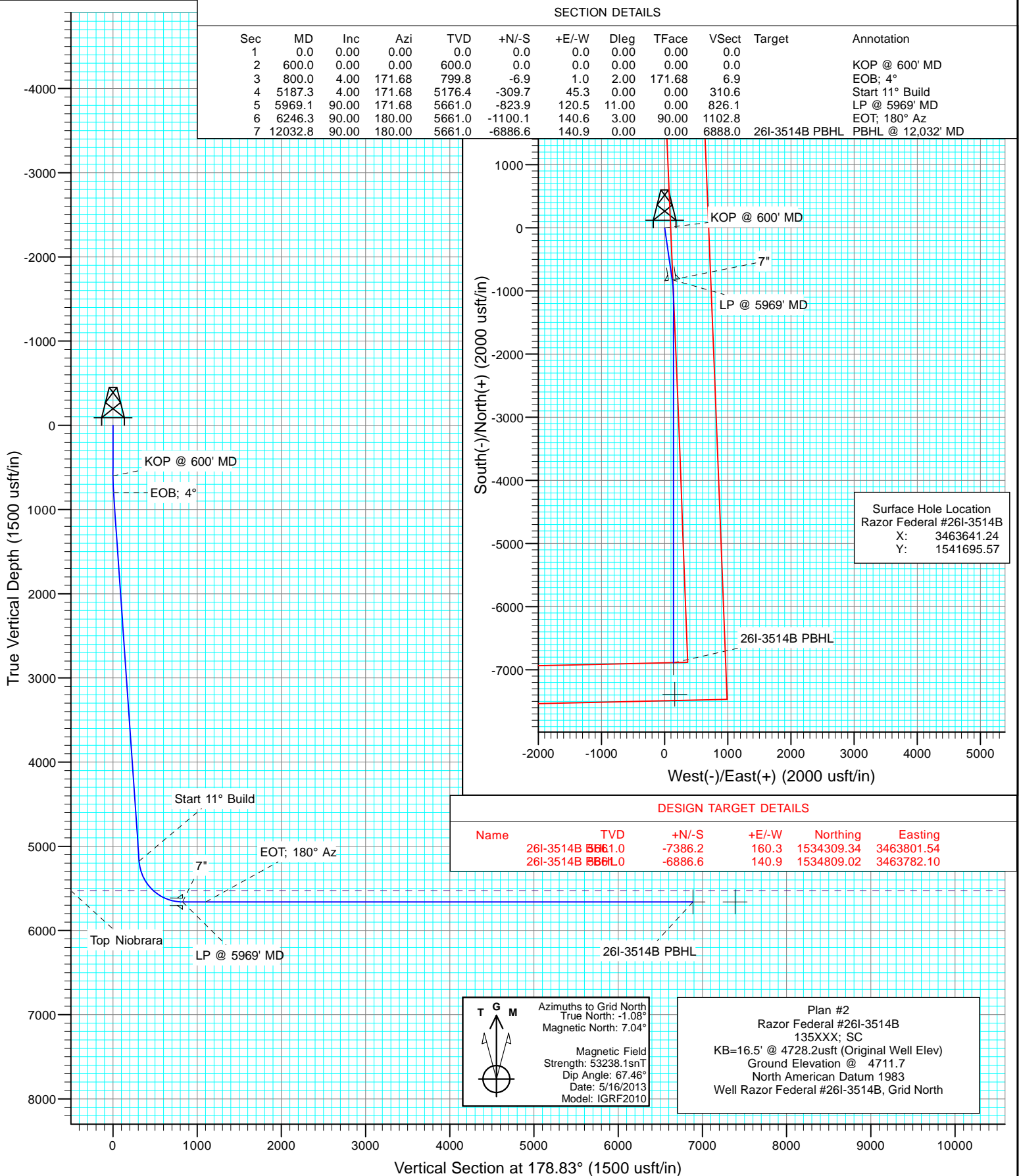




Project: Weld County, CO
Site: S26-T10N-R58W
Well: Razor Federal #26I-3514B
Wellbore: HZ
Design: Plan #2



SECTION DETAILS											
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		
2	600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.0		KOP @ 600' MD
3	800.0	4.00	171.68	799.8	-6.9	1.0	2.00	171.68	6.9		EOB; 4°
4	5187.3	4.00	171.68	5176.4	-309.7	45.3	0.00	0.00	310.6		Start 11° Build
5	5969.1	90.00	171.68	5661.0	-823.9	120.5	11.00	0.00	826.1		LP @ 5969' MD
6	6246.3	90.00	180.00	5661.0	-1100.1	140.6	3.00	90.00	1102.8		EOT; 180° Az
7	12032.8	90.00	180.00	5661.0	-6886.6	140.9	0.00	0.00	6888.0	26I-3514B PBHL	PBHL @ 12,032' MD



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor Federal #26I-3514B
Company:	Whiting Petroleum Corporation	TVD Reference:	KB=16.5' @ 4728.2usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KB=16.5' @ 4728.2usft (Original Well Elev)
Site:	S26-T10N-R58W	North Reference:	Grid
Well:	Razor Federal #26I-3514B	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		S26-T10N-R58W			
Site Position:		Northing:	1,541,774.28 usft	Latitude:	40° 48' 31.460 N
From:	Lat/Long	Easting:	3,459,642.55 usft	Longitude:	103° 50' 22.312 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	1.07 °

Well	Razor Federal #26I-3514B					
Well Position	+N/-S	0.0 usft	Northing:	1,541,695.57 usft	Latitude:	40° 48' 29.940 N
	+E/-W	0.0 usft	Easting:	3,463,641.24 usft	Longitude:	103° 49' 30.340 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	4,711.7 usft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/16/2013	8.12	67.46	53,238

Design	Plan #2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	178.83

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	
600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.00	0.00	
800.0	4.00	171.68	799.8	-6.9	1.0	2.00	2.00	0.00	171.68	
5,187.3	4.00	171.68	5,176.4	-309.7	45.3	0.00	0.00	0.00	0.00	
5,969.1	90.00	171.68	5,661.0	-823.9	120.5	11.00	11.00	0.00	0.00	
6,246.3	90.00	180.00	5,661.0	-1,100.1	140.6	3.00	0.00	3.00	90.00	
12,032.8	90.00	180.00	5,661.0	-6,886.6	140.9	0.00	0.00	0.00	0.00	26I-3514B PBHL

