

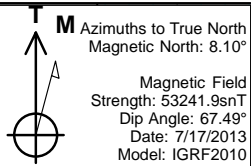


Project: Weld County, CO  
Site: S11-T10N-R58W  
Well: Razor #11H-1415A  
Wellbore: HZ  
Design: Plan #2



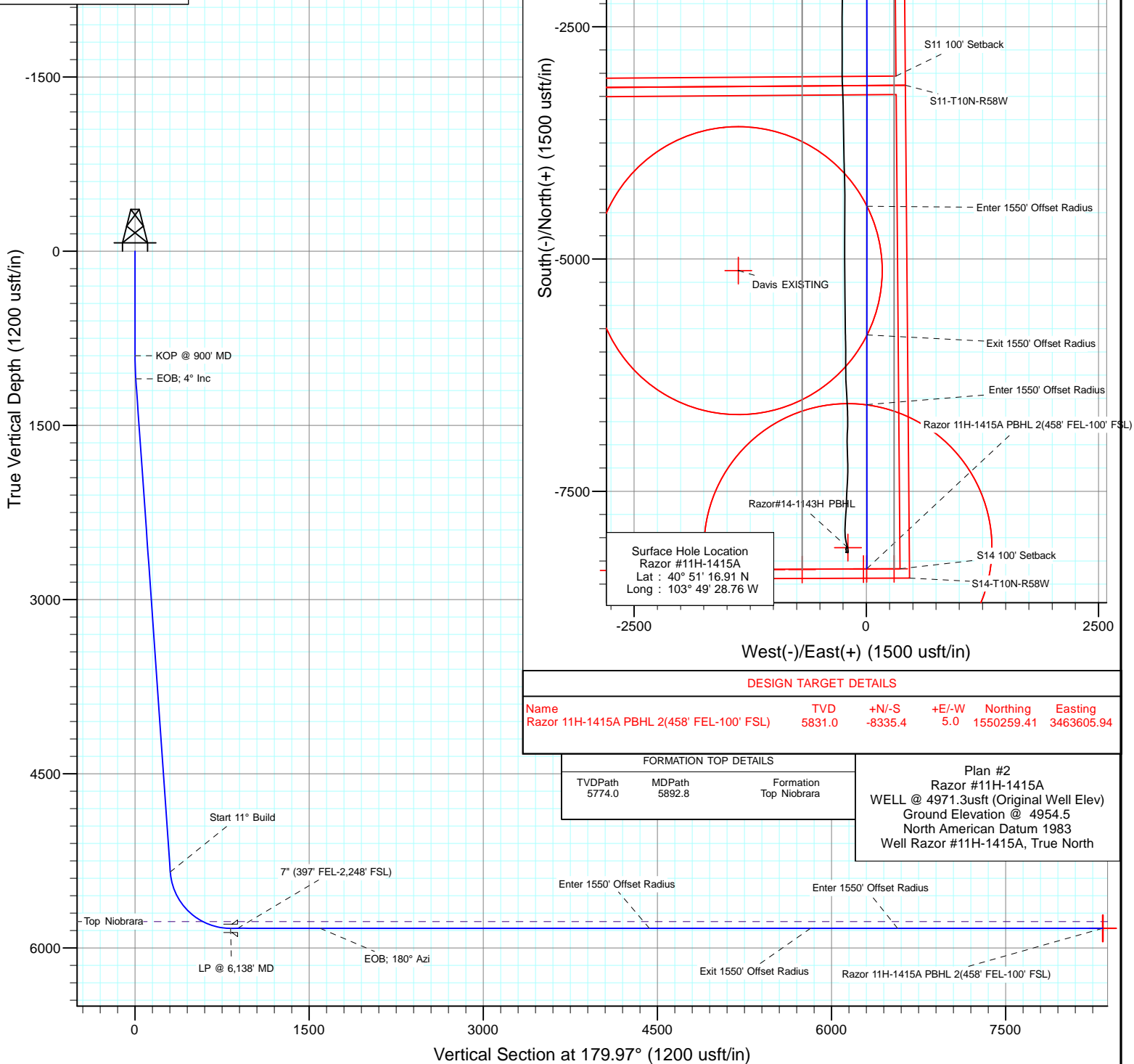
#### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	900.0	0.00	0.00	900.0	0.0	0.0	0.00	0.00	0.0	KOP @ 900' MD
3	1100.0	4.00	179.74	1099.8	-7.0	0.0	2.00	179.74	7.0	EOB; 4° Inc
4	5357.0	4.00	179.74	5346.5	-303.9	1.4	0.00	0.00	303.9	Start 11° Build
5	6138.8	90.00	179.74	5831.0	-823.5	3.7	11.00	0.00	823.5	LP @ 6,138' MD
6	6909.5	90.00	180.00	5831.0	-1594.2	5.5	0.03	89.99	1594.2	EOB; 180° Azi
7	13650.7	90.00	180.00	5831.0	-8335.4	5.0	0.00	0.00	8335.4	



M Azimuths to True North  
Magnetic North: 8.10°

Magnetic Field  
Strength: 53241.9snT  
Dip Angle: 67.49°  
Date: 7/17/2013  
Model: IGRF2010



# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Company:</b>	Whiting Petroleum Corporation	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site:</b>	S11-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #2		

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

Site		S11-T10N-R58W			
Site Position:		Northing:	1,558,620.57 usft	Latitude:	40° 51' 17.19 N
From:	Lat/Long	Easting:	3,463,389.92 usft	Longitude:	103° 49' 29.45 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	1.08 °

Well	Razor #11H-1415A					
Well Position	+N/-S	0.0 usft	Northing:	1,558,593.23 usft	Latitude:	40° 51' 16.91 N
	+E/-W	0.0 usft	Easting:	3,463,443.47 usft	Longitude:	103° 49' 28.76 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	4,954.5 usft

<b>Wellbore</b>	HZ				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	7/17/2013	8.10	67.49	53,242

<b>Design</b>	Plan #2				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.0	
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	179.97	

<b>Plan Sections</b>										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,100.0	4.00	179.74	1,099.8	-7.0	0.0	2.00	2.00	0.00	179.74	
5,357.0	4.00	179.74	5,346.5	-303.9	1.4	0.00	0.00	0.00	0.00	
6,138.8	90.00	179.74	5,831.0	-823.5	3.7	11.00	11.00	0.00	0.00	
6,909.5	90.00	180.00	5,831.0	-1,594.2	5.5	0.03	0.00	0.03	89.99	
13,650.7	90.00	180.00	5,831.0	-8,335.4	5.0	0.00	0.00	0.00	0.00	Razor 11H-1415A PBI

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Company:</b>	Whiting Petroleum Corporation	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site:</b>	S11-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #2		

### Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
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	KOP @ 900' MD
1,000.0	2.00	179.74	1,000.0	-1.7	0.0	1.7	2.00	2.00	
1,100.0	4.00	179.74	1,099.8	-7.0	0.0	7.0	2.00	2.00	EOB; 4° Inc
1,200.0	4.00	179.74	1,199.6	-14.0	0.1	14.0	0.00	0.00	
1,300.0	4.00	179.74	1,299.4	-20.9	0.1	20.9	0.00	0.00	
1,400.0	4.00	179.74	1,399.1	-27.9	0.1	27.9	0.00	0.00	
1,500.0	4.00	179.74	1,498.9	-34.9	0.2	34.9	0.00	0.00	
1,600.0	4.00	179.74	1,598.6	-41.9	0.2	41.9	0.00	0.00	
1,700.0	4.00	179.74	1,698.4	-48.8	0.2	48.8	0.00	0.00	
1,800.0	4.00	179.74	1,798.1	-55.8	0.3	55.8	0.00	0.00	
1,900.0	4.00	179.74	1,897.9	-62.8	0.3	62.8	0.00	0.00	
2,000.0	4.00	179.74	1,997.6	-69.8	0.3	69.8	0.00	0.00	
2,100.0	4.00	179.74	2,097.4	-76.7	0.3	76.7	0.00	0.00	
2,200.0	4.00	179.74	2,197.2	-83.7	0.4	83.7	0.00	0.00	
2,300.0	4.00	179.74	2,296.9	-90.7	0.4	90.7	0.00	0.00	
2,400.0	4.00	179.74	2,396.7	-97.7	0.4	97.7	0.00	0.00	
2,500.0	4.00	179.74	2,496.4	-104.6	0.5	104.6	0.00	0.00	
2,600.0	4.00	179.74	2,596.2	-111.6	0.5	111.6	0.00	0.00	
2,700.0	4.00	179.74	2,695.9	-118.6	0.5	118.6	0.00	0.00	
2,800.0	4.00	179.74	2,795.7	-125.6	0.6	125.6	0.00	0.00	
2,900.0	4.00	179.74	2,895.5	-132.5	0.6	132.5	0.00	0.00	
3,000.0	4.00	179.74	2,995.2	-139.5	0.6	139.5	0.00	0.00	
3,100.0	4.00	179.74	3,095.0	-146.5	0.7	146.5	0.00	0.00	
3,200.0	4.00	179.74	3,194.7	-153.5	0.7	153.5	0.00	0.00	
3,300.0	4.00	179.74	3,294.5	-160.4	0.7	160.4	0.00	0.00	
3,400.0	4.00	179.74	3,394.2	-167.4	0.8	167.4	0.00	0.00	
3,500.0	4.00	179.74	3,494.0	-174.4	0.8	174.4	0.00	0.00	
3,600.0	4.00	179.74	3,593.7	-181.4	0.8	181.4	0.00	0.00	
3,700.0	4.00	179.74	3,693.5	-188.3	0.9	188.3	0.00	0.00	
3,800.0	4.00	179.74	3,793.3	-195.3	0.9	195.3	0.00	0.00	
3,900.0	4.00	179.74	3,893.0	-202.3	0.9	202.3	0.00	0.00	
4,000.0	4.00	179.74	3,992.8	-209.3	0.9	209.3	0.00	0.00	
4,100.0	4.00	179.74	4,092.5	-216.2	1.0	216.2	0.00	0.00	
4,200.0	4.00	179.74	4,192.3	-223.2	1.0	223.2	0.00	0.00	
4,300.0	4.00	179.74	4,292.0	-230.2	1.0	230.2	0.00	0.00	
4,400.0	4.00	179.74	4,391.8	-237.2	1.1	237.2	0.00	0.00	
4,500.0	4.00	179.74	4,491.6	-244.1	1.1	244.1	0.00	0.00	
4,600.0	4.00	179.74	4,591.3	-251.1	1.1	251.1	0.00	0.00	
4,700.0	4.00	179.74	4,691.1	-258.1	1.2	258.1	0.00	0.00	
4,800.0	4.00	179.74	4,790.8	-265.1	1.2	265.1	0.00	0.00	
4,900.0	4.00	179.74	4,890.6	-272.1	1.2	272.1	0.00	0.00	
5,000.0	4.00	179.74	4,990.3	-279.0	1.3	279.0	0.00	0.00	
5,100.0	4.00	179.74	5,090.1	-286.0	1.3	286.0	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Company:</b>	Whiting Petroleum Corporation	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site:</b>	S11-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
5,200.0	4.00	179.74	5,189.9	-293.0	1.3	293.0	0.00	0.00	
5,300.0	4.00	179.74	5,289.6	-300.0	1.4	300.0	0.00	0.00	
5,357.0	4.00	179.74	5,346.5	-303.9	1.4	303.9	0.00	0.00	Start 11° Build
5,400.0	8.73	179.74	5,389.2	-308.7	1.4	308.7	11.00	11.00	
5,500.0	19.73	179.74	5,486.0	-333.2	1.5	333.2	11.00	11.00	
5,600.0	30.73	179.74	5,576.3	-375.8	1.7	375.8	11.00	11.00	
5,700.0	41.73	179.74	5,656.8	-434.8	2.0	434.8	11.00	11.00	
5,800.0	52.73	179.74	5,724.6	-508.1	2.3	508.1	11.00	11.00	
5,892.8	62.94	179.74	5,774.0	-586.6	2.7	586.6	11.00	11.00	Top Niobrara
5,900.0	63.73	179.74	5,777.2	-593.0	2.7	593.0	11.00	11.00	
6,000.0	74.73	179.74	5,812.6	-686.4	3.1	686.4	11.00	11.00	
6,100.0	85.73	179.74	5,829.5	-784.8	3.6	784.8	11.00	11.00	
6,138.8	90.00	179.74	5,831.0	-823.5	3.7	823.5	11.00	11.00	LP @ 6,138' MD
6,200.0	90.00	179.76	5,831.0	-884.7	4.0	884.7	0.03	0.00	7" (397' FEL-2,248' FSL)
6,300.0	90.00	179.80	5,831.0	-984.7	4.4	984.7	0.03	0.00	
6,400.0	90.00	179.83	5,831.0	-1,084.7	4.7	1,084.7	0.03	0.00	
6,500.0	90.00	179.86	5,831.0	-1,184.7	5.0	1,184.7	0.03	0.00	
6,600.0	90.00	179.90	5,831.0	-1,284.7	5.2	1,284.7	0.03	0.00	
6,700.0	90.00	179.93	5,831.0	-1,384.7	5.3	1,384.7	0.03	0.00	
6,800.0	90.00	179.97	5,831.0	-1,484.7	5.4	1,484.7	0.03	0.00	
6,900.0	90.00	180.00	5,831.0	-1,584.7	5.5	1,584.7	0.03	0.00	
6,909.5	90.00	180.00	5,831.0	-1,594.2	5.5	1,594.2	0.03	0.00	EOB; 180° Azi
7,000.0	90.00	180.00	5,831.0	-1,684.7	5.5	1,684.7	0.00	0.00	
7,100.0	90.00	180.00	5,831.0	-1,784.7	5.4	1,784.7	0.00	0.00	
7,200.0	90.00	180.00	5,831.0	-1,884.7	5.4	1,884.7	0.00	0.00	
7,300.0	90.00	180.00	5,831.0	-1,984.7	5.4	1,984.7	0.00	0.00	
7,400.0	90.00	180.00	5,831.0	-2,084.7	5.4	2,084.7	0.00	0.00	
7,500.0	90.00	180.00	5,831.0	-2,184.7	5.4	2,184.7	0.00	0.00	
7,600.0	90.00	180.00	5,831.0	-2,284.7	5.4	2,284.7	0.00	0.00	
7,700.0	90.00	180.00	5,831.0	-2,384.7	5.4	2,384.7	0.00	0.00	
7,800.0	90.00	180.00	5,831.0	-2,484.7	5.4	2,484.7	0.00	0.00	
7,900.0	90.00	180.00	5,831.0	-2,584.7	5.4	2,584.7	0.00	0.00	
8,000.0	90.00	180.00	5,831.0	-2,684.7	5.4	2,684.7	0.00	0.00	
8,100.0	90.00	180.00	5,831.0	-2,784.7	5.4	2,784.7	0.00	0.00	
8,200.0	90.00	180.00	5,831.0	-2,884.7	5.4	2,884.7	0.00	0.00	
8,300.0	90.00	180.00	5,831.0	-2,984.7	5.4	2,984.7	0.00	0.00	
8,400.0	90.00	180.00	5,831.0	-3,084.7	5.4	3,084.7	0.00	0.00	
8,500.0	90.00	180.00	5,831.0	-3,184.7	5.4	3,184.7	0.00	0.00	
8,600.0	90.00	180.00	5,831.0	-3,284.7	5.3	3,284.7	0.00	0.00	
8,700.0	90.00	180.00	5,831.0	-3,384.7	5.3	3,384.7	0.00	0.00	
8,800.0	90.00	180.00	5,831.0	-3,484.7	5.3	3,484.7	0.00	0.00	
8,900.0	90.00	180.00	5,831.0	-3,584.7	5.3	3,584.7	0.00	0.00	
9,000.0	90.00	180.00	5,831.0	-3,684.7	5.3	3,684.7	0.00	0.00	
9,100.0	90.00	180.00	5,831.0	-3,784.7	5.3	3,784.7	0.00	0.00	
9,200.0	90.00	180.00	5,831.0	-3,884.7	5.3	3,884.7	0.00	0.00	
9,300.0	90.00	180.00	5,831.0	-3,984.7	5.3	3,984.7	0.00	0.00	
9,400.0	90.00	180.00	5,831.0	-4,084.7	5.3	4,084.7	0.00	0.00	
9,500.0	90.00	180.00	5,831.0	-4,184.7	5.3	4,184.7	0.00	0.00	
9,600.0	90.00	180.00	5,831.0	-4,284.7	5.3	4,284.7	0.00	0.00	
9,700.0	90.00	180.00	5,831.0	-4,384.7	5.3	4,384.7	0.00	0.00	
9,746.3	90.00	180.00	5,831.0	-4,431.0	5.3	4,431.0	0.00	0.00	Enter 1550' Offset Radius
9,800.0	90.00	180.00	5,831.0	-4,484.7	5.3	4,484.7	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Company:</b>	Whiting Petroleum Corporation	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site:</b>	S11-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
9,900.0	90.00	180.00	5,831.0	-4,584.7	5.3	4,584.7	0.00	0.00	
10,000.0	90.00	180.00	5,831.0	-4,684.7	5.2	4,684.7	0.00	0.00	
10,100.0	90.00	180.00	5,831.0	-4,784.7	5.2	4,784.7	0.00	0.00	
10,200.0	90.00	180.00	5,831.0	-4,884.7	5.2	4,884.7	0.00	0.00	
10,300.0	90.00	180.00	5,831.0	-4,984.7	5.2	4,984.7	0.00	0.00	
10,400.0	90.00	180.00	5,831.0	-5,084.7	5.2	5,084.7	0.00	0.00	
10,500.0	90.00	180.00	5,831.0	-5,184.7	5.2	5,184.7	0.00	0.00	
10,600.0	90.00	180.00	5,831.0	-5,284.7	5.2	5,284.7	0.00	0.00	
10,700.0	90.00	180.00	5,831.0	-5,384.7	5.2	5,384.7	0.00	0.00	
10,800.0	90.00	180.00	5,831.0	-5,484.7	5.2	5,484.7	0.00	0.00	
10,900.0	90.00	180.00	5,831.0	-5,584.7	5.2	5,584.7	0.00	0.00	
11,000.0	90.00	180.00	5,831.0	-5,684.7	5.2	5,684.7	0.00	0.00	
11,100.0	90.00	180.00	5,831.0	-5,784.7	5.2	5,784.7	0.00	0.00	
11,133.3	90.00	180.00	5,831.0	-5,818.0	5.2	5,818.0	0.00	0.00	Exit 1550' Offset Radius
11,200.0	90.00	180.00	5,831.0	-5,884.7	5.2	5,884.7	0.00	0.00	
11,300.0	90.00	180.00	5,831.0	-5,984.7	5.2	5,984.7	0.00	0.00	
11,400.0	90.00	180.00	5,831.0	-6,084.7	5.2	6,084.7	0.00	0.00	
11,500.0	90.00	180.00	5,831.0	-6,184.7	5.1	6,184.7	0.00	0.00	
11,600.0	90.00	180.00	5,831.0	-6,284.7	5.1	6,284.7	0.00	0.00	
11,700.0	90.00	180.00	5,831.0	-6,384.7	5.1	6,384.7	0.00	0.00	
11,800.0	90.00	180.00	5,831.0	-6,484.7	5.1	6,484.7	0.00	0.00	
11,883.3	90.00	180.00	5,831.0	-6,568.0	5.1	6,568.0	0.00	0.00	Enter 1550' Offset Radius
11,900.0	90.00	180.00	5,831.0	-6,584.7	5.1	6,584.7	0.00	0.00	
12,000.0	90.00	180.00	5,831.0	-6,684.7	5.1	6,684.7	0.00	0.00	
12,100.0	90.00	180.00	5,831.0	-6,784.7	5.1	6,784.7	0.00	0.00	
12,200.0	90.00	180.00	5,831.0	-6,884.7	5.1	6,884.7	0.00	0.00	
12,300.0	90.00	180.00	5,831.0	-6,984.7	5.1	6,984.7	0.00	0.00	
12,400.0	90.00	180.00	5,831.0	-7,084.7	5.1	7,084.7	0.00	0.00	
12,500.0	90.00	180.00	5,831.0	-7,184.7	5.1	7,184.7	0.00	0.00	
12,600.0	90.00	180.00	5,831.0	-7,284.7	5.1	7,284.7	0.00	0.00	
12,700.0	90.00	180.00	5,831.0	-7,384.7	5.1	7,384.7	0.00	0.00	
12,800.0	90.00	180.00	5,831.0	-7,484.7	5.1	7,484.7	0.00	0.00	
12,900.0	90.00	180.00	5,831.0	-7,584.7	5.1	7,584.7	0.00	0.00	
13,000.0	90.00	180.00	5,831.0	-7,684.7	5.0	7,684.7	0.00	0.00	
13,100.0	90.00	180.00	5,831.0	-7,784.7	5.0	7,784.7	0.00	0.00	
13,200.0	90.00	180.00	5,831.0	-7,884.7	5.0	7,884.7	0.00	0.00	
13,300.0	90.00	180.00	5,831.0	-7,984.7	5.0	7,984.7	0.00	0.00	
13,400.0	90.00	180.00	5,831.0	-8,084.7	5.0	8,084.7	0.00	0.00	
13,500.0	90.00	180.00	5,831.0	-8,184.7	5.0	8,184.7	0.00	0.00	
13,600.0	90.00	180.00	5,831.0	-8,284.7	5.0	8,284.7	0.00	0.00	
13,650.7	90.00	180.00	5,831.0	-8,335.4	5.0	8,335.4	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Company:</b>	Whiting Petroleum Corporation	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site:</b>	S11-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #2		

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
Razor 11H-1415A PBHL	0.00	0.00	5,831.0	-8,335.4	5.0	1,550,259.41	3,463,605.94	40° 49' 54.55 N	103° 49' 28.69 W
- plan hits target center									
- Point									
Razor 11H-1415A PBHL	0.00	0.00	5,831.0	-8,338.4	-31.5	1,550,255.73	3,463,569.51	40° 49' 54.52 N	103° 49' 29.17 W
- plan misses target center by 36.6usft at 13650.7usft MD (5831.0 TVD, -8335.4 N, 5.0 E)									
- Point									

Casing Points				
Measured Depth	Vertical Depth		Casing Diameter	Hole Diameter
(usft)	(usft)	Name	(")	(")
6,200.0	5,831.0	7" (397' FEL-2,248' FSL)	7	7-1/2

Formations					
Measured Depth	Vertical Depth			Dip	Dip Direction
(usft)	(usft)	Name	Lithology	(°)	(°)
5,892.8	5,774.0	Top Niobrara		0.00	

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
900.0	900.0	0.0	0.0	KOP @ 900' MD
1,100.0	1,099.8	-7.0	0.0	EOB; 4° Inc
5,357.0	5,346.5	-303.9	1.4	Start 11° Build
6,138.8	5,831.0	-823.5	3.7	LP @ 6,138' MD
6,909.5	5,831.0	-1,594.2	5.5	EOB; 180° Azi
9,746.3	5,831.0	-4,431.0	5.3	Enter 1550' Offset Radius
11,133.3	5,831.0	-5,818.0	5.2	Exit 1550' Offset Radius
11,883.3	5,831.0	-6,568.0	5.1	Enter 1550' Offset Radius
13,653.7	0.0			PBHL @ 13,653.7' MD

# **Whiting Petroleum Corporation**

**Weld County, CO**

**S11-T10N-R58W**

**Razor #11H-1415A**

**HZ**

**Plan #2**

## **Anticollision Report**

**18 November, 2013**

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Reference Site:</b>	S11-T10N-R58W	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Reference	Plan #2		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0usft	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	11/18/2013		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	13,650.7	Plan #2 (HZ)	ISCWSA MWD	MWD - ISCWSA	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
S11-T10N-R58W						
Razor #11H-0213A - HZ - Plan #1	666.7	666.7	30.4	27.7	11.118	CC
Razor #11H-0213A - HZ - Plan #1	700.0	700.0	30.4	27.5	10.540	ES
Razor #11H-0213A - HZ - Plan #1	800.0	799.0	31.9	28.6	9.588	SF
Razor #11H-0215A - HZ - Plan #1	990.9	991.3	25.8	21.6	6.177	CC
Razor #11H-0215A - HZ - Plan #1	1,000.0	1,000.4	25.8	21.6	6.124	ES, SF
Razor #11H-0216B - HZ - Plan #1	1,177.6	1,178.4	16.7	11.7	3.343	CC, ES
Razor #11H-0216B - HZ - Plan #1	1,200.0	1,200.6	16.9	11.9	3.337	SF
Razor #11H-1413A - HZ - Plan #1	466.7	466.7	60.1	58.3	32.759	CC
Razor #11H-1413A - HZ - Plan #1	600.0	599.9	60.2	57.8	24.976	ES
Razor #11H-1413A - HZ - Plan #1	13,650.7	13,794.5	696.8	377.9	2.185	SF
Razor #11H-1416B - HZ - Plan #1	1,316.9	1,313.2	50.5	45.1	9.406	CC
Razor #11H-1416B - HZ - Plan #1	13,650.7	13,732.2	310.5	7.7	1.025	Level 2, ES, SF
Razor 11 Offset (EXISTING) - EXISTING - EXISTING	10,440.6	5,763.7	1,384.4	1,276.4	12.816	CC, ES
Razor 11 Offset (EXISTING) - EXISTING - EXISTING	10,800.0	5,763.7	1,430.3	1,315.2	12.427	SF
Razor 11-0241H (Existing) - Existing - Existing	0.0	0.0	229.2			
Razor 11-0241H (Existing) - Existing - Existing	3,925.7	3,926.9	236.1	218.9	13.731	ES
Razor 11-0241H (Existing) - Existing - Existing	5,000.0	4,987.3	273.2	251.2	12.412	SF
Razor 14-1143H (EXISTING) - EXISTING - EXISTING	12,544.7	6,552.2	216.6	61.1	1.393	Level 3, CC, ES
Razor 14-1143H (EXISTING) - EXISTING - EXISTING	13,100.0	5,995.6	230.4	63.6	1.381	Level 3, SF



