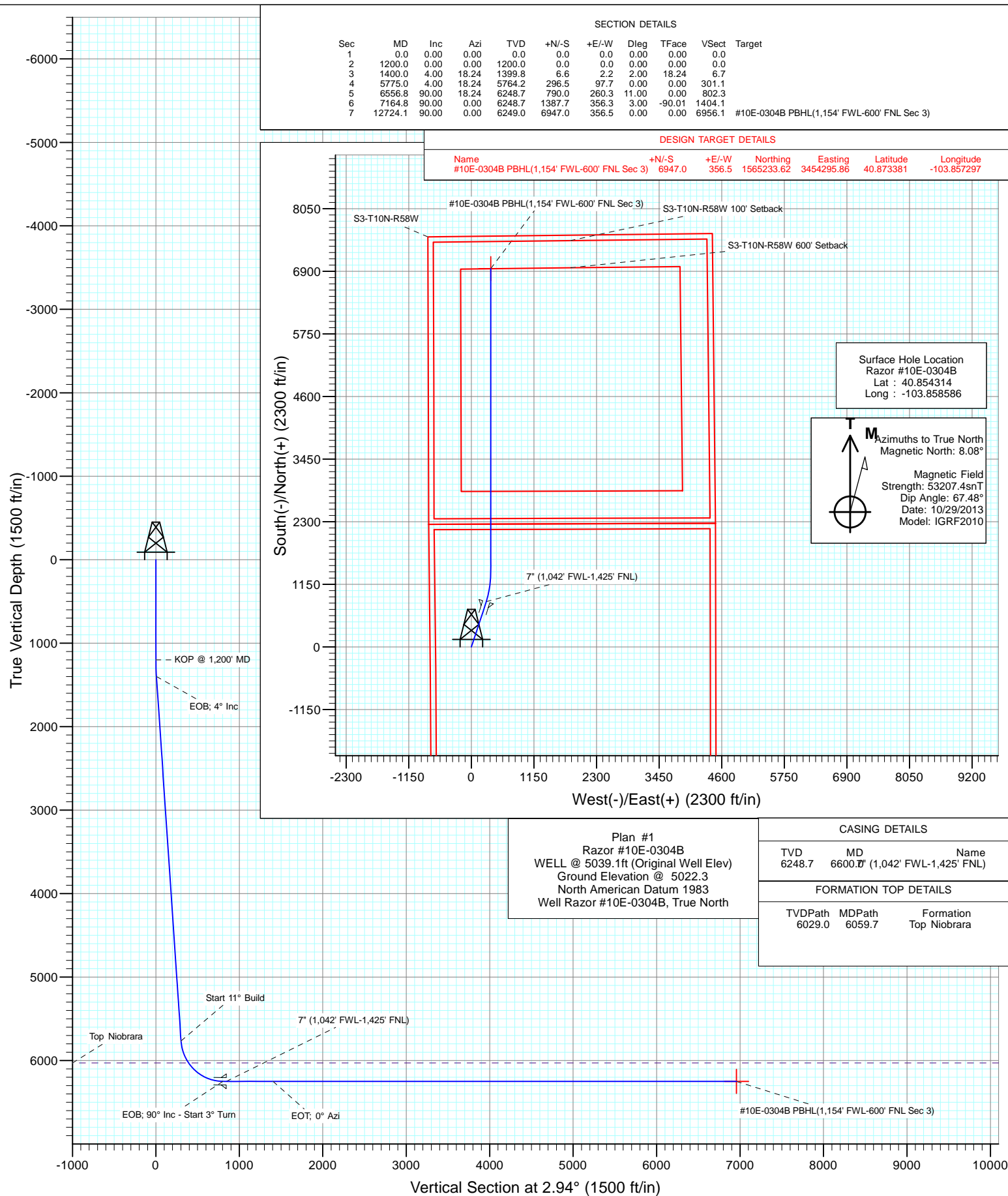




Project: Weld County, CO  
Site: S10-T10N-R58W  
Well: Razor #10E-0304B  
Wellbore: HZ  
Design: Plan #1



# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Razor #10E-0304B
<b>Company:</b>	Whiting Petroleum Corporation	<b>TVD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Site:</b>	S10-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor #10E-0304B	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #1		

<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		S10-T10N-R58W			
Site Position:		Northing:	1,558,370.48 usft	Latitude:	40° 51' 15.74 N
From:	Lat/Long	Easting:	3,457,889.23 usft	Longitude:	103° 50' 41.08 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	1.07 °

Well	Razor #10E-0304B					
Well Position	+N/-S	0.0 usft	Northing:	1,558,278.09 usft	Latitude:	40° 51' 15.53 N
	+E/-W	0.0 usft	Easting:	3,454,061.10 usft	Longitude:	103° 51' 30.91 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	5,022.3 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</b>
			(°)	(°)	(nT)
	IGRF2010	10/29/2013	8.08	67.48	53,207

<b>Design</b>	Plan #1				
<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)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>	
	(usft)	(usft)	(usft)	(°)	
	0.0	0.0	0.0	2.94	

<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	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,400.0	4.00	18.24	1,399.8	6.6	2.2	2.00	2.00	0.00	18.24	
5,775.0	4.00	18.24	5,764.2	296.5	97.7	0.00	0.00	0.00	0.00	
6,556.8	90.00	18.24	6,248.7	790.0	260.3	11.00	11.00	0.00	0.00	
7,164.8	90.00	0.00	6,248.7	1,387.7	356.3	3.00	0.00	-3.00	-90.01	
12,724.1	90.00	0.00	6,249.0	6,947.0	356.5	0.00	0.00	0.00	0.00	#10E-0304B PBHL(1,

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Razor #10E-0304B
<b>Company:</b>	Whiting Petroleum Corporation	<b>TVD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Site:</b>	S10-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor #10E-0304B	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #1		

### Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	KOP @ 1,200' MD
1,300.0	2.00	18.24	1,300.0	1.7	0.5	1.7	2.00	2.00	
1,400.0	4.00	18.24	1,399.8	6.6	2.2	6.7	2.00	2.00	EOB; 4° Inc
1,500.0	4.00	18.24	1,499.6	13.3	4.4	13.5	0.00	0.00	
1,600.0	4.00	18.24	1,599.4	19.9	6.6	20.2	0.00	0.00	
1,700.0	4.00	18.24	1,699.1	26.5	8.7	26.9	0.00	0.00	
1,800.0	4.00	18.24	1,798.9	33.1	10.9	33.6	0.00	0.00	
1,900.0	4.00	18.24	1,898.6	39.8	13.1	40.4	0.00	0.00	
2,000.0	4.00	18.24	1,998.4	46.4	15.3	47.1	0.00	0.00	
2,100.0	4.00	18.24	2,098.1	53.0	17.5	53.8	0.00	0.00	
2,200.0	4.00	18.24	2,197.9	59.6	19.7	60.6	0.00	0.00	
2,300.0	4.00	18.24	2,297.6	66.3	21.8	67.3	0.00	0.00	
2,400.0	4.00	18.24	2,397.4	72.9	24.0	74.0	0.00	0.00	
2,500.0	4.00	18.24	2,497.2	79.5	26.2	80.7	0.00	0.00	
2,600.0	4.00	18.24	2,596.9	86.1	28.4	87.5	0.00	0.00	
2,700.0	4.00	18.24	2,696.7	92.8	30.6	94.2	0.00	0.00	
2,800.0	4.00	18.24	2,796.4	99.4	32.8	100.9	0.00	0.00	
2,900.0	4.00	18.24	2,896.2	106.0	34.9	107.7	0.00	0.00	
3,000.0	4.00	18.24	2,995.9	112.6	37.1	114.4	0.00	0.00	
3,100.0	4.00	18.24	3,095.7	119.3	39.3	121.1	0.00	0.00	
3,200.0	4.00	18.24	3,195.5	125.9	41.5	127.8	0.00	0.00	
3,300.0	4.00	18.24	3,295.2	132.5	43.7	134.6	0.00	0.00	
3,400.0	4.00	18.24	3,395.0	139.1	45.9	141.3	0.00	0.00	
3,500.0	4.00	18.24	3,494.7	145.8	48.0	148.0	0.00	0.00	
3,600.0	4.00	18.24	3,594.5	152.4	50.2	154.8	0.00	0.00	
3,700.0	4.00	18.24	3,694.2	159.0	52.4	161.5	0.00	0.00	
3,800.0	4.00	18.24	3,794.0	165.6	54.6	168.2	0.00	0.00	
3,900.0	4.00	18.24	3,893.7	172.3	56.8	174.9	0.00	0.00	
4,000.0	4.00	18.24	3,993.5	178.9	59.0	181.7	0.00	0.00	
4,100.0	4.00	18.24	4,093.3	185.5	61.1	188.4	0.00	0.00	
4,200.0	4.00	18.24	4,193.0	192.1	63.3	195.1	0.00	0.00	
4,300.0	4.00	18.24	4,292.8	198.8	65.5	201.9	0.00	0.00	
4,400.0	4.00	18.24	4,392.5	205.4	67.7	208.6	0.00	0.00	
4,500.0	4.00	18.24	4,492.3	212.0	69.9	215.3	0.00	0.00	
4,600.0	4.00	18.24	4,592.0	218.6	72.1	222.0	0.00	0.00	
4,700.0	4.00	18.24	4,691.8	225.3	74.2	228.8	0.00	0.00	
4,800.0	4.00	18.24	4,791.6	231.9	76.4	235.5	0.00	0.00	
4,900.0	4.00	18.24	4,891.3	238.5	78.6	242.2	0.00	0.00	
5,000.0	4.00	18.24	4,991.1	245.1	80.8	249.0	0.00	0.00	
5,100.0	4.00	18.24	5,090.8	251.8	83.0	255.7	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 #10E-0304B
<b>Company:</b>	Whiting Petroleum Corporation	<b>TVD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Site:</b>	S10-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor #10E-0304B	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
5,200.0	4.00	18.24	5,190.6	258.4	85.2	262.4	0.00	0.00	
5,300.0	4.00	18.24	5,290.3	265.0	87.3	269.1	0.00	0.00	
5,400.0	4.00	18.24	5,390.1	271.6	89.5	275.9	0.00	0.00	
5,500.0	4.00	18.24	5,489.9	278.3	91.7	282.6	0.00	0.00	
5,600.0	4.00	18.24	5,589.6	284.9	93.9	289.3	0.00	0.00	
5,700.0	4.00	18.24	5,689.4	291.5	96.1	296.0	0.00	0.00	
5,775.0	4.00	18.24	5,764.2	296.5	97.7	301.1	0.00	0.00	Start 11° Build
5,800.0	6.75	18.24	5,789.1	298.7	98.4	303.4	11.00	11.00	
5,850.0	12.25	18.24	5,838.4	306.5	101.0	311.3	11.00	11.00	
5,900.0	17.75	18.24	5,886.6	318.8	105.1	323.8	11.00	11.00	
5,950.0	23.25	18.24	5,933.5	335.4	110.5	340.7	11.00	11.00	
6,000.0	28.75	18.24	5,978.4	356.3	117.4	361.8	11.00	11.00	
6,050.0	34.25	18.24	6,021.0	381.1	125.6	387.0	11.00	11.00	
6,059.7	35.32	18.24	6,029.0	386.3	127.3	392.3	11.00	11.00	Top Niobrara
6,100.0	39.75	18.24	6,060.9	409.6	135.0	416.0	11.00	11.00	
6,150.0	45.25	18.24	6,097.8	441.7	145.6	448.6	11.00	11.00	
6,200.0	50.75	18.24	6,131.2	477.0	157.2	484.4	11.00	11.00	
6,250.0	56.25	18.24	6,160.9	515.1	169.8	523.2	11.00	11.00	
6,300.0	61.75	18.24	6,186.7	555.8	183.2	564.5	11.00	11.00	
6,350.0	67.25	18.24	6,208.2	598.7	197.3	608.0	11.00	11.00	
6,400.0	72.75	18.24	6,225.3	643.3	212.0	653.3	11.00	11.00	
6,450.0	78.25	18.24	6,237.8	689.2	227.1	700.0	11.00	11.00	
6,500.0	83.75	18.24	6,245.6	736.1	242.6	747.6	11.00	11.00	
6,550.0	89.25	18.24	6,248.7	783.5	258.2	795.7	11.00	11.00	
6,556.8	90.00	18.24	6,248.7	790.0	260.3	802.3	11.00	11.00	EOB; 90° Inc - Start 3° Turn
6,600.0	90.00	16.94	6,248.7	831.1	273.4	844.1	3.00	0.00	7" (1,042' FWL-1,425' FNL)
6,700.0	90.00	13.94	6,248.7	927.5	300.0	941.7	3.00	0.00	
6,800.0	90.00	10.94	6,248.7	1,025.2	321.6	1,040.3	3.00	0.00	
6,900.0	90.00	7.94	6,248.7	1,123.8	338.0	1,139.6	3.00	0.00	
7,000.0	90.00	4.94	6,248.7	1,223.1	349.2	1,239.4	3.00	0.00	
7,100.0	90.00	1.94	6,248.7	1,322.9	355.2	1,339.4	3.00	0.00	
7,164.8	90.00	0.00	6,248.7	1,387.7	356.3	1,404.1	3.00	0.00	EOT; 0° Azi
7,200.0	90.00	0.00	6,248.7	1,422.9	356.3	1,439.3	0.00	0.00	
7,300.0	90.00	0.00	6,248.7	1,522.9	356.3	1,539.2	0.00	0.00	
7,400.0	90.00	0.00	6,248.7	1,622.9	356.3	1,639.1	0.00	0.00	
7,500.0	90.00	0.00	6,248.7	1,722.9	356.3	1,738.9	0.00	0.00	
7,600.0	90.00	0.00	6,248.8	1,822.9	356.3	1,838.8	0.00	0.00	
7,700.0	90.00	0.00	6,248.8	1,922.9	356.3	1,938.7	0.00	0.00	
7,800.0	90.00	0.00	6,248.8	2,022.9	356.3	2,038.5	0.00	0.00	
7,900.0	90.00	0.00	6,248.8	2,122.9	356.3	2,138.4	0.00	0.00	
8,000.0	90.00	0.00	6,248.8	2,222.9	356.3	2,238.3	0.00	0.00	
8,100.0	90.00	0.00	6,248.8	2,322.9	356.3	2,338.1	0.00	0.00	
8,200.0	90.00	0.00	6,248.8	2,422.9	356.3	2,438.0	0.00	0.00	
8,300.0	90.00	0.00	6,248.8	2,522.9	356.3	2,537.9	0.00	0.00	
8,400.0	90.00	0.00	6,248.8	2,622.9	356.3	2,637.8	0.00	0.00	
8,500.0	90.00	0.00	6,248.8	2,722.9	356.3	2,737.6	0.00	0.00	
8,600.0	90.00	0.00	6,248.8	2,822.9	356.4	2,837.5	0.00	0.00	
8,700.0	90.00	0.00	6,248.8	2,922.9	356.4	2,937.4	0.00	0.00	
8,800.0	90.00	0.00	6,248.8	3,022.9	356.4	3,037.2	0.00	0.00	
8,900.0	90.00	0.00	6,248.8	3,122.9	356.4	3,137.1	0.00	0.00	
9,000.0	90.00	0.00	6,248.8	3,222.9	356.4	3,237.0	0.00	0.00	
9,100.0	90.00	0.00	6,248.8	3,322.9	356.4	3,336.8	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 #10E-0304B
<b>Company:</b>	Whiting Petroleum Corporation	<b>TVD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Site:</b>	S10-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor #10E-0304B	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
9,200.0	90.00	0.00	6,248.8	3,422.9	356.4	3,436.7	0.00	0.00	
9,300.0	90.00	0.00	6,248.8	3,522.9	356.4	3,536.6	0.00	0.00	
9,400.0	90.00	0.00	6,248.8	3,622.9	356.4	3,636.4	0.00	0.00	
9,500.0	90.00	0.00	6,248.8	3,722.9	356.4	3,736.3	0.00	0.00	
9,600.0	90.00	0.00	6,248.8	3,822.9	356.4	3,836.2	0.00	0.00	
9,700.0	90.00	0.00	6,248.9	3,922.9	356.4	3,936.0	0.00	0.00	
9,800.0	90.00	0.00	6,248.9	4,022.9	356.4	4,035.9	0.00	0.00	
9,900.0	90.00	0.00	6,248.9	4,122.9	356.4	4,135.8	0.00	0.00	
10,000.0	90.00	0.00	6,248.9	4,222.9	356.4	4,235.7	0.00	0.00	
10,100.0	90.00	0.00	6,248.9	4,322.9	356.4	4,335.5	0.00	0.00	
10,200.0	90.00	0.00	6,248.9	4,422.9	356.4	4,435.4	0.00	0.00	
10,300.0	90.00	0.00	6,248.9	4,522.9	356.4	4,535.3	0.00	0.00	
10,400.0	90.00	0.00	6,248.9	4,622.9	356.4	4,635.1	0.00	0.00	
10,500.0	90.00	0.00	6,248.9	4,722.9	356.4	4,735.0	0.00	0.00	
10,600.0	90.00	0.00	6,248.9	4,822.9	356.4	4,834.9	0.00	0.00	
10,700.0	90.00	0.00	6,248.9	4,922.9	356.4	4,934.7	0.00	0.00	
10,800.0	90.00	0.00	6,248.9	5,022.9	356.4	5,034.6	0.00	0.00	
10,900.0	90.00	0.00	6,248.9	5,122.9	356.4	5,134.5	0.00	0.00	
11,000.0	90.00	0.00	6,248.9	5,222.9	356.4	5,234.3	0.00	0.00	
11,100.0	90.00	0.00	6,248.9	5,322.9	356.4	5,334.2	0.00	0.00	
11,200.0	90.00	0.00	6,248.9	5,422.9	356.4	5,434.1	0.00	0.00	
11,300.0	90.00	0.00	6,248.9	5,522.9	356.4	5,533.9	0.00	0.00	
11,400.0	90.00	0.00	6,248.9	5,622.9	356.4	5,633.8	0.00	0.00	
11,500.0	90.00	0.00	6,248.9	5,722.9	356.5	5,733.7	0.00	0.00	
11,600.0	90.00	0.00	6,248.9	5,822.9	356.5	5,833.6	0.00	0.00	
11,700.0	90.00	0.00	6,249.0	5,922.9	356.5	5,933.4	0.00	0.00	
11,800.0	90.00	0.00	6,249.0	6,022.9	356.5	6,033.3	0.00	0.00	
11,900.0	90.00	0.00	6,249.0	6,122.9	356.5	6,133.2	0.00	0.00	
12,000.0	90.00	0.00	6,249.0	6,222.9	356.5	6,233.0	0.00	0.00	
12,100.0	90.00	0.00	6,249.0	6,322.9	356.5	6,332.9	0.00	0.00	
12,200.0	90.00	0.00	6,249.0	6,422.9	356.5	6,432.8	0.00	0.00	
12,300.0	90.00	0.00	6,249.0	6,522.9	356.5	6,532.6	0.00	0.00	
12,400.0	90.00	0.00	6,249.0	6,622.9	356.5	6,632.5	0.00	0.00	
12,500.0	90.00	0.00	6,249.0	6,722.9	356.5	6,732.4	0.00	0.00	
12,600.0	90.00	0.00	6,249.0	6,822.9	356.5	6,832.2	0.00	0.00	
12,700.0	90.00	0.00	6,249.0	6,922.9	356.5	6,932.1	0.00	0.00	
12,724.1	90.00	0.00	6,249.0	6,947.0	356.5	6,956.1	0.00	0.00	PBHL @ 12,724' MD

