M-2803A - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis			
5,100.0	5,090.8	5,100.2	5,090.8	12.3	12.3	99.35	255.2	-64.2	72.0	47.5	24.49	2.938		
5,168.0	5,158.7	5,168.2	5,158.7	12.4	12.5	99.30	259.6	-65.9	72.7	47.9	24.84	2.928		
5,200.0	5,190.5	5,200.2	5,190.5	12.5	12.6	99.20	262.6	-67.0	73.3	48.3	25.02	2.929		
5,250.0	5,239.7	5,250.2	5,239.6	12.7	12.7	98.94	271.0	-70.1	74.7	49.4	25.35	2.949		
5,300.0	5,287.8	5,300.1	5,287.6	12.9	12.9	98.56	283.7	-74.8	77.0	51.2	25.74	2.990		
5,350.0	5,334.4	5,349.9	5,334.0	13.1	13.2	98.09	300.7	-81.0	80.0	53.8	26.22	3.051		
5,400.0	5,379.0	5,399.7	5,378.5	13.4	13.4	97.53	321.7	-88.8	83.7	56.9	26.77	3.126		
5,450.0	5,421.2	5,449.4	5,420.5	13.7	13.8	96.91	346.5	-98.0	88.1	60.7	27.41	3.213		
5,500.0	5,460.8	5,499.0	5,459.7	14.1	14.1	96.25	374.9	-108.5	93.1	65.0	28.15	3.308		
5,550.0	5,497.1	5,548.5	5,495.8	14.5	14.6	95.56	406.7	-120.3	98.8	69.8	28.99	3.407		
5,600.0	5,530.1	5,597.9	5,528.5	15.0	15.0	94.84	441.4	-133.1	105.0	75.0	29.94	3.506		
5,650.0	5,559.3	5,647.3	5,557.5	15.6	15.5	94.12	478.9	-147.0	111.6	80.6	31.00	3.601		
5,700.0	5,584.4	5,696.6	5,582.6	16.2	16.1	93.39	518.7	-161.7	118.8	86.6	32.17	3.692		
5,750.0	5,605.3	5,745.8	5,603.5	16.8	16.7	92.67	560.5	-177.1	126.2	92.8	33.44	3.775		
5,800.0	5,621.8	5,795.0	5,620.1	17.5	17.4	91.95	603.9	-193.2	134.0	99.2	34.80	3.850		
5,850.0	5,633.7	5,844.3	5,632.3	18.3	18.1	91.25	648.6	-209.7	142.0	105.7	36.24	3.918		
5,900.0	5,640.8	5,893.5	5,639.9	19.0	18.8	90.56	694.2	-226.6	150.1	112.4	37.75	3.977		
5,949.8	5,643.2	5,942.5	5,642.9	19.8	19.6	89.89	740.1	-243.6	158.3	119.0	39.31	4.028		
6,000.0	5,643.2	5,988.8	5,643.0	20.6	20.3	89.91	783.6	-259.3	166.4	125.6	40.81	4.077		
6,100.0	5,643.2	6,079.3	5,643.0	22.2	21.6	89.92	869.8	-286.9	182.0	138.3	43.70	4.165		
6,200.0	5,643.2	6,169.2	5,643.0	23.8	23.0	89.93	956.6	-310.3	197.2	150.5	46.63	4.228		
6,300.0	5,643.2	6,258.5	5,643.0	25.5	24.3	89.93	1,043.9	-329.4	211.8	162.2	49.56	4.273		
6,400.0	5,643.2	6,347.4	5,643.0	27.1	25.7	89.94	1,131.4	-344.4	225.8	173.3	52.46	4.305		
6,500.0	5,643.2	6,435.7	5,643.0	28.8	27.1	89.94	1,219.1	-355.2	239.2	184.0	55.28	4.328		
6,600.0	5,643.2	6,523.6	5,643.0	30.5	28.5	89.94	1,306.7	-362.0	252.1	194.1	58.01	4.346		
6,700.0	5,643.2	6,611.0	5,643.0	32.1	29.9	89.95	1,394.1	-364.7	264.3	203.6	60.62	4.359		
6,800.0	5,643.2	6,708.3	5,643.0	33.7	31.5	89.95	1,491.4	-364.7	274.3	211.0	63.28	4.334		
6,900.0	5,643.2	6,808.2	5,643.0	35.3	33.1	89.95	1,591.3	-364.7	279.1	213.2	65.87	4.237		
6,942.5	5,643.2	6,850.7	5,643.0	36.0	33.8	89.95	1,633.7	-364.7	279.6	212.6	66.93	4.177		
7,000.0	5,643.2	6,908.2	5,643.0	36.9	34.8	89.95	1,691.3	-364.7	279.6	210.7	68.88	4.059		
7,100.0	5,643.2	7,008.2	5,643.0	38.5	36.5	89.95	1,791.3	-364.7	279.6	207.3	72.29	3.867		
7,200.0	5,643.2	7,108.2	5,643.0	40.1	38.2	89.95	1,891.3	-364.7	279.6	203.8	75.75	3.691		
7,300.0	5,643.2	7,208.2	5,643.0	41.8	40.0	89.96	1,991.3	-364.7	279.6	200.3	79.24	3.528		
7,400.0	5,643.2	7,308.2	5,643.0	43.4	41.7	89.96	2,091.3	-364.7	279.6	196.8	82.76	3.378		
7,500.0	5,643.2	7,408.2	5,643.0	45.1	43.5	89.96	2,191.3	-364.7	279.6	193.3	86.30	3.240		
7,600.0	5,643.2	7,508.2	5,643.0	46.8	45.3	89.96	2,291.3	-364.7	279.6	189.7	89.88	3.111		
7,700.0	5,643.2	7,608.2	5,643.0	48.5	47.1	89.96	2,391.3	-364.7	279.6	186.1	93.47	2.991		
7,800.0	5,643.2	7,708.2	5,643.0	50.3	48.9	89.96	2,491.3	-364.7	279.6	182.5	97.08	2.880		
7,900.0	5,643.2	7,808.2	5,643.0	52.0	50.7	89.96	2,591.3	-364.7	279.6	178.9	100.71	2.776		
8,000.0	5,643.2	7,908.2	5,643.0	53.8	52.5	89.96	2,691.3	-364.7	279.6	175.3	104.35	2.679		
8,100.0	5,643.2	8,008.2	5,643.0	55.5	54.3	89.96	2,791.3	-364.7	279.6	171.6	108.01	2.589		
8,200.0	5,643.2	8,108.2	5,643.0	57.3	56.2	89.96	2,891.3	-364.7	279.6	167.9	111.68	2.504		
8,300.0	5,643.1	8,208.2	5,643.0	59.1	58.0	89.96	2,991.3	-364.7	279.6	164.3	115.36	2.424		
8,400.0	5,643.1	8,308.2	5,643.0	60.9	59.8	89.96	3,091.3	-364.7	279.6	160.6	119.05	2.349		
8,500.0	5,643.1	8,408.2	5,643.0	62.7	61.7	89.97	3,191.3	-364.7	279.6	156.9	122.75	2.278		
8,600.0	5,643.1	8,508.2	5,643.0	64.5	63.5	89.97	3,291.3	-364.7	279.6	153.2	126.46	2.211		
8,700.0	5,643.1	8,608.2	5,643.0	66.3	65.4	89.97	3,391.3	-364.7	279.6	149.5	130.18	2.148		
8,800.0	5,643.1	8,708.2	5,643.0	68.1	67.3	89.97	3,491.3	-364.7	279.6	145.7	133.90	2.088		
8,900.0	5,643.1	8,808.2	5,643.0	70.0	69.1	89.97	3,591.3	-364.7	279.6	142.0	137.63	2.032		
9,000.0	5,643.1	8,908.2	5,643.0	71.8	71.0	89.97	3,691.3	-364.7	279.6	138.3	141.37	1.978		
9,100.0	5,643.1	9,008.2	5,643.0	73.6	72.9	89.97	3,791.3	-364.7	279.6	134.5	145.11	1.927		