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor Federal #26I-3514B
Company:	Whiting Petroleum Corporation	TVD Reference:	KB=16.5' @ 4728.2usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KB=16.5' @ 4728.2usft (Original Well Elev)
Site:	S26-T10N-R58W	North Reference:	Grid
Well:	Razor Federal #26I-3514B	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	
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	KOP @ 600' MD
700.0	2.00	171.68	700.0	-1.7	0.3	1.7	2.00	2.00	
800.0	4.00	171.68	799.8	-6.9	1.0	6.9	2.00	2.00	EOB; 4°
900.0	4.00	171.68	899.6	-13.8	2.0	13.8	0.00	0.00	
1,000.0	4.00	171.68	999.4	-20.7	3.0	20.8	0.00	0.00	
1,100.0	4.00	171.68	1,099.1	-27.6	4.0	27.7	0.00	0.00	
1,200.0	4.00	171.68	1,198.9	-34.5	5.0	34.6	0.00	0.00	
1,300.0	4.00	171.68	1,298.6	-41.4	6.1	41.5	0.00	0.00	
1,400.0	4.00	171.68	1,398.4	-48.3	7.1	48.5	0.00	0.00	
1,500.0	4.00	171.68	1,498.1	-55.2	8.1	55.4	0.00	0.00	
1,600.0	4.00	171.68	1,597.9	-62.1	9.1	62.3	0.00	0.00	
1,700.0	4.00	171.68	1,697.6	-69.0	10.1	69.2	0.00	0.00	
1,800.0	4.00	171.68	1,797.4	-75.9	11.1	76.1	0.00	0.00	
1,900.0	4.00	171.68	1,897.2	-82.8	12.1	83.1	0.00	0.00	
2,000.0	4.00	171.68	1,996.9	-89.7	13.1	90.0	0.00	0.00	
2,100.0	4.00	171.68	2,096.7	-96.6	14.1	96.9	0.00	0.00	
2,200.0	4.00	171.68	2,196.4	-103.5	15.1	103.8	0.00	0.00	
2,300.0	4.00	171.68	2,296.2	-110.4	16.2	110.7	0.00	0.00	
2,400.0	4.00	171.68	2,395.9	-117.3	17.2	117.7	0.00	0.00	
2,500.0	4.00	171.68	2,495.7	-124.2	18.2	124.6	0.00	0.00	
2,600.0	4.00	171.68	2,595.5	-131.1	19.2	131.5	0.00	0.00	
2,700.0	4.00	171.68	2,695.2	-138.0	20.2	138.4	0.00	0.00	
2,800.0	4.00	171.68	2,795.0	-144.9	21.2	145.4	0.00	0.00	
2,900.0	4.00	171.68	2,894.7	-151.9	22.2	152.3	0.00	0.00	
3,000.0	4.00	171.68	2,994.5	-158.8	23.2	159.2	0.00	0.00	
3,100.0	4.00	171.68	3,094.2	-165.7	24.2	166.1	0.00	0.00	
3,200.0	4.00	171.68	3,194.0	-172.6	25.2	173.0	0.00	0.00	
3,300.0	4.00	171.68	3,293.7	-179.5	26.2	180.0	0.00	0.00	
3,400.0	4.00	171.68	3,393.5	-186.4	27.3	186.9	0.00	0.00	
3,500.0	4.00	171.68	3,493.3	-193.3	28.3	193.8	0.00	0.00	
3,600.0	4.00	171.68	3,593.0	-200.2	29.3	200.7	0.00	0.00	
3,700.0	4.00	171.68	3,692.8	-207.1	30.3	207.6	0.00	0.00	
3,800.0	4.00	171.68	3,792.5	-214.0	31.3	214.6	0.00	0.00	
3,900.0	4.00	171.68	3,892.3	-220.9	32.3	221.5	0.00	0.00	
4,000.0	4.00	171.68	3,992.0	-227.8	33.3	228.4	0.00	0.00	
4,100.0	4.00	171.68	4,091.8	-234.7	34.3	235.3	0.00	0.00	
4,200.0	4.00	171.68	4,191.6	-241.6	35.3	242.3	0.00	0.00	
4,300.0	4.00	171.68	4,291.3	-248.5	36.3	249.2	0.00	0.00	
4,400.0	4.00	171.68	4,391.1	-255.4	37.3	256.1	0.00	0.00	
4,500.0	4.00	171.68	4,490.8	-262.3	38.4	263.0	0.00	0.00	
4,600.0	4.00	171.68	4,590.6	-269.2	39.4	269.9	0.00	0.00	
4,700.0	4.00	171.68	4,690.3	-276.1	40.4	276.9	0.00	0.00	
4,800.0	4.00	171.68	4,790.1	-283.0	41.4	283.8	0.00	0.00	
4,900.0	4.00	171.68	4,889.9	-289.9	42.4	290.7	0.00	0.00	
5,000.0	4.00	171.68	4,989.6	-296.8	43.4	297.6	0.00	0.00	
5,100.0	4.00	171.68	5,089.4	-303.7	44.4	304.5	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor Federal #26I-3514B
Company:	Whiting Petroleum Corporation	TVD Reference:	KB=16.5' @ 4728.2usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KB=16.5' @ 4728.2usft (Original Well Elev)
Site:	S26-T10N-R58W	North Reference:	Grid
Well:	Razor Federal #26I-3514B	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
5,187.3	4.00	171.68	5,176.4	-309.7	45.3	310.6	0.00	0.00	Start 11° Build
5,200.0	5.40	171.68	5,189.1	-310.8	45.4	311.6	11.00	11.00	
5,250.0	10.90	171.68	5,238.6	-317.8	46.5	318.6	11.00	11.00	
5,300.0	16.40	171.68	5,287.2	-329.4	48.2	330.4	11.00	11.00	
5,350.0	21.90	171.68	5,334.4	-345.7	50.5	346.6	11.00	11.00	
5,400.0	27.40	171.68	5,379.8	-366.3	53.6	367.3	11.00	11.00	
5,450.0	32.90	171.68	5,423.0	-391.1	57.2	392.2	11.00	11.00	
5,500.0	38.40	171.68	5,463.6	-419.9	61.4	421.1	11.00	11.00	
5,550.0	43.90	171.68	5,501.3	-452.5	66.2	453.7	11.00	11.00	
5,587.0	47.97	171.68	5,527.0	-478.8	70.0	480.1	11.00	11.00	Top Niobrara
5,600.0	49.40	171.68	5,535.6	-488.4	71.4	489.8	11.00	11.00	
5,650.0	54.90	171.68	5,566.2	-527.5	77.1	529.0	11.00	11.00	
5,700.0	60.40	171.68	5,593.0	-569.3	83.3	570.9	11.00	11.00	
5,750.0	65.90	171.68	5,615.6	-613.4	89.7	615.1	11.00	11.00	
5,800.0	71.40	171.68	5,633.8	-659.5	96.4	661.3	11.00	11.00	
5,850.0	76.90	171.68	5,647.4	-707.0	103.4	709.0	11.00	11.00	
5,900.0	82.40	171.68	5,656.4	-755.7	110.5	757.8	11.00	11.00	
5,950.0	87.90	171.68	5,660.6	-805.0	117.7	807.2	11.00	11.00	
5,969.1	90.00	171.68	5,661.0	-823.8	120.5	826.1	11.00	11.00	LP @ 5969' MD - 7"
6,000.0	90.00	172.61	5,661.0	-854.5	124.7	856.8	3.00	0.01	
6,100.0	90.00	175.61	5,661.0	-953.9	135.0	956.5	3.00	0.00	
6,200.0	90.00	178.61	5,661.0	-1,053.8	140.0	1,056.4	3.00	0.00	EOT; 180° Az
6,246.3	90.00	180.00	5,661.0	-1,100.1	140.6	1,102.7	3.00	0.00	
6,300.0	90.00	180.00	5,661.0	-1,153.8	140.6	1,156.4	0.00	0.00	
6,400.0	90.00	180.00	5,661.0	-1,253.8	140.6	1,256.4	0.00	0.00	
6,500.0	90.00	180.00	5,661.0	-1,353.8	140.6	1,356.4	0.00	0.00	
6,600.0	90.00	180.00	5,661.0	-1,453.8	140.6	1,456.3	0.00	0.00	
6,700.0	90.00	180.00	5,661.0	-1,553.8	140.6	1,556.3	0.00	0.00	
6,800.0	90.00	180.00	5,661.0	-1,653.8	140.6	1,656.3	0.00	0.00	
6,900.0	90.00	180.00	5,661.0	-1,753.8	140.6	1,756.3	0.00	0.00	
7,000.0	90.00	180.00	5,661.0	-1,853.8	140.6	1,856.3	0.00	0.00	
7,100.0	90.00	180.00	5,661.0	-1,953.8	140.6	1,956.2	0.00	0.00	
7,200.0	90.00	180.00	5,661.0	-2,053.8	140.6	2,056.2	0.00	0.00	
7,300.0	90.00	180.00	5,661.0	-2,153.8	140.6	2,156.2	0.00	0.00	
7,400.0	90.00	180.00	5,661.0	-2,253.8	140.6	2,256.2	0.00	0.00	
7,500.0	90.00	180.00	5,661.0	-2,353.8	140.6	2,356.2	0.00	0.00	
7,600.0	90.00	180.00	5,661.0	-2,453.8	140.6	2,456.1	0.00	0.00	
7,700.0	90.00	180.00	5,661.0	-2,553.8	140.7	2,556.1	0.00	0.00	
7,800.0	90.00	180.00	5,661.0	-2,653.8	140.7	2,656.1	0.00	0.00	
7,900.0	90.00	180.00	5,661.0	-2,753.8	140.7	2,756.1	0.00	0.00	
8,000.0	90.00	180.00	5,661.0	-2,853.8	140.7	2,856.1	0.00	0.00	
8,100.0	90.00	180.00	5,661.0	-2,953.8	140.7	2,956.0	0.00	0.00	
8,200.0	90.00	180.00	5,661.0	-3,053.8	140.7	3,056.0	0.00	0.00	
8,300.0	90.00	180.00	5,661.0	-3,153.8	140.7	3,156.0	0.00	0.00	
8,400.0	90.00	180.00	5,661.0	-3,253.8	140.7	3,256.0	0.00	0.00	
8,500.0	90.00	180.00	5,661.0	-3,353.8	140.7	3,356.0	0.00	0.00	
8,600.0	90.00	180.00	5,661.0	-3,453.8	140.7	3,455.9	0.00	0.00	
8,700.0	90.00	180.00	5,661.0	-3,553.8	140.7	3,555.9	0.00	0.00	
8,800.0	90.00	180.00	5,661.0	-3,653.8	140.7	3,655.9	0.00	0.00	
8,900.0	90.00	180.00	5,661.0	-3,753.8	140.7	3,755.9	0.00	0.00	
9,000.0	90.00	180.00	5,661.0	-3,853.8	140.7	3,855.9	0.00	0.00	
9,100.0	90.00	180.00	5,661.0	-3,953.8	140.7	3,955.8	0.00	0.00	