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
#10E-0304B PBHL(1,15 - hit/miss target - Shape - plan hits target center - Point	0.00	0.00	6,249.0	6,947.0	356.5	1,565,230.49	3,454,288.95	40° 52' 24.17 N	103° 51' 26.27 W

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Razor #10E-0304B
<b>Company:</b>	Whiting Petroleum Corporation	<b>TVD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Site:</b>	S10-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor #10E-0304B	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #1		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
6,600.0	6,248.7	7" (1,042' FWL-1,425' FNL)	7	7-1/2	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,059.7	6,029.0	Top Niobrara		0.00	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,200.0	1,200.0	0.0	0.0	KOP @ 1,200' MD	
1,400.0	1,399.8	6.6	2.2	EOB; 4° Inc	
5,775.0	5,764.2	296.5	97.7	Start 11° Build	
6,556.8	6,248.7	790.0	260.3	EOB; 90° Inc - Start 3° Turn	
7,164.8	6,248.7	1,387.7	356.3	EOT; 0° Azi	
12,724.1	6,249.0	6,947.0	356.5	PBHL @ 12,724' MD	

# **Whiting Petroleum Corporation**

**Weld County, CO**

**S10-T10N-R58W**

**Razor #10E-0304B**

**HZ**

**Plan #1**

## **Anticollision Report**

**06 November, 2013**

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #10E-0304B
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Reference Site:</b>	S10-T10N-R58W	<b>MD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #10E-0304B	<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 #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0usft	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,356.1usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	10/30/2013		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	12,724.1	Plan #1 (HZ)	ISCWSA MWD	MWD - ISCWSA	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S10-T10N-R58W						
BUSH 1 (EXISTING) - BURNS WELL - NO SURVEYS						Out of range
FREGEAU 1 (EXISTING) - CREST WELL - NO SURVEY						Out of range
FREGEAU 2 (EXISTING) - CREST WELL - NO SURVEY						Out of range
Razor #10E-0301A - HZ - Plan #1	900.0	900.0	99.0	95.3	26.178	CC, ES
Razor #10E-0301A - HZ - Plan #1	12,724.1	12,634.8	996.7	734.6	3.802	SF
Razor #10E-0302B - HZ - Plan #1	1,000.0	1,000.0	66.1	61.9	15.620	CC
Razor #10E-0302B - HZ - Plan #1	1,100.0	1,099.4	66.5	61.8	14.216	ES
Razor #10E-0302B - HZ - Plan #1	12,724.1	12,675.7	659.9	395.6	2.497	SF
Razor #10E-0303A - HZ - Plan #1	1,204.0	1,204.1	33.1	28.0	6.434	CC, ES
Razor #10E-0303A - HZ - Plan #1	12,724.1	12,552.9	350.5	99.6	1.397	Level 3, SF
Razor #10E-1501A - HZ - Plan #1	1,200.0	1,200.0	123.8	118.7	24.129	CC, ES
Razor #10E-1501A - HZ - Plan #1	1,400.0	1,392.0	135.5	129.6	22.823	SF
Razor #10E-1502B - HZ - Plan #1	1,100.0	1,100.0	99.5	94.8	21.245	CC, ES
Razor #10E-1502B - HZ - Plan #1	1,300.0	1,293.9	106.8	101.3	19.443	SF
Razor #10E-1503A - HZ - Plan #1	1,000.0	1,000.0	82.1	77.8	19.389	CC, ES
Razor #10E-1503A - HZ - Plan #1	1,200.0	1,195.0	87.8	82.8	17.391	SF
Razor #10E-1504B - HZ - Plan #1	900.0	900.0	75.1	71.3	19.839	CC, ES
Razor #10E-1504B - HZ - Plan #1	1,200.0	1,194.6	88.0	82.9	17.536	SF



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #10E-0304B
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Reference Site:</b>	S10-T10N-R58W	<b>MD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #10E-0304B	<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 #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S10-T10N-R58W - Razor #10E-0301A - HZ - Plan #1													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-99.0	99.0					
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-99.0	99.0	98.9	0.19	529.603		
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-99.0	99.0	98.4	0.64	155.590		
300.0	300.0	300.0	300.0	0.5	0.5	-90.00	0.0	-99.0	99.0	98.0	1.09	91.190		
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	0.0	-99.0	99.0	97.5	1.54	64.495		
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	0.0	-99.0	99.0	97.1	1.99	49.890		
600.0	600.0	600.0	600.0	1.2	1.2	-90.00	0.0	-99.0	99.0	96.6	2.43	40.679		
700.0	700.0	700.0	700.0	1.4	1.4	-90.00	0.0	-99.0	99.0	96.2	2.88	34.338		
800.0	800.0	800.0	800.0	1.7	1.7	-90.00	0.0	-99.0	99.0	95.7	3.33	29.708		
900.0	900.0	900.0	900.0	1.9	1.9	-90.00	0.0	-99.0	99.0	95.3	3.78	26.178 CC, ES		
1,000.0	1,000.0	998.5	998.5	2.1	2.1	-89.12	1.5	-99.8	99.8	95.5	4.23	23.601		
1,100.0	1,100.0	1,096.8	1,096.7	2.3	2.3	-86.56	6.1	-101.9	102.1	97.5	4.67	21.861		
1,200.0	1,200.0	1,196.5	1,196.1	2.6	2.6	-83.24	12.4	-104.8	105.6	100.5	5.12	20.615		
1,300.0	1,300.0	1,296.3	1,295.7	2.8	2.8	-99.19	18.7	-107.8	109.7	104.2	5.57	19.685		
1,400.0	1,399.8	1,396.2	1,395.3	3.0	3.0	-98.79	25.1	-110.7	114.5	108.4	6.03	18.988		
1,500.0	1,499.6	1,496.1	1,495.0	3.2	3.3	-99.33	31.4	-113.6	119.5	113.0	6.49	18.413		
1,600.0	1,599.3	1,596.0	1,594.6	3.5	3.5	-99.83	37.7	-116.6	124.5	117.5	6.96	17.899		
1,700.0	1,699.1	1,695.8	1,694.2	3.7	3.8	-100.29	44.0	-119.5	129.5	122.1	7.43	17.440		
1,800.0	1,798.9	1,795.7	1,793.8	3.9	4.0	-100.72	50.3	-122.4	134.6	126.7	7.90	17.027		
1,900.0	1,898.6	1,895.6	1,893.5	4.2	4.3	-101.11	56.6	-125.4	139.6	131.2	8.38	16.655		
2,000.0	1,998.4	1,995.4	1,993.1	4.4	4.5	-101.48	63.0	-128.3	144.7	135.8	8.86	16.319		
2,100.0	2,098.1	2,095.3	2,092.7	4.7	4.8	-101.82	69.3	-131.3	149.7	140.4	9.35	16.014		
2,200.0	2,197.9	2,195.2	2,192.3	4.9	5.0	-102.14	75.6	-134.2	154.8	144.9	9.84	15.736		
2,300.0	2,297.6	2,295.0	2,292.0	5.2	5.3	-102.44	81.9	-137.1	159.8	149.5	10.32	15.482		
2,400.0	2,397.4	2,394.9	2,391.6	5.4	5.5	-102.73	88.2	-140.1	164.9	154.1	10.81	15.249		
2,500.0	2,497.2	2,494.8	2,491.2	5.6	5.8	-102.99	94.5	-143.0	170.0	158.7	11.31	15.035		
2,600.0	2,596.9	2,594.6	2,590.8	5.9	6.0	-103.24	100.9	-145.9	175.1	163.3	11.80	14.838		
2,700.0	2,696.7	2,694.5	2,690.5	6.1	6.3	-103.48	107.2	-148.9	180.1	167.8	12.29	14.655		
2,800.0	2,796.4	2,794.4	2,790.1	6.4	6.5	-103.70	113.5	-151.8	185.2	172.4	12.79	14.485		
2,900.0	2,896.2	2,894.2	2,889.7	6.6	6.8	-103.91	119.8	-154.8	190.3	177.0	13.28	14.328		
3,000.0	2,995.9	2,994.1	2,989.3	6.9	7.0	-104.11	126.1	-157.7	195.4	181.6	13.78	14.181		
3,100.0	3,095.7	3,094.0	3,089.0	7.1	7.3	-104.30	132.5	-160.6	200.5	186.2	14.27	14.044		
3,200.0	3,195.4	3,193.8	3,188.6	7.4	7.5	-104.48	138.8	-163.6	205.6	190.8	14.77	13.916		
3,300.0	3,295.2	3,293.7	3,288.2	7.6	7.8	-104.65	145.1	-166.5	210.7	195.4	15.27	13.796		
3,400.0	3,395.0	3,393.6	3,387.8	7.9	8.0	-104.82	151.4	-169.4	215.8	200.0	15.77	13.683		
3,500.0	3,494.7	3,493.5	3,487.5	8.2	8.3	-104.97	157.7	-172.4	220.9	204.6	16.27	13.577		
3,600.0	3,594.5	3,593.3	3,587.1	8.4	8.6	-105.12	164.0	-175.3	226.0	209.2	16.77	13.477		
3,700.0	3,694.2	3,693.2	3,686.7	8.7	8.8	-105.26	170.4	-178.3	231.1	213.8	17.27	13.382		
3,800.0	3,794.0	3,793.1	3,786.3	8.9	9.1	-105.40	176.7	-181.2	236.2	218.4	17.77	13.293		
3,900.0	3,893.7	3,892.9	3,886.0	9.2	9.3	-105.53	183.0	-184.1	241.3	223.0	18.27	13.208		
4,000.0	3,993.5	3,992.8	3,985.6	9.4	9.6	-105.65	189.3	-187.1	246.4	227.6	18.77	13.128		
4,100.0	4,093.3	4,092.7	4,085.2	9.7	9.8	-105.77	195.6	-190.0	251.5	232.2	19.27	13.052		
4,200.0	4,193.0	4,192.5	4,184.8	9.9	10.1	-105.89	201.9	-192.9	256.6	236.8	19.77	12.979		
4,300.0	4,292.8	4,292.4	4,284.5	10.2	10.3	-106.00	208.3	-195.9	261.7	241.4	20.27	12.910		
4,400.0	4,392.5	4,392.3	4,384.1	10.4	10.6	-106.11	214.6	-198.8	266.8	246.0	20.77	12.845		
4,500.0	4,492.3	4,492.1	4,483.7	10.7	10.8	-106.21	220.9	-201.8	271.9	250.6	21.27	12.782		
4,600.0	4,592.0	4,592.0	4,583.3	10.9	11.1	-106.31	227.2	-204.7	277.0	255.2	21.77	12.722		
4,700.0	4,691.8	4,691.9	4,683.0	11.2	11.4	-106.40	233.5	-207.6	282.1	259.8	22.28	12.665		
4,800.0	4,791.5	4,791.7	4,782.6	11.4	11.6	-106.49	239.8	-210.6	287.2	264.5	22.78	12.610		
4,900.0	4,891.3	4,891.6	4,882.2	11.7	11.9	-106.58	246.2	-213.5	292.4	269.1	23.28	12.558		
5,000.0	4,991.1	4,991.5	4,981.8	12.0	12.1	-106.67	252.5	-216.4	297.5	273.7	23.78	12.507		
5,100.0	5,090.8	5,091.3	5,081.5	12.2	12.4	-106.75	258.8	-219.4	302.6	278.3	24.29	12.459		

