WHITING PETROLEUM CORPORATION

Project: Weld County, CO
Site: S33-T10N-R58W
Well: Razor #33M-2804B
Wellbore: HZ
Design: Plan #1

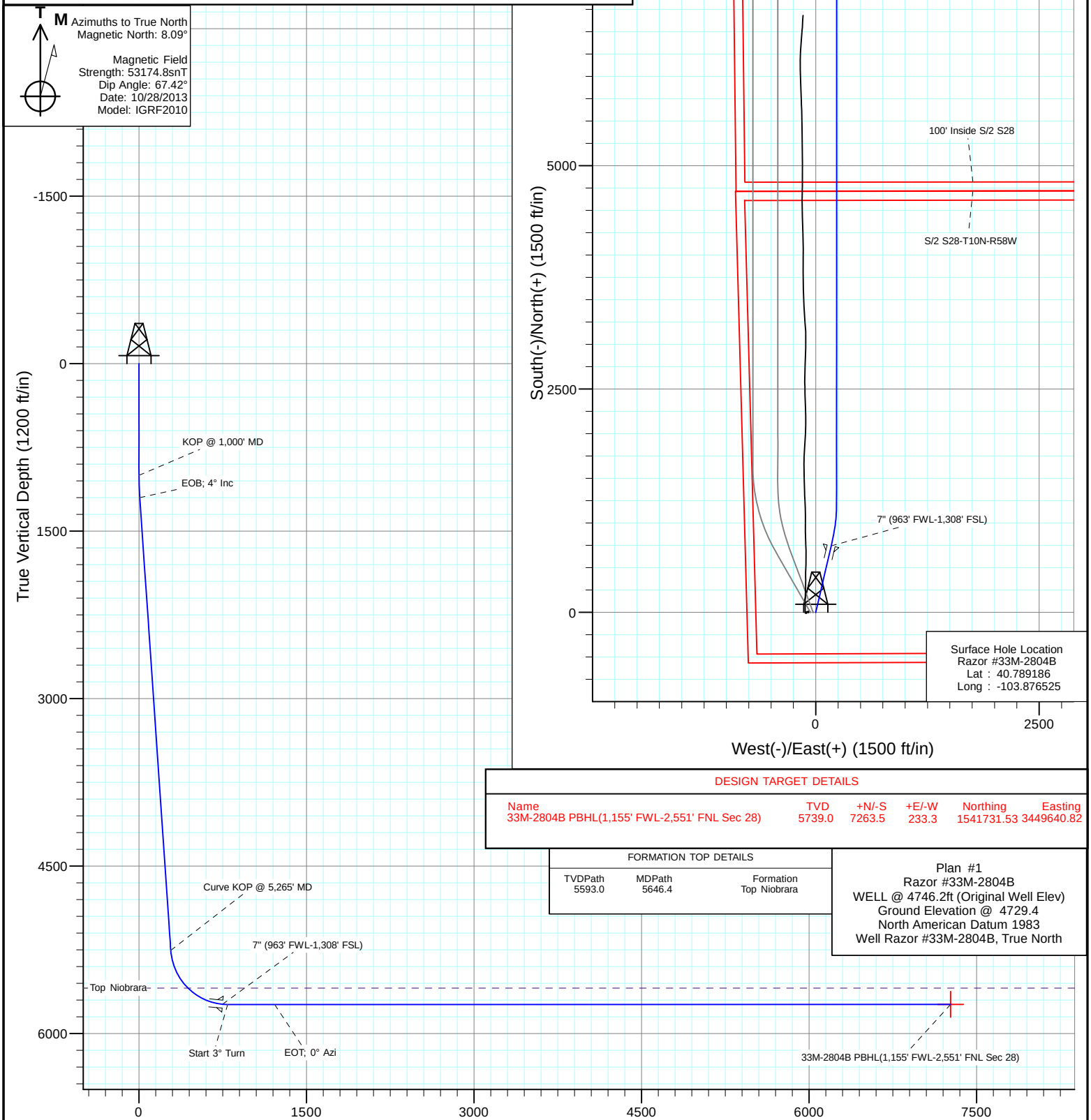
CATHEDRAL

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	KOP @ 1,000' MD
3	1200.0	4.00	13.08	1199.8	6.8	1.6	2.00	13.08	6.8	EOB; 4° Inc
4	5265.0	4.00	13.08	5254.9	283.0	65.8	0.00	0.00	285.0	Curve KOP @ 5,265' MD
5	6046.8	90.00	13.08	5739.5	789.1	183.3	11.00	0.00	794.6	Start 3° Turn
6	6482.7	90.00	0.00	5739.5	1221.2	232.9	3.00	-89.98	1228.1	
7	12524.9	90.00	0.00	5739.0	7263.5	233.3	0.00	0.00	7267.2	

T
M Azimuths to True North
Magnetic North: 8.09°

Magnetic Field
Strength: 53174.8snT
Dip Angle: 67.42°
Date: 10/28/2013
Model: IGRF2010



DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
33M-2804B PBHL(1,155' FWL-2,551' FNL Sec 28)	5739.0	7263.5	233.3	1541731.53	3449640.82

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5593.0	5646.4	Top Niobrara

Plan #1
Razor #33M-2804B
WELL @ 4746.2ft (Original Well Elev)
Ground Elevation @ 4729.4
North American Datum 1983
Well Razor #33M-2804B, True North

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #33M-2804B
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-2804B	**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 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-2804B

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,534,465.01 ft	**Latitude:**	40.789186
	+E/-W	0.0 ft	**Easting:**	3,449,540.54 ft	**Longitude:**	-103.876525
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 #1

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	1.84

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	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,200.0	4.00	13.08	1,199.8	6.8	1.6	2.00	2.00	0.00	13.08	
5,265.0	4.00	13.08	5,254.9	283.0	65.8	0.00	0.00	0.00	0.00	
6,046.8	90.00	13.08	5,739.5	789.1	183.3	11.00	11.00	0.00	0.00	
6,482.7	90.00	0.00	5,739.5	1,221.2	232.9	3.00	0.00	-3.00	-89.98	
12,524.9	90.00	0.00	5,739.0	7,263.5	233.3	0.00	0.00	0.00	0.00	33M-2804B PBHL(1,1

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #33M-2804B
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Project:	Weld County, CO	**MD Reference:**	WELL @ 4746.2ft (Original Well Elev)
Site:	S33-T10N-R58W	**North Reference:**	True
Well:	Razor #33M-2804B	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	KOP @ 1,000' MD
1,100.0	2.00	13.08	1,100.0	1.7	0.4	1.7	2.00	2.00	
1,200.0	4.00	13.08	1,199.8	6.8	1.6	6.8	2.00	2.00	EOB; 4° Inc
1,300.0	4.00	13.08	1,299.6	13.6	3.2	13.7	0.00	0.00	
1,400.0	4.00	13.08	1,399.4	20.4	4.7	20.5	0.00	0.00	
1,500.0	4.00	13.08	1,499.1	27.2	6.3	27.4	0.00	0.00	
1,600.0	4.00	13.08	1,598.9	34.0	7.9	34.2	0.00	0.00	
1,700.0	4.00	13.08	1,698.6	40.8	9.5	41.1	0.00	0.00	
1,800.0	4.00	13.08	1,798.4	47.6	11.1	47.9	0.00	0.00	
1,900.0	4.00	13.08	1,898.1	54.4	12.6	54.7	0.00	0.00	
2,000.0	4.00	13.08	1,997.9	61.2	14.2	61.6	0.00	0.00	
2,100.0	4.00	13.08	2,097.6	67.9	15.8	68.4	0.00	0.00	
2,200.0	4.00	13.08	2,197.4	74.7	17.4	75.3	0.00	0.00	
2,300.0	4.00	13.08	2,297.2	81.5	18.9	82.1	0.00	0.00	
2,400.0	4.00	13.08	2,396.9	88.3	20.5	88.9	0.00	0.00	
2,500.0	4.00	13.08	2,496.7	95.1	22.1	95.8	0.00	0.00	
2,600.0	4.00	13.08	2,596.4	101.9	23.7	102.6	0.00	0.00	
2,700.0	4.00	13.08	2,696.2	108.7	25.3	109.5	0.00	0.00	
2,800.0	4.00	13.08	2,795.9	115.5	26.8	116.3	0.00	0.00	
2,900.0	4.00	13.08	2,895.7	122.3	28.4	123.2	0.00	0.00	
3,000.0	4.00	13.08	2,995.5	129.1	30.0	130.0	0.00	0.00	
3,100.0	4.00	13.08	3,095.2	135.9	31.6	136.8	0.00	0.00	
3,200.0	4.00	13.08	3,195.0	142.7	33.2	143.7	0.00	0.00	
3,300.0	4.00	13.08	3,294.7	149.5	34.7	150.5	0.00	0.00	
3,400.0	4.00	13.08	3,394.5	156.3	36.3	157.4	0.00	0.00	
3,500.0	4.00	13.08	3,494.2	163.1	37.9	164.2	0.00	0.00	
3,600.0	4.00	13.08	3,594.0	169.9	39.5	171.0	0.00	0.00	
3,700.0	4.00	13.08	3,693.8	176.7	41.0	177.9	0.00	0.00	
3,800.0	4.00	13.08	3,793.5	183.5	42.6	184.7	0.00	0.00	
3,900.0	4.00	13.08	3,893.3	190.3	44.2	191.6	0.00	0.00	
4,000.0	4.00	13.08	3,993.0	197.0	45.8	198.4	0.00	0.00	
4,100.0	4.00	13.08	4,092.8	203.8	47.4	205.3	0.00	0.00	
4,200.0	4.00	13.08	4,192.5	210.6	48.9	212.1	0.00	0.00	
4,300.0	4.00	13.08	4,292.3	217.4	50.5	218.9	0.00	0.00	
4,400.0	4.00	13.08	4,392.1	224.2	52.1	225.8	0.00	0.00	
4,500.0	4.00	13.08	4,491.8	231.0	53.7	232.6	0.00	0.00	
4,600.0	4.00	13.08	4,591.6	237.8	55.3	239.5	0.00	0.00	
4,700.0	4.00	13.08	4,691.3	244.6	56.8	246.3	0.00	0.00	
4,800.0	4.00	13.08	4,791.1	251.4	58.4	253.2	0.00	0.00	
4,900.0	4.00	13.08	4,890.8	258.2	60.0	260.0	0.00	0.00	
5,000.0	4.00	13.08	4,990.6	265.0	61.6	266.8	0.00	0.00	
5,100.0	4.00	13.08	5,090.3	271.8	63.1	273.7	0.00	0.00	