Cathedral Energy Services

Planning Report

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Company:	Whiting Petroleum Corporation	TVD Reference:	KB=16.5' @ 4728.2usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KB=16.5' @ 4728.2usft (Original Well Elev)
Site:	S26-T10N-R58W	North Reference:	Grid
Well:	Razor Federal #26I-3514B	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
9,200.0	90.00	180.00	5,661.0	-4,053.8	140.7	4,055.8	0.00	0.00	
9,300.0	90.00	180.00	5,661.0	-4,153.8	140.7	4,155.8	0.00	0.00	
9,400.0	90.00	180.00	5,661.0	-4,253.8	140.7	4,255.8	0.00	0.00	
9,500.0	90.00	180.00	5,661.0	-4,353.8	140.7	4,355.7	0.00	0.00	
9,600.0	90.00	180.00	5,661.0	-4,453.8	140.7	4,455.7	0.00	0.00	
9,700.0	90.00	180.00	5,661.0	-4,553.8	140.7	4,555.7	0.00	0.00	
9,800.0	90.00	180.00	5,661.0	-4,653.8	140.8	4,655.7	0.00	0.00	
9,900.0	90.00	180.00	5,661.0	-4,753.8	140.8	4,755.7	0.00	0.00	
10,000.0	90.00	180.00	5,661.0	-4,853.8	140.8	4,855.6	0.00	0.00	
10,100.0	90.00	180.00	5,661.0	-4,953.8	140.8	4,955.6	0.00	0.00	
10,200.0	90.00	180.00	5,661.0	-5,053.8	140.8	5,055.6	0.00	0.00	
10,300.0	90.00	180.00	5,661.0	-5,153.8	140.8	5,155.6	0.00	0.00	
10,400.0	90.00	180.00	5,661.0	-5,253.8	140.8	5,255.6	0.00	0.00	
10,500.0	90.00	180.00	5,661.0	-5,353.8	140.8	5,355.5	0.00	0.00	
10,600.0	90.00	180.00	5,661.0	-5,453.8	140.8	5,455.5	0.00	0.00	
10,700.0	90.00	180.00	5,661.0	-5,553.8	140.8	5,555.5	0.00	0.00	
10,800.0	90.00	180.00	5,661.0	-5,653.8	140.8	5,655.5	0.00	0.00	
10,900.0	90.00	180.00	5,661.0	-5,753.8	140.8	5,755.5	0.00	0.00	
11,000.0	90.00	180.00	5,661.0	-5,853.8	140.8	5,855.4	0.00	0.00	
11,100.0	90.00	180.00	5,661.0	-5,953.8	140.8	5,955.4	0.00	0.00	
11,200.0	90.00	180.00	5,661.0	-6,053.8	140.8	6,055.4	0.00	0.00	
11,300.0	90.00	180.00	5,661.0	-6,153.8	140.8	6,155.4	0.00	0.00	
11,400.0	90.00	180.00	5,661.0	-6,253.8	140.8	6,255.4	0.00	0.00	
11,500.0	90.00	180.00	5,661.0	-6,353.8	140.8	6,355.3	0.00	0.00	
11,600.0	90.00	180.00	5,661.0	-6,453.8	140.8	6,455.3	0.00	0.00	
11,700.0	90.00	180.00	5,661.0	-6,553.8	140.8	6,555.3	0.00	0.00	
11,800.0	90.00	180.00	5,661.0	-6,653.8	140.8	6,655.3	0.00	0.00	
11,900.0	90.00	180.00	5,661.0	-6,753.8	140.9	6,755.2	0.00	0.00	
12,000.0	90.00	180.00	5,661.0	-6,853.8	140.9	6,855.2	0.00	0.00	
12,032.8	90.00	180.00	5,661.0	-6,886.6	140.9	6,888.0	0.00	0.00	PBHL @ 12,032' MD

