

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #21B-0912B
Company:	Whiting Petroleum Corporation	TVD Reference:	KB=17' @ 4854.3usft
Project:	Weld County, CO	MD Reference:	KB=17' @ 4854.3usft
Site:	S21-T10N-R58W	North Reference:	True
Well:	Razor #21B-0912B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

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

Site		S21-T10N-R58W			
Site Position:		Northing:	1,549,494.62 usft	Latitude:	40.830272
From:	Lat/Long	Easting:	3,452,846.68 usft	Longitude:	-103.863561
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	1.06 °

Well	Razor #21B-0912B					
Well Position	+N/-S	0.0 usft	Northing:	1,549,443.15 usft	Latitude:	40.830200
	+E/-W	0.0 usft	Easting:	3,451,478.35 usft	Longitude:	-103.868508
Position Uncertainty	0.0 usft		Wellhead Elevation:	usft	Ground Level:	4,837.3 usft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	5/20/2013	8.14	67.47	53,243

Design	Plan #2			
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	3.50

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	24.25	1,299.8	6.4	2.9	2.00	2.00	0.00	24.25	
5,536.9	4.00	24.25	5,526.4	275.8	124.3	0.00	0.00	0.00	0.00	
6,318.7	90.00	24.25	6,011.0	749.6	337.7	11.00	11.00	0.00	0.00	
7,127.0	90.00	0.00	6,011.0	1,534.0	506.2	3.00	0.00	-3.00	-90.00	
13,870.6	90.00	0.00	6,011.0	8,277.5	506.3	0.00	0.00	0.00	0.00	21B-0912B BHL P2

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Site:	S21-T10N-R58W	North Reference:	True
Well:	Razor #21B-0912B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
0.5	0.00	0.00	0.5	0.0	0.0	0.0	0.00	0.00	SH - 329' FSL, 2,062' FEL
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'
1,200.0	2.00	24.25	1,200.0	1.6	0.7	1.6	2.00	2.00	
1,300.0	4.00	24.25	1,299.8	6.4	2.9	6.5	2.00	2.00	EOB @ 4° INC
1,400.0	4.00	24.25	1,399.6	12.7	5.7	13.0	0.00	0.00	
1,500.0	4.00	24.25	1,499.4	19.1	8.6	19.6	0.00	0.00	
1,600.0	4.00	24.25	1,599.1	25.4	11.5	26.1	0.00	0.00	
1,619.9	4.00	24.25	1,619.0	26.7	12.0	27.4	0.00	0.00	Pierre
1,700.0	4.00	24.25	1,698.9	31.8	14.3	32.6	0.00	0.00	Surface Casing
1,800.0	4.00	24.25	1,798.6	38.2	17.2	39.1	0.00	0.00	
1,900.0	4.00	24.25	1,898.4	44.5	20.1	45.7	0.00	0.00	
2,000.0	4.00	24.25	1,998.1	50.9	22.9	52.2	0.00	0.00	
2,100.0	4.00	24.25	2,097.9	57.2	25.8	58.7	0.00	0.00	
2,200.0	4.00	24.25	2,197.6	63.6	28.7	65.2	0.00	0.00	
2,300.0	4.00	24.25	2,297.4	70.0	31.5	71.8	0.00	0.00	
2,400.0	4.00	24.25	2,397.2	76.3	34.4	78.3	0.00	0.00	
2,500.0	4.00	24.25	2,496.9	82.7	37.2	84.8	0.00	0.00	
2,600.0	4.00	24.25	2,596.7	89.0	40.1	91.3	0.00	0.00	
2,700.0	4.00	24.25	2,696.4	95.4	43.0	97.9	0.00	0.00	
2,800.0	4.00	24.25	2,796.2	101.8	45.8	104.4	0.00	0.00	
2,900.0	4.00	24.25	2,895.9	108.1	48.7	110.9	0.00	0.00	
3,000.0	4.00	24.25	2,995.7	114.5	51.6	117.4	0.00	0.00	
3,100.0	4.00	24.25	3,095.5	120.8	54.4	123.9	0.00	0.00	
3,200.0	4.00	24.25	3,195.2	127.2	57.3	130.5	0.00	0.00	
3,300.0	4.00	24.25	3,295.0	133.6	60.2	137.0	0.00	0.00	
3,400.0	4.00	24.25	3,394.7	139.9	63.0	143.5	0.00	0.00	
3,500.0	4.00	24.25	3,494.5	146.3	65.9	150.0	0.00	0.00	
3,600.0	4.00	24.25	3,594.2	152.6	68.8	156.6	0.00	0.00	
3,700.0	4.00	24.25	3,694.0	159.0	71.6	163.1	0.00	0.00	
3,800.0	4.00	24.25	3,793.7	165.4	74.5	169.6	0.00	0.00	
3,900.0	4.00	24.25	3,893.5	171.7	77.4	176.1	0.00	0.00	
4,000.0	4.00	24.25	3,993.3	178.1	80.2	182.7	0.00	0.00	
4,100.0	4.00	24.25	4,093.0	184.4	83.1	189.2	0.00	0.00	
4,200.0	4.00	24.25	4,192.8	190.8	86.0	195.7	0.00	0.00	
4,300.0	4.00	24.25	4,292.5	197.2	88.8	202.2	0.00	0.00	
4,400.0	4.00	24.25	4,392.3	203.5	91.7	208.7	0.00	0.00	
4,500.0	4.00	24.25	4,492.0	209.9	94.5	215.3	0.00	0.00	
4,600.0	4.00	24.25	4,591.8	216.2	97.4	221.8	0.00	0.00	
4,700.0	4.00	24.25	4,691.6	222.6	100.3	228.3	0.00	0.00	
4,800.0	4.00	24.25	4,791.3	229.0	103.1	234.8	0.00	0.00	
4,900.0	4.00	24.25	4,891.1	235.3	106.0	241.4	0.00	0.00	

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Well:	Razor #21B-0912B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
5,000.0	4.00	24.25	4,990.8	241.7	108.9	247.9	0.00	0.00	
5,100.0	4.00	24.25	5,090.6	248.0	111.7	254.4	0.00	0.00	
5,200.0	4.00	24.25	5,190.3	254.4	114.6	260.9	0.00	0.00	
5,300.0	4.00	24.25	5,290.1	260.8	117.5	267.5	0.00	0.00	
5,400.0	4.00	24.25	5,389.9	267.1	120.3	274.0	0.00	0.00	
5,500.0	4.00	24.25	5,489.6	273.5	123.2	280.5	0.00	0.00	
5,536.9	4.00	24.25	5,526.4	275.8	124.3	282.9	0.00	0.00	Start 11° Build
5,550.0	5.44	24.25	5,539.5	276.8	124.7	283.9	11.00	11.00	
5,600.0	10.94	24.25	5,588.9	283.3	127.6	290.6	11.00	11.00	
5,650.0	16.44	24.25	5,637.5	294.1	132.5	301.6	11.00	11.00	
5,700.0	21.94	24.25	5,684.7	309.1	139.2	317.0	11.00	11.00	
5,750.0	27.44	24.25	5,730.1	328.1	147.8	336.5	11.00	11.00	
5,800.0	32.94	24.25	5,773.3	351.0	158.1	360.0	11.00	11.00	
5,850.0	38.44	24.25	5,813.9	377.6	170.1	387.3	11.00	11.00	
5,900.0	43.94	24.25	5,851.5	407.6	183.6	418.1	11.00	11.00	
5,950.0	49.44	24.25	5,885.8	440.8	198.6	452.1	11.00	11.00	
5,953.4	49.81	24.25	5,888.0	443.1	199.6	454.5	11.00	11.00	Niobrara
6,000.0	54.94	24.25	5,916.4	476.8	214.8	489.0	11.00	11.00	
6,050.0	60.44	24.25	5,943.2	515.3	232.1	528.5	11.00	11.00	
6,100.0	65.94	24.25	5,965.7	556.0	250.4	570.2	11.00	11.00	
6,150.0	71.44	24.25	5,983.9	598.4	269.6	613.8	11.00	11.00	
6,200.0	76.94	24.25	5,997.5	642.3	289.3	658.7	11.00	11.00	
6,250.0	82.44	24.25	6,006.4	687.1	309.5	704.7	11.00	11.00	
6,300.0	87.94	24.25	6,010.6	732.5	330.0	751.3	11.00	11.00	
6,318.7	90.00	24.25	6,011.0	749.6	337.7	768.8	11.00	11.00	LP @ 6,011' TVD, 90° INC - 7" - 415' FSL, 1,711'
6,400.0	90.00	21.81	6,011.0	824.4	369.5	845.4	3.00	0.00	
6,500.0	90.00	18.81	6,011.0	918.2	404.2	941.1	3.00	0.00	
6,600.0	90.00	15.81	6,011.0	1,013.6	433.9	1,038.2	3.00	0.00	
6,700.0	90.00	12.81	6,011.0	1,110.5	458.6	1,136.4	3.00	0.00	
6,800.0	90.00	9.81	6,011.0	1,208.5	478.3	1,235.5	3.00	0.00	
6,900.0	90.00	6.81	6,011.0	1,307.5	492.7	1,335.1	3.00	0.00	
7,000.0	90.00	3.81	6,011.0	1,407.0	502.0	1,435.1	3.00	0.00	
7,100.0	90.00	0.81	6,011.0	1,507.0	506.0	1,535.0	3.00	0.00	
7,127.0	90.00	0.00	6,011.0	1,534.0	506.2	1,562.0	3.00	0.00	EOT @ 0° az
7,200.0	90.00	0.00	6,011.0	1,607.0	506.2	1,634.9	0.00	0.00	
7,300.0	90.00	0.00	6,011.0	1,707.0	506.2	1,734.7	0.00	0.00	
7,400.0	90.00	0.00	6,011.0	1,807.0	506.2	1,834.5	0.00	0.00	
7,500.0	90.00	0.00	6,011.0	1,907.0	506.2	1,934.3	0.00	0.00	
7,600.0	90.00	0.00	6,011.0	2,007.0	506.2	2,034.1	0.00	0.00	
7,700.0	90.00	0.00	6,011.0	2,107.0	506.2	2,133.9	0.00	0.00	
7,800.0	90.00	0.00	6,011.0	2,207.0	506.2	2,233.7	0.00	0.00	
7,900.0	90.00	0.00	6,011.0	2,307.0	506.2	2,333.6	0.00	0.00	
8,000.0	90.00	0.00	6,011.0	2,407.0	506.2	2,433.4	0.00	0.00	
8,100.0	90.00	0.00	6,011.0	2,507.0	506.2	2,533.2	0.00	0.00	
8,200.0	90.00	0.00	6,011.0	2,607.0	506.2	2,633.0	0.00	0.00	
8,300.0	90.00	0.00	6,011.0	2,707.0	506.2	2,732.8	0.00	0.00	
8,400.0	90.00	0.00	6,011.0	2,807.0	506.2	2,832.6	0.00	0.00	
8,500.0	90.00	0.00	6,011.0	2,907.0	506.2	2,932.4	0.00	0.00	
8,600.0	90.00	0.00	6,011.0	3,007.0	506.2	3,032.2	0.00	0.00	
8,700.0	90.00	0.00	6,011.0	3,107.0	506.2	3,132.1	0.00	0.00	
8,800.0	90.00	0.00	6,011.0	3,207.0	506.2	3,231.9	0.00	0.00	
8,900.0	90.00	0.00	6,011.0	3,307.0	506.2	3,331.7	0.00	0.00	

Cathedral Energy Services

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Wellbore:	HZ		
Design:	Plan #2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
9,000.0	90.00	0.00	6,011.0	3,407.0	506.2	3,431.5	0.00	0.00	
9,100.0	90.00	0.00	6,011.0	3,507.0	506.2	3,531.3	0.00	0.00	
9,200.0	90.00	0.00	6,011.0	3,607.0	506.2	3,631.1	0.00	0.00	
9,300.0	90.00	0.00	6,011.0	3,707.0	506.2	3,730.9	0.00	0.00	
9,400.0	90.00	0.00	6,011.0	3,807.0	506.2	3,830.8	0.00	0.00	
9,500.0	90.00	0.00	6,011.0	3,907.0	506.2	3,930.6	0.00	0.00	
9,600.0	90.00	0.00	6,011.0	4,007.0	506.2	4,030.4	0.00	0.00	
9,700.0	90.00	0.00	6,011.0	4,107.0	506.2	4,130.2	0.00	0.00	
9,800.0	90.00	0.00	6,011.0	4,207.0	506.2	4,230.0	0.00	0.00	
9,900.0	90.00	0.00	6,011.0	4,307.0	506.2	4,329.8	0.00	0.00	
10,000.0	90.00	0.00	6,011.0	4,407.0	506.2	4,429.6	0.00	0.00	
10,100.0	90.00	0.00	6,011.0	4,507.0	506.2	4,529.4	0.00	0.00	
10,200.0	90.00	0.00	6,011.0	4,607.0	506.2	4,629.3	0.00	0.00	
10,300.0	90.00	0.00	6,011.0	4,707.0	506.2	4,729.1	0.00	0.00	
10,400.0	90.00	0.00	6,011.0	4,807.0	506.2	4,828.9	0.00	0.00	
10,500.0	90.00	0.00	6,011.0	4,907.0	506.2	4,928.7	0.00	0.00	
10,600.0	90.00	0.00	6,011.0	5,007.0	506.2	5,028.5	0.00	0.00	
10,700.0	90.00	0.00	6,011.0	5,107.0	506.2	5,128.3	0.00	0.00	
10,740.0	90.00	0.00	6,011.0	5,147.0	506.2	5,168.3	0.00	0.00	IN - 1,550' Radius
10,800.0	90.00	0.00	6,011.0	5,207.0	506.2	5,228.1	0.00	0.00	
10,900.0	90.00	0.00	6,011.0	5,307.0	506.2	5,328.0	0.00	0.00	
11,000.0	90.00	0.00	6,011.0	5,407.0	506.2	5,427.8	0.00	0.00	
11,100.0	90.00	0.00	6,011.0	5,507.0	506.2	5,527.6	0.00	0.00	
11,200.0	90.00	0.00	6,011.0	5,607.0	506.2	5,627.4	0.00	0.00	
11,300.0	90.00	0.00	6,011.0	5,707.0	506.2	5,727.2	0.00	0.00	
11,400.0	90.00	0.00	6,011.0	5,807.0	506.2	5,827.0	0.00	0.00	
11,500.0	90.00	0.00	6,011.0	5,907.0	506.2	5,926.8	0.00	0.00	
11,600.0	90.00	0.00	6,011.0	6,007.0	506.2	6,026.7	0.00	0.00	
11,700.0	90.00	0.00	6,011.0	6,107.0	506.2	6,126.5	0.00	0.00	
11,800.0	90.00	0.00	6,011.0	6,207.0	506.2	6,226.3	0.00	0.00	
11,900.0	90.00	0.00	6,011.0	6,307.0	506.2	6,326.1	0.00	0.00	
12,000.0	90.00	0.00	6,011.0	6,407.0	506.2	6,425.9	0.00	0.00	
12,100.0	90.00	0.00	6,011.0	6,507.0	506.2	6,525.7	0.00	0.00	
12,200.0	90.00	0.00	6,011.0	6,607.0	506.2	6,625.5	0.00	0.00	
12,300.0	90.00	0.00	6,011.0	6,707.0	506.2	6,725.3	0.00	0.00	
12,400.0	90.00	0.00	6,011.0	6,807.0	506.3	6,825.2	0.00	0.00	
12,500.0	90.00	0.00	6,011.0	6,907.0	506.3	6,925.0	0.00	0.00	
12,600.0	90.00	0.00	6,011.0	7,007.0	506.3	7,024.8	0.00	0.00	
12,700.0	90.00	0.00	6,011.0	7,107.0	506.3	7,124.6	0.00	0.00	
12,800.0	90.00	0.00	6,011.0	7,207.0	506.3	7,224.4	0.00	0.00	
12,900.0	90.00	0.00	6,011.0	7,307.0	506.3	7,324.2	0.00	0.00	
13,000.0	90.00	0.00	6,011.0	7,407.0	506.3	7,424.0	0.00	0.00	
13,100.0	90.00	0.00	6,011.0	7,507.0	506.3	7,523.9	0.00	0.00	
13,200.0	90.00	0.00	6,011.0	7,607.0	506.3	7,623.7	0.00	0.00	
13,300.0	90.00	0.00	6,011.0	7,707.0	506.3	7,723.5	0.00	0.00	
13,400.0	90.00	0.00	6,011.0	7,807.0	506.3	7,823.3	0.00	0.00	
13,500.0	90.00	0.00	6,011.0	7,907.0	506.3	7,923.1	0.00	0.00	
13,596.0	90.00	0.00	6,011.0	8,003.0	506.3	8,018.9	0.00	0.00	OUT - 1,550' Radius
13,600.0	90.00	0.00	6,011.0	8,007.0	506.3	8,022.9	0.00	0.00	
13,700.0	90.00	0.00	6,011.0	8,107.0	506.3	8,122.7	0.00	0.00	
13,800.0	90.00	0.00	6,011.0	8,207.0	506.3	8,222.6	0.00	0.00	
13,870.6	90.00	0.00	6,011.0	8,277.5	506.3	8,293.0	0.00	0.00	BHL - 2,559' FSL, 1,485' FEL - TD @ 13,870.6'

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #21B-0912B
Company:	Whiting Petroleum Corporation	TVD Reference:	KB=17' @ 4854.3usft
Project:	Weld County, CO	MD Reference:	KB=17' @ 4854.3usft
Site:	S21-T10N-R58W	North Reference:	True
Well:	Razor #21B-0912B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
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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
21B-0912B TGT P2 - plan misses target center by 2.5usft at 13370.7usft MD (6011.0 TVD, 7777.6 N, 506.3 E) - Point	0.00	1.06	6,011.0	7,777.6	508.8	1,557,228.84	3,451,843.94	40.851547	-103.866669
21B-0912B BHL P2 - plan hits target center - Point	0.00	1.06	6,011.0	8,277.5	506.3	1,557,728.59	3,451,832.24	40.852919	-103.866678
21B-0912B TGT - plan misses target center by 132.5usft at 13370.7usft MD (6011.0 TVD, 7777.6 N, 506.3 E) - Point	0.00	1.06	5,878.5	7,777.6	508.8	1,557,228.84	3,451,843.94	40.851547	-103.866669
21B-0912B BHL - plan misses target center by 132.5usft at 13870.6usft MD (6011.0 TVD, 8277.5 N, 506.3 E) - Point	0.00	1.06	5,878.5	8,277.5	506.3	1,557,728.59	3,451,832.24	40.852919	-103.866678

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
6,318.7	6,011.0	7" - 415' FSL, 1,716' FEL	0	0
1,700.0	1,698.9	Surface Casing	0	0

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,619.9	1,619.0	Pierre			
5,953.4	5,888.0	Niobrara			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
0.5	0.5	0.0	0.0	SH - 329' FSL, 2,062' FEL
1,100.0	1,100.0	0.0	0.0	KOP @ 1,100'
1,300.0	1,299.8	6.4	2.9	EOB @ 4° INC
5,536.9	5,526.4	275.8	124.3	Start 11° Build
6,318.7	6,011.0	749.6	337.7	LP @ 6,011' TVD, 90° INC
7,127.0	6,011.0	1,534.0	506.2	EOT @ 0° az
10,740.0	6,011.0	5,147.0	506.2	IN - 1,550' Radius
13,596.0	6,011.0	8,003.0	506.3	OUT - 1,550' Radius
13,870.6	6,011.0	8,277.5	506.3	BHL - 2,559' FSL, 1,485' FEL
13,870.6	6,011.0	8,277.5	506.3	TD @ 13,870.6' MD

Whiting Petroleum Corporation

Weld County, CO

S21-T10N-R58W

Razor #21B-0912B

HZ

Plan #2

Anticollision Report

02 April, 2014

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Reference	Plan #2		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0usft	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,550.0usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 4/2/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	13,870.4	Plan #2 (HZ)	ISCWSA MWD	MWD - ISCWSA

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S21-T10N-R58W						
Fregeau 1 (Existing) - Existing - ASSUMED VERTICAL	11,930.7	6,109.7	993.4	860.4	7.470	CC, ES
Fregeau 1 (Existing) - Existing - ASSUMED VERTICAL	12,100.0	6,109.7	1,007.7	871.5	7.398	SF
Fregeau 2 (Existing) - Existing - ASSUMED VERTICAL	12,208.8	6,106.7	690.1	551.8	4.991	CC, ES
Fregeau 2 (Existing) - Existing - ASSUMED VERTICAL	12,300.0	6,106.7	696.1	556.1	4.972	SF
Razor #21A-0913A - HZ - Plan #2	13,870.6	13,663.2	346.0	40.9	1.134	Level 2, CC, ES, SF
Razor #21A-0914B - HZ - Plan #2	7,151.0	7,003.3	659.5	593.9	10.052	CC
Razor #21A-0914B - HZ - Plan #2	13,870.6	13,722.9	659.5	342.3	2.079	ES, SF
Razor #21A-0915A - HZ - Plan #2	7,150.9	6,932.7	995.3	931.8	15.671	CC
Razor #21A-0915A - HZ - Plan #2	13,870.6	13,652.3	995.4	681.8	3.175	ES, SF
Razor #21A-0916B - HZ - Plan #2	6,464.2	5,960.9	1,206.6	1,167.8	31.140	CC
Razor #21A-0916B - HZ - Plan #2	13,870.6	13,842.9	1,319.6	1,007.4	4.227	ES, SF
Razor #21B-0909A - HZ - Plan #2	500.0	500.0	99.9	97.9	50.338	CC, ES
Razor #21B-0909A - HZ - Plan #2	13,870.6	13,705.5	994.8	681.7	3.177	SF
Razor #21B-0910B - HZ - Plan #2	700.0	700.0	65.3	62.4	22.648	CC
Razor #21B-0910B - HZ - Plan #2	800.0	799.7	65.5	62.2	19.657	ES
Razor #21B-0910B - HZ - Plan #2	13,870.6	13,751.2	660.1	345.2	2.096	SF
Razor #21B-0911A - HZ - Plan #2	1,096.8	1,096.9	32.5	27.8	6.966	CC
Razor #21B-0911A - HZ - Plan #2	1,100.0	1,100.1	32.5	27.8	6.945	ES
Razor #21B-0911A - HZ - Plan #2	13,870.6	13,694.1	343.2	39.5	1.130	Level 2, SF
Razor #21B-2809A - HZ - Plan #1	1,502.1	1,501.0	44.2	37.7	6.808	CC, ES
Razor #21B-2809A - HZ - Plan #1	1,600.0	1,598.1	45.3	38.4	6.550	SF
Razor #21B-2810B - HZ - Plan #1	700.0	699.5	111.3	108.4	38.605	CC, ES
Razor #21B-2810B - HZ - Plan #1	1,700.0	1,688.5	183.2	176.1	25.547	SF
Razor #21B-2811A - HZ - Plan #1	500.0	499.5	115.1	113.1	58.026	CC, ES
Razor #21B-2811A - HZ - Plan #1	2,100.0	2,088.1	196.4	187.3	21.534	SF
Razor #21B-2812B - HZ - Plan #1	900.0	899.5	166.2	162.5	43.953	CC, ES
Razor #21B-2812B - HZ - Plan #1	5,400.0	5,356.6	635.3	611.0	26.213	SF
Razor #21C-0908B - HZ - Plan #2	5,964.1	6,480.4	1,231.0	1,192.2	31.781	CC
Razor #21C-0908B - HZ - Plan #2	13,870.6	13,908.0	1,344.8	1,031.6	4.293	ES, SF