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Site:	S33-T10N-R58W	**North Reference:**	True
Well:	Razor #33M-2804B	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
5,200.0	4.00	13.08	5,190.1	278.6	64.7	280.5	0.00	0.00	
5,265.0	4.00	13.08	5,254.9	283.0	65.8	285.0	0.00	0.00	Curve KOP @ 5,265' MD
5,300.0	7.85	13.08	5,289.8	286.5	66.6	288.5	11.00	11.00	
5,400.0	18.85	13.08	5,386.9	309.0	71.8	311.1	11.00	11.00	
5,500.0	29.85	13.08	5,477.9	349.1	81.1	351.5	11.00	11.00	
5,600.0	40.85	13.08	5,559.3	405.3	94.2	408.2	11.00	11.00	
5,646.4	45.95	13.08	5,593.0	436.4	101.4	439.4	11.00	11.00	Top Niobrara
5,700.0	51.85	13.08	5,628.2	475.7	110.5	479.0	11.00	11.00	
5,800.0	62.85	13.08	5,682.1	557.6	129.6	561.5	11.00	11.00	
5,900.0	73.85	13.08	5,718.9	648.0	150.6	652.5	11.00	11.00	
6,000.0	84.85	13.08	5,737.4	743.6	172.8	748.7	11.00	11.00	7" (963' FWL-1,308' FSL)
6,046.8	90.00	13.08	5,739.5	789.1	183.3	794.6	11.00	11.00	Start 3° Turn
6,100.0	90.00	11.48	5,739.5	841.1	194.7	846.9	3.00	0.00	
6,200.0	90.00	8.48	5,739.5	939.6	212.0	945.9	3.00	0.00	
6,300.0	90.00	5.48	5,739.5	1,038.8	224.2	1,045.5	3.00	0.00	
6,400.0	90.00	2.48	5,739.5	1,138.6	231.1	1,145.4	3.00	0.00	
6,470.0	90.00	0.38	5,739.5	1,208.5	232.9	1,215.4	3.00	0.00	EOT; 0° Azi
6,482.7	90.00	0.00	5,739.5	1,221.2	232.9	1,228.1	3.00	0.00	
6,500.0	90.00	0.00	5,739.5	1,238.5	232.9	1,245.4	0.00	0.00	
6,600.0	90.00	0.00	5,739.5	1,338.5	232.9	1,345.3	0.00	0.00	
6,700.0	90.00	0.00	5,739.5	1,438.5	232.9	1,445.3	0.00	0.00	
6,800.0	90.00	0.00	5,739.4	1,538.5	232.9	1,545.2	0.00	0.00	
6,900.0	90.00	0.00	5,739.4	1,638.5	232.9	1,645.2	0.00	0.00	
7,000.0	90.00	0.00	5,739.4	1,738.5	232.9	1,745.1	0.00	0.00	
7,100.0	90.00	0.00	5,739.4	1,838.5	232.9	1,845.1	0.00	0.00	
7,200.0	90.00	0.00	5,739.4	1,938.5	232.9	1,945.0	0.00	0.00	
7,300.0	90.00	0.00	5,739.4	2,038.5	233.0	2,045.0	0.00	0.00	
7,400.0	90.00	0.00	5,739.4	2,138.5	233.0	2,144.9	0.00	0.00	
7,500.0	90.00	0.00	5,739.4	2,238.5	233.0	2,244.9	0.00	0.00	
7,600.0	90.00	0.00	5,739.4	2,338.5	233.0	2,344.8	0.00	0.00	
7,700.0	90.00	0.00	5,739.4	2,438.5	233.0	2,444.8	0.00	0.00	
7,800.0	90.00	0.00	5,739.4	2,538.5	233.0	2,544.7	0.00	0.00	
7,900.0	90.00	0.00	5,739.4	2,638.5	233.0	2,644.7	0.00	0.00	
8,000.0	90.00	0.00	5,739.4	2,738.5	233.0	2,744.6	0.00	0.00	
8,100.0	90.00	0.00	5,739.3	2,838.5	233.0	2,844.5	0.00	0.00	
8,200.0	90.00	0.00	5,739.3	2,938.5	233.0	2,944.5	0.00	0.00	
8,300.0	90.00	0.00	5,739.3	3,038.5	233.0	3,044.4	0.00	0.00	
8,400.0	90.00	0.00	5,739.3	3,138.5	233.0	3,144.4	0.00	0.00	
8,500.0	90.00	0.00	5,739.3	3,238.5	233.0	3,244.3	0.00	0.00	
8,600.0	90.00	0.00	5,739.3	3,338.5	233.0	3,344.3	0.00	0.00	
8,700.0	90.00	0.00	5,739.3	3,438.5	233.0	3,444.2	0.00	0.00	
8,800.0	90.00	0.00	5,739.3	3,538.5	233.1	3,544.2	0.00	0.00	
8,900.0	90.00	0.00	5,739.3	3,638.5	233.1	3,644.1	0.00	0.00	
9,000.0	90.00	0.00	5,739.3	3,738.5	233.1	3,744.1	0.00	0.00	
9,100.0	90.00	0.00	5,739.3	3,838.5	233.1	3,844.0	0.00	0.00	
9,200.0	90.00	0.00	5,739.3	3,938.5	233.1	3,944.0	0.00	0.00	
9,300.0	90.00	0.00	5,739.3	4,038.5	233.1	4,043.9	0.00	0.00	
9,400.0	90.00	0.00	5,739.2	4,138.5	233.1	4,143.9	0.00	0.00	
9,500.0	90.00	0.00	5,739.2	4,238.5	233.1	4,243.8	0.00	0.00	
9,600.0	90.00	0.00	5,739.2	4,338.5	233.1	4,343.8	0.00	0.00	
9,700.0	90.00	0.00	5,739.2	4,438.5	233.1	4,443.7	0.00	0.00	
9,800.0	90.00	0.00	5,739.2	4,538.5	233.1	4,543.7	0.00	0.00	

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Well:	Razor #33M-2804B	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
9,900.0	90.00	0.00	5,739.2	4,638.5	233.1	4,643.6	0.00	0.00	
10,000.0	90.00	0.00	5,739.2	4,738.5	233.1	4,743.6	0.00	0.00	
10,100.0	90.00	0.00	5,739.2	4,838.5	233.1	4,843.5	0.00	0.00	
10,200.0	90.00	0.00	5,739.2	4,938.5	233.1	4,943.5	0.00	0.00	
10,300.0	90.00	0.00	5,739.2	5,038.5	233.2	5,043.4	0.00	0.00	
10,400.0	90.00	0.00	5,739.2	5,138.5	233.2	5,143.4	0.00	0.00	
10,500.0	90.00	0.00	5,739.2	5,238.5	233.2	5,243.3	0.00	0.00	
10,600.0	90.00	0.00	5,739.2	5,338.5	233.2	5,343.3	0.00	0.00	
10,700.0	90.00	0.00	5,739.1	5,438.5	233.2	5,443.2	0.00	0.00	
10,800.0	90.00	0.00	5,739.1	5,538.5	233.2	5,543.2	0.00	0.00	
10,900.0	90.00	0.00	5,739.1	5,638.5	233.2	5,643.1	0.00	0.00	
11,000.0	90.00	0.00	5,739.1	5,738.5	233.2	5,743.1	0.00	0.00	
11,100.0	90.00	0.00	5,739.1	5,838.5	233.2	5,843.0	0.00	0.00	
11,200.0	90.00	0.00	5,739.1	5,938.5	233.2	5,943.0	0.00	0.00	
11,300.0	90.00	0.00	5,739.1	6,038.5	233.2	6,042.9	0.00	0.00	
11,400.0	90.00	0.00	5,739.1	6,138.5	233.2	6,142.9	0.00	0.00	
11,500.0	90.00	0.00	5,739.1	6,238.5	233.2	6,242.8	0.00	0.00	
11,600.0	90.00	0.00	5,739.1	6,338.5	233.2	6,342.8	0.00	0.00	
11,700.0	90.00	0.00	5,739.1	6,438.5	233.2	6,442.7	0.00	0.00	
11,800.0	90.00	0.00	5,739.1	6,538.5	233.3	6,542.7	0.00	0.00	
11,900.0	90.00	0.00	5,739.1	6,638.5	233.3	6,642.6	0.00	0.00	
12,000.0	90.00	0.00	5,739.1	6,738.5	233.3	6,742.6	0.00	0.00	
12,100.0	90.00	0.00	5,739.0	6,838.5	233.3	6,842.5	0.00	0.00	
12,200.0	90.00	0.00	5,739.0	6,938.5	233.3	6,942.5	0.00	0.00	
12,300.0	90.00	0.00	5,739.0	7,038.5	233.3	7,042.4	0.00	0.00	
12,400.0	90.00	0.00	5,739.0	7,138.5	233.3	7,142.4	0.00	0.00	
12,500.0	90.00	0.00	5,739.0	7,238.5	233.3	7,242.3	0.00	0.00	
12,523.4	90.00	0.00	5,739.0	7,261.9	233.3	7,265.7	0.00	0.00	PBHL @ 12,523' MD
12,524.9	90.00	0.00	5,739.0	7,263.5	233.3	7,267.2	0.00	0.00	

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
33M-2804B PBHL(1,155 - plan hits target center - Point	0.00	1.05	5,739.0	7,263.5	233.3	1,541,731.53	3,449,640.82	40.809122	-103.875682

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
6,000.0	5,737.4	7" (963' FWL-1,308' FSL)	7.000	7.500

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #33M-2804B
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-2804B	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,646.4	5,593.0	Top Niobrara		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
1,000.0	1,000.0	0.0	0.0	KOP @ 1,000' MD
1,200.0	1,199.8	6.8	1.6	EOB; 4° Inc
5,265.0	5,254.9	283.0	65.8	Curve KOP @ 5,265' MD
6,046.8	5,739.5	789.1	183.3	Start 3° Turn
6,470.0	5,739.5	1,208.5	232.9	EOT; 0° Azi
12,523.4	5,739.0	7,261.9	233.3	PBHL @ 12,523' MD

Whiting Petroleum Corporation

Weld County, CO
S33-T10N-R58W
Razor #33M-2804B
HZ
Plan #1

Anticollision Report

27 November, 2013

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #33M-2804B
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-2804B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference Plan #1

Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	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** 11/27/2013

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	12,524.9	Plan #1 (HZ)	ISCWSA MWD	MWD - ISCWSA

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
S33-T10N-R58W						
Razor #33M-2801A - HZ - Plan #2	1,000.0	1,000.0	60.1	55.9	14.196	CC
Razor #33M-2801A - HZ - Plan #2	1,100.0	1,100.0	60.5	55.8	12.927	ES
Razor #33M-2801A - HZ - Plan #2	12,524.9	12,570.4	942.6	667.6	3.428	SF
Razor #33M-2803A - HZ - Plan #1	1,000.0	1,000.0	29.9	25.7	7.065	CC
Razor #33M-2803A - HZ - Plan #1	1,100.0	1,100.0	30.3	25.7	6.484	ES
Razor #33M-2803A - HZ - Plan #1	12,524.9	12,479.3	664.9	390.8	2.426	SF
Razor #33M-2813H(EXISTING) - EXISTING - EXISTING	1,267.2	1,269.0	95.4	90.2	18.411	CC
Razor #33M-2813H(EXISTING) - EXISTING - EXISTING	1,400.0	1,401.8	95.5	89.8	16.556	ES
Razor #33M-2813H(EXISTING) - EXISTING - EXISTING	11,944.1	12,175.0	378.5	132.9	1.541	SF