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
26I-3514B BHL	0.00	0.00	5,661.0	-7,386.2	160.3	1,534,309.34	3,463,801.54	40° 47' 16.940 N	103° 49' 30.070 W
- plan misses target center by 500.1usft at 12032.8usft MD (5661.0 TVD, -6886.6 N, 140.9 E)									
- Point									
26I-3514B PBHL	0.00	0.00	5,661.0	-6,886.6	140.9	1,534,809.02	3,463,782.10	40° 47' 21.880 N	103° 49' 30.200 W
- plan hits target center									
- Point									

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
5,969.1	5,661.0	7"	0	0

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor Federal #26I-3514B
Company:	Whiting Petroleum Corporation	TVD Reference:	KB=16.5' @ 4728.2usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KB=16.5' @ 4728.2usft (Original Well Elev)
Site:	S26-T10N-R58W	North Reference:	Grid
Well:	Razor Federal #26I-3514B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
5,587.0	5,527.0	Top Niobrara		0.00		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
600.0	600.0	0.0	0.0	KOP @ 600' MD	
800.0	799.8	-6.9	1.0	EOB; 4°	
5,187.3	5,176.4	-309.7	45.3	Start 11° Build	
5,969.1	5,661.0	-823.9	120.5	LP @ 5969' MD	
6,246.3	5,661.0	-1,100.1	140.6	EOT; 180° Az	
12,032.8	5,661.0	-6,886.6	140.9	PBHL @ 12,032' MD	



CATHEDRAL

Whiting Petroleum Corporation

Weld County, CO

S26-T10N-R58W

Razor Federal #26I-3514B

HZ

Plan #2

Anticollision Report

18 June, 2013



CATHEDRAL

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #26I-3514B
Project:	Weld County, CO	TVD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	MD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	Grid
Reference Well:	Razor Federal #26I-3514B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Reference	Plan #2		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 500.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	6/18/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	12,032.0	Plan #2 (HZ)	ISCWSA MWD	MWD - ISCWSA	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S26-T10N-R58W						
Razor Federal #26I-2313A - HZ - Plan #1	466.7	466.7	74.9	73.1	40.796	CC
Razor Federal #26I-2313A - HZ - Plan #1	500.0	500.0	74.9	72.9	37.718	ES
Razor Federal #26I-2313A - HZ - Plan #1	800.0	794.3	94.0	90.7	28.710	SF
Razor Federal #26I-2314B - HZ - Plan #1	600.0	600.0	32.3	29.9	13.262	CC
Razor Federal #26I-2314B - HZ - Plan #1	700.0	700.0	32.6	29.7	11.398	ES
Razor Federal #26I-2314B - HZ - Plan #1	800.0	799.2	34.8	31.5	10.659	SF
Razor Federal #26I-2315A - HZ - Plan #1	600.0	600.0	99.9	97.5	41.027	CC, ES
Razor Federal #26I-2315A - HZ - Plan #1	1,300.0	1,290.3	148.8	143.3	27.408	SF
Razor Federal #26I-2316B - HZ - Plan #1	754.7	754.7	32.8	29.7	10.650	CC
Razor Federal #26I-2316B - HZ - Plan #1	800.0	799.8	32.9	29.7	10.084	ES
Razor Federal #26I-2316B - HZ - Plan #1	1,100.0	1,099.1	40.5	35.9	8.862	SF
Razor Federal #26I-3513A - HZ - Plan #2	600.0	600.0	81.6	79.1	33.490	CC, ES
Razor Federal #26I-3513A - HZ - Plan #2	12,032.8	12,055.2	341.2	83.0	1.321	Level 3, SF
Razor Federal #26I-3515A - HZ - Plan #3	600.0	600.0	81.8	79.4	33.609	CC
Razor Federal #26I-3515A - HZ - Plan #3	700.0	702.1	82.1	79.2	28.943	ES
Razor Federal #26I-3515A - HZ - Plan #3	12,032.8	12,085.3	341.3	83.0	1.321	Level 3, SF
Razor Federal #26I-3516B - HZ - Plan #3	819.4	819.2	65.6	62.3	19.600	CC
Razor Federal #26I-3516B - HZ - Plan #3	900.0	899.6	65.8	62.2	17.836	ES
Razor Federal #26I-3516B - HZ - Plan #3	5,200.0	5,196.8	179.8	154.7	7.155	SF
Razor Federal #26J-3509A - HZ - Plan #2						Out of range
Razor Federal #26J-3510B - HZ - Plan #2						Out of range
Razor Federal #26J-3511A - HZ - Plan #2						Out of range
Razor Federal #26J-3512B - HZ - Plan #2						Out of range