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Fregeau 1 (Existing) - Existing - ASSUMED VERTICAL													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA 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)		Between Centres (usft)	Between Ellipses (usft)						
10,800.0	6,011.0	6,109.7	6,109.7	98.3	13.6	90.00	6,337.6	1,499.6	1,505.1	1,393.6	111.54	13.494		
10,900.0	6,011.0	6,109.7	6,109.7	100.2	13.6	90.00	6,337.6	1,499.6	1,431.5	1,318.1	113.43	12.620		
11,000.0	6,011.0	6,109.7	6,109.7	102.1	13.6	90.00	6,337.6	1,499.6	1,361.3	1,245.9	115.33	11.804		
11,100.0	6,011.0	6,109.7	6,109.7	104.0	13.6	90.00	6,337.6	1,499.6	1,295.0	1,177.7	117.22	11.047		
11,200.0	6,011.0	6,109.7	6,109.7	105.9	13.6	90.00	6,337.6	1,499.6	1,233.2	1,114.1	119.12	10.353		
11,300.0	6,011.0	6,109.7	6,109.7	107.8	13.6	90.00	6,337.6	1,499.6	1,176.7	1,055.7	121.01	9.724		
11,400.0	6,011.0	6,109.7	6,109.7	109.7	13.6	90.00	6,337.6	1,499.6	1,126.3	1,003.4	122.91	9.163		
11,500.0	6,011.0	6,109.7	6,109.7	111.6	13.6	90.00	6,337.6	1,499.6	1,082.7	957.9	124.81	8.675		
11,600.0	6,011.0	6,109.7	6,109.7	113.4	13.6	90.00	6,337.6	1,499.6	1,047.0	920.3	126.71	8.263		
11,700.0	6,011.0	6,109.7	6,109.7	115.3	13.6	90.00	6,337.6	1,499.6	1,019.8	891.2	128.61	7.930		
11,800.0	6,011.0	6,109.7	6,109.7	117.2	13.6	90.00	6,337.6	1,499.6	1,002.0	871.5	130.51	7.677		
11,900.0	6,011.0	6,109.7	6,109.7	119.1	13.6	90.00	6,337.6	1,499.6	993.9	861.5	132.41	7.506		
11,930.7	6,011.0	6,109.7	6,109.7	119.7	13.6	90.00	6,337.6	1,499.6	993.4	860.4	132.99	7.470	CC, ES	
12,000.0	6,011.0	6,109.7	6,109.7	121.0	13.6	90.00	6,337.6	1,499.6	995.8	861.5	134.31	7.414		
12,100.0	6,011.0	6,109.7	6,109.7	122.9	13.6	90.00	6,337.6	1,499.6	1,007.7	871.5	136.21	7.398	SF	
12,200.0	6,011.0	6,109.7	6,109.7	124.8	13.6	90.00	6,337.6	1,499.6	1,029.3	891.1	138.11	7.452		
12,300.0	6,011.0	6,109.7	6,109.7	126.7	13.6	90.00	6,337.6	1,499.6	1,059.8	919.8	140.02	7.569		
12,400.0	6,011.0	6,109.7	6,109.7	128.6	13.6	90.00	6,337.6	1,499.6	1,098.7	956.8	141.92	7.741		
12,500.0	6,011.0	6,109.7	6,109.7	130.5	13.6	90.00	6,337.6	1,499.6	1,145.0	1,001.1	143.83	7.961		
12,600.0	6,011.0	6,109.7	6,109.7	132.4	13.6	90.00	6,337.6	1,499.6	1,197.8	1,052.1	145.73	8.219		
12,700.0	6,011.0	6,109.7	6,109.7	134.3	13.6	90.00	6,337.6	1,499.6	1,256.4	1,108.8	147.64	8.510		
12,800.0	6,011.0	6,109.7	6,109.7	136.2	13.6	90.00	6,337.6	1,499.6	1,320.0	1,170.5	149.54	8.827		
12,900.0	6,011.0	6,109.7	6,109.7	138.1	13.6	90.00	6,337.6	1,499.6	1,387.9	1,236.5	151.45	9.164		
13,000.0	6,011.0	6,109.7	6,109.7	140.0	13.6	90.00	6,337.6	1,499.6	1,459.5	1,306.2	153.36	9.517		
13,100.0	6,011.0	6,109.7	6,109.7	141.9	13.6	90.00	6,337.6	1,499.6	1,534.3	1,379.0	155.26	9.882		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Fregeau 2 (Existing) - Existing - ASSUMED VERTICAL													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		
10,900.0	6,011.0	6,106.7	6,106.7	100.2	13.6	90.00	6,615.7	1,196.3	1,479.6	1,366.1	113.43	13.044		
11,000.0	6,011.0	6,106.7	6,106.7	102.1	13.6	90.00	6,615.7	1,196.3	1,391.9	1,276.6	115.32	12.070		
11,100.0	6,011.0	6,106.7	6,106.7	104.0	13.6	90.00	6,615.7	1,196.3	1,306.0	1,188.8	117.21	11.142		
11,200.0	6,011.0	6,106.7	6,106.7	105.9	13.6	90.00	6,615.7	1,196.3	1,222.2	1,103.1	119.11	10.261		
11,300.0	6,011.0	6,106.7	6,106.7	107.8	13.6	90.00	6,615.7	1,196.3	1,141.1	1,020.1	121.01	9.430		
11,400.0	6,011.0	6,106.7	6,106.7	109.7	13.6	90.00	6,615.7	1,196.3	1,063.2	940.3	122.90	8.650		
11,500.0	6,011.0	6,106.7	6,106.7	111.6	13.6	90.00	6,615.7	1,196.3	989.2	864.4	124.80	7.926		
11,600.0	6,011.0	6,106.7	6,106.7	113.4	13.6	90.00	6,615.7	1,196.3	920.2	793.5	126.70	7.263		
11,700.0	6,011.0	6,106.7	6,106.7	115.3	13.6	90.00	6,615.7	1,196.3	857.4	728.8	128.60	6.667		
11,800.0	6,011.0	6,106.7	6,106.7	117.2	13.6	90.00	6,615.7	1,196.3	802.1	671.6	130.50	6.146		
11,900.0	6,011.0	6,106.7	6,106.7	119.1	13.6	90.00	6,615.7	1,196.3	756.0	623.6	132.40	5.710		
12,000.0	6,011.0	6,106.7	6,106.7	121.0	13.6	90.00	6,615.7	1,196.3	721.0	586.7	134.30	5.368		
12,100.0	6,011.0	6,106.7	6,106.7	122.9	13.6	90.00	6,615.7	1,196.3	698.6	562.4	136.20	5.129		
12,200.0	6,011.0	6,106.7	6,106.7	124.8	13.6	90.00	6,615.7	1,196.3	690.1	552.0	138.11	4.997		
12,208.8	6,011.0	6,106.7	6,106.7	125.0	13.6	90.00	6,615.7	1,196.3	690.1	551.8	138.27	4.991 CC, ES		
12,300.0	6,011.0	6,106.7	6,106.7	126.7	13.6	90.00	6,615.7	1,196.3	696.1	556.1	140.01	4.972 SF		
12,400.0	6,011.0	6,106.7	6,106.7	128.6	13.6	90.00	6,615.7	1,196.3	716.1	574.2	141.91	5.046		
12,500.0	6,011.0	6,106.7	6,106.7	130.5	13.6	90.00	6,615.7	1,196.3	749.0	605.2	143.82	5.208		
12,600.0	6,011.0	6,106.7	6,106.7	132.4	13.6	90.00	6,615.7	1,196.3	793.2	647.5	145.72	5.444		
12,700.0	6,011.0	6,106.7	6,106.7	134.3	13.6	90.00	6,615.7	1,196.3	847.0	699.4	147.63	5.738		
12,800.0	6,011.0	6,106.7	6,106.7	136.2	13.6	90.00	6,615.7	1,196.3	908.7	759.2	149.53	6.077		
12,900.0	6,011.0	6,106.7	6,106.7	138.1	13.6	90.00	6,615.7	1,196.3	976.7	825.3	151.44	6.449		
13,000.0	6,011.0	6,106.7	6,106.7	140.0	13.6	90.00	6,615.7	1,196.3	1,049.9	896.5	153.35	6.846		
13,100.0	6,011.0	6,106.7	6,106.7	141.9	13.6	90.00	6,615.7	1,196.3	1,127.1	971.9	155.25	7.260		
13,200.0	6,011.0	6,106.7	6,106.7	143.8	13.6	90.00	6,615.7	1,196.3	1,207.8	1,050.6	157.16	7.685		
13,300.0	6,011.0	6,106.7	6,106.7	145.7	13.6	90.00	6,615.7	1,196.3	1,291.1	1,132.0	159.07	8.117		
13,400.0	6,011.0	6,106.7	6,106.7	147.6	13.6	90.00	6,615.7	1,196.3	1,376.7	1,215.7	160.98	8.552		
13,500.0	6,011.0	6,106.7	6,106.7	149.5	13.6	90.00	6,615.7	1,196.3	1,464.0	1,301.2	162.89	8.988		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21A-0913A - HZ - Plan #2													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	88.77	26.2	1,219.9	1,220.2					
100.0	100.0	94.6	94.6	0.1	0.1	88.77	26.2	1,219.9	1,220.2	1,220.0	0.18	6,721.961		
200.0	200.0	194.6	194.6	0.3	0.3	88.77	26.2	1,219.9	1,220.2	1,219.5	0.62	1,955.545		
300.0	300.0	294.6	294.6	0.5	0.5	88.77	26.2	1,219.9	1,220.2	1,219.1	1.07	1,136.640		
400.0	400.0	394.6	394.6	0.8	0.8	88.77	26.2	1,219.9	1,220.2	1,218.6	1.52	801.150		
500.0	500.0	494.6	494.6	1.0	1.0	88.77	26.2	1,219.9	1,220.2	1,218.2	1.97	618.573		
600.0	600.0	608.7	608.7	1.2	1.2	88.68	28.2	1,219.2	1,219.6	1,217.2	2.45	497.192		
700.0	700.0	720.3	720.1	1.4	1.5	88.39	34.2	1,217.1	1,217.9	1,215.0	2.93	415.236		
800.0	800.0	820.1	819.6	1.7	1.7	88.08	40.8	1,214.9	1,215.8	1,212.4	3.39	358.188		
900.0	900.0	919.8	919.1	1.9	2.0	87.76	47.3	1,212.6	1,213.8	1,209.9	3.86	314.372		
1,000.0	1,000.0	1,019.6	1,018.6	2.1	2.2	87.45	53.9	1,210.3	1,211.8	1,207.4	4.33	279.793		
1,100.0	1,100.0	1,119.3	1,118.1	2.3	2.5	87.13	60.5	1,208.1	1,209.8	1,205.0	4.80	251.868		
1,200.0	1,200.0	1,219.1	1,217.7	2.6	2.7	86.69	67.1	1,205.8	1,207.1	1,201.8	5.27	229.103		
1,300.0	1,299.8	1,319.0	1,317.4	2.8	3.0	86.67	73.7	1,203.5	1,202.8	1,197.0	5.74	209.537		
1,400.0	1,399.6	1,418.9	1,417.0	3.0	3.2	86.64	80.3	1,201.3	1,197.7	1,191.4	6.22	192.628		
1,500.0	1,499.4	1,518.8	1,516.6	3.2	3.5	86.62	86.8	1,199.0	1,192.5	1,185.8	6.70	178.003		
1,600.0	1,599.1	1,618.6	1,616.2	3.5	3.7	86.59	93.4	1,196.7	1,187.4	1,180.2	7.19	165.255		
1,700.0	1,698.9	1,718.5	1,715.9	3.7	4.0	86.57	100.0	1,194.4	1,182.3	1,174.6	7.67	154.059		
1,800.0	1,798.6	1,818.4	1,815.5	4.0	4.2	86.54	106.6	1,192.2	1,177.2	1,169.0	8.17	144.158		
1,900.0	1,898.4	1,918.2	1,915.1	4.2	4.5	86.52	113.2	1,189.9	1,172.1	1,163.4	8.66	135.348		
2,000.0	1,998.1	2,018.1	2,014.7	4.4	4.7	86.49	119.8	1,187.6	1,167.0	1,157.8	9.16	127.463		
2,100.0	2,097.9	2,118.0	2,114.3	4.7	5.0	86.46	126.4	1,185.4	1,161.8	1,152.2	9.65	120.368		
2,200.0	2,197.6	2,217.8	2,214.0	4.9	5.2	86.44	132.9	1,183.1	1,156.7	1,146.6	10.15	113.952		
2,300.0	2,297.4	2,317.7	2,313.6	5.2	5.5	86.41	139.5	1,180.8	1,151.6	1,141.0	10.65	108.126		
2,400.0	2,397.2	2,417.6	2,413.2	5.4	5.7	86.38	146.1	1,178.6	1,146.5	1,135.3	11.15	102.811		
2,500.0	2,496.9	2,517.4	2,512.8	5.7	6.0	86.36	152.7	1,176.3	1,141.4	1,129.7	11.65	97.946		
2,600.0	2,596.7	2,617.3	2,612.5	5.9	6.3	86.33	159.3	1,174.0	1,136.3	1,124.1	12.16	93.476		
2,700.0	2,696.4	2,717.2	2,712.1	6.2	6.5	86.30	165.9	1,171.7	1,131.2	1,118.5	12.66	89.356		
2,800.0	2,796.2	2,817.0	2,811.7	6.4	6.8	86.27	172.5	1,169.5	1,126.0	1,112.9	13.16	85.547		
2,900.0	2,895.9	2,916.9	2,911.3	6.7	7.0	86.25	179.0	1,167.2	1,120.9	1,107.3	13.67	82.015		
3,000.0	2,995.7	3,016.8	3,011.0	6.9	7.3	86.22	185.6	1,164.9	1,115.8	1,101.6	14.17	78.731		
3,100.0	3,095.5	3,116.6	3,110.6	7.2	7.5	86.19	192.2	1,162.7	1,110.7	1,096.0	14.68	75.670		
3,200.0	3,195.2	3,216.5	3,210.2	7.4	7.8	86.16	198.8	1,160.4	1,105.6	1,090.4	15.18	72.812		
3,300.0	3,295.0	3,316.4	3,309.8	7.7	8.0	86.13	205.4	1,158.1	1,100.5	1,084.8	15.69	70.135		
3,400.0	3,394.7	3,416.2	3,409.5	7.9	8.3	86.10	212.0	1,155.8	1,095.4	1,079.2	16.20	67.624		
3,500.0	3,494.5	3,516.1	3,509.1	8.2	8.6	86.07	218.6	1,153.6	1,090.3	1,073.6	16.71	65.265		
3,600.0	3,594.2	3,616.0	3,608.7	8.4	8.8	86.04	225.1	1,151.3	1,085.2	1,067.9	17.21	63.043		
3,700.0	3,694.0	3,715.8	3,708.3	8.7	9.1	86.01	231.7	1,149.0	1,080.0	1,062.3	17.72	60.947		
3,800.0	3,793.7	3,815.7	3,808.0	9.0	9.3	86.98	238.3	1,146.8	1,074.9	1,056.7	18.23	58.967		
3,900.0	3,893.5	3,915.6	3,907.6	9.2	9.6	86.95	244.9	1,144.5	1,069.8	1,051.1	18.74	57.093		
4,000.0	3,993.3	4,015.5	4,007.2	9.5	9.8	86.92	251.5	1,142.2	1,064.7	1,045.5	19.25	55.318		
4,100.0	4,093.0	4,115.3	4,106.8	9.7	10.1	86.89	258.1	1,140.0	1,059.6	1,039.8	19.76	53.633		
4,200.0	4,192.8	4,215.2	4,206.5	10.0	10.4	86.86	264.7	1,137.7	1,054.5	1,034.2	20.27	52.033		
4,300.0	4,292.5	4,315.1	4,306.1	10.2	10.6	86.82	271.2	1,135.4	1,049.4	1,028.6	20.78	50.510		
4,400.0	4,392.3	4,414.9	4,405.7	10.5	10.9	86.79	277.8	1,133.1	1,044.3	1,023.0	21.29	49.060		
4,500.0	4,492.0	4,514.8	4,505.3	10.7	11.1	86.76	284.4	1,130.9	1,039.2	1,017.4	21.80	47.677		
4,600.0	4,591.8	4,614.7	4,605.0	11.0	11.4	86.73	291.0	1,128.6	1,034.1	1,011.8	22.31	46.356		
4,700.0	4,691.6	4,714.5	4,704.6	11.2	11.6	86.69	297.6	1,126.3	1,029.0	1,006.1	22.82	45.095		
4,800.0	4,791.3	4,814.4	4,804.2	11.5	11.9	86.66	304.2	1,124.1	1,023.8	1,000.5	23.33	43.888		
4,900.0	4,891.1	4,914.3	4,903.8	11.8	12.1	86.62	310.8	1,121.8	1,018.7	994.9	23.84	42.733		
5,000.0	4,990.8	5,014.1	5,003.5	12.0	12.4	86.59	317.3	1,119.5	1,013.6	989.3	24.35	41.626		
5,100.0	5,090.6	5,114.0	5,103.1	12.3	12.7	86.56	323.9	1,117.2	1,008.5	983.7	24.86	40.564		

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 #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21A-0913A - HZ - Plan #2													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	5,213.9	5,202.7	12.5	12.9	61.52	330.5	1,115.0	1,003.4	978.0	25.37	39.545		
5,300.0	5,290.1	5,313.7	5,302.3	12.8	13.2	61.48	337.1	1,112.7	998.3	972.4	25.89	38.565		
5,400.0	5,389.9	5,413.6	5,402.0	13.0	13.4	61.45	343.7	1,110.4	993.2	966.8	26.40	37.624		
5,500.0	5,489.6	5,586.6	5,570.4	13.3	14.1	60.03	377.5	1,098.8	984.9	957.6	27.33	36.043		
5,600.0	5,588.9	5,740.2	5,703.1	13.6	15.1	57.42	449.6	1,073.9	968.2	939.6	28.59	33.865		
5,700.0	5,684.7	5,861.2	5,788.5	14.0	16.2	56.25	530.3	1,046.1	939.8	910.0	29.79	31.545		
5,800.0	5,773.3	5,958.5	5,841.4	14.6	17.3	56.33	607.3	1,019.6	901.7	870.9	30.80	29.279		
5,900.0	5,851.5	6,039.6	5,873.4	15.3	18.4	57.65	677.7	995.3	855.8	824.1	31.72	26.985		
6,000.0	5,916.4	6,110.3	5,891.5	16.2	19.4	60.17	742.2	973.0	803.6	770.8	32.81	24.492		
6,100.0	5,965.7	6,174.4	5,899.7	17.4	20.3	63.86	802.3	952.3	746.3	711.9	34.37	21.711		
6,200.0	5,997.5	6,231.5	5,901.0	18.6	21.2	68.91	856.4	933.8	685.2	648.6	36.56	18.742		
6,300.0	6,010.6	6,286.7	5,901.0	20.1	22.0	75.63	908.9	917.2	621.9	582.5	39.43	15.773		
6,400.0	6,011.0	6,346.2	5,901.0	21.5	22.9	76.65	966.2	901.0	559.9	517.7	42.19	13.271		
6,500.0	6,011.0	6,411.1	5,901.0	22.8	23.9	76.00	1,029.1	885.3	504.7	459.9	44.87	11.249		
6,600.0	6,011.0	6,481.1	5,901.0	24.3	24.9	75.26	1,097.7	870.8	457.0	409.4	47.67	9.588		
6,700.0	6,011.0	6,555.8	5,901.0	25.7	26.1	74.46	1,171.3	858.2	417.4	366.9	50.54	8.259		
6,800.0	6,011.0	6,634.5	5,901.0	27.2	27.3	73.68	1,249.3	847.9	386.3	332.9	53.46	7.227		
6,900.0	6,011.0	6,716.3	5,901.0	28.8	28.6	73.03	1,330.8	840.7	364.1	307.7	56.40	6.456		
7,000.0	6,011.0	6,800.0	5,901.0	30.3	29.9	72.60	1,414.4	837.0	351.0	291.7	59.33	5.916		
7,100.0	6,011.0	6,892.6	5,901.0	31.9	31.4	72.43	1,507.0	836.4	346.6	284.2	62.38	5.556		
7,151.1	6,011.0	6,943.7	5,901.0	32.6	32.2	72.41	1,558.1	836.4	346.1	282.1	63.96	5.411		
7,200.0	6,011.0	6,992.6	5,901.0	33.4	33.0	72.43	1,607.0	836.4	346.4	280.9	65.56	5.284		
7,300.0	6,011.0	7,092.6	5,901.0	35.0	34.7	72.43	1,707.0	836.4	346.4	277.6	68.78	5.036		
7,400.0	6,011.0	7,192.6	5,901.0	36.6	36.4	72.43	1,807.0	836.4	346.4	274.3	72.06	4.807		
7,500.0	6,011.0	7,292.6	5,901.0	38.3	38.1	72.42	1,907.0	836.4	346.4	271.0	75.37	4.596		
7,600.0	6,011.0	7,392.6	5,901.0	39.9	39.9	72.42	2,007.0	836.4	346.4	267.7	78.72	4.400		
7,700.0	6,011.0	7,492.6	5,901.0	41.6	41.6	72.42	2,107.0	836.4	346.4	264.3	82.09	4.219		
7,800.0	6,011.0	7,592.6	5,901.0	43.3	43.4	72.42	2,207.0	836.4	346.4	260.9	85.50	4.051		
7,900.0	6,011.0	7,692.6	5,901.0	45.1	45.2	72.42	2,307.0	836.4	346.4	257.4	88.93	3.895		
8,000.0	6,011.0	7,792.6	5,901.0	46.8	47.0	72.42	2,407.0	836.4	346.4	254.0	92.38	3.749		
8,100.0	6,011.0	7,892.6	5,901.0	48.6	48.8	72.42	2,507.0	836.4	346.4	250.5	95.85	3.614		
8,200.0	6,011.0	7,992.6	5,901.0	50.3	50.6	72.42	2,607.0	836.4	346.3	247.0	99.33	3.487		
8,300.0	6,011.0	8,092.6	5,901.0	52.1	52.4	72.42	2,707.0	836.4	346.3	243.5	102.83	3.368		
8,400.0	6,011.0	8,192.6	5,901.0	53.9	54.2	72.42	2,807.0	836.4	346.3	240.0	106.35	3.257		
8,500.0	6,011.0	8,292.6	5,901.0	55.7	56.1	72.42	2,907.0	836.4	346.3	236.5	109.87	3.152		
8,600.0	6,011.0	8,392.6	5,901.0	57.5	57.9	72.42	3,007.0	836.4	346.3	232.9	113.41	3.054		
8,700.0	6,011.0	8,492.6	5,901.0	59.3	59.8	72.42	3,107.0	836.3	346.3	229.4	116.95	2.961		
8,800.0	6,011.0	8,592.6	5,901.0	61.1	61.6	72.42	3,207.0	836.3	346.3	225.8	120.51	2.874		
8,900.0	6,011.0	8,692.6	5,901.0	63.0	63.5	72.42	3,307.0	836.3	346.3	222.2	124.07	2.791		
9,000.0	6,011.0	8,792.6	5,901.0	64.8	65.3	72.42	3,407.0	836.3	346.3	218.6	127.64	2.713		
9,100.0	6,011.0	8,892.6	5,901.0	66.6	67.2	72.42	3,507.0	836.3	346.3	215.1	131.22	2.639		
9,200.0	6,011.0	8,992.6	5,901.0	68.5	69.0	72.42	3,607.0	836.3	346.3	211.5	134.80	2.569		
9,300.0	6,011.0	9,092.6	5,901.0	70.3	70.9	72.42	3,707.0	836.3	346.3	207.9	138.39	2.502		
9,400.0	6,011.0	9,192.6	5,901.0	72.2	72.8	72.42	3,807.0	836.3	346.3	204.3	141.99	2.439		
9,500.0	6,011.0	9,292.6	5,901.0	74.0	74.6	72.42	3,907.0	836.3	346.3	200.7	145.59	2.378		
9,600.0	6,011.0	9,392.6	5,901.0	75.9	76.5	72.42	4,007.0	836.3	346.3	197.1	149.19	2.321		
9,700.0	6,011.0	9,492.6	5,901.0	77.7	78.4	72.42	4,107.0	836.3	346.2	193.4	152.80	2.266		
9,800.0	6,011.0	9,592.6	5,901.0	79.6	80.3	72.42	4,207.0	836.3	346.2	189.8	156.41	2.214		
9,900.0	6,011.0	9,692.6	5,901.0	81.5	82.1	72.42	4,307.0	836.3	346.2	186.2	160.03	2.164		
10,000.0	6,011.0	9,792.6	5,901.0	83.3	84.0	72.42	4,407.0	836.3	346.2	182.6	163.65	2.116		
10,100.0	6,011.0	9,892.6	5,901.0	85.2	85.9	72.42	4,507.0	836.3	346.2	178.9	167.27	2.070		
10,200.0	6,011.0	9,992.6	5,901.0	87.1	87.8	72.41	4,607.0	836.3	346.2	175.3	170.90	2.026		

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 #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21A-0913A - HZ - Plan #2												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
10,300.0	6,011.0	10,092.6	5,901.0	88.9	89.7	72.41	4,707.0	836.2	346.2	171.7	174.52	1.984	
10,400.0	6,011.0	10,192.6	5,901.0	90.8	91.6	72.41	4,807.0	836.2	346.2	168.0	178.15	1.943	
10,500.0	6,011.0	10,292.6	5,901.0	92.7	93.5	72.41	4,907.0	836.2	346.2	164.4	181.79	1.904	
10,600.0	6,011.0	10,392.6	5,901.0	94.6	95.4	72.41	5,007.0	836.2	346.2	160.8	185.42	1.867	
10,700.0	6,011.0	10,492.6	5,901.0	96.5	97.3	72.41	5,107.0	836.2	346.2	157.1	189.06	1.831	
10,800.0	6,011.0	10,592.6	5,901.0	98.3	99.1	72.41	5,207.0	836.2	346.2	153.5	192.70	1.796	
10,900.0	6,011.0	10,692.6	5,901.0	100.2	101.0	72.41	5,307.0	836.2	346.2	149.8	196.34	1.763	
11,000.0	6,011.0	10,792.6	5,901.0	102.1	102.9	72.41	5,407.0	836.2	346.2	146.2	199.99	1.731	
11,100.0	6,011.0	10,892.6	5,901.0	104.0	104.8	72.41	5,507.0	836.2	346.1	142.5	203.63	1.700	
11,200.0	6,011.0	10,992.6	5,901.0	105.9	106.7	72.41	5,607.0	836.2	346.1	138.9	207.28	1.670	
11,300.0	6,011.0	11,092.6	5,901.0	107.8	108.6	72.41	5,707.0	836.2	346.1	135.2	210.93	1.641	
11,400.0	6,011.0	11,192.6	5,901.0	109.7	110.5	72.41	5,807.0	836.2	346.1	131.6	214.57	1.613	
11,500.0	6,011.0	11,292.6	5,901.0	111.6	112.4	72.41	5,907.0	836.2	346.1	127.9	218.23	1.586	
11,600.0	6,011.0	11,392.6	5,901.0	113.4	114.3	72.41	6,007.0	836.2	346.1	124.2	221.88	1.560	
11,700.0	6,011.0	11,492.6	5,901.0	115.3	116.2	72.41	6,107.0	836.2	346.1	120.6	225.53	1.535	
11,800.0	6,011.0	11,592.6	5,901.0	117.2	118.1	72.41	6,207.0	836.2	346.1	116.9	229.19	1.510	
11,900.0	6,011.0	11,692.6	5,901.0	119.1	120.0	72.41	6,307.0	836.2	346.1	113.3	232.84	1.486 Level 3	
12,000.0	6,011.0	11,792.6	5,901.0	121.0	121.9	72.41	6,407.0	836.1	346.1	109.6	236.50	1.463 Level 3	
12,100.0	6,011.0	11,892.6	5,901.0	122.9	123.8	72.41	6,507.0	836.1	346.1	105.9	240.16	1.441 Level 3	
12,200.0	6,011.0	11,992.6	5,901.0	124.8	125.7	72.41	6,607.0	836.1	346.1	102.3	243.82	1.419 Level 3	
12,300.0	6,011.0	12,092.6	5,901.0	126.7	127.6	72.41	6,707.0	836.1	346.1	98.6	247.48	1.398 Level 3	
12,400.0	6,011.0	12,192.6	5,901.0	128.6	129.6	72.41	6,807.0	836.1	346.1	94.9	251.14	1.378 Level 3	
12,500.0	6,011.0	12,292.6	5,901.0	130.5	131.5	72.41	6,907.0	836.1	346.1	91.3	254.80	1.358 Level 3	
12,600.0	6,011.0	12,392.6	5,901.0	132.4	133.4	72.41	7,007.0	836.1	346.0	87.6	258.46	1.339 Level 3	
12,700.0	6,011.0	12,492.6	5,901.0	134.3	135.3	72.41	7,107.0	836.1	346.0	83.9	262.12	1.320 Level 3	
12,800.0	6,011.0	12,592.6	5,901.0	136.2	137.2	72.41	7,207.0	836.1	346.0	80.2	265.79	1.302 Level 3	
12,900.0	6,011.0	12,692.6	5,901.0	138.1	139.1	72.40	7,307.0	836.1	346.0	76.6	269.45	1.284 Level 3	
13,000.0	6,011.0	12,792.6	5,901.0	140.0	141.0	72.40	7,407.0	836.1	346.0	72.9	273.12	1.267 Level 3	
13,100.0	6,011.0	12,892.6	5,901.0	141.9	142.9	72.40	7,507.0	836.1	346.0	69.2	276.78	1.250 Level 3	
13,200.0	6,011.0	12,992.6	5,901.0	143.8	144.8	72.40	7,607.0	836.1	346.0	65.6	280.45	1.234 Level 2	
13,300.0	6,011.0	13,092.6	5,901.0	145.7	146.7	72.40	7,707.0	836.1	346.0	61.9	284.12	1.218 Level 2	
13,400.0	6,011.0	13,192.6	5,901.0	147.6	148.6	72.40	7,807.0	836.1	346.0	58.2	287.78	1.202 Level 2	
13,500.0	6,011.0	13,292.6	5,901.0	149.5	150.5	72.40	7,907.0	836.1	346.0	54.5	291.45	1.187 Level 2	
13,600.0	6,011.0	13,392.6	5,901.0	151.5	152.4	72.40	8,007.0	836.1	346.0	50.9	295.12	1.172 Level 2	
13,700.0	6,011.0	13,492.6	5,901.0	153.4	154.4	72.40	8,107.0	836.0	346.0	47.2	298.79	1.158 Level 2	
13,800.0	6,011.0	13,592.6	5,901.0	155.3	156.3	72.40	8,207.0	836.0	346.0	43.5	302.46	1.144 Level 2	
13,870.6	6,011.0	13,663.2	5,901.0	156.6	157.6	72.40	8,277.5	836.0	346.0	40.9	305.05	1.134 Level 2, CC, ES, SF	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21A-0914B - HZ - Plan #2													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	88.80	26.3	1,252.8	1,253.1					
100.0	100.0	94.6	94.6	0.1	0.1	88.80	26.3	1,252.8	1,253.1	1,252.9	0.18	6,903.349		
200.0	200.0	194.6	194.6	0.3	0.3	88.80	26.3	1,252.8	1,253.1	1,252.5	0.62	2,008.314		
300.0	300.0	294.6	294.6	0.5	0.5	88.80	26.3	1,252.8	1,253.1	1,252.0	1.07	1,167.312		
400.0	400.0	394.6	394.6	0.8	0.8	88.80	26.3	1,252.8	1,253.1	1,251.6	1.52	822.769		
500.0	500.0	494.6	494.6	1.0	1.0	88.80	26.3	1,252.8	1,253.1	1,251.1	1.97	635.265		
600.0	600.0	594.6	594.6	1.2	1.2	88.80	26.3	1,252.8	1,253.1	1,250.7	2.42	517.361		
700.0	700.0	694.6	694.6	1.4	1.4	88.80	26.3	1,252.8	1,253.1	1,250.2	2.87	436.371		
800.0	800.0	797.6	797.6	1.7	1.7	88.72	27.9	1,252.7	1,253.0	1,249.6	3.33	376.573		
900.0	900.0	900.5	900.4	1.9	1.9	88.48	33.3	1,252.2	1,252.6	1,248.8	3.78	330.969		
1,000.0	1,000.0	1,000.3	999.9	2.1	2.1	88.16	40.2	1,251.5	1,252.2	1,247.9	4.24	295.297		
1,100.0	1,100.0	1,100.1	1,099.4	2.3	2.4	87.84	47.1	1,250.9	1,251.8	1,247.1	4.70	266.321		
1,200.0	1,200.0	1,199.9	1,199.0	2.6	2.6	63.37	54.0	1,250.2	1,250.6	1,245.5	5.17	242.130		
1,300.0	1,299.8	1,299.8	1,298.7	2.8	2.8	63.31	61.0	1,249.6	1,247.9	1,242.3	5.63	221.639		
1,400.0	1,399.6	1,399.8	1,398.4	3.0	3.1	63.28	67.9	1,248.9	1,244.4	1,238.3	6.10	203.907		
1,500.0	1,499.4	1,499.7	1,498.1	3.2	3.3	63.24	74.9	1,248.3	1,241.0	1,234.4	6.58	188.564		
1,600.0	1,599.1	1,599.6	1,597.8	3.5	3.6	63.21	81.8	1,247.7	1,237.5	1,230.4	7.06	175.188		
1,700.0	1,698.9	1,699.6	1,697.5	3.7	3.8	63.17	88.7	1,247.0	1,234.0	1,226.5	7.55	163.444		
1,800.0	1,798.6	1,799.5	1,797.2	4.0	4.1	63.14	95.7	1,246.4	1,230.5	1,222.5	8.04	153.064		
1,900.0	1,898.4	1,899.4	1,896.9	4.2	4.3	63.10	102.6	1,245.7	1,227.1	1,218.5	8.53	143.833		
2,000.0	1,998.1	1,999.4	1,996.5	4.4	4.6	63.07	109.6	1,245.1	1,223.6	1,214.5	9.02	135.577		
2,100.0	2,097.9	2,099.3	2,096.2	4.7	4.8	63.03	116.5	1,244.4	1,220.1	1,210.6	9.52	128.154		
2,200.0	2,197.6	2,199.3	2,195.9	4.9	5.1	63.00	123.5	1,243.8	1,216.6	1,206.6	10.02	121.446		
2,300.0	2,297.4	2,299.2	2,295.6	5.2	5.3	62.96	130.4	1,243.1	1,213.1	1,202.6	10.52	115.359		
2,400.0	2,397.2	2,399.1	2,395.3	5.4	5.6	62.93	137.3	1,242.5	1,209.7	1,198.7	11.02	109.811		
2,500.0	2,496.9	2,499.1	2,495.0	5.7	5.8	62.89	144.3	1,241.9	1,206.2	1,194.7	11.52	104.735		
2,600.0	2,596.7	2,599.0	2,594.7	5.9	6.1	62.85	151.2	1,241.2	1,202.7	1,190.7	12.02	100.075		
2,700.0	2,696.4	2,698.9	2,694.4	6.2	6.4	62.82	158.2	1,240.6	1,199.2	1,186.7	12.52	95.782		
2,800.0	2,796.2	2,798.9	2,794.1	6.4	6.6	62.78	165.1	1,239.9	1,195.8	1,182.7	13.02	91.815		
2,900.0	2,895.9	2,898.8	2,893.8	6.7	6.9	62.74	172.0	1,239.3	1,192.3	1,178.8	13.53	88.139		
3,000.0	2,995.7	2,998.8	2,993.5	6.9	7.1	62.71	179.0	1,238.6	1,188.8	1,174.8	14.03	84.724		
3,100.0	3,095.5	3,098.7	3,093.2	7.2	7.4	62.67	185.9	1,238.0	1,185.3	1,170.8	14.54	81.543		
3,200.0	3,195.2	3,198.6	3,192.9	7.4	7.6	62.63	192.9	1,237.3	1,181.9	1,166.8	15.04	78.573		
3,300.0	3,295.0	3,298.6	3,292.6	7.7	7.9	62.59	199.8	1,236.7	1,178.4	1,162.9	15.55	75.794		
3,400.0	3,394.7	3,398.5	3,392.2	7.9	8.1	62.56	206.8	1,236.1	1,174.9	1,158.9	16.05	73.188		
3,500.0	3,494.5	3,498.4	3,491.9	8.2	8.4	62.52	213.7	1,235.4	1,171.5	1,154.9	16.56	70.740		
3,600.0	3,594.2	3,598.4	3,591.6	8.4	8.6	62.48	220.6	1,234.8	1,168.0	1,150.9	17.07	68.435		
3,700.0	3,694.0	3,698.3	3,691.3	8.7	8.9	62.44	227.6	1,234.1	1,164.5	1,147.0	17.57	66.263		
3,800.0	3,793.7	3,798.2	3,791.0	9.0	9.2	62.40	234.5	1,233.5	1,161.1	1,143.0	18.08	64.212		
3,900.0	3,893.5	3,898.2	3,890.7	9.2	9.4	62.36	241.5	1,232.8	1,157.6	1,139.0	18.59	62.271		
4,000.0	3,993.3	3,998.1	3,990.4	9.5	9.7	62.32	248.4	1,232.2	1,154.1	1,135.0	19.10	60.433		
4,100.0	4,093.0	4,098.1	4,090.1	9.7	9.9	62.28	255.3	1,231.6	1,150.7	1,131.0	19.61	58.690		
4,200.0	4,192.8	4,198.0	4,189.8	10.0	10.2	62.24	262.3	1,230.9	1,147.2	1,127.1	20.11	57.033		
4,300.0	4,292.5	4,297.9	4,289.5	10.2	10.4	62.20	269.2	1,230.3	1,143.7	1,123.1	20.62	55.459		
4,400.0	4,392.3	4,397.9	4,389.2	10.5	10.7	62.16	276.2	1,229.6	1,140.3	1,119.1	21.13	53.959		
4,500.0	4,492.0	4,497.8	4,488.9	10.7	10.9	62.12	283.1	1,229.0	1,136.8	1,115.1	21.64	52.530		
4,600.0	4,591.8	4,597.7	4,588.6	11.0	11.2	62.08	290.1	1,228.3	1,133.3	1,111.2	22.15	51.165		
4,700.0	4,691.6	4,697.7	4,688.3	11.2	11.5	62.04	297.0	1,227.7	1,129.9	1,107.2	22.66	49.862		
4,800.0	4,791.3	4,797.6	4,788.0	11.5	11.7	62.00	303.9	1,227.0	1,126.4	1,103.2	23.17	48.616		
4,900.0	4,891.1	4,897.5	4,887.6	11.8	12.0	61.96	310.9	1,226.4	1,122.9	1,099.3	23.68	47.423		
5,000.0	4,990.8	4,997.5	4,987.3	12.0	12.2	61.91	317.8	1,225.8	1,119.5	1,095.3	24.19	46.280		
5,100.0	5,090.6	5,097.4	5,087.0	12.3	12.5	61.87	324.8	1,225.1	1,116.0	1,091.3	24.70	45.184		