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #33M-2804B
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-2804B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S33-T10N-R58W - Razor #33M-2801A - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	0.0	-60.1	60.1				
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	0.0	-60.1	60.1	59.9	0.19	321.327	
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-60.1	60.1	59.5	0.64	94.401	
300.0	300.0	300.0	300.0	0.5	0.5	-89.99	0.0	-60.1	60.1	59.0	1.09	55.328	
400.0	400.0	400.0	400.0	0.8	0.8	-89.99	0.0	-60.1	60.1	58.6	1.54	39.131	
500.0	500.0	500.0	500.0	1.0	1.0	-89.99	0.0	-60.1	60.1	58.1	1.99	30.270	
600.0	600.0	600.0	600.0	1.2	1.2	-89.99	0.0	-60.1	60.1	57.7	2.43	24.681	
700.0	700.0	700.0	700.0	1.4	1.4	-89.99	0.0	-60.1	60.1	57.2	2.88	20.834	
800.0	800.0	800.0	800.0	1.7	1.7	-89.99	0.0	-60.1	60.1	56.8	3.33	18.025	
900.0	900.0	900.0	900.0	1.9	1.9	-89.99	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	-89.99	0.0	-60.1	60.1	55.9	4.23	14.196	CC
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	-104.67	0.0	-60.1	60.5	55.8	4.68	12.927	ES
1,200.0	1,199.8	1,199.8	1,199.8	2.6	2.6	-109.32	0.0	-60.1	62.0	56.9	5.13	12.098	
1,300.0	1,299.6	1,298.9	1,298.9	2.8	2.8	-113.68	1.5	-60.9	65.2	59.7	5.58	11.700	
1,400.0	1,399.4	1,398.0	1,397.9	3.0	3.0	-114.90	5.9	-63.5	69.8	63.7	6.03	11.575	
1,500.0	1,499.1	1,497.9	1,497.5	3.3	3.2	-114.66	12.0	-66.9	74.8	68.4	6.49	11.540	
1,600.0	1,598.9	1,597.8	1,597.1	3.5	3.5	-114.45	18.0	-70.4	79.9	73.0	6.95	11.499	
1,700.0	1,698.6	1,697.6	1,696.7	3.7	3.7	-114.27	24.1	-73.9	85.0	77.6	7.42	11.456	
1,800.0	1,798.4	1,797.5	1,796.4	4.0	3.9	-114.10	30.1	-77.3	90.1	82.2	7.90	11.412	
1,900.0	1,898.1	1,897.4	1,896.0	4.2	4.2	-113.96	36.2	-80.8	95.2	86.8	8.37	11.368	
2,000.0	1,997.9	1,997.2	1,995.6	4.5	4.4	-113.83	42.2	-84.2	100.3	91.4	8.86	11.325	
2,100.0	2,097.6	2,097.1	2,095.2	4.7	4.7	-113.71	48.3	-87.7	105.4	96.0	9.34	11.283	
2,200.0	2,197.4	2,197.0	2,194.9	5.0	4.9	-113.60	54.3	-91.2	110.5	100.6	9.83	11.243	
2,300.0	2,297.2	2,296.8	2,294.5	5.2	5.2	-113.50	60.4	-94.6	115.6	105.2	10.31	11.205	
2,400.0	2,396.9	2,396.7	2,394.1	5.5	5.4	-113.41	66.4	-98.1	120.7	109.8	10.80	11.168	
2,500.0	2,496.7	2,496.6	2,493.8	5.7	5.6	-113.33	72.5	-101.5	125.7	114.4	11.29	11.133	
2,600.0	2,596.4	2,596.5	2,593.4	6.0	5.9	-113.26	78.5	-105.0	130.8	119.1	11.79	11.101	
2,700.0	2,696.2	2,696.3	2,693.0	6.2	6.1	-113.19	84.6	-108.5	135.9	123.7	12.28	11.069	
2,800.0	2,795.9	2,796.2	2,792.6	6.5	6.4	-113.12	90.6	-111.9	141.0	128.2	12.77	11.040	
2,900.0	2,895.7	2,896.1	2,892.3	6.7	6.6	-113.06	96.6	-115.4	146.1	132.8	13.27	11.012	
3,000.0	2,995.5	2,995.9	2,991.9	7.0	6.9	-113.00	102.7	-118.8	151.2	137.4	13.77	10.985	
3,100.0	3,095.2	3,095.8	3,091.5	7.2	7.2	-112.95	108.7	-122.3	156.3	142.0	14.26	10.960	
3,200.0	3,195.0	3,195.7	3,191.1	7.5	7.4	-112.90	114.8	-125.8	161.4	146.6	14.76	10.936	
3,300.0	3,294.7	3,295.5	3,290.8	7.7	7.7	-112.85	120.8	-129.2	166.5	151.2	15.26	10.913	
3,400.0	3,394.5	3,395.4	3,390.4	8.0	7.9	-112.81	126.9	-132.7	171.6	155.8	15.75	10.891	
3,500.0	3,494.2	3,495.3	3,490.0	8.2	8.2	-112.77	132.9	-136.1	176.7	160.4	16.25	10.870	
3,600.0	3,594.0	3,595.2	3,589.6	8.5	8.4	-112.73	139.0	-139.6	181.8	165.0	16.75	10.851	
3,700.0	3,693.7	3,695.0	3,689.3	8.7	8.7	-112.69	145.0	-143.1	186.9	169.6	17.25	10.832	
3,800.0	3,793.5	3,794.9	3,788.9	9.0	8.9	-112.66	151.1	-146.5	192.0	174.2	17.75	10.814	
3,900.0	3,893.3	3,894.8	3,888.5	9.3	9.2	-112.63	157.1	-150.0	197.1	178.8	18.25	10.797	
4,000.0	3,993.0	3,994.6	3,988.2	9.5	9.4	-112.59	163.2	-153.4	202.2	183.4	18.75	10.780	
4,100.0	4,092.8	4,094.5	4,087.8	9.8	9.7	-112.56	169.2	-156.9	207.2	188.0	19.25	10.765	
4,200.0	4,192.5	4,194.4	4,187.4	10.0	9.9	-112.54	175.3	-160.4	212.3	192.6	19.75	10.749	
4,300.0	4,292.3	4,294.2	4,287.0	10.3	10.2	-112.51	181.3	-163.8	217.4	197.2	20.25	10.735	
4,400.0	4,392.0	4,394.1	4,386.7	10.5	10.4	-112.48	187.3	-167.3	222.5	201.8	20.76	10.721	
4,500.0	4,491.8	4,494.0	4,486.3	10.8	10.7	-112.46	193.4	-170.7	227.6	206.4	21.26	10.708	
4,600.0	4,591.6	4,593.9	4,585.9	11.0	11.0	-112.44	199.4	-174.2	232.7	211.0	21.76	10.695	
4,700.0	4,691.3	4,693.7	4,685.5	11.3	11.2	-112.41	205.5	-177.7	237.8	215.6	22.26	10.683	
4,800.0	4,791.1	4,793.6	4,785.2	11.5	11.5	-112.39	211.5	-181.1	242.9	220.1	22.76	10.671	
4,900.0	4,890.8	4,893.5	4,884.8	11.8	11.7	-112.37	217.6	-184.6	248.0	224.7	23.27	10.660	
5,000.0	4,990.6	4,993.3	4,984.4	12.1	12.0	-112.35	223.6	-188.1	253.1	229.3	23.77	10.649	
5,100.0	5,090.3	5,093.2	5,084.0	12.3	12.2	-112.33	229.7	-191.5	258.2	233.9	24.27	10.638	