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #261-3514B
Project:	Weld County, CO	TVD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	MD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	Grid
Reference Well:	Razor Federal #261-3514B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S26-T10N-R58W - Razor Federal #261-2313A - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	-1.08	74.9	-1.4	74.9					
100.0	100.0	100.0	100.0	0.1	0.1	-1.08	74.9	-1.4	74.9	74.7	0.19	399.082		
200.0	200.0	200.0	200.0	0.3	0.3	-1.08	74.9	-1.4	74.9	74.3	0.64	117.543		
300.0	300.0	300.0	300.0	0.5	0.5	-1.08	74.9	-1.4	74.9	73.8	1.09	68.921		
400.0	400.0	400.0	400.0	0.8	0.8	-1.08	74.9	-1.4	74.9	73.4	1.54	48.754		
466.7	466.7	466.7	466.7	0.9	0.9	-1.08	74.9	-1.4	74.9	73.1	1.84	40.796 CC		
500.0	500.0	500.0	500.0	1.0	1.0	-1.08	74.9	-1.4	74.9	72.9	1.99	37.718 ES		
600.0	600.0	597.8	597.7	1.2	1.2	-1.72	76.3	-2.3	76.4	73.9	2.43	31.433		
700.0	700.0	695.2	695.0	1.4	1.4	-175.26	80.5	-4.9	82.6	79.7	2.86	28.903		
800.0	799.8	794.3	793.9	1.6	1.7	-177.51	86.4	-8.5	94.0	90.7	3.27	28.710 SF		
900.0	899.6	893.4	892.8	1.8	1.9	-179.30	92.3	-12.2	107.3	103.6	3.69	29.087		
1,000.0	999.4	992.5	991.6	2.0	2.1	179.30	98.2	-15.8	120.6	116.5	4.11	29.342		
1,100.0	1,099.1	1,091.5	1,090.4	2.2	2.4	178.19	104.0	-19.5	134.0	129.5	4.54	29.516		
1,200.0	1,198.9	1,190.6	1,189.2	2.5	2.6	177.28	109.9	-23.1	147.5	142.5	4.98	29.638		
1,300.0	1,298.6	1,289.7	1,288.1	2.7	2.9	176.51	115.8	-26.7	160.9	155.5	5.41	29.724		
1,400.0	1,398.4	1,388.7	1,386.9	3.0	3.1	175.87	121.7	-30.4	174.4	168.6	5.86	29.785		
1,500.0	1,498.1	1,487.8	1,485.7	3.2	3.4	175.32	127.6	-34.0	188.0	181.7	6.30	29.828		
1,600.0	1,597.9	1,586.9	1,584.5	3.5	3.6	174.85	133.4	-37.6	201.5	194.8	6.75	29.860		
1,700.0	1,697.6	1,685.9	1,683.4	3.7	3.9	174.43	139.3	-41.3	215.0	207.8	7.20	29.882		
1,800.0	1,797.4	1,785.0	1,782.2	4.0	4.1	174.06	145.2	-44.9	228.6	221.0	7.65	29.898		
1,900.0	1,897.2	1,884.1	1,881.0	4.2	4.4	173.74	151.1	-48.6	242.2	234.1	8.10	29.909		
2,000.0	1,996.9	1,983.1	1,979.8	4.5	4.6	173.44	156.9	-52.2	255.7	247.2	8.55	29.917		
2,100.0	2,096.7	2,082.2	2,078.7	4.7	4.9	173.18	162.8	-55.8	269.3	260.3	9.00	29.921		
2,200.0	2,196.4	2,181.3	2,177.5	5.0	5.1	172.94	168.7	-59.5	282.9	273.4	9.45	29.923		
2,300.0	2,296.2	2,280.3	2,276.3	5.3	5.4	172.73	174.6	-63.1	296.5	286.6	9.91	29.924		
2,400.0	2,395.9	2,379.4	2,375.2	5.5	5.7	172.53	180.4	-66.7	310.1	299.7	10.36	29.924		
2,500.0	2,495.7	2,478.5	2,474.0	5.8	5.9	172.35	186.3	-70.4	323.7	312.8	10.82	29.922		
2,600.0	2,595.5	2,577.5	2,572.8	6.0	6.2	172.19	192.2	-74.0	337.3	326.0	11.27	29.920		
2,700.0	2,695.2	2,676.6	2,671.6	6.3	6.4	172.04	198.1	-77.6	350.9	339.1	11.73	29.918		
2,800.0	2,795.0	2,775.7	2,770.5	6.6	6.7	171.89	203.9	-81.3	364.5	352.3	12.18	29.915		
2,900.0	2,894.7	2,874.7	2,869.3	6.8	6.9	171.76	209.8	-84.9	378.1	365.4	12.64	29.912		
3,000.0	2,994.5	2,973.8	2,968.1	7.1	7.2	171.64	215.7	-88.6	391.7	378.6	13.10	29.908		
3,100.0	3,094.2	3,072.9	3,066.9	7.3	7.4	171.53	221.6	-92.2	405.3	391.7	13.55	29.904		
3,200.0	3,194.0	3,171.9	3,165.8	7.6	7.7	171.42	227.5	-95.8	418.9	404.9	14.01	29.901		
3,300.0	3,293.8	3,271.0	3,264.6	7.9	7.9	171.32	233.3	-99.5	432.5	418.0	14.47	29.897		
3,400.0	3,393.5	3,370.1	3,363.4	8.1	8.2	171.23	239.2	-103.1	446.1	431.2	14.92	29.893		
3,500.0	3,493.3	3,469.1	3,462.2	8.4	8.5	171.14	245.1	-106.7	459.7	444.3	15.38	29.889		
3,600.0	3,593.0	3,568.2	3,561.1	8.7	8.7	171.06	251.0	-110.4	473.3	457.5	15.84	29.885		
3,700.0	3,692.8	3,667.3	3,659.9	8.9	9.0	170.98	256.8	-114.0	486.9	470.6	16.30	29.882		