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Reference Site:</b>	S11-T10N-R58W	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S11-T10N-R58W - Razor #11H-0213A - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-62.22	14.2	-26.9	30.4					
100.0	100.0	100.0	100.0	0.1	0.1	-62.22	14.2	-26.9	30.4	30.2	0.19	162.550		
200.0	200.0	200.0	200.0	0.3	0.3	-62.22	14.2	-26.9	30.4	29.8	0.64	47.757		
300.0	300.0	300.0	300.0	0.5	0.5	-62.22	14.2	-26.9	30.4	29.3	1.09	27.990		
400.0	400.0	400.0	400.0	0.8	0.8	-62.22	14.2	-26.9	30.4	28.9	1.54	19.796		
500.0	500.0	500.0	500.0	1.0	1.0	-62.22	14.2	-26.9	30.4	28.4	1.99	15.314		
600.0	600.0	600.0	600.0	1.2	1.2	-62.22	14.2	-26.9	30.4	28.0	2.43	12.486		
666.7	666.7	666.7	666.7	1.4	1.4	-62.22	14.2	-26.9	30.4	27.7	2.73	11.118 CC		
700.0	700.0	700.0	700.0	1.4	1.4	-62.22	14.2	-26.9	30.4	27.5	2.88	10.540 ES		
800.0	800.0	799.0	799.0	1.7	1.7	-60.75	15.6	-27.8	31.9	28.6	3.33	9.588 SF		
900.0	900.0	897.8	897.7	1.9	1.9	-57.08	19.9	-30.7	36.6	32.8	3.78	9.692		
1,000.0	1,000.0	997.5	997.1	2.1	2.1	128.57	25.6	-34.5	44.2	40.0	4.20	10.519		
1,100.0	1,099.8	1,096.8	1,096.1	2.3	2.4	135.01	31.4	-38.4	54.4	49.8	4.60	11.834		
1,200.0	1,199.6	1,195.9	1,195.0	2.5	2.6	140.45	37.2	-42.2	66.5	61.5	5.01	13.278		
1,300.0	1,299.4	1,295.0	1,293.9	2.7	2.8	144.21	42.9	-46.0	79.0	73.5	5.42	14.557		
1,400.0	1,399.1	1,394.1	1,392.7	2.9	3.1	146.93	48.7	-49.8	91.7	85.8	5.85	15.675		
1,500.0	1,498.9	1,493.2	1,491.6	3.1	3.3	148.99	54.5	-53.6	104.5	98.3	6.28	16.652		
1,600.0	1,598.6	1,592.3	1,590.5	3.3	3.6	150.60	60.2	-57.5	117.5	110.8	6.71	17.508		
1,700.0	1,698.4	1,691.4	1,689.3	3.6	3.8	151.88	66.0	-61.3	130.6	123.4	7.15	18.261		
1,800.0	1,798.1	1,790.5	1,788.2	3.8	4.1	152.94	71.7	-65.1	143.7	136.1	7.59	18.926		
1,900.0	1,897.9	1,889.6	1,887.0	4.0	4.3	153.81	77.5	-68.9	156.8	148.8	8.03	19.517		
2,000.0	1,997.6	1,988.7	1,985.9	4.3	4.6	154.55	83.2	-72.8	170.0	161.5	8.48	20.045		
2,100.0	2,097.4	2,087.8	2,084.8	4.5	4.8	155.19	89.0	-76.6	183.2	174.2	8.93	20.519		
2,200.0	2,197.2	2,186.9	2,183.6	4.8	5.1	155.74	94.8	-80.4	196.4	187.0	9.38	20.946		
2,300.0	2,296.9	2,286.0	2,282.5	5.0	5.3	156.22	100.5	-84.2	209.6	199.8	9.83	21.333		
2,400.0	2,396.7	2,385.2	2,381.4	5.3	5.6	156.64	106.3	-88.1	222.8	212.6	10.28	21.685		
2,500.0	2,496.4	2,484.3	2,480.2	5.5	5.8	157.01	112.0	-91.9	236.1	225.4	10.73	22.006		
2,600.0	2,596.2	2,583.4	2,579.1	5.8	6.1	157.35	117.8	-95.7	249.4	238.2	11.18	22.301		
2,700.0	2,695.9	2,682.5	2,678.0	6.0	6.3	157.65	123.6	-99.5	262.6	251.0	11.64	22.571		
2,800.0	2,795.7	2,781.6	2,776.8	6.3	6.6	157.92	129.3	-103.4	275.9	263.8	12.09	22.820		
2,900.0	2,895.5	2,880.7	2,875.7	6.5	6.8	158.17	135.1	-107.2	289.2	276.6	12.55	23.051		
3,000.0	2,995.2	2,979.8	2,974.6	6.8	7.1	158.40	140.8	-111.0	302.5	289.5	13.00	23.265		
3,100.0	3,095.0	3,078.9	3,073.4	7.1	7.3	158.60	146.6	-114.8	315.8	302.3	13.46	23.464		
3,200.0	3,194.7	3,178.0	3,172.3	7.3	7.6	158.79	152.4	-118.7	329.1	315.1	13.91	23.649		
3,300.0	3,294.5	3,277.1	3,271.2	7.6	7.9	158.97	158.1	-122.5	342.4	328.0	14.37	23.822		
3,400.0	3,394.2	3,376.2	3,370.0	7.8	8.1	159.13	163.9	-126.3	355.7	340.8	14.83	23.984		
3,500.0	3,494.0	3,475.3	3,468.9	8.1	8.4	159.28	169.6	-130.1	369.0	353.7	15.29	24.136		
3,600.0	3,593.7	3,574.4	3,567.8	8.4	8.6	159.42	175.4	-134.0	382.3	366.5	15.74	24.279		
3,700.0	3,693.5	3,673.5	3,666.6	8.6	8.9	159.55	181.1	-137.8	395.6	379.4	16.20	24.413		
3,800.0	3,793.3	3,772.7	3,765.5	8.9	9.1	159.67	186.9	-141.6	408.9	392.2	16.66	24.540		
3,900.0	3,893.0	3,871.8	3,864.4	9.1	9.4	159.79	192.7	-145.4	422.2	405.1	17.12	24.660		
4,000.0	3,992.8	3,970.9	3,963.2	9.4	9.6	159.89	198.4	-149.3	435.5	417.9	17.58	24.773		
4,100.0	4,092.5	4,070.0	4,062.1	9.7	9.9	160.00	204.2	-153.1	448.8	430.8	18.04	24.880		
4,200.0	4,192.3	4,169.1	4,161.0	9.9	10.1	160.09	209.9	-156.9	462.1	443.6	18.50	24.982		
4,300.0	4,292.0	4,268.2	4,259.8	10.2	10.4	160.18	215.7	-160.7	475.4	456.5	18.96	25.079		
4,400.0	4,391.8	4,367.3	4,358.7	10.4	10.7	160.27	221.5	-164.6	488.8	469.3	19.42	25.171		
4,500.0	4,491.6	4,466.4	4,457.6	10.7	10.9	160.35	227.2	-168.4	502.1	482.2	19.88	25.259		
4,600.0	4,591.3	4,565.5	4,556.4	11.0	11.2	160.42	233.0	-172.2	515.4	495.1	20.34	25.342		
4,700.0	4,691.1	4,664.6	4,655.3	11.2	11.4	160.50	238.7	-176.0	528.7	507.9	20.80	25.422		
4,800.0	4,790.8	4,763.7	4,754.1	11.5	11.7	160.56	244.5	-179.9	542.0	520.8	21.26	25.498		
4,900.0	4,890.6	4,862.8	4,853.0	11.8	11.9	160.63	250.3	-183.7	555.4	533.6	21.72	25.571		
5,000.0	4,990.3	4,961.9	4,951.9	12.0	12.2	160.69	256.0	-187.5	568.7	546.5	22.18	25.641		

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Reference Site:</b>	S11-T10N-R58W	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S11-T10N-R58W - Razor #11H-0213A - HZ - Plan #1													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,100.0	5,090.1	5,061.0	5,050.7	12.3	12.4	160.75	261.8	-191.3	582.0	559.4	22.64	25.707		
5,200.0	5,189.9	5,160.1	5,149.6	12.5	12.7	160.81	267.5	-195.2	595.3	572.2	23.10	25.771		
5,300.0	5,289.6	5,259.3	5,248.5	12.8	12.9	160.86	273.3	-199.0	608.6	585.1	23.56	25.833		
5,400.0	5,389.2	5,357.5	5,346.5	13.1	13.2	160.70	279.0	-202.8	623.6	599.8	23.84	26.158		
5,500.0	5,486.0	5,400.0	5,388.7	13.5	13.3	159.57	282.9	-205.4	657.2	633.9	23.29	28.215		
5,600.0	5,576.3	5,450.0	5,437.7	14.1	13.5	157.40	291.2	-210.9	713.6	691.4	22.24	32.080		
5,700.0	5,656.8	5,450.0	5,437.7	14.9	13.5	152.15	291.2	-210.9	787.6	766.5	21.12	37.286		
5,800.0	5,724.6	5,483.2	5,469.6	15.8	13.6	143.15	298.8	-215.9	873.9	852.5	21.39	40.865		
5,900.0	5,777.2	5,500.0	5,485.5	17.0	13.7	121.93	303.3	-218.9	968.2	942.0	26.26	36.868		
6,000.0	5,812.6	5,500.0	5,485.5	18.3	13.7	75.89	303.3	-218.9	1,065.7	1,034.8	30.90	34.489		
6,100.0	5,829.5	5,500.0	5,485.5	19.8	13.7	39.70	303.3	-218.9	1,162.6	1,140.3	22.34	52.048		
6,200.0	5,831.0	5,500.0	5,485.5	21.2	13.7	32.24	303.3	-218.9	1,257.1	1,237.2	19.94	63.040		
6,300.0	5,831.0	5,477.1	5,463.8	22.6	13.6	30.32	297.3	-214.9	1,351.4	1,331.6	19.85	68.070		
6,400.0	5,831.0	5,470.2	5,457.2	24.0	13.6	29.83	295.6	-213.8	1,446.6	1,426.2	20.48	70.640		
6,500.0	5,831.0	5,450.0	5,437.7	25.5	13.5	28.36	291.2	-210.9	1,542.6	1,521.9	20.62	74.813		
6,600.0	5,831.0	5,450.0	5,437.7	27.0	13.5	28.46	291.2	-210.9	1,638.5	1,616.9	21.58	75.913		
6,700.0	5,831.0	5,450.0	5,437.7	28.6	13.5	28.57	291.2	-210.9	1,734.9	1,712.3	22.58	76.824		
6,800.0	5,831.0	5,450.0	5,437.7	30.2	13.5	28.69	291.2	-210.9	1,831.7	1,808.1	23.61	77.576		
6,900.0	5,831.0	5,450.0	5,437.7	31.9	13.5	28.81	291.2	-210.9	1,928.8	1,904.1	24.67	78.193		
7,000.0	5,831.0	5,450.0	5,437.7	33.6	13.5	28.82	291.2	-210.9	2,026.2	2,000.5	25.69	78.885		
7,100.0	5,831.0	5,450.0	5,437.7	35.4	13.5	28.82	291.2	-210.9	2,123.8	2,097.1	26.72	79.489		
7,200.0	5,831.0	5,450.0	5,437.7	37.1	13.5	28.82	291.2	-210.9	2,221.7	2,193.9	27.79	79.940		
7,300.0	5,831.0	5,427.3	5,415.6	38.9	13.4	27.21	286.9	-208.0	2,319.2	2,291.4	27.77	83.503		
7,400.0	5,831.0	5,424.0	5,412.3	40.7	13.4	26.99	286.4	-207.7	2,417.2	2,388.5	28.68	84.274		
7,500.0	5,831.0	5,420.9	5,409.3	42.5	13.4	26.79	285.9	-207.3	2,515.3	2,485.7	29.60	84.975		
7,600.0	5,831.0	5,400.0	5,388.7	44.3	13.3	25.50	282.9	-205.4	2,614.0	2,584.2	29.70	88.002		
7,700.0	5,831.0	5,400.0	5,388.7	46.2	13.3	25.50	282.9	-205.4	2,712.2	2,681.5	30.75	88.204		
7,800.0	5,831.0	5,400.0	5,388.7	48.0	13.3	25.50	282.9	-205.4	2,810.7	2,778.9	31.80	88.384		
7,900.0	5,831.0	5,400.0	5,388.7	49.8	13.3	25.50	282.9	-205.4	2,909.2	2,876.3	32.85	88.548		
8,000.0	5,831.0	5,400.0	5,388.7	51.7	13.3	25.50	282.9	-205.4	3,007.8	2,973.9	33.91	88.696		
8,100.0	5,831.0	5,400.0	5,388.7	53.5	13.3	25.50	282.9	-205.4	3,106.5	3,071.5	34.97	88.831		
8,200.0	5,831.0	5,400.0	5,388.7	55.4	13.3	25.50	282.9	-205.4	3,205.3	3,169.3	36.03	88.954		
8,300.0	5,831.0	5,400.0	5,388.7	57.3	13.3	25.50	282.9	-205.4	3,304.1	3,267.1	37.10	89.066		
8,400.0	5,831.0	5,400.0	5,388.7	59.1	13.3	25.50	282.9	-205.4	3,403.1	3,364.9	38.16	89.170		
8,500.0	5,831.0	5,400.0	5,388.7	61.0	13.3	25.50	282.9	-205.4	3,502.1	3,462.8	39.23	89.266		
8,600.0	5,831.0	5,400.0	5,388.7	62.9	13.3	25.50	282.9	-205.4	3,601.1	3,560.8	40.30	89.354		
8,700.0	5,831.0	5,400.0	5,388.7	64.7	13.3	25.50	282.9	-205.4	3,700.2	3,658.8	41.37	89.436		
8,800.0	5,831.0	5,400.0	5,388.7	66.6	13.3	25.50	282.9	-205.4	3,799.3	3,756.9	42.45	89.512		
8,900.0	5,831.0	5,400.0	5,388.7	68.5	13.3	25.50	282.9	-205.4	3,898.5	3,855.0	43.52	89.582		
9,000.0	5,831.0	5,400.0	5,388.7	70.4	13.3	25.50	282.9	-205.4	3,997.8	3,953.2	44.59	89.648		
9,100.0	5,831.0	5,400.0	5,388.7	72.3	13.3	25.50	282.9	-205.4	4,097.0	4,051.3	45.67	89.710		
9,200.0	5,831.0	5,400.0	5,388.7	74.1	13.3	25.50	282.9	-205.4	4,196.3	4,149.6	46.75	89.768		
9,300.0	5,831.0	5,400.0	5,388.7	76.0	13.3	25.50	282.9	-205.4	4,295.6	4,247.8	47.82	89.822		
9,400.0	5,831.0	5,400.0	5,388.7	77.9	13.3	25.50	282.9	-205.4	4,395.0	4,346.1	48.90	89.873		
9,500.0	5,831.0	5,400.0	5,388.7	79.8	13.3	25.50	282.9	-205.4	4,494.4	4,444.4	49.98	89.921		
9,600.0	5,831.0	5,400.0	5,388.7	81.7	13.3	25.50	282.9	-205.4	4,593.8	4,542.8	51.06	89.966		
9,700.0	5,831.0	5,380.9	5,369.8	83.6	13.3	24.44	280.8	-204.0	4,692.9	4,642.0	50.89	92.225		
9,800.0	5,831.0	5,379.8	5,368.7	85.5	13.3	24.38	280.7	-203.9	4,792.3	4,740.5	51.88	92.380		
9,900.0	5,831.0	5,378.8	5,367.7	87.4	13.3	24.32	280.6	-203.8	4,891.8	4,838.9	52.87	92.528		
10,000.0	5,831.0	5,377.8	5,366.7	89.3	13.3	24.27	280.5	-203.8	4,991.3	4,937.4	53.86	92.669		
10,100.0	5,831.0	5,376.8	5,365.7	91.2	13.3	24.22	280.4	-203.7	5,090.8	5,035.9	54.86	92.803		
10,200.0	5,831.0	5,357.5	5,346.5	93.1	13.2	23.27	279.0	-202.8	5,190.6	5,135.9	54.70	94.898		

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Reference Site:</b>	S11-T10N-R58W	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S11-T10N-R58W - Razor #11H-0213A - HZ - Plan #1											Offset Site Error: 0.0 usft		
Survey Program: 0-ISCSWA MWD											Offset Well Error: 0.0 usft		
Reference		Offset		Semi Major Axis			Distance					Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis		Separation Factor
10,300.0	5,831.0	5,357.5	5,346.5	95.0	13.2	23.27	279.0	-202.8	5,290.1	5,234.3	55.73	94.917	
10,400.0	5,831.0	5,357.5	5,346.5	96.9	13.2	23.27	279.0	-202.8	5,389.6	5,332.8	56.77	94.936	
10,500.0	5,831.0	5,357.5	5,346.5	98.8	13.2	23.27	279.0	-202.8	5,489.1	5,431.3	57.81	94.953	
10,600.0	5,831.0	5,357.5	5,346.5	100.7	13.2	23.27	279.0	-202.8	5,588.6	5,529.8	58.85	94.970	
10,700.0	5,831.0	5,357.5	5,346.5	102.6	13.2	23.27	279.0	-202.8	5,688.2	5,628.3	59.89	94.985	
10,800.0	5,831.0	5,357.5	5,346.5	104.5	13.2	23.27	279.0	-202.8	5,787.8	5,726.9	60.92	95.000	
10,900.0	5,831.0	5,357.5	5,346.5	106.4	13.2	23.27	279.0	-202.8	5,887.4	5,825.4	61.96	95.015	
11,000.0	5,831.0	5,357.5	5,346.5	108.3	13.2	23.27	279.0	-202.8	5,987.0	5,924.0	63.00	95.028	
11,100.0	5,831.0	5,357.5	5,346.5	110.2	13.2	23.27	279.0	-202.8	6,086.6	6,022.6	64.04	95.042	
11,200.0	5,831.0	5,357.5	5,346.5	112.1	13.2	23.27	279.0	-202.8	6,186.2	6,121.1	65.08	95.054	
11,300.0	5,831.0	5,357.5	5,346.5	114.0	13.2	23.27	279.0	-202.8	6,285.9	6,219.7	66.12	95.066	
11,400.0	5,831.0	5,357.5	5,346.5	115.9	13.2	23.27	279.0	-202.8	6,385.5	6,318.4	67.16	95.077	
11,500.0	5,831.0	5,357.5	5,346.5	117.8	13.2	23.27	279.0	-202.8	6,485.2	6,417.0	68.20	95.088	
11,600.0	5,831.0	5,357.5	5,346.5	119.7	13.2	23.27	279.0	-202.8	6,584.9	6,515.6	69.24	95.099	
11,700.0	5,831.0	5,357.5	5,346.5	121.6	13.2	23.27	279.0	-202.8	6,684.5	6,614.3	70.28	95.109	
11,800.0	5,831.0	5,357.5	5,346.5	123.6	13.2	23.27	279.0	-202.8	6,784.2	6,712.9	71.32	95.119	
11,900.0	5,831.0	5,357.5	5,346.5	125.5	13.2	23.27	279.0	-202.8	6,883.9	6,811.6	72.37	95.128	
12,000.0	5,831.0	5,357.5	5,346.5	127.4	13.2	23.27	279.0	-202.8	6,983.6	6,910.2	73.41	95.137	
12,100.0	5,831.0	5,357.5	5,346.5	129.3	13.2	23.27	279.0	-202.8	7,083.4	7,008.9	74.45	95.146	
12,200.0	5,831.0	5,357.5	5,346.5	131.2	13.2	23.27	279.0	-202.8	7,183.1	7,107.6	75.49	95.154	
12,300.0	5,831.0	5,357.5	5,346.5	133.1	13.2	23.27	279.0	-202.8	7,282.8	7,206.3	76.53	95.162	
12,400.0	5,831.0	5,357.5	5,346.5	135.0	13.2	23.27	279.0	-202.8	7,382.6	7,305.0	77.57	95.170	
12,500.0	5,831.0	5,357.5	5,346.5	136.9	13.2	23.27	279.0	-202.8	7,482.3	7,403.7	78.61	95.177	
12,600.0	5,831.0	5,357.5	5,346.5	138.8	13.2	23.27	279.0	-202.8	7,582.1	7,502.4	79.66	95.184	
12,700.0	5,831.0	5,357.5	5,346.5	140.7	13.2	23.27	279.0	-202.8	7,681.8	7,601.1	80.70	95.191	
12,800.0	5,831.0	5,357.5	5,346.5	142.7	13.2	23.27	279.0	-202.8	7,781.6	7,699.9	81.74	95.198	
12,900.0	5,831.0	5,357.5	5,346.5	144.6	13.2	23.27	279.0	-202.8	7,881.4	7,798.6	82.78	95.204	
13,000.0	5,831.0	5,357.5	5,346.5	146.5	13.2	23.27	279.0	-202.8	7,981.1	7,897.3	83.83	95.211	
13,100.0	5,831.0	5,357.5	5,346.5	148.4	13.2	23.27	279.0	-202.8	8,080.9	7,996.1	84.87	95.217	
13,200.0	5,831.0	5,357.5	5,346.5	150.3	13.2	23.27	279.0	-202.8	8,180.7	8,094.8	85.91	95.223	
13,300.0	5,831.0	5,352.6	5,341.6	152.2	13.2	23.04	278.7	-202.6	8,280.5	8,194.0	86.52	95.704	
13,400.0	5,831.0	5,346.8	5,335.8	154.1	13.2	22.78	278.4	-202.4	8,380.3	8,293.3	87.05	96.271	
13,500.0	5,831.0	5,341.0	5,330.0	156.1	13.2	22.52	278.0	-202.1	8,480.1	8,392.5	87.58	96.830	
13,600.0	5,831.0	5,335.2	5,324.2	158.0	13.1	22.27	277.7	-201.9	8,579.9	8,491.8	88.11	97.382	
13,650.7	5,831.0	5,332.3	5,321.3	158.9	13.1	22.14	277.5	-201.8	8,630.5	8,542.1	88.37	97.658	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Reference Site:</b>	S11-T10N-R58W	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S11-T10N-R58W - Razor #11H-0215A - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
0.0	0.0	0.0	0.0	0.0	0.0	116.07	-13.2	26.9	29.9					
100.0	100.0	100.0	100.0	0.1	0.1	116.07	-13.2	26.9	29.9	29.8	0.19	160.109		
200.0	200.0	200.0	200.0	0.3	0.3	116.07	-13.2	26.9	29.9	29.3	0.64	47.038		
300.0	300.0	300.0	300.0	0.5	0.5	116.07	-13.2	26.9	29.9	28.9	1.09	27.569		
400.0	400.0	400.0	400.0	0.8	0.8	116.07	-13.2	26.9	29.9	28.4	1.54	19.498		
500.0	500.0	500.0	500.0	1.0	1.0	116.07	-13.2	26.9	29.9	28.0	1.99	15.083		
600.0	600.0	600.0	600.0	1.2	1.2	116.07	-13.2	26.9	29.9	27.5	2.43	12.298		
700.0	700.0	700.0	700.0	1.4	1.4	116.07	-13.2	26.9	29.9	27.1	2.88	10.381		
800.0	800.0	800.5	800.5	1.7	1.7	113.09	-11.4	26.7	29.1	25.7	3.33	8.720		
900.0	900.0	900.8	900.6	1.9	1.9	103.18	-6.2	26.3	27.0	23.2	3.78	7.134		
990.9	990.9	991.3	990.9	2.1	2.1	-93.26	0.1	25.7	25.8	21.6	4.17	6.177 CC		
1,000.0	1,000.0	1,000.4	1,000.0	2.1	2.1	-95.33	0.8	25.7	25.8	21.6	4.21	6.124 ES, SF		
1,100.0	1,099.8	1,099.6	1,099.0	2.3	2.4	-119.90	7.7	25.1	29.0	24.4	4.62	6.278		
1,200.0	1,199.6	1,198.6	1,197.8	2.5	2.6	-138.97	14.5	24.5	37.6	32.5	5.04	7.453		
1,300.0	1,299.4	1,297.7	1,296.5	2.7	2.8	-150.26	21.4	23.9	48.7	43.2	5.46	8.913		
1,400.0	1,399.1	1,396.7	1,395.3	2.9	3.1	-157.22	28.3	23.3	60.9	55.0	5.88	10.359		
1,500.0	1,498.9	1,495.7	1,494.1	3.1	3.3	-161.81	35.2	22.7	73.8	67.4	6.30	11.698		
1,600.0	1,598.6	1,594.8	1,592.9	3.3	3.6	-165.03	42.1	22.1	86.9	80.2	6.73	12.910		
1,700.0	1,698.4	1,693.8	1,691.7	3.6	3.8	-167.40	49.0	21.5	100.3	93.1	7.16	13.998		
1,800.0	1,798.1	1,792.8	1,790.5	3.8	4.1	-169.21	55.8	20.9	113.8	106.2	7.60	14.974		
1,900.0	1,897.9	1,891.8	1,889.3	4.0	4.3	-170.63	62.7	20.3	127.4	119.3	8.04	15.850		
2,000.0	1,997.6	1,990.9	1,988.1	4.3	4.6	-171.78	69.6	19.7	141.0	132.5	8.47	16.640		
2,100.0	2,097.4	2,089.9	2,086.8	4.5	4.8	-172.73	76.5	19.1	154.7	145.8	8.92	17.353		
2,200.0	2,197.2	2,188.9	2,185.6	4.8	5.1	-173.52	83.4	18.5	168.4	159.1	9.36	18.000		
2,300.0	2,296.9	2,288.0	2,284.4	5.0	5.3	-174.19	90.2	17.8	182.2	172.4	9.80	18.589		
2,400.0	2,396.7	2,387.0	2,383.2	5.3	5.6	-174.77	97.1	17.2	196.0	185.7	10.25	19.127		
2,500.0	2,496.4	2,486.0	2,482.0	5.5	5.8	-175.27	104.0	16.6	209.8	199.1	10.69	19.620		
2,600.0	2,596.2	2,585.0	2,580.8	5.8	6.1	-175.71	110.9	16.0	223.6	212.4	11.14	20.073		
2,700.0	2,695.9	2,684.1	2,679.6	6.0	6.3	-176.10	117.8	15.4	237.4	225.8	11.59	20.491		
2,800.0	2,795.7	2,783.1	2,778.4	6.3	6.6	-176.45	124.7	14.8	251.2	239.2	12.03	20.877		
2,900.0	2,895.5	2,882.1	2,877.1	6.5	6.8	-176.76	131.5	14.2	265.1	252.6	12.48	21.235		
3,000.0	2,995.2	2,981.2	2,975.9	6.8	7.1	-177.04	138.4	13.6	278.9	266.0	12.93	21.568		
3,100.0	3,095.0	3,080.2	3,074.7	7.1	7.3	-177.29	145.3	13.0	292.8	279.4	13.38	21.879		
3,200.0	3,194.7	3,179.2	3,173.5	7.3	7.6	-177.52	152.2	12.4	306.6	292.8	13.83	22.168		
3,300.0	3,294.5	3,278.2	3,272.3	7.6	7.8	-177.73	159.1	11.8	320.5	306.2	14.28	22.440		
3,400.0	3,394.2	3,377.3	3,371.1	7.8	8.1	-177.93	165.9	11.2	334.3	319.6	14.73	22.694		
3,500.0	3,494.0	3,476.3	3,469.9	8.1	8.3	-178.10	172.8	10.6	348.2	333.0	15.18	22.933		
3,600.0	3,593.7	3,575.3	3,568.7	8.4	8.6	-178.27	179.7	10.0	362.1	346.4	15.63	23.158		
3,700.0	3,693.5	3,674.4	3,667.4	8.6	8.8	-178.42	186.6	9.4	375.9	359.8	16.09	23.370		
3,800.0	3,793.3	3,773.4	3,766.2	8.9	9.1	-178.56	193.5	8.8	389.8	373.3	16.54	23.570		
3,900.0	3,893.0	3,872.4	3,865.0	9.1	9.3	-178.69	200.4	8.2	403.7	386.7	16.99	23.759		
4,000.0	3,992.8	3,971.4	3,963.8	9.4	9.6	-178.81	207.2	7.6	417.6	400.1	17.44	23.939		
4,100.0	4,092.5	4,070.5	4,062.6	9.7	9.9	-178.93	214.1	7.0	431.4	413.5	17.90	24.109		
4,200.0	4,192.3	4,169.5	4,161.4	9.9	10.1	-179.04	221.0	6.4	445.3	427.0	18.35	24.270		
4,300.0	4,292.0	4,268.5	4,260.2	10.2	10.4	-179.14	227.9	5.8	459.2	440.4	18.80	24.424		
4,400.0	4,391.8	4,367.6	4,358.9	10.4	10.6	-179.23	234.8	5.2	473.1	453.8	19.25	24.570		
4,500.0	4,491.6	4,466.6	4,457.7	10.7	10.9	-179.32	241.6	4.6	487.0	467.3	19.71	24.710		
4,600.0	4,591.3	4,565.6	4,556.5	11.0	11.1	-179.41	248.5	4.0	500.9	480.7	20.16	24.843		
4,700.0	4,691.1	4,664.6	4,655.3	11.2	11.4	-179.49	255.4	3.4	514.8	494.1	20.61	24.970		
4,800.0	4,790.8	4,763.7	4,754.1	11.5	11.6	-179.56	262.3	2.8	528.6	507.6	21.07	25.092		
4,900.0	4,890.6	4,862.7	4,852.9	11.8	11.9	-179.64	269.2	2.2	542.5	521.0	21.52	25.208		
5,000.0	4,990.3	4,961.7	4,951.7	12.0	12.1	-179.70	276.0	1.6	556.4	534.4	21.98	25.319		

