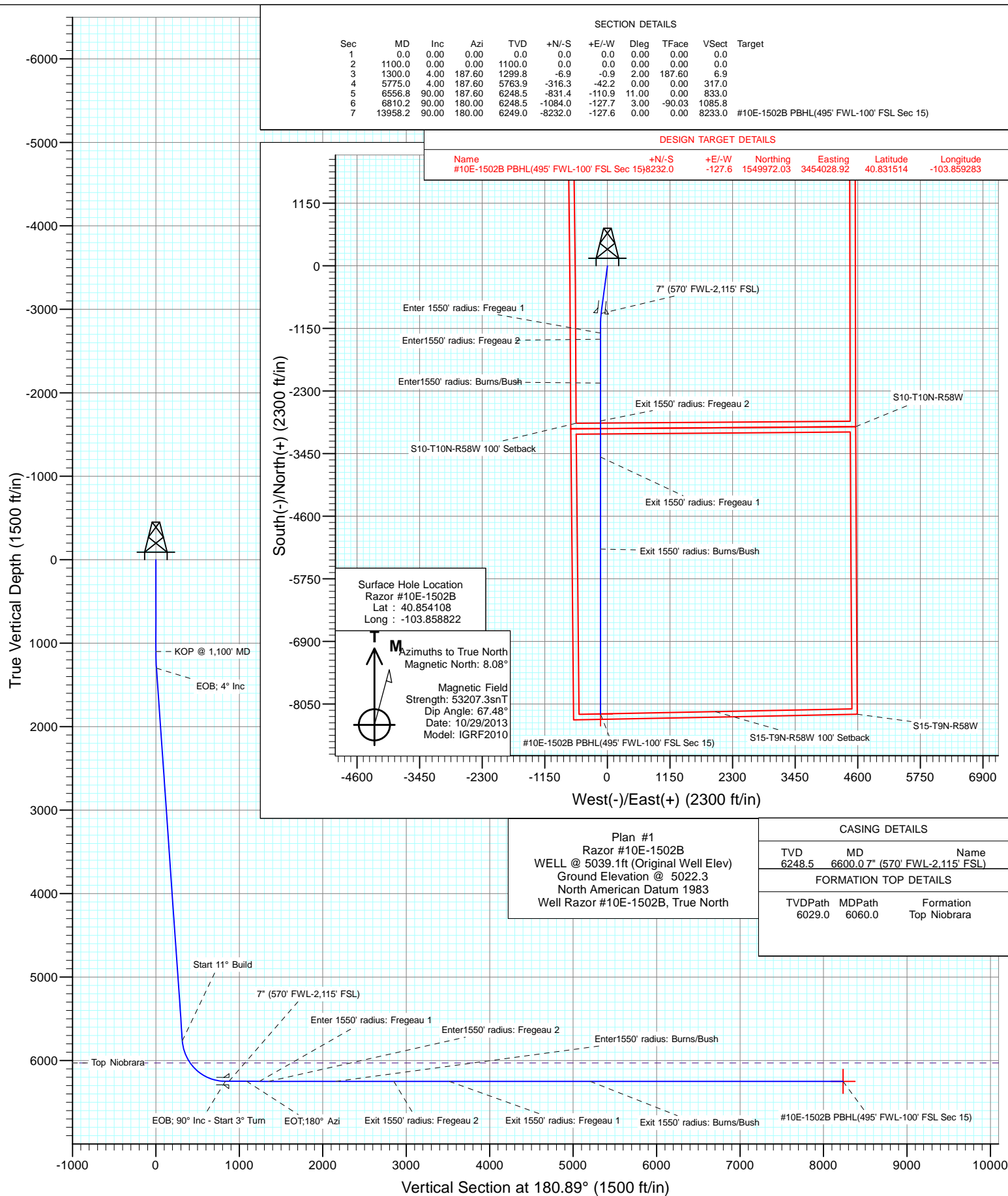




Project: Weld County, CO
Site: S10-T10N-R58W
Well: Razor #10E-1502B
Wellbore: HZ
Design: Plan #1



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #10E-1502B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 5039.1usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 5039.1usft (Original Well Elev)
Site:	S10-T10N-R58W	North Reference:	True
Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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

Site		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-1502B					
Well Position	+N/-S	0.0 usft	Northing:	1,558,201.84 usft	Latitude:	40° 51' 14.79 N
	+E/-W	0.0 usft	Easting:	3,453,997.21 usft	Longitude:	103° 51' 31.76 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	5,022.3 usft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	10/29/2013	8.08	67.48	53,207

Design	Plan #1				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.0	
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.0	0.0	0.0	180.89	

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,300.0	4.00	187.60	1,299.8	-6.9	-0.9	2.00	2.00	0.00	187.60	
5,775.0	4.00	187.60	5,763.9	-316.3	-42.2	0.00	0.00	0.00	0.00	
6,556.8	90.00	187.60	6,248.5	-831.4	-110.9	11.00	11.00	0.00	0.00	
6,810.2	90.00	180.00	6,248.5	-1,084.0	-127.7	3.00	0.00	-3.00	-90.03	
13,958.1	90.00	180.00	6,249.0	-8,232.0	-127.6	0.00	0.00	0.00	0.00	#10E-1502B PBHL(4

Cathedral Energy Services

Planning Report

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Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 5039.1usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 5039.1usft (Original Well Elev)
Site:	S10-T10N-R58W	North Reference:	True
Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
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	KOP @ 1,100' MD
1,200.0	2.00	187.60	1,200.0	-1.7	-0.2	1.7	2.00	2.00	
1,300.0	4.00	187.60	1,299.8	-6.9	-0.9	6.9	2.00	2.00	EOB; 4° Inc
1,400.0	4.00	187.60	1,399.6	-13.8	-1.8	13.9	0.00	0.00	
1,500.0	4.00	187.60	1,499.4	-20.7	-2.8	20.8	0.00	0.00	
1,600.0	4.00	187.60	1,599.1	-27.7	-3.7	27.7	0.00	0.00	
1,700.0	4.00	187.60	1,698.9	-34.6	-4.6	34.6	0.00	0.00	
1,800.0	4.00	187.60	1,798.6	-41.5	-5.5	41.6	0.00	0.00	
1,900.0	4.00	187.60	1,898.4	-48.4	-6.5	48.5	0.00	0.00	
2,000.0	4.00	187.60	1,998.1	-55.3	-7.4	55.4	0.00	0.00	
2,100.0	4.00	187.60	2,097.9	-62.2	-8.3	62.4	0.00	0.00	
2,200.0	4.00	187.60	2,197.6	-69.1	-9.2	69.3	0.00	0.00	
2,300.0	4.00	187.60	2,297.4	-76.1	-10.1	76.2	0.00	0.00	
2,400.0	4.00	187.60	2,397.2	-83.0	-11.1	83.1	0.00	0.00	
2,500.0	4.00	187.60	2,496.9	-89.9	-12.0	90.1	0.00	0.00	
2,600.0	4.00	187.60	2,596.7	-96.8	-12.9	97.0	0.00	0.00	
2,700.0	4.00	187.60	2,696.4	-103.7	-13.8	103.9	0.00	0.00	
2,800.0	4.00	187.60	2,796.2	-110.6	-14.8	110.8	0.00	0.00	
2,900.0	4.00	187.60	2,895.9	-117.5	-15.7	117.8	0.00	0.00	
3,000.0	4.00	187.60	2,995.7	-124.5	-16.6	124.7	0.00	0.00	
3,100.0	4.00	187.60	3,095.5	-131.4	-17.5	131.6	0.00	0.00	
3,200.0	4.00	187.60	3,195.2	-138.3	-18.5	138.6	0.00	0.00	
3,300.0	4.00	187.60	3,295.0	-145.2	-19.4	145.5	0.00	0.00	
3,400.0	4.00	187.60	3,394.7	-152.1	-20.3	152.4	0.00	0.00	
3,500.0	4.00	187.60	3,494.5	-159.0	-21.2	159.3	0.00	0.00	
3,600.0	4.00	187.60	3,594.2	-165.9	-22.1	166.3	0.00	0.00	
3,700.0	4.00	187.60	3,694.0	-172.9	-23.1	173.2	0.00	0.00	
3,800.0	4.00	187.60	3,793.7	-179.8	-24.0	180.1	0.00	0.00	
3,900.0	4.00	187.60	3,893.5	-186.7	-24.9	187.1	0.00	0.00	
4,000.0	4.00	187.60	3,993.3	-193.6	-25.8	194.0	0.00	0.00	
4,100.0	4.00	187.60	4,093.0	-200.5	-26.8	200.9	0.00	0.00	
4,200.0	4.00	187.60	4,192.8	-207.4	-27.7	207.8	0.00	0.00	
4,300.0	4.00	187.60	4,292.5	-214.3	-28.6	214.8	0.00	0.00	
4,400.0	4.00	187.60	4,392.3	-221.3	-29.5	221.7	0.00	0.00	
4,500.0	4.00	187.60	4,492.0	-228.2	-30.4	228.6	0.00	0.00	
4,600.0	4.00	187.60	4,591.8	-235.1	-31.4	235.5	0.00	0.00	
4,700.0	4.00	187.60	4,691.6	-242.0	-32.3	242.5	0.00	0.00	
4,800.0	4.00	187.60	4,791.3	-248.9	-33.2	249.4	0.00	0.00	
4,900.0	4.00	187.60	4,891.1	-255.8	-34.1	256.3	0.00	0.00	
5,000.0	4.00	187.60	4,990.8	-262.7	-35.1	263.3	0.00	0.00	
5,100.0	4.00	187.60	5,090.6	-269.7	-36.0	270.2	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #10E-1502B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 5039.1usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 5039.1usft (Original Well Elev)
Site:	S10-T10N-R58W	North Reference:	True
Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
5,200.0	4.00	187.60	5,190.3	-276.6	-36.9	277.1	0.00	0.00	
5,300.0	4.00	187.60	5,290.1	-283.5	-37.8	284.0	0.00	0.00	
5,400.0	4.00	187.60	5,389.9	-290.4	-38.7	291.0	0.00	0.00	
5,500.0	4.00	187.60	5,489.6	-297.3	-39.7	297.9	0.00	0.00	
5,600.0	4.00	187.60	5,589.4	-304.2	-40.6	304.8	0.00	0.00	
5,700.0	4.00	187.60	5,689.1	-311.1	-41.5	311.8	0.00	0.00	
5,775.0	4.00	187.60	5,763.9	-316.3	-42.2	317.0	0.00	0.00	Start 11° Build
5,800.0	6.75	187.60	5,788.8	-318.7	-42.5	319.3	10.99	10.99	
5,850.0	12.25	187.60	5,838.1	-326.8	-43.6	327.5	11.00	11.00	
5,900.0	17.75	187.60	5,886.4	-339.7	-45.3	340.3	11.00	11.00	
5,950.0	23.25	187.60	5,933.2	-357.0	-47.6	357.7	11.00	11.00	
6,000.0	28.75	187.60	5,978.1	-378.7	-50.5	379.5	11.00	11.00	
6,050.0	34.25	187.60	6,020.8	-404.6	-54.0	405.4	11.00	11.00	
6,060.0	35.35	187.60	6,029.0	-410.3	-54.7	411.1	11.00	11.00	Top Niobrara
6,100.0	39.75	187.60	6,060.7	-434.4	-58.0	435.3	11.00	11.00	
6,150.0	45.25	187.60	6,097.5	-467.9	-62.4	468.8	11.00	11.00	
6,200.0	50.75	187.60	6,131.0	-504.7	-67.3	505.7	11.00	11.00	
6,250.0	56.25	187.60	6,160.7	-544.5	-72.7	545.6	11.00	11.00	
6,300.0	61.75	187.60	6,186.4	-587.0	-78.3	588.1	11.00	11.00	
6,350.0	67.25	187.60	6,208.0	-631.7	-84.3	632.9	11.00	11.00	
6,400.0	72.75	187.60	6,225.0	-678.3	-90.5	679.6	11.00	11.00	
6,450.0	78.25	187.60	6,237.6	-726.2	-96.9	727.6	11.00	11.00	
6,500.0	83.75	187.60	6,245.4	-775.2	-103.4	776.7	11.00	11.00	
6,550.0	89.25	187.60	6,248.4	-824.6	-110.0	826.2	11.00	11.00	
6,556.8	90.00	187.60	6,248.5	-831.3	-110.9	833.0	11.00	11.00	EOB; 90° Inc - Start 3° Turn
6,600.0	90.00	186.30	6,248.5	-874.2	-116.2	875.9	3.00	0.01	7" (570' FWL-2,115' FSL)
6,700.0	90.00	183.30	6,248.5	-973.9	-124.5	975.7	3.00	0.00	
6,800.0	90.00	180.30	6,248.5	-1,073.8	-127.7	1,075.7	3.00	0.00	
6,810.2	90.00	180.00	6,248.5	-1,084.0	-127.7	1,085.8	3.00	0.00	EOT;180° Azi
6,900.0	90.00	180.00	6,248.5	-1,173.8	-127.7	1,175.7	0.00	0.00	
6,963.2	90.00	180.00	6,248.5	-1,237.0	-127.7	1,238.8	0.00	0.00	Enter 1550' radius: Fregeau 1
7,000.0	90.00	180.00	6,248.5	-1,273.8	-127.7	1,275.6	0.00	0.00	
7,074.2	90.00	180.00	6,248.5	-1,348.0	-127.7	1,349.8	0.00	0.00	Enter1550' radius: Fregeau 2
7,100.0	90.00	180.00	6,248.5	-1,373.8	-127.7	1,375.6	0.00	0.00	
7,200.0	90.00	180.00	6,248.5	-1,473.8	-127.7	1,475.6	0.00	0.00	
7,300.0	90.00	180.00	6,248.5	-1,573.8	-127.7	1,575.6	0.00	0.00	
7,400.0	90.00	180.00	6,248.5	-1,673.8	-127.7	1,675.6	0.00	0.00	
7,500.0	90.00	180.00	6,248.5	-1,773.8	-127.7	1,775.6	0.00	0.00	
7,600.0	90.00	180.00	6,248.5	-1,873.8	-127.7	1,875.6	0.00	0.00	
7,700.0	90.00	180.00	6,248.5	-1,973.8	-127.7	1,975.6	0.00	0.00	
7,800.0	90.00	180.00	6,248.6	-2,073.8	-127.7	2,075.5	0.00	0.00	
7,881.2	90.00	180.00	6,248.6	-2,155.0	-127.7	2,156.7	0.00	0.00	Enter1550' radius: Burns/Bush
7,900.0	90.00	180.00	6,248.6	-2,173.8	-127.7	2,175.5	0.00	0.00	
8,000.0	90.00	180.00	6,248.6	-2,273.8	-127.7	2,275.5	0.00	0.00	
8,100.0	90.00	180.00	6,248.6	-2,373.8	-127.7	2,375.5	0.00	0.00	
8,200.0	90.00	180.00	6,248.6	-2,473.8	-127.7	2,475.5	0.00	0.00	
8,300.0	90.00	180.00	6,248.6	-2,573.8	-127.7	2,575.5	0.00	0.00	
8,400.0	90.00	180.00	6,248.6	-2,673.8	-127.7	2,675.5	0.00	0.00	
8,500.0	90.00	180.00	6,248.6	-2,773.8	-127.7	2,775.5	0.00	0.00	
8,575.2	90.00	180.00	6,248.6	-2,849.0	-127.7	2,850.6	0.00	0.00	Exit 1550' radius: Fregeau 2
8,600.0	90.00	180.00	6,248.6	-2,873.8	-127.7	2,875.4	0.00	0.00	
8,700.0	90.00	180.00	6,248.6	-2,973.8	-127.7	2,975.4	0.00	0.00	