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

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #33M-2804B
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-2804B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S33-T10N-R58W - Razor #33M-2801A - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,190.1	5,189.3	5,179.9	12.6	12.5	-112.23	235.9	-195.1	263.5	238.7	24.77	10.638	
5,265.0	5,254.9	5,243.8	5,233.6	12.7	12.7	-111.20	243.5	-199.4	269.0	243.9	25.10	10.715	
5,300.0	5,289.7	5,272.6	5,261.5	12.8	12.8	-109.95	249.5	-202.9	273.4	248.2	25.28	10.816	
5,350.0	5,338.9	5,312.9	5,300.0	13.0	12.9	-108.06	260.2	-209.0	282.6	257.0	25.56	11.054	
5,400.0	5,386.9	5,350.0	5,334.4	13.2	13.1	-106.10	272.2	-215.9	294.7	268.8	25.87	11.393	
5,450.0	5,433.4	5,390.6	5,370.7	13.5	13.4	-104.01	287.8	-224.8	309.7	283.4	26.25	11.796	
5,500.0	5,477.9	5,427.7	5,402.7	13.7	13.6	-101.87	304.2	-234.2	327.2	300.5	26.68	12.262	
5,550.0	5,520.0	5,463.7	5,432.4	14.1	13.8	-99.66	321.9	-244.3	347.0	319.8	27.17	12.771	
5,600.0	5,559.3	5,500.0	5,460.8	14.4	14.1	-97.41	341.5	-255.5	368.9	341.1	27.73	13.303	
5,650.0	5,595.5	5,532.2	5,484.5	14.8	14.4	-95.05	360.3	-266.3	392.5	364.2	28.33	13.854	
5,700.0	5,628.2	5,564.7	5,507.2	15.3	14.7	-92.63	380.6	-277.9	417.8	388.8	28.99	14.410	
5,750.0	5,657.2	5,600.0	5,530.1	15.8	15.0	-90.27	403.9	-291.2	444.4	414.7	29.71	14.957	
5,800.0	5,682.1	5,626.9	5,546.2	16.4	15.3	-87.61	422.5	-301.8	472.0	441.6	30.40	15.525	
5,850.0	5,702.7	5,656.6	5,562.8	17.0	15.6	-85.03	443.9	-314.1	500.6	469.5	31.13	16.083	
5,900.0	5,718.9	5,685.6	5,577.6	17.6	16.0	-82.43	465.5	-326.5	529.9	498.1	31.85	16.637	
5,950.0	5,730.5	5,713.9	5,590.7	18.3	16.3	-79.83	487.3	-339.0	559.8	527.2	32.56	17.190	
6,000.0	5,737.4	5,741.7	5,602.2	19.0	16.7	-77.26	509.3	-351.5	589.9	556.7	33.26	17.737	
6,046.8	5,739.5	5,767.4	5,611.6	19.7	17.0	-74.90	530.1	-363.4	618.4	584.5	33.91	18.237	
6,100.0	5,739.5	5,800.0	5,621.8	20.4	17.5	-76.89	556.9	-378.8	650.7	615.4	35.27	18.449	
6,200.0	5,739.5	5,858.7	5,635.3	21.7	18.4	-79.51	606.5	-407.1	710.7	673.0	37.67	18.864	
6,300.0	5,739.5	5,925.4	5,642.6	23.2	19.4	-81.19	664.0	-440.0	768.8	728.6	40.19	19.127	
6,400.0	5,739.5	6,044.4	5,643.2	24.7	21.3	-82.29	768.4	-497.1	822.5	779.1	43.42	18.942	
6,482.7	5,739.5	6,176.3	5,643.2	25.9	23.4	-83.01	888.0	-552.8	858.8	812.1	46.70	18.390	
6,500.0	5,739.5	6,205.3	5,643.2	26.2	23.9	-83.11	914.7	-563.9	865.4	818.0	47.40	18.258	
6,600.0	5,739.5	6,379.6	5,643.2	27.8	26.8	-83.57	1,079.0	-622.0	898.6	846.9	51.73	17.370	
6,700.0	5,739.5	6,564.1	5,643.2	29.4	29.9	-83.89	1,257.9	-667.0	922.9	866.5	56.41	16.360	
6,800.0	5,739.4	6,756.1	5,643.2	31.1	33.0	-84.08	1,447.6	-695.3	937.6	876.3	61.32	15.289	
6,900.0	5,739.4	6,947.3	5,643.2	32.8	36.1	-84.14	1,638.5	-704.4	942.2	876.0	66.26	14.220	
7,000.0	5,739.4	7,047.3	5,643.2	34.6	37.7	-84.14	1,738.5	-704.4	942.2	872.6	69.66	13.526	
7,100.0	5,739.4	7,147.3	5,643.2	36.3	39.3	-84.14	1,838.5	-704.4	942.3	869.2	73.10	12.891	
7,200.0	5,739.4	7,247.3	5,643.2	38.1	40.9	-84.14	1,938.5	-704.4	942.3	865.7	76.57	12.307	
7,300.0	5,739.4	7,347.3	5,643.2	39.9	42.6	-84.14	2,038.5	-704.4	942.3	862.2	80.07	11.768	
7,400.0	5,739.4	7,447.3	5,643.2	41.7	44.2	-84.14	2,138.5	-704.4	942.3	858.7	83.60	11.272	
7,500.0	5,739.4	7,547.3	5,643.2	43.5	45.9	-84.14	2,238.5	-704.4	942.3	855.1	87.15	10.812	
7,600.0	5,739.4	7,647.3	5,643.2	45.3	47.6	-84.14	2,338.5	-704.4	942.3	851.6	90.73	10.386	
7,700.0	5,739.4	7,747.3	5,643.2	47.1	49.4	-84.14	2,438.5	-704.4	942.3	848.0	94.32	9.990	
7,800.0	5,739.4	7,847.3	5,643.2	48.9	51.1	-84.14	2,538.5	-704.4	942.3	844.4	97.94	9.622	
7,900.0	5,739.4	7,947.3	5,643.2	50.8	52.8	-84.14	2,638.5	-704.4	942.3	840.7	101.56	9.278	
8,000.0	5,739.4	8,047.3	5,643.2	52.6	54.6	-84.14	2,738.5	-704.4	942.3	837.1	105.21	8.957	
8,100.0	5,739.3	8,147.3	5,643.2	54.4	56.4	-84.14	2,838.5	-704.4	942.3	833.5	108.86	8.656	
8,200.0	5,739.3	8,247.3	5,643.1	56.3	58.2	-84.14	2,938.5	-704.4	942.3	829.8	112.53	8.374	
8,300.0	5,739.3	8,347.3	5,643.1	58.2	60.0	-84.14	3,038.5	-704.4	942.3	826.1	116.20	8.109	
8,400.0	5,739.3	8,447.3	5,643.1	60.0	61.8	-84.14	3,138.5	-704.4	942.3	822.4	119.89	7.860	
8,500.0	5,739.3	8,547.3	5,643.1	61.9	63.6	-84.14	3,238.5	-704.4	942.3	818.8	123.58	7.625	
8,600.0	5,739.3	8,647.3	5,643.1	63.7	65.4	-84.14	3,338.5	-704.4	942.3	815.1	127.28	7.404	
8,700.0	5,739.3	8,747.3	5,643.1	65.6	67.2	-84.14	3,438.5	-704.4	942.3	811.4	130.99	7.194	
8,800.0	5,739.3	8,847.3	5,643.1	67.5	69.0	-84.14	3,538.5	-704.4	942.4	807.6	134.71	6.996	
8,900.0	5,739.3	8,947.3	5,643.1	69.4	70.8	-84.14	3,638.5	-704.4	942.4	803.9	138.43	6.808	
9,000.0	5,739.3	9,047.3	5,643.1	71.2	72.7	-84.14	3,738.5	-704.4	942.4	800.2	142.15	6.629	
9,100.0	5,739.3	9,147.3	5,643.1	73.1	74.5	-84.14	3,838.5	-704.4	942.4	796.5	145.88	6.460	
9,200.0	5,739.3	9,247.3	5,643.1	75.0	76.4	-84.14	3,938.5	-704.4	942.4	792.8	149.62	6.298	
9,300.0	5,739.3	9,347.3	5,643.1	76.9	78.2	-84.14	4,038.5	-704.4	942.4	789.0	153.36	6.145	