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Reference Site:</b>	S11-T10N-R58W	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S11-T10N-R58W - Razor #11H-0215A - HZ - Plan #1													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,100.0	5,090.1	5,060.8	5,050.5	12.3	12.4	-179.77	282.9	1.0	570.3	547.9	22.43	25.426		
5,200.0	5,189.9	5,159.8	5,149.2	12.5	12.6	-179.83	289.8	0.4	584.2	561.3	22.88	25.529		
5,300.0	5,289.6	5,258.8	5,248.0	12.8	12.9	-179.89	296.7	-0.2	598.1	574.8	23.34	25.627		
5,400.0	5,389.2	5,357.5	5,346.5	13.1	13.1	-179.95	303.6	-0.8	613.7	590.1	23.59	26.016		
5,500.0	5,486.0	5,400.0	5,388.7	13.5	13.3	-179.98	308.2	-1.2	648.8	625.9	22.89	28.341		
5,600.0	5,576.3	5,435.1	5,423.2	14.1	13.4	179.96	314.7	-1.8	707.2	685.8	21.42	33.017		
5,700.0	5,656.8	5,450.0	5,437.7	14.9	13.4	179.91	318.1	-2.1	784.2	764.9	19.21	40.815		
5,800.0	5,724.6	5,478.7	5,465.3	15.8	13.6	179.75	325.8	-2.8	873.4	856.9	16.46	53.044		
5,900.0	5,777.2	5,500.0	5,485.5	17.0	13.7	179.29	332.6	-3.4	970.5	957.1	13.36	72.654		
6,000.0	5,812.6	5,500.0	5,485.5	18.3	13.7	2.24	332.6	-3.4	1,070.2	1,059.8	10.39	103.020		
6,100.0	5,829.5	5,500.0	5,485.5	19.8	13.7	0.41	332.6	-3.4	1,169.1	1,160.9	8.25	141.770		
6,200.0	5,831.0	5,475.7	5,462.4	21.2	13.6	0.26	325.0	-2.7	1,264.6	1,256.3	8.31	152.195		
6,300.0	5,831.0	5,450.0	5,437.7	22.6	13.4	0.26	318.1	-2.1	1,360.9	1,352.0	8.89	153.120		
6,400.0	5,831.0	5,450.0	5,437.7	24.0	13.4	0.38	318.1	-2.1	1,456.9	1,447.4	9.50	153.374		
6,500.0	5,831.0	5,450.0	5,437.7	25.5	13.4	0.51	318.1	-2.1	1,553.4	1,543.3	10.14	153.250		
6,600.0	5,831.0	5,450.0	5,437.7	27.0	13.4	0.64	318.1	-2.1	1,650.4	1,639.6	10.79	152.900		
6,700.0	5,831.0	5,450.0	5,437.7	28.6	13.4	0.79	318.1	-2.1	1,747.6	1,736.2	11.47	152.417		
6,800.0	5,831.0	5,450.0	5,437.7	30.2	13.4	0.94	318.1	-2.1	1,845.2	1,833.1	12.15	151.859		
6,900.0	5,831.0	5,450.0	5,437.7	31.9	13.4	1.10	318.1	-2.1	1,943.0	1,930.2	12.85	151.256		
7,000.0	5,831.0	5,428.1	5,416.3	33.6	13.4	1.00	313.2	-1.7	2,040.5	2,027.0	13.53	150.777		
7,100.0	5,831.0	5,424.1	5,412.4	35.4	13.4	0.98	312.4	-1.6	2,138.5	2,124.3	14.23	150.269		
7,200.0	5,831.0	5,420.4	5,408.8	37.1	13.3	0.97	311.7	-1.5	2,236.6	2,221.7	14.93	149.773		
7,300.0	5,831.0	5,400.0	5,388.7	38.9	13.3	0.88	308.2	-1.2	2,335.2	2,319.6	15.64	149.354		
7,400.0	5,831.0	5,400.0	5,388.7	40.7	13.3	0.88	308.2	-1.2	2,433.5	2,417.1	16.35	148.878		
7,500.0	5,831.0	5,400.0	5,388.7	42.5	13.3	0.88	308.2	-1.2	2,531.9	2,514.8	17.06	148.428		
7,600.0	5,831.0	5,400.0	5,388.7	44.3	13.3	0.88	308.2	-1.2	2,630.4	2,612.6	17.77	148.003		
7,700.0	5,831.0	5,400.0	5,388.7	46.2	13.3	0.88	308.2	-1.2	2,729.0	2,710.5	18.49	147.602		
7,800.0	5,831.0	5,400.0	5,388.7	48.0	13.3	0.88	308.2	-1.2	2,827.8	2,808.5	19.21	147.223		
7,900.0	5,831.0	5,400.0	5,388.7	49.8	13.3	0.88	308.2	-1.2	2,926.6	2,906.6	19.93	146.866		
8,000.0	5,831.0	5,400.0	5,388.7	51.7	13.3	0.88	308.2	-1.2	3,025.4	3,004.8	20.65	146.529		
8,100.0	5,831.0	5,400.0	5,388.7	53.5	13.3	0.88	308.2	-1.2	3,124.4	3,103.0	21.37	146.210		
8,200.0	5,831.0	5,400.0	5,388.7	55.4	13.3	0.88	308.2	-1.2	3,223.4	3,201.3	22.09	145.909		
8,300.0	5,831.0	5,400.0	5,388.7	57.3	13.3	0.88	308.2	-1.2	3,322.5	3,299.7	22.82	145.624		
8,400.0	5,831.0	5,400.0	5,388.7	59.1	13.3	0.88	308.2	-1.2	3,421.7	3,398.1	23.54	145.354		
8,500.0	5,831.0	5,400.0	5,388.7	61.0	13.3	0.88	308.2	-1.2	3,520.8	3,496.6	24.27	145.099		
8,600.0	5,831.0	5,400.0	5,388.7	62.9	13.3	0.88	308.2	-1.2	3,620.1	3,595.1	24.99	144.856		
8,700.0	5,831.0	5,400.0	5,388.7	64.7	13.3	0.88	308.2	-1.2	3,719.3	3,693.6	25.72	144.626		
8,800.0	5,831.0	5,400.0	5,388.7	66.6	13.3	0.88	308.2	-1.2	3,818.6	3,792.2	26.44	144.407		
8,900.0	5,831.0	5,400.0	5,388.7	68.5	13.3	0.88	308.2	-1.2	3,918.0	3,890.8	27.17	144.199		
9,000.0	5,831.0	5,400.0	5,388.7	70.4	13.3	0.88	308.2	-1.2	4,017.4	3,989.5	27.90	144.001		
9,100.0	5,831.0	5,379.9	5,368.8	72.3	13.2	0.82	305.6	-1.0	4,116.3	4,087.7	28.62	143.842		
9,200.0	5,831.0	5,378.7	5,367.6	74.1	13.2	0.81	305.5	-1.0	4,215.7	4,186.4	29.34	143.662		
9,300.0	5,831.0	5,377.5	5,366.4	76.0	13.2	0.81	305.3	-1.0	4,315.1	4,285.1	30.07	143.490		
9,400.0	5,831.0	5,357.5	5,346.5	77.9	13.1	0.76	303.6	-0.8	4,414.9	4,384.1	30.79	143.373		
9,500.0	5,831.0	5,357.5	5,346.5	79.8	13.1	0.76	303.6	-0.8	4,514.3	4,482.8	31.52	143.211		
9,600.0	5,831.0	5,357.5	5,346.5	81.7	13.1	0.76	303.6	-0.8	4,613.8	4,581.5	32.25	143.056		
9,700.0	5,831.0	5,357.5	5,346.5	83.6	13.1	0.76	303.6	-0.8	4,713.2	4,680.3	32.98	142.908		
9,800.0	5,831.0	5,357.5	5,346.5	85.5	13.1	0.76	303.6	-0.8	4,812.7	4,779.0	33.71	142.765		
9,900.0	5,831.0	5,357.5	5,346.5	87.4	13.1	0.76	303.6	-0.8	4,912.2	4,877.8	34.44	142.629		
10,000.0	5,831.0	5,357.5	5,346.5	89.3	13.1	0.76	303.6	-0.8	5,011.7	4,976.6	35.17	142.498		
10,100.0	5,831.0	5,357.5	5,346.5	91.2	13.1	0.76	303.6	-0.8	5,111.3	5,075.4	35.90	142.373		
10,200.0	5,831.0	5,357.5	5,346.5	93.1	13.1	0.76	303.6	-0.8	5,210.8	5,174.2	36.63	142.252		

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Reference Site:</b>	S11-T10N-R58W	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S11-T10N-R58W - Razor #11H-0215A - HZ - Plan #1													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
10,300.0	5,831.0	5,357.5	5,346.5	95.0	13.1	0.76	303.6	-0.8	5,310.4	5,273.1	37.36	142.136		
10,400.0	5,831.0	5,357.5	5,346.5	96.9	13.1	0.76	303.6	-0.8	5,410.0	5,371.9	38.09	142.024		
10,500.0	5,831.0	5,357.5	5,346.5	98.8	13.1	0.76	303.6	-0.8	5,509.6	5,470.8	38.82	141.916		
10,600.0	5,831.0	5,357.5	5,346.5	100.7	13.1	0.76	303.6	-0.8	5,609.2	5,569.7	39.55	141.813		
10,700.0	5,831.0	5,357.5	5,346.5	102.6	13.1	0.76	303.6	-0.8	5,708.9	5,668.6	40.28	141.712		
10,800.0	5,831.0	5,357.5	5,346.5	104.5	13.1	0.76	303.6	-0.8	5,808.5	5,767.5	41.02	141.616		
10,900.0	5,831.0	5,357.5	5,346.5	106.4	13.1	0.76	303.6	-0.8	5,908.2	5,866.4	41.75	141.523		
11,000.0	5,831.0	5,357.5	5,346.5	108.3	13.1	0.76	303.6	-0.8	6,007.8	5,965.4	42.48	141.433		
11,100.0	5,831.0	5,357.5	5,346.5	110.2	13.1	0.76	303.6	-0.8	6,107.5	6,064.3	43.21	141.345		
11,200.0	5,831.0	5,357.5	5,346.5	112.1	13.1	0.76	303.6	-0.8	6,207.2	6,163.3	43.94	141.261		
11,300.0	5,831.0	5,357.5	5,346.5	114.0	13.1	0.76	303.6	-0.8	6,306.9	6,262.2	44.67	141.180		
11,400.0	5,831.0	5,357.5	5,346.5	115.9	13.1	0.76	303.6	-0.8	6,406.6	6,361.2	45.40	141.101		
11,500.0	5,831.0	5,357.5	5,346.5	117.8	13.1	0.76	303.6	-0.8	6,506.3	6,460.2	46.14	141.024		
11,600.0	5,831.0	5,357.5	5,346.5	119.7	13.1	0.76	303.6	-0.8	6,606.1	6,559.2	46.87	140.950		
11,700.0	5,831.0	5,357.5	5,346.5	121.6	13.1	0.76	303.6	-0.8	6,705.8	6,658.2	47.60	140.878		
11,800.0	5,831.0	5,357.5	5,346.5	123.6	13.1	0.76	303.6	-0.8	6,805.5	6,757.2	48.33	140.809		
11,900.0	5,831.0	5,357.5	5,346.5	125.5	13.1	0.76	303.6	-0.8	6,905.3	6,856.2	49.06	140.741		
12,000.0	5,831.0	5,355.2	5,344.2	127.4	13.1	0.75	303.4	-0.8	7,005.0	6,955.2	49.79	140.679		
12,100.0	5,831.0	5,348.2	5,337.2	129.3	13.1	0.74	302.9	-0.8	7,104.8	7,054.3	50.52	140.626		
12,200.0	5,831.0	5,341.3	5,330.3	131.2	13.1	0.72	302.4	-0.7	7,204.6	7,153.3	51.25	140.574		
12,300.0	5,831.0	5,334.3	5,323.4	133.1	13.1	0.71	301.9	-0.7	7,304.3	7,252.3	51.98	140.524		
12,400.0	5,831.0	5,327.4	5,316.4	135.0	13.1	0.69	301.5	-0.6	7,404.1	7,351.4	52.71	140.474		
12,500.0	5,831.0	5,320.4	5,309.5	136.9	13.1	0.68	301.0	-0.6	7,503.8	7,450.4	53.44	140.426		
12,600.0	5,831.0	5,313.5	5,302.6	138.8	13.0	0.67	300.5	-0.5	7,603.6	7,549.4	54.16	140.379		
12,700.0	5,831.0	5,306.5	5,295.6	140.7	13.0	0.65	300.0	-0.5	7,703.4	7,648.5	54.89	140.333		
12,800.0	5,831.0	5,299.6	5,288.7	142.7	13.0	0.64	299.5	-0.5	7,803.1	7,747.5	55.62	140.288		
12,900.0	5,831.0	5,292.6	5,281.8	144.6	13.0	0.63	299.0	-0.4	7,902.9	7,846.5	56.35	140.244		
13,000.0	5,831.0	5,285.7	5,274.8	146.5	13.0	0.61	298.6	-0.4	8,002.6	7,945.5	57.08	140.201		
13,100.0	5,831.0	5,278.7	5,267.9	148.4	12.9	0.60	298.1	-0.3	8,102.4	8,044.6	57.81	140.159		
13,200.0	5,831.0	5,271.8	5,261.0	150.3	12.9	0.59	297.6	-0.3	8,202.1	8,143.6	58.54	140.118		
13,300.0	5,831.0	5,264.8	5,254.0	152.2	12.9	0.58	297.1	-0.2	8,301.9	8,242.6	59.27	140.078		
13,400.0	5,831.0	5,257.9	5,247.1	154.1	12.9	0.57	296.6	-0.2	8,401.7	8,341.7	60.00	140.038		
13,500.0	5,831.0	5,250.9	5,240.2	156.1	12.9	0.56	296.1	-0.2	8,501.4	8,440.7	60.72	140.000		
13,600.0	5,831.0	5,244.0	5,233.2	158.0	12.9	0.55	295.7	-0.1	8,601.2	8,539.7	61.45	139.962		
13,650.7	5,831.0	5,240.5	5,229.7	158.9	12.8	0.54	295.4	-0.1	8,651.7	8,589.9	61.82	139.943		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Reference Site:</b>	S11-T10N-R58W	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S11-T10N-R58W - Razor #11H-0216B - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: O-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance					Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-152.09	-43.5	-23.1	49.2					
100.0	100.0	100.0	100.0	0.1	0.1	-152.09	-43.5	-23.1	49.2	49.1	0.19	263.350		
200.0	200.0	200.0	200.0	0.3	0.3	-152.09	-43.5	-23.1	49.2	48.6	0.64	77.369		
300.0	300.0	300.0	300.0	0.5	0.5	-152.09	-43.5	-23.1	49.2	48.2	1.09	45.345		
400.0	400.0	400.0	400.0	0.8	0.8	-152.09	-43.5	-23.1	49.2	47.7	1.54	32.071		
500.0	500.0	500.0	500.0	1.0	1.0	-152.09	-43.5	-23.1	49.2	47.3	1.99	24.808		
600.0	600.0	600.0	600.0	1.2	1.2	-152.09	-43.5	-23.1	49.2	46.8	2.43	20.228		
700.0	700.0	701.6	701.6	1.4	1.4	-151.47	-41.8	-22.7	47.6	44.7	2.89	16.462		
800.0	800.0	803.0	802.8	1.7	1.7	-149.31	-36.5	-21.6	42.5	39.2	3.35	12.705		
900.0	900.0	902.7	902.3	1.9	1.9	-145.62	-29.6	-20.3	36.0	32.2	3.80	9.479		
1,000.0	1,000.0	1,002.3	1,001.7	2.1	2.1	42.28	-22.8	-18.9	28.4	24.2	4.23	6.715		
1,100.0	1,099.8	1,101.6	1,100.7	2.3	2.4	63.23	-16.0	-17.6	19.8	15.2	4.64	4.270		
1,177.6	1,177.2	1,178.4	1,177.3	2.4	2.6	95.78	-10.8	-16.5	16.7	11.7	4.98	3.343 CC, ES		
1,200.0	1,199.6	1,200.6	1,199.5	2.5	2.6	106.25	-9.3	-16.2	16.9	11.9	5.08	3.337 SF		
1,300.0	1,299.4	1,299.7	1,298.3	2.7	2.9	141.01	-2.5	-14.9	23.8	18.3	5.49	4.328		
1,400.0	1,399.1	1,398.7	1,397.1	2.9	3.1	157.15	4.3	-13.5	35.0	29.1	5.90	5.936		
1,500.0	1,498.9	1,497.7	1,495.9	3.1	3.4	165.14	11.1	-12.2	47.7	41.3	6.32	7.544		
1,600.0	1,598.6	1,596.8	1,594.7	3.3	3.6	169.74	17.8	-10.8	60.8	54.1	6.74	9.021		
1,700.0	1,698.4	1,695.8	1,693.5	3.6	3.9	172.69	24.6	-9.5	74.2	67.1	7.17	10.350		
1,800.0	1,798.1	1,794.9	1,792.3	3.8	4.1	174.74	31.4	-8.1	87.8	80.2	7.61	11.541		
1,900.0	1,897.9	1,893.9	1,891.1	4.0	4.4	176.24	38.2	-6.8	101.4	93.4	8.04	12.609		
2,000.0	1,997.6	1,992.9	1,989.9	4.3	4.6	177.38	44.9	-5.4	115.1	106.6	8.48	13.569		
2,100.0	2,097.4	2,092.0	2,088.7	4.5	4.9	178.28	51.7	-4.1	128.8	119.9	8.92	14.436		
2,200.0	2,197.2	2,191.0	2,187.4	4.8	5.1	179.01	58.5	-2.7	142.6	133.2	9.37	15.221		
2,300.0	2,296.9	2,290.0	2,286.2	5.0	5.4	179.61	65.3	-1.4	156.3	146.5	9.81	15.935		
2,400.0	2,396.7	2,389.1	2,385.0	5.3	5.6	-179.89	72.0	0.0	170.1	159.8	10.26	16.586		
2,500.0	2,496.4	2,488.1	2,483.8	5.5	5.9	-179.46	78.8	1.3	183.9	173.2	10.70	17.183		
2,600.0	2,596.2	2,587.1	2,582.6	5.8	6.1	-179.10	85.6	2.7	197.7	186.5	11.15	17.731		
2,700.0	2,695.9	2,686.2	2,681.4	6.0	6.4	-178.78	92.4	4.0	211.5	199.9	11.60	18.236		
2,800.0	2,795.7	2,785.2	2,780.2	6.3	6.6	-178.50	99.1	5.4	225.3	213.2	12.04	18.703		
2,900.0	2,895.5	2,884.3	2,879.0	6.5	6.9	-178.25	105.9	6.8	239.1	226.6	12.49	19.136		
3,000.0	2,995.2	2,983.3	2,977.8	6.8	7.1	-178.03	112.7	8.1	252.9	240.0	12.94	19.539		
3,100.0	3,095.0	3,082.3	3,076.6	7.1	7.4	-177.83	119.5	9.5	266.7	253.3	13.39	19.914		
3,200.0	3,194.7	3,181.4	3,175.4	7.3	7.6	-177.65	126.2	10.8	280.5	266.7	13.84	20.264		
3,300.0	3,294.5	3,280.4	3,274.2	7.6	7.9	-177.49	133.0	12.2	294.4	280.1	14.30	20.591		
3,400.0	3,394.2	3,379.4	3,373.0	7.8	8.1	-177.34	139.8	13.5	308.2	293.4	14.75	20.899		
3,500.0	3,494.0	3,478.5	3,471.8	8.1	8.4	-177.21	146.6	14.9	322.0	306.8	15.20	21.187		
3,600.0	3,593.7	3,577.5	3,570.6	8.4	8.6	-177.09	153.3	16.2	335.9	320.2	15.65	21.459		
3,700.0	3,693.5	3,676.5	3,669.4	8.6	8.9	-176.97	160.1	17.6	349.7	333.6	16.10	21.715		
3,800.0	3,793.3	3,775.6	3,768.2	8.9	9.1	-176.87	166.9	18.9	363.5	347.0	16.56	21.957		
3,900.0	3,893.0	3,874.6	3,867.0	9.1	9.4	-176.77	173.7	20.3	377.3	360.3	17.01	22.186		
4,000.0	3,992.8	3,973.7	3,965.8	9.4	9.7	-176.68	180.4	21.6	391.2	373.7	17.46	22.402		
4,100.0	4,092.5	4,072.7	4,064.6	9.7	9.9	-176.60	187.2	23.0	405.0	387.1	17.91	22.608		
4,200.0	4,192.3	4,171.7	4,163.4	9.9	10.2	-176.52	194.0	24.3	418.9	400.5	18.37	22.803		
4,300.0	4,292.0	4,270.8	4,262.2	10.2	10.4	-176.44	200.8	25.7	432.7	413.9	18.82	22.989		
4,400.0	4,391.8	4,369.8	4,360.9	10.4	10.7	-176.37	207.5	27.0	446.5	427.3	19.28	23.166		
4,500.0	4,491.6	4,468.8	4,459.7	10.7	10.9	-176.31	214.3	28.4	460.4	440.6	19.73	23.334		
4,600.0	4,591.3	4,567.9	4,558.5	11.0	11.2	-176.25	221.1	29.7	474.2	454.0	20.18	23.495		
4,700.0	4,691.1	4,666.9	4,657.3	11.2	11.4	-176.19	227.9	31.1	488.0	467.4	20.64	23.649		
4,800.0	4,790.8	4,766.0	4,756.1	11.5	11.7	-176.14	234.6	32.4	501.9	480.8	21.09	23.795		
4,900.0	4,890.6	4,865.0	4,854.9	11.8	11.9	-176.09	241.4	33.8	515.7	494.2	21.55	23.936		
5,000.0	4,990.3	4,964.0	4,953.7	12.0	12.2	-176.04	248.2	35.1	529.6	507.6	22.00	24.071		