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 #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21A-0914B - HZ - Plan #2													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	5,197.4	5,186.7	12.5	12.7	61.83	331.7	1,224.5	1,112.6	1,087.3	25.21	44.132		
5,300.0	5,290.1	5,297.3	5,286.4	12.8	13.0	61.79	338.6	1,223.8	1,109.1	1,083.4	25.72	43.122		
5,400.0	5,389.9	5,397.2	5,386.1	13.0	13.2	61.74	345.6	1,223.2	1,105.6	1,079.4	26.23	42.151		
5,500.0	5,489.6	5,497.2	5,485.8	13.3	13.5	61.70	352.5	1,222.5	1,102.2	1,075.4	26.74	41.217		
5,600.0	5,588.9	5,599.7	5,587.7	13.6	13.8	62.03	363.5	1,221.5	1,096.8	1,069.6	27.25	40.245		
5,700.0	5,684.7	5,702.6	5,686.0	14.0	14.2	63.21	392.8	1,218.8	1,082.8	1,054.9	27.90	38.815		
5,800.0	5,773.3	5,802.6	5,774.3	14.6	14.8	65.21	439.3	1,214.5	1,060.1	1,031.3	28.80	36.814		
5,900.0	5,851.5	5,899.1	5,849.6	15.3	15.6	68.09	499.2	1,208.9	1,029.4	999.3	30.10	34.196		
6,000.0	5,916.4	5,991.9	5,910.4	16.2	16.5	71.91	568.9	1,202.4	992.0	960.0	31.95	31.050		
6,100.0	5,965.7	6,081.7	5,956.4	17.4	17.5	76.69	645.6	1,195.3	949.1	914.8	34.34	27.641		
6,200.0	5,997.5	6,169.4	5,988.0	18.6	18.6	82.39	726.9	1,187.8	902.4	865.3	37.13	24.305		
6,300.0	6,010.6	6,256.1	6,005.3	20.1	19.8	88.84	811.4	1,179.9	853.6	813.6	40.06	21.309		
6,400.0	6,011.0	6,336.3	6,009.0	21.5	21.0	90.27	891.1	1,172.6	805.9	763.0	42.94	18.769		
6,500.0	6,011.0	6,400.0	6,009.0	22.8	21.9	90.28	954.7	1,168.4	765.1	719.6	45.55	16.798		
6,600.0	6,011.0	6,468.8	6,009.0	24.3	22.8	90.28	1,023.5	1,166.3	732.4	684.2	48.23	15.185		
6,700.0	6,011.0	6,555.9	6,009.0	25.7	24.1	90.28	1,110.5	1,166.1	707.4	656.2	51.26	13.801		
6,800.0	6,011.0	6,654.0	6,009.0	27.2	25.7	90.29	1,208.6	1,166.1	687.8	633.3	54.50	12.620		
6,900.0	6,011.0	6,752.9	6,009.0	28.8	27.3	90.29	1,307.5	1,166.1	673.4	615.6	57.73	11.663		
7,000.0	6,011.0	6,852.5	6,009.0	30.3	29.0	90.30	1,407.1	1,166.1	664.1	603.2	60.91	10.903		
7,100.0	6,011.0	6,952.4	6,009.0	31.9	30.7	90.30	1,507.0	1,166.1	660.1	596.1	63.99	10.315		
7,151.0	6,011.0	7,003.3	6,009.0	32.6	31.6	90.30	1,558.0	1,166.1	659.5	593.9	65.61	10.052 CC		
7,200.0	6,011.0	7,052.4	6,009.0	33.4	32.4	90.30	1,607.0	1,166.1	659.9	592.6	67.26	9.811		
7,300.0	6,011.0	7,152.4	6,009.0	35.0	34.2	90.30	1,707.0	1,166.1	659.9	589.2	70.66	9.339		
7,400.0	6,011.0	7,252.4	6,009.0	36.6	36.0	90.30	1,807.0	1,166.1	659.9	585.8	74.10	8.905		
7,500.0	6,011.0	7,352.4	6,009.0	38.3	37.8	90.30	1,907.0	1,166.1	659.9	582.3	77.58	8.506		
7,600.0	6,011.0	7,452.4	6,009.0	39.9	39.5	90.30	2,007.0	1,166.0	659.9	578.8	81.10	8.137		
7,700.0	6,011.0	7,552.4	6,009.0	41.6	41.4	90.30	2,107.0	1,166.0	659.9	575.2	84.64	7.796		
7,800.0	6,011.0	7,652.4	6,009.0	43.3	43.2	90.30	2,207.0	1,166.0	659.9	571.6	88.21	7.480		
7,900.0	6,011.0	7,752.4	6,009.0	45.1	45.0	90.30	2,307.0	1,166.0	659.8	568.0	91.80	7.187		
8,000.0	6,011.0	7,852.4	6,009.0	46.8	46.8	90.30	2,407.0	1,166.0	659.8	564.4	95.42	6.915		
8,100.0	6,011.0	7,952.4	6,009.0	48.6	48.7	90.30	2,507.0	1,166.0	659.8	560.8	99.05	6.662		
8,200.0	6,011.0	8,052.4	6,009.0	50.3	50.5	90.30	2,607.0	1,166.0	659.8	557.1	102.70	6.425		
8,300.0	6,011.0	8,152.4	6,009.0	52.1	52.4	90.30	2,707.0	1,166.0	659.8	553.5	106.36	6.204		
8,400.0	6,011.0	8,252.4	6,009.0	53.9	54.2	90.30	2,807.0	1,166.0	659.8	549.8	110.03	5.997		
8,500.0	6,011.0	8,352.4	6,009.0	55.7	56.1	90.30	2,907.0	1,166.0	659.8	546.1	113.72	5.802		
8,600.0	6,011.0	8,452.4	6,009.0	57.5	58.0	90.30	3,007.0	1,166.0	659.8	542.4	117.41	5.620		
8,700.0	6,011.0	8,552.4	6,009.0	59.3	59.8	90.30	3,107.0	1,166.0	659.8	538.7	121.12	5.448		
8,800.0	6,011.0	8,652.4	6,009.0	61.1	61.7	90.30	3,207.0	1,166.0	659.8	535.0	124.83	5.286		
8,900.0	6,011.0	8,752.4	6,009.0	63.0	63.6	90.30	3,307.0	1,166.0	659.8	531.2	128.55	5.133		
9,000.0	6,011.0	8,852.4	6,009.0	64.8	65.5	90.30	3,407.0	1,166.0	659.8	527.5	132.28	4.988		
9,100.0	6,011.0	8,952.4	6,009.0	66.6	67.3	90.30	3,507.0	1,166.0	659.8	523.8	136.01	4.851		
9,200.0	6,011.0	9,052.4	6,009.0	68.5	69.2	90.30	3,607.0	1,166.0	659.8	520.0	139.75	4.721		
9,300.0	6,011.0	9,152.4	6,009.0	70.3	71.1	90.30	3,707.0	1,166.0	659.8	516.3	143.50	4.598		
9,400.0	6,011.0	9,252.4	6,009.0	72.2	73.0	90.30	3,807.0	1,166.0	659.8	512.5	147.25	4.481		
9,500.0	6,011.0	9,352.4	6,009.0	74.0	74.9	90.30	3,907.0	1,166.0	659.8	508.8	151.01	4.369		
9,600.0	6,011.0	9,452.4	6,009.0	75.9	76.8	90.30	4,007.0	1,166.0	659.8	505.0	154.77	4.263		
9,700.0	6,011.0	9,552.4	6,009.0	77.7	78.7	90.30	4,107.0	1,166.0	659.8	501.2	158.53	4.162		
9,800.0	6,011.0	9,652.4	6,009.0	79.6	80.6	90.30	4,207.0	1,166.0	659.8	497.5	162.30	4.065		
9,900.0	6,011.0	9,752.4	6,009.0	81.5	82.5	90.30	4,307.0	1,166.0	659.7	493.7	166.07	3.973		
10,000.0	6,011.0	9,852.4	6,009.0	83.3	84.4	90.30	4,407.0	1,166.0	659.7	489.9	169.85	3.884		
10,100.0	6,011.0	9,952.4	6,009.0	85.2	86.2	90.30	4,507.0	1,165.9	659.7	486.1	173.62	3.800		
10,200.0	6,011.0	10,052.4	6,009.0	87.1	88.1	90.30	4,607.0	1,165.9	659.7	482.3	177.40	3.719		

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 #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21A-0914B - HZ - Plan #2												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
10,300.0	6,011.0	10,152.4	6,009.0	88.9	90.0	90.30	4,707.0	1,165.9	659.7	478.5	181.19	3.641	
10,400.0	6,011.0	10,252.4	6,009.0	90.8	91.9	90.30	4,807.0	1,165.9	659.7	474.7	184.97	3.567	
10,500.0	6,011.0	10,352.4	6,009.0	92.7	93.8	90.30	4,907.0	1,165.9	659.7	471.0	188.76	3.495	
10,600.0	6,011.0	10,452.4	6,009.0	94.6	95.7	90.30	5,007.0	1,165.9	659.7	467.2	192.55	3.426	
10,700.0	6,011.0	10,552.4	6,009.0	96.5	97.6	90.30	5,107.0	1,165.9	659.7	463.4	196.34	3.360	
10,800.0	6,011.0	10,652.4	6,009.0	98.3	99.6	90.30	5,207.0	1,165.9	659.7	459.6	200.14	3.296	
10,900.0	6,011.0	10,752.4	6,009.0	100.2	101.5	90.30	5,307.0	1,165.9	659.7	455.8	203.93	3.235	
11,000.0	6,011.0	10,852.4	6,009.0	102.1	103.4	90.30	5,407.0	1,165.9	659.7	452.0	207.73	3.176	
11,100.0	6,011.0	10,952.4	6,009.0	104.0	105.3	90.30	5,507.0	1,165.9	659.7	448.2	211.53	3.119	
11,200.0	6,011.0	11,052.4	6,009.0	105.9	107.2	90.30	5,607.0	1,165.9	659.7	444.3	215.33	3.064	
11,300.0	6,011.0	11,152.4	6,009.0	107.8	109.1	90.30	5,707.0	1,165.9	659.7	440.5	219.14	3.010	
11,400.0	6,011.0	11,252.4	6,009.0	109.7	111.0	90.30	5,807.0	1,165.9	659.7	436.7	222.94	2.959	
11,500.0	6,011.0	11,352.4	6,009.0	111.6	112.9	90.30	5,907.0	1,165.9	659.7	432.9	226.74	2.909	
11,600.0	6,011.0	11,452.4	6,009.0	113.4	114.8	90.30	6,007.0	1,165.9	659.7	429.1	230.55	2.861	
11,700.0	6,011.0	11,552.4	6,009.0	115.3	116.7	90.30	6,107.0	1,165.9	659.7	425.3	234.36	2.815	
11,800.0	6,011.0	11,652.4	6,009.0	117.2	118.6	90.30	6,207.0	1,165.9	659.6	421.5	238.17	2.770	
11,900.0	6,011.0	11,752.4	6,009.0	119.1	120.5	90.30	6,307.0	1,165.9	659.6	417.7	241.98	2.726	
12,000.0	6,011.0	11,852.4	6,009.0	121.0	122.4	90.30	6,407.0	1,165.9	659.6	413.8	245.79	2.684	
12,100.0	6,011.0	11,952.4	6,009.0	122.9	124.3	90.30	6,507.0	1,165.9	659.6	410.0	249.60	2.643	
12,200.0	6,011.0	12,052.4	6,009.0	124.8	126.3	90.30	6,607.0	1,165.9	659.6	406.2	253.41	2.603	
12,300.0	6,011.0	12,152.4	6,009.0	126.7	128.2	90.30	6,707.0	1,165.9	659.6	402.4	257.23	2.564	
12,400.0	6,011.0	12,252.4	6,009.0	128.6	130.1	90.30	6,807.0	1,165.9	659.6	398.6	261.04	2.527	
12,500.0	6,011.0	12,352.4	6,009.0	130.5	132.0	90.30	6,907.0	1,165.9	659.6	394.8	264.86	2.490	
12,600.0	6,011.0	12,452.4	6,009.0	132.4	133.9	90.30	7,007.0	1,165.9	659.6	390.9	268.67	2.455	
12,700.0	6,011.0	12,552.4	6,009.0	134.3	135.8	90.30	7,107.0	1,165.8	659.6	387.1	272.49	2.421	
12,800.0	6,011.0	12,652.4	6,009.0	136.2	137.7	90.30	7,207.0	1,165.8	659.6	383.3	276.31	2.387	
12,900.0	6,011.0	12,752.4	6,009.0	138.1	139.6	90.30	7,307.0	1,165.8	659.6	379.5	280.13	2.355	
13,000.0	6,011.0	12,852.4	6,009.0	140.0	141.5	90.30	7,407.0	1,165.8	659.6	375.6	283.94	2.323	
13,100.0	6,011.0	12,952.4	6,009.0	141.9	143.5	90.30	7,507.0	1,165.8	659.6	371.8	287.76	2.292	
13,200.0	6,011.0	13,052.4	6,009.0	143.8	145.4	90.30	7,607.0	1,165.8	659.6	368.0	291.58	2.262	
13,300.0	6,011.0	13,152.4	6,009.0	145.7	147.3	90.30	7,707.0	1,165.8	659.6	364.2	295.41	2.233	
13,400.0	6,011.0	13,252.4	6,009.0	147.6	149.2	90.30	7,807.0	1,165.8	659.6	360.3	299.23	2.204	
13,500.0	6,011.0	13,352.4	6,009.0	149.5	151.1	90.30	7,907.0	1,165.8	659.6	356.5	303.05	2.176	
13,600.0	6,011.0	13,452.4	6,009.0	151.5	153.0	90.30	8,007.0	1,165.8	659.6	352.7	306.87	2.149	
13,700.0	6,011.0	13,552.4	6,009.0	153.4	154.9	90.30	8,107.0	1,165.8	659.6	348.9	310.69	2.123	
13,800.0	6,011.0	13,652.4	6,009.0	155.3	156.8	90.30	8,207.0	1,165.8	659.5	345.0	314.52	2.097	
13,870.6	6,011.0	13,722.9	6,009.0	156.6	158.2	90.30	8,277.5	1,165.8	659.5	342.3	317.22	2.079 ES, SF	

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 #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21A-0915A - HZ - Plan #2													Offset Site Error:	0.0 usft
Survey Program: O-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
0.0	0.0	0.0	0.0	0.0	0.0	88.83	26.2	1,286.0	1,286.3					
100.0	100.0	94.6	94.6	0.1	0.1	88.83	26.2	1,286.0	1,286.3	1,286.1	0.18	7,086.257		
200.0	200.0	194.6	194.6	0.3	0.3	88.83	26.2	1,286.0	1,286.3	1,285.7	0.62	2,061.526		
300.0	300.0	294.6	294.6	0.5	0.5	88.83	26.2	1,286.0	1,286.3	1,285.2	1.07	1,198.240		
400.0	400.0	394.6	394.6	0.8	0.8	88.83	26.2	1,286.0	1,286.3	1,284.8	1.52	844.569		
500.0	500.0	494.6	494.6	1.0	1.0	88.83	26.2	1,286.0	1,286.3	1,284.3	1.97	652.096		
600.0	600.0	594.6	594.6	1.2	1.2	88.83	26.2	1,286.0	1,286.3	1,283.9	2.42	531.069		
700.0	700.0	694.6	694.6	1.4	1.4	88.83	26.2	1,286.0	1,286.3	1,283.4	2.87	447.933		
800.0	800.0	794.6	794.6	1.7	1.7	88.83	26.2	1,286.0	1,286.3	1,283.0	3.32	387.304		
900.0	900.0	894.6	894.6	1.9	1.9	88.83	26.2	1,286.0	1,286.3	1,282.5	3.77	341.130		
1,000.0	1,000.0	985.9	985.9	2.1	2.1	88.78	27.5	1,286.3	1,286.6	1,282.4	4.20	306.343		
1,100.0	1,100.0	1,076.5	1,076.4	2.3	2.3	88.60	31.6	1,287.1	1,287.7	1,283.0	4.63	278.204		
1,200.0	1,200.0	1,174.0	1,173.6	2.6	2.5	84.11	38.1	1,288.5	1,288.5	1,283.4	5.07	254.103		
1,300.0	1,299.8	1,273.9	1,273.4	2.8	2.7	64.03	44.9	1,289.9	1,287.8	1,282.3	5.52	233.185		
1,400.0	1,399.6	1,373.9	1,373.1	3.0	3.0	64.01	51.8	1,291.4	1,286.4	1,280.4	5.98	214.975		
1,500.0	1,499.4	1,473.9	1,472.8	3.2	3.2	63.98	58.6	1,292.8	1,285.0	1,278.5	6.45	199.144		
1,600.0	1,599.1	1,573.9	1,572.6	3.5	3.5	63.96	65.4	1,294.2	1,283.6	1,276.6	6.93	185.311		
1,700.0	1,698.9	1,673.9	1,672.3	3.7	3.7	63.94	72.2	1,295.7	1,282.1	1,274.7	7.40	173.147		
1,800.0	1,798.6	1,773.9	1,772.1	4.0	3.9	63.92	79.1	1,297.1	1,280.7	1,272.8	7.89	162.386		
1,900.0	1,898.4	1,873.9	1,871.8	4.2	4.2	63.89	85.9	1,298.5	1,279.3	1,270.9	8.37	152.809		
2,000.0	1,998.1	1,973.9	1,971.6	4.4	4.4	63.87	92.7	1,299.9	1,277.9	1,269.0	8.86	144.240		
2,100.0	2,097.9	2,073.8	2,071.3	4.7	4.7	63.85	99.6	1,301.4	1,276.5	1,267.1	9.35	136.535		
2,200.0	2,197.6	2,173.8	2,171.1	4.9	4.9	63.82	106.4	1,302.8	1,275.0	1,265.2	9.84	129.572		
2,300.0	2,297.4	2,273.8	2,270.8	5.2	5.2	63.80	113.2	1,304.2	1,273.6	1,263.3	10.33	123.254		
2,400.0	2,397.2	2,373.8	2,370.5	5.4	5.4	63.78	120.0	1,305.7	1,272.2	1,261.4	10.83	117.497		
2,500.0	2,496.9	2,473.8	2,470.3	5.7	5.7	63.75	126.9	1,307.1	1,270.8	1,259.5	11.32	112.230		
2,600.0	2,596.7	2,573.8	2,570.0	5.9	5.9	63.73	133.7	1,308.5	1,269.4	1,257.6	11.82	107.396		
2,700.0	2,696.4	2,673.8	2,669.8	6.2	6.2	63.71	140.5	1,310.0	1,268.0	1,255.6	12.32	102.945		
2,800.0	2,796.2	2,773.8	2,769.5	6.4	6.4	63.68	147.3	1,311.4	1,266.5	1,253.7	12.82	98.833		
2,900.0	2,895.9	2,873.8	2,869.3	6.7	6.7	63.66	154.2	1,312.8	1,265.1	1,251.8	13.31	95.023		
3,000.0	2,995.7	2,973.7	2,969.0	6.9	7.0	63.64	161.0	1,314.2	1,263.7	1,249.9	13.81	91.485		
3,100.0	3,095.5	3,073.7	3,068.8	7.2	7.2	63.61	167.8	1,315.7	1,262.3	1,248.0	14.31	88.190		
3,200.0	3,195.2	3,173.7	3,168.5	7.4	7.5	63.59	174.6	1,317.1	1,260.9	1,246.1	14.81	85.114		
3,300.0	3,295.0	3,273.7	3,268.3	7.7	7.7	63.56	181.5	1,318.5	1,259.5	1,244.1	15.31	82.237		
3,400.0	3,394.7	3,373.7	3,368.0	7.9	8.0	63.54	188.3	1,320.0	1,258.0	1,242.2	15.82	79.541		
3,500.0	3,494.5	3,473.7	3,467.7	8.2	8.2	63.52	195.1	1,321.4	1,256.6	1,240.3	16.32	77.008		
3,600.0	3,594.2	3,573.7	3,567.5	8.4	8.5	63.49	202.0	1,322.8	1,255.2	1,238.4	16.82	74.625		
3,700.0	3,694.0	3,673.7	3,667.2	8.7	8.7	63.47	208.8	1,324.2	1,253.8	1,236.5	17.32	72.379		
3,800.0	3,793.7	3,773.7	3,767.0	9.0	9.0	63.45	215.6	1,325.7	1,252.4	1,234.6	17.83	70.258		
3,900.0	3,893.5	3,873.6	3,866.7	9.2	9.2	63.42	222.4	1,327.1	1,251.0	1,232.6	18.33	68.253		
4,000.0	3,993.3	3,973.6	3,966.5	9.5	9.5	63.40	229.3	1,328.5	1,249.5	1,230.7	18.83	66.354		
4,100.0	4,093.0	4,073.6	4,066.2	9.7	9.7	63.37	236.1	1,330.0	1,248.1	1,228.8	19.34	64.553		
4,200.0	4,192.8	4,173.6	4,166.0	10.0	10.0	63.35	242.9	1,331.4	1,246.7	1,226.9	19.84	62.842		
4,300.0	4,292.5	4,273.6	4,265.7	10.2	10.3	63.32	249.7	1,332.8	1,245.3	1,225.0	20.34	61.216		
4,400.0	4,392.3	4,373.6	4,365.4	10.5	10.5	63.30	256.6	1,334.3	1,243.9	1,223.0	20.85	59.668		
4,500.0	4,492.0	4,473.6	4,465.2	10.7	10.8	63.28	263.4	1,335.7	1,242.5	1,221.1	21.35	58.193		
4,600.0	4,591.8	4,573.6	4,564.9	11.0	11.0	63.25	270.2	1,337.1	1,241.1	1,219.2	21.86	56.785		
4,700.0	4,691.6	4,673.5	4,664.7	11.2	11.3	63.23	277.0	1,338.5	1,239.6	1,217.3	22.36	55.441		
4,800.0	4,791.3	4,773.5	4,764.4	11.5	11.5	63.20	283.9	1,340.0	1,238.2	1,215.4	22.86	54.155		
4,900.0	4,891.1	4,873.5	4,864.2	11.8	11.8	63.18	290.7	1,341.4	1,236.8	1,213.5	23.37	52.925		
5,000.0	4,990.8	4,973.5	4,963.9	12.0	12.0	63.15	297.5	1,342.8	1,235.4	1,211.5	23.87	51.746		
5,100.0	5,090.6	5,073.5	5,063.7	12.3	12.3	63.13	304.4	1,344.3	1,234.0	1,209.6	24.38	50.617		

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 #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21A-0915A - HZ - Plan #2													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	5,173.5	5,163.4	12.5	12.6	63.10	311.2	1,345.7	1,232.6	1,207.7	24.88	49.532		
5,300.0	5,290.1	5,273.5	5,263.2	12.8	12.8	63.08	318.0	1,347.1	1,231.2	1,205.8	25.39	48.491		
5,400.0	5,389.9	5,373.5	5,362.9	13.0	13.1	63.05	324.8	1,348.6	1,229.8	1,203.9	25.90	47.490		
5,493.8	5,483.4	5,450.0	5,439.2	13.3	13.3	63.01	330.5	1,349.7	1,228.7	1,202.4	26.33	46.668		
5,500.0	5,489.6	5,450.0	5,439.2	13.3	13.3	63.01	330.5	1,349.7	1,228.7	1,202.4	26.34	46.641		
5,600.0	5,588.9	5,518.3	5,506.4	13.6	13.5	62.80	342.5	1,352.2	1,228.5	1,201.7	26.79	45.860		
5,700.0	5,684.7	5,580.1	5,565.3	14.0	13.8	63.20	360.6	1,356.0	1,223.2	1,196.0	27.23	44.916		
5,800.0	5,773.3	5,650.0	5,628.8	14.6	14.1	64.34	389.1	1,362.0	1,212.5	1,184.6	27.86	43.528		
5,900.0	5,851.5	5,700.0	5,671.5	15.3	14.5	66.16	414.5	1,367.3	1,196.5	1,167.9	28.65	41.765		
6,000.0	5,916.4	5,765.1	5,723.1	16.2	14.9	68.74	453.3	1,375.5	1,176.0	1,146.0	29.99	39.209		
6,100.0	5,965.7	5,827.3	5,767.3	17.4	15.5	72.01	496.0	1,384.4	1,151.8	1,120.0	31.84	36.170		
6,200.0	5,997.5	5,890.1	5,806.4	18.6	16.1	75.90	544.1	1,394.5	1,124.9	1,090.7	34.18	32.910		
6,300.0	6,010.6	5,950.0	5,837.9	20.1	16.7	80.23	593.9	1,404.9	1,096.6	1,059.9	36.79	29.808		
6,400.0	6,011.0	6,021.7	5,867.7	21.5	17.6	82.42	657.7	1,418.3	1,070.9	1,031.4	39.44	27.151		
6,500.0	6,011.0	6,100.0	5,889.7	22.8	18.6	83.61	731.2	1,433.6	1,052.7	1,010.7	42.05	25.034		
6,600.0	6,011.0	6,178.5	5,900.1	24.3	19.7	84.18	807.2	1,449.6	1,041.7	997.1	44.66	23.324		
6,700.0	6,011.0	6,346.4	5,901.0	25.7	22.0	84.18	972.4	1,479.1	1,035.1	986.6	48.42	21.375		
6,800.0	6,011.0	6,560.5	5,901.0	27.2	25.1	84.07	1,185.8	1,495.9	1,023.2	970.3	52.97	19.319		
6,900.0	6,011.0	6,682.3	5,901.0	28.8	27.0	84.01	1,307.5	1,496.4	1,009.1	952.8	56.24	17.942		
7,000.0	6,011.0	6,781.8	5,901.0	30.3	28.6	83.99	1,407.1	1,496.4	999.9	940.7	59.14	16.908		
7,100.0	6,011.0	6,881.7	5,901.0	31.9	30.3	83.97	1,507.0	1,496.4	995.9	933.9	61.95	16.076		
7,150.9	6,011.0	6,932.7	5,901.0	32.6	31.1	83.97	1,557.9	1,496.3	995.3	931.8	63.51	15.671 CC		
7,200.0	6,011.0	6,981.7	5,901.0	33.4	32.0	83.97	1,607.0	1,496.3	995.7	930.6	65.10	15.293		
7,300.0	6,011.0	7,081.7	5,901.0	35.0	33.7	83.97	1,707.0	1,496.3	995.7	927.2	68.46	14.544		
7,400.0	6,011.0	7,181.7	5,901.0	36.6	35.4	83.97	1,807.0	1,496.3	995.7	923.8	71.86	13.855		
7,500.0	6,011.0	7,281.7	5,901.0	38.3	37.2	83.97	1,907.0	1,496.3	995.6	920.3	75.31	13.222		
7,600.0	6,011.0	7,381.7	5,901.0	39.9	39.0	83.97	2,007.0	1,496.3	995.6	916.9	78.78	12.638		
7,700.0	6,011.0	7,481.7	5,901.0	41.6	40.7	83.97	2,107.0	1,496.3	995.6	913.3	82.29	12.098		
7,800.0	6,011.0	7,581.7	5,901.0	43.3	42.5	83.97	2,207.0	1,496.3	995.6	909.8	85.83	11.600		
7,900.0	6,011.0	7,681.7	5,901.0	45.1	44.3	83.97	2,307.0	1,496.3	995.6	906.2	89.39	11.138		
8,000.0	6,011.0	7,781.7	5,901.0	46.8	46.2	83.97	2,407.0	1,496.3	995.6	902.6	92.98	10.708		
8,100.0	6,011.0	7,881.7	5,901.0	48.6	48.0	83.97	2,507.0	1,496.3	995.6	899.0	96.58	10.309		
8,200.0	6,011.0	7,981.7	5,901.0	50.3	49.8	83.97	2,607.0	1,496.3	995.6	895.4	100.20	9.937		
8,300.0	6,011.0	8,081.7	5,901.0	52.1	51.7	83.97	2,707.0	1,496.3	995.6	891.8	103.83	9.589		
8,400.0	6,011.0	8,181.7	5,901.0	53.9	53.5	83.97	2,807.0	1,496.3	995.6	888.1	107.48	9.263		
8,500.0	6,011.0	8,281.7	5,901.0	55.7	55.4	83.97	2,907.0	1,496.3	995.6	884.5	111.14	8.958		
8,600.0	6,011.0	8,381.7	5,901.0	57.5	57.2	83.97	3,007.0	1,496.3	995.6	880.8	114.81	8.672		
8,700.0	6,011.0	8,481.7	5,901.0	59.3	59.1	83.97	3,107.0	1,496.3	995.6	877.1	118.49	8.403		
8,800.0	6,011.0	8,581.7	5,901.0	61.1	60.9	83.97	3,207.0	1,496.3	995.6	873.4	122.17	8.149		
8,900.0	6,011.0	8,681.7	5,901.0	63.0	62.8	83.97	3,307.0	1,496.3	995.6	869.7	125.87	7.910		
9,000.0	6,011.0	8,781.7	5,901.0	64.8	64.7	83.97	3,407.0	1,496.3	995.6	866.0	129.58	7.683		
9,100.0	6,011.0	8,881.7	5,901.0	66.6	66.5	83.97	3,507.0	1,496.3	995.6	862.3	133.29	7.469		
9,200.0	6,011.0	8,981.7	5,901.0	68.5	68.4	83.97	3,607.0	1,496.3	995.6	858.6	137.00	7.267		
9,300.0	6,011.0	9,081.7	5,901.0	70.3	70.3	83.97	3,707.0	1,496.3	995.6	854.8	140.73	7.074		
9,400.0	6,011.0	9,181.7	5,901.0	72.2	72.2	83.97	3,807.0	1,496.3	995.6	851.1	144.46	6.892		
9,500.0	6,011.0	9,281.7	5,901.0	74.0	74.0	83.97	3,907.0	1,496.3	995.6	847.4	148.19	6.718		
9,600.0	6,011.0	9,381.7	5,901.0	75.9	75.9	83.97	4,007.0	1,496.3	995.6	843.6	151.93	6.553		
9,700.0	6,011.0	9,481.7	5,901.0	77.7	77.8	83.97	4,107.0	1,496.3	995.5	839.9	155.67	6.395		
9,800.0	6,011.0	9,581.7	5,901.0	79.6	79.7	83.97	4,207.0	1,496.3	995.5	836.1	159.42	6.245		
9,900.0	6,011.0	9,681.7	5,901.0	81.5	81.6	83.97	4,307.0	1,496.3	995.5	832.4	163.17	6.101		
10,000.0	6,011.0	9,781.7	5,901.0	83.3	83.5	83.97	4,407.0	1,496.3	995.5	828.6	166.92	5.964		
10,100.0	6,011.0	9,881.7	5,901.0	85.2	85.4	83.97	4,507.0	1,496.2	995.5	824.9	170.68	5.833		