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 #10E-0304B
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Reference Site:</b>	S10-T10N-R58W	<b>MD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #10E-0304B	<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 #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S10-T10N-R58W - Razor #10E-0301A - 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
5,200.0	5,190.6	5,191.2	5,181.1	12.5	12.6	-106.83	265.1	-222.3	307.7	282.9	24.79	12.413	
5,300.0	5,290.3	5,291.1	5,280.7	12.7	12.9	-106.91	271.4	-225.3	312.8	287.5	25.29	12.368	
5,400.0	5,390.1	5,390.9	5,380.3	13.0	13.2	-106.98	277.7	-228.2	317.9	292.1	25.79	12.326	
5,500.0	5,489.8	5,490.8	5,480.0	13.2	13.4	-107.05	284.1	-231.1	323.0	296.7	26.30	12.284	
5,600.0	5,589.6	5,590.7	5,579.6	13.5	13.7	-107.12	290.4	-234.1	328.2	301.4	26.80	12.245	
5,700.0	5,689.4	5,683.2	5,671.8	13.7	13.9	-107.09	296.8	-237.1	333.6	306.3	27.29	12.225	
5,800.0	5,789.1	5,759.7	5,746.8	14.0	14.2	-105.41	310.1	-243.3	344.5	316.7	27.78	12.402	
5,900.0	5,886.6	5,833.1	5,816.0	14.4	14.5	-102.00	332.2	-253.5	365.7	337.4	28.35	12.902	
6,000.0	5,978.4	5,900.0	5,875.6	14.9	14.9	-98.24	359.7	-266.3	397.3	368.2	29.08	13.663	
6,100.0	6,060.9	5,968.8	5,932.2	15.5	15.4	-94.21	395.1	-282.8	437.4	407.3	30.06	14.551	
6,200.0	6,131.2	6,030.6	5,978.3	16.4	15.9	-89.87	432.3	-300.1	484.2	453.0	31.21	15.515	
6,300.0	6,186.7	6,088.7	6,016.9	17.4	16.5	-85.25	471.6	-318.3	536.1	503.6	32.47	16.511	
6,400.0	6,225.3	6,150.0	6,052.2	18.6	17.1	-80.79	517.0	-339.5	591.6	557.8	33.82	17.494	
6,500.0	6,245.6	6,200.0	6,076.5	19.9	17.7	-75.90	556.7	-357.9	649.2	614.1	35.04	18.527	
6,600.0	6,248.7	6,250.0	6,096.4	21.3	18.4	-74.64	598.2	-377.2	707.6	670.9	36.76	19.249	
6,700.0	6,248.7	6,300.0	6,111.9	22.6	19.1	-77.31	641.3	-397.3	766.0	727.0	39.05	19.617	
6,800.0	6,248.7	6,364.2	6,124.9	24.0	20.0	-79.53	698.3	-423.7	823.2	781.7	41.52	19.825	
6,900.0	6,248.7	6,430.9	6,130.2	25.5	21.1	-80.80	758.5	-451.8	878.1	834.1	44.02	19.949	
7,000.0	6,248.7	6,584.7	6,130.3	26.9	23.4	-81.88	900.2	-511.5	926.9	879.2	47.66	19.450	
7,100.0	6,248.7	6,767.8	6,130.3	28.5	26.2	-82.61	1,074.5	-567.5	962.9	910.9	51.97	18.528	
7,200.0	6,248.7	6,965.4	6,130.3	30.0	29.4	-83.00	1,267.6	-608.9	984.8	928.1	56.72	17.362	
7,300.0	6,248.7	7,170.4	6,130.3	31.6	32.6	-83.15	1,471.3	-630.6	995.3	933.7	61.67	16.139	
7,400.0	6,248.7	7,322.0	6,130.3	33.2	35.0	-83.17	1,622.9	-633.2	996.6	930.8	65.81	15.142	
7,500.0	6,248.7	7,422.0	6,130.2	34.9	36.6	-83.17	1,722.9	-633.2	996.6	927.4	69.15	14.411	
7,600.0	6,248.8	7,522.0	6,130.2	36.6	38.3	-83.17	1,822.9	-633.2	996.6	924.1	72.54	13.739	
7,700.0	6,248.8	7,622.0	6,130.2	38.3	40.0	-83.17	1,922.9	-633.2	996.6	920.6	75.97	13.119	
7,800.0	6,248.8	7,722.0	6,130.2	40.0	41.6	-83.17	2,022.9	-633.2	996.6	917.2	79.43	12.547	
7,900.0	6,248.8	7,822.0	6,130.2	41.7	43.4	-83.17	2,122.9	-633.2	996.6	913.7	82.93	12.018	
8,000.0	6,248.8	7,922.0	6,130.2	43.5	45.1	-83.17	2,222.9	-633.2	996.6	910.2	86.45	11.528	
8,100.0	6,248.8	8,022.0	6,130.2	45.3	46.8	-83.17	2,322.9	-633.2	996.6	906.6	89.99	11.074	
8,200.0	6,248.8	8,122.0	6,130.2	47.0	48.6	-83.17	2,422.9	-633.2	996.6	903.0	93.56	10.652	
8,300.0	6,248.8	8,222.0	6,130.2	48.8	50.3	-83.17	2,522.9	-633.2	996.6	899.5	97.15	10.259	
8,400.0	6,248.8	8,322.0	6,130.2	50.6	52.1	-83.17	2,622.9	-633.2	996.6	895.9	100.75	9.892	
8,500.0	6,248.8	8,422.0	6,130.2	52.4	53.9	-83.17	2,722.9	-633.2	996.6	892.2	104.37	9.549	
8,600.0	6,248.8	8,522.0	6,130.2	54.3	55.7	-83.17	2,822.9	-633.2	996.6	888.6	108.01	9.227	
8,700.0	6,248.8	8,622.0	6,130.2	56.1	57.5	-83.16	2,922.9	-633.2	996.6	885.0	111.65	8.926	
8,800.0	6,248.8	8,722.0	6,130.2	57.9	59.3	-83.16	3,022.9	-633.2	996.6	881.3	115.31	8.643	
8,900.0	6,248.8	8,822.0	6,130.2	59.7	61.1	-83.16	3,122.9	-633.2	996.6	877.6	118.97	8.377	
9,000.0	6,248.8	8,922.0	6,130.2	61.6	62.9	-83.16	3,222.9	-633.2	996.6	874.0	122.65	8.126	
9,100.0	6,248.8	9,022.0	6,130.2	63.4	64.8	-83.16	3,322.9	-633.2	996.6	870.3	126.34	7.889	
9,200.0	6,248.8	9,122.0	6,130.2	65.3	66.6	-83.16	3,422.9	-633.2	996.6	866.6	130.03	7.665	
9,300.0	6,248.8	9,222.0	6,130.2	67.1	68.4	-83.16	3,522.9	-633.2	996.6	862.9	133.73	7.453	
9,400.0	6,248.8	9,322.0	6,130.2	69.0	70.3	-83.16	3,622.9	-633.2	996.6	859.2	137.43	7.252	
9,500.0	6,248.8	9,422.0	6,130.2	70.9	72.1	-83.16	3,722.9	-633.1	996.6	855.5	141.15	7.061	
9,600.0	6,248.8	9,522.0	6,130.1	72.7	74.0	-83.16	3,822.9	-633.1	996.6	851.8	144.86	6.880	
9,700.0	6,248.9	9,622.0	6,130.1	74.6	75.8	-83.16	3,922.9	-633.1	996.6	848.0	148.59	6.707	
9,800.0	6,248.9	9,722.0	6,130.1	76.5	77.7	-83.16	4,022.9	-633.1	996.6	844.3	152.32	6.543	
9,900.0	6,248.9	9,822.0	6,130.1	78.3	79.6	-83.16	4,122.9	-633.1	996.6	840.6	156.05	6.387	
10,000.0	6,248.9	9,922.0	6,130.1	80.2	81.4	-83.16	4,222.9	-633.1	996.6	836.9	159.78	6.237	
10,100.0	6,248.9	10,022.0	6,130.1	82.1	83.3	-83.16	4,322.9	-633.1	996.6	833.1	163.52	6.095	
10,200.0	6,248.9	10,122.0	6,130.1	84.0	85.2	-83.16	4,422.9	-633.1	996.6	829.4	167.27	5.958	
10,300.0	6,248.9	10,222.0	6,130.1	85.8	87.0	-83.16	4,522.9	-633.1	996.6	825.6	171.01	5.828	

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 #10E-0304B
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Reference Site:</b>	S10-T10N-R58W	<b>MD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #10E-0304B	<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 #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S10-T10N-R58W - Razor #10E-0301A - 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
10,400.0	6,248.9	10,322.0	6,130.1	87.7	88.9	-83.16	4,622.9	-633.1	996.6	821.9	174.76	5.703	
10,500.0	6,248.9	10,422.0	6,130.1	89.6	90.8	-83.15	4,722.9	-633.1	996.6	818.1	178.52	5.583	
10,600.0	6,248.9	10,522.0	6,130.1	91.5	92.7	-83.15	4,822.9	-633.1	996.6	814.4	182.27	5.468	
10,700.0	6,248.9	10,622.0	6,130.1	93.4	94.5	-83.15	4,922.9	-633.1	996.6	810.6	186.03	5.357	
10,800.0	6,248.9	10,722.0	6,130.1	95.3	96.4	-83.15	5,022.9	-633.1	996.6	806.9	189.79	5.251	
10,900.0	6,248.9	10,822.0	6,130.1	97.2	98.3	-83.15	5,122.9	-633.1	996.6	803.1	193.56	5.149	
11,000.0	6,248.9	10,922.0	6,130.1	99.1	100.2	-83.15	5,222.9	-633.1	996.7	799.3	197.32	5.051	
11,100.0	6,248.9	11,022.0	6,130.1	100.9	102.1	-83.15	5,322.9	-633.1	996.7	795.6	201.09	4.956	
11,200.0	6,248.9	11,122.0	6,130.1	102.8	103.9	-83.15	5,422.9	-633.1	996.7	791.8	204.86	4.865	
11,300.0	6,248.9	11,222.0	6,130.1	104.7	105.8	-83.15	5,522.9	-633.1	996.7	788.0	208.63	4.777	
11,400.0	6,248.9	11,322.0	6,130.1	106.6	107.7	-83.15	5,622.9	-633.1	996.7	784.3	212.40	4.692	
11,500.0	6,248.9	11,422.0	6,130.1	108.5	109.6	-83.15	5,722.9	-633.1	996.7	780.5	216.18	4.610	
11,600.0	6,248.9	11,522.0	6,130.1	110.4	111.5	-83.15	5,822.9	-633.1	996.7	776.7	219.95	4.531	
11,700.0	6,249.0	11,622.0	6,130.0	112.3	113.4	-83.15	5,922.9	-633.1	996.7	772.9	223.73	4.455	
11,800.0	6,249.0	11,722.0	6,130.0	114.2	115.3	-83.15	6,022.9	-633.1	996.7	769.2	227.51	4.381	
11,900.0	6,249.0	11,822.0	6,130.0	116.1	117.2	-83.15	6,122.9	-633.1	996.7	765.4	231.29	4.309	
12,000.0	6,249.0	11,922.0	6,130.0	118.0	119.1	-83.15	6,222.9	-633.1	996.7	761.6	235.07	4.240	
12,100.0	6,249.0	12,022.0	6,130.0	119.9	121.0	-83.15	6,322.9	-633.1	996.7	757.8	238.85	4.173	
12,200.0	6,249.0	12,122.0	6,130.0	121.8	122.9	-83.15	6,422.9	-633.1	996.7	754.0	242.64	4.108	
12,300.0	6,249.0	12,222.0	6,130.0	123.7	124.8	-83.15	6,522.9	-633.1	996.7	750.3	246.42	4.045	
12,400.0	6,249.0	12,322.0	6,130.0	125.6	126.7	-83.14	6,622.9	-633.1	996.7	746.5	250.21	3.983	
12,500.0	6,249.0	12,422.0	6,130.0	127.5	128.6	-83.14	6,722.9	-633.1	996.7	742.7	253.99	3.924	
12,600.0	6,249.0	12,522.0	6,130.0	129.4	130.5	-83.14	6,822.9	-633.1	996.7	738.9	257.78	3.866	
12,700.0	6,249.0	12,622.0	6,130.0	131.3	132.3	-83.14	6,922.9	-633.1	996.7	735.2	261.49	3.812	
12,703.3	6,249.0	12,625.4	6,130.0	131.4	132.3	-83.14	6,926.3	-633.1	996.7	735.1	261.61	3.810	
12,724.1	6,249.0	12,634.8	6,130.0	131.8	132.5	-83.14	6,935.7	-633.1	996.7	734.6	262.15	3.802 SF	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #10E-0304B
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Reference Site:</b>	S10-T10N-R58W	<b>MD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #10E-0304B	<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 #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S10-T10N-R58W - Razor #10E-0302B - HZ - Plan #1													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-66.1	66.1					
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-66.1	66.1	65.9	0.19	353.562		
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-66.1	66.1	65.5	0.64	103.871		
300.0	300.0	300.0	300.0	0.5	0.5	-90.00	0.0	-66.1	66.1	65.0	1.09	60.878		
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	0.0	-66.1	66.1	64.6	1.54	43.057		
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	0.0	-66.1	66.1	64.1	1.99	33.307		
600.0	600.0	600.0	600.0	1.2	1.2	-90.00	0.0	-66.1	66.1	63.7	2.43	27.157		
700.0	700.0	700.0	700.0	1.4	1.4	-90.00	0.0	-66.1	66.1	63.2	2.88	22.924		
800.0	800.0	800.0	800.0	1.7	1.7	-90.00	0.0	-66.1	66.1	62.8	3.33	19.833		
900.0	900.0	900.0	900.0	1.9	1.9	-90.00	0.0	-66.1	66.1	62.3	3.78	17.476		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.00	0.0	-66.1	66.1	61.9	4.23	15.620 CC		
1,100.0	1,100.0	1,099.4	1,099.4	2.3	2.3	-88.55	1.7	-66.5	66.5	61.8	4.68	14.216 ES		
1,200.0	1,200.0	1,198.7	1,198.5	2.6	2.6	-84.34	6.7	-67.7	68.0	62.9	5.13	13.265		
1,300.0	1,300.0	1,298.5	1,298.1	2.8	2.8	-98.55	13.5	-69.2	70.8	65.2	5.58	12.693		
1,400.0	1,399.8	1,398.4	1,397.8	3.0	3.0	-97.50	20.3	-70.8	74.3	68.2	6.03	12.314		
1,500.0	1,499.6	1,498.3	1,497.4	3.2	3.3	-97.89	27.1	-72.3	78.0	71.5	6.49	12.013		
1,600.0	1,599.3	1,598.3	1,597.1	3.5	3.5	-98.24	33.9	-73.9	81.7	74.7	6.96	11.741		
1,700.0	1,699.1	1,698.2	1,696.8	3.7	3.7	-98.56	40.7	-75.4	85.4	78.0	7.43	11.495		
1,800.0	1,798.9	1,798.1	1,796.5	3.9	4.0	-98.85	47.5	-77.0	89.1	81.2	7.91	11.272		
1,900.0	1,898.6	1,898.1	1,896.2	4.2	4.2	-99.12	54.3	-78.6	92.8	84.5	8.39	11.070		
2,000.0	1,998.4	1,998.0	1,995.9	4.4	4.5	-99.37	61.1	-80.1	96.6	87.7	8.87	10.886		
2,100.0	2,098.1	2,097.9	2,095.6	4.7	4.7	-99.60	67.9	-81.7	100.3	90.9	9.36	10.718		
2,200.0	2,197.9	2,197.8	2,195.3	4.9	5.0	-99.81	74.6	-83.2	104.0	94.2	9.85	10.565		
2,300.0	2,297.6	2,297.8	2,294.9	5.2	5.2	-100.01	81.4	-84.8	107.7	97.4	10.34	10.424		
2,400.0	2,397.4	2,397.7	2,394.6	5.4	5.5	-100.20	88.2	-86.4	111.5	100.6	10.83	10.295		
2,500.0	2,497.2	2,497.6	2,494.3	5.6	5.7	-100.37	95.0	-87.9	115.2	103.9	11.32	10.175		
2,600.0	2,596.9	2,597.6	2,594.0	5.9	6.0	-100.53	101.8	-89.5	118.9	107.1	11.82	10.065		
2,700.0	2,696.7	2,697.5	2,693.7	6.1	6.2	-100.69	108.6	-91.0	122.7	110.4	12.31	9.962		
2,800.0	2,796.4	2,797.4	2,793.4	6.4	6.5	-100.83	115.4	-92.6	126.4	113.6	12.81	9.867		
2,900.0	2,896.2	2,897.4	2,893.1	6.6	6.7	-100.97	122.2	-94.2	130.1	116.8	13.31	9.779		
3,000.0	2,995.9	2,997.3	2,992.7	6.9	7.0	-101.09	129.0	-95.7	133.9	120.1	13.81	9.696		
3,100.0	3,095.7	3,097.2	3,092.4	7.1	7.2	-101.21	135.8	-97.3	137.6	123.3	14.31	9.618		
3,200.0	3,195.4	3,197.1	3,192.1	7.4	7.5	-101.33	142.6	-98.8	141.3	126.5	14.81	9.546		
3,300.0	3,295.2	3,297.1	3,291.8	7.6	7.7	-101.44	149.4	-100.4	145.1	129.8	15.31	9.478		
3,400.0	3,395.0	3,397.0	3,391.5	7.9	8.0	-101.54	156.2	-101.9	148.8	133.0	15.81	9.414		
3,500.0	3,494.7	3,496.9	3,491.2	8.2	8.2	-101.64	163.0	-103.5	152.6	136.2	16.31	9.353		
3,600.0	3,594.5	3,596.9	3,590.9	8.4	8.5	-101.73	169.8	-105.1	156.3	139.5	16.81	9.296		
3,700.0	3,694.2	3,696.8	3,690.5	8.7	8.8	-101.82	176.6	-106.6	160.0	142.7	17.31	9.242		
3,800.0	3,794.0	3,796.7	3,790.2	8.9	9.0	-101.91	183.4	-108.2	163.8	146.0	17.82	9.191		
3,900.0	3,893.7	3,896.6	3,889.9	9.2	9.3	-101.99	190.1	-109.7	167.5	149.2	18.32	9.143		
4,000.0	3,993.5	3,996.6	3,989.6	9.4	9.5	-102.07	196.9	-111.3	171.2	152.4	18.82	9.097		
4,100.0	4,093.3	4,096.5	4,089.3	9.7	9.8	-102.14	203.7	-112.9	175.0	155.7	19.33	9.053		
4,200.0	4,193.0	4,196.4	4,189.0	9.9	10.0	-102.21	210.5	-114.4	178.7	158.9	19.83	9.012		
4,300.0	4,292.8	4,296.4	4,288.7	10.2	10.3	-102.28	217.3	-116.0	182.5	162.1	20.34	8.972		
4,400.0	4,392.5	4,396.3	4,388.3	10.4	10.5	-102.35	224.1	-117.5	186.2	165.4	20.84	8.935		
4,500.0	4,492.3	4,496.2	4,488.0	10.7	10.8	-102.41	230.9	-119.1	189.9	168.6	21.35	8.899		
4,600.0	4,592.0	4,596.2	4,587.7	10.9	11.0	-102.47	237.7	-120.6	193.7	171.8	21.85	8.864		
4,700.0	4,691.8	4,696.1	4,687.4	11.2	11.3	-102.53	244.5	-122.2	197.4	175.1	22.36	8.831		
4,800.0	4,791.5	4,796.0	4,787.1	11.4	11.6	-102.58	251.3	-123.8	201.2	178.3	22.86	8.800		
4,900.0	4,891.3	4,895.9	4,886.8	11.7	11.8	-102.64	258.1	-125.3	204.9	181.5	23.37	8.770		
5,000.0	4,991.1	4,995.9	4,986.5	12.0	12.1	-102.69	264.9	-126.9	208.7	184.8	23.87	8.741		
5,100.0	5,090.8	5,095.8	5,086.2	12.2	12.3	-102.74	271.7	-128.4	212.4	188.0	24.38	8.713		