Cathedral Energy Services

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Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
8,800.0	90.00	180.00	6,248.6	-3,073.8	-127.7	3,075.4	0.00	0.00	
8,900.0	90.00	180.00	6,248.6	-3,173.8	-127.7	3,175.4	0.00	0.00	
9,000.0	90.00	180.00	6,248.6	-3,273.8	-127.7	3,275.4	0.00	0.00	
9,100.0	90.00	180.00	6,248.6	-3,373.8	-127.7	3,375.4	0.00	0.00	
9,200.0	90.00	180.00	6,248.7	-3,473.8	-127.7	3,475.4	0.00	0.00	
9,240.2	90.00	180.00	6,248.7	-3,514.0	-127.7	3,515.6	0.00	0.00	Exit 1550' radius: Fregeau 1
9,300.0	90.00	180.00	6,248.7	-3,573.8	-127.7	3,575.4	0.00	0.00	
9,400.0	90.00	180.00	6,248.7	-3,673.8	-127.7	3,675.3	0.00	0.00	
9,500.0	90.00	180.00	6,248.7	-3,773.8	-127.7	3,775.3	0.00	0.00	
9,600.0	90.00	180.00	6,248.7	-3,873.8	-127.7	3,875.3	0.00	0.00	
9,700.0	90.00	180.00	6,248.7	-3,973.8	-127.7	3,975.3	0.00	0.00	
9,800.0	90.00	180.00	6,248.7	-4,073.8	-127.7	4,075.3	0.00	0.00	
9,900.0	90.00	180.00	6,248.7	-4,173.8	-127.6	4,175.3	0.00	0.00	
10,000.0	90.00	180.00	6,248.7	-4,273.8	-127.6	4,275.3	0.00	0.00	
10,100.0	90.00	180.00	6,248.7	-4,373.8	-127.6	4,375.3	0.00	0.00	
10,200.0	90.00	180.00	6,248.7	-4,473.8	-127.6	4,475.3	0.00	0.00	
10,300.0	90.00	180.00	6,248.7	-4,573.8	-127.6	4,575.2	0.00	0.00	
10,400.0	90.00	180.00	6,248.7	-4,673.8	-127.6	4,675.2	0.00	0.00	
10,500.0	90.00	180.00	6,248.7	-4,773.8	-127.6	4,775.2	0.00	0.00	
10,600.0	90.00	180.00	6,248.8	-4,873.8	-127.6	4,875.2	0.00	0.00	
10,700.0	90.00	180.00	6,248.8	-4,973.8	-127.6	4,975.2	0.00	0.00	
10,800.0	90.00	180.00	6,248.8	-5,073.8	-127.6	5,075.2	0.00	0.00	
10,900.0	90.00	180.00	6,248.8	-5,173.8	-127.6	5,175.2	0.00	0.00	
10,929.2	90.00	180.00	6,248.8	-5,203.0	-127.6	5,204.3	0.00	0.00	Exit 1550' radius: Burns/Bush
11,000.0	90.00	180.00	6,248.8	-5,273.8	-127.6	5,275.2	0.00	0.00	
11,100.0	90.00	180.00	6,248.8	-5,373.8	-127.6	5,375.1	0.00	0.00	
11,200.0	90.00	180.00	6,248.8	-5,473.8	-127.6	5,475.1	0.00	0.00	
11,300.0	90.00	180.00	6,248.8	-5,573.8	-127.6	5,575.1	0.00	0.00	
11,400.0	90.00	180.00	6,248.8	-5,673.8	-127.6	5,675.1	0.00	0.00	
11,500.0	90.00	180.00	6,248.8	-5,773.8	-127.6	5,775.1	0.00	0.00	
11,600.0	90.00	180.00	6,248.8	-5,873.8	-127.6	5,875.1	0.00	0.00	
11,700.0	90.00	180.00	6,248.8	-5,973.8	-127.6	5,975.1	0.00	0.00	
11,800.0	90.00	180.00	6,248.8	-6,073.8	-127.6	6,075.1	0.00	0.00	
11,900.0	90.00	180.00	6,248.9	-6,173.8	-127.6	6,175.0	0.00	0.00	
12,000.0	90.00	180.00	6,248.9	-6,273.8	-127.6	6,275.0	0.00	0.00	
12,100.0	90.00	180.00	6,248.9	-6,373.8	-127.6	6,375.0	0.00	0.00	
12,200.0	90.00	180.00	6,248.9	-6,473.8	-127.6	6,475.0	0.00	0.00	
12,300.0	90.00	180.00	6,248.9	-6,573.8	-127.6	6,575.0	0.00	0.00	
12,400.0	90.00	180.00	6,248.9	-6,673.8	-127.6	6,675.0	0.00	0.00	
12,500.0	90.00	180.00	6,248.9	-6,773.8	-127.6	6,775.0	0.00	0.00	
12,600.0	90.00	180.00	6,248.9	-6,873.8	-127.6	6,875.0	0.00	0.00	
12,700.0	90.00	180.00	6,248.9	-6,973.8	-127.6	6,975.0	0.00	0.00	
12,800.0	90.00	180.00	6,248.9	-7,073.8	-127.6	7,074.9	0.00	0.00	
12,900.0	90.00	180.00	6,248.9	-7,173.8	-127.6	7,174.9	0.00	0.00	
13,000.0	90.00	180.00	6,248.9	-7,273.8	-127.6	7,274.9	0.00	0.00	
13,100.0	90.00	180.00	6,248.9	-7,373.8	-127.6	7,374.9	0.00	0.00	
13,200.0	90.00	180.00	6,248.9	-7,473.8	-127.6	7,474.9	0.00	0.00	
13,300.0	90.00	180.00	6,249.0	-7,573.8	-127.6	7,574.9	0.00	0.00	
13,400.0	90.00	180.00	6,249.0	-7,673.8	-127.6	7,674.9	0.00	0.00	
13,500.0	90.00	180.00	6,249.0	-7,773.8	-127.6	7,774.9	0.00	0.00	
13,600.0	90.00	180.00	6,249.0	-7,873.8	-127.6	7,874.8	0.00	0.00	
13,700.0	90.00	180.00	6,249.0	-7,973.8	-127.6	7,974.8	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #10E-1502B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 5039.1usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 5039.1usft (Original Well Elev)
Site:	S10-T10N-R58W	North Reference:	True
Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
13,800.0	90.00	180.00	6,249.0	-8,073.8	-127.6	8,074.8	0.00	0.00	
13,900.0	90.00	180.00	6,249.0	-8,173.8	-127.6	8,174.8	0.00	0.00	
13,958.1	90.00	180.00	6,249.0	-8,232.0	-127.6	8,232.9	0.00	0.00	PBHL @ 13,958' MD

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
#10E-1502B PBHL(495' - plan hits target center - Point	0.00	0.00	6,249.0	-8,232.0	-127.6	1,549,968.93	3,454,022.01	40° 49' 53.45 N	103° 51' 33.42 W

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
6,600.0	6,248.5	7" (570' FWL-2,115' FSL)	7	7-1/2

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,060.0	6,029.0	Top Niobrara		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,100.0	1,100.0	0.0	0.0	KOP @ 1,100' MD
1,300.0	1,299.8	-6.9	-0.9	EOB; 4° Inc
5,775.0	5,763.9	-316.3	-42.2	Start 11° Build
6,556.8	6,248.5	-831.3	-110.9	EOB; 90° Inc - Start 3° Turn
6,810.2	6,248.5	-1,084.0	-127.7	EOT;180° Azi
6,963.2	6,248.5	-1,237.0	-127.7	Enter 1550' radius: Fregeau 1
7,074.2	6,248.5	-1,348.0	-127.7	Enter1550' radius: Fregeau 2
7,881.2	6,248.6	-2,155.0	-127.7	Enter1550' radius: Burns/Bush
8,575.2	6,248.6	-2,849.0	-127.7	Exit 1550' radius: Fregeau 2
9,240.2	6,248.7	-3,514.0	-127.7	Exit 1550' radius: Fregeau 1
10,929.2	6,248.8	-5,203.0	-127.6	Exit 1550' radius: Burns/Bush
13,958.1	6,249.0	-8,232.0	-127.6	PBHL @ 13,958' MD

Whiting Petroleum Corporation

Weld County, CO

S10-T10N-R58W

Razor #10E-1502B

HZ

Plan #1

Anticollision Report

06 November, 2013

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #10E-1502B
Project:	Weld County, CO	TVD Reference:	WELL @ 5039.1usft (Original Well Elev)
Reference Site:	S10-T10N-R58W	MD Reference:	WELL @ 5039.1usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0usft	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,356.1usft	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	13,958.1	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
S10-T10N-R58W						
BUSH 1 (EXISTING) - BURNS WELL - NO SURVEYS	9,405.3	6,145.6	280.4	202.2	3.586	CC, ES, SF
FREGEAU 1 (EXISTING) - CREST WELL - NO SURVEY	8,100.9	6,162.5	1,050.4	995.1	19.009	CC, ES
FREGEAU 1 (EXISTING) - CREST WELL - NO SURVEY	8,500.0	6,162.5	1,123.6	1,060.8	17.870	SF
FREGEAU 2 (EXISTING) - CREST WELL - NO SURVEY	7,824.0	6,159.4	1,354.7	1,304.8	27.120	CC, ES, SF
Razor #10E-0301A - HZ - Plan #1	900.0	900.0	82.3	78.5	21.752	CC, ES
Razor #10E-0301A - HZ - Plan #1	1,100.0	1,094.1	89.1	84.4	19.067	SF
Razor #10E-0302B - HZ - Plan #1	1,000.0	1,000.0	75.1	70.8	17.733	CC, ES
Razor #10E-0302B - HZ - Plan #1	1,200.0	1,194.6	83.4	78.3	16.371	SF
Razor #10E-0303A - HZ - Plan #1	1,100.0	1,100.0	81.6	76.9	17.433	CC, ES
Razor #10E-0303A - HZ - Plan #1	1,200.0	1,197.3	84.9	79.8	16.658	SF
Razor #10E-0304B - HZ - Plan #1	1,100.0	1,100.0	99.5	94.8	21.245	CC, ES
Razor #10E-0304B - HZ - Plan #1	1,300.0	1,296.5	106.9	101.5	19.477	SF
Razor #10E-1501A - HZ - Plan #1	1,223.9	1,223.7	33.0	27.8	6.353	CC, ES
Razor #10E-1501A - HZ - Plan #1	13,958.1	13,917.3	350.7	51.3	1.171	Level 2, SF
Razor #10E-1503A - HZ - Plan #1	1,000.0	1,000.0	32.1	27.9	7.581	CC
Razor #10E-1503A - HZ - Plan #1	1,100.0	1,099.8	32.4	27.8	6.970	ES
Razor #10E-1503A - HZ - Plan #1	13,958.1	13,839.3	350.5	50.0	1.167	Level 2, SF
Razor #10E-1504B - HZ - Plan #1	900.0	900.0	65.3	61.5	17.257	CC, ES
Razor #10E-1504B - HZ - Plan #1	13,958.1	14,006.5	659.6	342.8	2.082	SF

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #10E-1502B
Project:	Weld County, CO	TVD Reference:	WELL @ 5039.1usft (Original Well Elev)
Reference Site:	S10-T10N-R58W	MD Reference:	WELL @ 5039.1usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S10-T10N-R58W - BUSH 1 (EXISTING) - BURNS WELL - NO SURVEYS													Offset Site Error: 0.0 usft
Survey Program: 6820-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	
8,100.0	6,248.6	6,145.5	6,145.5	47.0	6.9	-89.98	-3,679.1	152.7	1,335.1	1,281.3	53.83	24.804	
8,200.0	6,248.6	6,145.5	6,145.5	48.8	6.9	-89.98	-3,679.1	152.7	1,237.5	1,181.9	55.67	22.231	
8,300.0	6,248.6	6,145.5	6,145.5	50.7	6.9	-89.98	-3,679.1	152.7	1,140.4	1,082.9	57.51	19.828	
8,400.0	6,248.6	6,145.5	6,145.5	52.5	6.9	-89.99	-3,679.1	152.7	1,043.7	984.4	59.37	17.581	
8,500.0	6,248.6	6,145.5	6,145.5	54.4	6.9	-89.99	-3,679.1	152.7	947.8	886.6	61.22	15.481	
8,600.0	6,248.6	6,145.5	6,145.5	56.2	6.9	-89.99	-3,679.1	152.7	852.8	789.7	63.08	13.518	
8,700.0	6,248.6	6,145.5	6,145.5	58.1	6.9	-89.99	-3,679.1	152.7	759.0	694.1	64.95	11.687	
8,800.0	6,248.6	6,145.5	6,145.5	60.0	6.9	-89.99	-3,679.1	152.7	667.1	600.3	66.82	9.984	
8,900.0	6,248.6	6,145.5	6,145.5	61.8	6.9	-89.99	-3,679.1	152.7	577.9	509.2	68.69	8.414	
9,000.0	6,248.6	6,145.5	6,145.5	63.7	6.9	-89.99	-3,679.1	152.7	492.9	422.3	70.57	6.985	
9,100.0	6,248.6	6,145.5	6,145.5	65.6	6.9	-90.00	-3,679.1	152.7	414.6	342.1	72.44	5.723	
9,200.0	6,248.7	6,145.5	6,145.5	67.5	6.9	-90.00	-3,679.1	152.7	347.5	273.2	74.32	4.676	
9,300.0	6,248.7	6,145.6	6,145.6	69.4	6.9	-90.00	-3,679.1	152.7	299.5	223.3	76.21	3.931	
9,400.0	6,248.7	6,145.6	6,145.6	71.2	6.9	-90.00	-3,679.1	152.7	280.4	202.4	78.09	3.591	
9,405.3	6,248.7	6,145.6	6,145.6	71.3	6.9	-90.00	-3,679.1	152.7	280.4	202.2	78.19	3.586 CC, ES, SF	
9,500.0	6,248.7	6,145.6	6,145.6	73.1	6.9	-90.00	-3,679.1	152.7	295.9	216.0	79.98	3.700	
9,600.0	6,248.7	6,145.6	6,145.6	75.0	6.9	-90.00	-3,679.1	152.7	341.3	259.5	81.87	4.169	
9,700.0	6,248.7	6,145.6	6,145.6	76.9	6.9	-90.00	-3,679.1	152.7	406.7	323.0	83.76	4.856	
9,800.0	6,248.7	6,145.6	6,145.6	78.8	6.9	-90.01	-3,679.1	152.7	484.1	398.5	85.65	5.652	
9,900.0	6,248.7	6,145.6	6,145.6	80.7	6.9	-90.01	-3,679.1	152.7	568.6	481.0	87.54	6.495	
10,000.0	6,248.7	6,145.6	6,145.6	82.6	6.9	-90.01	-3,679.1	152.7	657.4	568.0	89.43	7.351	
10,100.0	6,248.7	6,145.6	6,145.6	84.5	6.9	-90.01	-3,679.1	152.7	749.1	657.8	91.33	8.202	
10,200.0	6,248.7	6,145.6	6,145.6	86.4	6.9	-90.01	-3,679.1	152.7	842.7	749.4	93.23	9.039	
10,300.0	6,248.7	6,145.6	6,145.6	88.3	6.9	-90.01	-3,679.1	152.7	937.5	842.4	95.12	9.856	
10,400.0	6,248.7	6,145.6	6,145.6	90.2	6.9	-90.01	-3,679.1	152.7	1,033.4	936.4	97.02	10.651	
10,500.0	6,248.7	6,145.6	6,145.6	92.1	6.9	-90.02	-3,679.1	152.7	1,130.0	1,031.1	98.92	11.423	
10,600.0	6,248.8	6,145.6	6,145.6	94.0	6.9	-90.02	-3,679.1	152.7	1,227.1	1,126.3	100.82	12.171	
10,700.0	6,248.8	6,145.7	6,145.7	95.9	6.9	-90.02	-3,679.1	152.7	1,324.7	1,221.9	102.72	12.895	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #10E-1502B
Project:	Weld County, CO	TVD Reference:	WELL @ 5039.1usft (Original Well Elev)
Reference Site:	S10-T10N-R58W	MD Reference:	WELL @ 5039.1usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S10-T10N-R58W - FREGEAU 1 (EXISTING) - CREST WELL - NO SURVEYS													Offset Site Error: 0.0 usft	
Survey Program: 6864-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		
7,300.0	6,248.5	6,162.4	6,162.4	32.6	6.9	90.00	-2,374.8	-1,178.1	1,320.9	1,280.8	40.12	32.921		
7,400.0	6,248.5	6,162.4	6,162.4	34.4	6.9	90.00	-2,374.8	-1,178.1	1,262.8	1,220.8	41.96	30.098		
7,500.0	6,248.5	6,162.4	6,162.4	36.1	6.9	90.00	-2,374.8	-1,178.1	1,210.1	1,166.3	43.81	27.625		
7,600.0	6,248.5	6,162.4	6,162.4	37.9	6.9	90.00	-2,374.8	-1,178.1	1,163.7	1,118.1	45.67	25.481		
7,700.0	6,248.5	6,162.4	6,162.4	39.7	6.9	90.00	-2,374.8	-1,178.1	1,124.3	1,076.8	47.55	23.645		
7,800.0	6,248.6	6,162.4	6,162.4	41.5	6.9	90.00	-2,374.8	-1,178.1	1,092.6	1,043.2	49.44	22.101		
7,900.0	6,248.6	6,162.5	6,162.5	43.3	6.9	90.00	-2,374.8	-1,178.1	1,069.4	1,018.1	51.34	20.832		
8,000.0	6,248.6	6,162.5	6,162.5	45.2	6.9	90.00	-2,374.8	-1,178.1	1,055.2	1,002.0	53.24	19.819		
8,100.0	6,248.6	6,162.5	6,162.5	47.0	6.9	90.00	-2,374.8	-1,178.1	1,050.4	995.2	55.16	19.043		
8,100.9	6,248.6	6,162.5	6,162.5	47.0	6.9	90.00	-2,374.8	-1,178.1	1,050.4	995.1	55.26	19.009 CC, ES		
8,200.0	6,248.6	6,162.5	6,162.5	48.8	6.9	90.00	-2,374.8	-1,178.1	1,055.0	998.0	57.08	18.483		
8,300.0	6,248.6	6,162.5	6,162.5	50.7	6.9	90.00	-2,374.8	-1,178.1	1,069.1	1,010.1	59.01	18.117		
8,400.0	6,248.6	6,162.5	6,162.5	52.5	6.9	90.00	-2,374.8	-1,178.1	1,092.1	1,031.2	60.94	17.921		
8,500.0	6,248.6	6,162.5	6,162.5	54.4	6.9	90.00	-2,374.8	-1,178.1	1,123.6	1,060.8	62.88	17.870 SF		
8,600.0	6,248.6	6,162.5	6,162.5	56.2	6.9	90.00	-2,374.8	-1,178.1	1,162.9	1,098.1	64.82	17.940		
8,700.0	6,248.6	6,162.5	6,162.5	58.1	6.9	90.00	-2,374.8	-1,178.1	1,209.2	1,142.4	66.77	18.111		
8,800.0	6,248.6	6,162.5	6,162.5	60.0	6.9	90.00	-2,374.8	-1,178.1	1,261.7	1,193.0	68.72	18.361		
8,900.0	6,248.6	6,162.5	6,162.5	61.8	6.9	90.00	-2,374.8	-1,178.1	1,319.8	1,249.1	70.67	18.675		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #10E-1502B
Project:	Weld County, CO	TVD Reference:	WELL @ 5039.1usft (Original Well Elev)
Reference Site:	S10-T10N-R58W	MD Reference:	WELL @ 5039.1usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S10-T10N-R58W - FREGEAU 2 (EXISTING) - CREST WELL - NO SURVEYS													Offset Site Error: 0.0 usft
Survey Program: 6860-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	
7,800.0	6,248.6	6,159.4	6,159.4	41.5	6.9	90.00	-2,097.9	-1,482.4	1,354.9	1,305.5	49.43	27.409	
7,824.0	6,248.6	6,159.4	6,159.4	42.0	6.9	90.00	-2,097.9	-1,482.4	1,354.7	1,304.8	49.95	27.120	CC, ES, SF