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 #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21A-0915A - HZ - Plan #2												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
10,200.0	6,011.0	9,981.7	5,901.0	87.1	87.3	83.97	4,607.0	1,496.2	995.5	821.1	174.44	5.707	
10,300.0	6,011.0	10,081.7	5,901.0	88.9	89.2	83.97	4,707.0	1,496.2	995.5	817.3	178.20	5.587	
10,400.0	6,011.0	10,181.7	5,901.0	90.8	91.1	83.97	4,807.0	1,496.2	995.5	813.6	181.97	5.471	
10,500.0	6,011.0	10,281.7	5,901.0	92.7	93.0	83.97	4,907.0	1,496.2	995.5	809.8	185.73	5.360	
10,600.0	6,011.0	10,381.7	5,901.0	94.6	94.9	83.97	5,007.0	1,496.2	995.5	806.0	189.50	5.253	
10,700.0	6,011.0	10,481.7	5,901.0	96.5	96.7	83.97	5,107.0	1,496.2	995.5	802.2	193.27	5.151	
10,800.0	6,011.0	10,581.7	5,901.0	98.3	98.6	83.97	5,207.0	1,496.2	995.5	798.5	197.05	5.052	
10,900.0	6,011.0	10,681.7	5,901.0	100.2	100.5	83.97	5,307.0	1,496.2	995.5	794.7	200.82	4.957	
11,000.0	6,011.0	10,781.7	5,901.0	102.1	102.4	83.97	5,407.0	1,496.2	995.5	790.9	204.60	4.865	
11,100.0	6,011.0	10,881.7	5,901.0	104.0	104.4	83.97	5,507.0	1,496.2	995.5	787.1	208.38	4.777	
11,200.0	6,011.0	10,981.7	5,901.0	105.9	106.3	83.97	5,607.0	1,496.2	995.5	783.3	212.16	4.692	
11,300.0	6,011.0	11,081.7	5,901.0	107.8	108.2	83.97	5,707.0	1,496.2	995.5	779.5	215.95	4.610	
11,400.0	6,011.0	11,181.7	5,901.0	109.7	110.1	83.97	5,807.0	1,496.2	995.5	775.7	219.73	4.530	
11,500.0	6,011.0	11,281.7	5,901.0	111.6	112.0	83.97	5,907.0	1,496.2	995.5	772.0	223.52	4.454	
11,600.0	6,011.0	11,381.7	5,901.0	113.4	113.9	83.97	6,007.0	1,496.2	995.5	768.2	227.30	4.379	
11,700.0	6,011.0	11,481.7	5,901.0	115.3	115.8	83.97	6,107.0	1,496.2	995.5	764.4	231.09	4.308	
11,800.0	6,011.0	11,581.7	5,901.0	117.2	117.7	83.97	6,207.0	1,496.2	995.5	760.6	234.88	4.238	
11,900.0	6,011.0	11,681.7	5,901.0	119.1	119.6	83.97	6,307.0	1,496.2	995.5	756.8	238.67	4.171	
12,000.0	6,011.0	11,781.7	5,901.0	121.0	121.5	83.97	6,407.0	1,496.2	995.4	753.0	242.46	4.106	
12,100.0	6,011.0	11,881.7	5,901.0	122.9	123.4	83.97	6,507.0	1,496.2	995.4	749.2	246.25	4.042	
12,200.0	6,011.0	11,981.7	5,901.0	124.8	125.3	83.97	6,607.0	1,496.2	995.4	745.4	250.05	3.981	
12,300.0	6,011.0	12,081.7	5,901.0	126.7	127.2	83.97	6,707.0	1,496.2	995.4	741.6	253.84	3.921	
12,400.0	6,011.0	12,181.7	5,901.0	128.6	129.1	83.97	6,807.0	1,496.2	995.4	737.8	257.64	3.864	
12,500.0	6,011.0	12,281.7	5,901.0	130.5	131.0	83.97	6,907.0	1,496.2	995.4	734.0	261.43	3.808	
12,600.0	6,011.0	12,381.7	5,901.0	132.4	132.9	83.97	7,007.0	1,496.2	995.4	730.2	265.23	3.753	
12,700.0	6,011.0	12,481.7	5,901.0	134.3	134.9	83.97	7,107.0	1,496.2	995.4	726.4	269.03	3.700	
12,800.0	6,011.0	12,581.7	5,901.0	136.2	136.8	83.97	7,207.0	1,496.2	995.4	722.6	272.83	3.649	
12,900.0	6,011.0	12,681.7	5,901.0	138.1	138.7	83.97	7,307.0	1,496.2	995.4	718.8	276.63	3.598	
13,000.0	6,011.0	12,781.7	5,901.0	140.0	140.6	83.97	7,407.0	1,496.2	995.4	715.0	280.43	3.550	
13,100.0	6,011.0	12,881.7	5,901.0	141.9	142.5	83.97	7,507.0	1,496.1	995.4	711.2	284.23	3.502	
13,200.0	6,011.0	12,981.7	5,901.0	143.8	144.4	83.97	7,607.0	1,496.1	995.4	707.4	288.03	3.456	
13,300.0	6,011.0	13,081.7	5,901.0	145.7	146.3	83.97	7,707.0	1,496.1	995.4	703.6	291.83	3.411	
13,400.0	6,011.0	13,181.7	5,901.0	147.6	148.2	83.97	7,807.0	1,496.1	995.4	699.8	295.63	3.367	
13,500.0	6,011.0	13,281.7	5,901.0	149.5	150.1	83.97	7,907.0	1,496.1	995.4	695.9	299.44	3.324	
13,600.0	6,011.0	13,381.7	5,901.0	151.5	152.1	83.97	8,007.0	1,496.1	995.4	692.1	303.24	3.282	
13,700.0	6,011.0	13,481.7	5,901.0	153.4	154.0	83.97	8,107.0	1,496.1	995.4	688.3	307.04	3.242	
13,800.0	6,011.0	13,581.7	5,901.0	155.3	155.9	83.97	8,207.0	1,496.1	995.4	684.5	310.85	3.202	
13,870.6	6,011.0	13,652.3	5,901.0	156.6	157.2	83.97	8,277.6	1,496.1	995.4	681.8	313.53	3.175 ES, SF	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21A-0916B - HZ - Plan #2													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	88.86	26.3	1,319.0	1,319.2					
100.0	100.0	94.6	94.6	0.1	0.1	88.86	26.3	1,319.0	1,319.2	1,319.0	0.18	7,267.651		
200.0	200.0	194.6	194.6	0.3	0.3	88.86	26.3	1,319.0	1,319.2	1,318.6	0.62	2,114.296		
300.0	300.0	294.6	294.6	0.5	0.5	88.86	26.3	1,319.0	1,319.2	1,318.1	1.07	1,228.913		
400.0	400.0	394.6	394.6	0.8	0.8	88.86	26.3	1,319.0	1,319.2	1,317.7	1.52	866.188		
500.0	500.0	494.6	494.6	1.0	1.0	88.86	26.3	1,319.0	1,319.2	1,317.2	1.97	668.789		
600.0	600.0	594.6	594.6	1.2	1.2	88.86	26.3	1,319.0	1,319.2	1,316.8	2.42	544.663		
700.0	700.0	694.6	694.6	1.4	1.4	88.86	26.3	1,319.0	1,319.2	1,316.3	2.87	459.400		
800.0	800.0	794.6	794.6	1.7	1.7	88.86	26.3	1,319.0	1,319.2	1,315.9	3.32	397.218		
900.0	900.0	894.6	894.6	1.9	1.9	88.86	26.3	1,319.0	1,319.2	1,315.4	3.77	349.862		
1,000.0	1,000.0	994.6	994.6	2.1	2.1	88.86	26.3	1,319.0	1,319.2	1,315.0	4.22	312.595		
1,100.0	1,100.0	1,094.6	1,094.6	2.3	2.3	88.86	26.3	1,319.0	1,319.2	1,314.5	4.67	282.503		
1,200.0	1,200.0	1,179.0	1,179.0	2.6	2.5	64.63	27.3	1,319.4	1,319.0	1,313.9	5.08	259.654		
1,300.0	1,299.8	1,262.5	1,262.4	2.8	2.7	64.67	30.5	1,320.9	1,318.6	1,313.1	5.49	240.380		
1,353.6	1,353.3	1,308.7	1,308.5	2.9	2.8	64.68	33.2	1,322.1	1,318.5	1,312.8	5.71	230.938		
1,400.0	1,399.6	1,355.1	1,354.8	3.0	2.9	64.68	36.1	1,323.4	1,318.5	1,312.6	5.92	222.794		
1,500.0	1,499.4	1,455.1	1,454.5	3.2	3.1	64.68	42.5	1,326.3	1,318.5	1,312.1	6.37	206.842		
1,600.0	1,599.1	1,555.1	1,554.3	3.5	3.4	64.68	48.8	1,329.1	1,318.5	1,311.6	6.84	192.838		
1,700.0	1,698.9	1,655.1	1,654.1	3.7	3.6	64.68	55.2	1,332.0	1,318.5	1,311.2	7.31	180.479		
1,800.0	1,798.6	1,755.1	1,753.8	4.0	3.9	64.68	61.6	1,334.9	1,318.5	1,310.7	7.78	169.514		
1,900.0	1,898.4	1,855.1	1,853.6	4.2	4.1	64.68	67.9	1,337.8	1,318.5	1,310.2	8.25	159.735		
2,000.0	1,998.1	1,955.1	1,953.3	4.4	4.3	64.68	74.3	1,340.6	1,318.5	1,309.8	8.73	150.972		
2,100.0	2,097.9	2,055.1	2,053.1	4.7	4.6	64.68	80.6	1,343.5	1,318.5	1,309.3	9.22	143.080		
2,200.0	2,197.6	2,155.1	2,152.8	4.9	4.8	64.68	87.0	1,346.4	1,318.5	1,308.8	9.70	135.942		
2,300.0	2,297.4	2,255.1	2,252.6	5.2	5.1	64.68	93.4	1,349.2	1,318.5	1,308.3	10.18	129.459		
2,400.0	2,397.2	2,355.1	2,352.4	5.4	5.3	64.68	99.7	1,352.1	1,318.5	1,307.9	10.67	123.548		
2,500.0	2,496.9	2,455.1	2,452.1	5.7	5.6	64.68	106.1	1,355.0	1,318.5	1,307.4	11.16	118.139		
2,600.0	2,596.7	2,555.1	2,551.9	5.9	5.8	64.68	112.4	1,357.9	1,318.5	1,306.9	11.65	113.171		
2,700.0	2,696.4	2,655.1	2,651.6	6.2	6.1	64.68	118.8	1,360.7	1,318.5	1,306.4	12.14	108.595		
2,800.0	2,796.2	2,755.1	2,751.4	6.4	6.3	64.68	125.1	1,363.6	1,318.5	1,305.9	12.63	104.367		
2,900.0	2,895.9	2,855.1	2,851.1	6.7	6.6	64.68	131.5	1,366.5	1,318.6	1,305.4	13.13	100.449		
3,000.0	2,995.7	2,955.1	2,950.9	6.9	6.8	64.68	137.9	1,369.3	1,318.6	1,304.9	13.62	96.810		
3,100.0	3,095.5	3,055.1	3,050.6	7.2	7.1	64.68	144.2	1,372.2	1,318.6	1,304.4	14.11	93.421		
3,200.0	3,195.2	3,155.1	3,150.4	7.4	7.3	64.68	150.6	1,375.1	1,318.6	1,304.0	14.61	90.257		
3,300.0	3,295.0	3,255.1	3,250.2	7.7	7.6	64.68	156.9	1,377.9	1,318.6	1,303.5	15.10	87.298		
3,400.0	3,394.7	3,355.1	3,349.9	7.9	7.8	64.68	163.3	1,380.8	1,318.6	1,303.0	15.60	84.523		
3,500.0	3,494.5	3,455.1	3,449.7	8.2	8.1	64.68	169.6	1,383.7	1,318.6	1,302.5	16.10	81.918		
3,600.0	3,594.2	3,555.1	3,549.4	8.4	8.3	64.68	176.0	1,386.6	1,318.6	1,302.0	16.59	79.466		
3,700.0	3,694.0	3,655.1	3,649.2	8.7	8.6	64.68	182.4	1,389.4	1,318.6	1,301.5	17.09	77.155		
3,800.0	3,793.7	3,755.1	3,748.9	9.0	8.8	64.68	188.7	1,392.3	1,318.6	1,301.0	17.59	74.974		
3,900.0	3,893.5	3,855.1	3,848.7	9.2	9.1	64.68	195.1	1,395.2	1,318.6	1,300.5	18.09	72.911		
4,000.0	3,993.3	3,955.1	3,948.5	9.5	9.3	64.68	201.4	1,398.0	1,318.6	1,300.0	18.58	70.957		
4,100.0	4,093.0	4,055.1	4,048.2	9.7	9.6	64.68	207.8	1,400.9	1,318.6	1,299.5	19.08	69.105		
4,200.0	4,192.8	4,155.1	4,148.0	10.0	9.9	64.68	214.1	1,403.8	1,318.6	1,299.0	19.58	67.346		
4,300.0	4,292.5	4,255.1	4,247.7	10.2	10.1	64.68	220.5	1,406.6	1,318.6	1,298.5	20.08	65.674		
4,400.0	4,392.3	4,355.1	4,347.5	10.5	10.4	64.68	226.9	1,409.5	1,318.6	1,298.1	20.58	64.082		
4,500.0	4,492.0	4,455.1	4,447.2	10.7	10.6	64.68	233.2	1,412.4	1,318.6	1,297.6	21.08	62.564		
4,600.0	4,591.8	4,555.1	4,547.0	11.0	10.9	64.68	239.6	1,415.3	1,318.6	1,297.1	21.58	61.117		
4,700.0	4,691.6	4,655.1	4,646.8	11.2	11.1	64.68	245.9	1,418.1	1,318.6	1,296.6	22.08	59.734		
4,800.0	4,791.3	4,755.1	4,746.5	11.5	11.4	64.68	252.3	1,421.0	1,318.6	1,296.1	22.57	58.413		
4,900.0	4,891.1	4,855.1	4,846.3	11.8	11.6	64.68	258.7	1,423.9	1,318.7	1,295.6	23.07	57.148		
5,000.0	4,990.8	4,955.1	4,946.0	12.0	11.9	64.68	265.0	1,426.7	1,318.7	1,295.1	23.57	55.936		

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 #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21A-0916B - HZ - Plan #2													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,100.0	5,090.6	5,055.1	5,045.8	12.3	12.1	64.68	271.4	1,429.6	1,318.7	1,294.6	24.07	54.775		
5,200.0	5,190.3	5,155.1	5,145.5	12.5	12.4	64.68	277.7	1,432.5	1,318.7	1,294.1	24.57	53.660		
5,300.0	5,290.1	5,255.1	5,245.3	12.8	12.7	64.68	284.1	1,435.3	1,318.7	1,293.6	25.07	52.590		
5,400.0	5,389.9	5,355.1	5,345.0	13.0	12.9	64.68	290.4	1,438.2	1,318.7	1,293.1	25.58	51.561		
5,500.0	5,489.6	5,455.1	5,444.8	13.3	13.2	64.68	296.8	1,441.1	1,318.7	1,292.6	26.08	50.572		
5,600.0	5,588.9	5,544.5	5,534.0	13.6	13.4	64.94	302.6	1,443.7	1,317.1	1,290.6	26.55	49.619		
5,700.0	5,684.7	5,600.0	5,588.9	14.0	13.6	65.93	309.7	1,446.9	1,310.8	1,283.8	26.98	48.592		
5,800.0	5,773.3	5,650.0	5,637.4	14.6	13.8	67.50	320.6	1,451.9	1,300.6	1,273.1	27.54	47.225		
5,900.0	5,851.5	5,687.8	5,673.2	15.3	13.9	69.46	331.7	1,456.9	1,287.2	1,258.8	28.32	45.449		
6,000.0	5,916.4	5,735.3	5,716.7	16.2	14.2	72.02	348.9	1,464.6	1,271.3	1,241.8	29.53	43.053		
6,100.0	5,965.7	5,782.4	5,758.1	17.4	14.5	74.97	369.5	1,473.9	1,254.0	1,222.8	31.15	40.255		
6,200.0	5,997.5	5,829.2	5,797.0	18.6	14.8	78.17	393.2	1,484.6	1,236.4	1,203.3	33.12	37.334		
6,300.0	6,010.6	5,875.5	5,833.0	20.1	15.1	81.46	419.7	1,496.6	1,220.0	1,184.7	35.29	34.574		
6,400.0	6,011.0	5,924.4	5,868.0	21.5	15.5	83.45	450.7	1,510.6	1,208.6	1,171.2	37.38	32.328		
6,464.2	6,011.0	5,960.9	5,892.1	22.3	15.9	84.60	475.8	1,521.9	1,206.6	1,167.8	38.75	31.140 CC		
6,500.0	6,011.0	5,983.2	5,905.8	22.8	16.1	85.26	491.8	1,529.1	1,207.2	1,167.7	39.45	30.598		
6,600.0	6,011.0	6,053.5	5,943.9	24.3	16.8	87.07	545.7	1,553.4	1,214.9	1,173.3	41.61	29.195		
6,700.0	6,011.0	6,135.4	5,977.7	25.7	17.8	88.68	613.5	1,584.1	1,230.6	1,186.7	43.87	28.051		
6,800.0	6,011.0	6,226.7	6,001.2	27.2	19.0	89.79	693.8	1,620.3	1,252.7	1,206.5	46.19	27.122		
6,900.0	6,011.0	6,334.2	6,009.0	28.8	20.6	90.16	791.4	1,664.3	1,280.2	1,231.6	48.64	26.321		
7,000.0	6,011.0	6,634.6	6,009.0	30.3	24.8	90.15	1,074.7	1,763.3	1,304.4	1,251.0	53.37	24.439		
7,100.0	6,011.0	6,951.1	6,009.0	31.9	29.6	90.15	1,386.0	1,818.3	1,317.9	1,258.9	58.99	22.339		
7,200.0	6,011.0	7,172.4	6,009.0	33.4	33.0	90.15	1,607.0	1,826.3	1,320.2	1,256.2	63.94	20.646		
7,300.0	6,011.0	7,272.4	6,009.0	35.0	34.6	90.15	1,707.0	1,826.3	1,320.1	1,252.9	67.22	19.639		
7,400.0	6,011.0	7,372.4	6,009.0	36.6	36.2	90.15	1,807.0	1,826.3	1,320.1	1,249.6	70.55	18.711		
7,500.0	6,011.0	7,472.4	6,009.0	38.3	37.8	90.15	1,907.0	1,826.3	1,320.1	1,246.2	73.94	17.855		
7,600.0	6,011.0	7,572.4	6,009.0	39.9	39.5	90.15	2,007.0	1,826.3	1,320.1	1,242.8	77.36	17.064		
7,700.0	6,011.0	7,672.4	6,009.0	41.6	41.2	90.15	2,107.0	1,826.3	1,320.1	1,239.3	80.83	16.333		
7,800.0	6,011.0	7,772.4	6,009.0	43.3	42.9	90.15	2,207.0	1,826.3	1,320.1	1,235.8	84.32	15.655		
7,900.0	6,011.0	7,872.4	6,009.0	45.1	44.6	90.15	2,307.0	1,826.3	1,320.1	1,232.2	87.85	15.027		
8,000.0	6,011.0	7,972.4	6,009.0	46.8	46.4	90.15	2,407.0	1,826.3	1,320.1	1,228.7	91.40	14.443		
8,100.0	6,011.0	8,072.4	6,009.0	48.6	48.1	90.15	2,507.0	1,826.3	1,320.1	1,225.1	94.97	13.900		
8,200.0	6,011.0	8,172.4	6,009.0	50.3	49.9	90.15	2,607.0	1,826.3	1,320.1	1,221.5	98.57	13.393		
8,300.0	6,011.0	8,272.4	6,009.0	52.1	51.6	90.15	2,707.0	1,826.3	1,320.1	1,217.9	102.18	12.919		
8,400.0	6,011.0	8,372.4	6,009.0	53.9	53.4	90.15	2,807.0	1,826.3	1,320.1	1,214.3	105.81	12.476		
8,500.0	6,011.0	8,472.4	6,009.0	55.7	55.2	90.15	2,907.0	1,826.2	1,320.1	1,210.6	109.45	12.061		
8,600.0	6,011.0	8,572.4	6,009.0	57.5	57.0	90.15	3,007.0	1,826.2	1,320.0	1,206.9	113.11	11.671		
8,700.0	6,011.0	8,672.4	6,009.0	59.3	58.8	90.15	3,107.0	1,826.2	1,320.0	1,203.3	116.77	11.304		
8,800.0	6,011.0	8,772.4	6,009.0	61.1	60.7	90.15	3,207.0	1,826.2	1,320.0	1,199.6	120.45	10.959		
8,900.0	6,011.0	8,872.4	6,009.0	63.0	62.5	90.15	3,307.0	1,826.2	1,320.0	1,195.9	124.14	10.633		
9,000.0	6,011.0	8,972.4	6,009.0	64.8	64.3	90.15	3,407.0	1,826.2	1,320.0	1,192.2	127.84	10.326		
9,100.0	6,011.0	9,072.4	6,009.0	66.6	66.1	90.15	3,507.0	1,826.2	1,320.0	1,188.5	131.55	10.035		
9,200.0	6,011.0	9,172.4	6,009.0	68.5	68.0	90.15	3,607.0	1,826.2	1,320.0	1,184.7	135.26	9.759		
9,300.0	6,011.0	9,272.4	6,009.0	70.3	69.8	90.15	3,707.0	1,826.2	1,320.0	1,181.0	138.98	9.498		
9,400.0	6,011.0	9,372.4	6,009.0	72.2	71.7	90.15	3,807.0	1,826.2	1,320.0	1,177.3	142.71	9.250		
9,500.0	6,011.0	9,472.4	6,009.0	74.0	73.5	90.15	3,907.0	1,826.2	1,320.0	1,173.5	146.44	9.014		
9,600.0	6,011.0	9,572.4	6,009.0	75.9	75.4	90.15	4,007.0	1,826.2	1,320.0	1,169.8	150.18	8.789		
9,700.0	6,011.0	9,672.4	6,009.0	77.7	77.2	90.15	4,107.0	1,826.2	1,320.0	1,166.0	153.92	8.575		
9,800.0	6,011.0	9,772.4	6,009.0	79.6	79.1	90.15	4,207.0	1,826.2	1,319.9	1,162.3	157.67	8.371		
9,900.0	6,011.0	9,872.4	6,009.0	81.5	81.0	90.15	4,307.0	1,826.2	1,319.9	1,158.5	161.43	8.177		
10,000.0	6,011.0	9,972.4	6,009.0	83.3	82.8	90.15	4,407.0	1,826.1	1,319.9	1,154.7	165.18	7.991		
10,100.0	6,011.0	10,072.4	6,009.0	85.2	84.7	90.15	4,507.0	1,826.1	1,319.9	1,151.0	168.94	7.813		

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 #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21A-0916B - HZ - Plan #2													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
10,200.0	6,011.0	10,172.4	6,009.0	87.1	86.6	90.15	4,607.0	1,826.1	1,319.9	1,147.2	172.71	7.642		
10,300.0	6,011.0	10,272.4	6,009.0	88.9	88.4	90.15	4,707.0	1,826.1	1,319.9	1,143.4	176.48	7.479		
10,400.0	6,011.0	10,372.4	6,009.0	90.8	90.3	90.15	4,807.0	1,826.1	1,319.9	1,139.7	180.25	7.323		
10,500.0	6,011.0	10,472.4	6,009.0	92.7	92.2	90.15	4,907.0	1,826.1	1,319.9	1,135.9	184.02	7.172		
10,600.0	6,011.0	10,572.4	6,009.0	94.6	94.1	90.15	5,007.0	1,826.1	1,319.9	1,132.1	187.80	7.028		
10,700.0	6,011.0	10,672.4	6,009.0	96.5	96.0	90.15	5,107.0	1,826.1	1,319.9	1,128.3	191.58	6.889		
10,800.0	6,011.0	10,772.4	6,009.0	98.3	97.8	90.15	5,207.0	1,826.1	1,319.9	1,124.5	195.36	6.756		
10,900.0	6,011.0	10,872.4	6,009.0	100.2	99.7	90.15	5,307.0	1,826.1	1,319.9	1,120.7	199.14	6.628		
11,000.0	6,011.0	10,972.4	6,009.0	102.1	101.6	90.15	5,407.0	1,826.1	1,319.9	1,116.9	202.93	6.504		
11,100.0	6,011.0	11,072.4	6,009.0	104.0	103.5	90.15	5,507.0	1,826.1	1,319.8	1,113.1	206.72	6.385		
11,200.0	6,011.0	11,172.4	6,009.0	105.9	105.4	90.15	5,607.0	1,826.1	1,319.8	1,109.3	210.51	6.270		
11,300.0	6,011.0	11,272.4	6,009.0	107.8	107.3	90.15	5,707.0	1,826.1	1,319.8	1,105.5	214.30	6.159		
11,400.0	6,011.0	11,372.4	6,009.0	109.7	109.2	90.15	5,807.0	1,826.1	1,319.8	1,101.7	218.10	6.052		
11,500.0	6,011.0	11,472.4	6,009.0	111.6	111.1	90.15	5,907.0	1,826.0	1,319.8	1,097.9	221.89	5.948		
11,600.0	6,011.0	11,572.4	6,009.0	113.4	112.9	90.15	6,007.0	1,826.0	1,319.8	1,094.1	225.69	5.848		
11,700.0	6,011.0	11,672.4	6,009.0	115.3	114.8	90.15	6,107.0	1,826.0	1,319.8	1,090.3	229.49	5.751		
11,800.0	6,011.0	11,772.4	6,009.0	117.2	116.7	90.15	6,207.0	1,826.0	1,319.8	1,086.5	233.29	5.657		
11,900.0	6,011.0	11,872.4	6,009.0	119.1	118.6	90.15	6,307.0	1,826.0	1,319.8	1,082.7	237.09	5.567		
12,000.0	6,011.0	11,972.4	6,009.0	121.0	120.5	90.15	6,407.0	1,826.0	1,319.8	1,078.9	240.89	5.479		
12,100.0	6,011.0	12,072.4	6,009.0	122.9	122.4	90.15	6,507.0	1,826.0	1,319.8	1,075.1	244.70	5.393		
12,200.0	6,011.0	12,172.4	6,009.0	124.8	124.3	90.15	6,607.0	1,826.0	1,319.8	1,071.3	248.50	5.311		
12,300.0	6,011.0	12,272.4	6,009.0	126.7	126.2	90.15	6,707.0	1,826.0	1,319.7	1,067.4	252.31	5.231		
12,400.0	6,011.0	12,372.4	6,009.0	128.6	128.1	90.15	6,807.0	1,826.0	1,319.7	1,063.6	256.12	5.153		
12,500.0	6,011.0	12,472.4	6,009.0	130.5	130.0	90.15	6,907.0	1,826.0	1,319.7	1,059.8	259.93	5.077		
12,600.0	6,011.0	12,572.4	6,009.0	132.4	131.9	90.15	7,007.0	1,826.0	1,319.7	1,056.0	263.74	5.004		
12,700.0	6,011.0	12,672.4	6,009.0	134.3	133.8	90.15	7,107.0	1,826.0	1,319.7	1,052.2	267.55	4.933		
12,800.0	6,011.0	12,772.4	6,009.0	136.2	135.7	90.15	7,207.0	1,826.0	1,319.7	1,048.4	271.36	4.863		
12,900.0	6,011.0	12,872.4	6,009.0	138.1	137.6	90.15	7,307.0	1,826.0	1,319.7	1,044.5	275.17	4.796		
13,000.0	6,011.0	12,972.4	6,009.0	140.0	139.5	90.15	7,407.0	1,825.9	1,319.7	1,040.7	278.98	4.730		
13,100.0	6,011.0	13,072.4	6,009.0	141.9	141.4	90.15	7,507.0	1,825.9	1,319.7	1,036.9	282.80	4.667		
13,200.0	6,011.0	13,172.4	6,009.0	143.8	143.3	90.15	7,607.0	1,825.9	1,319.7	1,033.1	286.61	4.604		
13,300.0	6,011.0	13,272.4	6,009.0	145.7	145.2	90.15	7,707.0	1,825.9	1,319.7	1,029.2	290.43	4.544		
13,400.0	6,011.0	13,372.4	6,009.0	147.6	147.1	90.15	7,807.0	1,825.9	1,319.7	1,025.4	294.24	4.485		
13,500.0	6,011.0	13,472.4	6,009.0	149.5	149.0	90.15	7,907.0	1,825.9	1,319.7	1,021.6	298.06	4.427		
13,600.0	6,011.0	13,572.4	6,009.0	151.5	151.0	90.15	8,007.0	1,825.9	1,319.6	1,017.8	301.88	4.371		
13,700.0	6,011.0	13,672.4	6,009.0	153.4	152.9	90.15	8,107.0	1,825.9	1,319.6	1,013.9	305.70	4.317		
13,800.0	6,011.0	13,772.4	6,009.0	155.3	154.8	90.15	8,207.0	1,825.9	1,319.6	1,010.1	309.51	4.264		
13,870.6	6,011.0	13,842.9	6,009.0	156.6	156.1	90.15	8,277.6	1,825.9	1,319.6	1,007.4	312.21	4.227 ES, SF		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21B-0909A - HZ - Plan #2													Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-99.9	99.9					
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-99.9	99.9	99.7	0.19	535.518		
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-99.9	99.9	99.3	0.64	157.060		
300.0	300.0	300.0	300.0	0.5	0.5	-90.00	0.0	-99.9	99.9	98.8	1.09	92.025		
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	0.0	-99.9	99.9	98.4	1.54	65.078		
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	0.0	-99.9	99.9	97.9	1.98	50.338 CC, ES		
600.0	600.0	598.8	598.8	1.2	1.2	-89.08	1.6	-100.5	100.5	98.0	2.43	41.342		
700.0	700.0	697.4	697.3	1.4	1.4	-86.40	6.4	-102.1	102.4	99.5	2.88	35.563		
800.0	800.0	797.2	796.8	1.7	1.7	-82.90	13.0	-104.4	105.2	101.9	3.34	31.544		
900.0	900.0	896.9	896.3	1.9	1.9	-79.60	19.6	-106.7	108.5	104.7	3.80	28.553		
1,000.0	1,000.0	996.7	995.8	2.1	2.2	-76.50	26.2	-108.9	112.1	107.8	4.27	26.272		
1,100.0	1,100.0	1,096.4	1,095.3	2.3	2.4	-73.60	32.7	-111.2	116.0	111.3	4.74	24.497		
1,200.0	1,200.0	1,196.3	1,194.9	2.6	2.6	-95.88	39.3	-113.5	120.4	115.2	5.18	23.255		
1,300.0	1,299.8	1,296.1	1,294.5	2.8	2.9	-95.63	45.9	-115.7	125.1	119.5	5.64	22.196		
1,400.0	1,399.6	1,396.0	1,394.1	3.0	3.1	-96.25	52.5	-118.0	130.1	124.0	6.11	21.303		
1,500.0	1,499.4	1,495.9	1,493.8	3.2	3.4	-96.83	59.1	-120.3	135.1	128.5	6.58	20.522		
1,600.0	1,599.1	1,595.7	1,593.4	3.5	3.7	-97.37	65.7	-122.6	140.0	133.0	7.06	19.836		
1,700.0	1,698.9	1,695.6	1,693.0	3.7	3.9	-97.87	72.2	-124.8	145.0	137.5	7.54	19.230		
1,800.0	1,798.6	1,795.5	1,792.6	4.0	4.2	-98.33	78.8	-127.1	150.0	142.0	8.03	18.691		
1,900.0	1,898.4	1,895.3	1,892.3	4.2	4.4	-98.77	85.4	-129.4	155.1	146.5	8.52	18.209		
2,000.0	1,998.1	1,995.2	1,991.9	4.4	4.7	-99.18	92.0	-131.7	160.1	151.1	9.00	17.777		
2,100.0	2,097.9	2,095.1	2,091.5	4.7	4.9	-99.56	98.6	-133.9	165.1	155.6	9.50	17.386		
2,200.0	2,197.6	2,194.9	2,191.1	4.9	5.2	-99.92	105.2	-136.2	170.1	160.1	9.99	17.033		
2,300.0	2,297.4	2,294.8	2,290.8	5.2	5.4	-100.26	111.8	-138.5	175.2	164.7	10.48	16.711		
2,400.0	2,397.2	2,394.7	2,390.4	5.4	5.7	-100.59	118.3	-140.7	180.2	169.2	10.98	16.417		
2,500.0	2,496.9	2,494.5	2,490.0	5.7	5.9	-100.89	124.9	-143.0	185.3	173.8	11.47	16.148		
2,600.0	2,596.7	2,594.4	2,589.6	5.9	6.2	-101.18	131.5	-145.3	190.3	178.4	11.97	15.900		
2,700.0	2,696.4	2,694.3	2,689.3	6.2	6.5	-101.45	138.1	-147.6	195.4	182.9	12.47	15.672		
2,800.0	2,796.2	2,794.1	2,788.9	6.4	6.7	-101.71	144.7	-149.8	200.5	187.5	12.97	15.460		
2,900.0	2,895.9	2,894.0	2,888.5	6.7	7.0	-101.95	151.3	-152.1	205.5	192.1	13.47	15.264		
3,000.0	2,995.7	2,993.9	2,988.1	6.9	7.2	-102.19	157.9	-154.4	210.6	196.6	13.96	15.082		
3,100.0	3,095.5	3,093.7	3,087.8	7.2	7.5	-102.41	164.4	-156.7	215.7	201.2	14.46	14.912		
3,200.0	3,195.2	3,193.6	3,187.4	7.4	7.7	-102.63	171.0	-158.9	220.8	205.8	14.96	14.753		
3,300.0	3,295.0	3,293.5	3,287.0	7.7	8.0	-102.83	177.6	-161.2	225.8	210.4	15.46	14.604		
3,400.0	3,394.7	3,393.4	3,386.6	7.9	8.2	-103.02	184.2	-163.5	230.9	215.0	15.97	14.465		
3,500.0	3,494.5	3,493.2	3,486.3	8.2	8.5	-103.21	190.8	-165.7	236.0	219.6	16.47	14.334		
3,600.0	3,594.2	3,593.1	3,585.9	8.4	8.8	-103.39	197.4	-168.0	241.1	224.1	16.97	14.210		
3,700.0	3,694.0	3,693.0	3,685.5	8.7	9.0	-103.56	203.9	-170.3	246.2	228.7	17.47	14.094		
3,800.0	3,793.7	3,792.8	3,785.1	9.0	9.3	-103.72	210.5	-172.6	251.3	233.3	17.97	13.984		
3,900.0	3,893.5	3,892.7	3,884.8	9.2	9.5	-103.88	217.1	-174.8	256.4	237.9	18.47	13.880		
4,000.0	3,993.3	3,992.6	3,984.4	9.5	9.8	-104.03	223.7	-177.1	261.5	242.5	18.97	13.781		
4,100.0	4,093.0	4,092.4	4,084.0	9.7	10.0	-104.18	230.3	-179.4	266.6	247.1	19.48	13.687		
4,200.0	4,192.8	4,192.3	4,183.6	10.0	10.3	-104.32	236.9	-181.7	271.7	251.7	19.98	13.599		
4,300.0	4,292.5	4,292.2	4,283.2	10.2	10.6	-104.45	243.5	-183.9	276.8	256.3	20.48	13.514		
4,400.0	4,392.3	4,392.0	4,382.9	10.5	10.8	-104.58	250.0	-186.2	281.9	260.9	20.99	13.434		
4,500.0	4,492.0	4,491.9	4,482.5	10.7	11.1	-104.71	256.6	-188.5	287.0	265.5	21.49	13.357		
4,600.0	4,591.8	4,591.8	4,582.1	11.0	11.3	-104.83	263.2	-190.7	292.1	270.1	21.99	13.284		
4,700.0	4,691.6	4,691.6	4,681.7	11.2	11.6	-104.95	269.8	-193.0	297.2	274.7	22.49	13.214		
4,800.0	4,791.3	4,791.5	4,781.4	11.5	11.8	-105.06	276.4	-195.3	302.3	279.3	23.00	13.147		
4,900.0	4,891.1	4,891.4	4,881.0	11.8	12.1	-105.17	283.0	-197.6	307.4	283.9	23.50	13.083		
5,000.0	4,990.8	4,991.2	4,980.6	12.0	12.3	-105.27	289.6	-199.8	312.6	288.6	24.00	13.021		
5,100.0	5,090.6	5,091.1	5,080.2	12.3	12.6	-105.38	296.1	-202.1	317.7	293.2	24.51	12.963		