CC - Min centre to center distance or covergent 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-2804B
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-2804B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S33-T10N-R58W - Razor #33M-2801A - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
9,400.0	5,739.2	9,447.3	5,643.1	78.8	80.0	-84.14	4,138.5	-704.4	942.4	785.3	157.10	5.998	
9,500.0	5,739.2	9,547.3	5,643.1	80.7	81.9	-84.15	4,238.5	-704.4	942.4	781.5	160.85	5.859	
9,600.0	5,739.2	9,647.3	5,643.1	82.6	83.8	-84.15	4,338.5	-704.4	942.4	777.8	164.60	5.725	
9,700.0	5,739.2	9,747.3	5,643.1	84.4	85.6	-84.15	4,438.5	-704.4	942.4	774.0	168.36	5.598	
9,800.0	5,739.2	9,847.3	5,643.1	86.3	87.5	-84.15	4,538.5	-704.4	942.4	770.3	172.12	5.475	
9,900.0	5,739.2	9,947.3	5,643.1	88.2	89.3	-84.15	4,638.5	-704.4	942.4	766.5	175.88	5.358	
10,000.0	5,739.2	10,047.3	5,643.1	90.1	91.2	-84.15	4,738.5	-704.4	942.4	762.8	179.64	5.246	
10,100.0	5,739.2	10,147.3	5,643.1	92.0	93.1	-84.15	4,838.5	-704.4	942.4	759.0	183.41	5.139	
10,200.0	5,739.2	10,247.3	5,643.1	93.9	94.9	-84.15	4,938.5	-704.4	942.4	755.3	187.17	5.035	
10,300.0	5,739.2	10,347.3	5,643.1	95.8	96.8	-84.15	5,038.5	-704.4	942.4	751.5	190.94	4.936	
10,400.0	5,739.2	10,447.3	5,643.1	97.7	98.7	-84.15	5,138.5	-704.4	942.4	747.7	194.72	4.840	
10,500.0	5,739.2	10,547.3	5,643.1	99.6	100.6	-84.15	5,238.5	-704.4	942.5	744.0	198.49	4.748	
10,600.0	5,739.2	10,647.3	5,643.1	101.5	102.4	-84.15	5,338.5	-704.4	942.5	740.2	202.27	4.659	
10,700.0	5,739.1	10,747.3	5,643.1	103.4	104.3	-84.15	5,438.5	-704.4	942.5	736.4	206.04	4.574	
10,800.0	5,739.1	10,847.3	5,643.1	105.3	106.2	-84.15	5,538.5	-704.4	942.5	732.6	209.82	4.492	
10,900.0	5,739.1	10,947.3	5,643.1	107.2	108.1	-84.15	5,638.5	-704.4	942.5	728.9	213.61	4.412	
11,000.0	5,739.1	11,047.3	5,643.1	109.1	110.0	-84.15	5,738.5	-704.4	942.5	725.1	217.39	4.335	
11,100.0	5,739.1	11,147.3	5,643.1	111.0	111.9	-84.15	5,838.5	-704.4	942.5	721.3	221.17	4.261	
11,200.0	5,739.1	11,247.3	5,643.1	112.9	113.7	-84.15	5,938.5	-704.4	942.5	717.5	224.96	4.190	
11,300.0	5,739.1	11,347.3	5,643.1	114.8	115.6	-84.15	6,038.5	-704.4	942.5	713.8	228.74	4.120	
11,400.0	5,739.1	11,447.3	5,643.0	116.7	117.5	-84.15	6,138.5	-704.4	942.5	710.0	232.53	4.053	
11,500.0	5,739.1	11,547.3	5,643.0	118.6	119.4	-84.15	6,238.5	-704.4	942.5	706.2	236.32	3.988	
11,600.0	5,739.1	11,647.3	5,643.0	120.5	121.3	-84.15	6,338.5	-704.4	942.5	702.4	240.11	3.925	
11,700.0	5,739.1	11,747.3	5,643.0	122.5	123.2	-84.15	6,438.5	-704.4	942.5	698.6	243.90	3.864	
11,800.0	5,739.1	11,847.3	5,643.0	124.4	125.1	-84.15	6,538.5	-704.4	942.5	694.8	247.70	3.805	
11,900.0	5,739.1	11,947.3	5,643.0	126.3	127.0	-84.15	6,638.5	-704.4	942.5	691.0	251.49	3.748	
12,000.0	5,739.1	12,047.3	5,643.0	128.2	128.9	-84.15	6,738.5	-704.4	942.5	687.3	255.28	3.692	
12,100.0	5,739.0	12,147.3	5,643.0	130.1	130.8	-84.15	6,838.5	-704.4	942.5	683.5	259.08	3.638	
12,200.0	5,739.0	12,247.3	5,643.0	132.0	132.7	-84.15	6,938.5	-704.4	942.6	679.7	262.87	3.586	
12,300.0	5,739.0	12,347.3	5,643.0	133.9	134.5	-84.15	7,038.5	-704.4	942.6	675.9	266.67	3.535	
12,400.0	5,739.0	12,447.3	5,643.0	135.8	136.4	-84.15	7,138.5	-704.4	942.6	672.1	270.47	3.485	
12,500.0	5,739.0	12,547.3	5,643.0	137.7	138.2	-84.15	7,238.5	-704.4	942.6	668.5	274.10	3.439	
12,510.0	5,739.0	12,557.2	5,643.0	137.9	138.3	-84.15	7,248.5	-704.4	942.6	668.1	274.45	3.434	
12,524.9	5,739.0	12,570.4	5,643.0	138.2	138.5	-84.15	7,261.7	-704.4	942.6	667.6	274.94	3.428	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #33M-2804B
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-2804B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design 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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	0.0	-29.9	29.9				
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	0.0	-29.9	29.9	29.7	0.19	159.923	
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-29.9	29.9	29.3	0.64	46.983	
300.0	300.0	300.0	300.0	0.5	0.5	-89.99	0.0	-29.9	29.9	28.8	1.09	27.536	
400.0	400.0	400.0	400.0	0.8	0.8	-89.99	0.0	-29.9	29.9	28.4	1.54	19.475	
500.0	500.0	500.0	500.0	1.0	1.0	-89.99	0.0	-29.9	29.9	27.9	1.99	15.065	
600.0	600.0	600.0	600.0	1.2	1.2	-89.99	0.0	-29.9	29.9	27.5	2.43	12.284	
700.0	700.0	700.0	700.0	1.4	1.4	-89.99	0.0	-29.9	29.9	27.0	2.88	10.369	
800.0	800.0	800.0	800.0	1.7	1.7	-89.99	0.0	-29.9	29.9	26.6	3.33	8.971	
900.0	900.0	900.0	900.0	1.9	1.9	-89.99	0.0	-29.9	29.9	26.1	3.78	7.905	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-89.99	0.0	-29.9	29.9	25.7	4.23	7.065	CC
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	-106.27	0.0	-29.9	30.3	25.7	4.68	6.484	ES
1,200.0	1,199.8	1,199.6	1,199.6	2.6	2.6	-112.16	1.6	-30.5	32.5	27.4	5.13	6.341	
1,300.0	1,299.6	1,299.4	1,299.2	2.8	2.8	-114.28	6.5	-32.3	36.2	30.6	5.58	6.488	
1,400.0	1,399.4	1,399.3	1,398.9	3.0	3.0	-113.52	13.0	-34.7	40.1	34.1	6.03	6.654	
1,500.0	1,499.1	1,499.2	1,498.6	3.3	3.2	-112.90	19.6	-37.1	44.1	37.6	6.50	6.790	
1,600.0	1,598.9	1,599.1	1,598.2	3.5	3.5	-112.38	26.1	-39.6	48.1	41.1	6.97	6.902	
1,700.0	1,698.6	1,699.0	1,697.9	3.7	3.7	-111.94	32.7	-42.0	52.1	44.7	7.45	6.996	
1,800.0	1,798.4	1,799.0	1,797.6	4.0	4.0	-111.57	39.2	-44.4	56.1	48.2	7.93	7.076	
1,900.0	1,898.1	1,898.9	1,897.3	4.2	4.2	-111.24	45.7	-46.8	60.1	51.7	8.41	7.143	
2,000.0	1,997.9	1,998.8	1,996.9	4.5	4.4	-110.95	52.3	-49.2	64.1	55.2	8.90	7.202	
2,100.0	2,097.6	2,098.7	2,096.6	4.7	4.7	-110.70	58.8	-51.7	68.1	58.7	9.39	7.253	
2,200.0	2,197.4	2,198.6	2,196.3	5.0	4.9	-110.47	65.3	-54.1	72.1	62.2	9.88	7.297	
2,300.0	2,297.2	2,298.6	2,296.0	5.2	5.2	-110.27	71.9	-56.5	76.1	65.7	10.37	7.336	
2,400.0	2,396.9	2,398.5	2,395.6	5.5	5.4	-110.09	78.4	-58.9	80.1	69.2	10.86	7.371	
2,500.0	2,496.7	2,498.4	2,495.3	5.7	5.7	-109.93	85.0	-61.3	84.1	72.7	11.36	7.401	
2,600.0	2,596.4	2,598.3	2,595.0	6.0	5.9	-109.78	91.5	-63.7	88.1	76.2	11.85	7.429	
2,700.0	2,696.2	2,698.2	2,694.7	6.2	6.2	-109.64	98.0	-66.2	92.1	79.7	12.35	7.454	
2,800.0	2,795.9	2,798.2	2,794.3	6.5	6.4	-109.52	104.6	-68.6	96.1	83.2	12.85	7.476	
2,900.0	2,895.7	2,898.1	2,894.0	6.7	6.7	-109.40	111.1	-71.0	100.1	86.7	13.35	7.497	
3,000.0	2,995.5	2,998.0	2,993.7	7.0	6.9	-109.30	117.6	-73.4	104.1	90.2	13.85	7.515	
3,100.0	3,095.2	3,097.9	3,093.4	7.2	7.2	-109.20	124.2	-75.8	108.1	93.7	14.35	7.532	
3,200.0	3,195.0	3,197.8	3,193.0	7.5	7.4	-109.11	130.7	-78.3	112.1	97.2	14.85	7.548	
3,300.0	3,294.7	3,297.8	3,292.7	7.7	7.7	-109.02	137.2	-80.7	116.1	100.7	15.35	7.562	
3,400.0	3,394.5	3,397.7	3,392.4	8.0	8.0	-108.94	143.8	-83.1	120.1	104.2	15.85	7.575	
3,500.0	3,494.2	3,497.6	3,492.1	8.2	8.2	-108.87	150.3	-85.5	124.1	107.7	16.35	7.588	
3,600.0	3,594.0	3,597.5	3,591.8	8.5	8.5	-108.80	156.9	-87.9	128.1	111.2	16.85	7.599	
3,700.0	3,693.7	3,697.4	3,691.4	8.7	8.7	-108.74	163.4	-90.3	132.1	114.7	17.36	7.609	
3,800.0	3,793.5	3,797.4	3,791.1	9.0	9.0	-108.67	169.9	-92.8	136.1	118.2	17.86	7.619	
3,900.0	3,893.3	3,897.3	3,890.8	9.3	9.2	-108.62	176.5	-95.2	140.1	121.7	18.36	7.628	
4,000.0	3,993.0	3,997.2	3,990.5	9.5	9.5	-108.56	183.0	-97.6	144.1	125.2	18.87	7.637	
4,100.0	4,092.8	4,097.1	4,090.1	9.8	9.7	-108.51	189.5	-100.0	148.1	128.7	19.37	7.645	
4,200.0	4,192.5	4,197.0	4,189.8	10.0	10.0	-108.46	196.1	-102.4	152.1	132.2	19.88	7.653	
4,300.0	4,292.3	4,297.0	4,289.5	10.3	10.2	-108.42	202.6	-104.9	156.1	135.7	20.38	7.660	
4,400.0	4,392.0	4,396.9	4,389.2	10.5	10.5	-108.37	209.2	-107.3	160.1	139.2	20.88	7.666	
4,500.0	4,491.8	4,496.8	4,488.8	10.8	10.8	-108.33	215.7	-109.7	164.1	142.7	21.39	7.673	
4,600.0	4,591.6	4,596.7	4,588.5	11.0	11.0	-108.29	222.2	-112.1	168.1	146.2	21.89	7.679	
4,700.0	4,691.3	4,696.6	4,688.2	11.3	11.3	-108.25	228.8	-114.5	172.1	149.7	22.40	7.684	
4,800.0	4,791.1	4,796.5	4,787.9	11.5	11.5	-108.21	235.3	-116.9	176.1	153.2	22.90	7.690	
4,900.0	4,890.8	4,896.5	4,887.5	11.8	11.8	-108.18	241.8	-119.4	180.1	156.7	23.41	7.695	
5,000.0	4,990.6	4,996.4	4,987.2	12.1	12.0	-108.15	248.4	-121.8	184.1	160.2	23.91	7.700	
5,100.0	5,090.3	5,096.3	5,086.9	12.3	12.3	-108.11	254.9	-124.2	188.1	163.7	24.42	7.704	

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

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #33M-2804B
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-2804B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design 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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,190.1	5,193.7	5,184.0	12.6	12.5	-107.90	261.9	-126.8	192.3	167.4	24.92	7.716	
5,265.0	5,254.9	5,250.0	5,239.4	12.7	12.7	-106.25	271.0	-130.1	196.9	171.6	25.27	7.791	
5,300.0	5,289.7	5,282.9	5,271.2	12.8	12.9	-104.44	278.9	-133.1	200.6	175.2	25.48	7.874	
5,350.0	5,338.9	5,326.1	5,312.0	13.0	13.1	-101.98	292.1	-137.9	208.4	182.6	25.80	8.075	
5,400.0	5,386.9	5,368.4	5,350.8	13.2	13.3	-99.57	308.0	-143.8	218.6	192.5	26.18	8.353	
5,450.0	5,433.4	5,409.7	5,387.2	13.5	13.5	-97.26	326.4	-150.6	231.3	204.7	26.60	8.693	
5,500.0	5,477.9	5,450.0	5,421.0	13.7	13.8	-95.05	346.9	-158.2	246.0	218.9	27.09	9.081	
5,550.0	5,520.0	5,489.5	5,452.4	14.1	14.1	-92.93	369.2	-166.5	262.6	235.0	27.63	9.503	
5,600.0	5,559.3	5,527.9	5,481.2	14.4	14.4	-90.90	393.1	-175.3	280.8	252.6	28.23	9.948	
5,650.0	5,595.5	5,565.4	5,507.4	14.8	14.7	-88.94	418.3	-184.6	300.5	271.7	28.87	10.408	
5,700.0	5,628.2	5,600.0	5,529.8	15.3	15.0	-87.00	443.0	-193.8	321.5	291.9	29.54	10.882	
5,750.0	5,657.2	5,638.0	5,552.4	15.8	15.4	-85.20	471.7	-204.4	343.4	313.1	30.29	11.337	
5,800.0	5,682.1	5,673.3	5,571.3	16.4	15.8	-83.40	499.6	-214.7	366.3	335.2	31.06	11.793	
5,850.0	5,702.7	5,708.0	5,587.8	17.0	16.3	-81.64	528.2	-225.3	389.8	358.0	31.86	12.237	
5,900.0	5,718.9	5,742.3	5,602.1	17.6	16.7	-79.92	557.4	-236.1	413.9	381.2	32.69	12.663	
5,950.0	5,730.5	5,776.2	5,614.3	18.3	17.1	-78.26	587.1	-247.1	438.4	404.9	33.55	13.067	
6,000.0	5,737.4	5,809.9	5,624.3	19.0	17.6	-76.65	617.3	-258.3	463.1	428.7	34.45	13.445	
6,046.8	5,739.5	5,841.5	5,631.7	19.7	18.1	-75.21	646.1	-268.9	486.4	451.1	35.32	13.771	
6,100.0	5,739.5	5,878.2	5,638.0	20.4	18.6	-76.86	679.9	-281.4	512.7	476.0	36.78	13.941	
6,200.0	5,739.5	5,951.0	5,643.0	21.7	19.7	-78.74	748.1	-306.6	561.2	521.8	39.42	14.236	
6,300.0	5,739.5	6,080.3	5,643.0	23.2	21.6	-80.09	870.8	-347.3	603.4	560.6	42.81	14.094	
6,400.0	5,739.5	6,220.0	5,643.0	24.7	23.7	-80.96	1,006.1	-381.7	634.4	587.9	46.51	13.640	
6,482.7	5,739.5	6,341.4	5,643.0	25.9	25.6	-81.38	1,125.5	-403.6	650.8	601.1	49.76	13.078	
6,500.0	5,739.5	6,367.2	5,643.0	26.2	26.0	-81.43	1,151.1	-407.3	653.3	602.8	50.45	12.950	
6,600.0	5,739.5	6,518.3	5,643.0	27.8	28.4	-81.61	1,301.4	-421.8	662.8	608.3	54.49	12.164	
6,700.0	5,739.5	6,655.5	5,643.0	29.4	30.6	-81.65	1,438.5	-424.8	664.8	606.4	58.37	11.388	
6,800.0	5,739.4	6,755.5	5,643.0	31.1	32.3	-81.65	1,538.5	-424.8	664.8	603.1	61.72	10.771	
6,900.0	5,739.4	6,855.5	5,643.0	32.8	33.9	-81.66	1,638.5	-424.8	664.8	599.7	65.11	10.210	
7,000.0	5,739.4	6,955.5	5,643.0	34.6	35.6	-81.66	1,738.5	-424.8	664.8	596.2	68.55	9.698	
7,100.0	5,739.4	7,055.5	5,643.0	36.3	37.3	-81.66	1,838.5	-424.8	664.8	592.8	72.02	9.230	
7,200.0	5,739.4	7,155.5	5,643.0	38.1	39.1	-81.66	1,938.5	-424.8	664.8	589.3	75.53	8.802	
7,300.0	5,739.4	7,255.5	5,643.0	39.9	40.8	-81.66	2,038.5	-424.8	664.8	585.7	79.06	8.409	
7,400.0	5,739.4	7,355.5	5,643.0	41.7	42.6	-81.66	2,138.5	-424.8	664.8	582.2	82.62	8.047	
7,500.0	5,739.4	7,455.5	5,643.0	43.5	44.3	-81.66	2,238.5	-424.8	664.8	578.6	86.20	7.712	
7,600.0	5,739.4	7,555.5	5,643.0	45.3	46.1	-81.66	2,338.5	-424.8	664.8	575.0	89.80	7.403	
7,700.0	5,739.4	7,655.5	5,643.0	47.1	47.9	-81.66	2,438.5	-424.8	664.8	571.4	93.41	7.117	
7,800.0	5,739.4	7,755.5	5,643.0	48.9	49.7	-81.66	2,538.5	-424.8	664.8	567.8	97.04	6.851	
7,900.0	5,739.4	7,855.5	5,643.0	50.8	51.5	-81.66	2,638.5	-424.8	664.8	564.1	100.68	6.603	
8,000.0	5,739.4	7,955.5	5,643.0	52.6	53.4	-81.66	2,738.5	-424.8	664.8	560.5	104.33	6.372	
8,100.0	5,739.3	8,055.5	5,643.0	54.4	55.2	-81.66	2,838.5	-424.8	664.8	556.8	108.00	6.156	
8,200.0	5,739.3	8,155.5	5,643.0	56.3	57.0	-81.67	2,938.5	-424.8	664.8	553.1	111.67	5.953	
8,300.0	5,739.3	8,255.5	5,643.0	58.2	58.9	-81.67	3,038.5	-424.8	664.8	549.4	115.36	5.763	
8,400.0	5,739.3	8,355.5	5,643.0	60.0	60.7	-81.67	3,138.5	-424.8	664.8	545.8	119.05	5.584	
8,500.0	5,739.3	8,455.5	5,643.0	61.9	62.6	-81.67	3,238.5	-424.8	664.8	542.1	122.74	5.416	
8,600.0	5,739.3	8,555.5	5,643.0	63.7	64.4	-81.67	3,338.5	-424.8	664.8	538.4	126.45	5.258	
8,700.0	5,739.3	8,655.5	5,643.0	65.6	66.3	-81.67	3,438.5	-424.7	664.8	534.7	130.16	5.108	
8,800.0	5,739.3	8,755.5	5,643.0	67.5	68.1	-81.67	3,538.5	-424.7	664.8	530.9	133.87	4.966	
8,900.0	5,739.3	8,855.5	5,643.0	69.4	70.0	-81.67	3,638.5	-424.7	664.8	527.2	137.59	4.832	
9,000.0	5,739.3	8,955.5	5,643.0	71.2	71.9	-81.67	3,738.5	-424.7	664.8	523.5	141.32	4.704	
9,100.0	5,739.3	9,055.5	5,643.0	73.1	73.7	-81.67	3,838.5	-424.7	664.8	519.8	145.05	4.583	
9,200.0	5,739.3	9,155.5	5,643.0	75.0	75.6	-81.67	3,938.5	-424.7	664.8	516.0	148.78	4.468	
9,300.0	5,739.3	9,255.5	5,643.0	76.9	77.5	-81.67	4,038.5	-424.7	664.8	512.3	152.52	4.359	