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #10E-1502B
Project:	Weld County, CO	TVD Reference:	WELL @ 5039.1usft (Original Well Elev)
Reference Site:	S10-T10N-R58W	MD Reference:	WELL @ 5039.1usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design 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		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	-24.21	75.1	-33.8	82.3					
100.0	100.0	100.0	100.0	0.1	0.1	-24.21	75.1	-33.8	82.3	82.1	0.19	440.065		
200.0	200.0	200.0	200.0	0.3	0.3	-24.21	75.1	-33.8	82.3	81.7	0.64	129.285		
300.0	300.0	300.0	300.0	0.5	0.5	-24.21	75.1	-33.8	82.3	81.2	1.09	75.773		
400.0	400.0	400.0	400.0	0.8	0.8	-24.21	75.1	-33.8	82.3	80.8	1.54	53.591		
500.0	500.0	500.0	500.0	1.0	1.0	-24.21	75.1	-33.8	82.3	80.3	1.99	41.455		
600.0	600.0	600.0	600.0	1.2	1.2	-24.21	75.1	-33.8	82.3	79.9	2.43	33.801		
700.0	700.0	700.0	700.0	1.4	1.4	-24.21	75.1	-33.8	82.3	79.4	2.88	28.533		
800.0	800.0	800.0	800.0	1.7	1.7	-24.21	75.1	-33.8	82.3	79.0	3.33	24.685		
900.0	900.0	900.0	900.0	1.9	1.9	-24.21	75.1	-33.8	82.3	78.5	3.78	21.752 CC, ES		
1,000.0	1,000.0	997.2	997.1	2.1	2.1	-24.23	76.5	-34.4	84.0	79.8	4.23	19.874		
1,100.0	1,100.0	1,094.1	1,094.0	2.3	2.3	-24.27	81.0	-36.5	89.1	84.4	4.67	19.067 SF		
1,200.0	1,200.0	1,193.6	1,193.2	2.5	2.6	148.54	87.3	-39.4	97.5	92.4	5.09	19.147		
1,300.0	1,299.8	1,292.9	1,292.2	2.7	2.8	149.79	93.6	-42.4	109.0	103.5	5.49	19.853		
1,400.0	1,399.6	1,392.0	1,391.1	2.9	3.0	151.30	99.9	-45.3	122.0	116.1	5.89	20.700		
1,500.0	1,499.3	1,491.1	1,490.0	3.1	3.3	152.51	106.1	-48.2	135.1	128.8	6.31	21.421		
1,600.0	1,599.1	1,590.2	1,588.8	3.3	3.5	153.51	112.4	-51.1	148.2	141.5	6.73	22.038		
1,700.0	1,698.9	1,689.3	1,687.7	3.5	3.7	154.35	118.7	-54.0	161.4	154.2	7.15	22.571		
1,800.0	1,798.6	1,788.4	1,786.5	3.7	4.0	155.06	124.9	-56.9	174.6	167.0	7.58	23.035		
1,900.0	1,898.4	1,887.5	1,885.4	4.0	4.2	155.68	131.2	-59.9	187.8	179.8	8.01	23.441		
2,000.0	1,998.1	1,986.6	1,984.3	4.2	4.5	156.21	137.5	-62.8	201.1	192.6	8.45	23.798		
2,100.0	2,097.9	2,085.7	2,083.1	4.4	4.7	156.67	143.7	-65.7	214.3	205.4	8.89	24.115		
2,200.0	2,197.6	2,184.8	2,182.0	4.7	5.0	157.08	150.0	-68.6	227.6	218.3	9.33	24.397		
2,300.0	2,297.4	2,283.9	2,280.9	4.9	5.2	157.45	156.3	-71.5	240.9	231.1	9.77	24.650		
2,400.0	2,397.2	2,383.0	2,379.7	5.2	5.5	157.78	162.5	-74.4	254.2	243.9	10.22	24.877		
2,500.0	2,496.9	2,482.1	2,478.6	5.4	5.7	158.07	168.8	-77.3	267.4	256.8	10.66	25.083		
2,600.0	2,596.7	2,581.2	2,577.4	5.7	6.0	158.34	175.1	-80.3	280.8	269.6	11.11	25.269		
2,700.0	2,696.4	2,680.3	2,676.3	5.9	6.2	158.58	181.3	-83.2	294.1	282.5	11.56	25.439		
2,800.0	2,796.2	2,779.4	2,775.2	6.2	6.5	158.80	187.6	-86.1	307.4	295.4	12.01	25.595		
2,900.0	2,895.9	2,878.5	2,874.0	6.4	6.7	159.01	193.9	-89.0	320.7	308.2	12.46	25.738		
3,000.0	2,995.7	2,977.6	2,972.9	6.7	7.0	159.19	200.1	-91.9	334.0	321.1	12.91	25.869		
3,100.0	3,095.4	3,076.7	3,071.7	6.9	7.2	159.37	206.4	-94.8	347.3	334.0	13.36	25.990		
3,200.0	3,195.2	3,175.8	3,170.6	7.2	7.5	159.53	212.7	-97.8	360.7	346.8	13.82	26.103		
3,300.0	3,295.0	3,274.9	3,269.5	7.4	7.7	159.68	219.0	-100.7	374.0	359.7	14.27	26.207		
3,400.0	3,394.7	3,374.0	3,368.3	7.7	8.0	159.81	225.2	-103.6	387.3	372.6	14.72	26.304		
3,500.0	3,494.5	3,473.1	3,467.2	7.9	8.2	159.94	231.5	-106.5	400.7	385.5	15.18	26.395		
3,600.0	3,594.2	3,572.2	3,566.1	8.2	8.5	160.06	237.8	-109.4	414.0	398.4	15.63	26.479		
3,700.0	3,694.0	3,671.3	3,664.9	8.4	8.7	160.18	244.0	-112.3	427.3	411.2	16.09	26.559		
3,800.0	3,793.7	3,770.4	3,763.8	8.7	9.0	160.28	250.3	-115.2	440.7	424.1	16.55	26.633		
3,900.0	3,893.5	3,869.6	3,862.6	9.0	9.3	160.38	256.6	-118.2	454.0	437.0	17.00	26.703		
4,000.0	3,993.3	3,968.7	3,961.5	9.2	9.5	160.48	262.8	-121.1	467.3	449.9	17.46	26.769		
4,100.0	4,093.0	4,067.8	4,060.4	9.5	9.8	160.57	269.1	-124.0	480.7	462.8	17.92	26.831		
4,200.0	4,192.8	4,166.9	4,159.2	9.7	10.0	160.65	275.4	-126.9	494.0	475.7	18.37	26.890		
4,300.0	4,292.5	4,266.0	4,258.1	10.0	10.3	160.73	281.6	-129.8	507.4	488.5	18.83	26.945		
4,400.0	4,392.3	4,365.1	4,356.9	10.3	10.5	160.81	287.9	-132.7	520.7	501.4	19.29	26.998		
4,500.0	4,492.0	4,464.2	4,455.8	10.5	10.8	160.88	294.2	-135.6	534.1	514.3	19.75	27.048		
4,600.0	4,591.8	4,563.3	4,554.7	10.8	11.0	160.95	300.4	-138.6	547.4	527.2	20.20	27.095		
4,700.0	4,691.5	4,662.4	4,653.5	11.0	11.3	161.01	306.7	-141.5	560.8	540.1	20.66	27.140		
4,800.0	4,791.3	4,761.5	4,752.4	11.3	11.5	161.08	313.0	-144.4	574.1	553.0	21.12	27.183		
4,900.0	4,891.1	4,860.6	4,851.3	11.6	11.8	161.14	319.2	-147.3	587.5	565.9	21.58	27.224		
5,000.0	4,990.8	4,959.7	4,950.1	11.8	12.0	161.19	325.5	-150.2	600.8	578.8	22.04	27.263		
5,100.0	5,090.6	5,058.8	5,049.0	12.1	12.3	161.25	331.8	-153.1	614.2	591.7	22.50	27.301		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #10E-1502B
Project:	Weld County, CO	TVD Reference:	WELL @ 5039.1usft (Original Well Elev)
Reference Site:	S10-T10N-R58W	MD Reference:	WELL @ 5039.1usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design 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	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	5,190.3	5,157.9	5,147.8	12.3	12.6	161.30	338.1	-156.1	627.5	604.6	22.96	27.336	
5,300.0	5,290.1	5,257.0	5,246.7	12.6	12.8	161.35	344.3	-159.0	640.9	617.4	23.41	27.371	
5,400.0	5,389.8	5,356.1	5,345.6	12.9	13.1	161.40	350.6	-161.9	654.2	630.3	23.87	27.403	
5,500.0	5,489.6	5,455.2	5,444.4	13.1	13.3	161.44	356.9	-164.8	667.6	643.2	24.33	27.435	
5,600.0	5,589.4	5,554.3	5,543.3	13.4	13.6	161.49	363.1	-167.7	680.9	656.1	24.79	27.465	
5,700.0	5,689.1	5,653.4	5,642.2	13.6	13.8	161.53	369.4	-170.6	694.3	669.0	25.25	27.494	
5,800.0	5,788.8	5,700.0	5,688.4	13.9	14.0	161.32	373.9	-172.7	711.8	686.3	25.50	27.914	
5,900.0	5,886.4	5,750.0	5,737.4	14.3	14.1	159.98	383.0	-176.9	749.5	724.4	25.04	29.930	
6,000.0	5,978.1	5,770.2	5,756.9	14.9	14.2	157.21	387.8	-179.2	808.1	784.2	23.93	33.765	
6,100.0	6,060.7	5,800.0	5,785.2	15.6	14.4	152.23	396.2	-183.1	884.0	861.2	22.77	38.821	
6,200.0	6,131.0	5,800.0	5,785.2	16.5	14.4	140.88	396.2	-183.1	971.9	948.6	23.28	41.747	
6,300.0	6,186.4	5,820.9	5,804.8	17.6	14.5	117.06	403.0	-186.2	1,066.4	1,037.8	28.60	37.294	
6,400.0	6,225.0	5,823.1	5,806.8	18.9	14.5	70.33	403.7	-186.6	1,164.0	1,132.5	31.46	37.003	
6,500.0	6,245.4	5,819.3	5,803.3	20.3	14.5	37.15	402.4	-186.0	1,260.5	1,238.3	22.21	56.752	
6,600.0	6,248.5	5,800.0	5,785.2	21.7	14.4	23.98	396.2	-183.1	1,353.9	1,337.2	16.70	81.092	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #10E-1502B
Project:	Weld County, CO	TVD Reference:	WELL @ 5039.1usft (Original Well Elev)
Reference Site:	S10-T10N-R58W	MD Reference:	WELL @ 5039.1usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design 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 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)				
0.0	0.0	0.0	0.0	0.0	0.0	-0.63	75.1	-0.8	75.1					
100.0	100.0	100.0	100.0	0.1	0.1	-0.63	75.1	-0.8	75.1	74.9	0.19	401.377		
200.0	200.0	200.0	200.0	0.3	0.3	-0.63	75.1	-0.8	75.1	74.4	0.64	117.919		
300.0	300.0	300.0	300.0	0.5	0.5	-0.63	75.1	-0.8	75.1	74.0	1.09	69.111		
400.0	400.0	400.0	400.0	0.8	0.8	-0.63	75.1	-0.8	75.1	73.5	1.54	48.880		
500.0	500.0	500.0	500.0	1.0	1.0	-0.63	75.1	-0.8	75.1	73.1	1.99	37.811		
600.0	600.0	600.0	600.0	1.2	1.2	-0.63	75.1	-0.8	75.1	72.6	2.43	30.830		
700.0	700.0	700.0	700.0	1.4	1.4	-0.63	75.1	-0.8	75.1	72.2	2.88	26.024		
800.0	800.0	800.0	800.0	1.7	1.7	-0.63	75.1	-0.8	75.1	71.7	3.33	22.515		
900.0	900.0	900.0	900.0	1.9	1.9	-0.63	75.1	-0.8	75.1	71.3	3.78	19.840		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-0.63	75.1	-0.8	75.1	70.8	4.23	17.733 CC, ES		
1,100.0	1,100.0	1,097.5	1,097.4	2.3	2.3	-0.90	76.7	-1.2	76.7	72.0	4.68	16.403		
1,200.0	1,200.0	1,194.6	1,194.4	2.5	2.6	170.94	81.5	-2.3	83.4	78.3	5.10	16.371 SF		
1,300.0	1,299.8	1,293.7	1,293.3	2.7	2.8	170.57	88.2	-3.9	95.4	89.9	5.50	17.363		
1,400.0	1,399.6	1,392.8	1,392.1	2.9	3.0	170.46	95.0	-5.4	109.1	103.2	5.90	18.497		
1,500.0	1,499.3	1,491.8	1,490.9	3.1	3.2	170.38	101.7	-6.9	122.8	116.5	6.31	19.464		
1,600.0	1,599.1	1,590.9	1,589.8	3.3	3.5	170.31	108.4	-8.5	136.5	129.8	6.73	20.294		
1,700.0	1,698.9	1,689.9	1,688.6	3.5	3.7	170.26	115.2	-10.0	150.2	143.0	7.15	21.012		
1,800.0	1,798.6	1,789.0	1,787.4	3.7	4.0	170.21	121.9	-11.6	163.9	156.3	7.57	21.637		
1,900.0	1,898.4	1,888.0	1,886.2	4.0	4.2	170.17	128.6	-13.1	177.6	169.6	8.00	22.187		
2,000.0	1,998.1	1,987.1	1,985.0	4.2	4.4	170.14	135.4	-14.7	191.3	182.8	8.44	22.672		
2,100.0	2,097.9	2,086.2	2,083.8	4.4	4.7	170.11	142.1	-16.2	205.0	196.1	8.87	23.102		
2,200.0	2,197.6	2,185.2	2,182.7	4.7	4.9	170.09	148.8	-17.8	218.7	209.4	9.31	23.487		
2,300.0	2,297.4	2,284.3	2,281.5	4.9	5.2	170.07	155.6	-19.3	232.4	222.6	9.75	23.833		
2,400.0	2,397.2	2,383.3	2,380.3	5.2	5.4	170.05	162.3	-20.8	246.1	235.9	10.19	24.145		
2,500.0	2,496.9	2,482.4	2,479.1	5.4	5.7	170.03	169.0	-22.4	259.8	249.1	10.63	24.427		
2,600.0	2,596.7	2,581.4	2,577.9	5.7	5.9	170.01	175.8	-23.9	273.5	262.4	11.08	24.684		
2,700.0	2,696.4	2,680.5	2,676.7	5.9	6.2	170.00	182.5	-25.5	287.1	275.6	11.52	24.919		
2,800.0	2,796.2	2,779.6	2,775.5	6.2	6.4	169.99	189.3	-27.0	300.8	288.9	11.97	25.134		
2,900.0	2,895.9	2,878.6	2,874.4	6.4	6.7	169.97	196.0	-28.6	314.5	302.1	12.42	25.331		
3,000.0	2,995.7	2,977.7	2,973.2	6.7	6.9	169.96	202.7	-30.1	328.2	315.4	12.86	25.514		
3,100.0	3,095.4	3,076.7	3,072.0	6.9	7.2	169.95	209.5	-31.7	341.9	328.6	13.31	25.683		
3,200.0	3,195.2	3,175.8	3,170.8	7.2	7.4	169.94	216.2	-33.2	355.6	341.9	13.76	25.839		
3,300.0	3,295.0	3,274.8	3,269.6	7.4	7.7	169.94	222.9	-34.8	369.3	355.1	14.21	25.984		
3,400.0	3,394.7	3,373.9	3,368.4	7.7	7.9	169.93	229.7	-36.3	383.0	368.4	14.66	26.120		
3,500.0	3,494.5	3,473.0	3,467.3	7.9	8.2	169.92	236.4	-37.8	396.7	381.6	15.11	26.247		
3,600.0	3,594.2	3,572.0	3,566.1	8.2	8.4	169.91	243.1	-39.4	410.4	394.8	15.57	26.365		
3,700.0	3,694.0	3,671.1	3,664.9	8.4	8.7	169.91	249.9	-40.9	424.1	408.1	16.02	26.477		
3,800.0	3,793.7	3,770.1	3,763.7	8.7	8.9	169.90	256.6	-42.5	437.8	421.3	16.47	26.581		
3,900.0	3,893.5	3,869.2	3,862.5	9.0	9.2	169.90	263.3	-44.0	451.5	434.6	16.92	26.679		
4,000.0	3,993.3	3,968.2	3,961.3	9.2	9.4	169.89	270.1	-45.6	465.2	447.8	17.38	26.772		
4,100.0	4,093.0	4,067.3	4,060.2	9.5	9.7	169.89	276.8	-47.1	478.9	461.1	17.83	26.860		
4,200.0	4,192.8	4,166.4	4,159.0	9.7	10.0	169.88	283.5	-48.7	492.6	474.3	18.28	26.943		
4,300.0	4,292.5	4,265.4	4,257.8	10.0	10.2	169.88	290.3	-50.2	506.3	487.5	18.74	27.021		
4,400.0	4,392.3	4,364.5	4,356.6	10.3	10.5	169.87	297.0	-51.7	520.0	500.8	19.19	27.096		
4,500.0	4,492.0	4,463.5	4,455.4	10.5	10.7	169.87	303.7	-53.3	533.7	514.0	19.64	27.166		
4,600.0	4,591.8	4,562.6	4,554.2	10.8	11.0	169.86	310.5	-54.8	547.4	527.3	20.10	27.234		
4,700.0	4,691.5	4,661.6	4,653.1	11.0	11.2	169.86	317.2	-56.4	561.1	540.5	20.55	27.298		
4,800.0	4,791.3	4,760.7	4,751.9	11.3	11.5	169.86	324.0	-57.9	574.8	553.7	21.01	27.359		
4,900.0	4,891.1	4,859.8	4,850.7	11.6	11.7	169.85	330.7	-59.5	588.5	567.0	21.46	27.417		
5,000.0	4,990.8	4,958.8	4,949.5	11.8	12.0	169.85	337.4	-61.0	602.1	580.2	21.92	27.472		
5,100.0	5,090.6	5,057.9	5,048.3	12.1	12.2	169.85	344.2	-62.6	615.8	593.5	22.37	27.526		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #10E-1502B
Project:	Weld County, CO	TVD Reference:	WELL @ 5039.1usft (Original Well Elev)
Reference Site:	S10-T10N-R58W	MD Reference:	WELL @ 5039.1usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design 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						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	5,190.3	5,156.9	5,147.1	12.3	12.5	169.84	350.9	-64.1	629.5	606.7	22.83	27.577	
5,300.0	5,290.1	5,256.0	5,246.0	12.6	12.7	169.84	357.6	-65.7	643.2	620.0	23.28	27.625	
5,400.0	5,389.8	5,355.1	5,344.8	12.9	13.0	169.84	364.4	-67.2	656.9	633.2	23.74	27.672	
5,500.0	5,489.6	5,454.1	5,443.6	13.1	13.2	169.84	371.1	-68.7	670.6	646.4	24.20	27.717	
5,600.0	5,589.4	5,553.2	5,542.4	13.4	13.5	169.83	377.8	-70.3	684.3	659.7	24.65	27.760	
5,700.0	5,689.1	5,652.2	5,641.2	13.6	13.7	169.83	384.6	-71.8	698.0	672.9	25.11	27.801	
5,800.0	5,788.8	5,751.2	5,739.9	13.9	14.0	169.76	391.3	-73.4	712.3	686.8	25.46	27.977	
5,900.0	5,886.4	5,800.0	5,788.6	14.3	14.1	169.21	395.1	-74.3	741.8	717.0	24.88	29.812	
6,000.0	5,978.1	5,850.0	5,837.9	14.9	14.3	168.07	403.1	-76.1	794.7	771.2	23.55	33.743	
6,100.0	6,060.7	5,867.2	5,854.7	15.6	14.4	165.62	406.9	-77.0	866.4	844.8	21.58	40.143	
6,200.0	6,131.0	5,900.0	5,886.2	16.5	14.5	160.99	415.6	-79.0	952.4	932.7	19.68	48.400	
6,300.0	6,186.4	5,900.0	5,886.2	17.6	14.5	147.09	415.6	-79.0	1,046.6	1,025.6	20.99	49.857	
6,400.0	6,225.0	5,900.0	5,886.2	18.9	14.5	89.31	415.6	-79.0	1,145.2	1,112.0	33.19	34.501	
6,500.0	6,245.4	5,900.0	5,886.2	20.3	14.5	30.28	415.6	-79.0	1,244.0	1,224.7	19.28	64.535	
6,600.0	6,248.5	5,900.0	5,886.2	21.7	14.5	16.12	415.6	-79.0	1,340.3	1,327.2	13.08	102.441	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #10E-1502B
Project:	Weld County, CO	TVD Reference:	WELL @ 5039.1usft (Original Well Elev)
Reference Site:	S10-T10N-R58W	MD Reference:	WELL @ 5039.1usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design 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							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	23.15	75.1	32.1	81.6					
100.0	100.0	100.0	100.0	0.1	0.1	23.15	75.1	32.1	81.6	81.4	0.19	436.499		
200.0	200.0	200.0	200.0	0.3	0.3	23.15	75.1	32.1	81.6	81.0	0.64	128.237		
300.0	300.0	300.0	300.0	0.5	0.5	23.15	75.1	32.1	81.6	80.5	1.09	75.159		
400.0	400.0	400.0	400.0	0.8	0.8	23.15	75.1	32.1	81.6	80.1	1.54	53.157		
500.0	500.0	500.0	500.0	1.0	1.0	23.15	75.1	32.1	81.6	79.6	1.99	41.120		
600.0	600.0	600.0	600.0	1.2	1.2	23.15	75.1	32.1	81.6	79.2	2.43	33.527		
700.0	700.0	700.0	700.0	1.4	1.4	23.15	75.1	32.1	81.6	78.7	2.88	28.302		
800.0	800.0	800.0	800.0	1.7	1.7	23.15	75.1	32.1	81.6	78.3	3.33	24.485		
900.0	900.0	900.0	900.0	1.9	1.9	23.15	75.1	32.1	81.6	77.8	3.78	21.576		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	23.15	75.1	32.1	81.6	77.4	4.23	19.285		
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	23.15	75.1	32.1	81.6	76.9	4.68	17.433 CC, ES		
1,200.0	1,200.0	1,197.3	1,197.2	2.5	2.6	-165.11	76.7	32.2	84.9	79.8	5.10	16.658 SF		
1,300.0	1,299.8	1,293.8	1,293.7	2.7	2.8	-166.81	81.6	32.5	94.8	89.3	5.49	17.268		
1,400.0	1,399.6	1,392.7	1,392.3	2.9	3.0	-168.72	88.5	33.0	108.3	102.4	5.90	18.365		
1,500.0	1,499.3	1,491.7	1,491.1	3.1	3.2	-170.21	95.4	33.5	121.9	115.6	6.31	19.326		
1,600.0	1,599.1	1,590.7	1,589.9	3.3	3.5	-171.40	102.3	33.9	135.6	128.8	6.72	20.162		
1,700.0	1,698.9	1,689.8	1,688.7	3.5	3.7	-172.37	109.1	34.4	149.3	142.1	7.14	20.893		
1,800.0	1,798.6	1,788.8	1,787.4	3.7	3.9	-173.18	116.0	34.8	163.0	155.4	7.57	21.536		
1,900.0	1,898.4	1,887.8	1,886.2	4.0	4.2	-173.86	122.9	35.3	176.8	168.8	8.00	22.103		
2,000.0	1,998.1	1,986.8	1,985.0	4.2	4.4	-174.44	129.8	35.8	190.6	182.1	8.43	22.609		
2,100.0	2,097.9	2,085.9	2,083.8	4.4	4.7	-174.95	136.7	36.2	204.4	195.5	8.86	23.060		
2,200.0	2,197.6	2,184.9	2,182.6	4.7	4.9	-175.39	143.6	36.7	218.2	208.9	9.30	23.465		
2,300.0	2,297.4	2,283.9	2,281.4	4.9	5.1	-175.78	150.5	37.1	232.0	222.3	9.74	23.831		
2,400.0	2,397.2	2,383.0	2,380.2	5.2	5.4	-176.12	157.4	37.6	245.8	235.7	10.17	24.162		
2,500.0	2,496.9	2,482.0	2,478.9	5.4	5.6	-176.43	164.3	38.1	259.7	249.1	10.62	24.463		
2,600.0	2,596.7	2,581.0	2,577.7	5.7	5.9	-176.71	171.2	38.5	273.5	262.5	11.06	24.738		
2,700.0	2,696.4	2,680.0	2,676.5	5.9	6.1	-176.96	178.1	39.0	287.4	275.9	11.50	24.990		
2,800.0	2,796.2	2,779.1	2,775.3	6.2	6.4	-177.19	185.0	39.4	301.2	289.3	11.94	25.221		
2,900.0	2,895.9	2,878.1	2,874.1	6.4	6.6	-177.39	191.9	39.9	315.1	302.7	12.39	25.434		
3,000.0	2,995.7	2,977.1	2,972.9	6.7	6.9	-177.58	198.7	40.4	329.0	316.1	12.84	25.632		
3,100.0	3,095.4	3,076.1	3,071.7	6.9	7.1	-177.76	205.6	40.8	342.9	329.6	13.28	25.815		
3,200.0	3,195.2	3,175.2	3,170.4	7.2	7.4	-177.92	212.5	41.3	356.7	343.0	13.73	25.985		
3,300.0	3,295.0	3,274.2	3,269.2	7.4	7.6	-178.07	219.4	41.8	370.6	356.4	14.18	26.143		
3,400.0	3,394.7	3,373.2	3,368.0	7.7	7.9	-178.21	226.3	42.2	384.5	369.9	14.62	26.291		
3,500.0	3,494.5	3,472.3	3,466.8	7.9	8.1	-178.34	233.2	42.7	398.4	383.3	15.07	26.429		
3,600.0	3,594.2	3,571.3	3,565.6	8.2	8.4	-178.46	240.1	43.1	412.3	396.7	15.52	26.559		
3,700.0	3,694.0	3,670.3	3,664.4	8.4	8.6	-178.57	247.0	43.6	426.1	410.2	15.97	26.681		
3,800.0	3,793.7	3,769.3	3,763.2	8.7	8.9	-178.67	253.9	44.1	440.0	423.6	16.42	26.796		
3,900.0	3,893.5	3,868.4	3,862.0	9.0	9.1	-178.77	260.8	44.5	453.9	437.0	16.87	26.904		
4,000.0	3,993.3	3,967.4	3,960.7	9.2	9.4	-178.86	267.7	45.0	467.8	450.5	17.32	27.006		
4,100.0	4,093.0	4,066.4	4,059.5	9.5	9.6	-178.95	274.6	45.4	481.7	463.9	17.77	27.103		
4,200.0	4,192.8	4,165.5	4,158.3	9.7	9.9	-179.03	281.5	45.9	495.6	477.4	18.22	27.194		
4,300.0	4,292.5	4,264.5	4,257.1	10.0	10.1	-179.11	288.3	46.4	509.5	490.8	18.68	27.281		
4,400.0	4,392.3	4,363.5	4,355.9	10.3	10.4	-179.19	295.2	46.8	523.4	504.3	19.13	27.363		
4,500.0	4,492.0	4,462.5	4,454.7	10.5	10.6	-179.26	302.1	47.3	537.3	517.7	19.58	27.442		
4,600.0	4,591.8	4,561.6	4,553.5	10.8	10.9	-179.32	309.0	47.8	551.2	531.1	20.03	27.516		
4,700.0	4,691.5	4,660.6	4,652.2	11.0	11.1	-179.38	315.9	48.2	565.1	544.6	20.48	27.587		
4,800.0	4,791.3	4,759.6	4,751.0	11.3	11.4	-179.44	322.8	48.7	579.0	558.0	20.94	27.655		
4,900.0	4,891.1	4,858.6	4,849.8	11.6	11.6	-179.50	329.7	49.1	592.9	571.5	21.39	27.720		
5,000.0	4,990.8	4,957.7	4,948.6	11.8	11.9	-179.56	336.6	49.6	606.8	584.9	21.84	27.782		
5,100.0	5,090.6	5,056.7	5,047.4	12.1	12.2	-179.61	343.5	50.1	620.7	598.4	22.29	27.841		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #10E-1502B
Project:	Weld County, CO	TVD Reference:	WELL @ 5039.1usft (Original Well Elev)
Reference Site:	S10-T10N-R58W	MD Reference:	WELL @ 5039.1usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S10-T10N-R58W - Razor #10E-0303A - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: 0-ISWWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,190.3	5,155.7	5,146.2	12.3	12.4	-179.66	350.4	50.5	634.6	611.8	22.75	27.897		
5,300.0	5,290.1	5,254.8	5,245.0	12.6	12.7	-179.71	357.3	51.0	648.5	625.3	23.20	27.952		
5,400.0	5,389.8	5,353.8	5,343.7	12.9	12.9	-179.75	364.2	51.4	662.4	638.7	23.65	28.004		
5,500.0	5,489.6	5,452.8	5,442.5	13.1	13.2	-179.80	371.1	51.9	676.3	652.2	24.11	28.054		
5,600.0	5,589.4	5,551.8	5,541.3	13.4	13.4	-179.84	377.9	52.4	690.2	665.6	24.56	28.102		
5,700.0	5,689.1	5,650.9	5,640.1	13.6	13.7	-179.88	384.8	52.8	704.1	679.1	25.01	28.148		
5,800.0	5,788.8	5,700.0	5,688.9	13.9	13.8	-179.91	390.1	53.2	722.1	696.9	25.25	28.596		
5,900.0	5,886.4	5,733.5	5,721.8	14.3	13.9	-179.94	396.3	53.6	760.6	736.0	24.63	30.886		
6,000.0	5,978.1	5,750.0	5,737.9	14.9	14.0	-179.95	400.1	53.9	821.7	798.6	23.13	35.521		
6,100.0	6,060.7	5,800.0	5,785.7	15.6	14.2	179.94	414.8	54.8	899.7	878.8	20.95	42.948		
6,200.0	6,131.0	5,800.0	5,785.7	16.5	14.2	179.91	414.8	54.8	989.7	971.7	18.03	54.891		
6,300.0	6,186.4	5,800.0	5,785.7	17.6	14.2	179.77	414.8	54.8	1,087.1	1,072.4	14.74	73.743		
6,400.0	6,225.0	5,800.0	5,785.7	18.9	14.2	0.31	414.8	54.8	1,187.0	1,175.6	11.35	104.587		
6,500.0	6,245.4	5,800.0	5,785.7	20.3	14.2	0.09	414.8	54.8	1,285.4	1,276.6	8.79	146.156		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #10E-1502B
Project:	Weld County, CO	TVD Reference:	WELL @ 5039.1usft (Original Well Elev)
Reference Site:	S10-T10N-R58W	MD Reference:	WELL @ 5039.1usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S10-T10N-R58W - Razor #10E-0304B - HZ - Plan #1														Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD														Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	41.02	75.1	65.3	99.5						
100.0	100.0	100.0	100.0	0.1	0.1	41.02	75.1	65.3	99.5	99.3	0.19	531.951			
200.0	200.0	200.0	200.0	0.3	0.3	41.02	75.1	65.3	99.5	98.8	0.64	156.279			
300.0	300.0	300.0	300.0	0.5	0.5	41.02	75.1	65.3	99.5	98.4	1.09	91.594			
400.0	400.0	400.0	400.0	0.8	0.8	41.02	75.1	65.3	99.5	97.9	1.54	64.781			
500.0	500.0	500.0	500.0	1.0	1.0	41.02	75.1	65.3	99.5	97.5	1.99	50.111			
600.0	600.0	600.0	600.0	1.2	1.2	41.02	75.1	65.3	99.5	97.0	2.43	40.859			
700.0	700.0	700.0	700.0	1.4	1.4	41.02	75.1	65.3	99.5	96.6	2.88	34.491			
800.0	800.0	800.0	800.0	1.7	1.7	41.02	75.1	65.3	99.5	96.1	3.33	29.840			
900.0	900.0	900.0	900.0	1.9	1.9	41.02	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	41.02	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	41.02	75.1	65.3	99.5	94.8	4.68	21.245 CC, ES			
1,200.0	1,200.0	1,200.0	1,200.0	2.5	2.6	-147.11	75.1	65.3	100.9	95.8	5.10	19.783			
1,300.0	1,299.8	1,296.5	1,296.5	2.7	2.8	-148.85	76.6	65.8	106.9	101.5	5.49	19.477 SF			
1,400.0	1,399.6	1,392.2	1,392.1	2.9	3.0	-151.37	81.2	67.3	117.7	111.9	5.89	19.986			
1,500.0	1,499.3	1,490.9	1,490.6	3.1	3.2	-153.76	87.7	69.5	130.6	124.3	6.30	20.716			
1,600.0	1,599.1	1,590.0	1,589.4	3.3	3.4	-155.73	94.3	71.6	143.6	136.9	6.72	21.374			
1,700.0	1,698.9	1,689.0	1,688.2	3.5	3.7	-157.38	100.8	73.8	156.8	149.7	7.14	21.961			
1,800.0	1,798.6	1,788.1	1,786.9	3.7	3.9	-158.76	107.4	75.9	170.1	162.6	7.57	22.484			
1,900.0	1,898.4	1,887.1	1,885.7	4.0	4.1	-159.95	114.0	78.1	183.5	175.5	7.99	22.951			
2,000.0	1,998.1	1,986.1	1,984.5	4.2	4.4	-160.97	120.5	80.3	196.9	188.5	8.43	23.371			
2,100.0	2,097.9	2,085.2	2,083.3	4.4	4.6	-161.86	127.1	82.4	210.4	201.6	8.86	23.750			
2,200.0	2,197.6	2,184.2	2,182.1	4.7	4.9	-162.65	133.6	84.6	224.0	214.7	9.30	24.092			
2,300.0	2,297.4	2,283.2	2,280.9	4.9	5.1	-163.34	140.2	86.8	237.6	227.8	9.73	24.403			
2,400.0	2,397.2	2,382.3	2,379.7	5.2	5.4	-163.97	146.8	88.9	251.2	241.0	10.17	24.686			
2,500.0	2,496.9	2,481.3	2,478.5	5.4	5.6	-164.52	153.3	91.1	264.8	254.2	10.62	24.945			
2,600.0	2,596.7	2,580.3	2,577.3	5.7	5.8	-165.02	159.9	93.2	278.4	267.4	11.06	25.182			
2,700.0	2,696.4	2,679.4	2,676.1	5.9	6.1	-165.48	166.4	95.4	292.1	280.6	11.50	25.400			
2,800.0	2,796.2	2,778.4	2,774.9	6.2	6.3	-165.89	173.0	97.6	305.8	293.9	11.94	25.602			
2,900.0	2,895.9	2,877.4	2,873.7	6.4	6.6	-166.27	179.6	99.7	319.5	307.1	12.39	25.788			
3,000.0	2,995.7	2,976.5	2,972.5	6.7	6.8	-166.62	186.1	101.9	333.2	320.4	12.84	25.961			
3,100.0	3,095.4	3,075.5	3,071.3	6.9	7.1	-166.94	192.7	104.1	347.0	333.7	13.28	26.121			
3,200.0	3,195.2	3,174.5	3,170.1	7.2	7.3	-167.24	199.2	106.2	360.7	347.0	13.73	26.271			
3,300.0	3,295.0	3,273.6	3,268.9	7.4	7.6	-167.51	205.8	108.4	374.5	360.3	14.18	26.411			
3,400.0	3,394.7	3,372.6	3,367.6	7.7	7.8	-167.77	212.4	110.5	388.2	373.6	14.63	26.541			
3,500.0	3,494.5	3,471.6	3,466.4	7.9	8.1	-168.00	218.9	112.7	402.0	386.9	15.08	26.664			
3,600.0	3,594.2	3,570.7	3,565.2	8.2	8.3	-168.22	225.5	114.9	415.7	400.2	15.52	26.779			
3,700.0	3,694.0	3,669.7	3,664.0	8.4	8.6	-168.43	232.1	117.0	429.5	413.5	15.97	26.887			
3,800.0	3,793.7	3,768.8	3,762.8	8.7	8.8	-168.63	238.6	119.2	443.3	426.9	16.42	26.989			
3,900.0	3,893.5	3,867.8	3,861.6	9.0	9.1	-168.81	245.2	121.4	457.1	440.2	16.88	27.086			
4,000.0	3,993.3	3,966.8	3,960.4	9.2	9.3	-168.98	251.7	123.5	470.9	453.5	17.33	27.177			
4,100.0	4,093.0	4,065.9	4,059.2	9.5	9.6	-169.14	258.3	125.7	484.7	466.9	17.78	27.263			
4,200.0	4,192.8	4,164.9	4,158.0	9.7	9.8	-169.30	264.9	127.8	498.5	480.2	18.23	27.345			
4,300.0	4,292.5	4,263.9	4,256.8	10.0	10.1	-169.44	271.4	130.0	512.3	493.6	18.68	27.422			
4,400.0	4,392.3	4,363.0	4,355.6	10.3	10.3	-169.58	278.0	132.2	526.1	506.9	19.13	27.496			
4,500.0	4,492.0	4,462.0	4,454.4	10.5	10.6	-169.71	284.5	134.3	539.9	520.3	19.58	27.566			
4,600.0	4,591.8	4,561.0	4,553.2	10.8	10.8	-169.83	291.1	136.5	553.7	533.6	20.04	27.633			
4,700.0	4,691.5	4,660.1	4,652.0	11.0	11.1	-169.95	297.7	138.7	567.5	547.0	20.49	27.697			
4,800.0	4,791.3	4,759.1	4,750.8	11.3	11.3	-170.06	304.2	140.8	581.3	560.4	20.94	27.758			
4,900.0	4,891.1	4,858.1	4,849.6	11.6	11.6	-170.17	310.8	143.0	595.1	573.7	21.39	27.816			
5,000.0	4,990.8	4,957.2	4,948.3	11.8	11.8	-170.27	317.4	145.1	608.9	587.1	21.85	27.872			
5,100.0	5,090.6	5,056.2	5,047.1	12.1	12.1	-170.37	323.9	147.3	622.7	600.4	22.30	27.925			