9,200.0	5,643.1	9,108.2	5,643.0	75.5	74.7	89.97	3,891.3	-364.6	279.7	130.8	148.86	1.879		

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 #33M-2801A
Project:	Weld County, CO	TVD Reference:	WELL @ 4746.2ft (Original Well Elev)
Reference Site:	S33-T10N-R58W	MD Reference:	WELL @ 4746.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #33M-2801A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S33-T10N-R58W - Razor #33M-2803A - HZ - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
9,300.0	5,643.1	9,208.2	5,643.0	77.3	76.6	89.97	3,991.3	-364.6	279.7	127.0	152.61	1.833		
9,400.0	5,643.1	9,308.2	5,643.0	79.2	78.5	89.97	4,091.3	-364.6	279.7	123.3	156.36	1.789		
9,500.0	5,643.1	9,408.2	5,643.0	81.0	80.3	89.97	4,191.3	-364.6	279.7	119.5	160.12	1.747		
9,600.0	5,643.1	9,508.2	5,643.0	82.9	82.2	89.97	4,291.3	-364.6	279.7	115.8	163.89	1.706		
9,700.0	5,643.1	9,608.2	5,643.0	84.7	84.1	89.98	4,391.3	-364.6	279.7	112.0	167.65	1.668		
9,800.0	5,643.1	9,708.2	5,643.0	86.6	86.0	89.98	4,491.3	-364.6	279.7	108.3	171.42	1.631		
9,900.0	5,643.1	9,808.2	5,643.0	88.5	87.9	89.98	4,591.3	-364.6	279.7	104.5	175.20	1.596		
10,000.0	5,643.1	9,908.2	5,643.0	90.3	89.8	89.98	4,691.3	-364.6	279.7	100.7	178.97	1.563		
10,100.0	5,643.1	10,008.2	5,643.0	92.2	91.7	89.98	4,791.3	-364.6	279.7	96.9	182.75	1.530		
10,200.0	5,643.1	10,108.2	5,643.0	94.1	93.5	89.98	4,891.3	-364.6	279.7	93.2	186.53	1.499 Level 3		
10,300.0	5,643.1	10,208.2	5,643.0	95.9	95.4	89.98	4,991.3	-364.6	279.7	89.4	190.32	1.470 Level 3		
10,400.0	5,643.1	10,308.2	5,643.0	97.8	97.3	89.98	5,091.3	-364.6	279.7	85.6	194.10	1.441 Level 3		
10,500.0	5,643.1	10,408.2	5,643.0	99.7	99.2	89.98	5,191.3	-364.6	279.7	81.8	197.89	1.413 Level 3		
10,600.0	5,643.1	10,508.2	5,643.0	101.6	101.1	89.98	5,291.3	-364.6	279.7	78.0	201.68	1.387 Level 3		
10,700.0	5,643.1	10,608.2	5,643.0	103.4	103.0	89.98	5,391.3	-364.6	279.7	74.2	205.47	1.361 Level 3		
10,800.0	5,643.1	10,708.2	5,643.0	105.3	104.9	89.99	5,491.3	-364.6	279.7	70.4	209.27	1.337 Level 3		
10,900.0	5,643.1	10,808.2	5,643.0	107.2	106.8	89.99	5,591.3	-364.6	279.7	66.7	213.06	1.313 Level 3		
11,000.0	5,643.1	10,908.2	5,643.0	109.1	108.7	89.99	5,691.3	-364.6	279.7	62.9	216.86	1.290 Level 3		
11,100.0	5,643.1	11,008.2	5,643.0	111.0	110.6	89.99	5,791.3	-364.6	279.7	59.1	220.66	1.268 Level 3		
11,200.0	5,643.1	11,108.2	5,643.0	112.8	112.5	89.99	5,891.3	-364.6	279.7	55.3	224.46	1.246 Level 2		
11,300.0	5,643.1	11,208.2	5,643.0	114.7	114.4	89.99	5,991.3	-364.6	279.7	51.5	228.26	1.225 Level 2		
11,400.0	5,643.0	11,308.2	5,643.0	116.6	116.3	89.99	6,091.3	-364.6	279.7	47.7	232.06	1.205 Level 2		
11,500.0	5,643.0	11,408.2	5,643.0	118.5	118.2	89.99	6,191.3	-364.6	279.7	43.9	235.87	1.186 Level 2		
11,600.0	5,643.0	11,508.2	5,643.0	120.4	120.1	89.99	6,291.3	-364.6	279.7	40.1	239.67	1.167 Level 2		
11,700.0	5,643.0	11,608.2	5,643.0	122.3	122.0	89.99	6,391.3	-364.6	279.7	36.3	243.48	1.149 Level 2		
11,800.0	5,643.0	11,708.2	5,643.0	124.2	123.9	89.99	6,491.3	-364.6	279.7	32.5	247.28	1.131 Level 2		
11,900.0	5,643.0	11,808.2	5,643.0	126.1	125.8	89.99	6,591.3	-364.6	279.8	28.7	251.09	1.114 Level 2		
12,000.0	5,643.0	11,908.2	5,643.0	128.0	127.7	90.00	6,691.3	-364.5	279.8	24.9	254.90	1.097 Level 2		
12,100.0	5,643.0	12,008.2	5,643.0	129.9	129.6	90.00	6,791.3	-364.5	279.8	21.0	258.71	1.081 Level 2		
12,200.0	5,643.0	12,108.2	5,643.0	131.8	131.5	90.00	6,891.3	-364.5	279.8	17.2	262.52	1.066 Level 2		
12,300.0	5,643.0	12,208.2	5,643.0	133.7	133.4	90.00	6,991.3	-364.5	279.8	13.4	266.34	1.050 Level 2		
12,400.0	5,643.0	12,308.2	5,643.0	135.5	135.3	90.00	7,091.3	-364.5	279.8	9.6	270.15	1.036 Level 2		
12,500.0	5,643.0	12,408.2	5,643.0	137.4	137.2	90.00	7,191.3	-364.5	279.8	5.8	273.96	1.021 Level 2		
12,570.4	5,643.0	12,478.6	5,643.0	138.5	138.6	90.00	7,261.6	-364.5	279.8	3.4	276.40	1.012 Level 2, ES, SF		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #33M-2801A
Project:	Weld County, CO	TVD Reference:	WELL @ 4746.2ft (Original Well Elev)
Reference Site:	S33-T10N-R58W	MD Reference:	WELL @ 4746.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #33M-2801A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S33-T10N-R58W - Razor #33M-2804B - HZ - Plan #1														Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	90.01	0.0	60.1	60.1						
100.0	100.0	100.0	100.0	0.1	0.1	90.01	0.0	60.1	60.1	59.9	0.19	321.326			
200.0	200.0	200.0	200.0	0.3	0.3	90.01	0.0	60.1	60.1	59.5	0.64	94.401			
300.0	300.0	300.0	300.0	0.5	0.5	90.01	0.0	60.1	60.1	59.0	1.09	55.328			
400.0	400.0	400.0	400.0	0.8	0.8	90.01	0.0	60.1	60.1	58.6	1.54	39.131			