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #261-3514B
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Reference Site:	S26-T10N-R58W	MD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	Grid
Reference Well:	Razor Federal #261-3514B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S26-T10N-R58W - Razor Federal #261-2314B - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-91.08	-0.6	-32.3	32.3					
100.0	100.0	100.0	100.0	0.1	0.1	-91.08	-0.6	-32.3	32.3	32.1	0.19	172.086		
200.0	200.0	200.0	200.0	0.3	0.3	-91.08	-0.6	-32.3	32.3	31.7	0.64	50.685		
300.0	300.0	300.0	300.0	0.5	0.5	-91.08	-0.6	-32.3	32.3	31.2	1.09	29.719		
400.0	400.0	400.0	400.0	0.8	0.8	-91.08	-0.6	-32.3	32.3	30.8	1.54	21.023		
500.0	500.0	500.0	500.0	1.0	1.0	-91.08	-0.6	-32.3	32.3	30.3	1.99	16.264		
600.0	600.0	600.0	600.0	1.2	1.2	-91.08	-0.6	-32.3	32.3	29.9	2.44	13.262 CC		
700.0	700.0	700.0	700.0	1.4	1.4	100.28	-0.6	-32.3	32.6	29.7	2.86	11.398 ES		
800.0	799.8	799.2	799.2	1.6	1.7	111.38	1.0	-32.8	34.8	31.5	3.26	10.659 SF		
900.0	899.6	897.7	897.5	1.8	1.9	126.40	5.8	-34.5	41.5	37.8	3.69	11.258		
1,000.0	999.4	996.7	996.3	2.0	2.1	137.91	12.4	-36.7	51.8	47.7	4.12	12.572		
1,100.0	1,099.1	1,095.7	1,095.1	2.2	2.4	145.43	18.9	-38.9	63.4	58.9	4.55	13.941		
1,200.0	1,198.9	1,194.7	1,193.9	2.5	2.6	150.57	25.5	-41.1	75.9	70.9	4.99	15.214		
1,300.0	1,298.6	1,293.8	1,292.7	2.7	2.8	154.24	32.0	-43.3	88.7	83.3	5.42	16.355		
1,400.0	1,398.4	1,392.8	1,391.4	3.0	3.1	156.98	38.6	-45.5	101.8	95.9	5.86	17.364		
1,500.0	1,498.1	1,491.8	1,490.2	3.2	3.3	159.10	45.1	-47.7	115.1	108.8	6.30	18.255		
1,600.0	1,597.9	1,590.9	1,589.0	3.5	3.6	160.77	51.7	-49.9	128.5	121.7	6.75	19.042		
1,700.0	1,697.6	1,689.9	1,687.8	3.7	3.8	162.13	58.2	-52.1	142.0	134.8	7.19	19.740		
1,800.0	1,797.4	1,788.9	1,786.6	4.0	4.1	163.25	64.8	-54.4	155.5	147.9	7.64	20.362		
1,900.0	1,897.2	1,888.0	1,885.4	4.2	4.3	164.19	71.3	-56.6	169.1	161.1	8.09	20.918		
2,000.0	1,996.9	1,987.0	1,984.2	4.5	4.6	164.99	77.8	-58.8	182.8	174.3	8.53	21.418		
2,100.0	2,096.7	2,086.1	2,083.0	4.7	4.8	165.68	84.4	-61.0	196.5	187.5	8.98	21.869		
2,200.0	2,196.4	2,185.1	2,181.8	5.0	5.1	166.28	90.9	-63.2	210.2	200.7	9.43	22.278		
2,300.0	2,296.2	2,284.1	2,280.6	5.3	5.3	166.81	97.5	-65.4	223.9	214.0	9.88	22.651		
2,400.0	2,395.9	2,383.2	2,379.4	5.5	5.6	167.28	104.0	-67.6	237.6	227.3	10.34	22.991		
2,500.0	2,495.7	2,482.2	2,478.2	5.8	5.8	167.69	110.6	-69.8	251.4	240.6	10.79	23.304		
2,600.0	2,595.5	2,581.2	2,577.0	6.0	6.1	168.06	117.1	-72.0	265.1	253.9	11.24	23.591		
2,700.0	2,695.2	2,680.3	2,675.8	6.3	6.3	168.40	123.7	-74.2	278.9	267.2	11.69	23.856		
2,800.0	2,795.0	2,779.3	2,774.6	6.6	6.6	168.70	130.2	-76.4	292.7	280.5	12.14	24.101		
2,900.0	2,894.7	2,878.3	2,873.4	6.8	6.8	168.98	136.8	-78.7	306.5	293.9	12.60	24.329		
3,000.0	2,994.5	2,977.4	2,972.1	7.1	7.1	169.23	143.3	-80.9	320.3	307.2	13.05	24.541		
3,100.0	3,094.2	3,076.4	3,070.9	7.3	7.3	169.46	149.8	-83.1	334.1	320.6	13.50	24.739		
3,200.0	3,194.0	3,175.4	3,169.7	7.6	7.6	169.67	156.4	-85.3	347.9	333.9	13.96	24.923		
3,300.0	3,293.8	3,274.5	3,268.5	7.9	7.8	169.87	162.9	-87.5	361.7	347.3	14.41	25.097		
3,400.0	3,393.5	3,373.5	3,367.3	8.1	8.1	170.05	169.5	-89.7	375.5	360.6	14.87	25.259		
3,500.0	3,493.3	3,472.5	3,466.1	8.4	8.3	170.22	176.0	-91.9	389.3	374.0	15.32	25.412		
3,600.0	3,593.0	3,571.6	3,564.9	8.7	8.6	170.38	182.6	-94.1	403.1	387.3	15.77	25.556		
3,700.0	3,692.8	3,670.6	3,663.7	8.9	8.8	170.53	189.1	-96.3	416.9	400.7	16.23	25.692		
3,800.0	3,792.5	3,769.6	3,762.5	9.2	9.1	170.67	195.7	-98.5	430.8	414.1	16.68	25.820		
3,900.0	3,892.3	3,868.7	3,861.3	9.4	9.4	170.80	202.2	-100.7	444.6	427.5	17.14	25.942		
4,000.0	3,992.1	3,967.7	3,960.1	9.7	9.6	170.92	208.8	-103.0	458.4	440.8	17.59	26.057		
4,100.0	4,091.8	4,066.8	4,058.9	10.0	9.9	171.03	215.3	-105.2	472.3	454.2	18.05	26.166		
4,200.0	4,191.6	4,165.8	4,157.7	10.2	10.1	171.14	221.8	-107.4	486.1	467.6	18.50	26.270		
4,300.0	4,291.3	4,264.8	4,256.5	10.5	10.4	171.24	228.4	-109.6	499.9	481.0	18.96	26.369		