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #10E-1502B
Project:	Weld County, CO	TVD Reference:	WELL @ 5039.1usft (Original Well Elev)
Reference Site:	S10-T10N-R58W	MD Reference:	WELL @ 5039.1usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S10-T10N-R58W - Razor #10E-0304B - 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	5,190.3	5,155.2	5,145.9	12.3	12.4	-170.46	330.5	149.5	636.6	613.8	22.75	27.976		
5,300.0	5,290.1	5,254.3	5,244.7	12.6	12.6	-170.55	337.0	151.6	650.4	627.2	23.21	28.025		
5,400.0	5,389.8	5,353.3	5,343.5	12.9	12.9	-170.64	343.6	153.8	664.2	640.5	23.66	28.072		
5,500.0	5,489.6	5,452.3	5,442.3	13.1	13.1	-170.72	350.2	155.9	678.0	653.9	24.11	28.117		
5,600.0	5,589.4	5,551.4	5,541.1	13.4	13.4	-170.80	356.7	158.1	691.9	667.3	24.57	28.161		
5,700.0	5,689.1	5,650.4	5,639.9	13.6	13.6	-170.88	363.3	160.3	705.7	680.7	25.02	28.202		
5,800.0	5,788.8	5,749.4	5,738.6	13.9	13.9	-170.89	369.8	162.4	720.1	694.7	25.37	28.379		
5,900.0	5,886.4	5,800.0	5,789.1	14.3	14.0	-170.44	373.8	163.7	749.7	724.9	24.81	30.225		
6,000.0	5,978.1	5,850.0	5,838.4	14.9	14.2	-169.53	381.6	166.3	802.9	779.4	23.47	34.214		
6,100.0	6,060.7	5,850.0	5,838.4	15.6	14.2	-167.18	381.6	166.3	875.0	853.5	21.44	40.811		
6,200.0	6,131.0	5,882.3	5,869.7	16.5	14.3	-162.96	389.0	168.8	960.6	941.2	19.41	49.478		
6,300.0	6,186.4	5,900.0	5,886.6	17.6	14.4	-151.12	393.9	170.4	1,055.4	1,035.4	19.96	52.878		
6,400.0	6,225.0	5,900.0	5,886.6	18.9	14.4	-91.08	393.9	170.4	1,154.1	1,121.0	33.17	34.795		
6,500.0	6,245.4	5,900.0	5,886.6	20.3	14.4	-27.27	393.9	170.4	1,253.1	1,235.3	17.80	70.388		
6,600.0	6,248.5	5,900.0	5,886.6	21.7	14.4	-21.91	393.9	170.4	1,349.5	1,333.8	15.64	86.301		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #10E-1502B
Project:	Weld County, CO	TVD Reference:	WELL @ 5039.1usft (Original Well Elev)
Reference Site:	S10-T10N-R58W	MD Reference:	WELL @ 5039.1usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S10-T10N-R58W - Razor #10E-1501A - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: 0-ISCSA 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	30.567		
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	0.0	-33.2	33.2	31.7	1.54	21.619		
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	2.5	2.6	85.41	0.0	-33.2	33.0	27.9	5.10	6.470		
1,223.9	1,223.8	1,223.7	1,223.7	2.6	2.6	86.85	-0.1	-33.2	33.0	27.8	5.19	6.353 CC, ES		
1,300.0	1,299.8	1,299.6	1,299.6	2.7	2.8	91.52	-1.6	-33.8	33.3	27.9	5.47	6.089		
1,400.0	1,399.6	1,399.4	1,399.2	2.9	2.9	94.62	-6.5	-35.7	34.6	28.8	5.83	5.937		
1,500.0	1,499.3	1,499.4	1,499.0	3.1	3.1	94.71	-13.0	-38.2	36.3	30.1	6.22	5.833		
1,600.0	1,599.1	1,599.4	1,598.7	3.3	3.3	94.80	-19.5	-40.7	37.9	31.3	6.62	5.724		
1,700.0	1,698.9	1,699.3	1,698.4	3.5	3.5	94.88	-26.0	-43.2	39.6	32.5	7.05	5.614		
1,800.0	1,798.6	1,799.3	1,798.2	3.7	3.7	94.95	-32.5	-45.7	41.2	33.7	7.48	5.507		
1,900.0	1,898.4	1,899.3	1,897.9	4.0	4.0	95.02	-39.0	-48.2	42.8	34.9	7.93	5.403		
2,000.0	1,998.1	1,999.3	1,997.7	4.2	4.2	95.08	-45.5	-50.8	44.5	36.1	8.38	5.305		
2,100.0	2,097.9	2,099.3	2,097.4	4.4	4.4	95.14	-52.0	-53.3	46.1	37.3	8.85	5.212		
2,200.0	2,197.6	2,199.3	2,197.2	4.7	4.7	95.20	-58.5	-55.8	47.8	38.4	9.32	5.124		
2,300.0	2,297.4	2,299.3	2,296.9	4.9	4.9	95.25	-65.0	-58.3	49.4	39.6	9.80	5.042		
2,400.0	2,397.2	2,399.2	2,396.6	5.2	5.1	95.30	-71.5	-60.8	51.0	40.8	10.28	4.965		
2,500.0	2,496.9	2,499.2	2,496.4	5.4	5.4	95.34	-78.0	-63.3	52.7	41.9	10.76	4.893		
2,600.0	2,596.7	2,599.2	2,596.1	5.7	5.6	95.38	-84.6	-65.8	54.3	43.1	11.25	4.825		
2,700.0	2,696.4	2,699.2	2,695.9	5.9	5.9	95.42	-91.1	-68.3	55.9	44.2	11.75	4.762		
2,800.0	2,796.2	2,799.2	2,795.6	6.2	6.1	95.46	-97.6	-70.8	57.6	45.3	12.25	4.703		
2,900.0	2,895.9	2,899.2	2,895.4	6.4	6.4	95.49	-104.1	-73.4	59.2	46.5	12.74	4.647		
3,000.0	2,995.7	2,999.2	2,995.1	6.7	6.6	95.53	-110.6	-75.9	60.9	47.6	13.25	4.595		
3,100.0	3,095.4	3,099.1	3,094.8	6.9	6.9	95.56	-117.1	-78.4	62.5	48.8	13.75	4.546		
3,200.0	3,195.2	3,199.1	3,194.6	7.2	7.1	95.59	-123.6	-80.9	64.1	49.9	14.25	4.500		
3,300.0	3,295.0	3,299.1	3,294.3	7.4	7.4	95.62	-130.1	-83.4	65.8	51.0	14.76	4.456		
3,400.0	3,394.7	3,399.1	3,394.1	7.7	7.6	95.65	-136.6	-85.9	67.4	52.2	15.27	4.415		
3,500.0	3,494.5	3,499.1	3,493.8	7.9	7.9	95.67	-143.1	-88.4	69.1	53.3	15.78	4.377		
3,600.0	3,594.2	3,599.1	3,593.6	8.2	8.1	95.70	-149.6	-90.9	70.7	54.4	16.29	4.340		
3,700.0	3,694.0	3,699.1	3,693.3	8.4	8.4	95.72	-156.1	-93.4	72.3	55.5	16.80	4.305		
3,800.0	3,793.7	3,799.1	3,793.0	8.7	8.6	95.74	-162.6	-96.0	74.0	56.7	17.32	4.272		
3,900.0	3,893.5	3,899.0	3,892.8	9.0	8.9	95.76	-169.1	-98.5	75.6	57.8	17.83	4.241		
4,000.0	3,993.3	3,999.0	3,992.5	9.2	9.1	95.78	-175.7	-101.0	77.3	58.9	18.35	4.211		
4,100.0	4,093.0	4,099.0	4,092.3	9.5	9.4	95.80	-182.2	-103.5	78.9	60.0	18.86	4.183		
4,200.0	4,192.8	4,199.0	4,192.0	9.7	9.7	95.82	-188.7	-106.0	80.5	61.2	19.38	4.156		
4,300.0	4,292.5	4,299.0	4,291.8	10.0	9.9	95.84	-195.2	-108.5	82.2	62.3	19.90	4.131		
4,400.0	4,392.3	4,399.0	4,391.5	10.3	10.2	95.86	-201.7	-111.0	83.8	63.4	20.41	4.106		
4,500.0	4,492.0	4,499.0	4,491.2	10.5	10.4	95.88	-208.2	-113.5	85.5	64.5	20.93	4.083		
4,600.0	4,591.8	4,598.9	4,591.0	10.8	10.7	95.89	-214.7	-116.0	87.1	65.6	21.45	4.061		
4,700.0	4,691.5	4,698.9	4,690.7	11.0	11.0	95.91	-221.2	-118.6	88.7	66.8	21.97	4.039		
4,800.0	4,791.3	4,798.9	4,790.5	11.3	11.2	95.92	-227.7	-121.1	90.4	67.9	22.49	4.019		
4,900.0	4,891.1	4,898.9	4,890.2	11.6	11.5	95.94	-234.2	-123.6	92.0	69.0	23.01	3.999		
5,000.0	4,990.8	4,998.9	4,990.0	11.8	11.7	95.95	-240.7	-126.1	93.7	70.1	23.53	3.980		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #10E-1502B
Project:	Weld County, CO	TVD Reference:	WELL @ 5039.1usft (Original Well Elev)
Reference Site:	S10-T10N-R58W	MD Reference:	WELL @ 5039.1usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design 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							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.0	5,090.6	5,098.9	5,089.7	12.1	12.0	95.96	-247.2	-128.6	95.3	71.2	24.05	3.962	
5,200.0	5,190.3	5,198.9	5,189.4	12.3	12.3	95.98	-253.7	-131.1	96.9	72.4	24.57	3.945	
5,300.0	5,290.1	5,298.8	5,289.2	12.6	12.5	95.99	-260.2	-133.6	98.6	73.5	25.09	3.928	
5,400.0	5,389.8	5,398.8	5,388.9	12.9	12.8	96.00	-266.8	-136.1	100.2	74.6	25.62	3.912	
5,500.0	5,489.6	5,498.8	5,488.7	13.1	13.0	96.01	-273.3	-138.6	101.9	75.7	26.14	3.897	
5,600.0	5,589.4	5,598.8	5,588.4	13.4	13.3	96.02	-279.8	-141.2	103.5	76.8	26.66	3.882	
5,700.0	5,689.1	5,697.6	5,686.8	13.6	13.6	95.14	-287.7	-144.2	105.4	78.2	27.19	3.875	
5,800.0	5,788.8	5,792.1	5,778.4	13.9	14.0	86.97	-308.7	-152.3	110.7	83.0	27.77	3.987	
5,900.0	5,886.4	5,882.4	5,860.9	14.3	14.5	77.68	-342.8	-165.5	122.9	94.5	28.39	4.328	
6,000.0	5,978.1	5,969.6	5,933.4	14.9	15.1	70.95	-387.9	-182.9	140.0	111.0	29.05	4.820	
6,100.0	6,060.7	6,054.3	5,995.1	15.6	15.8	66.47	-441.9	-203.7	160.0	130.3	29.74	5.380	
6,200.0	6,131.0	6,136.8	6,045.4	16.5	16.7	63.71	-502.8	-227.2	181.3	150.8	30.57	5.931	
6,300.0	6,186.4	6,217.7	6,084.2	17.6	17.7	62.17	-569.0	-252.7	203.0	171.3	31.73	6.398	
6,400.0	6,225.0	6,300.0	6,111.9	18.9	18.7	61.58	-641.2	-280.6	224.3	190.9	33.40	6.716	
6,500.0	6,245.4	6,376.7	6,126.4	20.3	19.8	61.54	-711.4	-307.7	244.8	209.3	35.52	6.892	
6,600.0	6,248.5	6,462.9	6,130.0	21.7	21.1	62.76	-791.8	-338.5	265.1	226.8	38.35	6.913	
6,700.0	6,248.5	6,574.6	6,130.0	23.0	22.6	64.97	-897.5	-374.3	286.8	245.2	41.53	6.906	
6,800.0	6,248.5	6,688.1	6,130.0	24.4	24.2	66.83	-1,006.9	-404.2	308.2	263.5	44.63	6.906	
6,900.0	6,248.5	6,803.8	6,130.0	25.9	25.8	68.47	-1,120.2	-428.0	327.2	279.1	48.11	6.802	
7,000.0	6,248.5	6,922.1	6,130.0	27.5	27.6	69.53	-1,237.2	-445.1	340.8	289.1	51.67	6.595	
7,100.0	6,248.5	7,042.1	6,130.0	29.2	29.4	70.10	-1,356.8	-455.1	348.6	293.4	55.21	6.315	
7,200.0	6,248.5	7,159.2	6,130.0	30.9	31.2	70.25	-1,473.8	-457.7	350.6	292.0	58.62	5.981	
7,300.0	6,248.5	7,259.2	6,130.0	32.6	32.8	70.25	-1,573.8	-457.7	350.6	288.8	61.84	5.670	
7,400.0	6,248.5	7,359.2	6,130.0	34.4	34.4	70.24	-1,673.8	-457.7	350.6	285.5	65.12	5.385	
7,500.0	6,248.5	7,459.2	6,130.0	36.1	36.1	70.24	-1,773.8	-457.7	350.6	282.2	68.43	5.124	
7,600.0	6,248.5	7,559.2	6,130.0	37.9	37.8	70.24	-1,873.8	-457.7	350.6	278.9	71.78	4.885	
7,700.0	6,248.5	7,659.2	6,130.0	39.7	39.5	70.24	-1,973.8	-457.7	350.6	275.5	75.15	4.666	
7,800.0	6,248.6	7,759.2	6,130.0	41.5	41.2	70.24	-2,073.8	-457.7	350.6	272.1	78.55	4.464	
7,900.0	6,248.6	7,859.2	6,130.0	43.3	43.0	70.24	-2,173.8	-457.7	350.6	268.7	81.97	4.278	
8,000.0	6,248.6	7,959.2	6,130.0	45.2	44.7	70.24	-2,273.8	-457.7	350.6	265.2	85.41	4.105	
8,100.0	6,248.6	8,059.2	6,130.0	47.0	46.5	70.24	-2,373.8	-457.7	350.6	261.8	88.87	3.946	
8,200.0	6,248.6	8,159.2	6,130.0	48.8	48.3	70.23	-2,473.8	-457.7	350.6	258.3	92.34	3.797	
8,300.0	6,248.6	8,259.2	6,130.0	50.7	50.1	70.23	-2,573.8	-457.7	350.6	254.8	95.82	3.659	
8,400.0	6,248.6	8,359.2	6,130.0	52.5	51.9	70.23	-2,673.8	-457.6	350.6	251.3	99.32	3.530	
8,500.0	6,248.6	8,459.2	6,130.0	54.4	53.7	70.23	-2,773.8	-457.6	350.6	247.8	102.83	3.410	
8,600.0	6,248.6	8,559.2	6,130.0	56.2	55.5	70.23	-2,873.8	-457.6	350.6	244.3	106.34	3.297	
8,700.0	6,248.6	8,659.2	6,130.0	58.1	57.4	70.23	-2,973.8	-457.6	350.6	240.8	109.87	3.191	
8,800.0	6,248.6	8,759.2	6,130.0	60.0	59.2	70.23	-3,073.8	-457.6	350.6	237.2	113.40	3.092	
8,900.0	6,248.6	8,859.2	6,130.0	61.8	61.0	70.23	-3,173.8	-457.6	350.6	233.7	116.94	2.998	
9,000.0	6,248.6	8,959.2	6,130.0	63.7	62.9	70.22	-3,273.8	-457.6	350.6	230.2	120.49	2.910	
9,100.0	6,248.6	9,059.2	6,130.0	65.6	64.7	70.22	-3,373.8	-457.6	350.6	226.6	124.04	2.827	
9,200.0	6,248.7	9,159.2	6,130.0	67.5	66.6	70.22	-3,473.8	-457.6	350.6	223.0	127.60	2.748	
9,300.0	6,248.7	9,259.2	6,130.0	69.4	68.4	70.22	-3,573.8	-457.6	350.6	219.5	131.16	2.673	
9,400.0	6,248.7	9,359.2	6,130.0	71.2	70.3	70.22	-3,673.8	-457.6	350.6	215.9	134.73	2.603	
9,500.0	6,248.7	9,459.2	6,130.0	73.1	72.2	70.22	-3,773.8	-457.6	350.6	212.3	138.30	2.535	
9,600.0	6,248.7	9,559.2	6,130.0	75.0	74.0	70.22	-3,873.8	-457.6	350.6	208.8	141.88	2.471	
9,700.0	6,248.7	9,659.2	6,130.0	76.9	75.9	70.22	-3,973.8	-457.6	350.6	205.2	145.46	2.411	
9,800.0	6,248.7	9,759.2	6,130.0	78.8	77.8	70.21	-4,073.8	-457.6	350.6	201.6	149.04	2.353	
9,900.0	6,248.7	9,859.2	6,130.0	80.7	79.7	70.21	-4,173.8	-457.6	350.6	198.0	152.63	2.297	
10,000.0	6,248.7	9,959.2	6,130.0	82.6	81.5	70.21	-4,273.8	-457.6	350.6	194.4	156.22	2.245	
10,100.0	6,248.7	10,059.2	6,130.0	84.5	83.4	70.21	-4,373.8	-457.6	350.6	190.8	159.81	2.194	
10,200.0	6,248.7	10,159.2	6,130.0	86.4	85.3	70.21	-4,473.8	-457.6	350.7	187.2	163.40	2.146	