500.0	500.0	500.0	500.0	1.0	1.0	90.01	0.0	60.1	60.1	58.1	1.99	30.270			
600.0	600.0	600.0	600.0	1.2	1.2	90.01	0.0	60.1	60.1	57.7	2.43	24.681			
700.0	700.0	700.0	700.0	1.4	1.4	90.01	0.0	60.1	60.1	57.2	2.88	20.834			
800.0	800.0	800.0	800.0	1.7	1.7	90.01	0.0	60.1	60.1	56.8	3.33	18.025			
900.0	900.0	900.0	900.0	1.9	1.9	90.01	0.0	60.1	60.1	56.3	3.78	15.883			
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	90.01	0.0	60.1	60.1	55.9	4.23	14.196 CC			
1,100.0	1,100.0	1,099.5	1,099.5	2.3	2.3	88.42	1.7	60.5	60.5	55.8	4.68	12.928 ES			
1,200.0	1,200.0	1,198.7	1,198.6	2.6	2.6	83.80	6.7	61.6	62.0	56.9	5.13	12.099			
1,300.0	1,300.0	1,298.6	1,298.2	2.8	2.8	109.14	13.5	63.2	65.2	59.6	5.58	11.697			
1,400.0	1,399.8	1,398.4	1,397.8	3.0	3.0	107.87	20.3	64.8	69.8	63.7	6.03	11.574			
1,500.0	1,499.6	1,498.3	1,497.4	3.2	3.3	108.11	27.1	66.4	74.8	68.4	6.49	11.539			
1,600.0	1,599.4	1,598.2	1,597.0	3.5	3.5	108.32	33.8	68.0	79.9	73.0	6.95	11.499			
1,700.0	1,699.1	1,698.0	1,696.7	3.7	3.7	108.50	40.6	69.5	85.0	77.6	7.42	11.456			
1,800.0	1,798.9	1,797.9	1,796.3	3.9	4.0	108.66	47.4	71.1	90.1	82.2	7.90	11.412			
1,900.0	1,898.6	1,897.8	1,895.9	4.2	4.2	108.81	54.2	72.7	95.2	86.8	8.38	11.368			
2,000.0	1,998.4	1,997.7	1,995.6	4.4	4.5	108.94	61.0	74.3	100.3	91.4	8.86	11.325			
2,100.0	2,098.1	2,097.5	2,095.2	4.7	4.7	109.06	67.8	75.8	105.4	96.0	9.34	11.283			
2,200.0	2,197.9	2,197.4	2,194.8	4.9	5.0	109.16	74.6	77.4	110.5	100.7	9.83	11.243			
2,300.0	2,297.6	2,297.3	2,294.4	5.2	5.2	109.26	81.3	79.0	115.6	105.3	10.31	11.205			
2,400.0	2,397.4	2,397.1	2,394.1	5.4	5.5	109.35	88.1	80.6	120.7	109.9	10.80	11.168			
2,500.0	2,497.2	2,497.0	2,493.7	5.7	5.7	109.43	94.9	82.1	125.8	114.5	11.30	11.134			
2,600.0	2,596.9	2,596.9	2,593.3	5.9	6.0	109.51	101.7	83.7	130.8	119.1	11.79	11.101			
2,700.0	2,696.7	2,696.8	2,692.9	6.2	6.2	109.58	108.5	85.3	135.9	123.7	12.28	11.070			
2,800.0	2,796.4	2,796.6	2,792.6	6.4	6.5	109.64	115.3	86.9	141.0	128.3	12.77	11.040			
2,900.0	2,896.2	2,896.5	2,892.2	6.7	6.7	109.71	122.1	88.5	146.1	132.9	13.27	11.012			
3,000.0	2,995.9	2,996.4	2,991.8	6.9	7.0	109.76	128.8	90.0	151.2	137.5	13.77	10.985			
3,100.0	3,095.7	3,096.2	3,091.5	7.2	7.2	109.81	135.6	91.6	156.3	142.1	14.26	10.960			
3,200.0	3,195.5	3,196.1	3,191.1	7.4	7.5	109.86	142.4	93.2	161.4	146.6	14.76	10.936			
3,300.0	3,295.2	3,296.0	3,290.7	7.7	7.7	109.91	149.2	94.8	166.5	151.2	15.26	10.913			
3,400.0	3,395.0	3,395.8	3,390.3	7.9	8.0	109.95	156.0	96.3	171.6	155.8	15.76	10.891			
3,500.0	3,494.7	3,495.7	3,490.0	8.2	8.2	110.00	162.8	97.9	176.7	160.4	16.25	10.871			
3,600.0	3,594.5	3,595.6	3,589.6	8.4	8.5	110.03	169.6	99.5	181.8	165.0	16.75	10.851			
3,700.0	3,694.2	3,695.5	3,689.2	8.7	8.7	110.07	176.3	101.1	186.9	169.6	17.25	10.832			
3,800.0	3,794.0	3,795.3	3,788.8	8.9	9.0	110.11	183.1	102.6	192.0	174.2	17.75	10.814			
3,900.0	3,893.8	3,895.2	3,888.5	9.2	9.2	110.14	189.9	104.2	197.1	178.8	18.25	10.797			
4,000.0	3,993.5	3,995.1	3,988.1	9.4	9.5	110.17	196.7	105.8	202.2	183.4	18.75	10.780			
4,100.0	4,093.3	4,094.9	4,087.7	9.7	9.8	110.20	203.5	107.4	207.3	188.0	19.25	10.765			
4,200.0	4,193.0	4,194.8	4,187.3	10.0	10.0	110.23	210.3	108.9	212.4	192.6	19.75	10.750			
4,300.0	4,292.8	4,294.7	4,287.0	10.2	10.3	110.26	217.1	110.5	217.4	197.2	20.26	10.735			
4,400.0	4,392.5	4,394.5	4,386.6	10.5	10.5	110.28	223.8	112.1	222.5	201.8	20.76	10.721			
4,500.0	4,492.3	4,494.4	4,486.2	10.7	10.8	110.31	230.6	113.7	227.6	206.4	21.26	10.708			
4,600.0	4,592.1	4,594.3	4,585.9	11.0	11.0	110.33	237.4	115.3	232.7	211.0	21.76	10.695			
4,700.0	4,691.8	4,694.2	4,685.5	11.2	11.3	110.35	244.2	116.8	237.8	215.6	22.26	10.683			
4,800.0	4,791.6	4,794.0	4,785.1	11.5	11.5	110.37	251.0	118.4	242.9	220.2	22.76	10.671			
4,900.0	4,891.3	4,893.9	4,884.7	11.7	11.8	110.39	257.8	120.0	248.0	224.7	23.27	10.660			
5,000.0	4,991.1	4,993.8	4,984.4	12.0	12.0	110.41	264.6	121.6	253.1	229.3	23.77	10.649			
5,100.0	5,090.8	5,093.6	5,084.0	12.3	12.3	110.43	271.3	123.1	258.2	233.9	24.27	10.639			

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 #33M-2801A
Project:	Weld County, CO	TVD Reference:	WELL @ 4746.2ft (Original Well Elev)
Reference Site:	S33-T10N-R58W	MD Reference:	WELL @ 4746.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #33M-2801A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S33-T10N-R58W - Razor #33M-2804B - HZ - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,168.0	5,158.7	5,161.6	5,151.7	12.4	12.5	110.45	276.0	124.2	261.7	237.1	24.61	10.632		
5,200.0	5,190.5	5,193.5	5,183.6	12.5	12.5	110.45	278.1	124.7	263.6	238.9	24.76	10.647		