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



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Reference Site:</b>	S11-T10N-R58W	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S11-T10N-R58W - Razor #11H-0216B - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning	
5,100.0	5,090.1	5,063.1	5,052.5	12.3	12.4	-175.99	255.0	36.5	543.4	520.9	22.45	24.200		
5,200.0	5,189.9	5,162.1	5,151.3	12.5	12.7	-175.95	261.7	37.8	557.2	534.3	22.91	24.324		
5,300.0	5,289.6	5,261.1	5,250.1	12.8	12.9	-175.90	268.5	39.2	571.1	547.7	23.36	24.443		
5,400.0	5,389.2	5,359.9	5,348.6	13.1	13.2	-175.81	275.3	40.5	586.7	563.1	23.62	24.841		
5,500.0	5,486.0	5,454.7	5,443.2	13.5	13.4	-175.63	281.8	41.8	617.8	594.8	23.02	26.832		
5,600.0	5,576.3	5,500.0	5,488.2	14.1	13.6	-175.20	286.3	42.7	669.2	647.7	21.57	31.033		
5,700.0	5,656.8	5,525.9	5,513.7	14.9	13.7	-174.25	290.7	43.6	740.6	721.2	19.41	38.166		
5,800.0	5,724.6	5,550.0	5,537.3	15.8	13.7	-172.25	295.8	44.6	826.6	809.8	16.81	49.175		
5,900.0	5,777.2	5,550.0	5,537.3	17.0	13.7	-165.53	295.8	44.6	921.6	906.7	14.92	61.757		
6,000.0	5,812.6	5,550.0	5,537.3	18.3	13.7	-81.32	295.8	44.6	1,020.9	989.2	31.74	32.169		
6,100.0	5,829.5	5,550.0	5,537.3	19.8	13.7	-12.29	295.8	44.6	1,120.2	1,109.3	10.89	102.839		
6,200.0	5,831.0	5,550.0	5,537.3	21.2	13.7	-8.82	295.8	44.6	1,217.2	1,207.3	9.91	122.843		
6,300.0	5,831.0	5,550.0	5,537.3	22.6	13.7	-8.68	295.8	44.6	1,314.4	1,304.0	10.45	125.790		
6,400.0	5,831.0	5,550.0	5,537.3	24.0	13.7	-8.52	295.8	44.6	1,412.0	1,401.0	11.02	128.078		
6,500.0	5,831.0	5,550.0	5,537.3	25.5	13.7	-8.36	295.8	44.6	1,509.9	1,498.3	11.62	129.889		
6,600.0	5,831.0	5,527.9	5,515.8	27.0	13.7	-7.46	291.1	43.7	1,607.5	1,595.5	12.02	133.780		
6,700.0	5,831.0	5,523.3	5,511.2	28.6	13.7	-7.16	290.2	43.5	1,705.6	1,693.0	12.61	135.258		
6,800.0	5,831.0	5,500.0	5,488.2	30.2	13.6	-6.38	286.3	42.7	1,804.3	1,791.2	13.08	137.903		
6,900.0	5,831.0	5,500.0	5,488.2	31.9	13.6	-6.20	286.3	42.7	1,902.5	1,888.8	13.74	138.484		
7,000.0	5,831.0	5,500.0	5,488.2	33.6	13.6	-6.19	286.3	42.7	2,001.0	1,986.5	14.44	138.534		
7,100.0	5,831.0	5,500.0	5,488.2	35.4	13.6	-6.19	286.3	42.7	2,099.6	2,084.4	15.16	138.475		
7,200.0	5,831.0	5,500.0	5,488.2	37.1	13.6	-6.19	286.3	42.7	2,198.3	2,182.4	15.89	138.386		
7,300.0	5,831.0	5,500.0	5,488.2	38.9	13.6	-6.19	286.3	42.7	2,297.1	2,280.5	16.61	138.278		
7,400.0	5,831.0	5,500.0	5,488.2	40.7	13.6	-6.19	286.3	42.7	2,396.0	2,378.7	17.34	138.157		
7,500.0	5,831.0	5,500.0	5,488.2	42.5	13.6	-6.19	286.3	42.7	2,495.0	2,476.9	18.08	138.028		
7,600.0	5,831.0	5,500.0	5,488.2	44.3	13.6	-6.19	286.3	42.7	2,594.1	2,575.3	18.81	137.895		
7,700.0	5,831.0	5,500.0	5,488.2	46.2	13.6	-6.19	286.3	42.7	2,693.2	2,673.7	19.55	137.760		
7,800.0	5,831.0	5,500.0	5,488.2	48.0	13.6	-6.19	286.3	42.7	2,792.4	2,772.1	20.29	137.626		
7,900.0	5,831.0	5,500.0	5,488.2	49.8	13.6	-6.19	286.3	42.7	2,891.7	2,870.7	21.03	137.493		
8,000.0	5,831.0	5,500.0	5,488.2	51.7	13.6	-6.19	286.3	42.7	2,991.0	2,969.2	21.77	137.363		
8,100.0	5,831.0	5,500.0	5,488.2	53.5	13.6	-6.19	286.3	42.7	3,090.4	3,067.8	22.52	137.236		
8,200.0	5,831.0	5,500.0	5,488.2	55.4	13.6	-6.19	286.3	42.7	3,189.8	3,166.5	23.26	137.112		
8,300.0	5,831.0	5,481.9	5,470.3	57.3	13.5	-5.81	284.1	42.3	3,288.8	3,265.0	23.87	137.772		
8,400.0	5,831.0	5,480.4	5,468.8	59.1	13.5	-5.78	283.9	42.3	3,388.2	3,363.6	24.61	137.702		
8,500.0	5,831.0	5,479.0	5,467.4	61.0	13.5	-5.75	283.7	42.2	3,487.7	3,462.3	25.34	137.631		
8,600.0	5,831.0	5,477.6	5,466.1	62.9	13.5	-5.73	283.6	42.2	3,587.1	3,561.0	26.08	137.560		
8,700.0	5,831.0	5,460.0	5,448.5	64.7	13.5	-5.42	282.1	41.9	3,686.9	3,660.2	26.71	138.044		
8,800.0	5,831.0	5,460.0	5,448.5	66.6	13.5	-5.42	282.1	41.9	3,786.4	3,758.9	27.45	137.924		
8,900.0	5,831.0	5,460.0	5,448.5	68.5	13.5	-5.42	282.1	41.9	3,885.9	3,857.7	28.20	137.808		
9,000.0	5,831.0	5,460.0	5,448.5	70.4	13.5	-5.42	282.1	41.9	3,985.4	3,956.4	28.94	137.698		
9,100.0	5,831.0	5,460.0	5,448.5	72.3	13.5	-5.42	282.1	41.9	4,084.9	4,055.2	29.69	137.591		
9,200.0	5,831.0	5,460.0	5,448.5	74.1	13.5	-5.42	282.1	41.9	4,184.5	4,154.1	30.44	137.489		
9,300.0	5,831.0	5,460.0	5,448.5	76.0	13.5	-5.42	282.1	41.9	4,284.1	4,252.9	31.18	137.391		
9,400.0	5,831.0	5,460.0	5,448.5	77.9	13.5	-5.42	282.1	41.9	4,383.7	4,351.8	31.93	137.297		
9,500.0	5,831.0	5,460.0	5,448.5	79.8	13.5	-5.42	282.1	41.9	4,483.3	4,450.6	32.68	137.206		
9,600.0	5,831.0	5,460.0	5,448.5	81.7	13.5	-5.42	282.1	41.9	4,583.0	4,549.5	33.42	137.119		
9,700.0	5,831.0	5,460.0	5,448.5	83.6	13.5	-5.42	282.1	41.9	4,682.6	4,648.4	34.17	137.035		
9,800.0	5,831.0	5,460.0	5,448.5	85.5	13.5	-5.42	282.1	41.9	4,782.3	4,747.4	34.92	136.954		
9,900.0	5,831.0	5,460.0	5,448.5	87.4	13.5	-5.42	282.1	41.9	4,882.0	4,846.3	35.67	136.876		
10,000.0	5,831.0	5,460.0	5,448.5	89.3	13.5	-5.42	282.1	41.9	4,981.7	4,945.3	36.42	136.800		
10,100.0	5,831.0	5,460.0	5,448.5	91.2	13.5	-5.42	282.1	41.9	5,081.4	5,044.2	37.16	136.728		
10,200.0	5,831.0	5,460.0	5,448.5	93.1	13.5	-5.42	282.1	41.9	5,181.1	5,143.2	37.91	136.658		

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



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Reference Site:</b>	S11-T10N-R58W	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S11-T10N-R58W - Razor #11H-0216B - HZ - Plan #1													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
10,300.0	5,831.0	5,460.0	5,448.5	95.0	13.5	-5.42	282.1	41.9	5,280.8	5,242.2	38.66	136.590		
10,400.0	5,831.0	5,460.0	5,448.5	96.9	13.5	-5.42	282.1	41.9	5,380.6	5,341.2	39.41	136.525		
10,500.0	5,831.0	5,460.0	5,448.5	98.8	13.5	-5.42	282.1	41.9	5,480.3	5,440.2	40.16	136.461		
10,600.0	5,831.0	5,460.0	5,448.5	100.7	13.5	-5.42	282.1	41.9	5,580.1	5,539.2	40.91	136.400		
10,700.0	5,831.0	5,453.4	5,441.9	102.6	13.4	-5.32	281.7	41.8	5,679.8	5,638.2	41.61	136.513		
10,800.0	5,831.0	5,446.6	5,435.1	104.5	13.4	-5.21	281.2	41.7	5,779.6	5,737.3	42.30	136.624		
10,900.0	5,831.0	5,439.7	5,428.3	106.4	13.4	-5.11	280.7	41.6	5,879.4	5,836.4	43.00	136.728		
11,000.0	5,831.0	5,432.9	5,421.4	108.3	13.4	-5.01	280.3	41.5	5,979.1	5,935.4	43.70	136.824		
11,100.0	5,831.0	5,426.0	5,414.6	110.2	13.4	-4.92	279.8	41.4	6,078.9	6,034.5	44.40	136.914		
11,200.0	5,831.0	5,419.2	5,407.8	112.1	13.3	-4.83	279.3	41.3	6,178.7	6,133.6	45.10	136.998		
11,300.0	5,831.0	5,412.4	5,401.0	114.0	13.3	-4.74	278.9	41.2	6,278.4	6,232.6	45.80	137.075		
11,400.0	5,831.0	5,405.5	5,394.1	115.9	13.3	-4.65	278.4	41.2	6,378.2	6,331.7	46.51	137.148		
11,500.0	5,831.0	5,398.7	5,387.3	117.8	13.3	-4.57	277.9	41.1	6,477.9	6,430.7	47.21	137.216		
11,600.0	5,831.0	5,391.8	5,380.5	119.7	13.3	-4.49	277.4	41.0	6,577.7	6,529.8	47.92	137.279		
11,700.0	5,831.0	5,385.0	5,373.7	121.6	13.3	-4.41	277.0	40.9	6,677.5	6,628.8	48.62	137.337		
11,800.0	5,831.0	5,378.2	5,366.8	123.6	13.2	-4.34	276.5	40.8	6,777.2	6,727.9	49.33	137.392		
11,900.0	5,831.0	5,371.3	5,360.0	125.5	13.2	-4.26	276.0	40.7	6,877.0	6,827.0	50.04	137.443		
12,000.0	5,831.0	5,364.5	5,353.2	127.4	13.2	-4.19	275.6	40.6	6,976.8	6,926.0	50.74	137.491		
12,100.0	5,831.0	5,357.6	5,346.4	129.3	13.2	-4.12	275.1	40.5	7,076.5	7,025.1	51.45	137.535		
12,200.0	5,831.0	5,350.8	5,339.5	131.2	13.2	-4.05	274.6	40.4	7,176.3	7,124.1	52.16	137.577		
12,300.0	5,831.0	5,344.0	5,332.7	133.1	13.2	-3.99	274.2	40.3	7,276.1	7,223.2	52.87	137.615		
12,400.0	5,831.0	5,337.1	5,325.9	135.0	13.1	-3.92	273.7	40.2	7,375.8	7,322.2	53.58	137.652		
12,500.0	5,831.0	5,330.3	5,319.1	136.9	13.1	-3.86	273.2	40.1	7,475.6	7,421.3	54.29	137.685		
12,600.0	5,831.0	5,323.4	5,312.2	138.8	13.1	-3.80	272.8	40.0	7,575.3	7,520.3	55.01	137.716		
12,700.0	5,831.0	5,316.6	5,305.4	140.7	13.1	-3.74	272.3	39.9	7,675.1	7,619.4	55.72	137.746		
12,800.0	5,831.0	5,309.7	5,298.6	142.7	13.1	-3.68	271.8	39.8	7,774.9	7,718.4	56.43	137.773		
12,900.0	5,831.0	5,302.9	5,291.8	144.6	13.1	-3.63	271.4	39.8	7,874.6	7,817.5	57.15	137.798		
13,000.0	5,831.0	5,296.1	5,285.0	146.5	13.0	-3.57	270.9	39.7	7,974.4	7,916.5	57.86	137.821		
13,100.0	5,831.0	5,289.2	5,278.1	148.4	13.0	-3.52	270.4	39.6	8,074.2	8,015.6	58.58	137.843		
13,200.0	5,831.0	5,282.4	5,271.3	150.3	13.0	-3.46	270.0	39.5	8,173.9	8,114.6	59.29	137.863		
13,300.0	5,831.0	5,275.5	5,264.5	152.2	13.0	-3.41	269.5	39.4	8,273.7	8,213.7	60.01	137.882		
13,400.0	5,831.0	5,268.7	5,257.7	154.1	13.0	-3.36	269.0	39.3	8,373.5	8,312.7	60.72	137.899		
13,500.0	5,831.0	5,261.9	5,250.8	156.1	12.9	-3.32	268.6	39.2	8,473.2	8,411.8	61.44	137.916		
13,600.0	5,831.0	5,255.0	5,244.0	158.0	12.9	-3.27	268.1	39.1	8,573.0	8,510.8	62.15	137.930		
13,650.7	5,831.0	5,251.6	5,240.5	158.9	12.9	-3.24	267.9	39.1	8,623.6	8,561.0	62.52	137.938		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Reference Site:</b>	S11-T10N-R58W	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S11-T10N-R58W - Razor #11H-1413A - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: O-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-61.87	28.3	-53.0	60.1					
100.0	100.0	100.0	100.0	0.1	0.1	-61.87	28.3	-53.0	60.1	59.9	0.19	321.500		
200.0	200.0	200.0	200.0	0.3	0.3	-61.87	28.3	-53.0	60.1	59.5	0.64	94.452		
300.0	300.0	300.0	300.0	0.5	0.5	-61.87	28.3	-53.0	60.1	59.0	1.09	55.358		
400.0	400.0	400.0	400.0	0.8	0.8	-61.87	28.3	-53.0	60.1	58.6	1.54	39.152		
466.7	466.7	466.7	466.7	0.9	0.9	-61.87	28.3	-53.0	60.1	58.3	1.84	32.759 CC		
500.0	500.0	500.0	500.0	1.0	1.0	-61.87	28.3	-53.0	60.1	58.1	1.99	30.286		
600.0	600.0	599.9	599.9	1.2	1.2	-63.53	26.8	-53.9	60.2	57.8	2.41	24.976 ES		
700.0	700.0	699.6	699.5	1.4	1.4	-68.47	22.2	-56.3	60.6	57.8	2.82	21.462		
800.0	800.0	799.4	799.0	1.7	1.6	-74.88	16.1	-59.7	61.8	58.6	3.26	18.982		
900.0	900.0	899.2	898.5	1.9	1.8	-80.97	10.0	-63.0	63.8	60.1	3.70	17.232		
1,000.0	1,000.0	999.0	998.1	2.1	2.1	95.06	3.9	-66.3	66.6	62.5	4.13	16.134		
1,100.0	1,099.8	1,098.9	1,097.8	2.3	2.3	94.03	-2.2	-69.7	69.9	65.3	4.54	15.392		
1,200.0	1,199.6	1,198.9	1,197.5	2.5	2.5	94.52	-8.4	-73.0	73.3	68.3	4.97	14.738		
1,300.0	1,299.4	1,298.8	1,297.2	2.7	2.8	94.96	-14.5	-76.3	76.7	71.3	5.42	14.147		
1,400.0	1,399.1	1,398.8	1,396.9	2.9	3.0	95.37	-20.6	-79.7	80.1	74.3	5.89	13.618		
1,500.0	1,498.9	1,498.7	1,496.6	3.1	3.3	95.74	-26.7	-83.0	83.6	77.2	6.36	13.146		
1,600.0	1,598.6	1,598.6	1,596.3	3.3	3.5	96.08	-32.9	-86.3	87.0	80.2	6.84	12.726		
1,700.0	1,698.4	1,698.6	1,696.0	3.6	3.8	96.40	-39.0	-89.6	90.4	83.1	7.32	12.350		
1,800.0	1,798.1	1,798.5	1,795.7	3.8	4.1	96.69	-45.1	-93.0	93.9	86.1	7.81	12.013		
1,900.0	1,897.9	1,898.5	1,895.4	4.0	4.3	96.97	-51.2	-96.3	97.3	89.0	8.31	11.711		
2,000.0	1,997.6	1,998.4	1,995.1	4.3	4.6	97.22	-57.3	-99.6	100.8	92.0	8.81	11.438		
2,100.0	2,097.4	2,098.3	2,094.8	4.5	4.8	97.46	-63.5	-103.0	104.2	94.9	9.31	11.192		
2,200.0	2,197.2	2,198.3	2,194.5	4.8	5.1	97.68	-69.6	-106.3	107.7	97.8	9.82	10.967		
2,300.0	2,296.9	2,298.2	2,294.2	5.0	5.4	97.89	-75.7	-109.6	111.1	100.8	10.32	10.762		
2,400.0	2,396.7	2,398.2	2,393.9	5.3	5.6	98.08	-81.8	-113.0	114.5	103.7	10.83	10.575		
2,500.0	2,496.4	2,498.1	2,493.5	5.5	5.9	98.27	-88.0	-116.3	118.0	106.7	11.34	10.403		
2,600.0	2,596.2	2,598.0	2,593.2	5.8	6.1	98.44	-94.1	-119.6	121.4	109.6	11.85	10.245		
2,700.0	2,695.9	2,698.0	2,692.9	6.0	6.4	98.61	-100.2	-123.0	124.9	112.5	12.37	10.099		
2,800.0	2,795.7	2,797.9	2,792.6	6.3	6.7	98.76	-106.3	-126.3	128.4	115.5	12.88	9.964		
2,900.0	2,895.5	2,897.9	2,892.3	6.5	6.9	98.91	-112.5	-129.6	131.8	118.4	13.40	9.838		
3,000.0	2,995.2	2,997.8	2,992.0	6.8	7.2	99.05	-118.6	-133.0	135.3	121.3	13.91	9.722		
3,100.0	3,095.0	3,097.7	3,091.7	7.1	7.5	99.18	-124.7	-136.3	138.7	124.3	14.43	9.613		
3,200.0	3,194.7	3,197.7	3,191.4	7.3	7.7	99.31	-130.8	-139.6	142.2	127.2	14.95	9.511		
3,300.0	3,294.5	3,297.6	3,291.1	7.6	8.0	99.43	-137.0	-143.0	145.6	130.2	15.47	9.416		
3,400.0	3,394.2	3,397.5	3,390.8	7.8	8.2	99.54	-143.1	-146.3	149.1	133.1	15.98	9.327		
3,500.0	3,494.0	3,497.5	3,490.5	8.1	8.5	99.65	-149.2	-149.6	152.5	136.0	16.50	9.243		
3,600.0	3,593.7	3,597.4	3,590.2	8.4	8.8	99.76	-155.3	-153.0	156.0	139.0	17.02	9.164		
3,700.0	3,693.5	3,697.4	3,689.9	8.6	9.0	99.86	-161.4	-156.3	159.5	141.9	17.54	9.090		
3,800.0	3,793.3	3,797.3	3,789.6	8.9	9.3	99.96	-167.6	-159.6	162.9	144.9	18.06	9.020		
3,900.0	3,893.0	3,897.2	3,889.3	9.1	9.6	100.05	-173.7	-162.9	166.4	147.8	18.58	8.953		
4,000.0	3,992.8	3,997.2	3,989.0	9.4	9.8	100.14	-179.8	-166.3	169.8	150.7	19.11	8.890		
4,100.0	4,092.5	4,097.1	4,088.7	9.7	10.1	100.22	-185.9	-169.6	173.3	153.7	19.63	8.830		
4,200.0	4,192.3	4,197.1	4,188.4	9.9	10.4	100.30	-192.1	-172.9	176.8	156.6	20.15	8.774		
4,300.0	4,292.0	4,297.0	4,288.1	10.2	10.6	100.38	-198.2	-176.3	180.2	159.6	20.67	8.720		
4,400.0	4,391.8	4,396.9	4,387.8	10.4	10.9	100.46	-204.3	-179.6	183.7	162.5	21.19	8.668		
4,500.0	4,491.6	4,496.9	4,487.5	10.7	11.1	100.53	-210.4	-182.9	187.2	165.4	21.71	8.619		
4,600.0	4,591.3	4,596.8	4,587.2	11.0	11.4	100.60	-216.6	-186.3	190.6	168.4	22.24	8.572		
4,700.0	4,691.1	4,696.8	4,686.9	11.2	11.7	100.67	-222.7	-189.6	194.1	171.3	22.76	8.528		
4,800.0	4,790.8	4,796.7	4,786.6	11.5	11.9	100.73	-228.8	-192.9	197.5	174.3	23.28	8.485		
4,900.0	4,890.6	4,896.6	4,886.3	11.8	12.2	100.79	-234.9	-196.3	201.0	177.2	23.80	8.444		
5,000.0	4,990.3	4,996.6	4,986.0	12.0	12.5	100.85	-241.1	-199.6	204.5	180.1	24.33	8.405		

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Reference Site:</b>	S11-T10N-R58W	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S11-T10N-R58W - Razor #11H-1413A - HZ - Plan #1												Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.0	5,090.1	5,096.5	5,085.7	12.3	12.7	100.91	-247.2	-202.9	207.9	183.1	24.85	8.368	
5,200.0	5,189.9	5,196.5	5,185.3	12.5	13.0	100.97	-253.3	-206.3	211.4	186.0	25.37	8.332	
5,300.0	5,289.6	5,296.4	5,285.0	12.8	13.3	101.02	-259.4	-209.6	214.9	189.0	25.90	8.297	
5,400.0	5,389.2	5,392.0	5,380.3	13.1	13.5	100.96	-266.3	-213.3	219.0	192.6	26.42	8.289	
5,500.0	5,486.0	5,480.1	5,466.2	13.5	13.9	100.50	-283.1	-222.5	230.4	203.2	27.14	8.489	
5,600.0	5,576.3	5,567.0	5,546.5	14.1	14.4	99.63	-311.9	-238.1	250.0	221.9	28.12	8.891	
5,700.0	5,656.8	5,650.0	5,617.2	14.9	15.0	98.25	-350.0	-258.9	277.1	247.8	29.37	9.436	
5,800.0	5,724.6	5,735.6	5,681.9	15.8	15.7	96.50	-399.2	-285.6	310.8	279.8	31.04	10.012	
5,900.0	5,777.2	5,817.7	5,734.5	17.0	16.6	94.27	-454.4	-315.7	349.8	316.8	33.05	10.586	
6,000.0	5,812.6	5,900.0	5,776.8	18.3	17.6	91.73	-516.3	-349.4	393.0	357.6	35.35	11.116	
6,100.0	5,829.5	5,980.2	5,806.8	19.8	18.7	88.89	-581.6	-384.9	439.0	401.1	37.87	11.591	
6,200.0	5,831.0	6,063.6	5,825.5	21.2	19.9	89.26	-652.9	-423.7	486.5	446.0	40.52	12.005	
6,300.0	5,831.0	6,155.0	5,831.0	22.6	21.3	90.00	-733.0	-467.2	534.6	491.3	43.23	12.366	
6,400.0	5,831.0	6,281.4	5,831.0	24.0	23.1	90.00	-846.4	-523.0	579.0	532.6	46.39	12.483	
6,500.0	5,831.0	6,416.1	5,831.0	25.5	25.0	90.00	-971.0	-574.0	617.2	567.4	49.79	12.396	
6,600.0	5,831.0	6,558.1	5,831.0	27.0	27.1	90.00	-1,105.9	-618.2	648.5	595.1	53.47	12.129	
6,700.0	5,831.0	6,706.6	5,831.0	28.6	29.4	90.00	-1,250.1	-653.6	672.5	615.2	57.37	11.723	
6,800.0	5,831.0	6,859.9	5,831.0	30.2	31.7	90.00	-1,401.4	-678.2	688.7	627.3	61.43	11.211	
6,900.0	5,831.0	7,016.4	5,831.0	31.9	34.1	90.00	-1,557.3	-690.7	696.7	631.1	65.59	10.622	
7,000.0	5,831.0	7,143.8	5,831.0	33.6	36.1	90.00	-1,684.8	-692.2	697.7	628.3	69.37	10.057	
7,100.0	5,831.0	7,243.8	5,831.0	35.4	37.7	90.00	-1,784.8	-692.2	697.7	624.9	72.81	9.582	
7,200.0	5,831.0	7,343.8	5,831.0	37.1	39.3	90.00	-1,884.8	-692.2	697.6	621.4	76.28	9.146	
7,300.0	5,831.0	7,443.8	5,831.0	38.9	40.9	90.00	-1,984.8	-692.2	697.6	617.8	79.79	8.743	
7,400.0	5,831.0	7,543.8	5,831.0	40.7	42.6	90.00	-2,084.8	-692.2	697.6	614.3	83.33	8.372	
7,500.0	5,831.0	7,643.8	5,831.0	42.5	44.3	90.00	-2,184.8	-692.2	697.6	610.7	86.89	8.028	
7,600.0	5,831.0	7,743.8	5,831.0	44.3	46.0	90.00	-2,284.8	-692.2	697.6	607.1	90.48	7.710	
7,700.0	5,831.0	7,843.8	5,831.0	46.2	47.7	90.00	-2,384.8	-692.2	697.6	603.5	94.09	7.414	
7,800.0	5,831.0	7,943.8	5,831.0	48.0	49.4	90.00	-2,484.8	-692.2	697.6	599.9	97.72	7.138	
7,900.0	5,831.0	8,043.8	5,831.0	49.8	51.2	90.00	-2,584.8	-692.2	697.6	596.2	101.36	6.882	
8,000.0	5,831.0	8,143.8	5,831.0	51.7	53.0	90.00	-2,684.8	-692.2	697.5	592.5	105.02	6.642	
8,100.0	5,831.0	8,243.8	5,831.0	53.5	54.7	90.00	-2,784.8	-692.2	697.5	588.8	108.69	6.417	
8,200.0	5,831.0	8,343.8	5,831.0	55.4	56.5	90.00	-2,884.8	-692.1	697.5	585.1	112.38	6.207	
8,300.0	5,831.0	8,443.8	5,831.0	57.3	58.3	90.00	-2,984.8	-692.1	697.5	581.4	116.07	6.009	
8,400.0	5,831.0	8,543.8	5,831.0	59.1	60.1	90.00	-3,084.8	-692.1	697.5	577.7	119.77	5.824	
8,500.0	5,831.0	8,643.8	5,831.0	61.0	61.9	90.00	-3,184.8	-692.1	697.5	574.0	123.48	5.648	
8,600.0	5,831.0	8,743.8	5,831.0	62.9	63.7	90.00	-3,284.8	-692.1	697.5	570.3	127.20	5.483	
8,700.0	5,831.0	8,843.8	5,831.0	64.7	65.5	90.00	-3,384.8	-692.1	697.5	566.5	130.93	5.327	
8,800.0	5,831.0	8,943.8	5,831.0	66.6	67.4	90.00	-3,484.8	-692.1	697.4	562.8	134.66	5.179	
8,900.0	5,831.0	9,043.8	5,831.0	68.5	69.2	90.00	-3,584.8	-692.1	697.4	559.0	138.40	5.039	
9,000.0	5,831.0	9,143.8	5,831.0	70.4	71.0	90.00	-3,684.8	-692.1	697.4	555.3	142.15	4.906	
9,100.0	5,831.0	9,243.8	5,831.0	72.3	72.9	90.00	-3,784.8	-692.1	697.4	551.5	145.90	4.780	
9,200.0	5,831.0	9,343.8	5,831.0	74.1	74.7	90.00	-3,884.8	-692.1	697.4	547.7	149.65	4.660	
9,300.0	5,831.0	9,443.8	5,831.0	76.0	76.6	90.00	-3,984.8	-692.1	697.4	544.0	153.41	4.546	
9,400.0	5,831.0	9,543.8	5,831.0	77.9	78.4	90.00	-4,084.8	-692.1	697.4	540.2	157.18	4.437	
9,500.0	5,831.0	9,643.8	5,831.0	79.8	80.3	90.00	-4,184.8	-692.1	697.4	536.4	160.94	4.333	
9,600.0	5,831.0	9,743.8	5,831.0	81.7	82.1	90.00	-4,284.8	-692.1	697.3	532.6	164.71	4.234	
9,700.0	5,831.0	9,843.8	5,831.0	83.6	84.0	90.00	-4,384.8	-692.1	697.3	528.8	168.49	4.139	
9,800.0	5,831.0	9,943.8	5,831.0	85.5	85.9	90.00	-4,484.8	-692.1	697.3	525.1	172.27	4.048	
9,900.0	5,831.0	10,043.8	5,831.0	87.4	87.7	90.00	-4,584.8	-692.1	697.3	521.3	176.05	3.961	
10,000.0	5,831.0	10,143.8	5,831.0	89.3	89.6	90.00	-4,684.8	-692.0	697.3	517.5	179.83	3.878	
10,100.0	5,831.0	10,243.8	5,831.0	91.2	91.5	90.00	-4,784.8	-692.0	697.3	513.7	183.62	3.798	
10,200.0	5,831.0	10,343.8	5,831.0	93.1	93.3	90.00	-4,884.8	-692.0	697.3	509.9	187.40	3.721	