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #10E-1502B
Project:	Weld County, CO	TVD Reference:	WELL @ 5039.1usft (Original Well Elev)
Reference Site:	S10-T10N-R58W	MD Reference:	WELL @ 5039.1usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design 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		
10,300.0	6,248.7	10,259.2	6,130.0	88.3	87.2	70.21	-4,573.8	-457.6	350.7	183.7	167.00	2.100		
10,400.0	6,248.7	10,359.2	6,130.0	90.2	89.1	70.21	-4,673.8	-457.6	350.7	180.1	170.60	2.055		
10,500.0	6,248.7	10,459.2	6,130.0	92.1	90.9	70.21	-4,773.8	-457.6	350.7	176.5	174.20	2.013		
10,600.0	6,248.8	10,559.2	6,130.0	94.0	92.8	70.20	-4,873.8	-457.6	350.7	172.9	177.80	1.972		
10,700.0	6,248.8	10,659.2	6,130.0	95.9	94.7	70.20	-4,973.8	-457.6	350.7	169.3	181.40	1.933		
10,800.0	6,248.8	10,759.2	6,130.0	97.8	96.6	70.20	-5,073.8	-457.6	350.7	165.6	185.01	1.895		
10,900.0	6,248.8	10,859.2	6,130.0	99.7	98.5	70.20	-5,173.8	-457.6	350.7	162.0	188.62	1.859		
11,000.0	6,248.8	10,959.2	6,130.0	101.6	100.4	70.20	-5,273.8	-457.6	350.7	158.4	192.23	1.824		
11,100.0	6,248.8	11,059.2	6,130.0	103.5	102.3	70.20	-5,373.8	-457.6	350.7	154.8	195.84	1.791		
11,200.0	6,248.8	11,159.2	6,130.0	105.4	104.2	70.20	-5,473.8	-457.5	350.7	151.2	199.45	1.758		
11,300.0	6,248.8	11,259.2	6,130.0	107.3	106.1	70.20	-5,573.8	-457.5	350.7	147.6	203.06	1.727		
11,400.0	6,248.8	11,359.2	6,130.0	109.2	108.0	70.19	-5,673.8	-457.5	350.7	144.0	206.67	1.697		
11,500.0	6,248.8	11,459.2	6,130.0	111.1	109.9	70.19	-5,773.8	-457.5	350.7	140.4	210.29	1.668		
11,600.0	6,248.8	11,559.2	6,130.0	113.0	111.8	70.19	-5,873.8	-457.5	350.7	136.8	213.91	1.639		
11,700.0	6,248.8	11,659.2	6,130.0	114.9	113.7	70.19	-5,973.8	-457.5	350.7	133.1	217.52	1.612		
11,800.0	6,248.8	11,759.2	6,130.0	116.8	115.6	70.19	-6,073.8	-457.5	350.7	129.5	221.14	1.586		
11,900.0	6,248.9	11,859.2	6,130.0	118.7	117.5	70.19	-6,173.8	-457.5	350.7	125.9	224.76	1.560		
12,000.0	6,248.9	11,959.2	6,130.0	120.6	119.4	70.19	-6,273.8	-457.5	350.7	122.3	228.38	1.535		
12,100.0	6,248.9	12,059.2	6,130.0	122.5	121.3	70.19	-6,373.8	-457.5	350.7	118.7	232.00	1.511		
12,200.0	6,248.9	12,159.2	6,130.0	124.4	123.2	70.18	-6,473.8	-457.5	350.7	115.0	235.62	1.488	Level 3	
12,300.0	6,248.9	12,259.2	6,130.0	126.4	125.1	70.18	-6,573.8	-457.5	350.7	111.4	239.24	1.466	Level 3	
12,400.0	6,248.9	12,359.2	6,130.0	128.3	127.0	70.18	-6,673.8	-457.5	350.7	107.8	242.87	1.444	Level 3	
12,500.0	6,248.9	12,459.2	6,130.0	130.2	128.9	70.18	-6,773.8	-457.5	350.7	104.2	246.49	1.423	Level 3	
12,600.0	6,248.9	12,559.2	6,130.0	132.1	130.8	70.18	-6,873.8	-457.5	350.7	100.6	250.12	1.402	Level 3	
12,700.0	6,248.9	12,659.2	6,130.0	134.0	132.7	70.18	-6,973.8	-457.5	350.7	96.9	253.74	1.382	Level 3	
12,800.0	6,248.9	12,759.2	6,130.0	135.9	134.6	70.18	-7,073.8	-457.5	350.7	93.3	257.37	1.363	Level 3	
12,900.0	6,248.9	12,859.2	6,130.0	137.8	136.5	70.18	-7,173.8	-457.5	350.7	89.7	260.99	1.344	Level 3	
13,000.0	6,248.9	12,959.2	6,130.0	139.7	138.4	70.18	-7,273.8	-457.5	350.7	86.1	264.62	1.325	Level 3	
13,100.0	6,248.9	13,059.2	6,130.0	141.6	140.3	70.17	-7,373.8	-457.5	350.7	82.4	268.25	1.307	Level 3	
13,200.0	6,248.9	13,159.2	6,130.0	143.6	142.2	70.17	-7,473.8	-457.5	350.7	78.8	271.87	1.290	Level 3	
13,300.0	6,249.0	13,259.2	6,130.0	145.5	144.1	70.17	-7,573.8	-457.5	350.7	75.2	275.50	1.273	Level 3	
13,400.0	6,249.0	13,359.2	6,130.0	147.4	146.0	70.17	-7,673.8	-457.5	350.7	71.5	279.13	1.256	Level 3	
13,500.0	6,249.0	13,459.2	6,130.0	149.3	147.9	70.17	-7,773.8	-457.5	350.7	67.9	282.76	1.240	Level 2	
13,600.0	6,249.0	13,559.2	6,130.0	151.2	149.9	70.17	-7,873.8	-457.5	350.7	64.3	286.39	1.224	Level 2	
13,700.0	6,249.0	13,659.2	6,130.0	153.1	151.8	70.17	-7,973.8	-457.5	350.7	60.7	290.02	1.209	Level 2	
13,800.0	6,249.0	13,759.2	6,130.0	155.0	153.7	70.17	-8,073.8	-457.5	350.7	57.0	293.65	1.194	Level 2	
13,900.0	6,249.0	13,859.2	6,130.0	156.9	155.6	70.16	-8,173.8	-457.4	350.7	53.4	297.28	1.180	Level 2	
13,958.1	6,249.0	13,917.3	6,130.0	158.1	156.7	70.16	-8,232.0	-457.4	350.7	51.3	299.39	1.171	Level 2, SF	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #10E-1502B
Project:	Weld County, CO	TVD Reference:	WELL @ 5039.1usft (Original Well Elev)
Reference Site:	S10-T10N-R58W	MD Reference:	WELL @ 5039.1usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design 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							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	32.1	32.1					
100.0	100.0	100.0	100.0	0.1	0.1	90.00	0.0	32.1	32.1	31.9	0.19	171.604		
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	32.1	32.1	31.5	0.64	50.415		
300.0	300.0	300.0	300.0	0.5	0.5	90.00	0.0	32.1	32.1	31.0	1.09	29.548		
400.0	400.0	400.0	400.0	0.8	0.8	90.00	0.0	32.1	32.1	30.6	1.54	20.898		
500.0	500.0	500.0	500.0	1.0	1.0	90.00	0.0	32.1	32.1	30.1	1.99	16.166		
600.0	600.0	600.0	600.0	1.2	1.2	90.00	0.0	32.1	32.1	29.7	2.43	13.181		
700.0	700.0	700.0	700.0	1.4	1.4	90.00	0.0	32.1	32.1	29.2	2.88	11.126		
800.0	800.0	800.0	800.0	1.7	1.7	90.00	0.0	32.1	32.1	28.8	3.33	9.626		
900.0	900.0	900.0	900.0	1.9	1.9	90.00	0.0	32.1	32.1	28.3	3.78	8.482		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	90.00	0.0	32.1	32.1	27.9	4.23	7.581 CC		
1,100.0	1,100.0	1,099.8	1,099.7	2.3	2.3	93.03	-1.7	32.4	32.4	27.8	4.65	6.970 ES		
1,200.0	1,200.0	1,199.4	1,199.2	2.5	2.5	-88.89	-6.8	33.3	33.9	28.9	5.02	6.748		
1,300.0	1,299.8	1,299.4	1,298.9	2.7	2.7	-86.65	-13.7	34.5	36.0	30.7	5.39	6.691		
1,400.0	1,399.6	1,399.3	1,398.7	2.9	2.9	-87.31	-20.6	35.6	38.1	32.3	5.77	6.600		
1,500.0	1,499.3	1,499.3	1,498.4	3.1	3.1	-87.90	-27.5	36.8	40.2	34.0	6.18	6.500		
1,600.0	1,599.1	1,599.3	1,598.1	3.3	3.3	-88.44	-34.3	38.0	42.2	35.6	6.61	6.396		
1,700.0	1,698.9	1,699.3	1,697.9	3.5	3.5	-88.92	-41.2	39.2	44.3	37.3	7.04	6.292		
1,800.0	1,798.6	1,799.2	1,797.6	3.7	3.8	-89.36	-48.1	40.4	46.4	38.9	7.49	6.192		
1,900.0	1,898.4	1,899.2	1,897.4	4.0	4.0	-89.77	-54.9	41.6	48.5	40.5	7.95	6.096		
2,000.0	1,998.1	1,999.2	1,997.1	4.2	4.2	-90.14	-61.8	42.8	50.6	42.2	8.42	6.005		
2,100.0	2,097.9	2,099.2	2,096.8	4.4	4.5	-90.48	-68.7	44.0	52.7	43.8	8.90	5.919		
2,200.0	2,197.6	2,199.1	2,196.6	4.7	4.7	-90.79	-75.6	45.1	54.8	45.4	9.38	5.839		
2,300.0	2,297.4	2,299.1	2,296.3	4.9	5.0	-91.09	-82.4	46.3	56.8	47.0	9.86	5.763		
2,400.0	2,397.2	2,399.1	2,396.0	5.2	5.2	-91.36	-89.3	47.5	58.9	48.6	10.35	5.693		
2,500.0	2,496.9	2,499.1	2,495.8	5.4	5.5	-91.61	-96.2	48.7	61.0	50.2	10.85	5.627		
2,600.0	2,596.7	2,599.1	2,595.5	5.7	5.7	-91.84	-103.0	49.9	63.1	51.8	11.34	5.565		
2,700.0	2,696.4	2,699.0	2,695.2	5.9	6.0	-92.07	-109.9	51.1	65.2	53.4	11.84	5.508		
2,800.0	2,796.2	2,799.0	2,795.0	6.2	6.2	-92.27	-116.8	52.3	67.3	55.0	12.34	5.454		
2,900.0	2,895.9	2,899.0	2,894.7	6.4	6.5	-92.47	-123.7	53.5	69.4	56.6	12.85	5.403		
3,000.0	2,995.7	2,999.0	2,994.4	6.7	6.7	-92.65	-130.5	54.6	71.5	58.2	13.35	5.355		
3,100.0	3,095.4	3,098.9	3,094.2	6.9	7.0	-92.82	-137.4	55.8	73.6	59.8	13.86	5.311		
3,200.0	3,195.2	3,198.9	3,193.9	7.2	7.2	-92.99	-144.3	57.0	75.7	61.3	14.37	5.269		
3,300.0	3,295.0	3,298.9	3,293.6	7.4	7.5	-93.14	-151.2	58.2	77.8	62.9	14.88	5.229		
3,400.0	3,394.7	3,398.9	3,393.4	7.7	7.8	-93.29	-158.0	59.4	79.9	64.5	15.39	5.192		
3,500.0	3,494.5	3,498.9	3,493.1	7.9	8.0	-93.42	-164.9	60.6	82.0	66.1	15.90	5.157		
3,600.0	3,594.2	3,598.8	3,592.8	8.2	8.3	-93.56	-171.8	61.8	84.1	67.7	16.42	5.123		
3,700.0	3,694.0	3,698.8	3,692.6	8.4	8.5	-93.68	-178.6	62.9	86.2	69.3	16.93	5.092		
3,800.0	3,793.7	3,798.8	3,792.3	8.7	8.8	-93.80	-185.5	64.1	88.3	70.9	17.45	5.062		
3,900.0	3,893.5	3,898.8	3,892.0	9.0	9.0	-93.91	-192.4	65.3	90.4	72.5	17.97	5.033		
4,000.0	3,993.3	3,998.7	3,991.8	9.2	9.3	-94.02	-199.3	66.5	92.5	74.0	18.48	5.006		
4,100.0	4,093.0	4,098.7	4,091.5	9.5	9.6	-94.13	-206.1	67.7	94.6	75.6	19.00	4.981		
4,200.0	4,192.8	4,198.7	4,191.2	9.7	9.8	-94.23	-213.0	68.9	96.7	77.2	19.52	4.956		
4,300.0	4,292.5	4,298.7	4,291.0	10.0	10.1	-94.32	-219.9	70.1	98.8	78.8	20.04	4.933		
4,400.0	4,392.3	4,398.7	4,390.7	10.3	10.3	-94.41	-226.7	71.3	100.9	80.4	20.56	4.911		
4,500.0	4,492.0	4,498.6	4,490.4	10.5	10.6	-94.50	-233.6	72.4	103.0	82.0	21.08	4.889		
4,600.0	4,591.8	4,598.6	4,590.2	10.8	10.9	-94.58	-240.5	73.6	105.2	83.6	21.60	4.869		
4,700.0	4,691.5	4,698.6	4,689.9	11.0	11.1	-94.66	-247.4	74.8	107.3	85.1	22.12	4.850		
4,800.0	4,791.3	4,798.6	4,789.6	11.3	11.4	-94.74	-254.2	76.0	109.4	86.7	22.64	4.831		
4,900.0	4,891.1	4,898.5	4,889.4	11.6	11.7	-94.81	-261.1	77.2	111.5	88.3	23.16	4.813		
5,000.0	4,990.8	4,998.5	4,989.1	11.8	11.9	-94.89	-268.0	78.4	113.6	89.9	23.68	4.796		
5,100.0	5,090.6	5,098.5	5,088.8	12.1	12.2	-94.96	-274.9	79.6	115.7	91.5	24.20	4.780		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #10E-1502B
Project:	Weld County, CO	TVD Reference:	WELL @ 5039.1usft (Original Well Elev)
Reference Site:	S10-T10N-R58W	MD Reference:	WELL @ 5039.1usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design 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						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	5,190.3	5,198.5	5,188.6	12.3	12.4	-95.02	-281.7	80.8	117.8	93.1	24.72	4.764		
5,300.0	5,290.1	5,298.5	5,288.3	12.6	12.7	-95.09	-288.6	81.9	119.9	94.6	25.25	4.749		
5,400.0	5,389.8	5,398.4	5,388.0	12.9	13.0	-95.15	-295.5	83.1	122.0	96.2	25.77	4.734		
5,500.0	5,489.6	5,498.4	5,487.8	13.1	13.2	-95.21	-302.3	84.3	124.1	97.8	26.29	4.720		
5,600.0	5,589.4	5,598.4	5,587.5	13.4	13.5	-95.27	-309.2	85.5	126.2	99.4	26.81	4.707		
5,700.0	5,689.1	5,696.2	5,684.9	13.6	13.8	-94.65	-317.5	86.9	128.7	101.3	27.34	4.706		
5,800.0	5,788.8	5,788.5	5,774.6	13.9	14.1	-88.35	-338.7	90.6	135.4	107.4	27.91	4.849		
5,900.0	5,886.4	5,876.9	5,855.6	14.3	14.6	-80.90	-373.3	96.6	149.0	120.5	28.58	5.214		
6,000.0	5,978.1	5,962.2	5,927.1	14.9	15.3	-75.34	-419.0	104.5	168.1	138.7	29.37	5.723		
6,100.0	6,060.7	6,045.0	5,988.3	15.6	16.0	-71.49	-473.7	113.9	190.6	160.3	30.27	6.297		
6,200.0	6,131.0	6,125.5	6,038.7	16.5	16.8	-68.96	-535.6	124.6	215.2	183.8	31.36	6.863		
6,300.0	6,186.4	6,200.0	6,076.2	17.6	17.7	-67.30	-598.9	135.5	240.9	208.2	32.69	7.369		
6,400.0	6,225.0	6,282.1	6,106.4	18.9	18.8	-66.52	-674.1	148.5	266.9	232.3	34.56	7.722		
6,500.0	6,245.4	6,359.4	6,123.6	20.3	19.9	-66.17	-748.2	161.3	292.7	255.9	36.79	7.955		
6,600.0	6,248.5	6,437.8	6,129.5	21.7	21.1	-67.25	-825.2	174.6	318.0	278.3	39.63	8.024		
6,700.0	6,248.5	6,552.5	6,129.5	23.0	22.6	-69.17	-938.7	190.7	338.8	295.8	43.00	7.879		
6,800.0	6,248.5	6,672.1	6,129.5	24.4	24.3	-70.06	-1,057.9	200.3	349.2	303.0	46.20	7.559		
6,900.0	6,248.5	6,788.0	6,129.5	25.9	26.0	-70.19	-1,173.8	202.5	351.0	301.7	49.31	7.118		
7,000.0	6,248.5	6,888.0	6,129.5	27.5	27.6	-70.19	-1,273.8	202.5	351.0	298.5	52.44	6.692		
7,100.0	6,248.5	6,988.0	6,129.5	29.2	29.3	-70.19	-1,373.8	202.5	351.0	295.3	55.65	6.307		
7,200.0	6,248.5	7,088.0	6,129.6	30.9	31.0	-70.19	-1,473.8	202.5	351.0	292.0	58.90	5.958		
7,300.0	6,248.5	7,188.0	6,129.6	32.6	32.8	-70.19	-1,573.8	202.5	350.9	288.7	62.20	5.642		
7,400.0	6,248.5	7,288.0	6,129.6	34.4	34.5	-70.19	-1,673.8	202.5	350.9	285.4	65.54	5.354		
7,500.0	6,248.5	7,388.0	6,129.6	36.1	36.3	-70.18	-1,773.8	202.5	350.9	282.0	68.91	5.092		
7,600.0	6,248.5	7,488.0	6,129.6	37.9	38.1	-70.18	-1,873.8	202.4	350.9	278.6	72.31	4.853		
7,700.0	6,248.5	7,588.0	6,129.6	39.7	39.9	-70.18	-1,973.8	202.4	350.9	275.2	75.73	4.634		
7,800.0	6,248.6	7,688.0	6,129.6	41.5	41.7	-70.18	-2,073.8	202.4	350.9	271.7	79.17	4.432		
7,900.0	6,248.6	7,788.0	6,129.6	43.3	43.5	-70.18	-2,173.8	202.4	350.9	268.3	82.63	4.247		
8,000.0	6,248.6	7,888.0	6,129.6	45.2	45.3	-70.18	-2,273.8	202.4	350.9	264.8	86.11	4.075		
8,100.0	6,248.6	7,988.0	6,129.6	47.0	47.2	-70.18	-2,373.8	202.4	350.9	261.3	89.60	3.916		
8,200.0	6,248.6	8,088.0	6,129.6	48.8	49.0	-70.18	-2,473.8	202.4	350.9	257.8	93.10	3.769		
8,300.0	6,248.6	8,188.0	6,129.6	50.7	50.9	-70.18	-2,573.8	202.4	350.9	254.3	96.61	3.632		
8,400.0	6,248.6	8,288.0	6,129.6	52.5	52.7	-70.18	-2,673.8	202.4	350.9	250.7	100.13	3.504		
8,500.0	6,248.6	8,388.0	6,129.6	54.4	54.6	-70.18	-2,773.8	202.4	350.8	247.2	103.67	3.384		
8,600.0	6,248.6	8,488.0	6,129.6	56.2	56.4	-70.18	-2,873.8	202.4	350.8	243.6	107.20	3.273		
8,700.0	6,248.6	8,588.0	6,129.7	58.1	58.3	-70.18	-2,973.8	202.4	350.8	240.1	110.75	3.168		
8,800.0	6,248.6	8,688.0	6,129.7	60.0	60.2	-70.18	-3,073.8	202.4	350.8	236.5	114.30	3.069		
8,900.0	6,248.6	8,788.0	6,129.7	61.8	62.0	-70.18	-3,173.8	202.4	350.8	233.0	117.86	2.976		
9,000.0	6,248.6	8,888.0	6,129.7	63.7	63.9	-70.18	-3,273.8	202.4	350.8	229.4	121.43	2.889		
9,100.0	6,248.6	8,988.0	6,129.7	65.6	65.8	-70.18	-3,373.8	202.3	350.8	225.8	125.00	2.806		
9,200.0	6,248.7	9,088.0	6,129.7	67.5	67.7	-70.17	-3,473.8	202.3	350.8	222.2	128.57	2.728		
9,300.0	6,248.7	9,188.0	6,129.7	69.4	69.6	-70.17	-3,573.8	202.3	350.8	218.6	132.15	2.654		
9,400.0	6,248.7	9,288.0	6,129.7	71.2	71.4	-70.17	-3,673.8	202.3	350.8	215.0	135.73	2.584		
9,500.0	6,248.7	9,388.0	6,129.7	73.1	73.3	-70.17	-3,773.8	202.3	350.8	211.5	139.32	2.518		
9,600.0	6,248.7	9,488.0	6,129.7	75.0	75.2	-70.17	-3,873.8	202.3	350.8	207.9	142.91	2.454		
9,700.0	6,248.7	9,588.0	6,129.7	76.9	77.1	-70.17	-3,973.8	202.3	350.8	204.3	146.50	2.394		
9,800.0	6,248.7	9,688.0	6,129.7	78.8	79.0	-70.17	-4,073.8	202.3	350.7	200.7	150.09	2.337		
9,900.0	6,248.7	9,788.0	6,129.7	80.7	80.9	-70.17	-4,173.8	202.3	350.7	197.0	153.69	2.282		
10,000.0	6,248.7	9,888.0	6,129.7	82.6	82.8	-70.17	-4,273.8	202.3	350.7	193.4	157.29	2.230		
10,100.0	6,248.7	9,988.0	6,129.7	84.5	84.7	-70.17	-4,373.8	202.3	350.7	189.8	160.89	2.180		
10,200.0	6,248.7	10,088.0	6,129.8	86.4	86.6	-70.17	-4,473.8	202.3	350.7	186.2	164.49	2.132		
10,300.0	6,248.7	10,188.0	6,129.8	88.3	88.5	-70.17	-4,573.8	202.3	350.7	182.6	168.10	2.086		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #10E-1502B
Project:	Weld County, CO	TVD Reference:	WELL @ 5039.1usft (Original Well Elev)
Reference Site:	S10-T10N-R58W	MD Reference:	WELL @ 5039.1usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design 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							
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	6,248.7	10,288.0	6,129.8	90.2	90.4	-70.17	-4,673.8	202.3	350.7	179.0	171.71	2.042	
10,500.0	6,248.7	10,388.0	6,129.8	92.1	92.3	-70.17	-4,773.8	202.3	350.7	175.4	175.32	2.000	
10,600.0	6,248.8	10,488.0	6,129.8	94.0	94.2	-70.17	-4,873.8	202.2	350.7	171.8	178.93	1.960	
10,700.0	6,248.8	10,588.0	6,129.8	95.9	96.1	-70.17	-4,973.8	202.2	350.7	168.1	182.54	1.921	
10,800.0	6,248.8	10,688.0	6,129.8	97.8	98.0	-70.17	-5,073.8	202.2	350.7	164.5	186.15	1.884	
10,900.0	6,248.8	10,788.0	6,129.8	99.7	99.9	-70.17	-5,173.8	202.2	350.7	160.9	189.77	1.848	
11,000.0	6,248.8	10,888.0	6,129.8	101.6	101.8	-70.16	-5,273.8	202.2	350.7	157.3	193.39	1.813	
11,100.0	6,248.8	10,988.0	6,129.8	103.5	103.7	-70.16	-5,373.8	202.2	350.6	153.6	197.00	1.780	
11,200.0	6,248.8	11,088.0	6,129.8	105.4	105.6	-70.16	-5,473.8	202.2	350.6	150.0	200.62	1.748	
11,300.0	6,248.8	11,188.0	6,129.8	107.3	107.5	-70.16	-5,573.8	202.2	350.6	146.4	204.24	1.717	
11,400.0	6,248.8	11,288.0	6,129.8	109.2	109.4	-70.16	-5,673.8	202.2	350.6	142.8	207.86	1.687	
11,500.0	6,248.8	11,388.0	6,129.8	111.1	111.3	-70.16	-5,773.8	202.2	350.6	139.1	211.48	1.658	
11,600.0	6,248.8	11,488.0	6,129.8	113.0	113.2	-70.16	-5,873.8	202.2	350.6	135.5	215.11	1.630	
11,700.0	6,248.8	11,588.0	6,129.9	114.9	115.1	-70.16	-5,973.8	202.2	350.6	131.9	218.73	1.603	
11,800.0	6,248.8	11,688.0	6,129.9	116.8	117.0	-70.16	-6,073.8	202.2	350.6	128.2	222.36	1.577	
11,900.0	6,248.9	11,788.0	6,129.9	118.7	119.0	-70.16	-6,173.8	202.2	350.6	124.6	225.98	1.551	
12,000.0	6,248.9	11,888.0	6,129.9	120.6	120.9	-70.16	-6,273.8	202.2	350.6	121.0	229.61	1.527	
12,100.0	6,248.9	11,988.0	6,129.9	122.5	122.8	-70.16	-6,373.8	202.1	350.6	117.3	233.23	1.503	
12,200.0	6,248.9	12,088.0	6,129.9	124.4	124.7	-70.16	-6,473.8	202.1	350.6	113.7	236.86	1.480 Level 3	
12,300.0	6,248.9	12,188.0	6,129.9	126.4	126.6	-70.16	-6,573.8	202.1	350.5	110.1	240.49	1.458 Level 3	
12,400.0	6,248.9	12,288.0	6,129.9	128.3	128.5	-70.16	-6,673.8	202.1	350.5	106.4	244.12	1.436 Level 3	
12,500.0	6,248.9	12,388.0	6,129.9	130.2	130.4	-70.16	-6,773.8	202.1	350.5	102.8	247.75	1.415 Level 3	
12,600.0	6,248.9	12,488.0	6,129.9	132.1	132.3	-70.16	-6,873.8	202.1	350.5	99.1	251.38	1.394 Level 3	
12,700.0	6,248.9	12,588.0	6,129.9	134.0	134.2	-70.16	-6,973.8	202.1	350.5	95.5	255.01	1.375 Level 3	
12,800.0	6,248.9	12,688.0	6,129.9	135.9	136.1	-70.15	-7,073.8	202.1	350.5	91.9	258.64	1.355 Level 3	
12,900.0	6,248.9	12,788.0	6,129.9	137.8	138.1	-70.15	-7,173.8	202.1	350.5	88.2	262.27	1.336 Level 3	
13,000.0	6,248.9	12,888.0	6,129.9	139.7	140.0	-70.15	-7,273.8	202.1	350.5	84.6	265.90	1.318 Level 3	
13,100.0	6,248.9	12,988.0	6,129.9	141.6	141.9	-70.15	-7,373.8	202.1	350.5	81.0	269.53	1.300 Level 3	
13,200.0	6,248.9	13,088.0	6,130.0	143.6	143.8	-70.15	-7,473.8	202.1	350.5	77.3	273.16	1.283 Level 3	
13,300.0	6,249.0	13,188.0	6,130.0	145.5	145.7	-70.15	-7,573.8	202.1	350.5	73.7	276.80	1.266 Level 3	
13,400.0	6,249.0	13,288.0	6,130.0	147.4	147.6	-70.15	-7,673.8	202.1	350.5	70.0	280.43	1.250 Level 2	
13,500.0	6,249.0	13,388.0	6,130.0	149.3	149.5	-70.15	-7,773.8	202.0	350.5	66.4	284.06	1.234 Level 2	
13,600.0	6,249.0	13,488.0	6,130.0	151.2	151.5	-70.15	-7,873.8	202.0	350.4	62.7	287.70	1.218 Level 2	
13,700.0	6,249.0	13,588.0	6,130.0	153.1	153.4	-70.15	-7,973.8	202.0	350.4	59.1	291.33	1.203 Level 2	
13,800.0	6,249.0	13,688.0	6,130.0	155.0	155.3	-70.15	-8,073.8	202.0	350.4	55.5	294.97	1.188 Level 2	
13,900.0	6,249.0	13,788.0	6,130.0	156.9	157.2	-70.15	-8,173.8	202.0	350.4	51.8	298.60	1.174 Level 2	
13,941.3	6,249.0	13,829.3	6,130.0	157.7	157.9	-70.15	-8,215.1	202.0	350.4	50.4	299.99	1.168 Level 2	
13,958.1	6,249.0	13,839.3	6,130.0	158.1	158.0	-70.15	-8,225.0	202.0	350.5	50.0	300.45	1.167 Level 2, SF	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #10E-1502B
Project:	Weld County, CO	TVD Reference:	WELL @ 5039.1usft (Original Well Elev)
Reference Site:	S10-T10N-R58W	MD Reference:	WELL @ 5039.1usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design 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	90.00	0.0	65.3	65.3					
100.0	100.0	100.0	100.0	0.1	0.1	90.00	0.0	65.3	65.3	65.1	0.19	349.125		
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	65.3	65.3	64.7	0.64	102.568		
300.0	300.0	300.0	300.0	0.5	0.5	90.00	0.0	65.3	65.3	64.2	1.09	60.114		
400.0	400.0	400.0	400.0	0.8	0.8	90.00	0.0	65.3	65.3	63.8	1.54	42.516		
500.0	500.0	500.0	500.0	1.0	1.0	90.00	0.0	65.3	65.3	63.3	1.99	32.889		
600.0	600.0	600.0	600.0	1.2	1.2	90.00	0.0	65.3	65.3	62.9	2.43	26.816		
700.0	700.0	700.0	700.0	1.4	1.4	90.00	0.0	65.3	65.3	62.4	2.88	22.637		
800.0	800.0	800.0	800.0	1.7	1.7	90.00	0.0	65.3	65.3	62.0	3.33	19.584		
900.0	900.0	900.0	900.0	1.9	1.9	90.00	0.0	65.3	65.3	61.5	3.78	17.257 CC, ES		
1,000.0	1,000.0	999.1	999.1	2.1	2.1	91.38	-1.6	65.9	66.0	61.8	4.20	15.694		
1,100.0	1,100.0	1,098.0	1,097.8	2.3	2.3	95.32	-6.3	67.9	68.2	63.6	4.61	14.812		
1,200.0	1,200.0	1,197.8	1,197.4	2.5	2.5	-88.66	-12.8	70.5	71.7	66.7	4.99	14.355		
1,300.0	1,299.8	1,297.7	1,297.1	2.7	2.7	-88.03	-19.2	73.2	75.2	69.8	5.37	14.002		
1,400.0	1,399.6	1,397.7	1,396.8	2.9	2.9	-88.80	-25.7	75.8	78.6	72.9	5.77	13.635		
1,500.0	1,499.3	1,497.6	1,496.5	3.1	3.1	-89.50	-32.1	78.5	82.1	75.9	6.18	13.276		
1,600.0	1,599.1	1,597.5	1,596.1	3.3	3.3	-90.14	-38.6	81.1	85.6	78.9	6.61	12.934		
1,700.0	1,698.9	1,697.5	1,695.8	3.5	3.6	-90.73	-45.0	83.8	89.0	82.0	7.06	12.613		
1,800.0	1,798.6	1,797.4	1,795.5	3.7	3.8	-91.28	-51.5	86.4	92.5	85.0	7.51	12.315		
1,900.0	1,898.4	1,897.3	1,895.2	4.0	4.0	-91.78	-57.9	89.1	96.0	88.1	7.98	12.038		
2,000.0	1,998.1	1,997.3	1,994.9	4.2	4.3	-92.25	-64.4	91.7	99.6	91.1	8.45	11.782		
2,100.0	2,097.9	2,097.2	2,094.6	4.4	4.5	-92.69	-70.8	94.4	103.1	94.1	8.93	11.546		
2,200.0	2,197.6	2,197.1	2,194.3	4.7	4.8	-93.10	-77.3	97.0	106.6	97.2	9.41	11.329		
2,300.0	2,297.4	2,297.1	2,294.0	4.9	5.0	-93.49	-83.7	99.7	110.1	100.2	9.90	11.128		
2,400.0	2,397.2	2,397.0	2,393.7	5.2	5.3	-93.85	-90.2	102.3	113.7	103.3	10.39	10.942		
2,500.0	2,496.9	2,496.9	2,493.4	5.4	5.5	-94.18	-96.6	104.9	117.2	106.3	10.88	10.770		
2,600.0	2,596.7	2,596.9	2,593.1	5.7	5.8	-94.50	-103.0	107.6	120.7	109.3	11.38	10.611		
2,700.0	2,696.4	2,696.8	2,692.8	5.9	6.0	-94.80	-109.5	110.2	124.3	112.4	11.88	10.463		
2,800.0	2,796.2	2,796.7	2,792.4	6.2	6.3	-95.09	-115.9	112.9	127.8	115.4	12.38	10.325		
2,900.0	2,895.9	2,896.7	2,892.1	6.4	6.6	-95.36	-122.4	115.5	131.4	118.5	12.88	10.197		
3,000.0	2,995.7	2,996.6	2,991.8	6.7	6.8	-95.61	-128.8	118.2	134.9	121.5	13.39	10.078		
3,100.0	3,095.4	3,096.5	3,091.5	6.9	7.1	-95.85	-135.3	120.8	138.5	124.6	13.89	9.966		
3,200.0	3,195.2	3,196.5	3,191.2	7.2	7.3	-96.08	-141.7	123.5	142.0	127.6	14.40	9.861		
3,300.0	3,295.0	3,296.4	3,290.9	7.4	7.6	-96.30	-148.2	126.1	145.6	130.7	14.91	9.763		
3,400.0	3,394.7	3,396.3	3,390.6	7.7	7.9	-96.51	-154.6	128.8	149.1	133.7	15.42	9.671		
3,500.0	3,494.5	3,496.3	3,490.3	7.9	8.1	-96.70	-161.1	131.4	152.7	136.8	15.93	9.584		
3,600.0	3,594.2	3,596.2	3,590.0	8.2	8.4	-96.89	-167.5	134.1	156.3	139.8	16.45	9.502		
3,700.0	3,694.0	3,696.2	3,689.7	8.4	8.6	-97.07	-174.0	136.7	159.8	142.9	16.96	9.424		
3,800.0	3,793.7	3,796.1	3,789.4	8.7	8.9	-97.24	-180.4	139.4	163.4	145.9	17.47	9.351		
3,900.0	3,893.5	3,896.0	3,889.1	9.0	9.2	-97.41	-186.9	142.0	167.0	149.0	17.99	9.282		
4,000.0	3,993.3	3,996.0	3,988.7	9.2	9.4	-97.57	-193.3	144.7	170.6	152.0	18.51	9.216		
4,100.0	4,093.0	4,095.9	4,088.4	9.5	9.7	-97.72	-199.8	147.3	174.1	155.1	19.02	9.154		
4,200.0	4,192.8	4,195.8	4,188.1	9.7	9.9	-97.87	-206.2	150.0	177.7	158.2	19.54	9.095		
4,300.0	4,292.5	4,295.8	4,287.8	10.0	10.2	-98.01	-212.7	152.6	181.3	161.2	20.05	9.039		
4,400.0	4,392.3	4,395.7	4,387.5	10.3	10.5	-98.14	-219.1	155.2	184.8	164.3	20.57	8.985		
4,500.0	4,492.0	4,495.6	4,487.2	10.5	10.7	-98.27	-225.6	157.9	188.4	167.3	21.09	8.934		
4,600.0	4,591.8	4,595.6	4,586.9	10.8	11.0	-98.39	-232.0	160.5	192.0	170.4	21.61	8.885		
4,700.0	4,691.5	4,695.5	4,686.6	11.0	11.2	-98.51	-238.5	163.2	195.6	173.4	22.13	8.839		
4,800.0	4,791.3	4,795.4	4,786.3	11.3	11.5	-98.63	-244.9	165.8	199.2	176.5	22.65	8.794		
4,900.0	4,891.1	4,895.4	4,886.0	11.6	11.8	-98.74	-251.4	168.5	202.7	179.6	23.17	8.752		
5,000.0	4,990.8	4,995.3	4,985.7	11.8	12.0	-98.85	-257.8	171.1	206.3	182.6	23.69	8.711		
5,100.0	5,090.6	5,095.2	5,085.3	12.1	12.3	-98.95	-264.3	173.8	209.9	185.7	24.20	8.672		