5,250.0	5,239.7	5,243.0	5,233.0	12.7	12.7	111.08	281.5	125.5	268.1	243.2	24.99	10.729		
5,300.0	5,287.8	5,287.7	5,277.6	12.9	12.8	112.08	285.0	126.3	274.8	249.6	25.21	10.899		
5,350.0	5,334.4	5,328.9	5,318.3	13.1	12.9	112.74	291.1	127.7	284.6	259.2	25.44	11.189		
5,400.0	5,379.0	5,369.8	5,358.0	13.4	13.1	113.07	300.3	129.9	297.7	272.0	25.68	11.590		
5,450.0	5,421.2	5,410.2	5,396.5	13.7	13.3	113.05	312.2	132.6	313.9	287.9	25.98	12.083		
5,500.0	5,460.8	5,450.0	5,433.4	14.1	13.5	112.65	326.9	136.0	332.9	306.6	26.33	12.643		
5,550.0	5,497.1	5,488.9	5,468.2	14.5	13.7	111.86	343.8	140.0	354.7	327.9	26.78	13.242		
5,600.0	5,530.1	5,527.2	5,501.0	15.0	13.9	110.71	362.8	144.4	378.8	351.5	27.35	13.853		
5,650.0	5,559.3	5,564.6	5,531.7	15.6	14.2	109.18	383.6	149.2	405.2	377.2	28.04	14.451		
5,700.0	5,584.4	5,600.0	5,559.3	16.2	14.4	107.25	405.3	154.3	433.6	404.7	28.87	15.018		
5,750.0	5,605.3	5,636.9	5,586.3	16.8	14.7	105.09	429.8	159.9	463.7	433.8	29.84	15.537		
5,800.0	5,621.8	5,672.0	5,610.3	17.5	15.1	102.57	454.7	165.7	495.2	464.3	30.92	16.014		
5,850.0	5,633.7	5,706.5	5,632.2	18.3	15.4	99.77	480.7	171.8	528.0	495.9	32.08	16.457		
5,900.0	5,640.8	5,740.5	5,652.0	19.0	15.7	96.75	507.6	178.0	561.8	528.5	33.29	16.876		
5,949.8	5,643.2	5,774.2	5,669.7	19.8	16.1	93.56	535.5	184.5	596.3	561.8	34.50	17.286		
6,000.0	5,643.2	5,809.7	5,686.4	20.6	16.5	95.39	566.1	191.6	631.0	595.5	35.52	17.766		
6,100.0	5,643.2	5,890.9	5,716.3	22.2	17.5	97.86	639.5	208.7	697.4	659.8	37.69	18.507		
6,200.0	5,643.2	5,984.5	5,735.8	23.8	18.8	98.66	728.5	229.4	758.9	718.7	40.26	18.849		
6,300.0	5,643.2	6,102.3	5,739.5	25.5	20.4	97.88	843.3	255.2	814.2	770.7	43.41	18.753		
6,400.0	5,643.2	6,260.3	5,739.5	27.1	22.6	96.98	999.3	280.0	859.0	811.8	47.20	18.198		
6,500.0	5,643.2	6,434.1	5,739.5	28.8	25.2	96.41	1,172.6	292.4	891.1	839.7	51.47	17.315		
6,600.0	5,643.2	6,554.5	5,739.5	30.5	27.1	96.16	1,293.0	293.0	911.8	856.7	55.11	16.545		
6,700.0	5,643.2	6,653.4	5,739.5	32.1	28.7	96.01	1,391.9	293.0	926.9	868.5	58.41	15.869		
6,800.0	5,643.2	6,752.8	5,739.4	33.7	30.3	95.91	1,491.3	293.0	936.9	875.3	61.65	15.197		
6,900.0	5,643.2	6,852.7	5,739.4	35.3	32.0	95.87	1,591.2	293.0	941.8	877.0	64.80	14.533		
6,942.5	5,643.2	6,895.2	5,739.4	36.0	32.8	95.86	1,633.7	293.0	942.2	876.1	66.10	14.255		
7,000.0	5,643.2	6,952.7	5,739.4	36.9	33.7	95.86	1,691.2	293.0	942.2	874.2	68.05	13.845		
7,100.0	5,643.2	7,052.7	5,739.4	38.5	35.5	95.86	1,791.2	293.0	942.2	870.8	71.47	13.184		
7,200.0	5,643.2	7,152.7	5,739.4	40.1	37.2	95.86	1,891.2	293.0	942.3	867.3	74.92	12.577		
7,300.0	5,643.2	7,252.7	5,739.4	41.8	39.0	95.86	1,991.2	293.0	942.3	863.9	78.41	12.017		
7,400.0	5,643.2	7,352.7	5,739.4	43.4	40.8	95.86	2,091.2	293.0	942.3	860.3	81.93	11.502		
7,500.0	5,643.2	7,452.7	5,739.4	45.1	42.6	95.86	2,191.2	293.0	942.3	856.8	85.47	11.025		
7,600.0	5,643.2	7,552.7	5,739.4	46.8	44.4	95.86	2,291.2	293.1	942.3	853.2	89.03	10.583		
7,700.0	5,643.2	7,652.7	5,739.4	48.5	46.2	95.86	2,391.2	293.1	942.3	849.7	92.62	10.173		
7,800.0	5,643.2	7,752.7	5,739.4	50.3	48.1	95.86	2,491.2	293.1	942.3	846.1	96.23	9.792		
7,900.0	5,643.2	7,852.7	5,739.4	52.0	49.9	95.86	2,591.2	293.1	942.3	842.4	99.85	9.437		
8,000.0	5,643.2	7,952.7	5,739.4	53.8	51.7	95.86	2,691.2	293.1	942.3	838.8	103.48	9.106		
8,100.0	5,643.2	8,052.7	5,739.3	55.5	53.6	95.86	2,791.2	293.1	942.3	835.2	107.13	8.796		
8,200.0	5,643.2	8,152.7	5,739.3	57.3	55.4	95.86	2,891.2	293.1	942.3	831.5	110.79	8.505		
8,300.0	5,643.1	8,252.7	5,739.3	59.1	57.3	95.86	2,991.2	293.1	942.3	827.9	114.46	8.232		
8,400.0	5,643.1	8,352.7	5,739.3	60.9	59.1	95.86	3,091.2	293.1	942.3	824.2	118.15	7.976		
8,500.0	5,643.1	8,452.7	5,739.3	62.7	61.0	95.86	3,191.2	293.1	942.3	820.5	121.84	7.734		
8,600.0	5,643.1	8,552.7	5,739.3	64.5	62.9	95.86	3,291.2	293.1	942.3	816.8	125.53	7.507		
8,700.0	5,643.1	8,652.7	5,739.3	66.3	64.7	95.86	3,391.2	293.1	942.3	813.1	129.24	7.292		
8,800.0	5,643.1	8,752.7	5,739.3	68.1	66.6	95.86	3,491.2	293.1	942.4	809.4	132.95	7.088		
8,900.0	5,643.1	8,852.7	5,739.3	70.0	68.5	95.86	3,591.2	293.1	942.4	805.7	136.67	6.895		
9,000.0	5,643.1	8,952.7	5,739.3	71.8	70.4	95.86	3,691.2	293.1	942.4	802.0	140.39	6.712		
9,100.0	5,643.1	9,052.7	5,739.3	73.6	72.2	95.86	3,791.2	293.1	942.4	798.2	144.12	6.539		
9,200.0	5,643.1	9,152.7	5,739.3	75.5	74.1	95.86	3,891.2	293.2	942.4	794.5	147.85	6.374		
9,300.0	5,643.1	9,252.7	5,739.3	77.3	76.0	95.86	3,991.2	293.2	942.4	790.8	151.59	6.217		

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 #33M-2801A