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 #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21B-0909A - HZ - Plan #2												Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
5,200.0	5,190.3	5,191.0	5,179.9	12.5	12.9	-105.47	302.7	-204.4	322.8	297.8	25.01	12.906	
5,300.0	5,290.1	5,290.8	5,279.5	12.8	13.1	-105.57	309.3	-206.7	327.9	302.4	25.51	12.852	
5,400.0	5,389.9	5,390.7	5,379.1	13.0	13.4	-105.66	315.9	-208.9	333.0	307.0	26.02	12.800	
5,500.0	5,489.6	5,480.1	5,468.2	13.3	13.6	-105.57	322.9	-211.3	338.8	312.3	26.51	12.784	
5,600.0	5,588.9	5,550.0	5,536.6	13.6	13.9	-103.63	336.3	-216.0	351.6	324.6	26.97	13.034	
5,700.0	5,684.7	5,627.8	5,609.7	14.0	14.3	-100.67	361.1	-224.5	375.1	347.4	27.62	13.577	
5,800.0	5,773.3	5,700.0	5,673.4	14.6	14.7	-97.43	393.2	-235.6	408.4	379.9	28.47	14.345	
5,900.0	5,851.5	5,761.7	5,723.7	15.3	15.2	-93.71	427.0	-247.3	449.9	420.4	29.51	15.246	
6,000.0	5,916.4	5,822.9	5,768.9	16.2	15.7	-89.62	465.8	-260.7	497.9	467.2	30.76	16.186	
6,100.0	5,965.7	5,880.4	5,806.9	17.4	16.3	-85.17	506.6	-274.7	550.9	518.8	32.14	17.143	
6,200.0	5,997.5	5,934.7	5,838.1	18.6	16.8	-80.45	548.6	-289.2	607.4	573.8	33.53	18.115	
6,300.0	6,010.6	5,986.4	5,863.4	20.1	17.5	-75.64	591.3	-304.0	665.9	631.1	34.88	19.095	
6,400.0	6,011.0	6,039.2	5,884.5	21.5	18.2	-77.50	637.0	-319.7	725.3	688.2	37.10	19.551	
6,500.0	6,011.0	6,100.0	5,902.6	22.8	19.0	-80.24	691.8	-338.6	784.1	744.6	39.50	19.849	
6,600.0	6,011.0	6,164.9	5,914.3	24.3	20.0	-82.05	752.1	-359.4	840.9	799.0	41.96	20.044	
6,700.0	6,011.0	6,245.7	5,918.0	25.7	21.2	-83.03	828.3	-385.7	895.1	850.4	44.62	20.062	
6,800.0	6,011.0	6,416.1	5,918.0	27.2	23.7	-83.84	992.1	-432.4	940.6	892.2	48.47	19.407	
6,900.0	6,011.0	6,604.9	5,918.0	28.8	26.6	-84.34	1,177.7	-466.9	972.8	919.9	52.87	18.400	
7,000.0	6,011.0	6,806.6	5,918.0	30.3	29.8	-84.59	1,378.6	-483.4	990.1	932.4	57.69	17.162	
7,100.0	6,011.0	6,934.9	5,918.0	31.9	31.8	-84.64	1,507.0	-484.2	994.5	933.1	61.38	16.202	
7,200.0	6,011.0	7,034.9	5,918.0	33.4	33.5	-84.64	1,607.0	-484.2	994.7	930.0	64.66	15.383	
7,300.0	6,011.0	7,134.9	5,918.0	35.0	35.2	-84.64	1,707.0	-484.2	994.7	926.7	68.01	14.626	
7,400.0	6,011.0	7,234.9	5,918.0	36.6	36.9	-84.64	1,807.0	-484.2	994.7	923.3	71.41	13.930	
7,500.0	6,011.0	7,334.9	5,918.0	38.3	38.6	-84.64	1,907.0	-484.2	994.7	919.9	74.84	13.290	
7,600.0	6,011.0	7,434.9	5,918.0	39.9	40.4	-84.64	2,007.0	-484.2	994.7	916.4	78.32	12.701	
7,700.0	6,011.0	7,534.9	5,918.0	41.6	42.1	-84.64	2,107.0	-484.2	994.7	912.9	81.82	12.157	
7,800.0	6,011.0	7,634.9	5,918.0	43.3	43.9	-84.64	2,207.0	-484.2	994.7	909.3	85.35	11.654	
7,900.0	6,011.0	7,734.9	5,918.0	45.1	45.7	-84.64	2,307.0	-484.2	994.7	905.8	88.91	11.187	
8,000.0	6,011.0	7,834.9	5,918.0	46.8	47.5	-84.64	2,407.0	-484.2	994.7	902.2	92.49	10.754	
8,100.0	6,011.0	7,934.9	5,918.0	48.6	49.3	-84.64	2,507.0	-484.2	994.7	898.6	96.09	10.352	
8,200.0	6,011.0	8,034.9	5,918.0	50.3	51.1	-84.64	2,607.0	-484.2	994.7	895.0	99.71	9.976	
8,300.0	6,011.0	8,134.9	5,918.0	52.1	52.9	-84.64	2,707.0	-484.2	994.7	891.4	103.34	9.626	
8,400.0	6,011.0	8,234.9	5,918.0	53.9	54.7	-84.64	2,807.0	-484.2	994.7	887.7	106.98	9.298	
8,500.0	6,011.0	8,334.9	5,918.0	55.7	56.6	-84.64	2,907.0	-484.2	994.7	884.1	110.64	8.991	
8,600.0	6,011.0	8,434.9	5,918.0	57.5	58.4	-84.64	3,007.0	-484.2	994.7	880.4	114.31	8.702	
8,700.0	6,011.0	8,534.9	5,918.0	59.3	60.2	-84.64	3,107.0	-484.2	994.7	876.7	117.99	8.431	
8,800.0	6,011.0	8,634.9	5,918.0	61.1	62.1	-84.64	3,207.0	-484.1	994.7	873.0	121.67	8.175	
8,900.0	6,011.0	8,734.9	5,918.0	63.0	63.9	-84.64	3,307.0	-484.1	994.7	869.3	125.37	7.934	
9,000.0	6,011.0	8,834.9	5,918.0	64.8	65.8	-84.64	3,407.0	-484.1	994.7	865.6	129.07	7.707	
9,100.0	6,011.0	8,934.9	5,918.0	66.6	67.7	-84.64	3,507.0	-484.1	994.7	861.9	132.78	7.491	
9,200.0	6,011.0	9,034.9	5,918.0	68.5	69.5	-84.64	3,607.0	-484.1	994.7	858.2	136.50	7.287	
9,300.0	6,011.0	9,134.9	5,918.0	70.3	71.4	-84.64	3,707.0	-484.1	994.7	854.5	140.22	7.094	
9,400.0	6,011.0	9,234.9	5,918.0	72.2	73.3	-84.64	3,807.0	-484.1	994.7	850.8	143.95	6.910	
9,500.0	6,011.0	9,334.9	5,918.0	74.0	75.1	-84.64	3,907.0	-484.1	994.7	847.0	147.69	6.735	
9,600.0	6,011.0	9,434.9	5,918.0	75.9	77.0	-84.64	4,007.0	-484.1	994.7	843.3	151.43	6.569	
9,700.0	6,011.0	9,534.9	5,918.0	77.7	78.9	-84.64	4,107.0	-484.1	994.7	839.6	155.17	6.411	
9,800.0	6,011.0	9,634.9	5,918.0	79.6	80.8	-84.64	4,207.0	-484.1	994.7	835.8	158.92	6.259	
9,900.0	6,011.0	9,734.9	5,918.0	81.5	82.7	-84.64	4,307.0	-484.1	994.7	832.1	162.67	6.115	
10,000.0	6,011.0	9,834.9	5,918.0	83.3	84.5	-84.64	4,407.0	-484.1	994.7	828.3	166.42	5.977	
10,100.0	6,011.0	9,934.9	5,918.0	85.2	86.4	-84.64	4,507.0	-484.1	994.7	824.5	170.18	5.845	
10,200.0	6,011.0	10,034.9	5,918.0	87.1	88.3	-84.64	4,607.0	-484.1	994.7	820.8	173.94	5.719	
10,300.0	6,011.0	10,134.9	5,918.0	88.9	90.2	-84.64	4,707.0	-484.1	994.7	817.0	177.70	5.598	

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 #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21B-0909A - HZ - Plan #2												Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
10,400.0	6,011.0	10,234.9	5,918.0	90.8	92.1	-84.64	4,807.0	-484.1	994.7	813.3	181.47	5.482	
10,500.0	6,011.0	10,334.9	5,918.0	92.7	94.0	-84.64	4,907.0	-484.1	994.7	809.5	185.24	5.370	
10,600.0	6,011.0	10,434.9	5,918.0	94.6	95.9	-84.64	5,007.0	-484.1	994.7	805.7	189.01	5.263	
10,700.0	6,011.0	10,534.9	5,918.0	96.5	97.8	-84.64	5,107.0	-484.1	994.7	801.9	192.78	5.160	
10,800.0	6,011.0	10,634.9	5,918.0	98.3	99.6	-84.64	5,207.0	-484.1	994.7	798.2	196.56	5.061	
10,900.0	6,011.0	10,734.9	5,918.0	100.2	101.5	-84.64	5,307.0	-484.1	994.7	794.4	200.34	4.965	
11,000.0	6,011.0	10,834.9	5,918.0	102.1	103.4	-84.64	5,407.0	-484.1	994.7	790.6	204.11	4.873	
11,100.0	6,011.0	10,934.9	5,918.0	104.0	105.3	-84.64	5,507.0	-484.1	994.7	786.8	207.90	4.785	
11,200.0	6,011.0	11,034.9	5,918.0	105.9	107.2	-84.64	5,607.0	-484.1	994.7	783.1	211.68	4.699	
11,300.0	6,011.0	11,134.9	5,918.0	107.8	109.1	-84.64	5,707.0	-484.1	994.7	779.3	215.46	4.617	
11,400.0	6,011.0	11,234.9	5,918.0	109.7	111.0	-84.64	5,807.0	-484.1	994.7	775.5	219.25	4.537	
11,500.0	6,011.0	11,334.9	5,918.0	111.6	112.9	-84.64	5,907.0	-484.1	994.7	771.7	223.04	4.460	
11,600.0	6,011.0	11,434.9	5,918.0	113.4	114.8	-84.64	6,007.0	-484.1	994.7	767.9	226.83	4.385	
11,700.0	6,011.0	11,534.9	5,918.0	115.3	116.7	-84.64	6,107.0	-484.1	994.7	764.1	230.62	4.313	
11,800.0	6,011.0	11,634.9	5,918.0	117.2	118.6	-84.64	6,207.0	-484.1	994.7	760.3	234.41	4.244	
11,900.0	6,011.0	11,734.9	5,918.0	119.1	120.5	-84.64	6,307.0	-484.1	994.7	756.5	238.20	4.176	
12,000.0	6,011.0	11,834.9	5,918.0	121.0	122.4	-84.64	6,407.0	-484.1	994.7	752.7	241.99	4.111	
12,100.0	6,011.0	11,934.9	5,918.0	122.9	124.3	-84.64	6,507.0	-484.1	994.7	749.0	245.79	4.047	
12,200.0	6,011.0	12,034.9	5,918.0	124.8	126.2	-84.64	6,607.0	-484.1	994.7	745.2	249.58	3.986	
12,300.0	6,011.0	12,134.9	5,918.0	126.7	128.2	-84.64	6,707.0	-484.1	994.7	741.4	253.38	3.926	
12,400.0	6,011.0	12,234.9	5,918.0	128.6	130.1	-84.64	6,807.0	-484.1	994.7	737.6	257.18	3.868	
12,500.0	6,011.0	12,334.9	5,918.0	130.5	132.0	-84.64	6,907.0	-484.1	994.7	733.8	260.98	3.812	
12,600.0	6,011.0	12,434.9	5,918.0	132.4	133.9	-84.64	7,007.0	-484.1	994.7	730.0	264.78	3.757	
12,700.0	6,011.0	12,534.9	5,918.0	134.3	135.8	-84.64	7,107.0	-484.1	994.8	726.2	268.58	3.704	
12,800.0	6,011.0	12,634.9	5,918.0	136.2	137.7	-84.64	7,207.0	-484.1	994.8	722.4	272.38	3.652	
12,900.0	6,011.0	12,734.9	5,918.0	138.1	139.6	-84.64	7,307.0	-484.1	994.8	718.6	276.18	3.602	
13,000.0	6,011.0	12,834.9	5,918.0	140.0	141.5	-84.64	7,407.0	-484.1	994.8	714.8	279.98	3.553	
13,100.0	6,011.0	12,934.9	5,918.0	141.9	143.4	-84.64	7,507.0	-484.1	994.8	711.0	283.78	3.505	
13,200.0	6,011.0	13,034.9	5,918.0	143.8	145.3	-84.64	7,607.0	-484.1	994.8	707.2	287.59	3.459	
13,300.0	6,011.0	13,134.9	5,918.0	145.7	147.2	-84.64	7,707.0	-484.1	994.8	703.4	291.39	3.414	
13,400.0	6,011.0	13,234.9	5,918.0	147.6	149.1	-84.64	7,807.0	-484.1	994.8	699.6	295.20	3.370	
13,500.0	6,011.0	13,334.9	5,918.0	149.5	151.0	-84.64	7,907.0	-484.1	994.8	695.8	299.00	3.327	
13,600.0	6,011.0	13,434.9	5,918.0	151.5	153.0	-84.64	8,007.0	-484.1	994.8	692.0	302.81	3.285	
13,700.0	6,011.0	13,534.9	5,918.0	153.4	154.9	-84.64	8,107.0	-484.1	994.8	688.1	306.62	3.244	
13,800.0	6,011.0	13,634.9	5,918.0	155.3	156.8	-84.64	8,207.0	-484.1	994.8	684.3	310.42	3.205	
13,870.6	6,011.0	13,705.5	5,918.0	156.6	158.1	-84.64	8,277.5	-484.1	994.8	681.7	313.11	3.177 SF	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21B-0910B - HZ - Plan #2													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	-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	350.090		
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-65.3	65.3	64.7	0.64	102.677		
300.0	300.0	300.0	300.0	0.5	0.5	-90.00	0.0	-65.3	65.3	64.2	1.09	60.160		
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	0.0	-65.3	65.3	63.8	1.54	42.544		
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	0.0	-65.3	65.3	63.3	1.98	32.908		
600.0	600.0	600.0	600.0	1.2	1.2	-90.00	0.0	-65.3	65.3	62.9	2.43	26.831		
700.0	700.0	700.0	700.0	1.4	1.4	-90.00	0.0	-65.3	65.3	62.4	2.88	22.648 CC		
800.0	800.0	799.7	799.7	1.7	1.7	-88.49	1.7	-65.5	65.5	62.2	3.33	19.657 ES		
900.0	900.0	899.3	899.1	1.9	1.9	-84.04	6.9	-66.0	66.3	62.5	3.78	17.542		
1,000.0	1,000.0	999.0	998.6	2.1	2.1	-78.28	13.8	-66.6	68.1	63.8	4.24	16.063		
1,100.0	1,100.0	1,098.8	1,098.1	2.3	2.4	-72.86	20.7	-67.3	70.4	65.7	4.70	14.994		
1,200.0	1,200.0	1,198.6	1,197.7	2.6	2.6	-93.38	27.7	-67.9	73.5	68.3	5.15	14.258		
1,300.0	1,299.8	1,298.5	1,297.4	2.8	2.8	-92.54	34.6	-68.6	76.9	71.3	5.61	13.694		
1,400.0	1,399.6	1,398.5	1,397.1	3.0	3.1	-93.08	41.6	-69.2	80.4	74.3	6.08	13.214		
1,500.0	1,499.4	1,498.4	1,496.8	3.2	3.3	-93.57	48.5	-69.9	83.9	77.3	6.56	12.792		
1,600.0	1,599.1	1,598.3	1,596.5	3.5	3.6	-94.03	55.4	-70.6	87.4	80.3	7.04	12.419		
1,700.0	1,698.9	1,698.3	1,696.2	3.7	3.8	-94.45	62.4	-71.2	90.9	83.4	7.52	12.088		
1,800.0	1,798.6	1,798.2	1,795.9	4.0	4.1	-94.84	69.3	-71.9	94.4	86.4	8.00	11.793		
1,900.0	1,898.4	1,898.2	1,895.6	4.2	4.3	-95.20	76.3	-72.5	97.9	89.4	8.49	11.528		
2,000.0	1,998.1	1,998.1	1,995.3	4.4	4.6	-95.53	83.2	-73.2	101.4	92.4	8.98	11.290		
2,100.0	2,097.9	2,098.0	2,094.9	4.7	4.8	-95.85	90.1	-73.8	105.0	95.5	9.48	11.074		
2,200.0	2,197.6	2,198.0	2,194.6	4.9	5.1	-96.14	97.1	-74.5	108.5	98.5	9.97	10.878		
2,300.0	2,297.4	2,297.9	2,294.3	5.2	5.3	-96.42	104.0	-75.1	112.0	101.5	10.47	10.700		
2,400.0	2,397.2	2,397.8	2,394.0	5.4	5.6	-96.67	111.0	-75.8	115.5	104.6	10.97	10.537		
2,500.0	2,496.9	2,497.8	2,493.7	5.7	5.8	-96.92	117.9	-76.5	119.1	107.6	11.46	10.387		
2,600.0	2,596.7	2,597.7	2,593.4	5.9	6.1	-97.14	124.8	-77.1	122.6	110.6	11.96	10.249		
2,700.0	2,696.4	2,697.6	2,693.1	6.2	6.4	-97.36	131.8	-77.8	126.2	113.7	12.46	10.122		
2,800.0	2,796.2	2,797.6	2,792.8	6.4	6.6	-97.56	138.7	-78.4	129.7	116.7	12.96	10.004		
2,900.0	2,895.9	2,897.5	2,892.5	6.7	6.9	-97.76	145.7	-79.1	133.2	119.8	13.47	9.894		
3,000.0	2,995.7	2,997.5	2,992.2	6.9	7.1	-97.94	152.6	-79.7	136.8	122.8	13.97	9.792		
3,100.0	3,095.5	3,097.4	3,091.9	7.2	7.4	-98.11	159.5	-80.4	140.3	125.8	14.47	9.697		
3,200.0	3,195.2	3,197.3	3,191.6	7.4	7.6	-98.28	166.5	-81.0	143.9	128.9	14.97	9.608		
3,300.0	3,295.0	3,297.3	3,291.3	7.7	7.9	-98.44	173.4	-81.7	147.4	131.9	15.48	9.525		
3,400.0	3,394.7	3,397.2	3,390.9	7.9	8.1	-98.59	180.4	-82.4	151.0	135.0	15.98	9.447		
3,500.0	3,494.5	3,497.1	3,490.6	8.2	8.4	-98.73	187.3	-83.0	154.5	138.0	16.48	9.373		
3,600.0	3,594.2	3,597.1	3,590.3	8.4	8.6	-98.87	194.2	-83.7	158.1	141.1	16.99	9.304		
3,700.0	3,694.0	3,697.0	3,690.0	8.7	8.9	-99.00	201.2	-84.3	161.6	144.1	17.49	9.238		
3,800.0	3,793.7	3,796.9	3,789.7	9.0	9.2	-99.12	208.1	-85.0	165.2	147.2	18.00	9.176		
3,900.0	3,893.5	3,896.9	3,889.4	9.2	9.4	-99.24	215.1	-85.6	168.7	150.2	18.50	9.118		
4,000.0	3,993.3	3,996.8	3,989.1	9.5	9.7	-99.36	222.0	-86.3	172.3	153.3	19.01	9.062		
4,100.0	4,093.0	4,096.7	4,088.8	9.7	9.9	-99.47	228.9	-87.0	175.8	156.3	19.51	9.010		
4,200.0	4,192.8	4,196.7	4,188.5	10.0	10.2	-99.57	235.9	-87.6	179.4	159.4	20.02	8.960		
4,300.0	4,292.5	4,296.6	4,288.2	10.2	10.4	-99.67	242.8	-88.3	182.9	162.4	20.53	8.912		
4,400.0	4,392.3	4,396.6	4,387.9	10.5	10.7	-99.77	249.8	-88.9	186.5	165.4	21.03	8.867		
4,500.0	4,492.0	4,496.5	4,487.6	10.7	10.9	-99.87	256.7	-89.6	190.0	168.5	21.54	8.823		
4,600.0	4,591.8	4,596.4	4,587.3	11.0	11.2	-99.96	263.6	-90.2	193.6	171.5	22.04	8.782		
4,700.0	4,691.6	4,696.4	4,687.0	11.2	11.5	-100.04	270.6	-90.9	197.1	174.6	22.55	8.742		
4,800.0	4,791.3	4,796.3	4,786.6	11.5	11.7	-100.13	277.5	-91.5	200.7	177.6	23.06	8.705		
4,900.0	4,891.1	4,896.2	4,886.3	11.8	12.0	-100.21	284.5	-92.2	204.3	180.7	23.56	8.668		
5,000.0	4,990.8	4,996.2	4,986.0	12.0	12.2	-100.29	291.4	-92.9	207.8	183.8	24.07	8.634		
5,100.0	5,090.6	5,096.1	5,085.7	12.3	12.5	-100.36	298.4	-93.5	211.4	186.8	24.58	8.600		

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 #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21B-0910B - HZ - Plan #2													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	5,196.0	5,185.4	12.5	12.7	-100.44	305.3	-94.2	214.9	189.9	25.08	8.568		
5,300.0	5,290.1	5,296.0	5,285.1	12.8	13.0	-100.51	312.2	-94.8	218.5	192.9	25.59	8.538		
5,400.0	5,389.9	5,395.9	5,384.8	13.0	13.2	-100.58	319.2	-95.5	222.1	196.0	26.10	8.508		
5,500.0	5,489.6	5,495.9	5,484.5	13.3	13.5	-100.64	326.1	-96.1	225.6	199.0	26.61	8.480		
5,600.0	5,588.9	5,588.5	5,576.7	13.6	13.8	-100.52	335.0	-97.0	230.8	203.7	27.13	8.508		
5,700.0	5,684.7	5,675.3	5,660.6	14.0	14.1	-100.01	356.3	-99.0	244.1	216.2	27.82	8.772		
5,800.0	5,773.3	5,760.6	5,738.6	14.6	14.6	-99.09	390.6	-102.2	265.6	236.9	28.75	9.240		
5,900.0	5,851.5	5,844.2	5,808.6	15.3	15.1	-97.71	436.0	-106.5	294.7	264.7	29.95	9.840		
6,000.0	5,916.4	5,926.1	5,869.2	16.2	15.8	-95.84	490.7	-111.7	330.2	298.7	31.45	10.498		
6,100.0	5,965.7	6,006.5	5,919.6	17.4	16.6	-93.54	553.0	-117.6	370.9	337.7	33.24	11.158		
6,200.0	5,997.5	6,086.2	5,959.5	18.6	17.5	-90.88	621.6	-124.1	415.6	380.4	35.29	11.777		
6,300.0	6,010.6	6,166.2	5,988.5	20.1	18.5	-88.01	695.7	-131.1	463.0	425.5	37.53	12.337		
6,400.0	6,011.0	6,250.0	6,006.3	21.5	19.7	-89.42	777.1	-138.8	510.4	470.4	40.07	12.740		
6,500.0	6,011.0	6,347.6	6,011.0	22.8	21.1	-90.00	874.1	-147.7	553.7	510.8	42.84	12.925		
6,600.0	6,011.0	6,481.7	6,011.0	24.3	23.0	-90.00	1,008.1	-153.7	587.7	541.5	46.15	12.733		
6,700.0	6,011.0	6,584.2	6,011.0	25.7	24.5	-90.00	1,110.5	-153.8	612.4	563.2	49.22	12.443		
6,800.0	6,011.0	6,682.2	6,011.0	27.2	26.0	-90.00	1,208.5	-153.8	632.0	579.7	52.33	12.077		
6,900.0	6,011.0	6,781.1	6,011.0	28.8	27.7	-90.00	1,307.5	-153.8	646.5	591.0	55.48	11.653		
7,000.0	6,011.0	6,880.7	6,011.0	30.3	29.4	-90.00	1,407.0	-153.8	655.8	597.1	58.61	11.189		
7,100.0	6,011.0	6,980.6	6,011.0	31.9	31.1	-90.00	1,507.0	-153.8	659.8	598.1	61.68	10.697		
7,200.0	6,011.0	7,080.6	6,011.0	33.4	32.8	-90.00	1,606.9	-153.8	660.0	595.0	64.95	10.161		
7,300.0	6,011.0	7,180.6	6,011.0	35.0	34.6	-90.00	1,706.9	-153.8	660.0	591.6	68.35	9.655		
7,400.0	6,011.0	7,280.6	6,011.0	36.6	36.3	-90.00	1,806.9	-153.8	660.0	588.2	71.80	9.192		
7,500.0	6,011.0	7,380.6	6,011.0	38.3	38.1	-90.00	1,906.9	-153.8	660.0	584.7	75.28	8.767		
7,600.0	6,011.0	7,480.6	6,011.0	39.9	39.9	-90.00	2,006.9	-153.8	660.0	581.2	78.80	8.376		
7,700.0	6,011.0	7,580.6	6,011.0	41.6	41.7	-90.00	2,106.9	-153.8	660.0	577.6	82.34	8.015		
7,800.0	6,011.0	7,680.6	6,011.0	43.3	43.6	-90.00	2,206.9	-153.8	660.0	574.1	85.92	7.682		
7,900.0	6,011.0	7,780.6	6,011.0	45.1	45.4	-90.00	2,306.9	-153.8	660.0	570.5	89.51	7.373		
8,000.0	6,011.0	7,880.6	6,011.0	46.8	47.2	-90.00	2,406.9	-153.8	660.0	566.9	93.12	7.087		
8,100.0	6,011.0	7,980.6	6,011.0	48.6	49.1	-90.00	2,506.9	-153.8	660.0	563.2	96.76	6.821		
8,200.0	6,011.0	8,080.6	6,011.0	50.3	50.9	-90.00	2,606.9	-153.8	660.0	559.6	100.40	6.573		
8,300.0	6,011.0	8,180.6	6,011.0	52.1	52.8	-90.00	2,706.9	-153.8	660.0	555.9	104.06	6.342		
8,400.0	6,011.0	8,280.6	6,011.0	53.9	54.6	-90.00	2,806.9	-153.8	660.0	552.3	107.74	6.126		
8,500.0	6,011.0	8,380.6	6,011.0	55.7	56.5	-90.00	2,906.9	-153.8	660.0	548.6	111.42	5.923		
8,600.0	6,011.0	8,480.6	6,011.0	57.5	58.3	-90.00	3,006.9	-153.8	660.0	544.9	115.12	5.733		
8,700.0	6,011.0	8,580.6	6,011.0	59.3	60.2	-90.00	3,106.9	-153.8	660.0	541.2	118.82	5.554		
8,800.0	6,011.0	8,680.6	6,011.0	61.1	62.1	-90.00	3,206.9	-153.8	660.0	537.5	122.54	5.386		
8,900.0	6,011.0	8,780.6	6,011.0	63.0	64.0	-90.00	3,306.9	-153.8	660.0	533.7	126.26	5.227		
9,000.0	6,011.0	8,880.6	6,011.0	64.8	65.8	-90.00	3,406.9	-153.8	660.0	530.0	129.99	5.077		
9,100.0	6,011.0	8,980.6	6,011.0	66.6	67.7	-90.00	3,506.9	-153.8	660.0	526.3	133.72	4.936		
9,200.0	6,011.0	9,080.6	6,011.0	68.5	69.6	-90.00	3,606.9	-153.8	660.0	522.5	137.46	4.801		
9,300.0	6,011.0	9,180.6	6,011.0	70.3	71.5	-90.00	3,706.9	-153.8	660.0	518.8	141.21	4.674		
9,400.0	6,011.0	9,280.6	6,011.0	72.2	73.4	-90.00	3,806.9	-153.8	660.0	515.1	144.96	4.553		
9,500.0	6,011.0	9,380.6	6,011.0	74.0	75.3	-90.00	3,906.9	-153.8	660.0	511.3	148.72	4.438		
9,600.0	6,011.0	9,480.6	6,011.0	75.9	77.2	-90.00	4,006.9	-153.8	660.0	507.5	152.48	4.329		
9,700.0	6,011.0	9,580.6	6,011.0	77.7	79.0	-90.00	4,106.9	-153.8	660.0	503.8	156.24	4.224		
9,800.0	6,011.0	9,680.6	6,011.0	79.6	80.9	-90.00	4,206.9	-153.8	660.0	500.0	160.01	4.125		
9,900.0	6,011.0	9,780.6	6,011.0	81.5	82.8	-90.00	4,306.9	-153.8	660.0	496.2	163.78	4.030		
10,000.0	6,011.0	9,880.6	6,011.0	83.3	84.7	-90.00	4,406.9	-153.8	660.0	492.5	167.56	3.939		
10,100.0	6,011.0	9,980.6	6,011.0	85.2	86.6	-90.00	4,506.9	-153.8	660.0	488.7	171.33	3.852		
10,200.0	6,011.0	10,080.6	6,011.0	87.1	88.5	-90.00	4,606.9	-153.8	660.0	484.9	175.11	3.769		
10,300.0	6,011.0	10,180.6	6,011.0	88.9	90.4	-90.00	4,706.9	-153.8	660.0	481.1	178.90	3.689		