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Reference Site:</b>	S11-T10N-R58W	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S11-T10N-R58W - Razor #11H-1413A - HZ - Plan #1													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
10,300.0	5,831.0	10,443.8	5,831.0	95.0	95.2	90.00	-4,984.8	-692.0	697.3	506.1	191.19	3.647		
10,400.0	5,831.0	10,543.8	5,831.0	96.9	97.1	90.00	-5,084.8	-692.0	697.2	502.3	194.99	3.576		
10,500.0	5,831.0	10,643.8	5,831.0	98.8	99.0	90.00	-5,184.8	-692.0	697.2	498.5	198.78	3.508		
10,600.0	5,831.0	10,743.8	5,831.0	100.7	100.9	90.00	-5,284.8	-692.0	697.2	494.6	202.58	3.442		
10,700.0	5,831.0	10,843.8	5,831.0	102.6	102.7	90.00	-5,384.8	-692.0	697.2	490.8	206.37	3.378		
10,800.0	5,831.0	10,943.8	5,831.0	104.5	104.6	90.00	-5,484.8	-692.0	697.2	487.0	210.17	3.317		
10,900.0	5,831.0	11,043.8	5,831.0	106.4	106.5	90.00	-5,584.8	-692.0	697.2	483.2	213.97	3.258		
11,000.0	5,831.0	11,143.8	5,831.0	108.3	108.4	90.00	-5,684.8	-692.0	697.2	479.4	217.78	3.201		
11,100.0	5,831.0	11,243.8	5,831.0	110.2	110.3	90.00	-5,784.8	-692.0	697.2	475.6	221.58	3.146		
11,200.0	5,831.0	11,343.8	5,831.0	112.1	112.2	90.00	-5,884.8	-692.0	697.1	471.8	225.39	3.093		
11,300.0	5,831.0	11,443.8	5,831.0	114.0	114.1	90.00	-5,984.8	-692.0	697.1	467.9	229.19	3.042		
11,400.0	5,831.0	11,543.8	5,831.0	115.9	115.9	90.00	-6,084.8	-692.0	697.1	464.1	233.00	2.992		
11,500.0	5,831.0	11,643.8	5,831.0	117.8	117.8	90.00	-6,184.8	-692.0	697.1	460.3	236.81	2.944		
11,600.0	5,831.0	11,743.8	5,831.0	119.7	119.7	90.00	-6,284.8	-692.0	697.1	456.5	240.62	2.897		
11,700.0	5,831.0	11,843.8	5,831.0	121.6	121.6	90.00	-6,384.8	-692.0	697.1	452.7	244.43	2.852		
11,800.0	5,831.0	11,943.8	5,831.0	123.6	123.5	90.00	-6,484.8	-691.9	697.1	448.8	248.24	2.808		
11,900.0	5,831.0	12,043.8	5,831.0	125.5	125.4	90.00	-6,584.8	-691.9	697.1	445.0	252.06	2.765		
12,000.0	5,831.0	12,143.8	5,831.0	127.4	127.3	90.00	-6,684.8	-691.9	697.0	441.2	255.87	2.724		
12,100.0	5,831.0	12,243.8	5,831.0	129.3	129.2	90.00	-6,784.8	-691.9	697.0	437.4	259.68	2.684		
12,200.0	5,831.0	12,343.8	5,831.0	131.2	131.1	90.00	-6,884.8	-691.9	697.0	433.5	263.50	2.645		
12,300.0	5,831.0	12,443.8	5,831.0	133.1	133.0	90.00	-6,984.8	-691.9	697.0	429.7	267.32	2.607		
12,400.0	5,831.0	12,543.8	5,831.0	135.0	134.9	90.00	-7,084.8	-691.9	697.0	425.9	271.13	2.571		
12,500.0	5,831.0	12,643.8	5,831.0	136.9	136.8	90.00	-7,184.8	-691.9	697.0	422.0	274.95	2.535		
12,600.0	5,831.0	12,743.8	5,831.0	138.8	138.7	90.00	-7,284.8	-691.9	697.0	418.2	278.77	2.500		
12,700.0	5,831.0	12,843.8	5,831.0	140.7	140.6	90.00	-7,384.8	-691.9	697.0	414.4	282.59	2.466		
12,800.0	5,831.0	12,943.8	5,831.0	142.7	142.5	90.00	-7,484.8	-691.9	696.9	410.5	286.41	2.433		
12,900.0	5,831.0	13,043.8	5,831.0	144.6	144.4	90.00	-7,584.8	-691.9	696.9	406.7	290.23	2.401		
13,000.0	5,831.0	13,143.8	5,831.0	146.5	146.3	90.00	-7,684.8	-691.9	696.9	402.9	294.05	2.370		
13,100.0	5,831.0	13,243.8	5,831.0	148.4	148.2	90.00	-7,784.8	-691.9	696.9	399.0	297.87	2.340		
13,200.0	5,831.0	13,343.8	5,831.0	150.3	150.1	90.00	-7,884.8	-691.9	696.9	395.2	301.70	2.310		
13,300.0	5,831.0	13,443.8	5,831.0	152.2	152.0	90.00	-7,984.8	-691.9	696.9	391.4	305.52	2.281		
13,400.0	5,831.0	13,543.8	5,831.0	154.1	153.9	90.00	-8,084.8	-691.9	696.9	387.5	309.34	2.253		
13,500.0	5,831.0	13,643.8	5,831.0	156.1	155.8	90.00	-8,184.8	-691.8	696.9	383.7	313.17	2.225		
13,600.0	5,831.0	13,743.8	5,831.0	158.0	157.7	90.00	-8,284.8	-691.8	696.8	379.9	316.99	2.198		
13,650.7	5,831.0	13,794.5	5,831.0	158.9	158.7	90.00	-8,335.4	-691.8	696.8	377.9	318.93	2.185 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Reference Site:</b>	S11-T10N-R58W	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S11-T10N-R58W - Razor #11H-1416B - HZ - Plan #1														Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD														Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	176.95	-57.7	3.1	57.8						
100.0	100.0	100.0	100.0	0.1	0.1	176.95	-57.7	3.1	57.8	57.6	0.19	308.919			
200.0	200.0	200.0	200.0	0.3	0.3	176.95	-57.7	3.1	57.8	57.1	0.64	90.756			
300.0	300.0	300.0	300.0	0.5	0.5	176.95	-57.7	3.1	57.8	56.7	1.09	53.192			
400.0	400.0	400.0	400.0	0.8	0.8	176.95	-57.7	3.1	57.8	56.2	1.54	37.620			
500.0	500.0	500.0	500.0	1.0	1.0	176.95	-57.7	3.1	57.8	55.8	1.99	29.101			
600.0	600.0	600.0	600.0	1.2	1.2	176.95	-57.7	3.1	57.8	55.3	2.43	23.728			
700.0	700.0	700.0	700.0	1.4	1.4	176.95	-57.7	3.1	57.8	54.9	2.88	20.030			
800.0	800.0	800.0	800.0	1.7	1.7	176.95	-57.7	3.1	57.8	54.4	3.33	17.329			
900.0	900.0	900.0	900.0	1.9	1.9	176.95	-57.7	3.1	57.8	54.0	3.78	15.270			
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-2.88	-57.7	3.1	56.0	51.8	4.20	13.324			
1,100.0	1,099.8	1,098.1	1,098.1	2.3	2.3	-3.56	-59.3	3.5	52.5	47.9	4.57	11.479			
1,200.0	1,199.6	1,196.3	1,196.2	2.5	2.5	-5.23	-64.2	4.9	50.6	45.6	4.93	10.259			
1,262.5	1,262.0	1,258.8	1,258.5	2.6	2.6	-6.55	-68.4	6.1	50.5	45.4	5.16	9.784			
1,300.0	1,299.4	1,296.3	1,295.9	2.7	2.7	-7.35	-70.9	6.8	50.5	45.2	5.30	9.523			
1,316.9	1,316.2	1,313.2	1,312.7	2.7	2.7	-7.71	-72.0	7.1	50.5	45.1	5.37	9.406 CC			
1,400.0	1,399.1	1,396.2	1,395.6	2.9	2.9	-9.48	-77.6	8.7	50.5	44.8	5.69	8.877			
1,500.0	1,498.9	1,496.2	1,495.3	3.1	3.1	-11.60	-84.3	10.6	50.6	44.5	6.09	8.310			
1,600.0	1,598.6	1,596.2	1,595.1	3.3	3.3	-13.71	-91.0	12.5	50.8	44.3	6.50	7.814			
1,700.0	1,698.4	1,696.2	1,694.8	3.6	3.5	-15.81	-97.7	14.3	51.0	44.1	6.92	7.377			
1,800.0	1,798.1	1,796.2	1,794.6	3.8	3.8	-17.88	-104.4	16.2	51.3	44.0	7.34	6.992			
1,900.0	1,897.9	1,896.2	1,894.3	4.0	4.0	-19.93	-111.2	18.1	51.7	43.9	7.77	6.652			
2,000.0	1,997.6	1,996.1	1,994.0	4.3	4.2	-21.95	-117.9	20.0	52.1	43.9	8.21	6.351			
2,100.0	2,097.4	2,096.1	2,093.8	4.5	4.5	-23.93	-124.6	21.9	52.6	44.0	8.65	6.082			
2,200.0	2,197.2	2,196.1	2,193.5	4.8	4.7	-25.87	-131.3	23.8	53.2	44.1	9.10	5.844			
2,300.0	2,296.9	2,296.1	2,293.3	5.0	5.0	-27.77	-138.0	25.7	53.8	44.2	9.55	5.630			
2,400.0	2,396.7	2,396.1	2,393.0	5.3	5.2	-29.63	-144.7	27.6	54.4	44.4	10.01	5.439			
2,500.0	2,496.4	2,496.0	2,492.7	5.5	5.5	-31.44	-151.4	29.5	55.2	44.7	10.48	5.267			
2,600.0	2,596.2	2,596.0	2,592.5	5.8	5.7	-33.19	-158.1	31.3	55.9	45.0	10.95	5.112			
2,700.0	2,695.9	2,696.0	2,692.2	6.0	6.0	-34.90	-164.9	33.2	56.8	45.4	11.42	4.972			
2,800.0	2,795.7	2,796.0	2,791.9	6.3	6.2	-36.56	-171.6	35.1	57.7	45.8	11.90	4.846			
2,900.0	2,895.5	2,896.0	2,891.7	6.5	6.5	-38.17	-178.3	37.0	58.6	46.2	12.38	4.731			
3,000.0	2,995.2	2,996.0	2,991.4	6.8	6.7	-39.73	-185.0	38.9	59.6	46.7	12.87	4.627			
3,100.0	3,095.0	3,095.9	3,091.2	7.1	7.0	-41.23	-191.7	40.8	60.6	47.2	13.37	4.533			
3,200.0	3,194.7	3,195.9	3,190.9	7.3	7.2	-42.68	-198.4	42.7	61.6	47.8	13.86	4.447			
3,300.0	3,294.5	3,295.9	3,290.6	7.6	7.5	-44.09	-205.1	44.6	62.7	48.4	14.36	4.368			
3,400.0	3,394.2	3,395.9	3,390.4	7.8	7.8	-45.44	-211.9	46.5	63.9	49.0	14.86	4.297			
3,500.0	3,494.0	3,495.9	3,490.1	8.1	8.0	-46.75	-218.6	48.4	65.0	49.7	15.37	4.231			
3,600.0	3,593.7	3,595.9	3,589.9	8.4	8.3	-48.01	-225.3	50.2	66.2	50.3	15.88	4.171			
3,700.0	3,693.5	3,695.8	3,689.6	8.6	8.5	-49.23	-232.0	52.1	67.5	51.1	16.39	4.116			
3,800.0	3,793.3	3,795.8	3,789.3	8.9	8.8	-50.40	-238.7	54.0	68.7	51.8	16.90	4.066			
3,900.0	3,893.0	3,895.8	3,889.1	9.1	9.0	-51.53	-245.4	55.9	70.0	52.6	17.42	4.019			
4,000.0	3,992.8	3,995.8	3,988.8	9.4	9.3	-52.62	-252.1	57.8	71.3	53.4	17.93	3.976			
4,100.0	4,092.5	4,095.8	4,088.5	9.7	9.6	-53.66	-258.8	59.7	72.6	54.2	18.45	3.937			
4,200.0	4,192.3	4,195.7	4,188.3	9.9	9.8	-54.67	-265.6	61.6	74.0	55.0	18.97	3.901			
4,300.0	4,292.0	4,295.7	4,288.0	10.2	10.1	-55.65	-272.3	63.5	75.4	55.9	19.50	3.867			
4,400.0	4,391.8	4,395.7	4,387.8	10.4	10.3	-56.59	-279.0	65.4	76.8	56.8	20.02	3.836			
4,500.0	4,491.6	4,495.7	4,487.5	10.7	10.6	-57.49	-285.7	67.3	78.2	57.7	20.54	3.808			
4,600.0	4,591.3	4,595.7	4,587.2	11.0	10.9	-58.36	-292.4	69.1	79.7	58.6	21.07	3.781			
4,700.0	4,691.1	4,695.7	4,687.0	11.2	11.1	-59.20	-299.1	71.0	81.1	59.5	21.59	3.757			
4,800.0	4,790.8	4,795.6	4,786.7	11.5	11.4	-60.01	-305.8	72.9	82.6	60.5	22.12	3.734			
4,900.0	4,890.6	4,895.6	4,886.5	11.8	11.7	-60.79	-312.6	74.8	84.1	61.4	22.65	3.713			

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Reference Site:</b>	S11-T10N-R58W	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S11-T10N-R58W - Razor #11H-1416B - HZ - Plan #1													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,000.0	4,990.3	4,995.6	4,986.2	12.0	11.9	-61.55	-319.3	76.7	85.6	62.4	23.18	3.693		
5,100.0	5,090.1	5,095.6	5,085.9	12.3	12.2	-62.28	-326.0	78.6	87.1	63.4	23.71	3.675		
5,200.0	5,189.9	5,195.6	5,185.7	12.5	12.4	-62.98	-332.7	80.5	88.7	64.4	24.24	3.658		
5,300.0	5,289.6	5,295.6	5,285.4	12.8	12.7	-63.66	-339.4	82.4	90.2	65.4	24.77	3.642		
5,400.0	5,389.2	5,395.5	5,385.1	13.1	13.0	-65.33	-346.1	84.3	91.0	65.7	25.34	3.591		
5,500.0	5,486.0	5,491.1	5,480.4	13.5	13.2	-75.88	-353.5	86.3	87.4	61.0	26.33	3.318		
5,520.7	5,505.3	5,509.8	5,498.9	13.6	13.3	-78.62	-356.2	87.1	87.2	60.6	26.60	3.278		
5,600.0	5,576.3	5,582.5	5,569.5	14.1	13.6	-89.33	-372.6	91.7	90.3	62.7	27.59	3.274		
5,700.0	5,656.8	5,676.8	5,656.4	14.9	14.1	-101.11	-407.7	101.6	103.2	74.6	28.69	3.598		
5,800.0	5,724.6	5,774.3	5,737.7	15.8	14.8	-109.20	-459.2	116.1	124.5	95.0	29.56	4.213		
5,900.0	5,777.2	5,875.4	5,810.0	17.0	15.8	-113.73	-526.9	135.2	151.6	121.0	30.57	4.960		
6,000.0	5,812.6	5,980.7	5,869.4	18.3	17.0	-115.56	-610.4	158.6	182.1	150.0	32.10	5.674		
6,100.0	5,829.5	6,090.8	5,911.5	19.8	18.4	-115.54	-708.1	186.1	214.3	179.9	34.39	6.232		
6,200.0	5,831.0	6,206.9	5,931.9	21.2	20.1	-115.31	-817.9	217.1	245.0	207.8	37.24	6.579		
6,300.0	5,831.0	6,320.2	5,933.0	22.6	21.8	-112.86	-927.4	246.2	268.6	227.8	40.79	6.584		
6,400.0	5,831.0	6,433.6	5,933.0	24.0	23.4	-111.09	-1,038.4	269.0	287.1	242.9	44.18	6.497		
6,500.0	5,831.0	6,549.3	5,933.0	25.5	25.1	-109.98	-1,152.9	285.5	300.2	252.6	47.57	6.310		
6,600.0	5,831.0	6,666.5	5,933.0	27.0	26.9	-109.38	-1,269.8	295.1	307.7	256.8	50.95	6.040		
6,700.0	5,831.0	6,781.5	5,933.0	28.6	28.6	-109.23	-1,384.7	297.7	309.6	255.4	54.23	5.709		
6,800.0	5,831.0	6,881.5	5,933.0	30.2	30.3	-109.24	-1,484.7	297.7	309.5	252.1	57.39	5.394		
6,883.9	5,831.0	6,965.4	5,933.0	31.6	31.7	-109.24	-1,568.6	297.7	309.5	249.4	60.08	5.152		
6,900.0	5,831.0	6,981.5	5,933.0	31.9	32.0	-109.24	-1,584.7	297.7	309.5	248.9	60.61	5.106		
7,000.0	5,831.0	7,081.5	5,933.0	33.6	33.7	-109.24	-1,684.7	297.7	309.5	245.6	63.90	4.844		
7,100.0	5,831.0	7,181.5	5,933.0	35.4	35.5	-109.24	-1,784.7	297.7	309.5	242.3	67.25	4.603		
7,200.0	5,831.0	7,281.5	5,933.0	37.1	37.2	-109.24	-1,884.7	297.7	309.6	238.9	70.64	4.382		
7,300.0	5,831.0	7,381.5	5,933.0	38.9	39.0	-109.24	-1,984.7	297.7	309.6	235.5	74.05	4.181		
7,400.0	5,831.0	7,481.5	5,933.0	40.7	40.8	-109.24	-2,084.7	297.7	309.6	232.1	77.48	3.996		
7,500.0	5,831.0	7,581.5	5,933.0	42.5	42.6	-109.23	-2,184.7	297.7	309.6	228.7	80.93	3.826		
7,600.0	5,831.0	7,681.5	5,933.0	44.3	44.4	-109.23	-2,284.7	297.7	309.6	225.2	84.40	3.669		
7,700.0	5,831.0	7,781.5	5,933.0	46.2	46.2	-109.23	-2,384.7	297.8	309.6	221.7	87.88	3.523		
7,800.0	5,831.0	7,881.5	5,933.0	48.0	48.0	-109.23	-2,484.7	297.8	309.6	218.3	91.38	3.388		
7,900.0	5,831.0	7,981.5	5,933.0	49.8	49.9	-109.23	-2,584.7	297.8	309.7	214.8	94.90	3.263		
8,000.0	5,831.0	8,081.5	5,933.0	51.7	51.7	-109.23	-2,684.7	297.8	309.7	211.3	98.42	3.147		
8,100.0	5,831.0	8,181.5	5,933.0	53.5	53.6	-109.23	-2,784.7	297.8	309.7	207.7	101.95	3.038		
8,200.0	5,831.0	8,281.5	5,933.0	55.4	55.4	-109.23	-2,884.7	297.8	309.7	204.2	105.49	2.936		
8,300.0	5,831.0	8,381.5	5,933.0	57.3	57.3	-109.23	-2,984.7	297.8	309.7	200.7	109.04	2.840		
8,400.0	5,831.0	8,481.5	5,933.0	59.1	59.1	-109.23	-3,084.7	297.8	309.7	197.1	112.60	2.751		
8,500.0	5,831.0	8,581.5	5,933.0	61.0	61.0	-109.23	-3,184.7	297.8	309.7	193.6	116.16	2.667		
8,600.0	5,831.0	8,681.5	5,933.0	62.9	62.9	-109.22	-3,284.7	297.8	309.8	190.0	119.73	2.587		
8,700.0	5,831.0	8,781.5	5,933.0	64.7	64.7	-109.22	-3,384.7	297.8	309.8	186.5	123.30	2.512		
8,800.0	5,831.0	8,881.5	5,933.0	66.6	66.6	-109.22	-3,484.7	297.8	309.8	182.9	126.88	2.442		
8,900.0	5,831.0	8,981.5	5,933.0	68.5	68.5	-109.22	-3,584.7	297.9	309.8	179.3	130.47	2.375		
9,000.0	5,831.0	9,081.5	5,933.0	70.4	70.4	-109.22	-3,684.7	297.9	309.8	175.8	134.05	2.311		
9,100.0	5,831.0	9,181.5	5,933.0	72.3	72.2	-109.22	-3,784.7	297.9	309.8	172.2	137.65	2.251		
9,200.0	5,831.0	9,281.5	5,933.0	74.1	74.1	-109.22	-3,884.7	297.9	309.8	168.6	141.24	2.194		
9,300.0	5,831.0	9,381.5	5,933.0	76.0	76.0	-109.22	-3,984.7	297.9	309.9	165.0	144.84	2.139		
9,400.0	5,831.0	9,481.5	5,933.0	77.9	77.9	-109.22	-4,084.7	297.9	309.9	161.4	148.44	2.088		
9,500.0	5,831.0	9,581.5	5,933.0	79.8	79.8	-109.22	-4,184.7	297.9	309.9	157.8	152.05	2.038		
9,600.0	5,831.0	9,681.5	5,933.0	81.7	81.7	-109.22	-4,284.7	297.9	309.9	154.3	155.66	1.991		
9,700.0	5,831.0	9,781.5	5,933.0	83.6	83.6	-109.21	-4,384.7	297.9	309.9	150.7	159.27	1.946		
9,800.0	5,831.0	9,881.5	5,933.0	85.5	85.5	-109.21	-4,484.7	297.9	309.9	147.1	162.88	1.903		
9,900.0	5,831.0	9,981.5	5,933.0	87.4	87.4	-109.21	-4,584.7	297.9	310.0	143.5	166.49	1.862		

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Reference Site:</b>	S11-T10N-R58W	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S11-T10N-R58W - Razor #11H-1416B - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis	Factor		
10,000.0	5,831.0	10,081.5	5,933.0	89.3	89.3	-109.21	-4,684.7	298.0	310.0	139.9	170.11	1.822		
10,100.0	5,831.0	10,181.5	5,933.0	91.2	91.2	-109.21	-4,784.7	298.0	310.0	136.3	173.73	1.784		
10,200.0	5,831.0	10,281.5	5,933.0	93.1	93.1	-109.21	-4,884.7	298.0	310.0	132.6	177.35	1.748		
10,300.0	5,831.0	10,381.5	5,933.0	95.0	94.9	-109.21	-4,984.7	298.0	310.0	129.0	180.97	1.713		
10,400.0	5,831.0	10,481.5	5,933.0	96.9	96.8	-109.21	-5,084.7	298.0	310.0	125.4	184.59	1.679		
10,500.0	5,831.0	10,581.5	5,933.0	98.8	98.7	-109.21	-5,184.7	298.0	310.0	121.8	188.22	1.647		
10,600.0	5,831.0	10,681.5	5,933.0	100.7	100.7	-109.21	-5,284.7	298.0	310.1	118.2	191.85	1.616		
10,700.0	5,831.0	10,781.5	5,933.0	102.6	102.6	-109.21	-5,384.7	298.0	310.1	114.6	195.47	1.586		
10,800.0	5,831.0	10,881.5	5,933.0	104.5	104.5	-109.20	-5,484.7	298.0	310.1	111.0	199.10	1.557		
10,900.0	5,831.0	10,981.5	5,933.0	106.4	106.4	-109.20	-5,584.7	298.0	310.1	107.4	202.73	1.530		
11,000.0	5,831.0	11,081.5	5,933.0	108.3	108.3	-109.20	-5,684.7	298.0	310.1	103.7	206.36	1.503		
11,100.0	5,831.0	11,181.5	5,933.0	110.2	110.2	-109.20	-5,784.7	298.0	310.1	100.1	210.00	1.477 Level 3		
11,200.0	5,831.0	11,281.5	5,933.0	112.1	112.1	-109.20	-5,884.7	298.1	310.1	96.5	213.63	1.452 Level 3		
11,300.0	5,831.0	11,381.5	5,933.0	114.0	114.0	-109.20	-5,984.7	298.1	310.2	92.9	217.27	1.428 Level 3		
11,400.0	5,831.0	11,481.5	5,933.0	115.9	115.9	-109.20	-6,084.7	298.1	310.2	89.3	220.90	1.404 Level 3		
11,500.0	5,831.0	11,581.5	5,933.0	117.8	117.8	-109.20	-6,184.7	298.1	310.2	85.6	224.54	1.381 Level 3		
11,600.0	5,831.0	11,681.5	5,933.0	119.7	119.7	-109.20	-6,284.7	298.1	310.2	82.0	228.18	1.359 Level 3		
11,700.0	5,831.0	11,781.5	5,933.0	121.6	121.6	-109.20	-6,384.7	298.1	310.2	78.4	231.81	1.338 Level 3		
11,800.0	5,831.0	11,881.5	5,933.0	123.6	123.5	-109.20	-6,484.7	298.1	310.2	74.8	235.45	1.318 Level 3		
11,900.0	5,831.0	11,981.5	5,933.0	125.5	125.4	-109.19	-6,584.7	298.1	310.2	71.1	239.09	1.298 Level 3		
12,000.0	5,831.0	12,081.5	5,933.0	127.4	127.3	-109.19	-6,684.7	298.1	310.3	67.5	242.73	1.278 Level 3		
12,100.0	5,831.0	12,181.5	5,933.0	129.3	129.2	-109.19	-6,784.7	298.1	310.3	63.9	246.37	1.259 Level 3		
12,200.0	5,831.0	12,281.5	5,933.0	131.2	131.1	-109.19	-6,884.7	298.1	310.3	60.3	250.02	1.241 Level 2		
12,300.0	5,831.0	12,381.5	5,933.0	133.1	133.1	-109.19	-6,984.7	298.1	310.3	56.6	253.66	1.223 Level 2		
12,400.0	5,831.0	12,481.5	5,933.0	135.0	135.0	-109.19	-7,084.7	298.2	310.3	53.0	257.30	1.206 Level 2		
12,500.0	5,831.0	12,581.5	5,933.0	136.9	136.9	-109.19	-7,184.7	298.2	310.3	49.4	260.94	1.189 Level 2		
12,600.0	5,831.0	12,681.5	5,933.0	138.8	138.8	-109.19	-7,284.7	298.2	310.3	45.8	264.59	1.173 Level 2		
12,700.0	5,831.0	12,781.5	5,933.0	140.7	140.7	-109.19	-7,384.7	298.2	310.4	42.1	268.23	1.157 Level 2		
12,800.0	5,831.0	12,881.5	5,933.0	142.7	142.6	-109.19	-7,484.7	298.2	310.4	38.5	271.88	1.142 Level 2		
12,900.0	5,831.0	12,981.5	5,933.0	144.6	144.5	-109.19	-7,584.7	298.2	310.4	34.9	275.52	1.127 Level 2		
13,000.0	5,831.0	13,081.5	5,933.0	146.5	146.4	-109.18	-7,684.7	298.2	310.4	31.2	279.17	1.112 Level 2		
13,100.0	5,831.0	13,181.5	5,933.0	148.4	148.4	-109.18	-7,784.7	298.2	310.4	27.6	282.82	1.098 Level 2		
13,200.0	5,831.0	13,281.5	5,933.0	150.3	150.3	-109.18	-7,884.7	298.2	310.4	24.0	286.46	1.084 Level 2		
13,300.0	5,831.0	13,381.5	5,933.0	152.2	152.2	-109.18	-7,984.7	298.2	310.4	20.3	290.11	1.070 Level 2		
13,400.0	5,831.0	13,481.5	5,933.0	154.1	154.1	-109.18	-8,084.7	298.2	310.5	16.7	293.76	1.057 Level 2		
13,500.0	5,831.0	13,581.5	5,933.0	156.1	156.0	-109.18	-8,184.7	298.2	310.5	13.1	297.41	1.044 Level 2		
13,600.0	5,831.0	13,681.5	5,933.0	158.0	157.9	-109.18	-8,284.7	298.3	310.5	9.4	301.05	1.031 Level 2		
13,650.7	5,831.0	13,732.2	5,933.0	158.9	158.8	-109.18	-8,335.4	298.3	310.5	7.7	302.79	1.025 Level 2, ES, SF		