Project:	Weld County, CO	TVD Reference:	WELL @ 4746.2ft (Original Well Elev)
Reference Site:	S33-T10N-R58W	MD Reference:	WELL @ 4746.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #33M-2801A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S33-T10N-R58W - Razor #33M-2804B - HZ - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
9,400.0	5,643.1	9,352.7	5,739.3	79.2	77.9	95.86	4,091.2	293.2	942.4	787.1	155.33	6.067		
9,500.0	5,643.1	9,452.7	5,739.2	81.0	79.8	95.85	4,191.2	293.2	942.4	783.3	159.08	5.924		
9,600.0	5,643.1	9,552.7	5,739.2	82.9	81.7	95.85	4,291.2	293.2	942.4	779.6	162.83	5.788		
9,700.0	5,643.1	9,652.7	5,739.2	84.7	83.6	95.85	4,391.2	293.2	942.4	775.8	166.58	5.657		
9,800.0	5,643.1	9,752.7	5,739.2	86.6	85.4	95.85	4,491.2	293.2	942.4	772.1	170.34	5.533		
9,900.0	5,643.1	9,852.7	5,739.2	88.5	87.3	95.85	4,591.2	293.2	942.4	768.3	174.10	5.413		
10,000.0	5,643.1	9,952.7	5,739.2	90.3	89.2	95.85	4,691.2	293.2	942.4	764.6	177.86	5.299		
10,100.0	5,643.1	10,052.7	5,739.2	92.2	91.1	95.85	4,791.2	293.2	942.4	760.8	181.63	5.189		
10,200.0	5,643.1	10,152.7	5,739.2	94.1	93.0	95.85	4,891.2	293.2	942.4	757.0	185.39	5.083		
10,300.0	5,643.1	10,252.7	5,739.2	95.9	94.9	95.85	4,991.2	293.2	942.4	753.3	189.16	4.982		
10,400.0	5,643.1	10,352.7	5,739.2	97.8	96.8	95.85	5,091.2	293.2	942.4	749.5	192.93	4.885		
10,500.0	5,643.1	10,452.7	5,739.2	99.7	98.7	95.85	5,191.2	293.2	942.5	745.7	196.71	4.791		
10,600.0	5,643.1	10,552.7	5,739.2	101.6	100.6	95.85	5,291.2	293.2	942.5	742.0	200.48	4.701		
10,700.0	5,643.1	10,652.7	5,739.2	103.4	102.5	95.85	5,391.2	293.3	942.5	738.2	204.26	4.614		
10,800.0	5,643.1	10,752.7	5,739.1	105.3	104.4	95.85	5,491.2	293.3	942.5	734.4	208.04	4.530		
10,900.0	5,643.1	10,852.7	5,739.1	107.2	106.3	95.85	5,591.2	293.3	942.5	730.7	211.82	4.449		
11,000.0	5,643.1	10,952.7	5,739.1	109.1	108.2	95.85	5,691.2	293.3	942.5	726.9	215.60	4.371		
11,100.0	5,643.1	11,052.7	5,739.1	111.0	110.1	95.85	5,791.2	293.3	942.5	723.1	219.38	4.296		
11,200.0	5,643.1	11,152.7	5,739.1	112.8	112.0	95.85	5,891.2	293.3	942.5	719.3	223.17	4.223		
11,300.0	5,643.1	11,252.7	5,739.1	114.7	113.9	95.85	5,991.2	293.3	942.5	715.5	226.96	4.153		
11,400.0	5,643.0	11,352.7	5,739.1	116.6	115.8	95.85	6,091.2	293.3	942.5	711.8	230.74	4.085		
11,500.0	5,643.0	11,452.7	5,739.1	118.5	117.7	95.85	6,191.2	293.3	942.5	708.0	234.53	4.019		
11,600.0	5,643.0	11,552.7	5,739.1	120.4	119.6	95.85	6,291.2	293.3	942.5	704.2	238.32	3.955		
11,700.0	5,643.0	11,652.7	5,739.1	122.3	121.6	95.85	6,391.2	293.3	942.5	700.4	242.11	3.893		
11,800.0	5,643.0	11,752.7	5,739.1	124.2	123.5	95.85	6,491.2	293.3	942.5	696.6	245.90	3.833		
11,900.0	5,643.0	11,852.7	5,739.1	126.1	125.4	95.85	6,591.2	293.3	942.5	692.8	249.70	3.775		
12,000.0	5,643.0	11,952.7	5,739.1	128.0	127.3	95.85	6,691.2	293.3	942.5	689.1	253.49	3.718		
12,100.0	5,643.0	12,052.7	5,739.0	129.9	129.2	95.85	6,791.2	293.3	942.5	685.3	257.28	3.663		
12,200.0	5,643.0	12,152.7	5,739.0	131.8	131.1	95.85	6,891.2	293.3	942.6	681.5	261.08	3.610		
12,300.0	5,643.0	12,252.7	5,739.0	133.7	133.0	95.85	6,991.2	293.4	942.6	677.7	264.88	3.558		
12,400.0	5,643.0	12,352.7	5,739.0	135.5	134.9	95.85	7,091.2	293.4	942.6	673.9	268.67	3.508		
12,500.0	5,643.0	12,452.7	5,739.0	137.4	136.8	95.85	7,191.2	293.4	942.6	670.1	272.47	3.459		
12,570.4	5,643.0	12,523.1	5,739.0	138.5	138.2	95.85	7,261.6	293.4	942.6	667.7	274.90	3.429 SF		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #33M-2801A
Project:	Weld County, CO	TVD Reference:	WELL @ 4746.2ft (Original Well Elev)
Reference Site:	S33-T10N-R58W	MD Reference:	WELL @ 4746.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #33M-2801A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S33-T10N-R58W - Razor #33M-2813H(EXISTING) - EXISTING - EXISTING												Offset Site Error:	0.0 ft
Survey Program: 195-ISCWSA MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.01	0.0	-50.7	50.7				
100.0	100.0	100.4	100.4	0.1	0.1	-89.64	0.3	-50.3	50.3	50.1	0.20	254.584	
200.0	200.0	200.7	200.7	0.3	0.2	-88.49	1.3	-49.2	49.2	48.7	0.53	92.318	
300.0	300.0	300.7	300.6	0.5	0.4	-86.85	2.6	-47.8	47.9	46.9	0.97	49.283	
400.0	400.0	400.8	400.8	0.8	0.6	-85.42	3.7	-46.2	46.4	45.0	1.40	33.048	
500.0	500.0	500.8	500.7	1.0	0.8	-84.12	4.6	-44.6	44.8	43.0	1.84	24.327	
600.0	600.0	600.6	600.6	1.2	1.1	-83.24	5.1	-43.1	43.4	41.1	2.27	19.095	
700.0	700.0	700.7	700.6	1.4	1.3	-82.61	5.4	-41.8	42.1	39.4	2.71	15.559	
800.0	800.0	800.7	800.6	1.7	1.5	-82.34	5.4	-40.4	40.7	37.6	3.14	12.954	
900.0	900.0	900.7	900.5	1.9	1.7	-82.20	5.3	-39.0	39.3	35.8	3.58	10.986	