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 #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21B-0910B - HZ - Plan #2													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		
10,400.0	6,011.0	10,280.6	6,011.0	90.8	92.3	-90.00	4,806.9	-153.8	660.0	477.3	182.68	3.613		
10,500.0	6,011.0	10,380.6	6,011.0	92.7	94.2	-90.00	4,906.9	-153.8	660.0	473.6	186.47	3.540		
10,600.0	6,011.0	10,480.6	6,011.0	94.6	96.1	-90.00	5,006.9	-153.8	660.0	469.8	190.26	3.469		
10,700.0	6,011.0	10,580.6	6,011.0	96.5	98.0	-90.00	5,106.9	-153.8	660.0	466.0	194.05	3.401		
10,800.0	6,011.0	10,680.6	6,011.0	98.3	99.9	-90.00	5,206.9	-153.8	660.0	462.2	197.85	3.336		
10,900.0	6,011.0	10,780.6	6,011.0	100.2	101.8	-90.00	5,306.9	-153.8	660.0	458.4	201.64	3.273		
11,000.0	6,011.0	10,880.6	6,011.0	102.1	103.7	-90.00	5,406.9	-153.8	660.0	454.6	205.44	3.213		
11,100.0	6,011.0	10,980.6	6,011.0	104.0	105.6	-90.00	5,506.9	-153.8	660.0	450.8	209.24	3.154		
11,200.0	6,011.0	11,080.6	6,011.0	105.9	107.5	-90.00	5,606.9	-153.8	660.0	447.0	213.04	3.098		
11,300.0	6,011.0	11,180.6	6,011.0	107.8	109.5	-90.00	5,706.9	-153.8	660.0	443.2	216.85	3.044		
11,400.0	6,011.0	11,280.6	6,011.0	109.7	111.4	-90.00	5,806.9	-153.8	660.0	439.4	220.65	2.991		
11,500.0	6,011.0	11,380.6	6,011.0	111.6	113.3	-90.00	5,906.9	-153.8	660.0	435.6	224.45	2.941		
11,600.0	6,011.0	11,480.6	6,011.0	113.4	115.2	-90.00	6,006.9	-153.8	660.0	431.8	228.26	2.892		
11,700.0	6,011.0	11,580.6	6,011.0	115.3	117.1	-90.00	6,106.9	-153.8	660.1	428.0	232.07	2.844		
11,800.0	6,011.0	11,680.6	6,011.0	117.2	119.0	-90.00	6,206.9	-153.8	660.1	424.2	235.88	2.798		
11,900.0	6,011.0	11,780.6	6,011.0	119.1	120.9	-90.00	6,306.9	-153.8	660.1	420.4	239.69	2.754		
12,000.0	6,011.0	11,880.6	6,011.0	121.0	122.8	-90.00	6,406.9	-153.8	660.1	416.6	243.50	2.711		
12,100.0	6,011.0	11,980.6	6,011.0	122.9	124.7	-90.00	6,506.9	-153.8	660.1	412.7	247.31	2.669		
12,200.0	6,011.0	12,080.6	6,011.0	124.8	126.6	-90.00	6,606.9	-153.8	660.1	408.9	251.12	2.628		
12,300.0	6,011.0	12,180.6	6,011.0	126.7	128.5	-90.00	6,706.9	-153.8	660.1	405.1	254.94	2.589		
12,400.0	6,011.0	12,280.6	6,011.0	128.6	130.4	-90.00	6,806.9	-153.8	660.1	401.3	258.75	2.551		
12,500.0	6,011.0	12,380.6	6,011.0	130.5	132.4	-90.00	6,906.9	-153.8	660.1	397.5	262.57	2.514		
12,600.0	6,011.0	12,480.6	6,011.0	132.4	134.3	-90.00	7,006.9	-153.8	660.1	393.7	266.38	2.478		
12,700.0	6,011.0	12,580.6	6,011.0	134.3	136.2	-90.00	7,106.9	-153.8	660.1	389.9	270.20	2.443		
12,800.0	6,011.0	12,680.6	6,011.0	136.2	138.1	-90.00	7,206.9	-153.8	660.1	386.1	274.02	2.409		
12,900.0	6,011.0	12,780.6	6,011.0	138.1	140.0	-90.00	7,306.9	-153.8	660.1	382.2	277.84	2.376		
13,000.0	6,011.0	12,880.6	6,011.0	140.0	141.9	-90.00	7,406.9	-153.8	660.1	378.4	281.65	2.344		
13,100.0	6,011.0	12,980.6	6,011.0	141.9	143.8	-90.00	7,506.9	-153.8	660.1	374.6	285.47	2.312		
13,200.0	6,011.0	13,080.6	6,011.0	143.8	145.7	-90.00	7,606.9	-153.8	660.1	370.8	289.29	2.282		
13,300.0	6,011.0	13,180.6	6,011.0	145.7	147.7	-90.00	7,706.9	-153.8	660.1	367.0	293.12	2.252		
13,400.0	6,011.0	13,280.6	6,011.0	147.6	149.6	-90.00	7,806.9	-153.8	660.1	363.1	296.94	2.223		
13,500.0	6,011.0	13,380.6	6,011.0	149.5	151.5	-90.00	7,906.9	-153.8	660.1	359.3	300.76	2.195		
13,600.0	6,011.0	13,480.6	6,011.0	151.5	153.4	-90.00	8,006.9	-153.8	660.1	355.5	304.58	2.167		
13,700.0	6,011.0	13,580.6	6,011.0	153.4	155.3	-90.00	8,106.9	-153.8	660.1	351.7	308.40	2.140		
13,800.0	6,011.0	13,680.6	6,011.0	155.3	157.2	-90.00	8,206.9	-153.8	660.1	347.9	312.23	2.114		
13,870.6	6,011.0	13,751.2	6,011.0	156.6	158.6	-90.00	8,277.5	-153.8	660.1	345.2	314.93	2.096 SF		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21B-0911A - HZ - Plan #2													Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-90.01	0.0	-33.2	33.2					
100.0	100.0	100.0	100.0	0.1	0.1	-90.01	0.0	-33.2	33.2	33.0	0.19	178.012		
200.0	200.0	200.0	200.0	0.3	0.3	-90.01	0.0	-33.2	33.2	32.6	0.64	52.208		
300.0	300.0	300.0	300.0	0.5	0.5	-90.01	0.0	-33.2	33.2	32.1	1.09	30.590		
400.0	400.0	400.0	400.0	0.8	0.8	-90.01	0.0	-33.2	33.2	31.7	1.54	21.632		
500.0	500.0	500.0	500.0	1.0	1.0	-90.01	0.0	-33.2	33.2	31.2	1.98	16.733		
600.0	600.0	600.0	600.0	1.2	1.2	-90.01	0.0	-33.2	33.2	30.8	2.43	13.643		
700.0	700.0	700.0	700.0	1.4	1.4	-90.01	0.0	-33.2	33.2	30.3	2.88	11.516		
800.0	800.0	800.0	800.0	1.7	1.7	-90.01	0.0	-33.2	33.2	29.9	3.33	9.963		
900.0	900.0	900.0	900.0	1.9	1.9	-90.01	0.0	-33.2	33.2	29.4	3.78	8.779		
1,000.0	1,000.0	1,000.2	1,000.2	2.1	2.1	-87.02	1.7	-32.9	32.9	28.7	4.23	7.773		
1,096.8	1,096.8	1,096.9	1,096.8	2.3	2.3	-78.25	6.6	-31.8	32.5	27.8	4.67	6.966 CC		
1,100.0	1,100.0	1,100.1	1,100.0	2.3	2.3	-77.86	6.8	-31.8	32.5	27.8	4.68	6.945 ES		
1,200.0	1,200.0	1,200.0	1,199.6	2.6	2.6	-93.01	13.7	-30.4	33.3	28.2	5.13	6.498		
1,300.0	1,299.8	1,300.0	1,299.3	2.8	2.8	-90.25	20.5	-28.9	34.8	29.2	5.59	6.230		
1,400.0	1,399.6	1,400.0	1,399.1	3.0	3.0	-90.50	27.3	-27.5	36.3	30.3	6.05	6.002		
1,500.0	1,499.4	1,500.0	1,498.8	3.2	3.3	-90.73	34.1	-26.1	37.8	31.3	6.52	5.801		
1,600.0	1,599.1	1,599.9	1,598.6	3.5	3.5	-90.94	41.0	-24.7	39.3	32.3	7.00	5.621		
1,700.0	1,698.9	1,699.9	1,698.3	3.7	3.8	-91.14	47.8	-23.3	40.9	33.4	7.48	5.462		
1,800.0	1,798.6	1,799.9	1,798.0	4.0	4.0	-91.32	54.6	-21.8	42.4	34.4	7.97	5.319		
1,900.0	1,898.4	1,899.9	1,897.8	4.2	4.3	-91.49	61.5	-20.4	43.9	35.4	8.45	5.191		
2,000.0	1,998.1	1,999.9	1,997.5	4.4	4.5	-91.65	68.3	-19.0	45.4	36.5	8.95	5.075		
2,100.0	2,097.9	2,099.9	2,097.3	4.7	4.8	-91.80	75.1	-17.6	46.9	37.5	9.44	4.970		
2,200.0	2,197.6	2,199.9	2,197.0	4.9	5.0	-91.94	81.9	-16.2	48.4	38.5	9.93	4.875		
2,300.0	2,297.4	2,299.9	2,296.8	5.2	5.3	-92.07	88.8	-14.7	49.9	39.5	10.43	4.788		
2,400.0	2,397.2	2,399.8	2,396.5	5.4	5.5	-92.19	95.6	-13.3	51.5	40.5	10.93	4.708		
2,500.0	2,496.9	2,499.8	2,496.3	5.7	5.8	-92.31	102.4	-11.9	53.0	41.5	11.43	4.635		
2,600.0	2,596.7	2,599.8	2,596.0	5.9	6.0	-92.42	109.3	-10.5	54.5	42.6	11.93	4.568		
2,700.0	2,696.4	2,699.8	2,695.8	6.2	6.3	-92.52	116.1	-9.1	56.0	43.6	12.43	4.505		
2,800.0	2,796.2	2,799.8	2,795.5	6.4	6.5	-92.62	122.9	-7.6	57.5	44.6	12.93	4.447		
2,900.0	2,895.9	2,899.8	2,895.2	6.7	6.8	-92.71	129.7	-6.2	59.0	45.6	13.44	4.394		
3,000.0	2,995.7	2,999.8	2,995.0	6.9	7.0	-92.80	136.6	-4.8	60.5	46.6	13.94	4.344		
3,100.0	3,095.5	3,099.8	3,094.7	7.2	7.3	-92.88	143.4	-3.4	62.1	47.6	14.44	4.297		
3,200.0	3,195.2	3,199.8	3,194.5	7.4	7.5	-92.96	150.2	-2.0	63.6	48.6	14.95	4.253		
3,300.0	3,295.0	3,299.7	3,294.2	7.7	7.8	-93.04	157.1	-0.5	65.1	49.6	15.45	4.212		
3,400.0	3,394.7	3,399.7	3,394.0	7.9	8.0	-93.11	163.9	0.9	66.6	50.7	15.96	4.174		
3,500.0	3,494.5	3,499.7	3,493.7	8.2	8.3	-93.18	170.7	2.3	68.1	51.7	16.47	4.138		
3,600.0	3,594.2	3,599.7	3,593.5	8.4	8.5	-93.25	177.5	3.7	69.6	52.7	16.97	4.103		
3,700.0	3,694.0	3,699.7	3,693.2	8.7	8.8	-93.31	184.4	5.1	71.2	53.7	17.48	4.071		
3,800.0	3,793.7	3,799.7	3,792.9	9.0	9.1	-93.37	191.2	6.6	72.7	54.7	17.99	4.041		
3,900.0	3,893.5	3,899.7	3,892.7	9.2	9.3	-93.43	198.0	8.0	74.2	55.7	18.49	4.012		
4,000.0	3,993.3	3,999.7	3,992.4	9.5	9.6	-93.49	204.9	9.4	75.7	56.7	19.00	3.985		
4,100.0	4,093.0	4,099.7	4,092.2	9.7	9.8	-93.54	211.7	10.8	77.2	57.7	19.51	3.959		
4,200.0	4,192.8	4,199.6	4,191.9	10.0	10.1	-93.59	218.5	12.2	78.7	58.7	20.02	3.934		
4,300.0	4,292.5	4,299.6	4,291.7	10.2	10.3	-93.64	225.3	13.7	80.3	59.7	20.53	3.910		
4,400.0	4,392.3	4,399.6	4,391.4	10.5	10.6	-93.69	232.2	15.1	81.8	60.7	21.04	3.888		
4,500.0	4,492.0	4,499.6	4,491.2	10.7	10.8	-93.74	239.0	16.5	83.3	61.8	21.54	3.867		
4,600.0	4,591.8	4,599.6	4,590.9	11.0	11.1	-93.78	245.8	17.9	84.8	62.8	22.05	3.846		
4,700.0	4,691.6	4,699.6	4,690.7	11.2	11.3	-93.83	252.7	19.3	86.3	63.8	22.56	3.827		
4,800.0	4,791.3	4,799.6	4,790.4	11.5	11.6	-93.87	259.5	20.8	87.9	64.8	23.07	3.808		
4,900.0	4,891.1	4,899.6	4,890.1	11.8	11.9	-93.91	266.3	22.2	89.4	65.8	23.58	3.790		
5,000.0	4,990.8	4,999.5	4,989.9	12.0	12.1	-93.95	273.1	23.6	90.9	66.8	24.09	3.773		

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 #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21B-0911A - HZ - Plan #2													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,100.0	5,090.6	5,099.5	5,089.6	12.3	12.4	-93.98	280.0	25.0	92.4	67.8	24.60	3.756		
5,200.0	5,190.3	5,199.5	5,189.4	12.5	12.6	-94.02	286.8	26.4	93.9	68.8	25.11	3.741		
5,300.0	5,290.1	5,299.5	5,289.1	12.8	12.9	-94.06	293.6	27.9	95.4	69.8	25.62	3.725		
5,400.0	5,389.9	5,399.5	5,388.9	13.0	13.1	-94.09	300.5	29.3	97.0	70.8	26.13	3.711		
5,500.0	5,489.6	5,497.8	5,486.7	13.3	13.4	-92.54	309.9	31.2	98.9	72.3	26.65	3.712		
5,600.0	5,588.9	5,592.1	5,577.5	13.6	13.8	-84.21	333.8	36.2	105.1	77.8	27.25	3.855		
5,700.0	5,684.7	5,683.4	5,660.0	14.0	14.3	-76.88	372.0	44.2	116.6	88.7	27.95	4.173		
5,800.0	5,773.3	5,772.3	5,732.5	14.6	14.9	-71.71	422.1	54.6	132.0	103.3	28.71	4.598		
5,900.0	5,851.5	5,859.0	5,793.9	15.3	15.7	-68.38	481.9	67.0	149.8	120.2	29.56	5.065		
6,000.0	5,916.4	5,944.0	5,843.5	16.2	16.5	-66.43	549.4	81.1	168.7	138.1	30.63	5.509		
6,100.0	5,965.7	6,027.8	5,880.7	17.4	17.5	-65.48	622.8	96.3	188.3	156.2	32.06	5.871		
6,200.0	5,997.5	6,110.7	5,905.3	18.6	18.6	-65.24	700.3	112.4	207.7	173.8	33.95	6.119		
6,300.0	6,010.6	6,193.4	5,917.0	20.1	19.7	-65.55	780.3	129.1	226.7	190.4	36.30	6.245		
6,400.0	6,011.0	6,279.2	5,918.0	21.5	20.9	-67.32	864.4	145.8	245.5	206.3	39.20	6.262		
6,500.0	6,011.0	6,366.4	5,918.0	22.8	22.1	-69.01	950.6	159.2	264.0	222.0	42.01	6.283		
6,600.0	6,011.0	6,452.9	5,918.0	24.3	23.3	-70.43	1,036.6	168.7	282.0	237.2	44.81	6.293		
6,700.0	6,011.0	6,538.8	5,918.0	25.7	24.6	-71.64	1,122.3	174.1	299.5	251.9	47.60	6.293		
6,800.0	6,011.0	6,625.1	5,918.0	27.2	25.9	-72.68	1,208.6	175.8	316.5	266.1	50.36	6.284		
6,900.0	6,011.0	6,724.0	5,918.0	28.8	27.4	-73.54	1,307.5	175.8	330.3	277.0	53.30	6.197		
7,000.0	6,011.0	6,823.6	5,918.0	30.3	29.1	-74.06	1,407.1	175.8	339.2	283.0	56.16	6.040		
7,100.0	6,011.0	6,923.5	5,918.0	31.9	30.7	-74.28	1,507.0	175.8	343.1	284.2	58.89	5.826		
7,200.0	6,011.0	7,023.5	5,918.0	33.4	32.4	-74.29	1,607.0	175.8	343.2	281.3	61.95	5.540		
7,300.0	6,011.0	7,123.5	5,918.0	35.0	34.2	-74.29	1,707.0	175.8	343.2	278.0	65.22	5.263		
7,400.0	6,011.0	7,223.5	5,918.0	36.6	35.9	-74.29	1,807.0	175.8	343.2	274.7	68.54	5.008		
7,500.0	6,011.0	7,323.5	5,918.0	38.3	37.7	-74.29	1,907.0	175.8	343.2	271.4	71.89	4.775		
7,600.0	6,011.0	7,423.5	5,918.0	39.9	39.4	-74.29	2,007.0	175.8	343.2	268.0	75.28	4.560		
7,700.0	6,011.0	7,523.5	5,918.0	41.6	41.2	-74.29	2,107.0	175.8	343.2	264.5	78.69	4.362		
7,800.0	6,011.0	7,623.5	5,918.0	43.3	43.0	-74.29	2,207.0	175.8	343.2	261.1	82.14	4.179		
7,900.0	6,011.0	7,723.5	5,918.0	45.1	44.8	-74.28	2,307.0	175.8	343.2	257.6	85.61	4.010		
8,000.0	6,011.0	7,823.5	5,918.0	46.8	46.7	-74.28	2,407.0	175.8	343.2	254.1	89.09	3.853		
8,100.0	6,011.0	7,923.5	5,918.0	48.6	48.5	-74.28	2,507.0	175.8	343.2	250.6	92.60	3.707		
8,200.0	6,011.0	8,023.5	5,918.0	50.3	50.3	-74.28	2,607.0	175.8	343.2	247.1	96.12	3.571		
8,300.0	6,011.0	8,123.5	5,918.0	52.1	52.2	-74.28	2,707.0	175.8	343.2	243.6	99.66	3.444		
8,400.0	6,011.0	8,223.5	5,918.0	53.9	54.0	-74.28	2,807.0	175.8	343.2	240.0	103.21	3.326		
8,500.0	6,011.0	8,323.5	5,918.0	55.7	55.8	-74.28	2,907.0	175.8	343.2	236.5	106.77	3.215		
8,600.0	6,011.0	8,423.5	5,918.0	57.5	57.7	-74.28	3,007.0	175.8	343.2	232.9	110.34	3.111		
8,700.0	6,011.0	8,523.5	5,918.0	59.3	59.6	-74.28	3,107.0	175.8	343.2	229.3	113.92	3.013		
8,800.0	6,011.0	8,623.5	5,918.0	61.1	61.4	-74.28	3,207.0	175.8	343.2	225.7	117.51	2.921		
8,900.0	6,011.0	8,723.5	5,918.0	63.0	63.3	-74.28	3,307.0	175.8	343.2	222.1	121.10	2.834		
9,000.0	6,011.0	8,823.5	5,918.0	64.8	65.2	-74.28	3,407.0	175.8	343.2	218.5	124.71	2.752		
9,100.0	6,011.0	8,923.5	5,918.0	66.6	67.0	-74.28	3,507.0	175.8	343.2	214.9	128.32	2.675		
9,200.0	6,011.0	9,023.5	5,918.0	68.5	68.9	-74.28	3,607.0	175.8	343.2	211.3	131.94	2.601		
9,300.0	6,011.0	9,123.5	5,918.0	70.3	70.8	-74.28	3,707.0	175.8	343.2	207.7	135.56	2.532		
9,400.0	6,011.0	9,223.5	5,918.0	72.2	72.7	-74.28	3,807.0	175.8	343.2	204.0	139.19	2.466		
9,500.0	6,011.0	9,323.5	5,918.0	74.0	74.5	-74.28	3,907.0	175.8	343.2	200.4	142.82	2.403		
9,600.0	6,011.0	9,423.5	5,918.0	75.9	76.4	-74.28	4,007.0	175.8	343.2	196.8	146.45	2.344		
9,700.0	6,011.0	9,523.5	5,918.0	77.7	78.3	-74.28	4,107.0	175.8	343.2	193.1	150.10	2.287		
9,800.0	6,011.0	9,623.5	5,918.0	79.6	80.2	-74.28	4,207.0	175.8	343.2	189.5	153.74	2.232		
9,900.0	6,011.0	9,723.5	5,918.0	81.5	82.1	-74.28	4,307.0	175.8	343.2	185.8	157.39	2.181		
10,000.0	6,011.0	9,823.5	5,918.0	83.3	84.0	-74.28	4,407.0	175.8	343.2	182.2	161.04	2.131		
10,100.0	6,011.0	9,923.5	5,918.0	85.2	85.9	-74.28	4,507.0	175.8	343.2	178.5	164.69	2.084		
10,200.0	6,011.0	10,023.5	5,918.0	87.1	87.8	-74.28	4,607.0	175.8	343.2	174.9	168.35	2.039		

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 #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21B-0911A - HZ - Plan #2												Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis		
10,300.0	6,011.0	10,123.5	5,918.0	88.9	89.7	-74.28	4,707.0	175.9	343.2	171.2	172.01	1.995	
10,400.0	6,011.0	10,223.5	5,918.0	90.8	91.6	-74.28	4,807.0	175.9	343.2	167.5	175.67	1.954	
10,500.0	6,011.0	10,323.5	5,918.0	92.7	93.5	-74.28	4,907.0	175.9	343.2	163.9	179.34	1.914	
10,600.0	6,011.0	10,423.5	5,918.0	94.6	95.4	-74.28	5,007.0	175.9	343.2	160.2	183.00	1.875	
10,700.0	6,011.0	10,523.5	5,918.0	96.5	97.3	-74.28	5,107.0	175.9	343.2	156.5	186.67	1.839	
10,800.0	6,011.0	10,623.5	5,918.0	98.3	99.2	-74.28	5,207.0	175.9	343.2	152.9	190.34	1.803	
10,900.0	6,011.0	10,723.5	5,918.0	100.2	101.1	-74.28	5,307.0	175.9	343.2	149.2	194.02	1.769	
11,000.0	6,011.0	10,823.5	5,918.0	102.1	103.0	-74.28	5,407.0	175.9	343.2	145.5	197.69	1.736	
11,100.0	6,011.0	10,923.5	5,918.0	104.0	104.9	-74.28	5,507.0	175.9	343.2	141.8	201.37	1.704	
11,200.0	6,011.0	11,023.5	5,918.0	105.9	106.8	-74.28	5,607.0	175.9	343.2	138.2	205.05	1.674	
11,300.0	6,011.0	11,123.5	5,918.0	107.8	108.7	-74.28	5,707.0	175.9	343.2	134.5	208.72	1.644	
11,400.0	6,011.0	11,223.5	5,918.0	109.7	110.6	-74.28	5,807.0	175.9	343.2	130.8	212.41	1.616	
11,500.0	6,011.0	11,323.5	5,918.0	111.6	112.5	-74.28	5,907.0	175.9	343.2	127.1	216.09	1.588	
11,600.0	6,011.0	11,423.5	5,918.0	113.4	114.4	-74.28	6,007.0	175.9	343.2	123.4	219.77	1.562	
11,700.0	6,011.0	11,523.5	5,918.0	115.3	116.3	-74.28	6,107.0	175.9	343.2	119.7	223.45	1.536	
11,800.0	6,011.0	11,623.5	5,918.0	117.2	118.2	-74.28	6,207.0	175.9	343.2	116.0	227.14	1.511	
11,900.0	6,011.0	11,723.5	5,918.0	119.1	120.1	-74.28	6,307.0	175.9	343.2	112.4	230.83	1.487 Level 3	
12,000.0	6,011.0	11,823.5	5,918.0	121.0	122.0	-74.28	6,407.0	175.9	343.2	108.7	234.51	1.463 Level 3	
12,100.0	6,011.0	11,923.5	5,918.0	122.9	123.9	-74.28	6,507.0	175.9	343.2	105.0	238.20	1.441 Level 3	
12,200.0	6,011.0	12,023.5	5,918.0	124.8	125.8	-74.28	6,607.0	175.9	343.2	101.3	241.89	1.419 Level 3	
12,300.0	6,011.0	12,123.5	5,918.0	126.7	127.7	-74.28	6,707.0	175.9	343.2	97.6	245.58	1.397 Level 3	
12,400.0	6,011.0	12,223.5	5,918.0	128.6	129.6	-74.28	6,807.0	175.9	343.2	93.9	249.27	1.377 Level 3	
12,500.0	6,011.0	12,323.5	5,918.0	130.5	131.5	-74.28	6,907.0	175.9	343.2	90.2	252.97	1.357 Level 3	
12,600.0	6,011.0	12,423.5	5,918.0	132.4	133.5	-74.28	7,007.0	175.9	343.2	86.5	256.66	1.337 Level 3	
12,700.0	6,011.0	12,523.5	5,918.0	134.3	135.4	-74.28	7,107.0	175.9	343.2	82.8	260.35	1.318 Level 3	
12,800.0	6,011.0	12,623.5	5,918.0	136.2	137.3	-74.28	7,207.0	175.9	343.2	79.1	264.05	1.300 Level 3	
12,900.0	6,011.0	12,723.5	5,918.0	138.1	139.2	-74.28	7,307.0	175.9	343.2	75.4	267.74	1.282 Level 3	
13,000.0	6,011.0	12,823.5	5,918.0	140.0	141.1	-74.28	7,407.0	175.9	343.2	71.7	271.44	1.264 Level 3	
13,100.0	6,011.0	12,923.5	5,918.0	141.9	143.0	-74.28	7,507.0	175.9	343.2	68.0	275.13	1.247 Level 2	
13,200.0	6,011.0	13,023.5	5,918.0	143.8	144.9	-74.28	7,607.0	175.9	343.2	64.3	278.83	1.231 Level 2	
13,300.0	6,011.0	13,123.5	5,918.0	145.7	146.8	-74.28	7,707.0	175.9	343.2	60.6	282.53	1.215 Level 2	
13,400.0	6,011.0	13,223.5	5,918.0	147.6	148.7	-74.28	7,807.0	175.9	343.2	56.9	286.23	1.199 Level 2	
13,500.0	6,011.0	13,323.5	5,918.0	149.5	150.6	-74.28	7,907.0	175.9	343.2	53.2	289.93	1.184 Level 2	
13,600.0	6,011.0	13,423.5	5,918.0	151.5	152.6	-74.28	8,007.0	175.9	343.2	49.5	293.62	1.169 Level 2	
13,700.0	6,011.0	13,523.5	5,918.0	153.4	154.5	-74.28	8,107.0	175.9	343.2	45.8	297.32	1.154 Level 2	
13,800.0	6,011.0	13,623.5	5,918.0	155.3	156.4	-74.28	8,207.0	175.9	343.2	42.1	301.02	1.140 Level 2	
13,870.6	6,011.0	13,694.1	5,918.0	156.6	157.7	-74.28	8,277.5	175.9	343.2	39.5	303.64	1.130 Level 2, SF	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21B-2809A - HZ - Plan #1													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	88.72	1.1	49.0	49.0					
100.0	100.0	99.5	99.5	0.1	0.1	88.72	1.1	49.0	49.0	48.8	0.19	262.502		
200.0	200.0	199.5	199.5	0.3	0.3	88.72	1.1	49.0	49.0	48.4	0.64	77.095		
300.0	300.0	299.5	299.5	0.5	0.5	88.72	1.1	49.0	49.0	47.9	1.09	45.155		
400.0	400.0	399.5	399.5	0.8	0.8	88.72	1.1	49.0	49.0	47.5	1.53	31.928		
500.0	500.0	499.5	499.5	1.0	1.0	88.72	1.1	49.0	49.0	47.0	1.98	24.694		
600.0	600.0	599.5	599.5	1.2	1.2	88.72	1.1	49.0	49.0	46.6	2.43	20.133		
700.0	700.0	699.5	699.5	1.4	1.4	88.72	1.1	49.0	49.0	46.1	2.88	16.994		
800.0	800.0	799.5	799.5	1.7	1.7	88.72	1.1	49.0	49.0	45.7	3.33	14.701		
900.0	900.0	899.5	899.5	1.9	1.9	88.72	1.1	49.0	49.0	45.2	3.78	12.954		
1,000.0	1,000.0	999.5	999.5	2.1	2.1	88.72	1.1	49.0	49.0	44.8	4.23	11.578		
1,100.0	1,100.0	1,099.5	1,099.5	2.3	2.3	88.72	1.1	49.0	49.0	44.3	4.68	10.466		
1,200.0	1,200.0	1,199.5	1,199.5	2.6	2.6	66.35	1.1	49.0	48.3	43.1	5.13	9.412		
1,300.0	1,299.8	1,299.3	1,299.3	2.8	2.8	72.31	1.1	49.0	46.4	40.8	5.58	8.325		
1,400.0	1,399.6	1,399.1	1,399.1	3.0	3.0	80.82	1.1	49.0	44.8	38.8	6.03	7.431		
1,500.0	1,499.4	1,498.9	1,498.9	3.2	3.2	89.76	1.1	49.0	44.2	37.7	6.48	6.819		
1,502.1	1,501.5	1,501.0	1,501.0	3.3	3.2	89.95	1.1	49.0	44.2	37.7	6.49	6.808 CC, ES		
1,600.0	1,599.1	1,598.1	1,598.1	3.5	3.4	100.68	-0.5	48.6	45.3	38.4	6.91	6.550 SF		
1,700.0	1,698.9	1,696.6	1,696.5	3.7	3.6	114.08	-5.4	47.2	49.7	42.4	7.32	6.793		
1,800.0	1,798.6	1,795.6	1,795.2	4.0	3.8	126.16	-12.1	45.5	57.7	50.0	7.73	7.467		
1,900.0	1,898.4	1,894.7	1,894.0	4.2	4.0	135.05	-18.8	43.7	67.7	59.5	8.14	8.308		
2,000.0	1,998.1	1,993.7	1,992.8	4.4	4.2	141.57	-25.4	41.9	78.8	70.2	8.56	9.207		
2,100.0	2,097.9	2,092.7	2,091.6	4.7	4.4	146.44	-32.1	40.1	90.7	81.7	8.97	10.105		
2,200.0	2,197.6	2,191.8	2,190.4	4.9	4.6	150.16	-38.8	38.3	103.1	93.7	9.39	10.973		
2,300.0	2,297.4	2,290.8	2,289.2	5.2	4.8	153.08	-45.5	36.5	115.8	106.0	9.82	11.798		
2,400.0	2,397.2	2,389.8	2,388.0	5.4	5.0	155.41	-52.1	34.8	128.8	118.5	10.24	12.575		
2,500.0	2,496.9	2,488.9	2,486.8	5.7	5.2	157.32	-58.8	33.0	141.9	131.2	10.67	13.303		
2,600.0	2,596.7	2,587.9	2,585.6	5.9	5.5	158.90	-65.5	31.2	155.2	144.1	11.10	13.984		
2,700.0	2,696.4	2,686.9	2,684.4	6.2	5.7	160.24	-72.2	29.4	168.5	157.0	11.53	14.620		
2,800.0	2,796.2	2,786.0	2,783.2	6.4	5.9	161.38	-78.8	27.6	181.9	170.0	11.96	15.214		
2,900.0	2,895.9	2,885.0	2,881.9	6.7	6.2	162.36	-85.5	25.9	195.4	183.1	12.39	15.770		
3,000.0	2,995.7	2,984.0	2,980.7	6.9	6.4	163.21	-92.2	24.1	209.0	196.2	12.83	16.290		
3,100.0	3,095.5	3,083.1	3,079.5	7.2	6.6	163.96	-98.9	22.3	222.6	209.3	13.27	16.776		
3,200.0	3,195.2	3,182.1	3,178.3	7.4	6.9	164.63	-105.5	20.5	236.2	222.5	13.71	17.233		
3,300.0	3,295.0	3,281.1	3,277.1	7.7	7.1	165.22	-112.2	18.7	249.8	235.7	14.15	17.662		
3,400.0	3,394.7	3,380.2	3,375.9	7.9	7.4	165.75	-118.9	16.9	263.5	248.9	14.59	18.065		
3,500.0	3,494.5	3,479.2	3,474.7	8.2	7.6	166.22	-125.6	15.2	277.2	262.2	15.03	18.445		
3,600.0	3,594.2	3,578.2	3,573.5	8.4	7.9	166.66	-132.2	13.4	290.9	275.4	15.47	18.803		
3,700.0	3,694.0	3,677.3	3,672.3	8.7	8.1	167.05	-138.9	11.6	304.6	288.7	15.92	19.141		
3,800.0	3,793.7	3,776.3	3,771.1	9.0	8.3	167.41	-145.6	9.8	318.4	302.0	16.36	19.461		
3,900.0	3,893.5	3,875.3	3,869.9	9.2	8.6	167.74	-152.3	8.0	332.1	315.3	16.80	19.764		
4,000.0	3,993.3	3,974.4	3,968.7	9.5	8.8	168.04	-158.9	6.2	345.9	328.6	17.25	20.051		
4,100.0	4,093.0	4,073.4	4,067.4	9.7	9.1	168.33	-165.6	4.5	359.6	341.9	17.70	20.323		
4,200.0	4,192.8	4,172.4	4,166.2	10.0	9.3	168.59	-172.3	2.7	373.4	355.3	18.14	20.582		
4,300.0	4,292.5	4,271.5	4,265.0	10.2	9.6	168.83	-179.0	0.9	387.2	368.6	18.59	20.828		
4,400.0	4,392.3	4,370.5	4,363.8	10.5	9.9	169.05	-185.6	-0.9	401.0	381.9	19.04	21.062		
4,500.0	4,492.0	4,469.5	4,462.6	10.7	10.1	169.26	-192.3	-2.7	414.8	395.3	19.49	21.286		
4,600.0	4,591.8	4,568.6	4,561.4	11.0	10.4	169.46	-199.0	-4.5	428.6	408.6	19.93	21.499		
4,700.0	4,691.6	4,667.6	4,660.2	11.2	10.6	169.64	-205.6	-6.2	442.4	422.0	20.38	21.703		
4,800.0	4,791.3	4,766.6	4,759.0	11.5	10.9	169.81	-212.3	-8.0	456.2	435.4	20.83	21.897		
4,900.0	4,891.1	4,865.7	4,857.8	11.8	11.1	169.98	-219.0	-9.8	470.0	448.7	21.28	22.084		
5,000.0	4,990.8	4,964.7	4,956.6	12.0	11.4	170.13	-225.7	-11.6	483.8	462.1	21.73	22.262		