CC - Min centre to center distance or covergent 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-2804B
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-2804B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design 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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
9,400.0	5,739.2	9,355.5	5,643.0	78.8	79.4	-81.67	4,138.5	-424.7	664.8	508.6	156.26	4.255	
9,500.0	5,739.2	9,455.5	5,643.0	80.7	81.2	-81.68	4,238.5	-424.7	664.8	504.8	160.00	4.155	
9,600.0	5,739.2	9,555.5	5,643.0	82.6	83.1	-81.68	4,338.5	-424.7	664.8	501.1	163.74	4.060	
9,700.0	5,739.2	9,655.5	5,643.0	84.4	85.0	-81.68	4,438.5	-424.7	664.8	497.3	167.49	3.969	
9,800.0	5,739.2	9,755.5	5,643.0	86.3	86.9	-81.68	4,538.5	-424.7	664.8	493.6	171.24	3.882	
9,900.0	5,739.2	9,855.5	5,643.0	88.2	88.8	-81.68	4,638.5	-424.7	664.8	489.8	175.00	3.799	
10,000.0	5,739.2	9,955.5	5,643.0	90.1	90.7	-81.68	4,738.5	-424.7	664.8	486.1	178.75	3.719	
10,100.0	5,739.2	10,055.5	5,643.0	92.0	92.5	-81.68	4,838.5	-424.7	664.8	482.3	182.51	3.643	
10,200.0	5,739.2	10,155.5	5,643.0	93.9	94.4	-81.68	4,938.5	-424.7	664.8	478.6	186.27	3.569	
10,300.0	5,739.2	10,255.5	5,643.0	95.8	96.3	-81.68	5,038.5	-424.7	664.8	474.8	190.03	3.498	
10,400.0	5,739.2	10,355.5	5,643.0	97.7	98.2	-81.68	5,138.5	-424.7	664.8	471.0	193.80	3.431	
10,500.0	5,739.2	10,455.5	5,643.0	99.6	100.1	-81.68	5,238.5	-424.7	664.8	467.3	197.56	3.365	
10,600.0	5,739.2	10,555.5	5,643.0	101.5	102.0	-81.68	5,338.5	-424.7	664.8	463.5	201.33	3.302	
10,700.0	5,739.1	10,655.5	5,643.0	103.4	103.9	-81.68	5,438.5	-424.7	664.8	459.7	205.10	3.242	
10,800.0	5,739.1	10,755.5	5,643.0	105.3	105.8	-81.68	5,538.5	-424.7	664.8	456.0	208.87	3.183	
10,900.0	5,739.1	10,855.5	5,643.0	107.2	107.7	-81.69	5,638.5	-424.7	664.8	452.2	212.64	3.127	
11,000.0	5,739.1	10,955.5	5,643.0	109.1	109.6	-81.69	5,738.5	-424.7	664.8	448.4	216.41	3.072	
11,100.0	5,739.1	11,055.5	5,643.0	111.0	111.5	-81.69	5,838.5	-424.7	664.8	444.7	220.19	3.019	
11,200.0	5,739.1	11,155.5	5,643.0	112.9	113.4	-81.69	5,938.5	-424.6	664.8	440.9	223.96	2.969	
11,300.0	5,739.1	11,255.5	5,643.0	114.8	115.3	-81.69	6,038.5	-424.6	664.8	437.1	227.74	2.919	
11,400.0	5,739.1	11,355.5	5,643.0	116.7	117.2	-81.69	6,138.5	-424.6	664.8	433.3	231.51	2.872	
11,500.0	5,739.1	11,455.5	5,643.0	118.6	119.1	-81.69	6,238.5	-424.6	664.8	429.6	235.29	2.826	
11,600.0	5,739.1	11,555.5	5,643.0	120.5	121.0	-81.69	6,338.5	-424.6	664.9	425.8	239.07	2.781	
11,700.0	5,739.1	11,655.5	5,643.0	122.5	122.9	-81.69	6,438.5	-424.6	664.9	422.0	242.85	2.738	
11,800.0	5,739.1	11,755.5	5,643.0	124.4	124.8	-81.69	6,538.5	-424.6	664.9	418.2	246.63	2.696	
11,900.0	5,739.1	11,855.5	5,643.0	126.3	126.7	-81.69	6,638.5	-424.6	664.9	414.4	250.41	2.655	
12,000.0	5,739.1	11,955.5	5,643.0	128.2	128.6	-81.69	6,738.5	-424.6	664.9	410.7	254.19	2.616	
12,100.0	5,739.0	12,055.5	5,643.0	130.1	130.5	-81.69	6,838.5	-424.6	664.9	406.9	257.97	2.577	
12,200.0	5,739.0	12,155.5	5,643.0	132.0	132.4	-81.70	6,938.5	-424.6	664.9	403.1	261.76	2.540	
12,300.0	5,739.0	12,255.5	5,643.0	133.9	134.3	-81.70	7,038.5	-424.6	664.9	399.3	265.54	2.504	
12,400.0	5,739.0	12,355.5	5,643.0	135.8	136.2	-81.70	7,138.5	-424.6	664.9	395.5	269.33	2.469	
12,500.0	5,739.0	12,455.5	5,643.0	137.7	138.1	-81.70	7,238.5	-424.6	664.9	391.8	273.11	2.434	
12,510.6	5,739.0	12,466.1	5,643.0	137.9	138.3	-81.70	7,249.1	-424.6	664.9	391.4	273.51	2.431	
12,524.9	5,739.0	12,479.3	5,643.0	138.2	138.6	-81.70	7,262.4	-424.6	664.9	390.8	274.03	2.426	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #33M-2804B
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-2804B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design 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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-110.8	110.8				
100.0	100.0	100.8	100.8	0.1	0.1	-89.83	0.3	-110.4	110.4	110.2	0.20	554.214	
200.0	200.0	201.6	201.6	0.3	0.2	-89.31	1.3	-109.3	109.3	108.7	0.54	203.714	
300.0	300.0	301.5	301.5	0.5	0.4	-88.59	2.7	-107.9	107.9	107.0	0.97	111.004	
400.0	400.0	401.8	401.8	0.8	0.6	-87.99	3.7	-106.3	106.4	105.0	1.40	75.841	
500.0	500.0	501.7	501.6	1.0	0.9	-87.48	4.6	-104.6	104.7	102.9	1.84	56.976	
600.0	600.0	601.5	601.4	1.2	1.1	-87.16	5.1	-103.2	103.3	101.1	2.27	45.538	
700.0	700.0	701.5	701.4	1.4	1.3	-86.95	5.4	-101.8	102.0	99.3	2.70	37.761	
800.0	800.0	801.5	801.4	1.7	1.5	-86.90	5.4	-100.4	100.6	97.5	3.14	32.052	
900.0	900.0	901.5	901.4	1.9	1.7	-86.91	5.3	-99.1	99.2	95.6	3.58	27.750	
1,000.0	1,000.0	1,001.7	1,001.6	2.1	1.9	-86.81	5.4	-97.6	97.8	93.8	4.01	24.385	
1,100.0	1,100.0	1,102.0	1,101.8	2.3	2.1	-100.87	5.5	-95.7	96.2	91.8	4.45	21.636	
1,200.0	1,199.8	1,201.8	1,201.7	2.6	2.3	-104.00	5.3	-93.8	95.4	90.5	4.88	19.539	
1,267.2	1,266.9	1,269.0	1,268.8	2.7	2.5	-106.82	5.2	-92.5	95.4	90.2	5.18	18.411	CC
1,300.0	1,299.6	1,301.8	1,301.6	2.8	2.6	-108.19	5.2	-91.8	95.4	90.1	5.32	17.912	
1,400.0	1,399.4	1,401.8	1,401.6	3.0	2.8	-112.39	5.0	-89.5	95.5	89.8	5.77	16.556	ES
1,500.0	1,499.1	1,501.8	1,501.6	3.3	3.0	-116.77	4.5	-86.9	96.0	89.8	6.22	15.428	
1,600.0	1,598.9	1,601.5	1,601.2	3.5	3.2	-121.42	3.5	-84.0	96.8	90.2	6.68	14.507	
1,700.0	1,698.6	1,700.4	1,700.1	3.7	3.4	-125.94	2.4	-81.4	98.7	91.5	7.12	13.857	
1,800.0	1,798.4	1,799.8	1,799.4	4.0	3.6	-129.68	2.0	-79.9	101.7	94.2	7.55	13.477	
1,900.0	1,898.1	1,899.0	1,898.6	4.2	3.8	-133.05	1.5	-78.8	105.6	97.6	7.99	13.220	
2,000.0	1,997.9	1,997.6	1,997.3	4.5	4.0	-136.05	0.8	-78.5	110.6	102.1	8.43	13.120	
2,100.0	2,097.6	2,096.8	2,096.4	4.7	4.2	-138.79	-0.3	-78.8	116.6	107.7	8.87	13.148	
2,200.0	2,197.4	2,196.3	2,195.9	5.0	4.4	-141.20	-1.3	-79.2	123.0	113.7	9.31	13.215	
2,300.0	2,297.2	2,295.5	2,295.1	5.2	4.6	-143.31	-2.7	-80.2	130.1	120.4	9.74	13.356	
2,400.0	2,396.9	2,396.5	2,396.1	5.5	4.8	-145.18	-3.6	-80.9	136.9	126.7	10.18	13.448	
2,500.0	2,496.7	2,496.5	2,496.2	5.7	5.0	-146.32	-2.9	-81.9	142.9	132.3	10.61	13.465	
2,600.0	2,596.4	2,596.1	2,595.7	6.0	5.3	-147.30	-2.3	-83.2	149.3	138.3	11.05	13.512	
2,700.0	2,696.2	2,696.2	2,695.8	6.2	5.5	-148.09	-1.4	-84.6	155.6	144.1	11.49	13.543	
2,800.0	2,795.9	2,796.7	2,796.3	6.5	5.7	-149.08	-0.9	-85.3	161.6	149.7	11.93	13.550	
2,900.0	2,895.7	2,898.0	2,897.6	6.7	5.9	-150.08	0.1	-85.4	167.0	154.6	12.37	13.504	
3,000.0	2,995.5	2,998.1	2,997.6	7.0	6.1	-150.89	1.8	-85.3	171.7	158.9	12.81	13.410	
3,100.0	3,095.2	3,098.2	3,097.7	7.2	6.3	-151.70	3.4	-85.1	176.6	163.3	13.25	13.331	
3,200.0	3,195.0	3,197.8	3,197.3	7.5	6.5	-152.42	5.1	-84.9	181.3	167.6	13.68	13.252	
3,300.0	3,294.7	3,296.8	3,296.3	7.7	6.7	-153.25	6.2	-84.6	186.4	172.3	14.12	13.201	
3,400.0	3,394.5	3,397.5	3,397.0	8.0	6.9	-154.09	7.3	-84.2	191.7	177.1	14.56	13.160	
3,500.0	3,494.2	3,498.0	3,497.5	8.2	7.1	-154.87	8.8	-83.5	196.4	181.4	15.00	13.090	
3,600.0	3,594.0	3,596.9	3,596.4	8.5	7.3	-155.59	10.2	-82.9	201.2	185.8	15.44	13.034	
3,700.0	3,693.7	3,696.9	3,696.4	8.7	7.6	-156.30	11.6	-82.2	206.0	190.2	15.87	12.978	
3,800.0	3,793.5	3,783.0	3,782.4	9.0	7.7	-156.62	11.1	-84.1	214.2	197.9	16.29	13.154	
3,900.0	3,893.3	3,881.4	3,880.6	9.3	7.9	-156.84	8.1	-88.7	225.8	209.1	16.72	13.503	
4,000.0	3,993.0	3,980.3	3,979.5	9.5	8.1	-157.18	4.3	-93.1	237.9	220.8	17.16	13.862	
4,100.0	4,092.8	4,082.5	4,081.5	9.8	8.4	-157.65	0.5	-96.7	249.5	231.9	17.61	14.168	
4,200.0	4,192.5	4,184.1	4,183.0	10.0	8.6	-158.19	-2.7	-99.3	259.9	241.9	18.05	14.402	
4,300.0	4,292.3	4,284.3	4,283.1	10.3	8.8	-158.66	-5.4	-101.6	270.0	251.5	18.48	14.610	
4,400.0	4,392.0	4,386.2	4,385.0	10.5	9.0	-159.12	-7.7	-103.6	279.4	260.5	18.92	14.769	
4,500.0	4,491.8	4,487.5	4,486.3	10.8	9.2	-159.62	-9.5	-104.8	288.1	268.8	19.36	14.883	
4,600.0	4,591.6	4,588.4	4,587.2	11.0	9.4	-159.90	-10.4	-106.7	296.4	276.6	19.80	14.969	
4,700.0	4,691.3	4,688.5	4,687.3	11.3	9.6	-160.08	-10.7	-108.6	304.2	284.0	20.24	15.034	
4,800.0	4,791.1	4,790.7	4,789.5	11.5	9.8	-160.26	-10.9	-110.4	311.9	291.2	20.68	15.083	
4,900.0	4,890.8	4,891.4	4,890.1	11.8	10.0	-160.35	-10.0	-112.1	318.7	297.5	21.12	15.086	
5,000.0	4,990.6	4,991.2	4,989.9	12.1	10.2	-160.42	-9.2	-113.8	325.5	303.9	21.56	15.096	