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 #10E-0304B
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Reference Site:</b>	S10-T10N-R58W	<b>MD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #10E-0304B	<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 #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S10-T10N-R58W - Razor #10E-0302B - HZ - Plan #1												Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,190.6	5,195.7	5,185.8	12.5	12.6	-102.79	278.5	-130.0	216.1	191.3	24.88	8.686	
5,300.0	5,290.3	5,295.7	5,285.5	12.7	12.8	-102.84	285.3	-131.6	219.9	194.5	25.39	8.661	
5,400.0	5,390.1	5,395.6	5,385.2	13.0	13.1	-102.88	292.1	-133.1	223.6	197.7	25.89	8.636	
5,500.0	5,489.8	5,495.5	5,484.9	13.2	13.3	-102.93	298.9	-134.7	227.4	201.0	26.40	8.612	
5,600.0	5,589.6	5,595.5	5,584.6	13.5	13.6	-102.97	305.7	-136.2	231.1	204.2	26.91	8.589	
5,700.0	5,689.4	5,695.4	5,684.3	13.7	13.9	-103.01	312.4	-137.8	234.9	207.4	27.41	8.567	
5,800.0	5,789.1	5,792.9	5,781.5	14.0	14.1	-102.98	319.3	-139.4	238.8	210.9	27.91	8.556	
5,900.0	5,886.6	5,879.9	5,867.0	14.4	14.4	-102.49	335.0	-143.0	249.3	220.8	28.50	8.747	
6,000.0	5,978.4	5,965.6	5,947.3	14.9	14.8	-101.51	363.7	-149.6	268.9	239.6	29.30	9.177	
6,100.0	6,060.9	6,050.0	6,020.7	15.5	15.3	-100.01	404.2	-158.8	296.6	266.3	30.34	9.775	
6,200.0	6,131.2	6,131.2	6,084.1	16.4	15.9	-97.96	453.5	-170.2	331.5	299.9	31.68	10.464	
6,300.0	6,186.7	6,211.2	6,138.1	17.4	16.7	-95.42	510.9	-183.3	372.4	339.1	33.32	11.176	
6,400.0	6,225.3	6,289.8	6,181.8	18.6	17.5	-92.47	574.5	-197.9	417.9	382.7	35.23	11.863	
6,500.0	6,245.6	6,368.0	6,215.0	19.9	18.5	-89.25	643.4	-213.7	466.6	429.3	37.33	12.500	
6,600.0	6,248.7	6,447.8	6,237.6	21.3	19.5	-88.59	717.9	-230.8	516.9	477.2	39.65	13.037	
6,700.0	6,248.7	6,534.2	6,248.7	22.6	20.7	-90.00	801.3	-249.9	564.2	522.1	42.19	13.375	
6,800.0	6,248.7	6,655.5	6,249.2	24.0	22.4	-90.05	920.1	-274.6	605.4	560.1	45.26	13.375	
6,900.0	6,248.7	6,796.9	6,249.2	25.5	24.4	-90.05	1,060.2	-294.0	635.1	586.4	48.75	13.029	
7,000.0	6,248.7	6,945.5	6,249.2	26.9	26.7	-90.04	1,208.5	-303.1	652.5	599.9	52.54	12.419	
7,100.0	6,248.7	7,060.0	6,249.2	28.5	28.4	-90.04	1,323.0	-303.6	658.8	602.9	55.92	11.781	
7,200.0	6,248.7	7,160.0	6,249.2	30.0	30.1	-90.04	1,422.9	-303.6	659.9	600.8	59.12	11.162	
7,300.0	6,248.7	7,260.0	6,249.2	31.6	31.8	-90.04	1,522.9	-303.6	659.9	597.5	62.42	10.571	
7,400.0	6,248.7	7,360.0	6,249.2	33.2	33.4	-90.04	1,622.9	-303.6	659.9	594.1	65.79	10.030	
7,500.0	6,248.7	7,460.0	6,249.2	34.9	35.2	-90.04	1,722.9	-303.6	659.9	590.7	69.20	9.535	
7,600.0	6,248.8	7,560.0	6,249.2	36.6	36.9	-90.04	1,822.9	-303.6	659.9	587.2	72.66	9.082	
7,700.0	6,248.8	7,660.0	6,249.2	38.3	38.7	-90.04	1,922.9	-303.6	659.9	583.7	76.16	8.665	
7,800.0	6,248.8	7,760.0	6,249.2	40.0	40.4	-90.04	2,022.9	-303.6	659.9	580.2	79.68	8.281	
7,900.0	6,248.8	7,860.0	6,249.2	41.7	42.2	-90.04	2,122.9	-303.5	659.9	576.6	83.24	7.928	
8,000.0	6,248.8	7,960.0	6,249.2	43.5	44.0	-90.04	2,222.9	-303.5	659.9	573.1	86.82	7.601	
8,100.0	6,248.8	8,060.0	6,249.2	45.3	45.8	-90.03	2,322.9	-303.5	659.9	569.5	90.42	7.298	
8,200.0	6,248.8	8,160.0	6,249.2	47.0	47.6	-90.03	2,422.9	-303.5	659.9	565.8	94.04	7.017	
8,300.0	6,248.8	8,260.0	6,249.2	48.8	49.5	-90.03	2,522.9	-303.5	659.9	562.2	97.68	6.756	
8,400.0	6,248.8	8,360.0	6,249.2	50.6	51.3	-90.03	2,622.9	-303.5	659.9	558.5	101.33	6.512	
8,500.0	6,248.8	8,460.0	6,249.2	52.4	53.1	-90.03	2,722.9	-303.5	659.9	554.9	105.00	6.285	
8,600.0	6,248.8	8,560.0	6,249.2	54.3	55.0	-90.03	2,822.9	-303.5	659.9	551.2	108.67	6.072	
8,700.0	6,248.8	8,660.0	6,249.2	56.1	56.8	-90.03	2,922.9	-303.5	659.9	547.5	112.36	5.873	
8,800.0	6,248.8	8,760.0	6,249.2	57.9	58.7	-90.03	3,022.9	-303.5	659.9	543.8	116.06	5.686	
8,900.0	6,248.8	8,860.0	6,249.1	59.7	60.5	-90.03	3,122.9	-303.5	659.9	540.1	119.77	5.509	
9,000.0	6,248.8	8,960.0	6,249.1	61.6	62.4	-90.03	3,222.9	-303.5	659.9	536.4	123.49	5.344	
9,100.0	6,248.8	9,060.0	6,249.1	63.4	64.2	-90.03	3,322.9	-303.5	659.9	532.7	127.21	5.187	
9,200.0	6,248.8	9,160.0	6,249.1	65.3	66.1	-90.03	3,422.9	-303.5	659.9	528.9	130.94	5.039	
9,300.0	6,248.8	9,260.0	6,249.1	67.1	68.0	-90.03	3,522.9	-303.5	659.9	525.2	134.68	4.900	
9,400.0	6,248.8	9,360.0	6,249.1	69.0	69.9	-90.03	3,622.9	-303.5	659.9	521.5	138.42	4.767	
9,500.0	6,248.8	9,460.0	6,249.1	70.9	71.7	-90.02	3,722.9	-303.5	659.9	517.7	142.17	4.641	
9,600.0	6,248.8	9,560.0	6,249.1	72.7	73.6	-90.02	3,822.9	-303.5	659.9	514.0	145.93	4.522	
9,700.0	6,248.9	9,660.0	6,249.1	74.6	75.5	-90.02	3,922.9	-303.5	659.9	510.2	149.69	4.408	
9,800.0	6,248.9	9,760.0	6,249.1	76.5	77.4	-90.02	4,022.9	-303.5	659.9	506.4	153.45	4.300	
9,900.0	6,248.9	9,860.0	6,249.1	78.3	79.3	-90.02	4,122.9	-303.5	659.9	502.7	157.21	4.197	
10,000.0	6,248.9	9,960.0	6,249.1	80.2	81.1	-90.02	4,222.9	-303.5	659.9	498.9	160.98	4.099	
10,100.0	6,248.9	10,060.0	6,249.1	82.1	83.0	-90.02	4,322.9	-303.5	659.9	495.1	164.76	4.005	
10,200.0	6,248.9	10,160.0	6,249.1	84.0	84.9	-90.02	4,422.9	-303.5	659.9	491.3	168.53	3.915	
10,300.0	6,248.9	10,260.0	6,249.1	85.8	86.8	-90.02	4,522.9	-303.5	659.9	487.6	172.31	3.830	