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 #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21B-2809A - 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		
5,100.0	5,090.6	5,063.7	5,055.4	12.3	11.6	170.28	-232.3	-13.4	497.6	475.4	22.18	22.433		
5,200.0	5,190.3	5,162.8	5,154.2	12.5	11.9	170.41	-239.0	-15.1	511.4	488.8	22.63	22.597		
5,300.0	5,290.1	5,261.8	5,253.0	12.8	12.1	170.54	-245.7	-16.9	525.3	502.2	23.08	22.755		
5,400.0	5,389.9	5,338.7	5,329.7	13.0	12.3	170.64	-251.3	-18.4	540.0	516.5	23.49	22.990		
5,500.0	5,489.6	5,386.1	5,376.4	13.3	12.5	170.70	-258.4	-20.3	562.3	538.5	23.83	23.595		
5,600.0	5,588.9	5,430.5	5,419.5	13.6	12.7	170.31	-268.8	-23.1	596.7	572.9	23.86	25.008		
5,700.0	5,684.7	5,467.8	5,454.9	14.0	12.8	169.14	-280.2	-26.2	653.6	630.5	23.08	28.321		
5,800.0	5,773.3	5,500.0	5,484.7	14.6	13.0	166.88	-292.0	-29.3	729.2	707.5	21.64	33.694		
5,900.0	5,851.5	5,500.0	5,484.7	15.3	13.0	160.83	-292.0	-29.3	818.0	797.9	20.07	40.746		
6,000.0	5,916.4	5,523.6	5,506.0	16.2	13.1	143.96	-301.8	-31.9	913.9	892.3	21.53	42.440		
6,100.0	5,965.7	5,525.5	5,507.6	17.4	13.2	61.60	-302.6	-32.1	1,013.1	985.4	27.74	36.523		
6,200.0	5,997.5	5,521.0	5,503.7	18.6	13.1	20.26	-300.7	-31.6	1,111.6	1,097.1	14.48	76.740		
6,300.0	6,010.6	5,500.0	5,484.7	20.1	13.0	10.85	-292.0	-29.3	1,206.2	1,196.1	10.13	119.112		
6,400.0	6,011.0	5,500.0	5,484.7	21.5	13.0	4.85	-292.0	-29.3	1,296.9	1,288.0	8.90	145.677		
6,500.0	6,011.0	5,500.0	5,484.7	22.8	13.0	-2.19	-292.0	-29.3	1,388.9	1,379.8	9.06	153.328		
6,600.0	6,011.0	5,478.2	5,464.6	24.3	12.9	-9.37	-283.8	-27.1	1,481.2	1,470.1	11.11	133.286		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21B-2810B - 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	132.40	-75.1	82.2	111.3					
100.0	100.0	99.5	99.5	0.1	0.1	132.40	-75.1	82.2	111.3	111.1	0.19	596.334		
200.0	200.0	199.5	199.5	0.3	0.3	132.40	-75.1	82.2	111.3	110.7	0.64	175.138		
300.0	300.0	299.5	299.5	0.5	0.5	132.40	-75.1	82.2	111.3	110.2	1.09	102.580		
400.0	400.0	399.5	399.5	0.8	0.8	132.40	-75.1	82.2	111.3	109.8	1.53	72.531		
500.0	500.0	499.5	499.5	1.0	1.0	132.40	-75.1	82.2	111.3	109.3	1.98	56.098		
600.0	600.0	599.5	599.5	1.2	1.2	132.40	-75.1	82.2	111.3	108.9	2.43	45.736		
700.0	700.0	699.5	699.5	1.4	1.4	132.40	-75.1	82.2	111.3	108.4	2.88	38.605	CC, ES	
800.0	800.0	796.8	796.8	1.7	1.6	132.99	-76.7	82.3	112.5	109.2	3.30	34.098		
900.0	900.0	893.9	893.8	1.9	1.8	134.71	-81.6	82.4	116.2	112.5	3.70	31.394		
1,000.0	1,000.0	993.5	993.1	2.1	2.0	136.95	-88.5	82.7	121.3	117.2	4.12	29.455		
1,100.0	1,100.0	1,093.2	1,092.6	2.3	2.2	139.01	-95.5	83.0	126.7	122.2	4.55	27.839		
1,200.0	1,200.0	1,192.9	1,192.0	2.6	2.4	117.20	-102.4	83.3	133.0	128.0	4.98	26.736		
1,300.0	1,299.8	1,292.1	1,291.0	2.8	2.7	120.61	-109.4	83.5	141.3	135.9	5.41	26.133		
1,400.0	1,399.6	1,391.2	1,389.9	3.0	2.9	124.30	-116.3	83.8	151.1	145.2	5.84	25.850		
1,500.0	1,499.4	1,490.3	1,488.7	3.2	3.1	127.53	-123.2	84.1	161.4	155.1	6.28	25.678		
1,600.0	1,599.1	1,589.4	1,587.5	3.5	3.4	130.37	-130.1	84.4	172.1	165.4	6.73	25.585		
1,700.0	1,698.9	1,688.5	1,686.4	3.7	3.6	132.88	-137.0	84.6	183.2	176.1	7.17	25.547	SF	
1,800.0	1,798.6	1,787.5	1,785.2	4.0	3.9	135.09	-143.9	84.9	194.7	187.0	7.62	25.550		
1,900.0	1,898.4	1,886.6	1,884.0	4.2	4.1	137.06	-150.8	85.2	206.3	198.3	8.07	25.581		
2,000.0	1,998.1	1,985.7	1,982.9	4.4	4.4	138.82	-157.7	85.4	218.3	209.7	8.52	25.631		
2,100.0	2,097.9	2,084.8	2,081.7	4.7	4.6	140.39	-164.6	85.7	230.3	221.4	8.96	25.694		
2,200.0	2,197.6	2,183.8	2,180.6	4.9	4.9	141.81	-171.5	86.0	242.6	233.2	9.41	25.765		
2,300.0	2,297.4	2,282.9	2,279.4	5.2	5.1	143.09	-178.4	86.2	254.9	245.1	9.87	25.842		
2,400.0	2,397.2	2,382.0	2,378.2	5.4	5.4	144.25	-185.3	86.5	267.4	257.1	10.32	25.922		
2,500.0	2,496.9	2,481.1	2,477.1	5.7	5.6	145.31	-192.2	86.8	280.0	269.2	10.77	26.003		
2,600.0	2,596.7	2,580.2	2,575.9	5.9	5.9	146.28	-199.1	87.1	292.7	281.5	11.22	26.084		
2,700.0	2,696.4	2,679.2	2,674.7	6.2	6.1	147.17	-206.0	87.3	305.4	293.8	11.67	26.164		
2,800.0	2,796.2	2,778.3	2,773.6	6.4	6.4	147.98	-213.0	87.6	318.2	306.1	12.13	26.243		
2,900.0	2,895.9	2,877.4	2,872.4	6.7	6.7	148.73	-219.9	87.9	331.1	318.5	12.58	26.320		
3,000.0	2,895.7	2,876.5	2,871.3	6.9	6.9	149.43	-226.8	88.1	344.0	331.0	13.03	26.395		
3,100.0	3,095.5	3,075.6	3,070.1	7.2	7.2	150.08	-233.7	88.4	357.0	343.5	13.49	26.467		
3,200.0	3,195.2	3,174.6	3,168.9	7.4	7.4	150.68	-240.6	88.7	370.0	356.1	13.94	26.538		
3,300.0	3,295.0	3,273.7	3,267.8	7.7	7.7	151.24	-247.5	89.0	383.1	368.7	14.40	26.606		
3,400.0	3,394.7	3,372.8	3,366.6	7.9	8.0	151.76	-254.4	89.2	396.1	381.3	14.85	26.671		
3,500.0	3,494.5	3,471.9	3,465.4	8.2	8.2	152.25	-261.3	89.5	409.3	394.0	15.31	26.735		
3,600.0	3,594.2	3,570.9	3,564.3	8.4	8.5	152.71	-268.2	89.8	422.4	406.6	15.76	26.796		
3,700.0	3,694.0	3,670.0	3,663.1	8.7	8.7	153.14	-275.1	90.0	435.6	419.3	16.22	26.854		
3,800.0	3,793.7	3,769.1	3,761.9	9.0	9.0	153.54	-282.0	90.3	448.8	432.1	16.68	26.911		
3,900.0	3,893.5	3,868.2	3,860.8	9.2	9.3	153.93	-288.9	90.6	462.0	444.8	17.13	26.965		
4,000.0	3,993.3	3,967.3	3,959.6	9.5	9.5	154.29	-295.8	90.9	475.2	457.6	17.59	27.018		
4,100.0	4,093.0	4,066.3	4,058.5	9.7	9.8	154.63	-302.7	91.1	488.4	470.4	18.04	27.069		
4,200.0	4,192.8	4,165.4	4,157.3	10.0	10.0	154.96	-309.6	91.4	501.7	483.2	18.50	27.117		
4,300.0	4,292.5	4,264.5	4,256.1	10.2	10.3	155.26	-316.5	91.7	515.0	496.0	18.96	27.164		
4,400.0	4,392.3	4,363.6	4,355.0	10.5	10.6	155.55	-323.4	91.9	528.3	508.8	19.41	27.210		
4,500.0	4,492.0	4,462.6	4,453.8	10.7	10.8	155.83	-330.4	92.2	541.6	521.7	19.87	27.253		
4,600.0	4,591.8	4,561.7	4,552.6	11.0	11.1	156.10	-337.3	92.5	554.9	534.5	20.33	27.295		
4,700.0	4,691.6	4,660.8	4,651.5	11.2	11.3	156.35	-344.2	92.7	568.2	547.4	20.79	27.336		
4,800.0	4,791.3	4,759.9	4,750.3	11.5	11.6	156.59	-351.1	93.0	581.5	560.3	21.24	27.375		
4,900.0	4,891.1	4,859.0	4,849.1	11.8	11.9	156.82	-358.0	93.3	594.9	573.2	21.70	27.413		
5,000.0	4,990.8	4,958.0	4,948.0	12.0	12.1	157.04	-364.9	93.6	608.2	586.1	22.16	27.450		
5,100.0	5,090.6	5,057.1	5,046.8	12.3	12.4	157.25	-371.8	93.8	621.6	599.0	22.62	27.485		

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 #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21B-2810B - 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	5,156.2	5,145.7	12.5	12.6	157.45	-378.7	94.1	635.0	611.9	23.07	27.520		
5,300.0	5,290.1	5,255.3	5,244.5	12.8	12.9	157.64	-385.6	94.4	648.4	624.8	23.53	27.553		
5,400.0	5,389.9	5,354.3	5,343.3	13.0	13.2	157.83	-392.5	94.6	661.7	637.7	23.99	27.585		
5,500.0	5,489.6	5,425.9	5,414.7	13.3	13.4	157.95	-397.9	94.9	676.1	651.7	24.39	27.724		
5,600.0	5,588.9	5,467.7	5,455.9	13.6	13.5	157.28	-404.2	95.1	700.9	676.5	24.43	28.692		
5,700.0	5,684.7	5,500.0	5,487.5	14.0	13.6	155.15	-411.3	95.4	748.0	724.2	23.81	31.419		
5,800.0	5,773.3	5,533.8	5,519.9	14.6	13.8	151.27	-420.8	95.8	814.6	791.7	22.90	35.580		
5,900.0	5,851.5	5,550.0	5,535.2	15.3	13.9	143.45	-426.1	96.0	895.8	873.2	22.60	39.636		
6,000.0	5,916.4	5,567.7	5,551.8	16.2	14.0	127.84	-432.5	96.2	986.6	961.4	25.18	39.184		
6,100.0	5,965.7	5,573.2	5,556.8	17.4	14.0	94.53	-434.5	96.3	1,082.4	1,051.3	31.12	34.781		
6,200.0	5,997.5	5,572.2	5,555.9	18.6	14.0	54.48	-434.1	96.3	1,179.2	1,151.9	27.33	43.153		
6,300.0	6,010.6	5,550.0	5,535.2	20.1	13.9	31.22	-426.1	96.0	1,273.9	1,254.9	18.99	67.095		
6,400.0	6,011.0	5,550.0	5,535.2	21.5	13.9	23.91	-426.1	96.0	1,365.4	1,349.0	16.42	83.166		
6,500.0	6,011.0	5,550.0	5,535.2	22.8	13.9	16.61	-426.1	96.0	1,458.7	1,444.9	13.81	105.636		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21B-2811A - 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	89.47	1.1	115.1	115.1					
100.0	100.0	99.5	99.5	0.1	0.1	89.47	1.1	115.1	115.1	114.9	0.19	616.827		
200.0	200.0	199.5	199.5	0.3	0.3	89.47	1.1	115.1	115.1	114.5	0.64	181.157		
300.0	300.0	299.5	299.5	0.5	0.5	89.47	1.1	115.1	115.1	114.0	1.09	106.105		
400.0	400.0	399.5	399.5	0.8	0.8	89.47	1.1	115.1	115.1	113.6	1.53	75.023		
500.0	500.0	499.5	499.5	1.0	1.0	89.47	1.1	115.1	115.1	113.1	1.98	58.026	CC, ES	
600.0	600.0	598.4	598.3	1.2	1.2	90.27	-0.5	115.6	115.6	113.2	2.40	48.075		
700.0	700.0	697.0	696.8	1.4	1.4	92.65	-5.4	117.1	117.2	114.4	2.82	41.629		
800.0	800.0	796.7	796.3	1.7	1.6	95.79	-12.1	119.1	119.7	116.5	3.25	36.837		
900.0	900.0	896.5	895.8	1.9	1.8	98.80	-18.7	121.1	122.6	118.9	3.70	33.137		
1,000.0	1,000.0	996.2	995.3	2.1	2.0	101.66	-25.4	123.1	125.7	121.6	4.16	30.247		
1,100.0	1,100.0	1,096.0	1,094.8	2.3	2.3	104.38	-32.1	125.1	129.2	124.6	4.62	27.960		
1,200.0	1,200.0	1,195.6	1,194.2	2.6	2.5	83.37	-38.7	127.1	132.7	127.7	5.05	26.294		
1,300.0	1,299.8	1,294.9	1,293.3	2.8	2.8	87.87	-45.4	129.1	136.5	131.0	5.50	24.833		
1,400.0	1,399.6	1,394.1	1,392.2	3.0	3.0	92.86	-52.0	131.0	141.2	135.3	5.95	23.743		
1,500.0	1,499.4	1,493.2	1,491.1	3.2	3.3	97.51	-58.6	133.0	146.9	140.5	6.40	22.957		
1,600.0	1,599.1	1,592.4	1,590.1	3.5	3.5	101.78	-65.2	135.0	153.5	146.6	6.85	22.403		
1,700.0	1,698.9	1,691.5	1,689.0	3.7	3.8	105.69	-71.9	137.0	160.9	153.6	7.30	22.024		
1,800.0	1,798.6	1,790.7	1,787.9	4.0	4.0	109.24	-78.5	139.0	169.0	161.2	7.76	21.777		
1,900.0	1,898.4	1,889.8	1,886.8	4.2	4.3	112.46	-85.1	141.0	177.6	169.4	8.21	21.629		
2,000.0	1,998.1	1,989.0	1,985.7	4.4	4.5	115.38	-91.7	143.0	186.8	178.1	8.67	21.554		
2,100.0	2,097.9	2,088.1	2,084.6	4.7	4.8	118.02	-98.4	144.9	196.4	187.3	9.12	21.534	SF	
2,200.0	2,197.6	2,187.3	2,183.5	4.9	5.1	120.41	-105.0	146.9	206.4	196.8	9.58	21.554		
2,300.0	2,297.4	2,286.4	2,282.4	5.2	5.3	122.57	-111.6	148.9	216.7	206.7	10.03	21.604		
2,400.0	2,397.2	2,385.6	2,381.3	5.4	5.6	124.54	-118.2	150.9	227.3	216.8	10.49	21.676		
2,500.0	2,496.9	2,484.7	2,480.2	5.7	5.8	126.34	-124.9	152.9	238.1	227.2	10.94	21.763		
2,600.0	2,596.7	2,583.8	2,579.1	5.9	6.1	127.97	-131.5	154.9	249.2	237.8	11.40	21.861		
2,700.0	2,696.4	2,683.0	2,678.0	6.2	6.4	129.47	-138.1	156.9	260.4	248.6	11.86	21.966		
2,800.0	2,796.2	2,782.1	2,776.9	6.4	6.6	130.84	-144.7	158.9	271.8	259.5	12.31	22.076		
2,900.0	2,895.9	2,881.3	2,875.8	6.7	6.9	132.10	-151.4	160.8	283.4	270.6	12.77	22.188		
3,000.0	2,995.7	2,980.4	2,974.7	6.9	7.1	133.27	-158.0	162.8	295.0	281.8	13.23	22.302		
3,100.0	3,095.5	3,079.6	3,073.6	7.2	7.4	134.34	-164.6	164.8	306.8	293.1	13.69	22.415		
3,200.0	3,195.2	3,178.7	3,172.5	7.4	7.7	135.33	-171.2	166.8	318.7	304.5	14.15	22.528		
3,300.0	3,295.0	3,277.9	3,271.4	7.7	7.9	136.26	-177.9	168.8	330.6	316.0	14.60	22.639		
3,400.0	3,394.7	3,377.0	3,370.3	7.9	8.2	137.12	-184.5	170.8	342.7	327.6	15.06	22.748		
3,500.0	3,494.5	3,476.2	3,469.2	8.2	8.4	137.92	-191.1	172.8	354.8	339.3	15.52	22.854		
3,600.0	3,594.2	3,575.3	3,568.1	8.4	8.7	138.67	-197.7	174.8	367.0	351.0	15.98	22.958		
3,700.0	3,694.0	3,674.5	3,667.0	8.7	9.0	139.36	-204.4	176.7	379.2	362.7	16.44	23.060		
3,800.0	3,793.7	3,773.6	3,765.9	9.0	9.2	140.02	-211.0	178.7	391.5	374.6	16.90	23.159		
3,900.0	3,893.5	3,872.7	3,864.9	9.2	9.5	140.64	-217.6	180.7	403.8	386.4	17.36	23.255		
4,000.0	3,993.3	3,971.9	3,963.8	9.5	9.7	141.22	-224.2	182.7	416.2	398.3	17.82	23.348		
4,100.0	4,093.0	4,071.0	4,062.7	9.7	10.0	141.76	-230.9	184.7	428.6	410.3	18.29	23.438		
4,200.0	4,192.8	4,170.2	4,161.6	10.0	10.3	142.28	-237.5	186.7	441.0	422.3	18.75	23.526		
4,300.0	4,292.5	4,269.3	4,260.5	10.2	10.5	142.76	-244.1	188.7	453.5	434.3	19.21	23.611		
4,400.0	4,392.3	4,368.5	4,359.4	10.5	10.8	143.23	-250.7	190.6	466.0	446.4	19.67	23.694		
4,500.0	4,492.0	4,467.6	4,458.3	10.7	11.1	143.66	-257.4	192.6	478.6	458.4	20.13	23.773		
4,600.0	4,591.8	4,566.8	4,557.2	11.0	11.3	144.08	-264.0	194.6	491.1	470.6	20.59	23.851		
4,700.0	4,691.6	4,665.9	4,656.1	11.2	11.6	144.47	-270.6	196.6	503.7	482.7	21.05	23.926		
4,800.0	4,791.3	4,765.1	4,755.0	11.5	11.8	144.85	-277.2	198.6	516.4	494.8	21.52	23.998		
4,900.0	4,891.1	4,864.2	4,853.9	11.8	12.1	145.20	-283.8	200.6	529.0	507.0	21.98	24.069		
5,000.0	4,990.8	4,963.3	4,952.8	12.0	12.4	145.54	-290.5	202.6	541.6	519.2	22.44	24.137		
5,100.0	5,090.6	5,062.5	5,051.7	12.3	12.6	145.87	-297.1	204.6	554.3	531.4	22.90	24.203		

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 #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21B-2811A - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance				Total		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	Separation Factor		
5,200.0	5,190.3	5,161.6	5,150.6	12.5	12.9	146.18	-303.7	206.5	567.0	543.6	23.37	24.268		
5,300.0	5,290.1	5,260.8	5,249.5	12.8	13.2	146.47	-310.3	208.5	579.7	555.9	23.83	24.330		
5,400.0	5,389.9	5,338.7	5,327.2	13.0	13.4	146.69	-315.9	210.2	593.2	568.9	24.24	24.466		
5,500.0	5,489.6	5,384.3	5,372.3	13.3	13.5	146.77	-322.4	212.1	613.7	589.1	24.60	24.952		
5,600.0	5,588.9	5,427.4	5,414.2	13.6	13.7	145.44	-332.0	215.0	645.4	620.7	24.72	26.114		
5,700.0	5,684.7	5,464.6	5,449.6	14.0	13.9	141.91	-342.9	218.3	697.4	673.0	24.42	28.556		
5,800.0	5,773.3	5,500.0	5,482.4	14.6	14.1	135.98	-355.5	222.1	766.6	742.3	24.25	31.609		
5,900.0	5,851.5	5,500.0	5,482.4	15.3	14.1	123.86	-355.5	222.1	848.4	823.0	25.44	33.355		
6,000.0	5,916.4	5,526.9	5,506.8	16.2	14.2	106.32	-366.6	225.4	937.4	908.9	28.57	32.814		
6,100.0	5,965.7	5,531.9	5,511.2	17.4	14.3	79.43	-368.7	226.0	1,030.4	999.7	30.78	33.476		
6,200.0	5,997.5	5,530.4	5,509.9	18.6	14.3	53.89	-368.1	225.8	1,123.4	1,096.3	27.12	41.428		
6,300.0	6,010.6	5,523.4	5,503.6	20.1	14.2	37.14	-365.0	224.9	1,213.4	1,191.8	21.59	56.202		
6,400.0	6,011.0	5,500.0	5,482.4	21.5	14.1	29.73	-355.5	222.1	1,301.1	1,281.9	19.13	68.015		
6,500.0	6,011.0	5,500.0	5,482.4	22.8	14.1	24.29	-355.5	222.1	1,390.8	1,373.4	17.43	79.781		
6,600.0	6,011.0	5,500.0	5,482.4	24.3	14.1	17.77	-355.5	222.1	1,482.7	1,467.5	15.13	98.010		

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21B-2812B - 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	116.84	-75.1	148.3	166.2					
100.0	100.0	99.5	99.5	0.1	0.1	116.84	-75.1	148.3	166.2	166.1	0.19	890.665		
200.0	200.0	199.5	199.5	0.3	0.3	116.84	-75.1	148.3	166.2	165.6	0.64	261.581		
300.0	300.0	299.5	299.5	0.5	0.5	116.84	-75.1	148.3	166.2	165.2	1.09	153.210		
400.0	400.0	399.5	399.5	0.8	0.8	116.84	-75.1	148.3	166.2	164.7	1.53	108.330		
500.0	500.0	499.5	499.5	1.0	1.0	116.84	-75.1	148.3	166.2	164.3	1.98	83.786		
600.0	600.0	599.5	599.5	1.2	1.2	116.84	-75.1	148.3	166.2	163.8	2.43	68.309		
700.0	700.0	699.5	699.5	1.4	1.4	116.84	-75.1	148.3	166.2	163.4	2.88	57.659		
800.0	800.0	799.5	799.5	1.7	1.7	116.84	-75.1	148.3	166.2	162.9	3.33	49.882		
900.0	900.0	899.5	899.5	1.9	1.9	116.84	-75.1	148.3	166.2	162.5	3.78	43.953 CC, ES		
1,000.0	1,000.0	995.0	994.9	2.1	2.1	117.15	-76.4	149.1	167.6	163.4	4.20	39.941		
1,100.0	1,100.0	1,090.2	1,090.0	2.3	2.3	118.05	-80.6	151.3	171.7	167.1	4.59	37.378		
1,200.0	1,200.0	1,189.3	1,189.0	2.6	2.4	95.48	-86.7	154.6	177.7	172.7	5.01	35.496		
1,300.0	1,299.8	1,288.7	1,288.1	2.8	2.7	98.11	-92.8	157.8	184.3	178.9	5.42	33.990		
1,400.0	1,399.6	1,388.0	1,387.1	3.0	2.9	101.18	-98.9	161.1	191.7	185.8	5.85	32.772		
1,500.0	1,499.4	1,487.2	1,486.1	3.2	3.1	104.02	-105.0	164.4	199.6	193.3	6.28	31.760		
1,600.0	1,599.1	1,586.4	1,585.0	3.5	3.3	106.64	-111.1	167.6	207.9	201.2	6.72	30.920		
1,700.0	1,698.9	1,685.6	1,684.0	3.7	3.5	109.05	-117.2	170.9	216.6	209.5	7.17	30.220		
1,800.0	1,798.6	1,784.8	1,783.0	4.0	3.8	111.27	-123.3	174.1	225.7	218.1	7.62	29.635		
1,900.0	1,898.4	1,884.0	1,882.0	4.2	4.0	113.32	-129.4	177.4	235.1	227.0	8.07	29.146		
2,000.0	1,998.1	1,983.3	1,980.9	4.4	4.3	115.21	-135.6	180.7	244.8	236.3	8.52	28.734		
2,100.0	2,097.9	2,082.5	2,079.9	4.7	4.5	116.96	-141.7	183.9	254.7	245.7	8.97	28.386		
2,200.0	2,197.6	2,181.7	2,178.9	4.9	4.8	118.58	-147.8	187.2	264.8	255.4	9.43	28.091		
2,300.0	2,297.4	2,280.9	2,277.9	5.2	5.0	120.07	-153.9	190.4	275.2	265.3	9.88	27.840		
2,400.0	2,397.2	2,380.1	2,376.8	5.4	5.3	121.46	-160.0	193.7	285.7	275.3	10.34	27.625		
2,500.0	2,496.9	2,479.3	2,475.8	5.7	5.5	122.75	-166.1	197.0	296.3	285.5	10.80	27.441		
2,600.0	2,596.7	2,578.5	2,574.8	5.9	5.8	123.95	-172.2	200.2	307.1	295.9	11.26	27.282		
2,700.0	2,696.4	2,677.8	2,673.8	6.2	6.0	125.06	-178.3	203.5	318.1	306.3	11.72	27.145		
2,800.0	2,796.2	2,777.0	2,772.7	6.4	6.3	126.11	-184.4	206.8	329.1	316.9	12.18	27.026		
2,900.0	2,895.9	2,876.2	2,871.7	6.7	6.5	127.08	-190.5	210.0	340.2	327.6	12.64	26.923		
3,000.0	2,995.7	2,975.4	2,970.7	6.9	6.8	128.00	-196.6	213.3	351.5	338.4	13.10	26.833		
3,100.0	3,095.5	3,074.6	3,069.7	7.2	7.0	128.85	-202.7	216.5	362.8	349.2	13.56	26.755		
3,200.0	3,195.2	3,173.8	3,168.6	7.4	7.3	129.66	-208.8	219.8	374.1	360.1	14.02	26.686		
3,300.0	3,295.0	3,273.1	3,267.6	7.7	7.5	130.41	-214.9	223.1	385.6	371.1	14.48	26.626		
3,400.0	3,394.7	3,372.3	3,366.6	7.9	7.8	131.13	-221.0	226.3	397.1	382.2	14.94	26.573		
3,500.0	3,494.5	3,471.5	3,465.6	8.2	8.1	131.80	-227.1	229.6	408.7	393.3	15.41	26.527		
3,600.0	3,594.2	3,570.7	3,564.5	8.4	8.3	132.44	-233.2	232.8	420.3	404.4	15.87	26.486		
3,700.0	3,694.0	3,669.9	3,663.5	8.7	8.6	133.04	-239.3	236.1	432.0	415.7	16.33	26.450		
3,800.0	3,793.7	3,769.1	3,762.5	9.0	8.8	133.61	-245.4	239.4	443.7	426.9	16.80	26.418		
3,900.0	3,893.5	3,868.4	3,861.5	9.2	9.1	134.15	-251.5	242.6	455.5	438.2	17.26	26.390		
4,000.0	3,993.3	3,967.6	3,960.4	9.5	9.3	134.67	-257.6	245.9	467.3	449.6	17.72	26.365		
4,100.0	4,093.0	4,066.8	4,059.4	9.7	9.6	135.15	-263.7	249.2	479.1	460.9	18.19	26.343		
4,200.0	4,192.8	4,166.0	4,158.4	10.0	9.9	135.62	-269.8	252.4	491.0	472.3	18.65	26.324		
4,300.0	4,292.5	4,265.2	4,257.4	10.2	10.1	136.06	-275.9	255.7	502.9	483.8	19.12	26.307		
4,400.0	4,392.3	4,364.4	4,356.3	10.5	10.4	136.48	-282.1	258.9	514.8	495.2	19.58	26.292		
4,500.0	4,492.0	4,463.7	4,455.3	10.7	10.6	136.89	-288.2	262.2	526.8	506.7	20.05	26.278		
4,600.0	4,591.8	4,562.9	4,554.3	11.0	10.9	137.27	-294.3	265.5	538.7	518.2	20.51	26.267		
4,700.0	4,691.6	4,662.1	4,653.3	11.2	11.2	137.64	-300.4	268.7	550.7	529.8	20.98	26.256		
4,800.0	4,791.3	4,761.3	4,752.2	11.5	11.4	137.99	-306.5	272.0	562.8	541.3	21.44	26.247		
4,900.0	4,891.1	4,860.5	4,851.2	11.8	11.7	138.33	-312.6	275.2	574.8	552.9	21.91	26.239		
5,000.0	4,990.8	4,959.7	4,950.2	12.0	11.9	138.66	-318.7	278.5	586.9	564.5	22.37	26.233		
5,100.0	5,090.6	5,059.0	5,049.1	12.3	12.2	138.97	-324.8	281.8	598.9	576.1	22.84	26.227		