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Reference Site:</b>	S11-T10N-R58W	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S11-T10N-R58W - Razor 11 Offset (EXISTING) - EXISTING - EXISTING													Offset Site Error: 0.0 usft	
Survey Program: 6900-ISCWSA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-164.94	-5,125.3	-1,379.2	5,308.0					
100.0	100.0	32.7	32.7	0.1	0.0	-164.94	-5,125.3	-1,379.2	5,307.6	5,307.5	0.13	N/A		
200.0	200.0	132.7	132.7	0.3	0.1	-164.94	-5,125.3	-1,379.2	5,307.6	5,307.1	0.47	N/A		
300.0	300.0	232.7	232.7	0.5	0.3	-164.94	-5,125.3	-1,379.2	5,307.6	5,306.8	0.80	6,599.680		
400.0	400.0	332.7	332.7	0.8	0.4	-164.94	-5,125.3	-1,379.2	5,307.6	5,306.5	1.14	4,650.798		
500.0	500.0	432.7	432.7	1.0	0.5	-164.94	-5,125.3	-1,379.2	5,307.6	5,306.1	1.48	3,590.519		
600.0	600.0	532.7	532.7	1.2	0.6	-164.94	-5,125.3	-1,379.2	5,307.6	5,305.8	1.82	2,923.929		
700.0	700.0	632.7	632.7	1.4	0.7	-164.94	-5,125.3	-1,379.2	5,307.6	5,305.4	2.15	2,466.091		
800.0	800.0	732.7	732.7	1.7	0.8	-164.94	-5,125.3	-1,379.2	5,307.6	5,305.1	2.49	2,132.222		
900.0	900.0	832.7	832.7	1.9	0.9	-164.94	-5,125.3	-1,379.2	5,307.6	5,304.8	2.83	1,877.978		
1,000.0	1,000.0	932.7	932.7	2.1	1.0	15.34	-5,125.3	-1,379.2	5,305.9	5,302.8	3.16	1,679.542		
1,100.0	1,099.8	1,032.5	1,032.5	2.3	1.2	15.38	-5,125.3	-1,379.2	5,300.9	5,297.4	3.47	1,525.827		
1,200.0	1,199.6	1,132.3	1,132.3	2.5	1.3	15.40	-5,125.3	-1,379.2	5,294.1	5,290.4	3.78	1,401.497		
1,300.0	1,299.4	1,232.1	1,232.1	2.7	1.4	15.42	-5,125.3	-1,379.2	5,287.4	5,283.3	4.09	1,293.277		
1,400.0	1,399.1	1,331.8	1,331.8	2.9	1.5	15.44	-5,125.3	-1,379.2	5,280.7	5,276.3	4.41	1,198.723		
1,500.0	1,498.9	1,431.6	1,431.6	3.1	1.6	15.46	-5,125.3	-1,379.2	5,274.0	5,269.2	4.73	1,115.723		
1,600.0	1,598.6	1,531.3	1,531.3	3.3	1.7	15.48	-5,125.3	-1,379.2	5,267.2	5,262.2	5.05	1,042.493		
1,700.0	1,698.4	1,631.1	1,631.1	3.6	1.8	15.50	-5,125.3	-1,379.2	5,260.5	5,255.1	5.38	977.547		
1,800.0	1,798.1	1,730.8	1,730.8	3.8	1.9	15.52	-5,125.3	-1,379.2	5,253.8	5,248.1	5.71	919.652		
1,900.0	1,897.9	1,830.6	1,830.6	4.0	2.1	15.54	-5,125.3	-1,379.2	5,247.1	5,241.0	6.05	867.788		
2,000.0	1,997.6	1,930.4	1,930.4	4.3	2.2	15.56	-5,125.3	-1,379.2	5,240.3	5,234.0	6.38	821.107		
2,100.0	2,097.4	2,030.1	2,030.1	4.5	2.3	15.58	-5,125.3	-1,379.2	5,233.6	5,226.9	6.72	778.905		
2,200.0	2,197.2	2,129.9	2,129.9	4.8	2.4	15.60	-5,125.3	-1,379.2	5,226.9	5,219.8	7.06	740.593		
2,300.0	2,296.9	2,229.6	2,229.6	5.0	2.5	15.62	-5,125.3	-1,379.2	5,220.2	5,212.8	7.40	705.676		
2,400.0	2,396.7	2,329.4	2,329.4	5.3	2.6	15.64	-5,125.3	-1,379.2	5,213.5	5,205.7	7.74	673.735		
2,500.0	2,496.4	2,429.1	2,429.1	5.5	2.7	15.66	-5,125.3	-1,379.2	5,206.8	5,198.7	8.08	644.418		
2,600.0	2,596.2	2,528.9	2,528.9	5.8	2.8	15.68	-5,125.3	-1,379.2	5,200.0	5,191.6	8.42	617.422		
2,700.0	2,695.9	2,628.6	2,628.6	6.0	3.0	15.70	-5,125.3	-1,379.2	5,193.3	5,184.6	8.77	592.488		
2,800.0	2,795.7	2,728.4	2,728.4	6.3	3.1	15.72	-5,125.3	-1,379.2	5,186.6	5,177.5	9.11	569.394		
2,900.0	2,895.5	2,828.2	2,828.2	6.5	3.2	15.75	-5,125.3	-1,379.2	5,179.9	5,170.4	9.45	547.948		
3,000.0	2,995.2	2,927.9	2,927.9	6.8	3.3	15.77	-5,125.3	-1,379.2	5,173.2	5,163.4	9.80	527.982		
3,100.0	3,095.0	3,027.7	3,027.7	7.1	3.4	15.79	-5,125.3	-1,379.2	5,166.5	5,156.3	10.14	509.352		
3,200.0	3,194.7	3,127.4	3,127.4	7.3	3.5	15.81	-5,125.3	-1,379.2	5,159.7	5,149.3	10.49	491.929		
3,300.0	3,294.5	3,227.2	3,227.2	7.6	3.6	15.83	-5,125.3	-1,379.2	5,153.0	5,142.2	10.83	475.602		
3,400.0	3,394.2	3,326.9	3,326.9	7.8	3.7	15.85	-5,125.3	-1,379.2	5,146.3	5,135.1	11.18	460.272		
3,500.0	3,494.0	3,426.7	3,426.7	8.1	3.8	15.87	-5,125.3	-1,379.2	5,139.6	5,128.1	11.53	445.851		
3,600.0	3,593.7	3,526.5	3,526.5	8.4	4.0	15.89	-5,125.3	-1,379.2	5,132.9	5,121.0	11.87	432.262		
3,700.0	3,693.5	3,626.2	3,626.2	8.6	4.1	15.91	-5,125.3	-1,379.2	5,126.2	5,114.0	12.22	419.436		
3,800.0	3,793.3	3,726.0	3,726.0	8.9	4.2	15.94	-5,125.3	-1,379.2	5,119.5	5,106.9	12.57	407.311		
3,900.0	3,893.0	3,825.7	3,825.7	9.1	4.3	15.96	-5,125.3	-1,379.2	5,112.8	5,099.9	12.92	395.832		
4,000.0	3,992.8	3,925.5	3,925.5	9.4	4.4	15.98	-5,125.3	-1,379.2	5,106.1	5,092.8	13.26	384.948		
4,100.0	4,092.5	4,025.2	4,025.2	9.7	4.5	16.00	-5,125.3	-1,379.2	5,099.4	5,085.7	13.61	374.616		
4,200.0	4,192.3	4,125.0	4,125.0	9.9	4.6	16.02	-5,125.3	-1,379.2	5,092.6	5,078.7	13.96	364.794		
4,300.0	4,292.0	4,224.8	4,224.8	10.2	4.7	16.04	-5,125.3	-1,379.2	5,085.9	5,071.6	14.31	355.446		
4,400.0	4,391.8	4,324.5	4,324.5	10.4	4.9	16.07	-5,125.3	-1,379.2	5,079.2	5,064.6	14.66	346.539		
4,500.0	4,491.6	4,424.3	4,424.3	10.7	5.0	16.09	-5,125.3	-1,379.2	5,072.5	5,057.5	15.01	338.042		
4,600.0	4,591.3	4,524.0	4,524.0	11.0	5.1	16.11	-5,125.3	-1,379.2	5,065.8	5,050.5	15.35	329.929		
4,700.0	4,691.1	4,623.8	4,623.8	11.2	5.2	16.13	-5,125.3	-1,379.2	5,059.1	5,043.4	15.70	322.173		
4,800.0	4,790.8	4,723.5	4,723.5	11.5	5.3	16.15	-5,125.3	-1,379.2	5,052.4	5,036.4	16.05	314.752		
4,900.0	4,890.6	4,823.3	4,823.3	11.8	5.4	16.18	-5,125.3	-1,379.2	5,045.7	5,029.3	16.40	307.645		
5,000.0	4,990.3	4,923.0	4,923.0	12.0	5.5	16.20	-5,125.3	-1,379.2	5,039.0	5,022.3	16.75	300.832		
5,100.0	5,090.1	5,022.8	5,022.8	12.3	5.6	16.22	-5,125.3	-1,379.2	5,032.3	5,015.2	17.10	294.296		

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



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Reference Site:</b>	S11-T10N-R58W	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S11-T10N-R58W - Razor 11 Offset (EXISTING) - EXISTING - EXISTING													Offset Site Error: 0.0 usft	
Survey Program: 6900-ISCWSA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,189.9	5,122.6	5,122.6	12.5	5.7	16.24	-5,125.3	-1,379.2	5,025.6	5,008.2	17.45	288.020		
5,300.0	5,289.6	5,222.3	5,222.3	12.8	5.9	16.26	-5,125.3	-1,379.2	5,018.9	5,001.1	17.80	281.989		
5,400.0	5,389.2	5,321.9	5,321.9	13.1	6.0	16.43	-5,125.3	-1,379.2	5,010.5	4,992.4	18.16	275.985		
5,500.0	5,486.0	5,418.7	5,418.7	13.5	6.1	17.29	-5,125.3	-1,379.2	4,987.0	4,968.8	18.18	274.316		
5,600.0	5,576.3	5,509.0	5,509.0	14.1	6.2	18.98	-5,125.3	-1,379.2	4,946.1	4,928.4	17.77	278.267		
5,700.0	5,656.8	5,589.5	5,589.5	14.9	6.3	21.86	-5,125.3	-1,379.2	4,889.6	4,872.5	17.12	285.524		
5,800.0	5,724.6	5,657.3	5,657.3	15.8	6.3	26.67	-5,125.3	-1,379.2	4,819.4	4,802.7	16.69	288.706		
5,900.0	5,777.2	5,709.9	5,709.9	17.0	6.4	35.00	-5,125.3	-1,379.2	4,738.3	4,720.8	17.48	271.062		
6,000.0	5,812.6	5,745.3	5,745.3	18.3	6.4	50.23	-5,125.3	-1,379.2	4,649.2	4,628.2	20.92	222.207		
6,100.0	5,829.5	5,762.3	5,762.3	19.8	6.5	77.05	-5,125.3	-1,379.2	4,555.4	4,529.3	26.17	174.057		
6,200.0	5,831.0	5,763.7	5,763.7	21.2	6.5	90.00	-5,125.3	-1,379.2	4,460.4	4,432.3	28.10	158.757		
6,300.0	5,831.0	5,763.7	5,763.7	22.6	6.5	90.00	-5,125.3	-1,379.2	4,365.6	4,336.1	29.53	147.852		
6,400.0	5,831.0	5,763.7	5,763.7	24.0	6.5	90.00	-5,125.3	-1,379.2	4,271.0	4,239.9	31.04	137.616		
6,500.0	5,831.0	5,763.7	5,763.7	25.5	6.5	90.00	-5,125.3	-1,379.2	4,176.6	4,144.0	32.61	128.081		
6,600.0	5,831.0	5,763.7	5,763.7	27.0	6.5	90.00	-5,125.3	-1,379.2	4,082.4	4,048.2	34.24	119.242		
6,700.0	5,831.0	5,763.7	5,763.7	28.6	6.5	90.00	-5,125.3	-1,379.2	3,988.6	3,952.7	35.91	111.074		
6,800.0	5,831.0	5,763.7	5,763.7	30.2	6.5	90.00	-5,125.3	-1,379.2	3,895.0	3,857.4	37.62	103.536		
6,900.0	5,831.0	5,763.7	5,763.7	31.9	6.5	90.00	-5,125.3	-1,379.2	3,801.7	3,762.3	39.36	96.580		
7,000.0	5,831.0	5,763.7	5,763.7	33.6	6.5	90.00	-5,125.3	-1,379.2	3,708.7	3,667.6	41.15	90.123		
7,100.0	5,831.0	5,763.7	5,763.7	35.4	6.5	90.00	-5,125.3	-1,379.2	3,616.1	3,573.2	42.99	84.125		
7,200.0	5,831.0	5,763.7	5,763.7	37.1	6.5	90.00	-5,125.3	-1,379.2	3,524.0	3,479.1	44.84	78.597		
7,300.0	5,831.0	5,763.7	5,763.7	38.9	6.5	90.00	-5,125.3	-1,379.2	3,432.2	3,385.5	46.70	73.494		
7,400.0	5,831.0	5,763.7	5,763.7	40.7	6.5	90.00	-5,125.3	-1,379.2	3,341.0	3,292.4	48.58	68.775		
7,500.0	5,831.0	5,763.7	5,763.7	42.5	6.5	90.00	-5,125.3	-1,379.2	3,250.2	3,199.8	50.47	64.404		
7,600.0	5,831.0	5,763.7	5,763.7	44.3	6.5	90.00	-5,125.3	-1,379.2	3,160.0	3,107.7	52.36	60.347		
7,700.0	5,831.0	5,763.7	5,763.7	46.2	6.5	90.00	-5,125.3	-1,379.2	3,070.5	3,016.2	54.27	56.576		
7,800.0	5,831.0	5,763.7	5,763.7	48.0	6.5	90.00	-5,125.3	-1,379.2	2,981.5	2,925.4	56.19	53.066		
7,900.0	5,831.0	5,763.7	5,763.7	49.8	6.5	90.00	-5,125.3	-1,379.2	2,893.4	2,835.2	58.11	49.795		
8,000.0	5,831.0	5,763.7	5,763.7	51.7	6.5	90.00	-5,125.3	-1,379.2	2,806.0	2,745.9	60.03	46.741		
8,100.0	5,831.0	5,763.7	5,763.7	53.5	6.5	90.00	-5,125.3	-1,379.2	2,719.4	2,657.5	61.96	43.887		
8,200.0	5,831.0	5,763.7	5,763.7	55.4	6.5	90.00	-5,125.3	-1,379.2	2,633.8	2,569.9	63.90	41.217		
8,300.0	5,831.0	5,763.7	5,763.7	57.3	6.5	90.00	-5,125.3	-1,379.2	2,549.3	2,483.5	65.84	38.718		
8,400.0	5,831.0	5,763.7	5,763.7	59.1	6.5	90.00	-5,125.3	-1,379.2	2,465.9	2,398.2	67.79	36.377		
8,500.0	5,831.0	5,763.7	5,763.7	61.0	6.5	90.00	-5,125.3	-1,379.2	2,383.8	2,314.1	69.74	34.184		
8,600.0	5,831.0	5,763.7	5,763.7	62.9	6.5	90.00	-5,125.3	-1,379.2	2,303.2	2,231.5	71.69	32.128		
8,700.0	5,831.0	5,763.7	5,763.7	64.7	6.5	90.00	-5,125.3	-1,379.2	2,224.1	2,150.4	73.64	30.200		
8,800.0	5,831.0	5,763.7	5,763.7	66.6	6.5	90.00	-5,125.3	-1,379.2	2,146.7	2,071.1	75.60	28.395		
8,900.0	5,831.0	5,763.7	5,763.7	68.5	6.5	90.00	-5,125.3	-1,379.2	2,071.3	1,993.7	77.56	26.705		
9,000.0	5,831.0	5,763.7	5,763.7	70.4	6.5	90.00	-5,125.3	-1,379.2	1,998.0	1,918.5	79.52	25.125		
9,100.0	5,831.0	5,763.7	5,763.7	72.3	6.5	90.00	-5,125.3	-1,379.2	1,927.2	1,845.7	81.49	23.650		
9,200.0	5,831.0	5,763.7	5,763.7	74.1	6.5	90.00	-5,125.3	-1,379.2	1,859.0	1,775.5	83.45	22.275		
9,300.0	5,831.0	5,763.7	5,763.7	76.0	6.5	90.00	-5,125.3	-1,379.2	1,793.8	1,708.4	85.42	20.999		
9,400.0	5,831.0	5,763.7	5,763.7	77.9	6.5	90.00	-5,125.3	-1,379.2	1,731.9	1,644.5	87.39	19.818		
9,500.0	5,831.0	5,763.7	5,763.7	79.8	6.5	90.00	-5,125.3	-1,379.2	1,673.7	1,584.4	89.36	18.729		
9,600.0	5,831.0	5,763.7	5,763.7	81.7	6.5	90.00	-5,125.3	-1,379.2	1,619.7	1,528.3	91.34	17.733		
9,700.0	5,831.0	5,763.7	5,763.7	83.6	6.5	90.00	-5,125.3	-1,379.2	1,570.1	1,476.8	93.31	16.826		
9,800.0	5,831.0	5,763.7	5,763.7	85.5	6.5	90.00	-5,125.3	-1,379.2	1,525.5	1,430.2	95.29	16.009		
9,900.0	5,831.0	5,763.7	5,763.7	87.4	6.5	90.00	-5,125.3	-1,379.2	1,486.2	1,389.0	97.26	15.280		
10,000.0	5,831.0	5,763.7	5,763.7	89.3	6.5	90.00	-5,125.3	-1,379.2	1,452.9	1,353.6	99.24	14.639		
10,100.0	5,831.0	5,763.7	5,763.7	91.2	6.5	90.00	-5,125.3	-1,379.2	1,425.7	1,324.5	101.22	14.085		
10,200.0	5,831.0	5,763.7	5,763.7	93.1	6.5	90.00	-5,125.3	-1,379.2	1,405.2	1,302.0	103.20	13.616		
10,300.0	5,831.0	5,763.7	5,763.7	95.0	6.5	90.00	-5,125.3	-1,379.2	1,391.5	1,286.4	105.18	13.230		