1,000.0	1,000.0	1,000.7	1,000.6	2.1	1.9	-81.77	5.4	-37.5	37.9	33.9	4.02	9.442	
1,100.0	1,100.0	1,100.8	1,100.7	2.3	2.1	-81.30	5.5	-35.7	36.1	31.6	4.45	8.101	
1,200.0	1,200.0	1,200.8	1,200.7	2.6	2.3	-81.05	5.3	-33.8	34.2	29.3	4.90	6.981	
1,300.0	1,300.0	1,300.8	1,300.7	2.8	2.5	-83.56	5.2	-31.8	31.1	25.8	5.32	5.843	
1,400.0	1,399.8	1,400.7	1,400.5	3.0	2.8	-62.71	5.0	-29.5	26.0	20.3	5.76	4.518	
1,500.0	1,499.6	1,500.3	1,500.1	3.2	3.0	-81.15	4.5	-26.9	21.4	15.1	6.21	3.439	
1,581.0	1,580.4	1,580.9	1,580.7	3.4	3.2	-102.13	3.8	-24.5	19.9	13.3	6.58	3.015 CC, ES	
1,600.0	1,599.4	1,599.9	1,599.6	3.5	3.2	-107.35	3.5	-24.0	19.9	13.3	6.67	2.989	
1,700.0	1,699.1	1,699.4	1,699.1	3.7	3.4	-131.22	2.4	-21.3	23.0	15.9	7.12	3.237	
1,800.0	1,798.9	1,799.2	1,798.9	3.9	3.6	-145.14	1.9	-19.8	28.4	20.9	7.54	3.771	
1,900.0	1,898.6	1,898.7	1,898.4	4.2	3.8	-153.56	1.5	-18.7	34.9	26.9	7.97	4.376	
2,000.0	1,998.4	1,998.4	1,998.1	4.4	4.0	-158.21	0.8	-18.4	42.0	33.6	8.40	4.998	
2,100.0	2,098.1	2,097.9	2,097.6	4.7	4.2	-160.66	-0.3	-18.7	49.6	40.7	8.83	5.613	
2,200.0	2,197.9	2,197.7	2,197.4	4.9	4.4	-162.31	-1.4	-19.2	57.1	47.9	9.26	6.171	
2,300.0	2,297.6	2,297.3	2,297.0	5.2	4.6	-163.10	-2.7	-20.1	64.9	55.2	9.69	6.698	
2,400.0	2,397.4	2,397.9	2,397.5	5.4	4.8	-164.02	-3.6	-20.8	72.3	62.2	10.12	7.143	
2,500.0	2,497.2	2,498.3	2,497.9	5.7	5.1	-164.86	-2.9	-21.8	78.1	67.6	10.55	7.404	
2,600.0	2,596.9	2,598.3	2,597.9	5.9	5.3	-165.33	-2.3	-23.1	84.0	73.0	10.98	7.644	
2,700.0	2,696.7	2,698.0	2,697.5	6.2	5.5	-165.74	-1.4	-24.5	89.5	78.1	11.42	7.837	
2,800.0	2,796.4	2,797.5	2,797.1	6.4	5.7	-166.46	-0.9	-25.2	95.5	83.7	11.85	8.059	
2,900.0	2,896.2	2,898.1	2,897.6	6.7	5.9	-167.49	0.1	-25.3	101.4	89.1	12.29	8.251	
3,000.0	2,995.9	2,997.9	2,997.4	6.9	6.1	-168.65	1.8	-25.2	106.6	93.9	12.72	8.381	
3,100.0	3,095.7	3,098.0	3,097.6	7.2	6.3	-169.69	3.3	-25.0	112.1	98.9	13.16	8.517	
3,200.0	3,195.5	3,197.4	3,196.9	7.4	6.5	-170.66	5.1	-24.8	117.4	103.8	13.59	8.636	
3,300.0	3,295.2	3,296.6	3,296.1	7.7	6.7	-171.50	6.2	-24.5	123.3	109.3	14.03	8.788	
3,400.0	3,395.0	3,396.7	3,396.2	7.9	6.9	-172.29	7.2	-24.1	129.4	114.9	14.47	8.944	
3,500.0	3,494.7	3,496.9	3,496.4	8.2	7.1	-173.20	8.7	-23.4	135.2	120.3	14.90	9.074	
3,600.0	3,594.5	3,596.3	3,595.8	8.4	7.3	-173.99	10.1	-22.8	141.1	125.8	15.34	9.199	
3,700.0	3,694.2	3,696.2	3,695.7	8.7	7.5	-174.74	11.6	-22.1	147.0	131.2	15.77	9.320	
3,800.0	3,794.0	3,793.9	3,793.3	8.9	7.8	-174.03	10.8	-24.5	153.7	137.5	16.21	9.481	
3,900.0	3,893.8	3,891.7	3,890.9	9.2	8.0	-172.38	7.7	-29.0	161.7	145.1	16.64	9.717	
4,000.0	3,993.5	3,990.7	3,989.8	9.4	8.2	-170.83	3.9	-33.4	170.6	153.5	17.09	9.983	
4,100.0	4,093.3	4,090.2	4,089.1	9.7	8.4	-169.75	0.2	-36.8	179.8	162.2	17.53	10.254	
4,200.0	4,193.0	4,190.5	4,189.4	10.0	8.6	-169.10	-2.9	-39.3	188.7	170.7	17.97	10.499	
4,300.0	4,292.8	4,290.6	4,289.5	10.2	8.8	-168.57	-5.6	-41.7	197.4	178.9	18.41	10.720	
4,400.0	4,392.5	4,390.8	4,389.6	10.5	9.0	-168.26	-7.8	-43.6	205.7	186.8	18.85	10.911	
4,500.0	4,492.3	4,491.8	4,490.6	10.7	9.2	-168.19	-9.6	-44.8	213.8	194.5	19.29	11.083	
4,600.0	4,592.1	4,593.6	4,592.4	11.0	9.4	-168.04	-10.4	-46.7	220.8	201.1	19.73	11.191	
4,700.0	4,691.8	4,693.6	4,692.3	11.2	9.6	-167.92	-10.8	-48.6	227.4	207.2	20.17	11.272	
4,800.0	4,791.6	4,795.3	4,794.0	11.5	9.8	-167.84	-10.9	-50.4	233.8	213.2	20.62	11.338	
4,900.0	4,891.3	4,895.8	4,894.5	11.7	10.0	-167.88	-10.0	-52.1	239.2	218.2	21.06	11.361	
5,000.0	4,991.1	4,995.7	4,994.4	12.0	10.2	-167.89	-9.2	-53.8	244.8	223.3	21.50	11.385	

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 #33M-2801A
Project:	Weld County, CO	TVD Reference:	WELL @ 4746.2ft (Original Well Elev)
Reference Site:	S33-T10N-R58W	MD Reference:	WELL @ 4746.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #33M-2801A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S33-T10N-R58W - Razor #33M-2813H(EXISTING) - EXISTING - EXISTING													Offset Site Error:	0.0 ft
Survey Program: 195-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
5,100.0	5,090.8	5,096.1	5,094.8	12.3	10.5	-167.86	-8.3	-55.8	250.2	228.2	21.94	11.402		
5,168.0	5,158.7	5,181.6	5,180.1	12.4	10.6	-167.73	-6.0	-58.4	252.7	230.5	22.27	11.347		
5,200.0	5,190.5	5,248.5	5,246.2	12.5	10.8	-168.63	4.6	-59.4	250.8	228.5	22.39	11.202		
5,250.0	5,239.7	5,328.6	5,322.5	12.7	11.0	-171.38	28.8	-58.5	245.2	222.9	22.36	10.968		
5,300.0	5,287.8	5,394.0	5,382.5	12.9	11.1	-174.34	54.6	-58.4	239.9	217.8	22.10	10.855		
5,350.0	5,334.4	5,457.7	5,439.3	13.1	11.3	-177.72	83.4	-58.6	236.9	215.2	21.65	10.939		
5,400.0	5,379.0	5,530.4	5,500.6	13.4	11.6	177.48	122.4	-58.1	235.2	214.1	21.08	11.158		