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 #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21B-2812B - 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	5,158.2	5,148.1	12.5	12.5	139.27	-330.9	285.0	611.0	587.7	23.30	26.221	
5,300.0	5,290.1	5,257.4	5,247.1	12.8	12.7	139.56	-337.0	288.3	623.1	599.4	23.77	26.217	
5,400.0	5,389.9	5,356.6	5,346.1	13.0	13.0	139.83	-343.1	291.6	635.3	611.0	24.23	26.213	SF
5,500.0	5,489.6	5,427.5	5,416.7	13.3	13.2	140.01	-347.9	294.1	648.5	623.9	24.64	26.322	
5,600.0	5,588.9	5,470.9	5,459.6	13.6	13.3	138.91	-353.9	297.3	671.9	647.1	24.80	27.094	
5,700.0	5,684.7	5,500.0	5,488.0	14.0	13.4	135.62	-359.6	300.4	715.3	690.7	24.62	29.051	
5,800.0	5,773.3	5,550.0	5,535.7	14.6	13.7	130.75	-372.7	307.4	776.1	751.5	24.60	31.544	
5,900.0	5,851.5	5,565.8	5,550.4	15.3	13.8	121.62	-377.7	310.0	850.3	824.9	25.47	33.382	
6,000.0	5,916.4	5,581.8	5,565.2	16.2	13.9	107.56	-383.2	313.0	933.9	906.0	27.86	33.522	
6,100.0	5,965.7	5,600.0	5,581.8	17.4	14.0	88.77	-389.8	316.5	1,022.7	992.2	30.47	33.561	
6,200.0	5,997.5	5,600.0	5,581.8	18.6	14.0	66.58	-389.8	316.5	1,112.8	1,083.1	29.74	37.420	
6,300.0	6,010.6	5,600.0	5,581.8	20.1	14.0	48.92	-389.8	316.5	1,201.4	1,175.6	25.78	46.599	
6,400.0	6,011.0	5,579.7	5,563.3	21.5	13.8	41.50	-382.4	312.6	1,288.2	1,264.2	24.02	53.637	
6,500.0	6,011.0	5,571.7	5,555.9	22.8	13.8	36.01	-379.7	311.1	1,378.3	1,355.6	22.70	60.721	
6,600.0	6,011.0	5,550.0	5,535.7	24.3	13.7	28.33	-372.7	307.4	1,470.8	1,450.8	20.05	73.359	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21C-0908B - HZ - Plan #2													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
0.0	0.0	6.7	6.7	0.0	0.0	-91.12	-26.2	-1,342.2	1,342.5					
100.0	100.0	106.7	106.7	0.1	0.1	-91.12	-26.2	-1,342.2	1,342.5	1,342.3	0.20	6,658.881		
200.0	200.0	206.7	206.7	0.3	0.3	-91.12	-26.2	-1,342.2	1,342.5	1,341.8	0.65	2,061.718		
300.0	300.0	306.7	306.7	0.5	0.6	-91.12	-26.2	-1,342.2	1,342.5	1,341.4	1.10	1,219.677		
400.0	400.0	406.7	406.7	0.8	0.8	-91.12	-26.2	-1,342.2	1,342.5	1,340.9	1.55	865.991		
500.0	500.0	506.7	506.7	1.0	1.0	-91.12	-26.2	-1,342.2	1,342.5	1,340.5	2.00	671.320		
600.0	600.0	606.7	606.7	1.2	1.2	-91.12	-26.2	-1,342.2	1,342.5	1,340.0	2.45	548.107		
700.0	700.0	706.7	706.7	1.4	1.5	-91.12	-26.2	-1,342.2	1,342.5	1,339.6	2.90	463.109		
800.0	800.0	806.7	806.7	1.7	1.7	-91.12	-26.2	-1,342.2	1,342.5	1,339.1	3.35	400.934		
900.0	900.0	906.7	906.7	1.9	1.9	-91.12	-26.2	-1,342.2	1,342.5	1,338.7	3.80	353.478		
1,000.0	1,000.0	1,006.7	1,006.7	2.1	2.1	-91.12	-26.2	-1,342.2	1,342.5	1,338.2	4.25	316.067		
1,100.0	1,100.0	1,108.4	1,108.4	2.3	2.4	-91.12	-26.2	-1,342.2	1,342.5	1,337.8	4.70	285.594		
1,200.0	1,200.0	1,233.3	1,233.3	2.6	2.6	-115.34	-23.4	-1,340.9	1,342.1	1,336.9	5.20	258.067		
1,299.1	1,298.9	1,345.7	1,345.4	2.8	2.9	-115.30	-16.9	-1,338.0	1,341.7	1,336.0	5.67	236.648		
1,300.0	1,299.8	1,346.6	1,346.3	2.8	2.9	-115.30	-16.9	-1,338.0	1,341.7	1,336.0	5.67	236.474		
1,400.0	1,399.6	1,446.6	1,446.1	3.0	3.1	-115.30	-10.5	-1,335.2	1,341.7	1,335.6	6.13	219.019		
1,500.0	1,499.4	1,546.6	1,545.9	3.2	3.4	-115.30	-4.1	-1,332.3	1,341.7	1,335.1	6.59	203.735		
1,600.0	1,599.1	1,646.6	1,645.6	3.5	3.6	-115.29	2.2	-1,329.5	1,341.7	1,334.7	7.05	190.285		
1,700.0	1,698.9	1,746.6	1,745.4	3.7	3.8	-115.29	8.6	-1,326.6	1,341.7	1,334.2	7.52	178.387		
1,800.0	1,798.6	1,846.6	1,845.1	4.0	4.1	-115.29	15.0	-1,323.8	1,341.8	1,333.8	8.00	167.805		
1,900.0	1,898.4	1,946.6	1,944.9	4.2	4.3	-115.29	21.3	-1,320.9	1,341.8	1,333.3	8.47	158.348		
2,000.0	1,998.1	2,046.6	2,044.6	4.4	4.6	-115.29	27.7	-1,318.1	1,341.8	1,332.8	8.95	149.852		
2,100.0	2,097.9	2,146.6	2,144.4	4.7	4.8	-115.29	34.1	-1,315.2	1,341.8	1,332.4	9.44	142.187		
2,200.0	2,197.6	2,246.6	2,244.1	4.9	5.1	-115.29	40.4	-1,312.4	1,341.8	1,331.9	9.92	135.240		
2,300.0	2,297.4	2,346.6	2,343.9	5.2	5.3	-115.29	46.8	-1,309.5	1,341.8	1,331.4	10.41	128.919		
2,400.0	2,397.2	2,446.6	2,443.7	5.4	5.5	-115.29	53.2	-1,306.7	1,341.8	1,330.9	10.90	123.146		
2,500.0	2,496.9	2,546.6	2,543.4	5.7	5.8	-115.29	59.5	-1,303.8	1,341.8	1,330.5	11.39	117.854		
2,600.0	2,596.7	2,646.6	2,643.2	5.9	6.0	-115.29	65.9	-1,301.0	1,341.9	1,330.0	11.88	112.988		
2,700.0	2,696.4	2,746.6	2,742.9	6.2	6.3	-115.29	72.3	-1,298.1	1,341.9	1,329.5	12.37	108.499		
2,800.0	2,796.2	2,846.6	2,842.7	6.4	6.5	-115.29	78.6	-1,295.3	1,341.9	1,329.0	12.86	104.345		
2,900.0	2,895.9	2,946.6	2,942.4	6.7	6.8	-115.29	85.0	-1,292.4	1,341.9	1,328.6	13.35	100.492		
3,000.0	2,995.7	3,046.6	3,042.2	6.9	7.0	-115.29	91.4	-1,289.6	1,341.9	1,328.1	13.85	96.909		
3,100.0	3,095.5	3,146.6	3,142.0	7.2	7.3	-115.29	97.7	-1,286.7	1,341.9	1,327.6	14.34	93.568		
3,200.0	3,195.2	3,246.6	3,241.7	7.4	7.6	-115.29	104.1	-1,283.9	1,341.9	1,327.1	14.84	90.447		
3,300.0	3,295.0	3,346.6	3,341.5	7.7	7.8	-115.29	110.5	-1,281.0	1,342.0	1,326.6	15.33	87.524		
3,400.0	3,394.7	3,446.6	3,441.2	7.9	8.1	-115.29	116.8	-1,278.2	1,342.0	1,326.1	15.83	84.782		
3,500.0	3,494.5	3,546.6	3,541.0	8.2	8.3	-115.29	123.2	-1,275.3	1,342.0	1,325.7	16.33	82.204		
3,600.0	3,594.2	3,646.6	3,640.7	8.4	8.6	-115.29	129.6	-1,272.5	1,342.0	1,325.2	16.82	79.777		
3,700.0	3,694.0	3,746.6	3,740.5	8.7	8.8	-115.29	135.9	-1,269.6	1,342.0	1,324.7	17.32	77.487		
3,800.0	3,793.7	3,846.6	3,840.3	9.0	9.1	-115.29	142.3	-1,266.7	1,342.0	1,324.2	17.82	75.324		
3,900.0	3,893.5	3,946.6	3,940.0	9.2	9.3	-115.29	148.7	-1,263.9	1,342.0	1,323.7	18.31	73.277		
4,000.0	3,993.3	4,046.6	4,039.8	9.5	9.6	-115.29	155.0	-1,261.0	1,342.1	1,323.2	18.81	71.337		
4,100.0	4,093.0	4,146.6	4,139.5	9.7	9.8	-115.29	161.4	-1,258.2	1,342.1	1,322.8	19.31	69.496		
4,200.0	4,192.8	4,246.6	4,239.3	10.0	10.1	-115.29	167.8	-1,255.3	1,342.1	1,322.3	19.81	67.748		
4,300.0	4,292.5	4,346.6	4,339.0	10.2	10.3	-115.29	174.1	-1,252.5	1,342.1	1,321.8	20.31	66.084		
4,400.0	4,392.3	4,446.6	4,438.8	10.5	10.6	-115.29	180.5	-1,249.6	1,342.1	1,321.3	20.81	64.500		
4,500.0	4,492.0	4,546.6	4,538.5	10.7	10.9	-115.29	186.9	-1,246.8	1,342.1	1,320.8	21.31	62.989		
4,600.0	4,591.8	4,646.6	4,638.3	11.0	11.1	-115.29	193.2	-1,243.9	1,342.1	1,320.3	21.81	61.547		
4,700.0	4,691.6	4,746.6	4,738.1	11.2	11.4	-115.29	199.6	-1,241.1	1,342.2	1,319.8	22.31	60.169		
4,800.0	4,791.3	4,846.6	4,837.8	11.5	11.6	-115.29	206.0	-1,238.2	1,342.2	1,319.4	22.81	58.851		
4,900.0	4,891.1	4,946.6	4,937.6	11.8	11.9	-115.29	212.3	-1,235.4	1,342.2	1,318.9	23.31	57.590		
5,000.0	4,990.8	5,046.6	5,037.3	12.0	12.1	-115.29	218.7	-1,232.5	1,342.2	1,318.4	23.81	56.381		

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 #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21C-0908B - HZ - Plan #2												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	5,146.6	5,137.1	12.3	12.4	-115.28	225.1	-1,229.7	1,342.2	1,317.9	24.31	55.221	
5,200.0	5,190.3	5,246.6	5,236.8	12.5	12.6	-115.28	231.4	-1,226.8	1,342.2	1,317.4	24.81	54.108	
5,300.0	5,290.1	5,346.6	5,336.6	12.8	12.9	-115.28	237.8	-1,224.0	1,342.2	1,316.9	25.31	53.039	
5,400.0	5,389.9	5,446.6	5,436.4	13.0	13.1	-115.28	244.2	-1,221.1	1,342.3	1,316.4	25.81	52.011	
5,500.0	5,489.6	5,546.6	5,536.4	13.3	20.8	-92.76	752.6	-993.7	1,325.0	1,290.2	34.76	38.120	
5,600.0	5,588.9	5,638.6	5,624.0	13.6	20.9	-95.03	758.7	-991.1	1,288.8	1,253.7	35.11	36.704	
5,700.0	5,684.7	5,734.6	5,724.0	14.0	21.1	-97.44	774.6	-984.4	1,260.9	1,225.2	35.71	35.315	
5,800.0	5,773.3	5,823.6	5,813.0	14.6	21.3	-98.90	787.7	-979.1	1,242.4	1,206.0	36.36	34.173	
5,900.0	5,851.5	5,901.6	5,891.0	15.3	22.0	-98.04	835.9	-960.3	1,232.6	1,194.9	37.79	32.614	
5,964.1	5,894.8	5,944.6	5,934.0	15.9	22.4	-97.32	862.8	-950.4	1,231.0	1,192.2	38.73	31.781 CC	
6,000.0	5,916.4	6,000.0	6,000.0	16.2	22.7	-96.72	881.3	-943.9	1,231.4	1,192.0	39.38	31.270	
6,100.0	5,965.7	6,055.4	6,045.0	17.4	23.4	-94.92	929.1	-928.1	1,237.3	1,196.1	41.21	30.024	
6,200.0	5,997.5	6,090.0	6,080.0	18.6	24.1	-92.88	976.6	-913.7	1,248.8	1,205.6	43.18	28.924	
6,300.0	6,010.6	6,106.1	6,096.0	20.1	25.1	-90.68	1,040.5	-896.5	1,264.6	1,219.1	45.48	27.808	
6,400.0	6,011.0	6,112.2	6,102.0	21.5	25.9	-90.29	1,098.0	-883.0	1,282.0	1,234.4	47.64	26.908	
6,500.0	6,011.0	6,118.0	6,108.0	22.8	27.1	-90.28	1,171.3	-868.5	1,297.6	1,247.6	49.98	25.961	
6,600.0	6,011.0	6,124.1	6,114.0	24.3	27.7	-90.28	1,213.8	-861.4	1,310.8	1,258.9	51.84	25.283	
6,700.0	6,011.0	6,130.0	6,120.0	25.7	28.6	-90.28	1,270.2	-853.6	1,321.9	1,268.0	53.90	24.524	
6,800.0	6,011.0	6,136.7	6,126.0	27.2	29.5	-90.27	1,330.5	-847.1	1,330.9	1,274.9	56.01	23.762	
6,900.0	6,011.0	6,143.0	6,133.0	28.8	30.1	-90.27	1,369.7	-843.9	1,338.0	1,280.3	57.71	23.184	
7,000.0	6,011.0	6,149.1	6,139.0	30.3	31.3	-90.27	1,447.7	-839.9	1,342.5	1,282.6	59.95	22.393	
7,100.0	6,011.0	6,155.4	6,145.0	31.9	32.3	-90.27	1,507.1	-839.0	1,345.0	1,283.3	61.79	21.769	
7,200.0	6,011.0	6,161.7	6,151.0	33.4	33.8	-90.27	1,607.1	-839.0	1,345.2	1,280.4	64.82	20.754	
7,300.0	6,011.0	6,168.0	6,158.0	35.0	35.4	-90.27	1,707.1	-839.0	1,345.2	1,277.1	68.11	19.751	
7,400.0	6,011.0	6,174.3	6,164.0	36.6	37.0	-90.27	1,807.1	-839.0	1,345.2	1,273.8	71.46	18.825	
7,500.0	6,011.0	6,180.6	6,170.0	38.3	38.7	-90.27	1,907.1	-839.0	1,345.2	1,270.4	74.85	17.971	
7,600.0	6,011.0	6,186.9	6,176.0	39.9	40.4	-90.27	2,007.1	-839.0	1,345.2	1,266.9	78.29	17.182	
7,700.0	6,011.0	6,193.2	6,183.0	41.6	42.1	-90.27	2,107.1	-839.0	1,345.2	1,263.4	81.76	16.452	
7,800.0	6,011.0	6,199.5	6,189.0	43.3	43.8	-90.27	2,207.1	-839.0	1,345.2	1,259.9	85.27	15.776	
7,900.0	6,011.0	6,205.8	6,195.0	45.1	45.5	-90.27	2,307.1	-839.0	1,345.2	1,256.4	88.80	15.149	
8,000.0	6,011.0	6,212.1	6,202.0	46.8	47.3	-90.27	2,407.1	-839.0	1,345.2	1,252.8	92.36	14.565	
8,100.0	6,011.0	6,218.4	6,208.0	48.6	49.0	-90.27	2,507.1	-839.0	1,345.2	1,249.2	95.94	14.021	
8,200.0	6,011.0	6,224.7	6,214.0	50.3	50.8	-90.27	2,607.1	-839.0	1,345.2	1,245.6	99.54	13.514	
8,300.0	6,011.0	6,231.0	6,221.0	52.1	52.6	-90.27	2,707.1	-838.9	1,345.2	1,242.0	103.15	13.041	
8,400.0	6,011.0	6,237.3	6,227.0	53.9	54.4	-90.27	2,807.1	-838.9	1,345.2	1,238.4	106.78	12.597	
8,500.0	6,011.0	6,243.6	6,233.0	55.7	56.2	-90.27	2,907.1	-838.9	1,345.2	1,234.7	110.43	12.181	
8,600.0	6,011.0	6,249.9	6,239.0	57.5	58.0	-90.27	3,007.1	-838.9	1,345.1	1,231.1	114.09	11.790	
8,700.0	6,011.0	6,256.2	6,246.0	59.3	59.8	-90.27	3,107.1	-838.9	1,345.1	1,227.4	117.76	11.423	
8,800.0	6,011.0	6,262.5	6,252.0	61.1	61.6	-90.27	3,207.1	-838.9	1,345.1	1,223.7	121.44	11.076	
8,900.0	6,011.0	6,268.8	6,258.0	63.0	63.4	-90.27	3,307.1	-838.9	1,345.1	1,220.0	125.13	10.749	
9,000.0	6,011.0	6,275.1	6,264.0	64.8	65.3	-90.27	3,407.1	-838.9	1,345.1	1,216.3	128.84	10.441	
9,100.0	6,011.0	6,281.4	6,270.0	66.6	67.1	-90.27	3,507.1	-838.9	1,345.1	1,212.6	132.54	10.148	
9,200.0	6,011.0	6,287.7	6,276.0	68.5	69.0	-90.27	3,607.1	-838.9	1,345.1	1,208.8	136.26	9.872	
9,300.0	6,011.0	6,294.0	6,282.0	70.3	70.8	-90.27	3,707.1	-838.9	1,345.1	1,205.1	139.98	9.609	
9,400.0	6,011.0	6,300.3	6,288.0	72.2	72.6	-90.27	3,807.1	-838.9	1,345.1	1,201.4	143.71	9.360	
9,500.0	6,011.0	6,306.6	6,294.0	74.0	74.5	-90.27	3,907.1	-838.9	1,345.1	1,197.6	147.45	9.123	
9,600.0	6,011.0	6,312.9	6,299.0	75.9	76.4	-90.27	4,007.1	-838.8	1,345.1	1,193.9	151.19	8.897	
9,700.0	6,011.0	6,319.2	6,304.0	77.7	78.2	-90.27	4,107.1	-838.8	1,345.1	1,190.1	154.93	8.682	
9,800.0	6,011.0	6,325.5	6,309.0	79.6	80.1	-90.27	4,207.1	-838.8	1,345.1	1,186.4	158.68	8.477	
9,900.0	6,011.0	6,331.8	6,314.0	81.5	81.9	-90.27	4,307.1	-838.8	1,345.1	1,182.6	162.44	8.281	
10,000.0	6,011.0	6,338.1	6,319.0	83.3	83.8	-90.27	4,407.1	-838.8	1,345.1	1,178.9	166.19	8.093	
10,100.0	6,011.0	6,344.4	6,324.0	85.2	85.7	-90.27	4,507.1	-838.8	1,345.0	1,175.1	169.96	7.914	

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 #21B-0912B
Project:	Weld County, CO	TVD Reference:	KB=17' @ 4854.3usft
Reference Site:	S21-T10N-R58W	MD Reference:	KB=17' @ 4854.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Razor #21B-0912B	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 #2	Offset TVD Reference:	Offset Datum

Offset Design S21-T10N-R58W - Razor #21C-0908B - HZ - Plan #2													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)						
10,200.0	6,011.0	10,237.4	6,024.0	87.1	87.6	-90.27	4,607.1	-838.8	1,345.0	1,171.3	173.72	7.743		
10,300.0	6,011.0	10,337.4	6,024.0	88.9	89.4	-90.27	4,707.1	-838.8	1,345.0	1,167.5	177.49	7.578		
10,400.0	6,011.0	10,437.4	6,024.0	90.8	91.3	-90.27	4,807.1	-838.8	1,345.0	1,163.8	181.26	7.420		
10,500.0	6,011.0	10,537.4	6,024.0	92.7	93.2	-90.27	4,907.1	-838.8	1,345.0	1,160.0	185.04	7.269		
10,600.0	6,011.0	10,637.4	6,024.0	94.6	95.1	-90.27	5,007.1	-838.8	1,345.0	1,156.2	188.81	7.123		
10,700.0	6,011.0	10,737.4	6,024.0	96.5	97.0	-90.27	5,107.1	-838.8	1,345.0	1,152.4	192.59	6.984		
10,800.0	6,011.0	10,837.4	6,024.0	98.3	98.8	-90.27	5,207.1	-838.8	1,345.0	1,148.6	196.38	6.849		
10,900.0	6,011.0	10,937.4	6,024.0	100.2	100.7	-90.27	5,307.1	-838.7	1,345.0	1,144.8	200.16	6.720		
11,000.0	6,011.0	11,037.4	6,024.0	102.1	102.6	-90.27	5,407.1	-838.7	1,345.0	1,141.0	203.95	6.595		
11,100.0	6,011.0	11,137.4	6,024.0	104.0	104.5	-90.27	5,507.1	-838.7	1,345.0	1,137.2	207.74	6.474		
11,200.0	6,011.0	11,237.4	6,024.0	105.9	106.4	-90.27	5,607.1	-838.7	1,345.0	1,133.4	211.53	6.358		
11,300.0	6,011.0	11,337.4	6,024.0	107.8	108.3	-90.27	5,707.1	-838.7	1,345.0	1,129.6	215.32	6.246		
11,400.0	6,011.0	11,437.4	6,024.0	109.7	110.2	-90.27	5,807.1	-838.7	1,345.0	1,125.8	219.12	6.138		
11,500.0	6,011.0	11,537.4	6,024.0	111.6	112.1	-90.27	5,907.1	-838.7	1,345.0	1,122.0	222.91	6.034		
11,600.0	6,011.0	11,637.4	6,024.0	113.4	114.0	-90.27	6,007.1	-838.7	1,345.0	1,118.2	226.71	5.932		
11,700.0	6,011.0	11,737.4	6,024.0	115.3	115.8	-90.27	6,107.1	-838.7	1,344.9	1,114.4	230.51	5.835		
11,800.0	6,011.0	11,837.4	6,024.0	117.2	117.7	-90.27	6,207.1	-838.7	1,344.9	1,110.6	234.31	5.740		
11,900.0	6,011.0	11,937.4	6,024.0	119.1	119.6	-90.27	6,307.1	-838.7	1,344.9	1,106.8	238.11	5.648		
12,000.0	6,011.0	12,037.4	6,024.0	121.0	121.5	-90.27	6,407.1	-838.7	1,344.9	1,103.0	241.92	5.559		
12,100.0	6,011.0	12,137.4	6,024.0	122.9	123.4	-90.27	6,507.1	-838.7	1,344.9	1,099.2	245.72	5.473		
12,200.0	6,011.0	12,237.4	6,024.0	124.8	125.3	-90.27	6,607.1	-838.7	1,344.9	1,095.4	249.53	5.390		
12,300.0	6,011.0	12,337.4	6,024.0	126.7	127.2	-90.27	6,707.1	-838.6	1,344.9	1,091.6	253.33	5.309		
12,400.0	6,011.0	12,437.4	6,024.0	128.6	129.1	-90.27	6,807.1	-838.6	1,344.9	1,087.8	257.14	5.230		
12,500.0	6,011.0	12,537.4	6,024.0	130.5	131.0	-90.27	6,907.1	-838.6	1,344.9	1,083.9	260.95	5.154		
12,600.0	6,011.0	12,637.4	6,024.0	132.4	132.9	-90.27	7,007.1	-838.6	1,344.9	1,080.1	264.76	5.080		
12,700.0	6,011.0	12,737.4	6,024.0	134.3	134.8	-90.27	7,107.1	-838.6	1,344.9	1,076.3	268.57	5.008		
12,800.0	6,011.0	12,837.4	6,024.0	136.2	136.7	-90.27	7,207.1	-838.6	1,344.9	1,072.5	272.38	4.937		
12,900.0	6,011.0	12,937.4	6,024.0	138.1	138.6	-90.27	7,307.1	-838.6	1,344.9	1,068.7	276.19	4.869		
13,000.0	6,011.0	13,037.4	6,024.0	140.0	140.5	-90.27	7,407.1	-838.6	1,344.9	1,064.9	280.01	4.803		
13,100.0	6,011.0	13,137.4	6,024.0	141.9	142.4	-90.27	7,507.1	-838.6	1,344.9	1,061.0	283.82	4.738		
13,200.0	6,011.0	13,237.4	6,024.0	143.8	144.3	-90.27	7,607.1	-838.6	1,344.9	1,057.2	287.64	4.676		
13,300.0	6,011.0	13,337.4	6,024.0	145.7	146.2	-90.27	7,707.1	-838.6	1,344.8	1,053.4	291.45	4.614		
13,400.0	6,011.0	13,437.4	6,024.0	147.6	148.2	-90.27	7,807.1	-838.6	1,344.8	1,049.6	295.27	4.555		
13,500.0	6,011.0	13,537.4	6,024.0	149.5	150.1	-90.27	7,907.1	-838.6	1,344.8	1,045.7	299.09	4.496		
13,600.0	6,011.0	13,637.4	6,024.0	151.5	152.0	-90.27	8,007.1	-838.5	1,344.8	1,041.9	302.90	4.440		
13,700.0	6,011.0	13,737.4	6,024.0	153.4	153.9	-90.27	8,107.1	-838.5	1,344.8	1,038.1	306.72	4.384		
13,800.0	6,011.0	13,837.4	6,024.0	155.3	155.8	-90.27	8,207.1	-838.5	1,344.8	1,034.3	310.54	4.331		
13,870.6	6,011.0	13,908.0	6,024.0	156.6	157.1	-90.27	8,277.6	-838.5	1,344.8	1,031.6	313.24	4.293 ES, SF		

Cathedral Energy Services

Anticollision Report

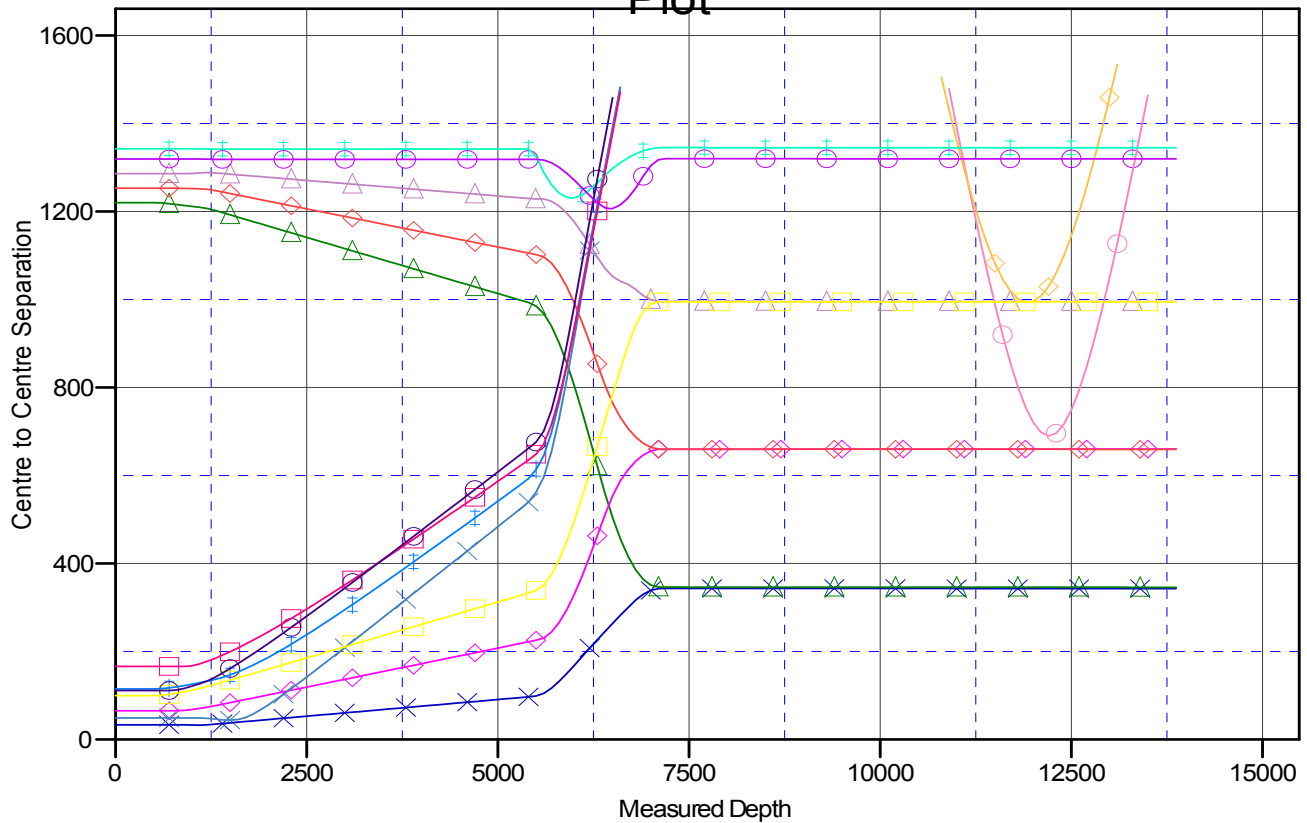
Company: Whiting Petroleum Corporation
Project: Weld County, CO
Reference Site: S21-T10N-R58W
Site Error: 0.0usft
Reference Well: Razor #21B-0912B
Well Error: 0.0usft
Reference Wellbore: HZ
Reference Design: Plan #2

Local Co-ordinate Reference: Well Razor #21B-0912B
TVD Reference: KB=17' @ 4854.3usft
MD Reference: KB=17' @ 4854.3usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Reference Depths are relative to KB=17' @ 4854.3usft
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000 °

Coordinates are relative to: Razor #21B-0912B
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 1.05°

Ladder Plot



LEGEND

u 2 (Existing), Existing, ASSUMED VERTICAL V0	▲ Razor #21A-0913A, HZ, Plan #2 V0	■ Razor #21B-0909A, HZ, Plan #2 V0
21B-0911A, HZ, Plan #2 V0	◆ Razor #21B-0910B, HZ, Plan #2 V0	■ Razor #21B-2812B, HZ, Plan #1 V0
21A-0915A, HZ, Plan #2 V0	◆ Razor #21A-0914B, HZ, Plan #2 V0	● Razor #21B-2810B, HZ, Plan #1 V0
u 1 (Existing), Existing, ASSUMED VERTICAL V0	× Razor #21B-2809A, HZ, Plan #1 V0	○ Razor #21A-0916B, HZ, Plan #2 V0
21B-2811A, HZ, Plan #1 V0	◆ Razor #21C-0908B, HZ, Plan #2 V0	