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Reference Site:</b>	S11-T10N-R58W	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S11-T10N-R58W - Razor 11 Offset (EXISTING) - EXISTING - EXISTING													Offset Site Error:	0.0 usft
Survey Program: 6900-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis			
10,400.0	5,831.0	5,763.7	5,763.7	96.9	6.5	90.00	-5,125.3	-1,379.2	1,385.0	1,277.8	107.16	12.924		
10,440.6	5,831.0	5,763.7	5,763.7	97.6	6.5	90.00	-5,125.3	-1,379.2	1,384.4	1,276.4	108.02	12.816 CC, ES		
10,500.0	5,831.0	5,763.7	5,763.7	98.8	6.5	90.00	-5,125.3	-1,379.2	1,385.7	1,276.5	109.15	12.696		
10,600.0	5,831.0	5,763.7	5,763.7	100.7	6.5	90.00	-5,125.3	-1,379.2	1,393.6	1,282.4	111.13	12.540		
10,700.0	5,831.0	5,763.7	5,763.7	102.6	6.5	90.00	-5,125.3	-1,379.2	1,408.5	1,295.4	113.11	12.452		
10,800.0	5,831.0	5,763.7	5,763.7	104.5	6.5	90.00	-5,125.3	-1,379.2	1,430.3	1,315.2	115.10	12.427 SF		
10,900.0	5,831.0	5,763.7	5,763.7	106.4	6.5	90.00	-5,125.3	-1,379.2	1,458.6	1,341.5	117.08	12.458		
11,000.0	5,831.0	5,763.7	5,763.7	108.3	6.5	90.00	-5,125.3	-1,379.2	1,493.1	1,374.1	119.07	12.540		
11,100.0	5,831.0	5,763.7	5,763.7	110.2	6.5	90.00	-5,125.3	-1,379.2	1,533.4	1,412.4	121.06	12.667		
11,200.0	5,831.0	5,763.7	5,763.7	112.1	6.5	90.00	-5,125.3	-1,379.2	1,579.0	1,455.9	123.04	12.833		
11,300.0	5,831.0	5,763.7	5,763.7	114.0	6.5	90.00	-5,125.3	-1,379.2	1,629.4	1,504.4	125.03	13.032		
11,400.0	5,831.0	5,763.7	5,763.7	115.9	6.5	90.00	-5,125.3	-1,379.2	1,684.3	1,557.3	127.02	13.260		
11,500.0	5,831.0	5,763.7	5,763.7	117.8	6.5	90.00	-5,125.3	-1,379.2	1,743.2	1,614.2	129.01	13.512		
11,600.0	5,831.0	5,763.7	5,763.7	119.7	6.5	90.00	-5,125.3	-1,379.2	1,805.7	1,674.7	131.00	13.784		
11,700.0	5,831.0	5,763.7	5,763.7	121.6	6.5	90.00	-5,125.3	-1,379.2	1,871.5	1,738.5	132.99	14.073		
11,800.0	5,831.0	5,763.7	5,763.7	123.6	6.5	90.00	-5,125.3	-1,379.2	1,940.2	1,805.2	134.98	14.374		
11,900.0	5,831.0	5,763.7	5,763.7	125.5	6.5	90.00	-5,125.3	-1,379.2	2,011.5	1,874.6	136.97	14.686		
12,000.0	5,831.0	5,763.7	5,763.7	127.4	6.5	90.00	-5,125.3	-1,379.2	2,085.2	1,946.3	138.96	15.006		
12,100.0	5,831.0	5,763.7	5,763.7	129.3	6.5	90.00	-5,125.3	-1,379.2	2,161.0	2,020.1	140.95	15.332		
12,200.0	5,831.0	5,763.7	5,763.7	131.2	6.5	90.00	-5,125.3	-1,379.2	2,238.7	2,095.8	142.94	15.662		
12,300.0	5,831.0	5,763.7	5,763.7	133.1	6.5	90.00	-5,125.3	-1,379.2	2,318.1	2,173.2	144.93	15.995		
12,400.0	5,831.0	5,763.7	5,763.7	135.0	6.5	90.00	-5,125.3	-1,379.2	2,399.1	2,252.2	146.93	16.329		
12,500.0	5,831.0	5,763.7	5,763.7	136.9	6.5	90.00	-5,125.3	-1,379.2	2,481.4	2,332.5	148.92	16.663		
12,600.0	5,831.0	5,763.7	5,763.7	138.8	6.5	90.00	-5,125.3	-1,379.2	2,565.0	2,414.1	150.91	16.997		
12,700.0	5,831.0	5,763.7	5,763.7	140.7	6.5	90.00	-5,125.3	-1,379.2	2,649.8	2,496.9	152.90	17.330		
12,800.0	5,831.0	5,763.7	5,763.7	142.7	6.5	90.00	-5,125.3	-1,379.2	2,735.5	2,580.6	154.90	17.660		
12,900.0	5,831.0	5,763.7	5,763.7	144.6	6.5	90.00	-5,125.3	-1,379.2	2,822.2	2,665.3	156.89	17.989		
13,000.0	5,831.0	5,763.7	5,763.7	146.5	6.5	90.00	-5,125.3	-1,379.2	2,909.8	2,750.9	158.88	18.314		
13,100.0	5,831.0	5,763.7	5,763.7	148.4	6.5	90.00	-5,125.3	-1,379.2	2,998.1	2,837.2	160.88	18.636		
13,200.0	5,831.0	5,763.7	5,763.7	150.3	6.5	90.00	-5,125.3	-1,379.2	3,087.2	2,924.3	162.87	18.955		
13,300.0	5,831.0	5,763.7	5,763.7	152.2	6.5	90.00	-5,125.3	-1,379.2	3,176.9	3,012.0	164.87	19.269		
13,400.0	5,831.0	5,763.7	5,763.7	154.1	6.5	90.00	-5,125.3	-1,379.2	3,267.2	3,100.3	166.86	19.580		
13,500.0	5,831.0	5,763.7	5,763.7	156.1	6.5	90.00	-5,125.3	-1,379.2	3,358.0	3,189.2	168.86	19.887		
13,600.0	5,831.0	5,763.7	5,763.7	158.0	6.5	90.00	-5,125.3	-1,379.2	3,449.4	3,278.5	170.85	20.189		
13,650.7	5,831.0	5,763.7	5,763.7	158.9	6.5	90.00	-5,125.3	-1,379.2	3,495.8	3,324.0	171.86	20.341		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Reference Site:</b>	S11-T10N-R58W	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S11-T10N-R58W - Razor 11-0241H (Existing) - Existing - Existing													Offset Site Error: 0.0 usft	
Survey Program: 132-ISCWSA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-104.87	-58.8	-221.5	229.2					
100.0	100.0	94.9	94.9	0.1	0.1	-104.83	-58.9	-222.5	230.2	230.0	0.20	1,164.971		
200.0	200.0	192.8	192.7	0.3	0.3	-104.68	-59.0	-225.1	232.8	232.2	0.59	393.850		
300.0	300.0	292.7	292.6	0.5	0.5	-104.34	-58.3	-228.2	235.7	234.7	1.03	228.666		
400.0	400.0	393.3	393.2	0.8	0.7	-103.85	-57.1	-231.4	238.4	237.0	1.47	162.229		
500.0	500.0	493.1	492.9	1.0	0.9	-103.34	-55.6	-234.5	241.1	239.2	1.91	126.273		
600.0	600.0	592.3	592.0	1.2	1.2	-102.81	-54.1	-237.7	243.9	241.6	2.35	103.600		
700.0	700.0	693.5	693.1	1.4	1.4	-102.25	-52.3	-241.0	246.7	243.9	2.79	88.276		
800.0	800.0	795.6	795.2	1.7	1.6	-101.88	-51.2	-243.5	248.8	245.6	3.22	77.197		
900.0	900.0	895.3	894.9	1.9	1.8	-101.66	-50.7	-245.4	250.6	247.0	3.65	68.619		
1,000.0	1,000.0	996.9	996.5	2.1	2.0	79.08	-50.5	-246.9	251.7	247.6	4.05	62.140		
1,100.0	1,099.8	1,097.4	1,097.0	2.3	2.2	80.15	-51.1	-247.8	251.7	247.3	4.43	56.856		
1,200.0	1,199.6	1,197.8	1,197.4	2.5	2.4	81.52	-52.1	-248.5	251.5	246.6	4.82	52.133		
1,300.0	1,299.4	1,298.5	1,298.0	2.7	2.6	82.81	-53.5	-248.7	250.9	245.7	5.24	47.922		
1,400.0	1,399.1	1,397.7	1,397.2	2.9	2.8	83.96	-55.4	-248.8	250.5	244.8	5.66	44.284		
1,464.0	1,463.0	1,461.2	1,460.7	3.0	2.9	84.63	-56.9	-249.0	250.4	244.5	5.93	42.218		
1,500.0	1,498.9	1,497.0	1,496.5	3.1	3.0	84.98	-57.8	-249.2	250.4	244.3	6.09	41.142		
1,600.0	1,598.6	1,595.5	1,595.0	3.3	3.2	85.90	-60.7	-249.8	250.7	244.2	6.53	38.427		
1,700.0	1,698.4	1,694.8	1,694.2	3.6	3.4	86.61	-64.6	-251.0	251.7	244.7	6.97	36.092		
1,800.0	1,798.1	1,793.6	1,792.8	3.8	3.7	87.20	-69.0	-252.3	252.9	245.5	7.42	34.065		
1,900.0	1,897.9	1,893.2	1,892.4	4.0	3.9	87.85	-73.2	-254.1	254.6	246.7	7.88	32.322		
2,000.0	1,997.6	1,996.9	1,996.0	4.3	4.1	88.61	-77.1	-255.3	255.7	247.4	8.34	30.659		
2,098.8	2,096.2	2,096.4	2,095.5	4.5	4.3	89.60	-79.6	-255.3	255.7	246.9	8.79	29.075		
2,100.0	2,097.4	2,097.6	2,096.7	4.5	4.3	89.61	-79.6	-255.3	255.7	246.9	8.80	29.057		
2,200.0	2,197.2	2,191.6	2,190.6	4.8	4.5	90.33	-83.0	-256.3	256.8	247.5	9.26	27.746		
2,300.0	2,296.9	2,302.1	2,301.0	5.0	4.7	91.33	-86.2	-256.7	257.2	247.5	9.74	26.408		
2,400.0	2,396.7	2,402.6	2,401.5	5.3	5.0	92.38	-88.5	-254.9	255.5	245.3	10.21	25.038		
2,500.0	2,496.4	2,502.8	2,501.6	5.5	5.2	93.27	-91.7	-252.4	253.3	242.6	10.68	23.725		
2,556.1	2,552.4	2,554.2	2,552.9	5.7	5.3	93.65	-93.6	-251.8	252.8	241.8	10.93	23.125		
2,600.0	2,596.2	2,596.2	2,594.9	5.8	5.4	93.92	-95.4	-252.0	253.0	241.9	11.13	22.729		
2,700.0	2,695.9	2,698.4	2,697.0	6.0	5.6	94.71	-99.0	-252.0	253.3	241.7	11.61	21.827		
2,800.0	2,795.7	2,802.1	2,800.7	6.3	5.8	95.48	-102.9	-251.2	252.9	240.8	12.08	20.927		
2,900.0	2,895.5	2,907.1	2,905.6	6.5	6.0	97.13	-103.4	-247.3	249.8	237.3	12.56	19.897		
3,000.0	2,995.2	3,006.6	3,005.1	6.8	6.2	98.82	-103.5	-243.1	246.6	233.6	13.02	18.944		
3,100.0	3,095.0	3,106.3	3,104.6	7.1	6.4	100.58	-103.5	-238.8	243.5	230.0	13.47	18.070		
3,200.0	3,194.7	3,204.7	3,203.0	7.3	6.6	102.28	-103.8	-234.8	240.8	226.9	13.93	17.287		
3,300.0	3,294.5	3,302.4	3,300.6	7.6	6.8	103.92	-104.3	-231.6	239.1	224.8	14.38	16.625		
3,400.0	3,394.2	3,400.7	3,398.9	7.8	7.0	105.48	-105.0	-229.3	238.5	223.6	14.84	16.070		
3,500.0	3,494.0	3,500.4	3,498.5	8.1	7.3	106.98	-106.0	-227.4	238.3	223.0	15.30	15.578		
3,600.0	3,593.7	3,601.0	3,599.1	8.4	7.5	108.49	-107.1	-225.4	238.1	222.4	15.75	15.116		
3,700.0	3,693.5	3,702.0	3,700.0	8.6	7.7	110.09	-108.0	-222.7	237.7	221.5	16.20	14.670		
3,800.0	3,793.3	3,802.7	3,800.7	8.9	7.9	111.85	-108.5	-219.4	237.0	220.3	16.65	14.235		
3,900.0	3,893.0	3,902.6	3,900.5	9.1	8.1	113.74	-108.5	-215.7	236.2	219.1	17.09	13.826		
3,925.7	3,918.7	3,926.9	3,924.8	9.2	8.1	114.21	-108.5	-214.9	236.1	218.9	17.20	13.731 ES		
4,000.0	3,992.8	3,995.0	3,992.9	9.4	8.3	115.28	-108.8	-213.8	237.1	219.6	17.51	13.539		
4,100.0	4,092.5	4,094.2	4,092.1	9.7	8.5	116.48	-109.9	-214.4	240.2	222.2	17.96	13.372		
4,200.0	4,192.3	4,194.4	4,192.3	9.9	8.7	117.72	-110.9	-214.7	243.2	224.8	18.41	13.210		
4,300.0	4,292.0	4,294.0	4,291.9	10.2	8.9	118.89	-112.0	-215.0	246.3	227.4	18.86	13.058		
4,400.0	4,391.8	4,393.3	4,391.2	10.4	9.1	119.94	-113.3	-215.7	249.6	230.3	19.31	12.926		
4,500.0	4,491.6	4,492.6	4,490.4	10.7	9.3	120.89	-114.9	-216.7	253.3	233.5	19.76	12.818		
4,600.0	4,591.3	4,594.1	4,591.9	11.0	9.5	121.61	-117.4	-218.0	256.8	236.6	20.22	12.699		
4,700.0	4,691.1	4,694.3	4,692.1	11.2	9.8	122.07	-121.0	-219.5	259.8	239.1	20.69	12.558		

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Reference Site:</b>	S11-T10N-R58W	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S11-T10N-R58W - Razor 11-0241H (Existing) - Existing - Existing												Offset Site Error:	0.0 usft
Survey Program: 132-ISCWSA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
4,800.0	4,790.8	4,790.9	4,788.6	11.5	10.0	122.34	-124.8	-221.8	263.5	242.3	21.15	12.460	
4,900.0	4,890.6	4,888.9	4,886.5	11.8	10.2	123.21	-125.6	-223.8	268.6	247.0	21.59	12.441	
5,000.0	4,990.3	4,987.3	4,984.9	12.0	10.4	124.70	-124.1	-223.7	273.2	251.2	22.01	12.412 SF	
5,100.0	5,090.1	5,076.8	5,074.2	12.3	10.5	126.35	-119.6	-225.0	281.3	258.9	22.41	12.556	
5,200.0	5,189.9	5,177.7	5,175.0	12.5	10.8	128.17	-113.7	-227.1	290.7	267.9	22.82	12.738	
5,300.0	5,289.6	5,277.7	5,274.8	12.8	11.0	129.72	-108.8	-229.1	299.8	276.5	23.24	12.897	
5,400.0	5,389.2	5,354.0	5,350.9	13.1	11.1	130.59	-103.0	-231.4	313.0	289.4	23.58	13.270	
5,500.0	5,486.0	5,418.0	5,413.5	13.5	11.2	131.21	-90.5	-233.9	345.7	322.0	23.69	14.591	
5,600.0	5,576.3	5,469.4	5,462.5	14.1	11.3	130.59	-74.9	-235.1	399.3	375.6	23.66	16.876	
5,700.0	5,656.8	5,505.4	5,495.9	14.9	11.4	126.21	-61.7	-235.4	470.4	446.4	24.00	19.599	
5,800.0	5,724.6	5,528.0	5,516.6	15.8	11.4	115.30	-52.5	-235.5	554.2	528.6	25.68	21.581	
5,900.0	5,777.2	5,528.0	5,516.6	17.0	11.4	91.59	-52.5	-235.5	645.4	616.8	28.58	22.582	
6,000.0	5,812.6	5,528.0	5,516.6	18.3	11.4	63.45	-52.5	-235.5	738.9	711.7	27.18	27.191	
6,100.0	5,829.5	5,515.4	5,505.1	19.8	11.4	41.25	-57.7	-235.4	831.0	809.5	21.51	38.633	
6,200.0	5,831.0	5,496.0	5,487.3	21.2	11.4	34.51	-65.3	-235.3	920.0	900.3	19.68	46.740	
6,300.0	5,831.0	5,482.1	5,474.4	22.6	11.3	33.57	-70.4	-235.2	1,010.0	989.8	20.15	50.128	
6,400.0	5,831.0	5,464.0	5,457.4	24.0	11.3	32.40	-76.8	-235.0	1,101.2	1,080.6	20.53	53.647	
6,500.0	5,831.0	5,464.0	5,457.4	25.5	11.3	32.47	-76.8	-235.0	1,193.4	1,171.9	21.50	55.508	
6,600.0	5,831.0	5,444.5	5,439.0	27.0	11.3	31.27	-83.0	-234.7	1,286.4	1,264.5	21.89	58.769	
6,700.0	5,831.0	5,433.0	5,428.0	28.6	11.2	30.62	-86.4	-234.4	1,380.2	1,357.6	22.54	61.225	
6,800.0	5,831.0	5,433.0	5,428.0	30.2	11.2	30.71	-86.4	-234.4	1,474.7	1,451.1	23.59	62.509	
6,900.0	5,831.0	5,433.0	5,428.0	31.9	11.2	30.80	-86.4	-234.4	1,569.8	1,545.1	24.70	63.544	
7,000.0	5,831.0	5,415.3	5,410.9	33.6	11.2	29.72	-91.2	-233.9	1,665.1	1,640.0	25.14	66.227	
7,100.0	5,831.0	5,401.0	5,397.0	35.4	11.2	28.87	-94.6	-233.4	1,761.1	1,735.4	25.71	68.509	
7,200.0	5,831.0	5,401.0	5,397.0	37.1	11.2	28.87	-94.6	-233.4	1,857.3	1,830.5	26.79	69.329	
7,300.0	5,831.0	5,401.0	5,397.0	38.9	11.2	28.87	-94.6	-233.4	1,953.9	1,926.0	27.88	70.079	
7,400.0	5,831.0	5,401.0	5,397.0	40.7	11.2	28.87	-94.6	-233.4	2,050.8	2,021.8	28.98	70.766	
7,500.0	5,831.0	5,401.0	5,397.0	42.5	11.2	28.87	-94.6	-233.4	2,147.9	2,117.8	30.08	71.397	
7,600.0	5,831.0	5,386.7	5,383.0	44.3	11.2	28.05	-97.5	-232.8	2,245.1	2,214.5	30.60	73.361	
7,700.0	5,831.0	5,382.7	5,379.2	46.2	11.2	27.83	-98.3	-232.7	2,342.6	2,311.1	31.54	74.278	
7,800.0	5,831.0	5,369.0	5,365.7	48.0	11.1	27.08	-100.7	-232.1	2,440.4	2,408.4	32.06	76.113	
7,900.0	5,831.0	5,369.0	5,365.7	49.8	11.1	27.08	-100.7	-232.1	2,538.2	2,505.1	33.15	76.568	
8,000.0	5,831.0	5,369.0	5,365.7	51.7	11.1	27.08	-100.7	-232.1	2,636.2	2,601.9	34.24	76.992	
8,100.0	5,831.0	5,369.0	5,365.7	53.5	11.1	27.08	-100.7	-232.1	2,734.2	2,698.9	35.33	77.388	
8,200.0	5,831.0	5,369.0	5,365.7	55.4	11.1	27.08	-100.7	-232.1	2,832.5	2,796.0	36.43	77.759	
8,300.0	5,831.0	5,369.0	5,365.7	57.3	11.1	27.08	-100.7	-232.1	2,930.8	2,893.3	37.52	78.106	
8,400.0	5,831.0	5,369.0	5,365.7	59.1	11.1	27.08	-100.7	-232.1	3,029.3	2,990.7	38.62	78.432	
8,500.0	5,831.0	5,369.0	5,365.7	61.0	11.1	27.08	-100.7	-232.1	3,127.8	3,088.1	39.72	78.739	
8,600.0	5,831.0	5,369.0	5,365.7	62.9	11.1	27.08	-100.7	-232.1	3,226.5	3,185.6	40.83	79.029	
8,700.0	5,831.0	5,369.0	5,365.7	64.7	11.1	27.08	-100.7	-232.1	3,325.2	3,283.3	41.93	79.302	
8,800.0	5,831.0	5,369.0	5,365.7	66.6	11.1	27.08	-100.7	-232.1	3,424.0	3,380.9	43.04	79.561	
8,900.0	5,831.0	5,353.9	5,350.7	68.5	11.1	26.29	-103.0	-231.4	3,522.6	3,479.2	43.36	81.243	
9,000.0	5,831.0	5,352.4	5,349.2	70.4	11.1	26.21	-103.2	-231.4	3,621.4	3,577.1	44.37	81.616	
9,100.0	5,831.0	5,337.0	5,334.0	72.3	11.1	25.46	-104.9	-230.7	3,720.6	3,675.9	44.68	83.272	
9,200.0	5,831.0	5,337.0	5,334.0	74.1	11.1	25.46	-104.9	-230.7	3,819.5	3,773.8	45.76	83.476	
9,300.0	5,831.0	5,337.0	5,334.0	76.0	11.1	25.46	-104.9	-230.7	3,918.5	3,871.7	46.83	83.670	
9,400.0	5,831.0	5,337.0	5,334.0	77.9	11.1	25.46	-104.9	-230.7	4,017.5	3,969.6	47.91	83.856	
9,500.0	5,831.0	5,337.0	5,334.0	79.8	11.1	25.46	-104.9	-230.7	4,116.6	4,067.6	48.99	84.032	
9,600.0	5,831.0	5,337.0	5,334.0	81.7	11.1	25.46	-104.9	-230.7	4,215.8	4,165.7	50.07	84.201	
9,700.0	5,831.0	5,337.0	5,334.0	83.6	11.1	25.46	-104.9	-230.7	4,314.9	4,263.8	51.15	84.363	
9,800.0	5,831.0	5,337.0	5,334.0	85.5	11.1	25.46	-104.9	-230.7	4,414.1	4,361.9	52.23	84.517	
9,900.0	5,831.0	5,337.0	5,334.0	87.4	11.1	25.46	-104.9	-230.7	4,513.4	4,460.1	53.31	84.665	

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Reference Site:</b>	S11-T10N-R58W	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S11-T10N-R58W - Razor 11-0241H (Existing) - Existing - Existing													Offset Site Error: 0.0 usft	
Survey Program: 132-ISCWSA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
10,000.0	5,831.0	5,337.0	5,334.0	89.3	11.1	25.46	-104.9	-230.7	4,612.6	4,558.2	54.39	84.807		
10,100.0	5,831.0	5,337.0	5,334.0	91.2	11.1	25.46	-104.9	-230.7	4,711.9	4,656.5	55.47	84.944		
10,200.0	5,831.0	5,337.0	5,334.0	93.1	11.1	25.46	-104.9	-230.7	4,811.3	4,754.7	56.55	85.075		
10,300.0	5,831.0	5,337.0	5,334.0	95.0	11.1	25.46	-104.9	-230.7	4,910.6	4,853.0	57.64	85.200		
10,400.0	5,831.0	5,337.0	5,334.0	96.9	11.1	25.46	-104.9	-230.7	5,010.0	4,951.3	58.72	85.321		
10,500.0	5,831.0	5,337.0	5,334.0	98.8	11.1	25.46	-104.9	-230.7	5,109.4	5,049.6	59.80	85.438		
10,600.0	5,831.0	5,337.0	5,334.0	100.7	11.1	25.46	-104.9	-230.7	5,208.8	5,148.0	60.89	85.550		
10,700.0	5,831.0	5,337.0	5,334.0	102.6	11.1	25.46	-104.9	-230.7	5,308.3	5,246.3	61.97	85.658		
10,800.0	5,831.0	5,337.0	5,334.0	104.5	11.1	25.46	-104.9	-230.7	5,407.8	5,344.7	63.06	85.762		
10,900.0	5,831.0	5,337.0	5,334.0	106.4	11.1	25.46	-104.9	-230.7	5,507.3	5,443.1	64.14	85.863		
11,000.0	5,831.0	5,337.0	5,334.0	108.3	11.1	25.46	-104.9	-230.7	5,606.8	5,541.5	65.23	85.960		
11,100.0	5,831.0	5,337.0	5,334.0	110.2	11.1	25.46	-104.9	-230.7	5,706.3	5,640.0	66.31	86.054		
11,200.0	5,831.0	5,337.0	5,334.0	112.1	11.1	25.46	-104.9	-230.7	5,805.8	5,738.4	67.40	86.145		
11,300.0	5,831.0	5,337.0	5,334.0	114.0	11.1	25.46	-104.9	-230.7	5,905.4	5,836.9	68.48	86.233		
11,400.0	5,831.0	5,337.0	5,334.0	115.9	11.1	25.46	-104.9	-230.7	6,005.0	5,935.4	69.57	86.318		
11,500.0	5,831.0	5,337.0	5,334.0	117.8	11.1	25.46	-104.9	-230.7	6,104.6	6,033.9	70.65	86.400		
11,600.0	5,831.0	5,337.0	5,334.0	119.7	11.1	25.46	-104.9	-230.7	6,204.2	6,132.4	71.74	86.480		
11,700.0	5,831.0	5,337.0	5,334.0	121.6	11.1	25.46	-104.9	-230.7	6,303.8	6,230.9	72.83	86.558		
11,800.0	5,831.0	5,337.0	5,334.0	123.6	11.1	25.46	-104.9	-230.7	6,403.4	6,329.5	73.91	86.633		
11,900.0	5,831.0	5,322.3	5,319.4	125.5	11.0	24.77	-106.2	-230.2	6,502.9	6,429.0	73.89	88.006		
12,000.0	5,831.0	5,321.6	5,318.6	127.4	11.0	24.74	-106.3	-230.2	6,602.5	6,527.6	74.91	88.143		
12,100.0	5,831.0	5,320.8	5,317.9	129.3	11.0	24.70	-106.3	-230.2	6,702.1	6,626.2	75.92	88.275		
12,200.0	5,831.0	5,320.1	5,317.2	131.2	11.0	24.67	-106.4	-230.2	6,801.8	6,724.8	76.94	88.403		
12,300.0	5,831.0	5,305.0	5,302.1	133.1	11.0	24.01	-107.4	-229.7	6,901.6	6,824.7	76.89	89.762		
12,400.0	5,831.0	5,305.0	5,302.1	135.0	11.0	24.01	-107.4	-229.7	7,001.3	6,923.3	77.94	89.823		
12,500.0	5,831.0	5,305.0	5,302.1	136.9	11.0	24.01	-107.4	-229.7	7,100.9	7,021.9	79.00	89.883		
12,600.0	5,831.0	5,305.0	5,302.1	138.8	11.0	24.01	-107.4	-229.7	7,200.6	7,120.5	80.06	89.940		
12,700.0	5,831.0	5,305.0	5,302.1	140.7	11.0	24.01	-107.4	-229.7	7,300.3	7,219.2	81.12	89.997		
12,800.0	5,831.0	5,305.0	5,302.1	142.7	11.0	24.01	-107.4	-229.7	7,400.0	7,317.8	82.18	90.051		
12,900.0	5,831.0	5,305.0	5,302.1	144.6	11.0	24.01	-107.4	-229.7	7,499.7	7,416.4	83.23	90.105		
13,000.0	5,831.0	5,305.0	5,302.1	146.5	11.0	24.01	-107.4	-229.7	7,599.4	7,515.1	84.29	90.157		
13,100.0	5,831.0	5,305.0	5,302.1	148.4	11.0	24.01	-107.4	-229.7	7,699.1	7,613.7	85.35	90.207		
13,200.0	5,831.0	5,305.0	5,302.1	150.3	11.0	24.01	-107.4	-229.7	7,798.8	7,712.4	86.41	90.257		
13,300.0	5,831.0	5,305.0	5,302.1	152.2	11.0	24.01	-107.4	-229.7	7,898.5	7,811.1	87.47	90.305		
13,400.0	5,831.0	5,305.0	5,302.1	154.1	11.0	24.01	-107.4	-229.7	7,998.3	7,909.7	88.52	90.352		
13,500.0	5,831.0	5,305.0	5,302.1	156.1	11.0	24.01	-107.4	-229.7	8,098.0	8,008.4	89.58	90.398		
13,600.0	5,831.0	5,305.0	5,302.1	158.0	11.0	24.01	-107.4	-229.7	8,197.8	8,107.1	90.64	90.443		
13,650.7	5,831.0	5,305.0	5,302.1	158.9	11.0	24.01	-107.4	-229.7	8,248.3	8,157.1	91.18	90.465		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Reference Site:</b>	S11-T10N-R58W	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S11-T10N-R58W - Razor 14-1143H (EXISTING) - EXISTING - EXISTING												Offset Site Error:	0.0 usft
Survey Program: 205-ISCWSA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	12,608.0	5,883.8	0.0	125.1	-166.47	-1,177.0	-283.2	6,024.8				
100.0	100.0	12,608.0	5,883.8	0.1	125.1	-166.47	-1,177.0	-283.2	5,926.9	5,893.2	33.75	175.605	
200.0	200.0	12,608.0	5,883.8	0.3	125.1	-166.47	-1,177.0	-283.2	5,829.1	5,795.1	33.98	171.563	
300.0	300.0	12,608.0	5,883.8	0.5	125.1	-166.47	-1,177.0	-283.2	5,731.3	5,697.1	34.20	167.576	
400.0	400.0	12,608.0	5,883.8	0.8	125.1	-166.47	-1,177.0	-283.2	5,633.6	5,599.1	34.43	163.644	
500.0	500.0	12,608.0	5,883.8	1.0	125.1	-166.47	-1,177.0	-283.2	5,535.9	5,501.3	34.65	159.765	
600.0	600.0	12,608.0	5,883.8	1.2	125.1	-166.47	-1,177.0	-283.2	5,438.4	5,403.5	34.88	155.939	
700.0	700.0	12,608.0	5,883.8	1.4	125.1	-166.47	-1,177.0	-283.2	5,341.0	5,305.9	35.10	152.164	
800.0	800.0	12,608.0	5,883.8	1.7	125.1	-166.47	-1,177.0	-283.2	5,243.6	5,208.3	35.32	148.440	
900.0	900.0	12,608.0	5,883.8	1.9	125.1	-166.47	-1,177.0	-283.2	5,146.4	5,110.8	35.55	144.766	
1,000.0	1,000.0	12,608.0	5,883.8	2.1	125.1	16.06	-1,177.0	-283.2	5,048.8	5,005.3	43.53	115.996	
1,100.0	1,099.8	12,608.0	5,883.8	2.3	125.1	19.15	-1,177.0	-283.2	4,950.7	4,901.2	49.52	99.974	
1,200.0	1,199.6	12,608.0	5,883.8	2.5	125.1	19.15	-1,177.0	-283.2	4,852.3	4,802.6	49.71	97.621	
1,300.0	1,299.4	12,608.0	5,883.8	2.7	125.1	19.15	-1,177.0	-283.2	4,754.0	4,704.1	49.90	95.273	
1,400.0	1,399.1	12,608.0	5,883.8	2.9	125.1	19.15	-1,177.0	-283.2	4,655.8	4,605.7	50.10	92.932	
1,500.0	1,498.9	12,608.0	5,883.8	3.1	125.1	19.15	-1,177.0	-283.2	4,557.6	4,507.3	50.30	90.603	
1,600.0	1,598.6	12,608.0	5,883.8	3.3	125.1	19.15	-1,177.0	-283.2	4,459.6	4,409.0	50.51	88.288	
1,700.0	1,698.4	12,608.0	5,883.8	3.6	125.1	19.15	-1,177.0	-283.2	4,361.6	4,310.8	50.72	85.987	
1,800.0	1,798.1	12,608.0	5,883.8	3.8	125.1	19.15	-1,177.0	-283.2	4,263.7	4,212.7	50.94	83.703	
1,900.0	1,897.9	12,608.0	5,883.8	4.0	125.1	19.15	-1,177.0	-283.2	4,165.9	4,114.7	51.15	81.437	
2,000.0	1,997.6	12,608.0	5,883.8	4.3	125.1	19.15	-1,177.0	-283.2	4,068.2	4,016.8	51.37	79.189	
2,100.0	2,097.4	12,608.0	5,883.8	4.5	125.1	19.15	-1,177.0	-283.2	3,970.6	3,919.0	51.59	76.960	
2,200.0	2,197.2	12,608.0	5,883.8	4.8	125.1	19.15	-1,177.0	-283.2	3,873.1	3,821.3	51.81	74.750	
2,300.0	2,296.9	12,608.0	5,883.8	5.0	125.1	19.15	-1,177.0	-283.2	3,775.8	3,723.8	52.04	72.559	
2,400.0	2,396.7	12,608.0	5,883.8	5.3	125.1	19.15	-1,177.0	-283.2	3,678.7	3,626.4	52.26	70.389	
2,500.0	2,496.4	12,608.0	5,883.8	5.5	125.1	19.15	-1,177.0	-283.2	3,581.6	3,529.1	52.49	68.239	
2,600.0	2,596.2	12,608.0	5,883.8	5.8	125.1	19.15	-1,177.0	-283.2	3,484.8	3,432.1	52.71	66.110	
2,700.0	2,695.9	12,608.0	5,883.8	6.0	125.1	19.15	-1,177.0	-283.2	3,388.1	3,335.2	52.94	64.002	
2,800.0	2,795.7	12,608.0	5,883.8	6.3	125.1	19.15	-1,177.0	-283.2	3,291.6	3,238.5	53.16	61.914	
2,900.0	2,895.5	12,608.0	5,883.8	6.5	125.1	19.15	-1,177.0	-283.2	3,195.4	3,142.0	53.39	59.848	
3,000.0	2,895.2	12,608.0	5,883.8	6.8	125.1	19.15	-1,177.0	-283.2	3,099.4	3,045.8	53.62	57.803	
3,100.0	3,095.0	12,608.0	5,883.8	7.1	125.1	19.15	-1,177.0	-283.2	3,003.6	2,949.8	53.85	55.779	
3,200.0	3,194.7	12,608.0	5,883.8	7.3	125.1	19.15	-1,177.0	-283.2	2,908.2	2,854.1	54.08	53.778	
3,300.0	3,294.5	12,608.0	5,883.8	7.6	125.1	19.15	-1,177.0	-283.2	2,813.0	2,758.7	54.31	51.799	
3,400.0	3,394.2	12,608.0	5,883.8	7.8	125.1	19.15	-1,177.0	-283.2	2,718.2	2,663.7	54.54	49.843	
3,500.0	3,494.0	12,608.0	5,883.8	8.1	125.1	19.15	-1,177.0	-283.2	2,623.8	2,569.0	54.77	47.910	
3,600.0	3,593.7	12,608.0	5,883.8	8.4	125.1	19.15	-1,177.0	-283.2	2,529.8	2,474.8	54.99	46.000	
3,700.0	3,693.5	12,608.0	5,883.8	8.6	125.1	19.15	-1,177.0	-283.2	2,436.3	2,381.0	55.23	44.115	
3,800.0	3,793.3	12,608.0	5,883.8	8.9	125.1	19.15	-1,177.0	-283.2	2,343.3	2,287.8	55.46	42.255	
3,900.0	3,893.0	12,608.0	5,883.8	9.1	125.1	19.15	-1,177.0	-283.2	2,250.9	2,195.2	55.69	40.422	
4,000.0	3,992.8	12,608.0	5,883.8	9.4	125.1	19.15	-1,177.0	-283.2	2,159.2	2,103.3	55.92	38.615	
4,100.0	4,092.5	12,608.0	5,883.8	9.7	125.1	19.15	-1,177.0	-283.2	2,068.3	2,012.1	56.15	36.837	
4,200.0	4,192.3	12,608.0	5,883.8	9.9	125.1	19.15	-1,177.0	-283.2	1,978.2	1,921.9	56.38	35.088	
4,300.0	4,292.0	12,608.0	5,883.8	10.2	125.1	19.15	-1,177.0	-283.2	1,889.2	1,832.6	56.61	33.372	
4,400.0	4,391.8	12,608.0	5,883.8	10.4	125.1	19.15	-1,177.0	-283.2	1,801.3	1,744.5	56.84	31.690	
4,500.0	4,491.6	12,608.0	5,883.8	10.7	125.1	19.15	-1,177.0	-283.2	1,714.7	1,657.7	57.07	30.044	
4,600.0	4,591.3	12,608.0	5,883.8	11.0	125.1	19.15	-1,177.0	-283.2	1,629.7	1,572.4	57.30	28.439	
4,700.0	4,691.1	12,608.0	5,883.8	11.2	125.1	19.15	-1,177.0	-283.2	1,546.4	1,488.9	57.54	26.878	
4,800.0	4,790.8	12,608.0	5,883.8	11.5	125.1	19.15	-1,177.0	-283.2	1,465.3	1,407.5	57.77	25.365	
4,900.0	4,890.6	12,608.0	5,883.8	11.8	125.1	19.15	-1,177.0	-283.2	1,386.6	1,328.6	58.00	23.907	
5,000.0	4,990.3	12,608.0	5,883.8	12.0	125.1	19.15	-1,177.0	-283.2	1,310.9	1,252.6	58.23	22.511	
5,100.0	5,090.1	12,608.0	5,883.8	12.3	125.1	19.15	-1,177.0	-283.2	1,238.5	1,180.1	58.46	21.184	