5,450.0	5,421.2	5,602.8	5,556.7	13.7	11.9	171.82	168.1	-57.8	234.3	213.8	20.47	11.446		
5,500.0	5,460.8	5,681.6	5,608.9	14.1	12.3	163.97	226.8	-55.4	233.9	213.8	20.15	11.606		
5,508.4	5,467.1	5,691.8	5,615.0	14.2	12.4	162.87	235.1	-55.2	233.9	213.7	20.12	11.624		
5,550.0	5,497.1	5,740.2	5,642.2	14.5	12.7	157.58	275.0	-54.3	235.2	215.1	20.07	11.719		
5,600.0	5,530.1	5,798.3	5,672.0	15.0	13.2	151.16	324.9	-53.5	240.6	220.1	20.49	11.744		
5,650.0	5,559.3	5,866.2	5,700.7	15.6	13.9	143.55	386.5	-53.6	248.7	226.9	21.84	11.388		
5,700.0	5,584.4	5,921.0	5,718.2	16.2	14.4	137.15	438.4	-54.1	259.1	235.6	23.45	11.049		
5,750.0	5,605.3	5,955.9	5,727.5	16.8	14.8	132.57	472.0	-53.7	274.3	249.4	24.82	11.050		
5,800.0	5,621.8	6,008.9	5,738.7	17.5	15.4	126.18	523.6	-50.6	294.4	267.3	27.14	10.849		
5,850.0	5,633.7	6,085.2	5,744.0	18.3	16.4	117.98	599.6	-48.0	314.8	284.5	30.32	10.383		
5,900.0	5,640.8	6,131.3	5,743.1	19.0	17.0	112.70	645.7	-48.1	335.2	302.7	32.52	10.310		
5,949.8	5,643.2	6,185.8	5,741.9	19.8	17.7	107.93	700.2	-49.5	356.9	322.2	34.63	10.305		
6,000.0	5,643.2	6,234.5	5,741.6	20.6	18.3	106.57	748.8	-51.8	378.2	341.9	36.24	10.435		
6,100.0	5,643.2	6,313.2	5,741.2	22.2	19.4	104.76	827.5	-54.3	418.9	379.7	39.18	10.692		
6,200.0	5,643.2	6,397.0	5,741.1	23.8	20.5	103.32	911.2	-55.6	456.8	414.5	42.23	10.817		
6,300.0	5,643.2	6,485.2	5,740.9	25.5	21.8	102.16	999.5	-55.7	491.4	446.0	45.36	10.832		
6,400.0	5,643.2	6,589.8	5,740.4	27.1	23.4	101.15	1,104.0	-55.6	521.3	472.6	48.72	10.701		
6,500.0	5,643.2	6,707.5	5,739.8	28.8	25.3	100.41	1,221.6	-59.6	543.0	490.7	52.29	10.385		
6,600.0	5,643.2	6,807.0	5,739.3	30.5	26.8	99.99	1,321.0	-64.3	558.4	502.9	55.48	10.064		
6,700.0	5,643.2	6,892.9	5,738.1	32.1	28.2	99.63	1,406.9	-67.2	569.9	511.5	58.39	9.761		
6,800.0	5,643.2	6,996.5	5,733.6	33.7	29.9	99.02	1,510.4	-69.4	577.0	515.5	61.49	9.385		
6,900.0	5,643.2	7,089.0	5,732.0	35.3	31.3	98.82	1,602.8	-71.6	579.1	515.0	64.17	9.025		
6,942.5	5,643.2	7,123.0	5,731.8	36.0	31.9	98.80	1,636.8	-72.1	579.0	513.8	65.21	8.879		
6,953.3	5,643.2	7,130.7	5,731.7	36.2	32.1	98.79	1,644.5	-72.1	579.0	513.5	65.52	8.837		
7,000.0	5,643.2	7,165.6	5,731.2	36.9	32.6	98.74	1,679.4	-71.6	579.6	512.7	66.88	8.666		
7,100.0	5,643.2	7,254.2	5,730.0	38.5	34.1	98.58	1,767.9	-68.8	582.5	512.5	69.98	8.323		
7,200.0	5,643.2	7,342.0	5,730.1	40.1	35.4	98.52	1,855.6	-64.4	587.4	514.4	73.04	8.042		
7,300.0	5,643.2	7,449.2	5,730.5	41.8	37.2	98.46	1,962.7	-57.7	593.8	517.2	76.53	7.759		
7,400.0	5,643.2	7,579.5	5,731.0	43.4	39.4	98.44	2,092.7	-52.5	598.3	517.8	80.42	7.440		
7,500.0	5,643.2	7,689.7	5,729.5	45.1	41.3	98.31	2,202.9	-53.2	597.5	513.4	84.07	7.107		
7,600.0	5,643.2	7,802.0	5,728.3	46.8	43.2	98.24	2,315.2	-56.2	594.7	507.0	87.69	6.782		
7,700.0	5,643.2	7,900.1	5,726.5	48.5	44.9	98.11	2,413.2	-59.8	590.8	499.6	91.20	6.478		
7,800.0	5,643.2	7,997.4	5,719.1	50.3	46.7	97.42	2,510.1	-61.8	587.8	492.9	94.81	6.199		
7,900.0	5,643.2	8,086.3	5,711.8	52.0	48.2	96.74	2,598.8	-63.0	585.4	487.2	98.22	5.960		
7,947.3	5,643.2	8,126.2	5,709.0	52.8	48.8	96.47	2,638.6	-63.0	585.0	485.2	99.77	5.864		
8,000.0	5,643.2	8,169.5	5,707.0	53.8	49.5	96.26	2,681.8	-62.3	585.5	484.1	101.45	5.771		
8,100.0	5,643.2	8,251.6	5,706.4	55.5	50.9	96.17	2,763.8	-59.2	589.1	484.5	104.63	5.630		
8,200.0	5,643.2	8,361.2	5,711.3	57.3	52.8	96.60	2,873.2	-55.2	593.3	485.1	108.21	5.483		
8,300.0	5,643.1	8,472.9	5,713.3	59.1	54.7	96.77	2,984.8	-52.9	595.6	483.6	111.95	5.320		
8,400.0	5,643.1	8,579.9	5,714.4	60.9	56.6	96.86	3,091.9	-52.3	596.3	480.7	115.59	5.159		
8,500.0	5,643.1	8,722.5	5,720.1	62.7	59.1	97.48	3,234.2	-58.3	592.5	472.8	119.78	4.947		
8,600.0	5,643.1	8,816.0	5,723.7	64.5	60.7	97.92	3,327.3	-65.5	585.5	462.4	123.14	4.755		
8,700.0	5,643.1	8,912.3	5,726.3	66.3	62.4	98.27	3,423.4	-72.3	578.9	452.3	126.58	4.573		
8,800.0	5,643.1	8,998.5	5,727.1	68.1	64.0	98.40	3,509.5	-75.9	574.9	445.0	129.90	4.426		
8,900.0	5,643.1	9,090.0	5,727.9	70.0	65.6	98.54	3,600.9	-79.3	571.4	438.1	133.30	4.287		

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 #33M-2801A
Project:	Weld County, CO	TVD Reference:	WELL @ 4746.2ft (Original Well Elev)
Reference Site:	S33-T10N-R58W	MD Reference:	WELL @ 4746.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #33M-2801A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S33-T10N-R58W - Razor #33M-2813H(EXISTING) - EXISTING - EXISTING													Offset Site Error:	0.0 ft
Survey Program: 195-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis			
8,954.8	5,643.1	9,135.2	5,728.8	71.0	66.4	98.63	3,646.1	-79.8	570.9	435.9	135.06	4.227		