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #10E-1502B
Project:	Weld County, CO	TVD Reference:	WELL @ 5039.1usft (Original Well Elev)
Reference Site:	S10-T10N-R58W	MD Reference:	WELL @ 5039.1usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design 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							
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	5,190.3	5,195.2	5,185.0	12.3	12.6	-99.05	-270.7	176.4	213.5	188.8	24.73	8.634	
5,300.0	5,290.1	5,295.1	5,284.7	12.6	12.8	-99.15	-277.2	179.1	217.1	191.8	25.25	8.598	
5,400.0	5,389.8	5,395.0	5,384.4	12.9	13.1	-99.24	-283.6	181.7	220.6	194.9	25.77	8.563	
5,500.0	5,489.6	5,495.0	5,484.1	13.1	13.3	-99.34	-290.1	184.4	224.2	197.9	26.29	8.530	
5,600.0	5,589.4	5,594.9	5,583.8	13.4	13.6	-99.42	-296.5	187.0	227.8	201.0	26.81	8.498	
5,700.0	5,689.1	5,694.9	5,683.5	13.6	13.9	-99.51	-303.0	189.7	231.4	204.1	27.33	8.467	
5,800.0	5,788.8	5,792.2	5,780.6	13.9	14.1	-99.54	-309.5	192.3	235.2	207.3	27.85	8.446	
5,900.0	5,886.4	5,878.3	5,865.1	14.3	14.4	-99.25	-324.0	198.3	245.0	216.5	28.50	8.599	
6,000.0	5,978.1	5,963.2	5,944.8	14.9	14.9	-98.61	-350.7	209.3	263.4	234.0	29.40	8.960	
6,100.0	6,060.7	6,046.4	6,017.5	15.6	15.4	-97.55	-388.2	224.7	289.6	259.1	30.57	9.474	
6,200.0	6,131.0	6,128.0	6,081.5	16.5	16.1	-96.01	-434.9	243.8	322.7	290.7	32.04	10.072	
6,300.0	6,186.4	6,208.0	6,135.9	17.6	16.9	-94.00	-489.0	266.1	361.6	327.8	33.84	10.686	
6,400.0	6,225.0	6,287.0	6,180.1	18.9	17.8	-91.58	-549.5	290.9	405.0	369.1	35.95	11.265	
6,500.0	6,245.4	6,365.9	6,214.0	20.3	18.8	-88.86	-615.3	317.9	451.7	413.4	38.30	11.795	
6,600.0	6,248.5	6,446.5	6,237.1	21.7	20.0	-88.52	-686.7	347.2	500.0	459.1	40.90	12.223	
6,700.0	6,248.5	6,533.9	6,248.4	23.0	21.3	-90.00	-766.7	380.1	545.4	501.7	43.72	12.475	
6,800.0	6,248.5	6,654.8	6,249.0	24.4	23.1	-90.05	-879.5	423.7	584.6	537.5	47.09	12.414	
6,900.0	6,248.5	6,794.0	6,249.0	25.9	25.1	-90.05	-1,012.3	465.1	614.4	563.7	50.71	12.116	
7,000.0	6,248.5	6,938.9	6,249.0	27.5	27.3	-90.05	-1,153.5	497.9	637.0	582.4	54.65	11.656	
7,100.0	6,248.5	7,088.2	6,249.0	29.2	29.7	-90.04	-1,301.0	520.3	652.1	593.3	58.76	11.097	
7,200.0	6,248.5	7,240.1	6,249.0	30.9	32.0	-90.04	-1,452.5	531.2	659.3	596.3	62.97	10.470	
7,300.0	6,248.5	7,361.5	6,249.0	32.6	33.9	-90.04	-1,573.8	532.2	659.9	593.2	66.70	9.894	
7,400.0	6,248.5	7,461.5	6,249.0	34.4	35.6	-90.04	-1,673.8	532.2	659.9	589.8	70.15	9.408	
7,500.0	6,248.5	7,561.5	6,249.0	36.1	37.3	-90.04	-1,773.8	532.2	659.9	586.3	73.65	8.960	
7,600.0	6,248.5	7,661.5	6,249.0	37.9	39.0	-90.04	-1,873.8	532.2	659.9	582.7	77.18	8.550	
7,700.0	6,248.5	7,761.5	6,249.0	39.7	40.7	-90.04	-1,973.8	532.2	659.9	579.2	80.74	8.173	
7,800.0	6,248.6	7,861.5	6,249.0	41.5	42.4	-90.04	-2,073.8	532.2	659.9	575.6	84.33	7.825	
7,900.0	6,248.6	7,961.5	6,249.0	43.3	44.2	-90.04	-2,173.8	532.2	659.9	572.0	87.94	7.504	
8,000.0	6,248.6	8,061.5	6,249.0	45.2	45.9	-90.04	-2,273.8	532.2	659.9	568.3	91.57	7.206	
8,100.0	6,248.6	8,161.5	6,249.0	47.0	47.7	-90.04	-2,373.8	532.2	659.9	564.7	95.22	6.930	
8,200.0	6,248.6	8,261.5	6,249.0	48.8	49.5	-90.04	-2,473.8	532.2	659.9	561.0	98.88	6.674	
8,300.0	6,248.6	8,361.5	6,249.0	50.7	51.3	-90.03	-2,573.8	532.2	659.9	557.3	102.55	6.434	
8,400.0	6,248.6	8,461.5	6,249.0	52.5	53.1	-90.03	-2,673.8	532.2	659.9	553.6	106.24	6.211	
8,500.0	6,248.6	8,561.5	6,249.0	54.4	54.9	-90.03	-2,773.8	532.2	659.9	549.9	109.94	6.002	
8,600.0	6,248.6	8,661.5	6,249.0	56.2	56.7	-90.03	-2,873.8	532.2	659.8	546.2	113.64	5.806	
8,700.0	6,248.6	8,761.5	6,249.0	58.1	58.6	-90.03	-2,973.8	532.2	659.8	542.5	117.36	5.622	
8,800.0	6,248.6	8,861.5	6,249.0	60.0	60.4	-90.03	-3,073.8	532.2	659.8	538.7	121.08	5.449	
8,900.0	6,248.6	8,961.5	6,249.0	61.8	62.2	-90.03	-3,173.8	532.2	659.8	535.0	124.82	5.286	
9,000.0	6,248.6	9,061.5	6,249.0	63.7	64.1	-90.03	-3,273.8	532.2	659.8	531.3	128.55	5.133	
9,100.0	6,248.6	9,161.5	6,249.0	65.6	65.9	-90.03	-3,373.8	532.1	659.8	527.5	132.30	4.987	
9,200.0	6,248.7	9,261.5	6,249.0	67.5	67.8	-90.03	-3,473.8	532.1	659.8	523.8	136.05	4.850	
9,300.0	6,248.7	9,361.5	6,249.0	69.4	69.6	-90.03	-3,573.8	532.1	659.8	520.0	139.80	4.720	
9,400.0	6,248.7	9,461.5	6,249.0	71.2	71.5	-90.03	-3,673.8	532.1	659.8	516.2	143.56	4.596	
9,500.0	6,248.7	9,561.5	6,249.0	73.1	73.4	-90.03	-3,773.8	532.1	659.8	512.5	147.33	4.478	
9,600.0	6,248.7	9,661.5	6,249.0	75.0	75.2	-90.03	-3,873.8	532.1	659.8	508.7	151.09	4.367	
9,700.0	6,248.7	9,761.5	6,249.0	76.9	77.1	-90.03	-3,973.8	532.1	659.8	504.9	154.87	4.260	
9,800.0	6,248.7	9,861.5	6,249.0	78.8	79.0	-90.03	-4,073.8	532.1	659.8	501.1	158.64	4.159	
9,900.0	6,248.7	9,961.5	6,249.0	80.7	80.8	-90.02	-4,173.8	532.1	659.8	497.3	162.42	4.062	
10,000.0	6,248.7	10,061.5	6,249.0	82.6	82.7	-90.02	-4,273.8	532.1	659.7	493.5	166.20	3.970	
10,100.0	6,248.7	10,161.5	6,249.0	84.5	84.6	-90.02	-4,373.8	532.1	659.7	489.8	169.98	3.881	
10,200.0	6,248.7	10,261.5	6,249.0	86.4	86.5	-90.02	-4,473.8	532.1	659.7	486.0	173.77	3.797	
10,300.0	6,248.7	10,361.5	6,249.0	88.3	88.4	-90.02	-4,573.8	532.1	659.7	482.2	177.56	3.715	