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 #10E-0304B
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Reference Site:</b>	S10-T10N-R58W	<b>MD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #10E-0304B	<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 #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S10-T10N-R58W - Razor #10E-0302B - 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			
10,400.0	6,248.9	10,360.0	6,249.1	87.7	88.7	-90.02	4,622.9	-303.5	659.9	483.8	176.09	3.747		
10,500.0	6,248.9	10,460.0	6,249.1	89.6	90.6	-90.02	4,722.9	-303.5	659.9	480.0	179.88	3.668		
10,600.0	6,248.9	10,560.0	6,249.1	91.5	92.5	-90.02	4,822.9	-303.5	659.9	476.2	183.67	3.593		
10,700.0	6,248.9	10,660.0	6,249.1	93.4	94.4	-90.02	4,922.9	-303.5	659.9	472.4	187.46	3.520		
10,800.0	6,248.9	10,760.0	6,249.1	95.3	96.3	-90.01	5,022.9	-303.5	659.9	468.6	191.25	3.450		
10,900.0	6,248.9	10,860.0	6,249.1	97.2	98.2	-90.01	5,122.9	-303.5	659.9	464.8	195.04	3.383		
11,000.0	6,248.9	10,960.0	6,249.1	99.1	100.1	-90.01	5,222.9	-303.4	659.9	461.0	198.84	3.319		
11,100.0	6,248.9	11,060.0	6,249.1	100.9	102.0	-90.01	5,322.9	-303.4	659.9	457.2	202.63	3.257		
11,200.0	6,248.9	11,160.0	6,249.1	102.8	103.9	-90.01	5,422.9	-303.4	659.9	453.4	206.43	3.197		
11,300.0	6,248.9	11,260.0	6,249.1	104.7	105.8	-90.01	5,522.9	-303.4	659.9	449.6	210.23	3.139		
11,400.0	6,248.9	11,360.0	6,249.1	106.6	107.7	-90.01	5,622.9	-303.4	659.9	445.8	214.04	3.083		
11,500.0	6,248.9	11,460.0	6,249.0	108.5	109.6	-90.01	5,722.9	-303.4	659.9	442.0	217.84	3.029		
11,600.0	6,248.9	11,560.0	6,249.0	110.4	111.5	-90.01	5,822.9	-303.4	659.9	438.2	221.64	2.977		
11,700.0	6,249.0	11,660.0	6,249.0	112.3	113.4	-90.01	5,922.9	-303.4	659.9	434.4	225.45	2.927		
11,800.0	6,249.0	11,760.0	6,249.0	114.2	115.3	-90.01	6,022.9	-303.4	659.9	430.6	229.26	2.878		
11,900.0	6,249.0	11,860.0	6,249.0	116.1	117.2	-90.01	6,122.9	-303.4	659.9	426.8	233.07	2.831		
12,000.0	6,249.0	11,960.0	6,249.0	118.0	119.1	-90.01	6,222.9	-303.4	659.9	423.0	236.88	2.786		
12,100.0	6,249.0	12,060.0	6,249.0	119.9	121.0	-90.00	6,322.9	-303.4	659.9	419.2	240.69	2.742		
12,200.0	6,249.0	12,160.0	6,249.0	121.8	122.9	-90.00	6,422.9	-303.4	659.9	415.4	244.50	2.699		
12,300.0	6,249.0	12,260.0	6,249.0	123.7	124.8	-90.00	6,522.9	-303.4	659.9	411.6	248.31	2.657		
12,400.0	6,249.0	12,360.0	6,249.0	125.6	126.7	-90.00	6,622.9	-303.4	659.9	407.8	252.13	2.617		
12,500.0	6,249.0	12,460.0	6,249.0	127.5	128.6	-90.00	6,722.9	-303.4	659.9	403.9	255.94	2.578		
12,600.0	6,249.0	12,560.0	6,249.0	129.4	130.5	-90.00	6,822.9	-303.4	659.9	400.1	259.76	2.540		
12,700.0	6,249.0	12,660.0	6,249.0	131.3	132.4	-90.00	6,922.9	-303.4	659.9	396.3	263.57	2.504		
12,706.2	6,249.0	12,666.2	6,249.0	131.5	132.6	-90.00	6,929.1	-303.4	659.9	396.1	263.81	2.501		
12,724.1	6,249.0	12,675.7	6,249.0	131.8	132.7	-90.00	6,938.6	-303.4	659.9	395.6	264.33	2.497 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #10E-0304B
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Reference Site:</b>	S10-T10N-R58W	<b>MD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #10E-0304B	<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 #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S10-T10N-R58W - Razor #10E-0303A - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-33.2	33.2					
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-33.2	33.2	33.0	0.19	177.521		
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-33.2	33.2	32.6	0.64	52.153		
300.0	300.0	300.0	300.0	0.5	0.5	-90.00	0.0	-33.2	33.2	32.1	1.09	30.566		
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	0.0	-33.2	33.2	31.7	1.54	21.618		
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	0.0	-33.2	33.2	31.2	1.99	16.723		
600.0	600.0	600.0	600.0	1.2	1.2	-90.00	0.0	-33.2	33.2	30.8	2.43	13.635		
700.0	700.0	700.0	700.0	1.4	1.4	-90.00	0.0	-33.2	33.2	30.3	2.88	11.510		
800.0	800.0	800.0	800.0	1.7	1.7	-90.00	0.0	-33.2	33.2	29.9	3.33	9.958		
900.0	900.0	900.0	900.0	1.9	1.9	-90.00	0.0	-33.2	33.2	29.4	3.78	8.775		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.00	0.0	-33.2	33.2	29.0	4.23	7.843		
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	-90.00	0.0	-33.2	33.2	28.5	4.68	7.090		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-86.98	1.7	-33.1	33.1	28.0	5.13	6.456		
1,204.0	1,204.0	1,204.1	1,204.0	2.6	2.6	-104.98	1.9	-33.1	33.1	28.0	5.15	6.434 CC, ES		
1,300.0	1,300.0	1,299.9	1,299.8	2.8	2.8	-99.17	7.0	-32.7	33.7	28.1	5.58	6.042		
1,400.0	1,399.8	1,399.9	1,399.5	3.0	3.0	-96.24	13.9	-32.3	35.2	29.2	6.03	5.842		
1,500.0	1,499.6	1,499.9	1,499.2	3.2	3.2	-96.29	20.9	-31.8	37.0	30.5	6.49	5.699		
1,600.0	1,599.3	1,599.9	1,599.0	3.5	3.5	-96.33	27.8	-31.3	38.7	31.8	6.95	5.569		
1,700.0	1,699.1	1,699.8	1,698.7	3.7	3.7	-96.36	34.8	-30.9	40.5	33.0	7.42	5.451		
1,800.0	1,798.9	1,799.8	1,798.5	3.9	4.0	-96.40	41.8	-30.4	42.2	34.3	7.90	5.344		
1,900.0	1,898.6	1,899.8	1,898.2	4.2	4.2	-96.43	48.7	-29.9	44.0	35.6	8.38	5.246		
2,000.0	1,998.4	1,999.8	1,997.9	4.4	4.4	-96.46	55.7	-29.5	45.7	36.8	8.86	5.157		
2,100.0	2,098.1	2,099.8	2,097.7	4.7	4.7	-96.49	62.6	-29.0	47.5	38.1	9.35	5.075		
2,200.0	2,197.9	2,199.8	2,197.4	4.9	4.9	-96.51	69.6	-28.5	49.2	39.4	9.84	5.000		
2,300.0	2,297.6	2,299.8	2,297.2	5.2	5.2	-96.53	76.5	-28.1	51.0	40.6	10.33	4.932		
2,400.0	2,397.4	2,399.7	2,396.9	5.4	5.4	-96.56	83.5	-27.6	52.7	41.9	10.83	4.868		
2,500.0	2,497.2	2,499.7	2,496.6	5.6	5.7	-96.58	90.5	-27.1	54.5	43.1	11.32	4.810		
2,600.0	2,596.9	2,599.7	2,596.4	5.9	5.9	-96.59	97.4	-26.7	56.2	44.4	11.82	4.756		
2,700.0	2,696.7	2,699.7	2,696.1	6.1	6.2	-96.61	104.4	-26.2	58.0	45.6	12.32	4.706		
2,800.0	2,796.4	2,799.7	2,795.9	6.4	6.4	-96.63	111.3	-25.7	59.7	46.9	12.82	4.659		
2,900.0	2,896.2	2,899.7	2,895.6	6.6	6.7	-96.65	118.3	-25.3	61.5	48.1	13.32	4.615		
3,000.0	2,995.9	2,999.6	2,995.3	6.9	6.9	-96.66	125.3	-24.8	63.2	49.4	13.82	4.575		
3,100.0	3,095.7	3,099.6	3,095.1	7.1	7.2	-96.67	132.2	-24.3	65.0	50.6	14.32	4.537		
3,200.0	3,195.4	3,199.6	3,194.8	7.4	7.4	-96.69	139.2	-23.9	66.7	51.9	14.82	4.501		
3,300.0	3,295.2	3,299.6	3,294.6	7.6	7.7	-96.70	146.1	-23.4	68.5	53.1	15.32	4.467		
3,400.0	3,395.0	3,399.6	3,394.3	7.9	7.9	-96.71	153.1	-22.9	70.2	54.4	15.83	4.436		
3,500.0	3,494.7	3,499.6	3,494.0	8.2	8.2	-96.72	160.1	-22.5	72.0	55.6	16.33	4.406		
3,600.0	3,594.5	3,599.6	3,593.8	8.4	8.5	-96.74	167.0	-22.0	73.7	56.9	16.84	4.378		
3,700.0	3,694.2	3,699.5	3,693.5	8.7	8.7	-96.75	174.0	-21.6	75.5	58.1	17.34	4.351		
3,800.0	3,794.0	3,799.5	3,793.3	8.9	9.0	-96.76	180.9	-21.1	77.2	59.4	17.85	4.326		
3,900.0	3,893.7	3,899.5	3,893.0	9.2	9.2	-96.77	187.9	-20.6	79.0	60.6	18.35	4.302		
4,000.0	3,993.5	3,999.5	3,992.8	9.4	9.5	-96.77	194.8	-20.2	80.7	61.8	18.86	4.280		
4,100.0	4,093.3	4,099.5	4,092.5	9.7	9.7	-96.78	201.8	-19.7	82.5	63.1	19.36	4.258		
4,200.0	4,193.0	4,199.5	4,192.2	9.9	10.0	-96.79	208.8	-19.2	84.2	64.3	19.87	4.238		
4,300.0	4,292.8	4,299.4	4,292.0	10.2	10.2	-96.80	215.7	-18.8	86.0	65.6	20.38	4.218		
4,400.0	4,392.5	4,399.4	4,391.7	10.4	10.5	-96.81	222.7	-18.3	87.7	66.8	20.88	4.199		
4,500.0	4,492.3	4,499.4	4,491.5	10.7	10.7	-96.81	229.6	-17.8	89.5	68.1	21.39	4.182		
4,600.0	4,592.0	4,599.4	4,591.2	10.9	11.0	-96.82	236.6	-17.4	91.2	69.3	21.90	4.165		
4,700.0	4,691.8	4,699.4	4,690.9	11.2	11.2	-96.83	243.6	-16.9	93.0	70.5	22.41	4.148		
4,800.0	4,791.5	4,799.4	4,790.7	11.4	11.5	-96.84	250.5	-16.4	94.7	71.8	22.92	4.133		
4,900.0	4,891.3	4,899.4	4,890.4	11.7	11.8	-96.84	257.5	-16.0	96.5	73.0	23.42	4.118		
5,000.0	4,991.1	4,999.3	4,990.2	12.0	12.0	-96.85	264.4	-15.5	98.2	74.3	23.93	4.103		

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 #10E-0304B
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Reference Site:</b>	S10-T10N-R58W	<b>MD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #10E-0304B	<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 #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S10-T10N-R58W - Razor #10E-0303A - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
5,100.0	5,090.8	5,099.3	5,089.9	12.2	12.3	-96.85	271.4	-15.0	99.9	75.5	24.44	4.090		
5,200.0	5,190.6	5,199.3	5,189.6	12.5	12.5	-96.86	278.4	-14.6	101.7	76.8	24.95	4.076		
5,300.0	5,290.3	5,299.3	5,289.4	12.7	12.8	-96.87	285.3	-14.1	103.4	78.0	25.46	4.064		
5,400.0	5,390.1	5,399.3	5,389.1	13.0	13.0	-96.87	292.3	-13.6	105.2	79.2	25.97	4.051		
5,500.0	5,489.8	5,499.3	5,488.9	13.2	13.3	-96.88	299.2	-13.2	106.9	80.5	26.47	4.040		
5,600.0	5,589.6	5,599.2	5,588.6	13.5	13.5	-96.88	306.2	-12.7	108.7	81.7	26.98	4.028		
5,700.0	5,689.4	5,698.0	5,686.9	13.7	13.8	-96.02	314.7	-12.1	110.7	83.2	27.50	4.025		
5,800.0	5,789.1	5,792.2	5,778.4	14.0	14.2	-88.20	337.2	-10.6	116.1	88.1	28.08	4.136		
5,900.0	5,886.6	5,882.4	5,860.6	14.4	14.6	-79.23	373.6	-8.2	128.5	99.7	28.72	4.473		
6,000.0	5,978.4	5,969.4	5,933.0	14.9	15.2	-72.63	421.7	-5.0	146.0	116.6	29.39	4.968		
6,100.0	6,060.9	6,053.8	5,994.5	15.5	15.9	-68.17	479.2	-1.1	166.7	136.6	30.06	5.544		
6,200.0	6,131.2	6,136.0	6,044.7	16.4	16.7	-65.34	544.0	3.2	188.9	158.0	30.84	6.124		
6,300.0	6,186.7	6,216.5	6,083.4	17.4	17.6	-63.71	614.3	7.9	211.6	179.8	31.88	6.638		
6,400.0	6,225.3	6,300.0	6,111.6	18.6	18.6	-63.02	692.7	13.2	234.3	200.9	33.40	7.015		
6,500.0	6,245.6	6,374.7	6,125.9	19.9	19.6	-62.80	765.7	18.1	256.1	220.9	35.28	7.260		
6,600.0	6,248.7	6,454.9	6,129.8	21.3	20.7	-63.96	845.6	23.3	277.3	239.4	37.88	7.319		
6,700.0	6,248.7	6,540.4	6,129.8	22.6	21.9	-65.94	931.1	26.4	298.4	257.7	40.74	7.325		
6,800.0	6,248.7	6,634.5	6,129.8	24.0	23.3	-67.67	1,025.2	26.5	318.1	274.3	43.76	7.268		
6,900.0	6,248.7	6,733.1	6,129.8	25.5	24.8	-68.91	1,123.8	26.5	333.4	286.5	46.84	7.117		
7,000.0	6,248.7	6,832.5	6,129.8	26.9	26.4	-69.69	1,223.1	26.6	343.9	294.0	49.85	6.899		
7,100.0	6,248.7	6,932.3	6,129.8	28.5	28.1	-70.09	1,323.0	26.6	349.5	296.8	52.75	6.626		
7,200.0	6,248.7	7,032.3	6,129.8	30.0	29.8	-70.16	1,422.9	26.6	350.5	294.9	55.65	6.299		
7,300.0	6,248.7	7,132.3	6,129.8	31.6	31.5	-70.16	1,522.9	26.6	350.5	291.7	58.82	5.960		
7,400.0	6,248.7	7,232.3	6,129.8	33.2	33.2	-70.16	1,622.9	26.6	350.5	288.5	62.04	5.650		
7,500.0	6,248.7	7,332.3	6,129.8	34.9	35.0	-70.16	1,722.9	26.6	350.5	285.2	65.30	5.368		
7,600.0	6,248.8	7,432.3	6,129.8	36.6	36.7	-70.16	1,822.9	26.6	350.5	281.9	68.61	5.109		
7,700.0	6,248.8	7,532.3	6,129.8	38.3	38.5	-70.16	1,922.9	26.6	350.5	278.6	71.94	4.872		
7,800.0	6,248.8	7,632.3	6,129.8	40.0	40.3	-70.16	2,022.9	26.6	350.5	275.2	75.31	4.655		
7,900.0	6,248.8	7,732.3	6,129.8	41.7	42.1	-70.16	2,122.9	26.6	350.5	271.8	78.70	4.454		
8,000.0	6,248.8	7,832.3	6,129.8	43.5	43.9	-70.16	2,222.9	26.6	350.5	268.4	82.11	4.269		
8,100.0	6,248.8	7,932.3	6,129.8	45.3	45.8	-70.16	2,322.9	26.6	350.5	265.0	85.55	4.098		
8,200.0	6,248.8	8,032.3	6,129.8	47.0	47.6	-70.16	2,422.9	26.6	350.5	261.5	89.00	3.939		
8,300.0	6,248.8	8,132.3	6,129.8	48.8	49.4	-70.16	2,522.9	26.6	350.5	258.1	92.46	3.791		
8,400.0	6,248.8	8,232.3	6,129.8	50.6	51.3	-70.16	2,622.9	26.6	350.5	254.6	95.94	3.654		
8,500.0	6,248.8	8,332.3	6,129.8	52.4	53.1	-70.16	2,722.9	26.6	350.5	251.1	99.43	3.525		
8,600.0	6,248.8	8,432.3	6,129.8	54.3	55.0	-70.16	2,822.9	26.6	350.5	247.6	102.93	3.405		
8,700.0	6,248.8	8,532.3	6,129.8	56.1	56.9	-70.16	2,922.9	26.6	350.5	244.1	106.44	3.293		
8,800.0	6,248.8	8,632.3	6,129.8	57.9	58.7	-70.16	3,022.9	26.6	350.5	240.6	109.96	3.188		
8,900.0	6,248.8	8,732.3	6,129.9	59.7	60.6	-70.16	3,122.9	26.6	350.5	237.0	113.49	3.089		
9,000.0	6,248.8	8,832.3	6,129.9	61.6	62.5	-70.16	3,222.9	26.6	350.5	233.5	117.03	2.995		
9,100.0	6,248.8	8,932.3	6,129.9	63.4	64.3	-70.16	3,322.9	26.7	350.5	230.0	120.57	2.907		
9,200.0	6,248.8	9,032.3	6,129.9	65.3	66.2	-70.16	3,422.9	26.7	350.5	226.4	124.12	2.824		
9,300.0	6,248.8	9,132.3	6,129.9	67.1	68.1	-70.16	3,522.9	26.7	350.5	222.8	127.67	2.745		
9,400.0	6,248.8	9,232.3	6,129.9	69.0	70.0	-70.16	3,622.9	26.7	350.5	219.3	131.23	2.671		
9,500.0	6,248.8	9,332.3	6,129.9	70.9	71.9	-70.16	3,722.9	26.7	350.5	215.7	134.80	2.600		
9,600.0	6,248.8	9,432.3	6,129.9	72.7	73.8	-70.16	3,822.9	26.7	350.5	212.2	138.37	2.533		
9,700.0	6,248.9	9,532.3	6,129.9	74.6	75.6	-70.16	3,922.9	26.7	350.5	208.6	141.94	2.469		
9,800.0	6,248.9	9,632.3	6,129.9	76.5	77.5	-70.16	4,022.9	26.7	350.5	205.0	145.52	2.409		
9,900.0	6,248.9	9,732.3	6,129.9	78.3	79.4	-70.16	4,122.9	26.7	350.5	201.4	149.10	2.351		
10,000.0	6,248.9	9,832.3	6,129.9	80.2	81.3	-70.16	4,222.9	26.7	350.5	197.8	152.68	2.296		
10,100.0	6,248.9	9,932.3	6,129.9	82.1	83.2	-70.16	4,322.9	26.7	350.5	194.2	156.27	2.243		
10,200.0	6,248.9	10,032.3	6,129.9	84.0	85.1	-70.16	4,422.9	26.7	350.5	190.7	159.85	2.193		