9,000.0	5,643.1	9,176.3	5,729.5	71.8	67.1	98.69	3,687.1	-79.7	571.2	434.6	136.59	4.182		
9,100.0	5,643.1	9,287.1	5,733.1	73.6	69.0	99.07	3,797.9	-80.6	570.9	430.7	140.23	4.071		
9,167.9	5,643.1	9,348.4	5,735.4	74.9	70.1	99.31	3,859.1	-81.3	570.5	428.0	142.47	4.004		
9,200.0	5,643.1	9,378.3	5,736.3	75.5	70.7	99.40	3,889.1	-81.4	570.5	427.0	143.57	3.974		
9,300.0	5,643.1	9,477.6	5,737.0	77.3	72.4	99.46	3,988.4	-81.0	571.1	423.9	147.15	3.881		
9,380.8	5,643.1	9,561.3	5,735.3	78.8	73.9	99.29	4,072.1	-80.7	571.1	420.9	150.19	3.802		
9,400.0	5,643.1	9,577.3	5,735.1	79.2	74.2	99.27	4,088.0	-80.7	571.1	420.3	150.83	3.787		
9,500.0	5,643.1	9,709.7	5,736.1	81.0	76.5	99.40	4,220.3	-82.8	569.9	415.0	154.91	3.679		
9,600.0	5,643.1	9,801.9	5,737.3	82.9	78.2	99.61	4,312.4	-88.0	564.6	406.3	158.32	3.566		
9,700.0	5,643.1	9,887.0	5,737.1	84.7	79.7	99.63	4,397.4	-90.6	561.7	400.0	161.67	3.474		
9,737.2	5,643.1	9,918.0	5,737.0	85.4	80.2	99.63	4,428.4	-90.8	561.4	398.5	162.90	3.446		
9,800.0	5,643.1	9,983.5	5,736.2	86.6	81.4	99.54	4,494.0	-90.6	561.5	396.3	165.27	3.398		
9,900.0	5,643.1	10,093.3	5,734.9	88.5	83.3	99.45	4,603.7	-92.7	559.3	390.2	169.06	3.308		
9,958.3	5,643.1	10,138.1	5,735.1	89.5	84.1	99.47	4,648.5	-93.3	558.6	387.7	170.92	3.268		
10,000.0	5,643.1	10,165.6	5,735.3	90.3	84.6	99.49	4,676.0	-92.9	559.3	387.1	172.17	3.248		
10,100.0	5,643.1	10,271.8	5,737.1	92.2	86.5	99.64	4,782.1	-90.6	561.7	385.9	175.79	3.195		
10,200.0	5,643.1	10,377.2	5,736.9	94.1	88.3	99.59	4,887.5	-89.1	563.1	383.6	179.54	3.136		
10,300.0	5,643.1	10,482.4	5,735.8	95.9	90.2	99.49	4,992.7	-89.6	562.3	379.1	183.28	3.068		
10,400.0	5,643.1	10,583.6	5,736.3	97.8	92.0	99.55	5,094.0	-89.9	562.2	375.3	186.86	3.009		
10,500.0	5,643.1	10,686.0	5,736.7	99.7	93.8	99.60	5,196.3	-91.2	560.9	370.4	190.50	2.945		
10,600.0	5,643.1	10,787.2	5,737.7	101.6	95.6	99.73	5,297.5	-92.5	559.9	365.8	194.08	2.885		
10,700.0	5,643.1	10,883.1	5,735.4	103.4	97.3	99.50	5,393.3	-92.6	559.4	361.6	197.77	2.829		
10,800.0	5,643.1	11,002.3	5,731.2	105.3	99.4	99.11	5,512.4	-94.7	557.1	355.1	201.92	2.759		
10,900.0	5,643.1	11,103.3	5,726.8	107.2	101.3	98.71	5,613.3	-97.7	553.5	347.7	205.79	2.689		
11,000.0	5,643.1	11,204.8	5,719.7	109.1	103.1	98.03	5,714.5	-101.1	549.1	339.3	209.78	2.618		
11,100.0	5,643.1	11,309.9	5,711.8	111.0	104.9	97.27	5,819.2	-104.8	544.6	330.8	213.82	2.547		
11,200.0	5,643.1	11,401.7	5,707.0	112.8	106.5	96.80	5,910.9	-108.2	540.3	322.8	217.47	2.484		
11,300.0	5,643.1	11,508.3	5,701.9	114.7	108.5	96.32	6,017.3	-112.5	535.7	314.2	221.43	2.419		
11,400.0	5,643.0	11,590.6	5,698.1	116.6	109.9	95.93	6,099.4	-114.6	532.6	307.7	224.91	2.368		
11,441.7	5,643.0	11,624.2	5,696.8	117.4	110.5	95.79	6,133.0	-114.8	532.3	305.9	226.33	2.352		
11,500.0	5,643.0	11,671.1	5,695.7	118.5	111.3	95.67	6,179.9	-114.1	533.0	304.7	228.28	2.335		
11,600.0	5,643.0	11,757.5	5,694.4	120.4	112.8	95.50	6,266.2	-111.4	536.0	304.2	231.74	2.313		
11,700.0	5,643.0	11,839.0	5,694.4	122.3	114.3	95.46	6,347.5	-106.3	542.2	307.1	235.07	2.306		
11,800.0	5,643.0	11,935.5	5,694.4	124.2	116.0	95.37	6,443.7	-97.9	550.9	312.2	238.68	2.308		
11,900.0	5,643.0	12,045.3	5,693.9	126.1	117.9	95.25	6,553.2	-90.3	557.6	315.0	242.54	2.299		
12,000.0	5,643.0	12,149.1	5,693.4	128.0	119.7	95.14	6,656.8	-84.0	563.6	317.3	246.29	2.288 SF		
12,100.0	5,643.0	12,175.0	5,693.3	129.9	120.2	95.11	6,682.6	-82.4	574.5	325.9	248.66	2.310		
12,200.0	5,643.0	12,175.0	5,693.3	131.8	120.2	95.11	6,682.6	-82.4	601.5	350.9	250.55	2.401		
12,300.0	5,643.0	12,175.0	5,693.3	133.7	120.2	95.11	6,682.6	-82.4	643.1	390.6	252.45	2.547		
12,400.0	5,643.0	12,175.0	5,693.3	135.5	120.2	95.11	6,682.6	-82.4	696.6	442.2	254.35	2.739		
12,500.0	5,643.0	12,175.0	5,693.3	137.4	120.2	95.11	6,682.6	-82.4	759.6	503.3	256.25	2.964		
12,570.4	5,643.0	12,175.0	5,693.3	138.5	120.2	95.11	6,682.6	-82.4	808.4	551.1	257.34	3.141		

Cathedral Energy Services

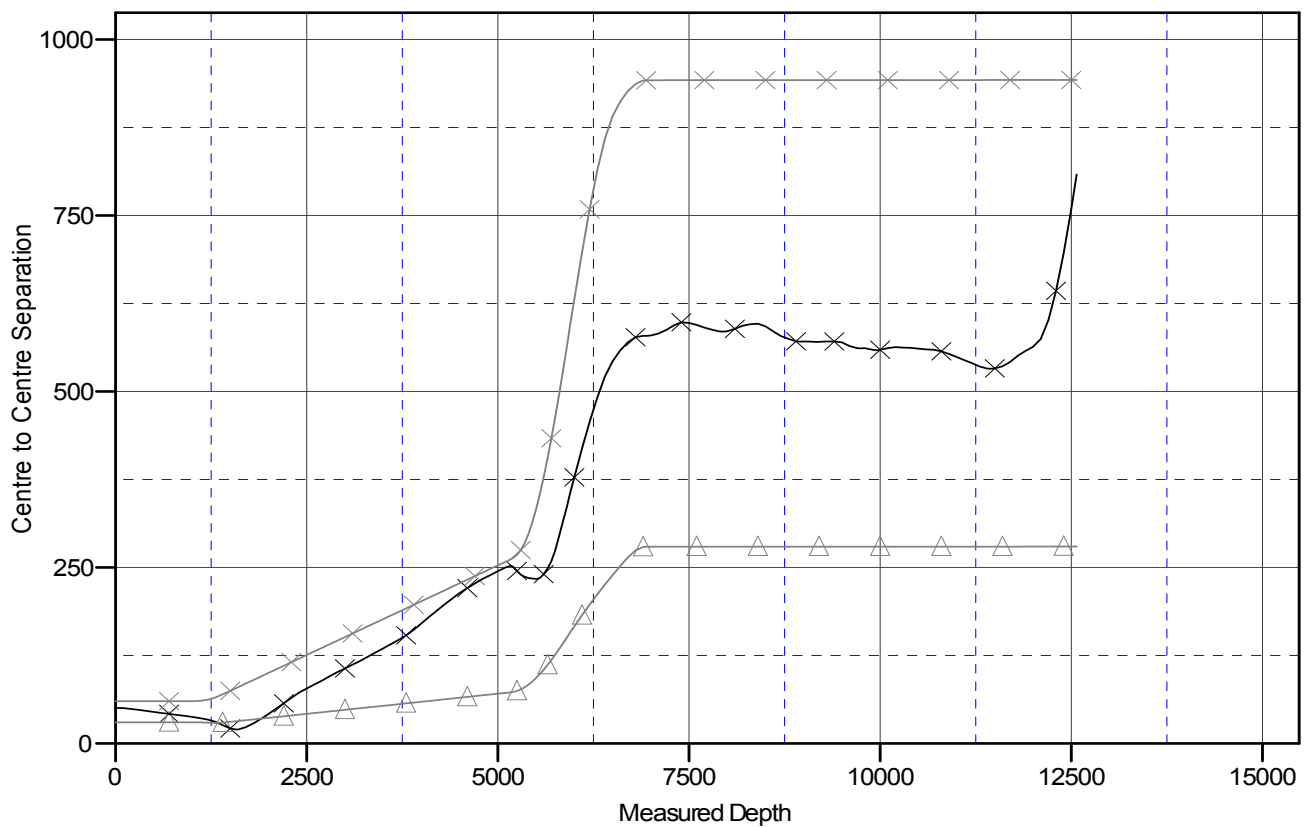
Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #33M-2801A
Project:	Weld County, CO	TVD Reference:	WELL @ 4746.2ft (Original Well Elev)
Reference Site:	S33-T10N-R58W	MD Reference:	WELL @ 4746.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #33M-2801A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4746.2ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Razor #33M-2801A
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.05°

Ladder Plot



LEGEND

3M-2813H(EXISTING), EXISTING, EXISTING V0 **x** Razor #33M-2804B, HZ, Plan #1 V0 **+** Razor #33M-2803A, HZ, Plan #1 V0