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #10E-1502B
Project:	Weld County, CO	TVD Reference:	WELL @ 5039.1usft (Original Well Elev)
Reference Site:	S10-T10N-R58W	MD Reference:	WELL @ 5039.1usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design 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		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
10,400.0	6,248.7	10,461.5	6,249.0	90.2	90.2	-90.02	-4,673.8	532.1	659.7	478.4	181.35	3.638		
10,500.0	6,248.7	10,561.5	6,249.0	92.1	92.1	-90.02	-4,773.8	532.1	659.7	474.6	185.15	3.563		
10,600.0	6,248.8	10,661.5	6,249.0	94.0	94.0	-90.02	-4,873.8	532.1	659.7	470.8	188.94	3.492		
10,700.0	6,248.8	10,761.5	6,249.0	95.9	95.9	-90.02	-4,973.8	532.1	659.7	467.0	192.74	3.423		
10,800.0	6,248.8	10,861.5	6,249.0	97.8	97.8	-90.02	-5,073.8	532.1	659.7	463.2	196.54	3.357		
10,900.0	6,248.8	10,961.5	6,249.0	99.7	99.7	-90.02	-5,173.8	532.1	659.7	459.3	200.34	3.293		
11,000.0	6,248.8	11,061.4	6,249.0	101.6	101.6	-90.02	-5,273.8	532.0	659.7	455.5	204.14	3.231		
11,100.0	6,248.8	11,161.4	6,249.0	103.5	103.5	-90.02	-5,373.8	532.0	659.7	451.7	207.95	3.172		
11,200.0	6,248.8	11,261.4	6,249.0	105.4	105.4	-90.02	-5,473.8	532.0	659.7	447.9	211.75	3.115		
11,300.0	6,248.8	11,361.4	6,249.0	107.3	107.3	-90.02	-5,573.8	532.0	659.7	444.1	215.56	3.060		
11,400.0	6,248.8	11,461.4	6,249.0	109.2	109.1	-90.02	-5,673.8	532.0	659.6	440.3	219.37	3.007		
11,500.0	6,248.8	11,561.4	6,249.0	111.1	111.0	-90.01	-5,773.8	532.0	659.6	436.5	223.18	2.956		
11,600.0	6,248.8	11,661.4	6,249.0	113.0	112.9	-90.01	-5,873.8	532.0	659.6	432.6	226.99	2.906		
11,700.0	6,248.8	11,761.4	6,249.0	114.9	114.8	-90.01	-5,973.8	532.0	659.6	428.8	230.80	2.858		
11,800.0	6,248.8	11,861.4	6,249.0	116.8	116.7	-90.01	-6,073.8	532.0	659.6	425.0	234.61	2.812		
11,900.0	6,248.9	11,961.4	6,249.0	118.7	118.6	-90.01	-6,173.8	532.0	659.6	421.2	238.42	2.767		
12,000.0	6,248.9	12,061.4	6,249.0	120.6	120.5	-90.01	-6,273.8	532.0	659.6	417.4	242.24	2.723		
12,100.0	6,248.9	12,161.4	6,249.0	122.5	122.4	-90.01	-6,373.8	532.0	659.6	413.5	246.05	2.681		
12,200.0	6,248.9	12,261.4	6,249.0	124.4	124.3	-90.01	-6,473.8	532.0	659.6	409.7	249.87	2.640		
12,300.0	6,248.9	12,361.4	6,249.0	126.4	126.2	-90.01	-6,573.8	532.0	659.6	405.9	253.69	2.600		
12,400.0	6,248.9	12,461.4	6,249.0	128.3	128.1	-90.01	-6,673.8	532.0	659.6	402.1	257.51	2.561		
12,500.0	6,248.9	12,561.4	6,249.0	130.2	130.1	-90.01	-6,773.8	532.0	659.6	398.2	261.32	2.524		
12,600.0	6,248.9	12,661.4	6,249.0	132.1	132.0	-90.01	-6,873.8	532.0	659.6	394.4	265.14	2.488		
12,700.0	6,248.9	12,761.4	6,249.0	134.0	133.9	-90.01	-6,973.8	532.0	659.6	390.6	268.96	2.452		
12,800.0	6,248.9	12,861.4	6,249.0	135.9	135.8	-90.01	-7,073.8	531.9	659.5	386.8	272.78	2.418		
12,900.0	6,248.9	12,961.4	6,249.0	137.8	137.7	-90.01	-7,173.8	531.9	659.5	382.9	276.61	2.384		
13,000.0	6,248.9	13,061.4	6,249.0	139.7	139.6	-90.01	-7,273.8	531.9	659.5	379.1	280.43	2.352		
13,100.0	6,248.9	13,161.4	6,249.0	141.6	141.5	-90.01	-7,373.8	531.9	659.5	375.3	284.25	2.320		
13,200.0	6,248.9	13,261.4	6,249.0	143.6	143.4	-90.00	-7,473.8	531.9	659.5	371.4	288.07	2.289		
13,300.0	6,249.0	13,361.4	6,249.0	145.5	145.3	-90.00	-7,573.8	531.9	659.5	367.6	291.90	2.259		
13,400.0	6,249.0	13,461.4	6,249.0	147.4	147.2	-90.00	-7,673.8	531.9	659.5	363.8	295.72	2.230		
13,500.0	6,249.0	13,561.4	6,249.0	149.3	149.1	-90.00	-7,773.8	531.9	659.5	360.0	299.55	2.202		
13,600.0	6,249.0	13,661.4	6,249.0	151.2	151.0	-90.00	-7,873.8	531.9	659.5	356.1	303.37	2.174		
13,700.0	6,249.0	13,761.4	6,249.0	153.1	152.9	-90.00	-7,973.8	531.9	659.5	352.3	307.20	2.147		
13,800.0	6,249.0	13,861.4	6,249.0	155.0	154.8	-90.00	-8,073.8	531.9	659.5	348.5	311.02	2.120		
13,900.0	6,249.0	13,961.4	6,249.0	156.9	156.7	-90.00	-8,173.8	531.9	659.5	344.6	314.85	2.095		
13,938.2	6,249.0	13,999.7	6,249.0	157.7	157.5	-90.00	-8,212.1	531.9	659.5	343.2	316.30	2.085		
13,958.1	6,249.0	14,006.5	6,249.0	158.1	157.6	-90.00	-8,218.8	531.9	659.6	342.8	316.81	2.082 SF		