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #261-3514B
Project:	Weld County, CO	TVD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	MD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	Grid
Reference Well:	Razor Federal #261-3514B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S26-T10N-R58W - Razor Federal #261-2315A - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	40.36	76.1	64.7	99.9					
100.0	100.0	100.0	100.0	0.1	0.1	40.36	76.1	64.7	99.9	99.7	0.19	532.364		
200.0	200.0	200.0	200.0	0.3	0.3	40.36	76.1	64.7	99.9	99.3	0.64	156.799		
300.0	300.0	300.0	300.0	0.5	0.5	40.36	76.1	64.7	99.9	98.8	1.09	91.939		
400.0	400.0	400.0	400.0	0.8	0.8	40.36	76.1	64.7	99.9	98.4	1.54	65.037		
500.0	500.0	500.0	500.0	1.0	1.0	40.36	76.1	64.7	99.9	97.9	1.99	50.314		
600.0	600.0	600.0	600.0	1.2	1.2	40.36	76.1	64.7	99.9	97.5	2.44	41.027 CC, ES		
700.0	700.0	700.0	700.0	1.4	1.4	-132.04	76.1	64.7	101.1	98.2	2.86	35.365		
800.0	799.8	799.8	799.8	1.6	1.7	-134.12	76.1	64.7	104.7	101.4	3.27	32.043		
900.0	899.6	899.6	899.6	1.8	1.9	-136.73	76.1	64.7	109.6	105.9	3.69	29.735		
1,000.0	999.4	996.4	996.4	2.0	2.1	-139.57	77.7	64.5	116.1	112.0	4.11	28.230		
1,100.0	1,099.1	1,092.5	1,092.3	2.2	2.3	-143.00	82.5	63.8	125.5	121.0	4.55	27.611		
1,200.0	1,198.9	1,191.2	1,190.9	2.5	2.6	-146.47	89.3	62.8	136.9	131.9	4.99	27.458		
1,300.0	1,298.6	1,290.3	1,289.6	2.7	2.8	-149.42	96.2	61.9	148.8	143.3	5.43	27.408 SF		
1,400.0	1,398.4	1,389.3	1,388.4	3.0	3.0	-151.92	103.0	60.9	160.9	155.1	5.87	27.414		
1,500.0	1,498.1	1,488.3	1,487.2	3.2	3.3	-154.08	109.9	59.9	173.4	167.1	6.32	27.455		
1,600.0	1,597.9	1,587.3	1,586.0	3.5	3.5	-155.94	116.7	59.0	186.0	179.3	6.76	27.517		
1,700.0	1,697.6	1,686.4	1,684.8	3.7	3.7	-157.56	123.5	58.0	198.9	191.6	7.21	27.591		
1,800.0	1,797.4	1,785.4	1,783.6	4.0	4.0	-158.99	130.4	57.0	211.8	204.2	7.65	27.672		
1,900.0	1,897.2	1,884.4	1,882.4	4.2	4.2	-160.25	137.2	56.1	224.9	216.8	8.10	27.757		
2,000.0	1,996.9	1,983.5	1,981.1	4.5	4.5	-161.37	144.1	55.1	238.1	229.5	8.55	27.842		
2,100.0	2,096.7	2,082.5	2,079.9	4.7	4.7	-162.38	150.9	54.1	251.3	242.3	9.00	27.925		
2,200.0	2,196.4	2,181.5	2,178.7	5.0	5.0	-163.28	157.7	53.2	264.6	255.2	9.45	28.007		
2,300.0	2,296.2	2,280.5	2,277.5	5.3	5.2	-164.10	164.6	52.2	278.0	268.1	9.90	28.086		
2,400.0	2,395.9	2,379.6	2,376.3	5.5	5.5	-164.85	171.4	51.2	291.4	281.1	10.35	28.162		
2,500.0	2,495.7	2,478.6	2,475.1	5.8	5.7	-165.52	178.3	50.3	304.9	294.1	10.80	28.235		
2,600.0	2,595.5	2,577.6	2,573.9	6.0	6.0	-166.14	185.1	49.3	318.4	307.2	11.25	28.304		
2,700.0	2,695.2	2,676.6	2,672.6	6.3	6.2	-166.71	191.9	48.3	332.0	320.3	11.70	28.371		
2,800.0	2,795.0	2,775.7	2,771.4	6.6	6.5	-167.24	198.8	47.4	345.5	333.4	12.15	28.434		
2,900.0	2,894.7	2,874.7	2,870.2	6.8	6.7	-167.72	205.6	46.4	359.1	346.5	12.60	28.494		
3,000.0	2,994.5	2,973.7	2,969.0	7.1	7.0	-168.17	212.5	45.4	372.7	359.7	13.06	28.551		
3,100.0	3,094.2	3,072.8	3,067.8	7.3	7.2	-168.59	219.3	44.5	386.4	372.9	13.51	28.606		
3,200.0	3,194.0	3,171.8	3,166.6	7.6	7.5	-168.98	226.1	43.5	400.1	386.1	13.96	28.658		
3,300.0	3,293.8	3,270.8	3,265.4	7.9	7.7	-169.34	233.0	42.5	413.7	399.3	14.41	28.707		
3,400.0	3,393.5	3,369.8	3,364.1	8.1	8.0	-169.68	239.8	41.6	427.4	412.6	14.86	28.755		
3,500.0	3,493.3	3,468.9	3,462.9	8.4	8.2	-170.00	246.7	40.6	441.1	425.8	15.32	28.800		
3,600.0	3,593.0	3,567.9	3,561.7	8.7	8.5	-170.30	253.5	39.6	454.9	439.1	15.77	28.842		
3,700.0	3,692.8	3,666.9	3,660.5	8.9	8.7	-170.59	260.3	38.7	468.6	452.4	16.22	28.883		
3,800.0	3,792.5	3,765.9	3,759.3	9.2	9.0	-170.85	267.2	37.7	482.3	465.7	16.68	28.923		
3,900.0	3,892.3	3,865.0	3,858.1	9.4	9.2	-171.10	274.0	36.7	496.1	479.0	17.13	28.960		