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

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #33M-2804B
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-2804B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design 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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.0	5,090.3	5,090.2	5,088.8	12.3	10.4	-160.46	-8.3	-115.8	332.4	310.4	22.00	15.107	
5,200.0	5,190.1	5,273.6	5,270.4	12.6	10.8	-158.87	11.1	-119.3	334.5	311.9	22.64	14.778	
5,265.0	5,254.9	5,369.7	5,360.4	12.7	11.1	-155.91	44.6	-118.5	319.2	296.2	23.03	13.860	
5,300.0	5,289.7	5,410.9	5,397.7	12.8	11.2	-154.63	61.9	-118.5	310.5	287.3	23.14	13.417	
5,350.0	5,338.9	5,484.0	5,462.0	13.0	11.4	-151.98	96.7	-118.5	299.5	276.2	23.25	12.879	
5,400.0	5,386.9	5,553.6	5,519.2	13.2	11.6	-148.98	136.2	-118.2	288.9	265.5	23.31	12.392	
5,450.0	5,433.4	5,652.1	5,590.6	13.5	12.1	-143.27	203.8	-116.4	277.3	253.6	23.65	11.727	
5,500.0	5,477.9	5,712.0	5,626.6	13.7	12.5	-139.10	251.6	-114.8	264.6	240.7	23.91	11.066	
5,550.0	5,520.0	5,764.9	5,655.4	14.1	12.9	-135.07	296.0	-114.1	255.2	230.9	24.31	10.496	
5,600.0	5,559.3	5,821.4	5,682.6	14.4	13.4	-130.35	345.5	-113.4	248.7	223.7	25.05	9.928	
5,650.0	5,595.5	5,877.5	5,704.6	14.8	14.0	-125.07	397.0	-113.8	245.4	219.2	26.16	9.381	
5,685.1	5,618.8	5,914.9	5,716.5	15.2	14.4	-121.28	432.5	-114.2	244.7	217.6	27.10	9.027	
5,700.0	5,628.2	5,931.2	5,721.1	15.3	14.6	-119.64	448.1	-114.3	244.8	217.2	27.54	8.887	
5,739.8	5,651.6	5,988.1	5,734.9	15.7	15.2	-114.22	503.3	-111.8	244.3	215.2	29.10	8.395	
5,750.0	5,657.2	5,998.0	5,736.8	15.8	15.3	-113.28	512.9	-111.2	244.3	214.9	29.39	8.313	
5,800.0	5,682.1	6,047.8	5,743.1	16.4	15.9	-108.23	562.3	-108.8	246.1	215.0	31.03	7.930	
5,850.0	5,702.7	6,087.8	5,744.0	17.0	16.5	-103.71	602.2	-108.0	251.3	218.8	32.53	7.725	
5,900.0	5,718.9	6,133.0	5,743.1	17.6	17.1	-98.94	647.4	-108.2	259.9	225.8	34.12	7.618	
5,950.0	5,730.5	6,172.0	5,742.1	18.3	17.6	-95.31	686.4	-109.0	271.0	235.5	35.46	7.643	
6,000.0	5,737.4	6,215.0	5,741.6	19.0	18.1	-92.34	729.3	-110.9	284.0	247.3	36.73	7.732	
6,046.8	5,739.5	6,264.9	5,741.6	19.7	18.7	-90.43	779.2	-113.3	296.8	258.8	38.02	7.808	
6,100.0	5,739.5	6,319.2	5,741.2	20.4	19.4	-90.33	833.5	-114.5	309.3	269.7	39.53	7.824	
6,200.0	5,739.5	6,424.2	5,740.9	21.7	20.9	-90.25	938.5	-115.7	327.7	285.3	42.43	7.724	
6,300.0	5,739.5	6,525.8	5,740.7	23.2	22.4	-90.21	1,040.0	-115.4	339.6	294.2	45.40	7.480	
6,400.0	5,739.5	6,618.0	5,740.3	24.7	23.8	-90.13	1,132.2	-116.2	347.3	299.1	48.24	7.199	
6,482.7	5,739.5	6,690.1	5,739.9	25.9	25.0	-90.07	1,204.3	-118.9	352.2	301.6	50.55	6.966	
6,500.0	5,739.5	6,707.4	5,739.8	26.2	25.3	-90.05	1,221.6	-119.7	353.0	301.9	51.11	6.907	
6,600.0	5,739.5	6,807.0	5,739.3	27.8	26.8	-89.97	1,321.1	-124.4	357.7	303.4	54.31	6.587	
6,700.0	5,739.5	6,917.3	5,737.1	29.4	28.6	-89.62	1,431.2	-127.7	360.7	302.9	57.77	6.244	
6,800.0	5,739.4	7,014.3	5,732.9	31.1	30.2	-88.97	1,528.1	-130.0	363.1	302.1	61.00	5.953	
6,900.0	5,739.4	7,123.0	5,731.8	32.8	31.9	-88.80	1,636.8	-132.2	365.2	300.7	64.47	5.664	
7,000.0	5,739.4	7,238.4	5,730.1	34.6	33.8	-88.53	1,752.2	-129.5	362.8	294.7	68.10	5.328	
7,100.0	5,739.4	7,349.1	5,730.1	36.3	35.6	-88.51	1,862.7	-124.1	357.9	286.3	71.60	4.999	
7,200.0	5,739.4	7,442.1	5,730.5	38.1	37.1	-88.54	1,955.5	-118.1	351.6	276.7	74.92	4.693	
7,300.0	5,739.4	7,537.1	5,730.6	39.9	38.7	-88.54	2,050.4	-113.0	346.2	267.9	78.31	4.421	
7,342.3	5,739.4	7,567.6	5,730.8	40.6	39.2	-88.57	2,080.9	-112.6	345.6	266.1	79.58	4.343	
7,400.0	5,739.4	7,625.5	5,731.3	41.7	40.2	-88.66	2,138.8	-112.7	345.7	264.1	81.61	4.236	
7,402.0	5,739.4	7,627.2	5,731.3	41.7	40.2	-88.66	2,140.5	-112.7	345.7	264.1	81.68	4.233	
7,500.0	5,739.4	7,719.3	5,728.7	43.5	41.8	-88.23	2,232.6	-113.7	346.9	261.9	85.02	4.080	
7,600.0	5,739.4	7,810.7	5,728.4	45.3	43.3	-88.20	2,323.9	-116.7	350.1	261.7	88.37	3.962	
7,700.0	5,739.4	7,916.2	5,725.6	47.1	45.2	-87.76	2,429.3	-120.3	353.7	261.6	92.05	3.842	
7,800.0	5,739.4	8,018.1	5,717.3	48.9	47.0	-86.45	2,530.8	-122.2	356.0	260.4	95.57	3.725	
7,900.0	5,739.4	8,126.9	5,709.0	50.8	48.8	-85.13	2,639.3	-123.1	357.4	258.3	99.08	3.607	
8,000.0	5,739.4	8,242.6	5,706.2	52.6	50.8	-84.64	2,754.8	-119.7	354.6	251.9	102.76	3.451	
8,100.0	5,739.3	8,339.1	5,710.3	54.4	52.4	-85.23	2,851.2	-115.9	350.4	244.1	106.31	3.296	
8,200.0	5,739.3	8,433.2	5,713.3	56.3	54.0	-85.71	2,945.2	-113.5	347.6	237.7	109.87	3.164	
8,300.0	5,739.3	8,529.4	5,713.7	58.2	55.7	-85.76	3,041.4	-112.5	346.5	233.1	113.40	3.056	
8,346.3	5,739.3	8,572.3	5,714.3	59.0	56.4	-85.85	3,084.3	-112.4	346.3	231.3	115.00	3.011	
8,400.0	5,739.3	8,620.5	5,715.2	60.0	57.3	-86.01	3,132.4	-112.7	346.6	229.8	116.86	2.966	
8,500.0	5,739.3	8,703.6	5,719.2	61.9	58.7	-86.71	3,215.4	-117.0	351.4	231.1	120.27	2.922	
8,600.0	5,739.3	8,803.3	5,723.2	63.7	60.5	-87.42	3,314.7	-124.7	358.9	234.9	123.98	2.895	
8,700.0	5,739.3	8,905.3	5,726.2	65.6	62.3	-87.94	3,416.3	-132.0	365.9	238.2	127.70	2.866	