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Reference Site:</b>	S11-T10N-R58W	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S11-T10N-R58W - Razor 14-1143H (EXISTING) - EXISTING - EXISTING												Offset Site Error:	0.0 usft
Survey Program: 205-ISCWSA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.9	12,608.0	5,883.8	12.5	125.1	19.15	-1,177.0	-283.2	1,170.3	1,111.6	58.70	19.938	
5,300.0	5,289.6	12,608.0	5,883.8	12.8	125.1	19.15	-1,177.0	-283.2	1,106.9	1,047.9	58.93	18.783	
5,400.0	5,389.2	12,608.0	5,883.8	13.1	125.1	20.32	-1,177.0	-283.2	1,047.8	986.3	61.54	17.027	
5,500.0	5,486.0	12,608.0	5,883.8	13.5	125.1	23.85	-1,177.0	-283.2	982.9	913.8	69.12	14.220	
5,600.0	5,576.3	12,608.0	5,883.8	14.1	125.1	28.97	-1,177.0	-283.2	910.6	831.4	79.15	11.504	
5,700.0	5,656.8	12,608.0	5,883.8	14.9	125.1	36.51	-1,177.0	-283.2	832.0	740.0	91.99	9.045	
5,800.0	5,724.6	12,608.0	5,883.8	15.8	125.1	47.63	-1,177.0	-283.2	748.6	638.8	109.76	6.820	
5,900.0	5,777.2	12,608.0	5,883.8	17.0	125.1	63.16	-1,177.0	-283.2	662.1	532.9	129.18	5.125	
6,000.0	5,812.6	12,608.0	5,883.8	18.3	125.1	81.59	-1,177.0	-283.2	575.1	432.9	142.17	4.045	
6,100.0	5,829.5	12,608.0	5,883.8	19.8	125.1	98.50	-1,177.0	-283.2	491.2	347.7	143.55	3.422	
6,200.0	5,831.0	12,608.0	5,883.8	21.2	125.1	103.82	-1,177.0	-283.2	415.9	273.1	142.74	2.913	
6,300.0	5,831.0	12,608.0	5,883.8	22.6	125.1	103.83	-1,177.0	-283.2	353.1	209.1	144.05	2.451	
6,400.0	5,831.0	12,608.0	5,883.8	24.0	125.1	103.84	-1,177.0	-283.2	310.5	165.1	145.44	2.135	
6,500.0	5,831.0	12,594.3	5,883.8	25.5	124.9	103.85	-1,190.6	-282.9	296.6	149.9	146.65	2.022	
6,600.0	5,831.0	12,496.2	5,883.2	27.0	123.1	103.81	-1,288.8	-281.3	295.1	148.7	146.44	2.015	
6,700.0	5,831.0	12,390.2	5,880.5	28.6	121.2	103.38	-1,394.7	-279.5	293.0	146.6	146.36	2.002	
6,800.0	5,831.0	12,280.7	5,877.7	30.2	119.3	103.04	-1,504.1	-275.0	288.5	142.3	146.23	1.973	
6,900.0	5,831.0	12,181.8	5,876.2	31.9	117.5	103.03	-1,602.7	-268.5	281.8	135.6	146.16	1.928	
7,000.0	5,831.0	12,089.0	5,878.1	33.6	115.8	103.62	-1,695.4	-264.0	277.4	131.5	145.88	1.902	
7,100.0	5,831.0	11,990.8	5,878.6	35.4	114.1	103.91	-1,793.6	-260.4	274.1	128.3	145.71	1.881	
7,200.0	5,831.0	11,897.5	5,879.0	37.1	112.4	104.09	-1,886.8	-258.4	272.0	126.3	145.70	1.867	
7,300.0	5,831.0	11,799.2	5,879.6	38.9	110.6	104.22	-1,985.1	-258.1	271.8	126.2	145.63	1.867	
7,400.0	5,831.0	11,698.2	5,878.9	40.7	108.8	104.10	-2,086.1	-257.7	271.4	125.7	145.66	1.863	
7,485.8	5,831.0	11,613.7	5,877.0	42.3	107.3	103.70	-2,170.6	-258.0	271.1	125.2	145.91	1.858	
7,500.0	5,831.0	11,600.3	5,876.8	42.5	107.0	103.65	-2,183.9	-258.0	271.1	125.1	145.96	1.857	
7,600.0	5,831.0	11,504.7	5,878.4	44.3	105.4	103.94	-2,279.5	-259.0	272.5	126.5	145.94	1.867	
7,700.0	5,831.0	11,405.1	5,879.8	46.2	103.6	104.12	-2,379.1	-260.8	274.6	128.7	145.88	1.882	
7,800.0	5,831.0	11,297.1	5,878.1	48.0	101.7	103.70	-2,487.0	-262.4	275.6	129.6	146.03	1.887	
7,900.0	5,831.0	11,193.9	5,876.0	49.8	99.8	103.34	-2,590.3	-261.4	274.2	128.0	146.20	1.876	
8,000.0	5,831.0	11,097.0	5,872.6	51.7	98.1	102.68	-2,687.1	-260.5	272.6	125.9	146.66	1.859	
8,100.0	5,831.0	10,998.7	5,869.9	53.5	96.4	102.13	-2,785.4	-260.4	271.8	124.8	147.03	1.849	
8,120.2	5,831.0	10,980.0	5,869.4	53.9	96.0	102.01	-2,804.1	-260.5	271.8	124.7	147.12	1.848	
8,200.0	5,831.0	10,900.4	5,867.3	55.4	94.6	101.56	-2,883.7	-261.1	272.0	124.6	147.40	1.845	
8,300.0	5,831.0	10,795.6	5,865.1	57.3	92.8	101.10	-2,988.4	-261.3	271.8	124.2	147.61	1.841	
8,400.0	5,831.0	10,689.2	5,861.6	59.1	90.9	100.46	-3,094.7	-258.9	268.9	121.1	147.84	1.819	
8,500.0	5,831.0	10,586.6	5,858.3	61.0	89.0	99.95	-3,197.2	-254.2	263.9	115.8	148.08	1.782	
8,600.0	5,831.0	10,492.6	5,856.5	62.9	87.3	99.67	-3,291.1	-251.4	260.5	112.2	148.36	1.756	
8,700.0	5,831.0	10,394.6	5,853.8	64.7	85.6	99.14	-3,389.0	-249.7	258.4	109.7	148.67	1.738	
8,800.0	5,831.0	10,289.7	5,850.6	66.6	83.7	98.53	-3,493.8	-246.7	255.0	106.1	148.91	1.713	
8,900.0	5,831.0	10,198.2	5,850.0	68.5	82.1	98.45	-3,585.3	-245.3	253.4	104.2	149.20	1.698	
9,000.0	5,831.0	10,096.2	5,850.8	70.4	80.3	98.64	-3,687.3	-245.0	253.2	104.0	149.19	1.697	
9,100.0	5,831.0	9,991.8	5,849.1	72.3	78.5	98.31	-3,791.7	-243.3	251.4	102.0	149.38	1.683	
9,200.0	5,831.0	9,893.0	5,848.7	74.1	76.8	98.30	-3,890.5	-240.8	248.8	99.2	149.55	1.664	
9,300.0	5,831.0	9,794.4	5,849.4	76.0	75.1	98.53	-3,989.0	-238.9	247.0	97.3	149.66	1.650	
9,400.0	5,831.0	9,691.9	5,852.1	77.9	73.3	99.25	-4,091.4	-235.7	244.3	94.8	149.49	1.634	
9,500.0	5,831.0	9,597.1	5,856.2	79.8	71.6	100.32	-4,186.1	-233.4	242.6	93.3	149.27	1.625	
9,600.0	5,831.0	9,497.0	5,859.3	81.7	69.8	101.09	-4,286.1	-232.0	241.8	92.7	149.07	1.622	
9,649.5	5,831.0	9,448.9	5,860.9	82.6	69.0	101.48	-4,334.2	-231.5	241.6	92.5	149.12	1.620	
9,700.0	5,831.0	9,401.0	5,862.9	83.6	68.1	101.97	-4,382.1	-231.3	241.8	92.8	149.06	1.623	
9,800.0	5,831.0	9,303.6	5,866.9	85.5	66.4	102.85	-4,479.4	-232.0	243.4	94.5	148.93	1.634	
9,900.0	5,831.0	9,199.2	5,869.7	87.4	64.6	103.37	-4,583.7	-234.3	246.2	97.3	148.87	1.654	
10,000.0	5,831.0	9,096.1	5,870.7	89.3	62.7	103.67	-4,686.8	-233.0	245.2	96.2	148.92	1.646	

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



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Reference Site:</b>	S11-T10N-R58W	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S11-T10N-R58W - Razor 14-1143H (EXISTING) - EXISTING - EXISTING													Offset Site Error: 0.0 usft	
Survey Program: 205-ISCWSA MWD													Offset Well Error: 0.0 usft	
Reference				Offset			Semi Major Axis			Distance				Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
10,031.2	5,831.0	9,067.0	5,871.0	89.9	62.2	103.76	-4,715.9	-232.7	245.0	96.0	149.06	1.644		
10,100.0	5,831.0	9,005.8	5,873.0	91.2	61.2	104.16	-4,777.1	-233.2	246.1	96.9	149.13	1.650		
10,200.0	5,831.0	8,899.8	5,877.5	93.1	59.3	105.09	-4,883.0	-234.6	248.4	99.6	148.74	1.670		
10,282.0	5,831.0	8,816.0	5,878.9	94.6	57.8	105.45	-4,966.7	-233.9	248.1	99.3	148.75	1.668		
10,300.0	5,831.0	8,799.5	5,879.0	95.0	57.5	105.49	-4,983.2	-233.9	248.1	99.4	148.78	1.668		
10,400.0	5,831.0	8,696.7	5,878.1	96.9	55.7	105.22	-5,086.0	-234.7	248.7	99.5	149.21	1.667		
10,500.0	5,831.0	8,594.7	5,876.9	98.8	54.0	105.02	-5,188.0	-233.8	247.5	97.8	149.65	1.654		
10,600.0	5,831.0	8,494.9	5,877.4	100.7	52.3	105.24	-5,287.8	-231.9	245.8	95.9	149.87	1.640		
10,700.0	5,831.0	8,395.0	5,879.7	102.6	50.5	105.90	-5,387.6	-229.6	244.2	94.4	149.80	1.630		
10,800.0	5,831.0	8,295.6	5,882.3	104.5	48.8	106.60	-5,487.0	-228.2	243.5	93.9	149.65	1.627		
10,850.4	5,831.0	8,247.5	5,883.3	105.4	48.0	106.84	-5,535.1	-227.6	243.2	93.5	149.73	1.624		
10,900.0	5,831.0	8,199.6	5,884.5	106.4	47.1	107.14	-5,583.0	-227.5	243.5	93.8	149.70	1.627		
11,000.0	5,831.0	8,097.6	5,886.0	108.3	45.3	107.46	-5,684.9	-227.5	244.0	94.2	149.73	1.629		
11,100.0	5,831.0	7,989.9	5,885.7	110.2	43.5	107.44	-5,792.7	-226.9	243.3	93.4	149.92	1.623		
11,200.0	5,831.0	7,890.2	5,883.5	112.1	41.8	107.16	-5,892.2	-223.8	239.7	89.2	150.48	1.593		
11,300.0	5,831.0	7,796.4	5,882.5	114.0	40.2	107.03	-5,986.0	-222.5	238.1	87.1	151.05	1.576		
11,381.8	5,831.0	7,715.9	5,882.9	115.6	38.9	107.17	-6,066.5	-221.8	237.5	86.2	151.33	1.570		
11,400.0	5,831.0	7,698.7	5,883.3	115.9	38.6	107.27	-6,083.7	-221.7	237.6	86.3	151.32	1.570		
11,500.0	5,831.0	7,596.7	5,884.0	117.8	36.8	107.41	-6,185.7	-221.8	237.8	86.3	151.49	1.570		
11,600.0	5,831.0	7,493.3	5,881.3	119.7	35.1	106.91	-6,289.0	-220.2	235.5	83.4	152.18	1.548		
11,700.0	5,831.0	7,382.7	5,881.3	121.6	33.3	107.24	-6,399.5	-215.5	231.4	79.2	152.24	1.520		
11,800.0	5,831.0	7,285.2	5,881.0	123.6	31.6	107.64	-6,496.8	-209.3	225.4	73.0	152.41	1.479 Level 3		
11,900.0	5,831.0	7,187.4	5,880.5	125.5	30.0	107.88	-6,594.5	-204.6	220.6	68.0	152.65	1.445 Level 3		
12,000.0	5,831.0	7,093.1	5,879.2	127.4	28.5	107.81	-6,688.7	-201.7	217.2	64.0	153.28	1.417 Level 3		
12,049.0	5,831.0	7,048.2	5,880.1	128.3	27.8	108.07	-6,733.7	-201.1	216.9	63.5	153.43	1.414 Level 3		
12,100.0	5,831.0	7,001.6	5,881.3	129.3	27.0	108.38	-6,780.2	-201.2	217.4	64.0	153.45	1.417 Level 3		
12,200.0	5,831.0	6,908.3	5,884.0	131.2	25.6	108.76	-6,873.4	-204.5	221.6	67.9	153.71	1.442 Level 3		
12,300.0	5,831.0	6,794.7	5,883.8	133.1	23.9	108.52	-6,987.0	-206.9	223.6	69.3	154.25	1.449 Level 3		
12,400.0	5,831.0	6,689.4	5,883.0	135.0	22.2	108.55	-7,092.3	-204.2	220.9	66.3	154.64	1.429 Level 3		
12,500.0	5,831.0	6,592.8	5,881.8	136.9	20.9	108.55	-7,188.7	-200.6	217.0	61.6	155.35	1.397 Level 3		
12,544.7	5,831.0	6,552.2	5,882.8	137.8	20.3	108.85	-7,229.4	-199.9	216.6	61.1	155.52	1.393 Level 3, CC, ES		
12,600.0	5,831.0	6,500.9	5,884.5	138.8	19.7	109.28	-7,280.6	-199.8	217.1	61.5	155.56	1.395 Level 3		
12,700.0	5,831.0	6,410.6	5,887.8	140.7	18.4	109.84	-7,370.8	-202.7	221.3	65.4	155.88	1.420 Level 3		
12,800.0	5,831.0	6,307.1	5,888.7	142.7	17.0	109.55	-7,474.1	-208.6	227.0	70.3	156.72	1.448 Level 3		
12,900.0	5,831.0	6,199.2	5,886.9	144.6	15.8	108.75	-7,581.8	-213.2	230.6	72.4	158.11	1.458 Level 3		
13,000.0	5,831.0	6,094.0	5,870.6	146.5	14.6	104.60	-7,685.5	-217.0	229.5	67.5	161.95	1.417 Level 3		
13,016.0	5,831.0	6,078.4	5,866.5	146.8	14.4	103.54	-7,700.6	-218.0	229.5	66.6	162.83	1.409 Level 3		
13,100.0	5,831.0	5,995.6	5,838.7	148.4	13.6	96.45	-7,778.3	-223.8	230.4	63.6	166.79	1.381 Level 3, SF		
13,200.0	5,831.0	5,897.8	5,792.9	150.3	12.8	85.12	-7,864.4	-228.2	234.9	66.5	168.44	1.395 Level 3		
13,300.0	5,831.0	5,817.9	5,746.8	152.2	12.3	74.33	-7,929.6	-230.1	250.4	85.4	164.95	1.518		
13,400.0	5,831.0	5,739.0	5,694.0	154.1	12.0	62.98	-7,988.1	-227.9	278.8	123.0	155.77	1.790		
13,500.0	5,831.0	5,680.5	5,650.7	156.1	11.7	54.49	-8,027.0	-222.1	320.5	174.6	145.95	2.196		
13,600.0	5,831.0	5,639.6	5,618.2	158.0	11.6	48.77	-8,051.3	-217.1	376.4	238.1	138.32	2.721		
13,650.7	5,831.0	5,623.0	5,604.4	158.9	11.6	46.54	-8,060.3	-214.9	409.2	273.9	135.23	3.026		



# Cathedral Energy Services

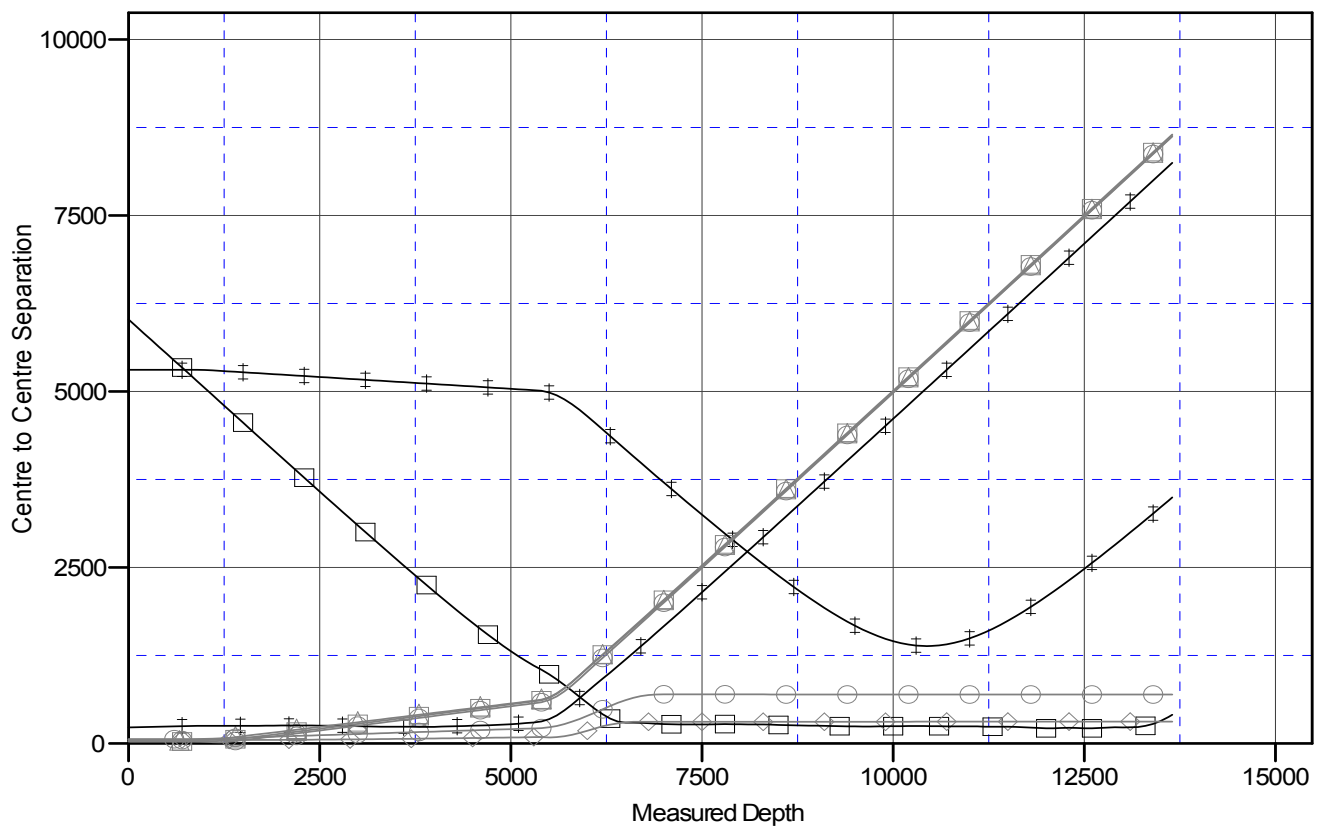
## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #11H-1415A
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Reference Site:</b>	S11-T10N-R58W	<b>MD Reference:</b>	WELL @ 4971.3usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #11H-1415A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4971.3usft (Original Well Ele  
Offset Depths are relative to Offset Datum  
Central Meridian is 105° 30' 0.00 W °

Coordinates are relative to: Razor #11H-1415A  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 1.08°

### Ladder Plot



### LEGEND

r14-1143H(EXISTING), EXISTING, EXISTING V0	◆ Razor #11H-1416B, HZ, Plan #1 V0	▣ Razor #11H-0215A, HZ, Plan #1 V0
r11-0241H(Existing), Existing, Existing V0	○ Razor #11H-1413A, HZ, Plan #1 V0	▤ Razor #11H-0213A, HZ, Plan #1 V0
r11 Offset(EXISTING), EXISTING, EXISTING V0	● Razor #11H-0216B, HZ, Plan #1 V0	