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 #10E-0304B
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Reference Site:</b>	S10-T10N-R58W	<b>MD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #10E-0304B	<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 #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S10-T10N-R58W - Razor #10E-0303A - 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			
10,300.0	6,248.9	10,132.3	6,129.9	85.8	87.0	-70.16	4,522.9	26.7	350.5	187.1	163.45	2.145		
10,400.0	6,248.9	10,232.3	6,129.9	87.7	88.9	-70.16	4,622.9	26.7	350.5	183.5	167.04	2.098		
10,500.0	6,248.9	10,332.3	6,129.9	89.6	90.8	-70.16	4,722.9	26.7	350.5	179.9	170.64	2.054		
10,600.0	6,248.9	10,432.3	6,129.9	91.5	92.7	-70.16	4,822.9	26.7	350.5	176.3	174.23	2.012		
10,700.0	6,248.9	10,532.3	6,129.9	93.4	94.6	-70.16	4,922.9	26.7	350.5	172.7	177.83	1.971		
10,800.0	6,248.9	10,632.3	6,129.9	95.3	96.5	-70.16	5,022.9	26.7	350.5	169.1	181.44	1.932		
10,900.0	6,248.9	10,732.3	6,129.9	97.2	98.4	-70.16	5,122.9	26.7	350.5	165.5	185.04	1.894		
11,000.0	6,248.9	10,832.3	6,129.9	99.1	100.3	-70.16	5,222.9	26.7	350.5	161.9	188.65	1.858		
11,100.0	6,248.9	10,932.3	6,129.9	100.9	102.2	-70.16	5,322.9	26.7	350.5	158.2	192.25	1.823		
11,200.0	6,248.9	11,032.3	6,129.9	102.8	104.1	-70.16	5,422.9	26.8	350.5	154.6	195.86	1.790		
11,300.0	6,248.9	11,132.3	6,129.9	104.7	106.0	-70.15	5,522.9	26.8	350.5	151.0	199.47	1.757		
11,400.0	6,248.9	11,232.3	6,129.9	106.6	107.9	-70.15	5,622.9	26.8	350.5	147.4	203.09	1.726		
11,500.0	6,248.9	11,332.3	6,130.0	108.5	109.8	-70.15	5,722.9	26.8	350.5	143.8	206.70	1.696		
11,600.0	6,248.9	11,432.3	6,130.0	110.4	111.7	-70.15	5,822.9	26.8	350.5	140.2	210.31	1.667		
11,700.0	6,249.0	11,532.3	6,130.0	112.3	113.6	-70.15	5,922.9	26.8	350.5	136.6	213.93	1.638		
11,800.0	6,249.0	11,632.3	6,130.0	114.2	115.5	-70.15	6,022.9	26.8	350.5	133.0	217.54	1.611		
11,900.0	6,249.0	11,732.3	6,130.0	116.1	117.5	-70.15	6,122.9	26.8	350.5	129.3	221.16	1.585		
12,000.0	6,249.0	11,832.3	6,130.0	118.0	119.4	-70.15	6,222.9	26.8	350.5	125.7	224.78	1.559		
12,100.0	6,249.0	11,932.3	6,130.0	119.9	121.3	-70.15	6,322.9	26.8	350.5	122.1	228.40	1.535		
12,200.0	6,249.0	12,032.3	6,130.0	121.8	123.2	-70.15	6,422.9	26.8	350.5	118.5	232.02	1.511		
12,300.0	6,249.0	12,132.3	6,130.0	123.7	125.1	-70.15	6,522.9	26.8	350.5	114.9	235.64	1.487 Level 3		
12,400.0	6,249.0	12,232.3	6,130.0	125.6	127.0	-70.15	6,622.9	26.8	350.5	111.2	239.26	1.465 Level 3		
12,500.0	6,249.0	12,332.3	6,130.0	127.5	128.9	-70.15	6,722.9	26.8	350.5	107.6	242.88	1.443 Level 3		
12,600.0	6,249.0	12,432.3	6,130.0	129.4	130.8	-70.15	6,822.9	26.8	350.5	104.0	246.51	1.422 Level 3		
12,700.0	6,249.0	12,532.3	6,130.0	131.3	132.7	-70.15	6,922.9	26.8	350.5	100.4	250.13	1.401 Level 3		
12,719.7	6,249.0	12,552.0	6,130.0	131.7	133.1	-70.15	6,942.7	26.8	350.5	99.6	250.85	1.397 Level 3		
12,724.1	6,249.0	12,552.9	6,130.0	131.8	133.1	-70.15	6,943.6	26.8	350.5	99.6	250.94	1.397 Level 3, SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #10E-0304B
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Reference Site:</b>	S10-T10N-R58W	<b>MD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #10E-0304B	<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 #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S10-T10N-R58W - Razor #10E-1501A - HZ - Plan #1													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-127.31	-75.1	-98.5	123.8					
100.0	100.0	100.0	100.0	0.1	0.1	-127.31	-75.1	-98.5	123.8	123.6	0.19	662.147		
200.0	200.0	200.0	200.0	0.3	0.3	-127.31	-75.1	-98.5	123.8	123.2	0.64	194.529		
300.0	300.0	300.0	300.0	0.5	0.5	-127.31	-75.1	-98.5	123.8	122.7	1.09	114.012		
400.0	400.0	400.0	400.0	0.8	0.8	-127.31	-75.1	-98.5	123.8	122.3	1.54	80.636		
500.0	500.0	500.0	500.0	1.0	1.0	-127.31	-75.1	-98.5	123.8	121.8	1.99	62.376		
600.0	600.0	600.0	600.0	1.2	1.2	-127.31	-75.1	-98.5	123.8	121.4	2.43	50.859		
700.0	700.0	700.0	700.0	1.4	1.4	-127.31	-75.1	-98.5	123.8	120.9	2.88	42.932		
800.0	800.0	800.0	800.0	1.7	1.7	-127.31	-75.1	-98.5	123.8	120.5	3.33	37.143		
900.0	900.0	900.0	900.0	1.9	1.9	-127.31	-75.1	-98.5	123.8	120.0	3.78	32.730		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-127.31	-75.1	-98.5	123.8	119.6	4.23	29.254		
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	-127.31	-75.1	-98.5	123.8	119.1	4.68	26.445		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-127.31	-75.1	-98.5	123.8	118.7	5.13	24.129	CC, ES	
1,300.0	1,300.0	1,296.3	1,296.3	2.8	2.8	-146.33	-76.6	-99.1	126.7	121.2	5.54	22.852		
1,400.0	1,399.8	1,392.0	1,391.9	3.0	2.9	-148.47	-81.1	-100.8	135.5	129.6	5.94	22.823	SF	
1,500.0	1,499.6	1,490.7	1,490.3	3.2	3.1	-151.16	-87.5	-103.3	147.7	141.4	6.34	23.291		
1,600.0	1,599.3	1,589.7	1,589.1	3.5	3.3	-153.44	-93.9	-105.8	160.2	153.5	6.75	23.727		
1,700.0	1,699.1	1,688.7	1,687.9	3.7	3.5	-155.40	-100.4	-108.2	172.9	165.8	7.17	24.124		
1,800.0	1,798.9	1,787.8	1,786.7	3.9	3.7	-157.08	-106.8	-110.7	185.8	178.2	7.59	24.485		
1,900.0	1,898.6	1,886.8	1,885.5	4.2	3.9	-158.55	-113.2	-113.2	198.8	190.8	8.01	24.812		
2,000.0	1,998.4	1,985.8	1,984.2	4.4	4.2	-159.84	-119.7	-115.7	212.0	203.5	8.44	25.110		
2,100.0	2,098.1	2,084.9	2,083.0	4.7	4.4	-160.97	-126.1	-118.2	225.2	216.3	8.87	25.382		
2,200.0	2,197.9	2,183.9	2,181.8	4.9	4.6	-161.98	-132.6	-120.7	238.5	229.2	9.31	25.631		
2,300.0	2,297.6	2,282.9	2,280.6	5.2	4.8	-162.88	-139.0	-123.2	251.9	242.2	9.74	25.859		
2,400.0	2,397.4	2,381.9	2,379.4	5.4	5.1	-163.70	-145.5	-125.7	265.3	255.2	10.18	26.069		
2,500.0	2,497.2	2,481.0	2,478.2	5.6	5.3	-164.43	-151.9	-128.1	278.8	268.2	10.62	26.262		
2,600.0	2,596.9	2,580.0	2,577.0	5.9	5.6	-165.10	-158.4	-130.6	292.3	281.3	11.06	26.440		
2,700.0	2,696.7	2,679.0	2,675.7	6.1	5.8	-165.70	-164.8	-133.1	305.9	294.4	11.50	26.604		
2,800.0	2,796.4	2,778.0	2,774.5	6.4	6.1	-166.26	-171.2	-135.6	319.5	307.5	11.94	26.757		
2,900.0	2,896.2	2,877.1	2,873.3	6.6	6.3	-166.77	-177.7	-138.1	333.1	320.7	12.38	26.899		
3,000.0	2,995.9	2,976.1	2,972.1	6.9	6.5	-167.24	-184.1	-140.6	346.7	333.9	12.83	27.031		
3,100.0	3,095.7	3,075.1	3,070.9	7.1	6.8	-167.67	-190.6	-143.1	360.4	347.1	13.27	27.154		
3,200.0	3,195.4	3,174.2	3,169.7	7.4	7.0	-168.07	-197.0	-145.6	374.1	360.3	13.72	27.270		
3,300.0	3,295.2	3,273.2	3,268.5	7.6	7.3	-168.45	-203.5	-148.0	387.7	373.6	14.16	27.378		
3,400.0	3,395.0	3,372.2	3,367.2	7.9	7.5	-168.80	-209.9	-150.5	401.5	386.8	14.61	27.479		
3,500.0	3,494.7	3,471.2	3,466.0	8.2	7.8	-169.12	-216.4	-153.0	415.2	400.1	15.06	27.574		
3,600.0	3,594.5	3,570.3	3,564.8	8.4	8.0	-169.43	-222.8	-155.5	428.9	413.4	15.50	27.664		
3,700.0	3,694.2	3,669.3	3,663.6	8.7	8.3	-169.71	-229.2	-158.0	442.7	426.7	15.95	27.748		
3,800.0	3,794.0	3,768.3	3,762.4	8.9	8.6	-169.98	-235.7	-160.5	456.4	440.0	16.40	27.828		
3,900.0	3,893.7	3,867.3	3,861.2	9.2	8.8	-170.24	-242.1	-163.0	470.2	453.3	16.85	27.904		
4,000.0	3,993.5	3,966.4	3,960.0	9.4	9.1	-170.47	-248.6	-165.4	483.9	466.6	17.30	27.975		
4,100.0	4,093.3	4,065.4	4,058.7	9.7	9.3	-170.70	-255.0	-167.9	497.7	480.0	17.75	28.043		
4,200.0	4,193.0	4,164.4	4,157.5	9.9	9.6	-170.91	-261.5	-170.4	511.5	493.3	18.20	28.107		
4,300.0	4,292.8	4,263.5	4,256.3	10.2	9.8	-171.11	-267.9	-172.9	525.3	506.7	18.65	28.169		
4,400.0	4,392.5	4,362.5	4,355.1	10.4	10.1	-171.31	-274.4	-175.4	539.1	520.0	19.10	28.227		
4,500.0	4,492.3	4,461.5	4,453.9	10.7	10.3	-171.49	-280.8	-177.9	552.9	533.4	19.55	28.282		
4,600.0	4,592.0	4,560.5	4,552.7	10.9	10.6	-171.66	-287.3	-180.4	566.7	546.7	20.00	28.335		
4,700.0	4,691.8	4,659.6	4,651.5	11.2	10.9	-171.83	-293.7	-182.9	580.5	560.1	20.45	28.386		
4,800.0	4,791.5	4,758.6	4,750.2	11.4	11.1	-171.98	-300.1	-185.3	594.4	573.5	20.90	28.434		
4,900.0	4,891.3	4,857.6	4,849.0	11.7	11.4	-172.13	-306.6	-187.8	608.2	586.8	21.35	28.480		
5,000.0	4,991.1	4,956.6	4,947.8	12.0	11.6	-172.28	-313.0	-190.3	622.0	600.2	21.81	28.524		
5,100.0	5,090.8	5,055.7	5,046.6	12.2	11.9	-172.42	-319.5	-192.8	635.9	613.6	22.26	28.567		

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 #10E-0304B
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Reference Site:</b>	S10-T10N-R58W	<b>MD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #10E-0304B	<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 #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S10-T10N-R58W - Razor #10E-1501A - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: 0-ISWWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance							
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	5,190.6	5,154.7	5,145.4	12.5	12.1	-172.55	-325.9	-195.3	649.7	627.0	22.71	28.607		
5,300.0	5,290.3	5,253.7	5,244.2	12.7	12.4	-172.67	-332.4	-197.8	663.5	640.4	23.16	28.646		
5,400.0	5,390.1	5,352.8	5,343.0	13.0	12.7	-172.79	-338.8	-200.3	677.4	653.8	23.62	28.684		
5,500.0	5,489.8	5,451.8	5,441.7	13.2	12.9	-172.91	-345.3	-202.7	691.2	667.1	24.07	28.720		
5,600.0	5,589.6	5,550.8	5,540.5	13.5	13.2	-173.02	-351.7	-205.2	705.1	680.5	24.52	28.754		
5,700.0	5,689.4	5,649.8	5,639.3	13.7	13.4	-173.13	-358.1	-207.7	718.9	693.9	24.97	28.788		
5,800.0	5,789.1	5,700.0	5,689.2	14.0	13.6	-173.12	-363.1	-209.6	736.8	711.6	25.22	29.216		
5,900.0	5,886.6	5,732.2	5,720.8	14.4	13.7	-172.66	-368.7	-211.8	774.9	750.3	24.62	31.479		
6,000.0	5,978.4	5,750.0	5,738.1	14.9	13.8	-171.60	-372.5	-213.3	835.5	812.3	23.20	36.014		
6,100.0	6,060.9	5,800.0	5,785.9	15.5	14.0	-169.97	-386.2	-218.5	913.2	892.0	21.20	43.084		
6,200.0	6,131.2	5,800.0	5,785.9	16.4	14.0	-165.10	-386.2	-218.5	1,002.7	983.7	19.02	52.716		
6,300.0	6,186.7	5,800.0	5,785.9	17.4	14.0	-146.30	-386.2	-218.5	1,099.7	1,078.5	21.20	51.883		
6,400.0	6,225.3	5,800.0	5,785.9	18.6	14.0	-44.03	-386.2	-218.5	1,199.3	1,175.1	24.16	49.644		
6,500.0	6,245.6	5,800.0	5,785.9	19.9	14.0	-14.93	-386.2	-218.5	1,297.5	1,285.3	12.25	105.918		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #10E-0304B
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Reference Site:</b>	S10-T10N-R58W	<b>MD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #10E-0304B	<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 #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S10-T10N-R58W - Razor #10E-1502B - HZ - Plan #1													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-138.98	-75.1	-65.3	99.5					
100.0	100.0	100.0	100.0	0.1	0.1	-138.98	-75.1	-65.3	99.5	99.3	0.19	531.951		
200.0	200.0	200.0	200.0	0.3	0.3	-138.98	-75.1	-65.3	99.5	98.8	0.64	156.279		
300.0	300.0	300.0	300.0	0.5	0.5	-138.98	-75.1	-65.3	99.5	98.4	1.09	91.594		
400.0	400.0	400.0	400.0	0.8	0.8	-138.98	-75.1	-65.3	99.5	97.9	1.54	64.781		
500.0	500.0	500.0	500.0	1.0	1.0	-138.98	-75.1	-65.3	99.5	97.5	1.99	50.111		
600.0	600.0	600.0	600.0	1.2	1.2	-138.98	-75.1	-65.3	99.5	97.0	2.43	40.859		
700.0	700.0	700.0	700.0	1.4	1.4	-138.98	-75.1	-65.3	99.5	96.6	2.88	34.491		
800.0	800.0	800.0	800.0	1.7	1.7	-138.98	-75.1	-65.3	99.5	96.1	3.33	29.840		
900.0	900.0	900.0	900.0	1.9	1.9	-138.98	-75.1	-65.3	99.5	95.7	3.78	26.294		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-138.98	-75.1	-65.3	99.5	95.2	4.23	23.502		
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	-138.98	-75.1	-65.3	99.5	94.8	4.68	21.245 CC, ES		
1,200.0	1,200.0	1,197.1	1,197.1	2.6	2.5	-139.50	-76.7	-65.5	100.9	95.8	5.10	19.790		
1,300.0	1,300.0	1,293.9	1,293.8	2.8	2.7	-159.47	-81.6	-66.2	106.8	101.3	5.49	19.443 SF		
1,400.0	1,399.8	1,393.0	1,392.6	3.0	2.9	-162.04	-88.4	-67.1	117.8	111.9	5.90	19.974		
1,500.0	1,499.6	1,492.0	1,491.4	3.2	3.1	-164.44	-95.2	-68.0	130.7	124.4	6.31	20.715		
1,600.0	1,599.3	1,591.1	1,590.2	3.5	3.3	-166.41	-102.1	-68.9	143.7	137.0	6.72	21.374		
1,700.0	1,699.1	1,690.1	1,689.0	3.7	3.5	-168.05	-108.9	-69.8	156.9	149.8	7.14	21.960		
1,800.0	1,798.9	1,789.1	1,787.8	3.9	3.7	-169.43	-115.8	-70.7	170.2	162.6	7.57	22.483		
1,900.0	1,898.6	1,888.2	1,886.6	4.2	3.9	-170.62	-122.6	-71.6	183.6	175.6	8.00	22.951		
2,000.0	1,998.4	1,987.2	1,985.4	4.4	4.2	-171.64	-129.5	-72.6	197.0	188.6	8.43	23.370		
2,100.0	2,098.1	2,086.2	2,084.2	4.7	4.4	-172.53	-136.3	-73.5	210.5	201.6	8.86	23.749		
2,200.0	2,197.9	2,185.3	2,183.0	4.9	4.6	-173.32	-143.2	-74.4	224.0	214.7	9.30	24.091		
2,300.0	2,297.6	2,284.3	2,281.8	5.2	4.9	-174.01	-150.0	-75.3	237.6	227.9	9.74	24.402		
2,400.0	2,397.4	2,383.3	2,380.5	5.4	5.1	-174.63	-156.9	-76.2	251.2	241.1	10.18	24.685		
2,500.0	2,497.2	2,482.4	2,479.3	5.6	5.4	-175.19	-163.7	-77.1	264.9	254.2	10.62	24.944		
2,600.0	2,596.9	2,581.4	2,578.1	5.9	5.6	-175.69	-170.6	-78.0	278.5	267.5	11.06	25.182		
2,700.0	2,696.7	2,680.5	2,676.9	6.1	5.9	-176.15	-177.4	-78.9	292.2	280.7	11.50	25.400		
2,800.0	2,796.4	2,779.5	2,775.7	6.4	6.1	-176.56	-184.3	-79.9	305.9	293.9	11.95	25.602		
2,900.0	2,896.2	2,878.5	2,874.5	6.6	6.3	-176.94	-191.1	-80.8	319.6	307.2	12.39	25.788		
3,000.0	2,995.9	2,977.6	2,973.3	6.9	6.6	-177.29	-198.0	-81.7	333.3	320.5	12.84	25.961		
3,100.0	3,095.7	3,076.6	3,072.1	7.1	6.8	-177.61	-204.8	-82.6	347.0	333.8	13.29	26.121		
3,200.0	3,195.4	3,175.6	3,170.9	7.4	7.1	-177.90	-211.7	-83.5	360.8	347.0	13.73	26.271		
3,300.0	3,295.2	3,274.7	3,269.7	7.6	7.4	-178.18	-218.5	-84.4	374.5	360.3	14.18	26.411		
3,400.0	3,395.0	3,373.7	3,368.5	7.9	7.6	-178.43	-225.4	-85.3	388.3	373.7	14.63	26.542		
3,500.0	3,494.7	3,472.7	3,467.3	8.2	7.9	-178.67	-232.2	-86.3	402.0	387.0	15.08	26.664		
3,600.0	3,594.5	3,571.8	3,566.1	8.4	8.1	-178.89	-239.1	-87.2	415.8	400.3	15.53	26.779		
3,700.0	3,694.2	3,670.8	3,664.9	8.7	8.4	-179.10	-245.9	-88.1	429.6	413.6	15.98	26.888		
3,800.0	3,794.0	3,769.8	3,763.7	8.9	8.6	-179.29	-252.7	-89.0	443.4	426.9	16.43	26.990		
3,900.0	3,893.7	3,868.9	3,862.5	9.2	8.9	-179.48	-259.6	-89.9	457.2	440.3	16.88	27.086		
4,000.0	3,993.5	3,967.9	3,961.2	9.4	9.1	-179.65	-266.4	-90.8	470.9	453.6	17.33	27.177		
4,100.0	4,093.3	4,066.9	4,060.0	9.7	9.4	-179.81	-273.3	-91.7	484.7	467.0	17.78	27.264		
4,200.0	4,193.0	4,166.0	4,158.8	9.9	9.6	-179.96	-280.1	-92.7	498.5	480.3	18.23	27.345		
4,300.0	4,292.8	4,265.0	4,257.6	10.2	9.9	179.89	-287.0	-93.6	512.3	493.6	18.68	27.423		
4,400.0	4,392.5	4,364.0	4,356.4	10.4	10.2	179.75	-293.8	-94.5	526.1	507.0	19.13	27.497		
4,500.0	4,492.3	4,463.1	4,455.2	10.7	10.4	179.62	-300.7	-95.4	539.9	520.4	19.59	27.567		
4,600.0	4,592.0	4,562.1	4,554.0	10.9	10.7	179.50	-307.5	-96.3	553.7	533.7	20.04	27.634		
4,700.0	4,691.8	4,661.2	4,652.8	11.2	10.9	179.38	-314.4	-97.2	567.6	547.1	20.49	27.698		
4,800.0	4,791.5	4,760.2	4,751.6	11.4	11.2	179.27	-321.2	-98.1	581.4	560.4	20.94	27.759		
4,900.0	4,891.3	4,859.2	4,850.4	11.7	11.4	179.16	-328.1	-99.0	595.2	573.8	21.40	27.817		
5,000.0	4,991.1	4,958.3	4,949.2	12.0	11.7	179.06	-334.9	-100.0	609.0	587.2	21.85	27.873		
5,100.0	5,090.8	5,057.3	5,048.0	12.2	12.0	178.96	-341.8	-100.9	622.8	600.5	22.30	27.926		