Cathedral Energy Services

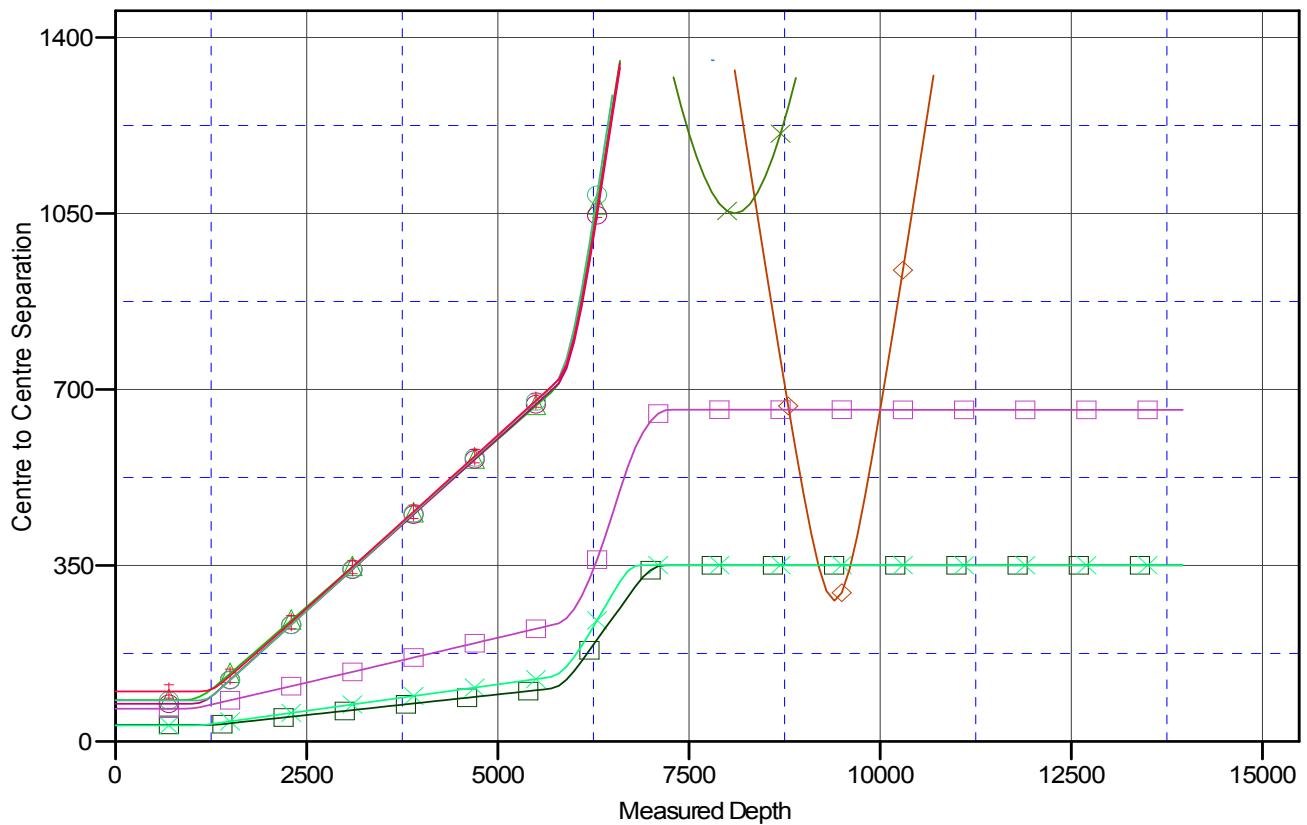
Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #10E-1502B
Project:	Weld County, CO	TVD Reference:	WELL @ 5039.1usft (Original Well Elev)
Reference Site:	S10-T10N-R58W	MD Reference:	WELL @ 5039.1usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #10E-1502B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to 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-1502B
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.06°

Ladder Plot



LEGEND

ISTING), BURNS WELL, NO SURVEYS V0	○ Razor #10E-0302B, HZ, Plan #1 V0	✕ Razor #10E-1503A, HZ, Plan #1 V0
(EXISTING), CREST WELL, NO SURVEYS V0	○ Razor #10E-0303A, HZ, Plan #1 V0	□ Razor #10E-1504B, HZ, Plan #1 V0
!(EXISTING), CREST WELL, NO SURVEYS V0	✕ Razor #10E-0304B, HZ, Plan #1 V0	
0301A, HZ, Plan #1 V0	■ Razor #10E-1501A, HZ, Plan #1 V0	