CC - Min centre to center distance or covergent 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-2804B
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-2804B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design 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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
8,800.0	5,739.3	9,012.9	5,727.1	67.5	64.2	-88.11	3,523.9	-136.5	370.0	238.5	131.50	2.814	
8,900.0	5,739.3	9,125.5	5,728.7	69.4	66.2	-88.37	3,636.4	-139.9	373.1	237.7	135.37	2.756	
8,978.5	5,739.3	9,206.0	5,730.2	70.8	67.6	-88.60	3,716.9	-139.7	372.9	234.6	138.26	2.697	
9,000.0	5,739.3	9,225.6	5,730.7	71.2	68.0	-88.69	3,736.5	-139.8	373.0	234.0	139.01	2.683	
9,100.0	5,739.3	9,323.9	5,734.5	73.1	69.7	-89.27	3,834.7	-141.2	374.3	231.7	142.65	2.624	
9,200.0	5,739.3	9,430.5	5,736.8	75.0	71.6	-89.63	3,941.2	-141.2	374.3	227.9	146.46	2.556	
9,300.0	5,739.3	9,528.0	5,736.2	76.9	73.3	-89.54	4,038.8	-140.9	374.0	223.9	150.09	2.492	
9,400.0	5,739.2	9,628.3	5,734.8	78.8	75.1	-89.32	4,139.1	-140.3	373.5	219.7	153.72	2.430	
9,403.6	5,739.2	9,631.4	5,734.8	78.8	75.1	-89.32	4,142.1	-140.3	373.5	219.6	153.84	2.428	
9,500.0	5,739.2	9,707.2	5,736.0	80.7	76.5	-89.51	4,217.9	-142.7	376.4	219.4	157.00	2.398	
9,600.0	5,739.2	9,813.9	5,737.3	82.6	78.4	-89.71	4,324.4	-148.5	381.9	221.1	160.80	2.375	
9,700.0	5,739.2	9,929.4	5,737.0	84.4	80.4	-89.66	4,439.8	-150.9	384.0	219.2	164.76	2.331	
9,750.9	5,739.2	9,979.0	5,736.2	85.4	81.3	-89.56	4,489.4	-150.6	383.8	217.1	166.61	2.303	
9,800.0	5,739.2	10,021.5	5,735.3	86.3	82.1	-89.42	4,531.9	-151.0	384.2	216.0	168.28	2.283	
9,900.0	5,739.2	10,125.1	5,735.0	88.2	83.9	-89.38	4,635.5	-153.3	386.5	214.5	171.99	2.247	
10,000.0	5,739.2	10,235.0	5,736.5	90.1	85.8	-89.60	4,745.4	-151.3	384.5	208.6	175.81	2.187	
10,100.0	5,739.2	10,333.9	5,737.2	92.0	87.6	-89.70	4,844.2	-149.6	382.8	203.3	179.47	2.133	
10,165.0	5,739.2	10,393.2	5,736.8	93.3	88.6	-89.64	4,903.6	-149.1	382.2	200.5	181.76	2.103	
10,200.0	5,739.2	10,424.4	5,736.4	93.9	89.2	-89.58	4,934.8	-149.3	382.5	199.5	182.97	2.090	
10,300.0	5,739.2	10,526.9	5,735.9	95.8	91.0	-89.51	5,037.2	-149.8	382.9	196.3	186.65	2.052	
10,400.0	5,739.2	10,622.1	5,736.6	97.7	92.6	-89.61	5,132.5	-150.4	383.6	193.4	190.23	2.017	
10,500.0	5,739.2	10,724.5	5,736.9	99.6	94.5	-89.67	5,234.9	-151.7	384.9	190.9	193.95	1.984	
10,600.0	5,739.2	10,827.6	5,737.3	101.5	96.3	-89.73	5,337.9	-152.8	386.0	188.3	197.70	1.952	
10,669.3	5,739.2	10,897.9	5,734.8	102.8	97.6	-89.36	5,408.1	-152.6	385.8	185.6	200.27	1.927	
10,700.0	5,739.1	10,922.3	5,733.8	103.4	98.0	-89.21	5,432.5	-152.8	386.0	184.8	201.28	1.918	
10,800.0	5,739.1	11,015.7	5,730.8	105.3	99.7	-88.77	5,525.9	-155.2	388.7	183.9	204.82	1.898	
10,900.0	5,739.1	11,115.1	5,726.2	107.2	101.5	-88.10	5,625.1	-158.1	391.8	183.3	208.46	1.879	
11,000.0	5,739.1	11,215.1	5,718.9	109.1	103.3	-87.07	5,724.8	-161.4	395.4	183.4	212.01	1.865	
11,100.0	5,739.1	11,310.2	5,711.8	111.0	104.9	-86.08	5,819.6	-164.9	399.5	184.1	215.39	1.855	
11,200.0	5,739.1	11,413.6	5,706.5	112.9	106.8	-85.37	5,922.7	-168.7	403.5	184.6	218.91	1.843	
11,300.0	5,739.1	11,510.8	5,701.8	114.8	108.5	-84.75	6,019.7	-172.7	408.0	185.7	222.38	1.835	
11,400.0	5,739.1	11,631.1	5,696.6	116.7	110.6	-84.05	6,139.9	-174.8	410.2	184.1	226.16	1.814	
11,500.0	5,739.1	11,746.8	5,694.5	118.6	112.7	-83.72	6,255.6	-171.9	408.0	178.0	229.94	1.774	
11,600.0	5,739.1	11,862.3	5,694.7	120.5	114.7	-83.63	6,370.7	-164.5	401.6	167.7	233.82	1.717	
11,700.0	5,739.1	11,956.9	5,694.3	122.5	116.3	-83.44	6,465.0	-156.3	393.0	155.7	237.30	1.656	
11,800.0	5,739.1	12,054.3	5,693.9	124.4	118.0	-83.27	6,562.2	-149.8	386.5	145.6	240.83	1.605	
11,900.0	5,739.1	12,154.0	5,693.4	126.3	119.8	-83.10	6,661.7	-143.8	380.5	136.1	244.40	1.557	
11,944.1	5,739.1	12,175.0	5,693.3	127.1	120.2	-83.06	6,682.7	-142.5	378.5	132.9	245.59	1.541	SF
12,000.0	5,739.1	12,175.0	5,693.3	128.2	120.2	-83.06	6,682.7	-142.5	382.6	136.0	246.65	1.551	
12,100.0	5,739.0	12,175.0	5,693.3	130.1	120.2	-83.06	6,682.7	-142.5	409.3	160.8	248.54	1.647	
12,200.0	5,739.0	12,175.0	5,693.3	132.0	120.2	-83.06	6,682.7	-142.5	456.9	206.4	250.44	1.824	
12,300.0	5,739.0	12,175.0	5,693.3	133.9	120.2	-83.06	6,682.7	-142.5	519.5	267.2	252.34	2.059	
12,400.0	5,739.0	12,175.0	5,693.3	135.8	120.2	-83.06	6,682.7	-142.5	592.5	338.3	254.24	2.331	
12,500.0	5,739.0	12,175.0	5,693.3	137.7	120.2	-83.06	6,682.7	-142.5	672.5	416.4	256.13	2.626	
12,524.9	5,739.0	12,175.0	5,693.3	138.2	120.2	-83.06	6,682.7	-142.5	693.3	436.7	256.61	2.702	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #33M-2804B
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-2804B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference 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-2804B
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.05°