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 #10E-0304B
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Reference Site:</b>	S10-T10N-R58W	<b>MD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #10E-0304B	<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 #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S10-T10N-R58W - Razor #10E-1502B - 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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor	
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	+N/-S (usft)	+E/-W (usft)	(usft)	(usft)			
5,200.0	5,190.6	5,156.3	5,146.8	12.5	12.2	178.87	-348.6	-101.8	636.6	613.9	22.76	27.977	
5,300.0	5,290.3	5,255.4	5,245.6	12.7	12.5	178.78	-355.5	-102.7	650.5	627.3	23.21	28.026	
5,400.0	5,390.1	5,354.4	5,344.4	13.0	12.7	178.69	-362.3	-103.6	664.3	640.6	23.66	28.073	
5,500.0	5,489.8	5,453.4	5,443.2	13.2	13.0	178.61	-369.2	-104.5	678.1	654.0	24.12	28.118	
5,600.0	5,589.6	5,552.5	5,541.9	13.5	13.3	178.53	-376.0	-105.4	691.9	667.4	24.57	28.162	
5,700.0	5,689.4	5,651.5	5,640.7	13.7	13.5	178.46	-382.9	-106.4	705.8	680.7	25.02	28.203	
5,800.0	5,789.1	5,750.4	5,739.4	14.0	13.8	178.37	-389.7	-107.3	720.2	694.8	25.37	28.384	
5,900.0	5,886.6	5,800.0	5,788.8	14.4	13.9	178.24	-393.7	-107.8	750.1	725.3	24.77	30.286	
6,000.0	5,978.4	5,850.0	5,838.1	14.9	14.1	177.95	-401.9	-108.9	803.5	780.2	23.33	34.435	
6,100.0	6,060.9	5,850.0	5,838.1	15.5	14.1	177.48	-401.9	-108.9	876.2	855.1	21.03	41.653	
6,200.0	6,131.2	5,883.3	5,870.4	16.4	14.2	176.44	-409.9	-110.0	962.3	944.1	18.19	52.899	
6,300.0	6,186.7	5,900.0	5,886.4	17.4	14.3	173.44	-414.7	-110.6	1,057.5	1,042.4	15.10	70.053	
6,400.0	6,225.3	5,900.0	5,886.4	18.6	14.3	99.82	-414.7	-110.6	1,156.8	1,124.2	32.63	35.448	
6,500.0	6,245.6	5,900.0	5,886.4	19.9	14.3	6.25	-414.7	-110.6	1,256.2	1,246.6	9.61	130.662	
6,600.0	6,248.7	5,900.0	5,886.4	21.3	14.3	-0.67	-414.7	-110.6	1,353.1	1,344.6	8.50	159.273	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #10E-0304B
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Reference Site:</b>	S10-T10N-R58W	<b>MD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #10E-0304B	<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 #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S10-T10N-R58W - Razor #10E-1503A - 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	-156.14	-75.1	-33.2	82.1					
100.0	100.0	100.0	100.0	0.1	0.1	-156.14	-75.1	-33.2	82.1	81.9	0.19	438.859		
200.0	200.0	200.0	200.0	0.3	0.3	-156.14	-75.1	-33.2	82.1	81.4	0.64	128.931		
300.0	300.0	300.0	300.0	0.5	0.5	-156.14	-75.1	-33.2	82.1	81.0	1.09	75.565		
400.0	400.0	400.0	400.0	0.8	0.8	-156.14	-75.1	-33.2	82.1	80.5	1.54	53.444		
500.0	500.0	500.0	500.0	1.0	1.0	-156.14	-75.1	-33.2	82.1	80.1	1.99	41.342		
600.0	600.0	600.0	600.0	1.2	1.2	-156.14	-75.1	-33.2	82.1	79.6	2.43	33.709		
700.0	700.0	700.0	700.0	1.4	1.4	-156.14	-75.1	-33.2	82.1	79.2	2.88	28.455		
800.0	800.0	800.0	800.0	1.7	1.7	-156.14	-75.1	-33.2	82.1	78.7	3.33	24.618		
900.0	900.0	900.0	900.0	1.9	1.9	-156.14	-75.1	-33.2	82.1	78.3	3.78	21.693		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-156.14	-75.1	-33.2	82.1	77.8	4.23	19.389 CC, ES		
1,100.0	1,100.0	1,097.6	1,097.6	2.3	2.3	-156.77	-76.7	-32.9	83.5	78.8	4.65	17.955		
1,200.0	1,200.0	1,195.0	1,194.9	2.6	2.5	-158.54	-81.6	-32.1	87.8	82.8	5.05	17.391 SF		
1,300.0	1,300.0	1,294.5	1,294.1	2.8	2.7	-179.00	-88.4	-30.9	95.6	90.1	5.46	17.505		
1,400.0	1,399.8	1,393.8	1,393.2	3.0	2.9	179.14	-95.3	-29.7	107.0	101.1	5.87	18.216		
1,500.0	1,499.6	1,492.9	1,492.0	3.2	3.1	177.67	-102.1	-28.5	120.2	113.9	6.29	19.103		
1,600.0	1,599.3	1,592.0	1,590.9	3.5	3.3	176.49	-108.9	-27.4	133.4	126.7	6.71	19.872		
1,700.0	1,699.1	1,691.1	1,689.7	3.7	3.5	175.52	-115.7	-26.2	146.7	139.6	7.14	20.544		
1,800.0	1,798.9	1,790.2	1,788.6	3.9	3.7	174.72	-122.5	-25.0	160.0	152.5	7.57	21.135		
1,900.0	1,898.6	1,889.2	1,887.4	4.2	4.0	174.04	-129.3	-23.8	173.4	165.4	8.01	21.655		
2,000.0	1,998.4	1,988.3	1,986.2	4.4	4.2	173.46	-136.1	-22.6	186.8	178.3	8.44	22.119		
2,100.0	2,098.1	2,087.4	2,085.1	4.7	4.4	172.95	-142.9	-21.5	200.2	191.3	8.88	22.533		
2,200.0	2,197.9	2,186.5	2,183.9	4.9	4.7	172.51	-149.7	-20.3	213.6	204.3	9.33	22.904		
2,300.0	2,297.6	2,285.6	2,282.8	5.2	4.9	172.12	-156.6	-19.1	227.0	217.3	9.77	23.239		
2,400.0	2,397.4	2,384.7	2,381.6	5.4	5.2	171.77	-163.4	-17.9	240.5	230.2	10.21	23.543		
2,500.0	2,497.2	2,483.7	2,480.5	5.6	5.4	171.47	-170.2	-16.8	253.9	243.2	10.66	23.819		
2,600.0	2,596.9	2,582.8	2,579.3	5.9	5.7	171.19	-177.0	-15.6	267.3	256.2	11.11	24.071		
2,700.0	2,696.7	2,681.9	2,678.1	6.1	5.9	170.94	-183.8	-14.4	280.8	269.2	11.55	24.302		
2,800.0	2,796.4	2,781.0	2,777.0	6.4	6.2	170.71	-190.6	-13.2	294.3	282.2	12.00	24.514		
2,900.0	2,896.2	2,880.1	2,875.8	6.6	6.4	170.50	-197.4	-12.1	307.7	295.3	12.45	24.710		
3,000.0	2,995.9	2,979.2	2,974.7	6.9	6.7	170.31	-204.2	-10.9	321.2	308.3	12.90	24.890		
3,100.0	3,095.7	3,078.3	3,073.5	7.1	6.9	170.13	-211.0	-9.7	334.6	321.3	13.35	25.058		
3,200.0	3,195.4	3,177.3	3,172.4	7.4	7.2	169.97	-217.9	-8.5	348.1	334.3	13.81	25.214		
3,300.0	3,295.2	3,276.4	3,271.2	7.6	7.4	169.82	-224.7	-7.4	361.6	347.3	14.26	25.360		
3,400.0	3,395.0	3,375.5	3,370.0	7.9	7.7	169.68	-231.5	-6.2	375.1	360.4	14.71	25.495		
3,500.0	3,494.7	3,474.6	3,468.9	8.2	7.9	169.55	-238.3	-5.0	388.5	373.4	15.16	25.622		
3,600.0	3,594.5	3,573.7	3,567.7	8.4	8.2	169.43	-245.1	-3.8	402.0	386.4	15.62	25.741		
3,700.0	3,694.2	3,672.8	3,666.6	8.7	8.5	169.32	-251.9	-2.7	415.5	399.4	16.07	25.853		
3,800.0	3,794.0	3,771.8	3,765.4	8.9	8.7	169.21	-258.7	-1.5	429.0	412.5	16.53	25.959		
3,900.0	3,893.7	3,870.9	3,864.3	9.2	9.0	169.11	-265.5	-0.3	442.5	425.5	16.98	26.058		
4,000.0	3,993.5	3,970.0	3,963.1	9.4	9.2	169.02	-272.3	0.9	456.0	438.5	17.44	26.152		
4,100.0	4,093.3	4,069.1	4,061.9	9.7	9.5	168.93	-279.1	2.1	469.4	451.6	17.89	26.240		
4,200.0	4,193.0	4,168.2	4,160.8	9.9	9.7	168.85	-286.0	3.2	482.9	464.6	18.35	26.324		
4,300.0	4,292.8	4,267.3	4,259.6	10.2	10.0	168.77	-292.8	4.4	496.4	477.6	18.80	26.404		
4,400.0	4,392.5	4,366.3	4,358.5	10.4	10.3	168.69	-299.6	5.6	509.9	490.6	19.26	26.479		
4,500.0	4,492.3	4,465.4	4,457.3	10.7	10.5	168.62	-306.4	6.8	523.4	503.7	19.71	26.551		
4,600.0	4,592.0	4,564.5	4,556.1	10.9	10.8	168.55	-313.2	7.9	536.9	516.7	20.17	26.620		
4,700.0	4,691.8	4,663.6	4,655.0	11.2	11.0	168.49	-320.0	9.1	550.4	529.8	20.62	26.685		
4,800.0	4,791.5	4,762.7	4,753.8	11.4	11.3	168.43	-326.8	10.3	563.9	542.8	21.08	26.747		
4,900.0	4,891.3	4,861.8	4,852.7	11.7	11.6	168.37	-333.6	11.5	577.4	555.8	21.54	26.807		
5,000.0	4,991.1	4,960.8	4,951.5	12.0	11.8	168.32	-340.4	12.6	590.9	568.9	21.99	26.864		
5,100.0	5,090.8	5,059.9	5,050.4	12.2	12.1	168.26	-347.3	13.8	604.3	581.9	22.45	26.918		

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 #10E-0304B
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Reference Site:</b>	S10-T10N-R58W	<b>MD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #10E-0304B	<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 #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S10-T10N-R58W - Razor #10E-1503A - 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		Total		Separation		Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis	Factor		
5,200.0	5,190.6	5,159.0	5,149.2	12.5	12.3	168.21	-354.1	15.0	617.8	594.9	22.91	26.970		
5,300.0	5,290.3	5,258.1	5,248.0	12.7	12.6	168.16	-360.9	16.2	631.3	608.0	23.37	27.020		
5,400.0	5,390.1	5,357.2	5,346.9	13.0	12.9	168.12	-367.7	17.3	644.8	621.0	23.82	27.068		
5,500.0	5,489.8	5,456.3	5,445.7	13.2	13.1	168.07	-374.5	18.5	658.3	634.0	24.28	27.114		
5,600.0	5,589.6	5,555.3	5,544.6	13.5	13.4	168.03	-381.3	19.7	671.8	647.1	24.74	27.158		
5,700.0	5,689.4	5,654.4	5,643.4	13.7	13.6	167.99	-388.1	20.9	685.3	660.1	25.19	27.201		
5,800.0	5,789.1	5,700.0	5,688.7	14.0	13.8	167.80	-393.1	21.7	703.2	677.8	25.44	27.648		
5,900.0	5,886.6	5,750.0	5,737.6	14.4	14.0	166.78	-403.0	23.4	741.5	716.6	24.90	29.783		
6,000.0	5,978.4	5,770.9	5,757.8	14.9	14.1	164.81	-408.5	24.4	801.3	777.8	23.56	34.010		
6,100.0	6,060.9	5,800.0	5,785.4	15.5	14.2	161.12	-417.4	25.9	878.5	856.7	21.82	40.263		
6,200.0	6,131.2	5,800.0	5,785.4	16.4	14.2	152.29	-417.4	25.9	967.9	947.0	20.90	46.319		
6,300.0	6,186.7	5,820.7	5,804.8	17.4	14.3	128.77	-424.8	27.2	1,063.8	1,038.0	25.79	41.243		
6,400.0	6,225.3	5,822.4	5,806.3	18.6	14.3	62.73	-425.4	27.3	1,162.6	1,132.8	29.76	39.069		
6,500.0	6,245.6	5,818.1	5,802.4	19.9	14.3	26.81	-423.8	27.0	1,260.3	1,242.8	17.52	71.953		
6,600.0	6,248.7	5,800.0	5,785.4	21.3	14.2	15.35	-417.4	25.9	1,354.5	1,342.0	12.59	107.623		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #10E-0304B
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Reference Site:</b>	S10-T10N-R58W	<b>MD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #10E-0304B	<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 #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S10-T10N-R58W - Razor #10E-1504B - HZ - Plan #1													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-75.1	0.0	75.1					
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-75.1	0.0	75.1	74.9	0.19	401.353		
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-75.1	0.0	75.1	74.4	0.64	117.912		
300.0	300.0	300.0	300.0	0.5	0.5	180.00	-75.1	0.0	75.1	74.0	1.09	69.107		
400.0	400.0	400.0	400.0	0.8	0.8	180.00	-75.1	0.0	75.1	73.5	1.54	48.877		
500.0	500.0	500.0	500.0	1.0	1.0	180.00	-75.1	0.0	75.1	73.1	1.99	37.809		
600.0	600.0	600.0	600.0	1.2	1.2	180.00	-75.1	0.0	75.1	72.6	2.43	30.828		
700.0	700.0	700.0	700.0	1.4	1.4	180.00	-75.1	0.0	75.1	72.2	2.88	26.023		
800.0	800.0	800.0	800.0	1.7	1.7	180.00	-75.1	0.0	75.1	71.7	3.33	22.514		
900.0	900.0	900.0	900.0	1.9	1.9	180.00	-75.1	0.0	75.1	71.3	3.78	19.839 CC, ES		
1,000.0	1,000.0	997.6	997.6	2.1	2.1	179.53	-76.6	0.6	76.6	72.4	4.20	18.239		
1,100.0	1,100.0	1,095.0	1,094.8	2.3	2.3	178.22	-81.2	2.5	81.4	76.8	4.60	17.680		
1,200.0	1,200.0	1,194.6	1,194.2	2.6	2.5	176.63	-87.6	5.2	88.0	82.9	5.02	17.536 SF		
1,300.0	1,300.0	1,294.2	1,293.6	2.8	2.7	157.36	-94.0	7.8	96.2	90.8	5.44	17.692		
1,400.0	1,399.8	1,393.6	1,392.7	3.0	2.9	157.21	-100.5	10.4	107.6	101.8	5.86	18.381		
1,500.0	1,499.6	1,492.7	1,491.6	3.2	3.1	157.47	-106.9	13.1	120.7	114.4	6.28	19.212		
1,600.0	1,599.3	1,591.9	1,590.5	3.5	3.3	157.69	-113.2	15.7	133.7	127.0	6.71	19.923		
1,700.0	1,699.1	1,691.0	1,689.4	3.7	3.6	157.86	-119.6	18.3	146.8	139.6	7.15	20.537		
1,800.0	1,798.9	1,790.1	1,788.3	3.9	3.8	158.01	-126.0	20.9	159.8	152.3	7.59	21.070		
1,900.0	1,898.6	1,889.3	1,887.2	4.2	4.0	158.14	-132.4	23.6	172.9	164.9	8.03	21.538		
2,000.0	1,998.4	1,988.4	1,986.1	4.4	4.3	158.25	-138.8	26.2	185.9	177.5	8.47	21.951		
2,100.0	2,098.1	2,087.6	2,085.0	4.7	4.5	158.34	-145.2	28.8	199.0	190.1	8.92	22.318		
2,200.0	2,197.9	2,186.7	2,183.9	4.9	4.8	158.42	-151.6	31.4	212.1	202.7	9.36	22.645		
2,300.0	2,297.6	2,285.9	2,282.8	5.2	5.0	158.49	-158.0	34.1	225.1	215.3	9.81	22.939		
2,400.0	2,397.4	2,385.0	2,381.7	5.4	5.3	158.56	-164.4	36.7	238.2	227.9	10.26	23.205		
2,500.0	2,497.2	2,484.1	2,480.6	5.6	5.5	158.62	-170.8	39.3	251.2	240.5	10.72	23.445		
2,600.0	2,596.9	2,583.3	2,579.5	5.9	5.8	158.67	-177.2	41.9	264.3	253.1	11.17	23.664		
2,700.0	2,696.7	2,682.4	2,678.4	6.1	6.0	158.72	-183.6	44.6	277.3	265.7	11.62	23.864		
2,800.0	2,796.4	2,781.6	2,777.3	6.4	6.3	158.76	-190.0	47.2	290.4	278.3	12.08	24.048		
2,900.0	2,896.2	2,880.7	2,876.2	6.6	6.5	158.80	-196.4	49.8	303.4	290.9	12.53	24.217		
3,000.0	2,995.9	2,979.9	2,975.1	6.9	6.8	158.83	-202.8	52.5	316.5	303.5	12.99	24.373		
3,100.0	3,095.7	3,079.0	3,074.0	7.1	7.0	158.87	-209.2	55.1	329.6	316.1	13.44	24.517		
3,200.0	3,195.4	3,178.1	3,172.9	7.4	7.3	158.90	-215.6	57.7	342.6	328.7	13.90	24.651		
3,300.0	3,295.2	3,277.3	3,271.8	7.6	7.5	158.93	-222.0	60.3	355.7	341.3	14.36	24.776		
3,400.0	3,395.0	3,376.4	3,370.7	7.9	7.8	158.95	-228.4	63.0	368.7	353.9	14.81	24.892		
3,500.0	3,494.7	3,475.6	3,469.6	8.2	8.1	158.98	-234.8	65.6	381.8	366.5	15.27	25.000		
3,600.0	3,594.5	3,574.7	3,568.5	8.4	8.3	159.00	-241.2	68.2	394.8	379.1	15.73	25.102		
3,700.0	3,694.2	3,673.9	3,667.4	8.7	8.6	159.02	-247.6	70.8	407.9	391.7	16.19	25.198		
3,800.0	3,794.0	3,773.0	3,766.3	8.9	8.8	159.04	-254.0	73.5	421.0	404.3	16.65	25.288		
3,900.0	3,893.7	3,872.2	3,865.2	9.2	9.1	159.06	-260.4	76.1	434.0	416.9	17.11	25.372		
4,000.0	3,993.5	3,971.3	3,964.1	9.4	9.3	159.08	-266.8	78.7	447.1	429.5	17.57	25.452		
4,100.0	4,093.3	4,070.4	4,063.0	9.7	9.6	159.10	-273.2	81.3	460.1	442.1	18.03	25.528		
4,200.0	4,193.0	4,169.6	4,161.9	9.9	9.9	159.11	-279.6	84.0	473.2	454.7	18.48	25.599		
4,300.0	4,292.8	4,268.7	4,260.8	10.2	10.1	159.13	-286.0	86.6	486.3	467.3	18.94	25.667		
4,400.0	4,392.5	4,367.9	4,359.7	10.4	10.4	159.14	-292.4	89.2	499.3	479.9	19.41	25.731		
4,500.0	4,492.3	4,467.0	4,458.7	10.7	10.6	159.16	-298.8	91.8	512.4	492.5	19.87	25.792		
4,600.0	4,592.0	4,566.2	4,557.6	10.9	10.9	159.17	-305.2	94.5	525.4	505.1	20.33	25.850		
4,700.0	4,691.8	4,665.3	4,656.5	11.2	11.2	159.18	-311.6	97.1	538.5	517.7	20.79	25.906		
4,800.0	4,791.5	4,764.4	4,755.4	11.4	11.4	159.19	-318.0	99.7	551.5	530.3	21.25	25.958		
4,900.0	4,891.3	4,863.6	4,854.3	11.7	11.7	159.20	-324.4	102.4	564.6	542.9	21.71	26.009		
5,000.0	4,991.1	4,962.7	4,953.2	12.0	11.9	159.21	-330.8	105.0	577.7	555.5	22.17	26.057		
5,100.0	5,090.8	5,061.9	5,052.1	12.2	12.2	159.22	-337.2	107.6	590.7	568.1	22.63	26.103		

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 #10E-0304B
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Reference Site:</b>	S10-T10N-R58W	<b>MD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #10E-0304B	<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 #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S10-T10N-R58W - Razor #10E-1504B - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,190.6	5,161.0	5,151.0	12.5	12.5	159.23	-343.6	110.2	603.8	580.7	23.09	26.147		
5,300.0	5,290.3	5,260.2	5,249.9	12.7	12.7	159.24	-350.0	112.9	616.8	593.3	23.55	26.189		
5,400.0	5,390.1	5,359.3	5,348.8	13.0	13.0	159.25	-356.4	115.5	629.9	605.9	24.01	26.230		
5,500.0	5,489.8	5,458.5	5,447.7	13.2	13.2	159.26	-362.8	118.1	642.9	618.5	24.48	26.269		
5,600.0	5,589.6	5,557.6	5,546.6	13.5	13.5	159.27	-369.2	120.7	656.0	631.1	24.94	26.306		
5,700.0	5,689.4	5,656.7	5,645.5	13.7	13.8	159.28	-375.6	123.4	669.1	643.7	25.40	26.342		
5,800.0	5,789.1	5,755.8	5,744.3	14.0	14.0	159.15	-381.9	126.0	682.7	656.9	25.77	26.496		
5,900.0	5,886.6	5,800.0	5,788.3	14.4	14.1	158.08	-385.3	127.4	711.3	686.0	25.28	28.142		
6,000.0	5,978.4	5,850.0	5,837.6	14.9	14.3	155.92	-392.9	130.5	762.3	738.1	24.21	31.491		
6,100.0	6,060.9	5,875.2	5,862.1	15.5	14.4	151.59	-398.3	132.7	832.0	809.1	22.93	36.292		
6,200.0	6,131.2	5,900.0	5,885.9	16.4	14.5	143.45	-404.7	135.3	915.4	892.7	22.69	40.346		
6,300.0	6,186.7	5,900.0	5,885.9	17.4	14.5	124.28	-404.7	135.3	1,007.7	981.0	26.68	37.766		
6,400.0	6,225.3	5,900.0	5,885.9	18.6	14.5	85.12	-404.7	135.3	1,104.2	1,071.6	32.60	33.877		
6,500.0	6,245.6	5,900.0	5,885.9	19.9	14.5	47.25	-404.7	135.3	1,201.0	1,175.0	25.95	46.276		
6,600.0	6,248.7	5,900.0	5,885.9	21.3	14.5	32.17	-404.7	135.3	1,295.4	1,274.9	20.44	63.379		

# Cathedral Energy Services

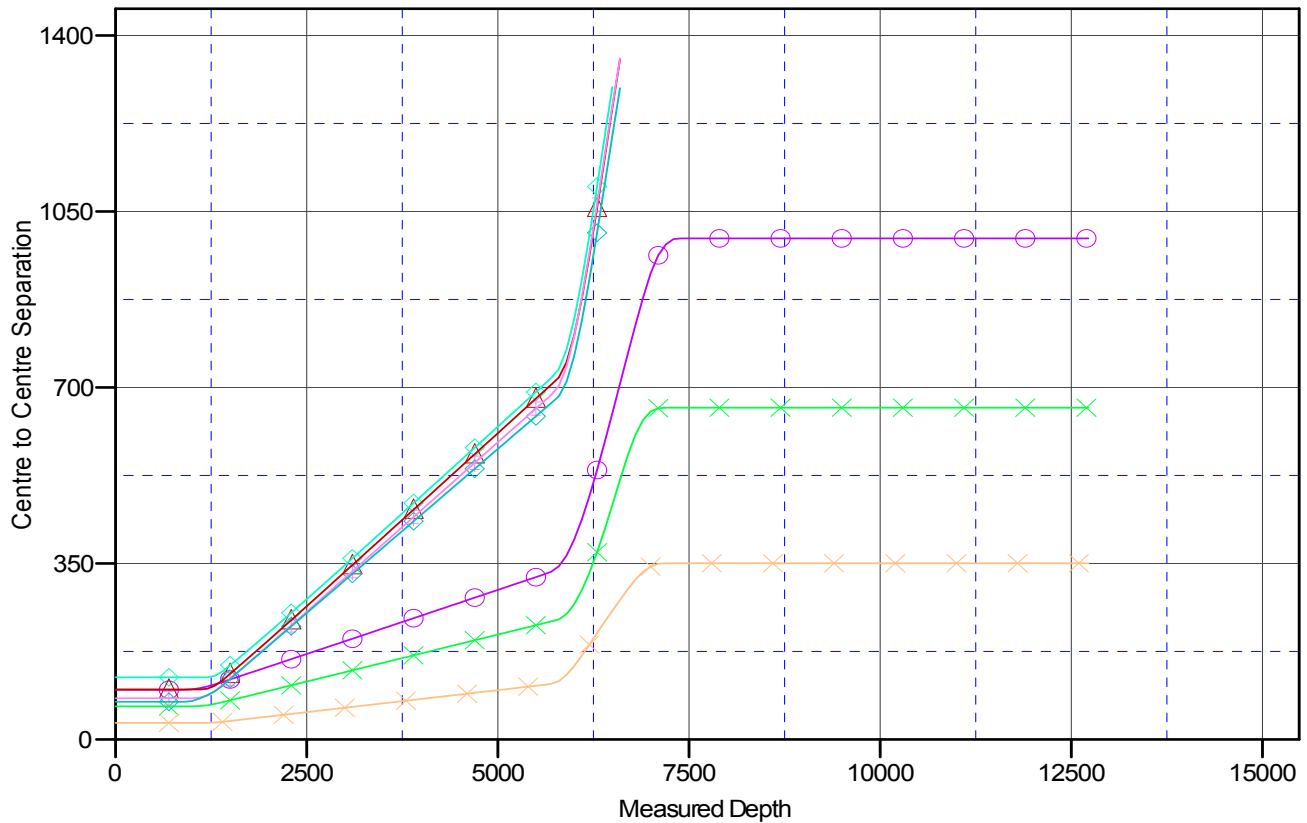
## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #10E-0304B
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Reference Site:</b>	S10-T10N-R58W	<b>MD Reference:</b>	WELL @ 5039.1usft (Original Well Elev)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Razor #10E-0304B	<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 #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 5039.1usft (Original Well Ele  
Offset Depths are relative to Offset Datum  
Central Meridian is 105° 30' 0.00 W °

Coordinates are relative to: Razor #10E-0304B  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 1.06°

### Ladder Plot



### LEGEND

- Razor #10E-0301A, HZ, Plan #1 V0
- Razor #10E-0302B, HZ, Plan #1 V0
- Razor #10E-0303A, HZ, Plan #1 V0
- Razor #10E-1501A, HZ, Plan #1 V0
- Razor #10E-1502B, HZ, Plan #1 V0
- Razor #10E-1503A, HZ, Plan #1 V0
- Razor #10E-1504B, HZ, Plan #1 V0