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #261-3514B
Project:	Weld County, CO	TVD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	MD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	Grid
Reference Well:	Razor Federal #261-3514B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S26-T10N-R58W - Razor Federal #261-2316B - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	88.94	0.6	33.1	33.1					
100.0	100.0	100.0	100.0	0.1	0.1	88.94	0.6	33.1	33.1	32.9	0.19	176.183		
200.0	200.0	200.0	200.0	0.3	0.3	88.94	0.6	33.1	33.1	32.4	0.64	51.892		
300.0	300.0	300.0	300.0	0.5	0.5	88.94	0.6	33.1	33.1	32.0	1.09	30.427		
400.0	400.0	400.0	400.0	0.8	0.8	88.94	0.6	33.1	33.1	31.5	1.54	21.524		
500.0	500.0	500.0	500.0	1.0	1.0	88.94	0.6	33.1	33.1	31.1	1.99	16.651		
600.0	600.0	600.0	600.0	1.2	1.2	88.94	0.6	33.1	33.1	30.6	2.44	13.578		
700.0	700.0	700.0	700.0	1.4	1.4	-85.76	0.6	33.1	32.9	30.0	2.86	11.514		
754.7	754.7	754.7	754.7	1.5	1.6	-90.00	0.6	33.1	32.8	29.7	3.08	10.650 CC		
800.0	799.8	799.8	799.8	1.6	1.7	-94.87	0.6	33.1	32.9	29.7	3.26	10.084 ES		
900.0	899.6	899.6	899.6	1.8	1.9	-106.56	0.6	33.1	34.2	30.5	3.69	9.272		
1,000.0	999.4	999.4	999.4	2.0	2.1	-117.00	0.6	33.1	36.8	32.7	4.13	8.922		
1,100.0	1,099.1	1,099.1	1,099.1	2.2	2.3	-125.82	0.6	33.1	40.5	35.9	4.57	8.862 SF		
1,200.0	1,198.9	1,197.4	1,197.4	2.5	2.6	-133.83	2.2	33.4	46.5	41.4	5.01	9.279		
1,300.0	1,298.6	1,295.1	1,295.0	2.7	2.8	-141.00	7.1	34.6	56.4	50.9	5.44	10.355		
1,400.0	1,398.4	1,394.1	1,393.7	3.0	3.0	-146.40	13.8	36.1	68.7	62.9	5.88	11.683		
1,500.0	1,498.1	1,493.1	1,492.5	3.2	3.2	-150.13	20.5	37.7	81.5	75.2	6.32	12.895		
1,600.0	1,597.9	1,592.2	1,591.3	3.5	3.5	-152.85	27.3	39.2	94.6	87.8	6.76	13.982		
1,700.0	1,697.6	1,691.3	1,690.1	3.7	3.7	-154.91	34.0	40.8	107.8	100.6	7.21	14.953		
1,800.0	1,797.4	1,790.3	1,789.0	4.0	3.9	-156.51	40.7	42.4	121.1	113.4	7.65	15.823		
1,900.0	1,897.2	1,889.4	1,887.8	4.2	4.2	-157.80	47.5	43.9	134.4	126.3	8.10	16.603		
2,000.0	1,996.9	1,988.4	1,986.6	4.5	4.4	-158.85	54.2	45.5	147.9	139.3	8.55	17.306		
2,100.0	2,096.7	2,087.5	2,085.4	4.7	4.7	-159.73	60.9	47.1	161.4	152.4	8.99	17.941		
2,200.0	2,196.4	2,186.6	2,184.2	5.0	4.9	-160.48	67.7	48.6	174.9	165.4	9.44	18.517		
2,300.0	2,296.2	2,285.6	2,283.1	5.3	5.1	-161.11	74.4	50.2	188.4	178.5	9.89	19.042		
2,400.0	2,395.9	2,384.7	2,381.9	5.5	5.4	-161.66	81.1	51.7	201.9	191.6	10.34	19.522		
2,500.0	2,495.7	2,483.7	2,480.7	5.8	5.6	-162.15	87.8	53.3	215.5	204.7	10.80	19.962		
2,600.0	2,595.5	2,582.8	2,579.5	6.0	5.9	-162.57	94.6	54.9	229.1	217.8	11.25	20.367		
2,700.0	2,695.2	2,681.9	2,678.3	6.3	6.1	-162.95	101.3	56.4	242.7	231.0	11.70	20.741		
2,800.0	2,795.0	2,780.9	2,777.2	6.6	6.4	-163.28	108.0	58.0	256.3	244.1	12.15	21.087		
2,900.0	2,894.7	2,880.0	2,876.0	6.8	6.6	-163.59	114.8	59.6	269.9	257.3	12.61	21.408		
3,000.0	2,994.5	2,979.0	2,974.8	7.1	6.9	-163.86	121.5	61.1	283.5	270.4	13.06	21.707		
3,100.0	3,094.2	3,078.1	3,073.6	7.3	7.1	-164.11	128.2	62.7	297.1	283.6	13.51	21.985		
3,200.0	3,194.0	3,177.2	3,172.4	7.6	7.4	-164.34	135.0	64.3	310.7	296.8	13.97	22.246		
3,300.0	3,293.8	3,276.2	3,271.3	7.9	7.6	-164.55	141.7	65.8	324.4	309.9	14.42	22.489		
3,400.0	3,393.5	3,375.3	3,370.1	8.1	7.9	-164.74	148.4	67.4	338.0	323.1	14.88	22.718		
3,500.0	3,493.3	3,474.4	3,468.9	8.4	8.1	-164.91	155.2	68.9	351.6	336.3	15.33	22.934		
3,600.0	3,593.0	3,573.4	3,567.7	8.7	8.4	-165.08	161.9	70.5	365.3	349.5	15.79	23.136		
3,700.0	3,692.8	3,672.5	3,666.5	8.9	8.6	-165.23	168.6	72.1	378.9	362.7	16.24	23.328		
3,800.0	3,792.5	3,771.5	3,765.3	9.2	8.9	-165.37	175.3	73.6	392.6	375.9	16.70	23.508		
3,900.0	3,892.3	3,870.6	3,864.2	9.4	9.1	-165.50	182.1	75.2	406.2	389.1	17.15	23.680		
4,000.0	3,992.1	3,969.7	3,963.0	9.7	9.4	-165.62	188.8	76.8	419.9	402.2	17.61	23.842		
4,100.0	4,091.8	4,068.7	4,061.8	10.0	9.6	-165.74	195.5	78.3	433.5	415.4	18.07	23.996		
4,200.0	4,191.6	4,167.8	4,160.6	10.2	9.9	-165.85	202.3	79.9	447.2	428.6	18.52	24.142		
4,300.0	4,291.3	4,266.8	4,259.4	10.5	10.1	-165.95	209.0	81.4	460.8	441.8	18.98	24.281		
4,400.0	4,391.1	4,365.9	4,358.3	10.8	10.4	-166.05	215.7	83.0	474.5	455.0	19.43	24.414		
4,500.0	4,490.8	4,465.0	4,457.1	11.0	10.6	-166.14	222.5	84.6	488.1	468.2	19.89	24.540		

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #261-3514B
Project:	Weld County, CO	TVD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	MD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	Grid
Reference Well:	Razor Federal #261-3514B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S26-T10N-R58W - Razor Federal #261-3513A - HZ - Plan #2												Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-24.41	74.3	-33.7	81.6				
100.0	100.0	100.0	100.0	0.1	0.1	-24.41	74.3	-33.7	81.6	81.4	0.19	434.565	
200.0	200.0	200.0	200.0	0.3	0.3	-24.41	74.3	-33.7	81.6	80.9	0.64	127.994	
300.0	300.0	300.0	300.0	0.5	0.5	-24.41	74.3	-33.7	81.6	80.5	1.09	75.049	
400.0	400.0	400.0	400.0	0.8	0.8	-24.41	74.3	-33.7	81.6	80.0	1.54	53.089	
500.0	500.0	500.0	500.0	1.0	1.0	-24.41	74.3	-33.7	81.6	79.6	1.99	41.071	
600.0	600.0	600.0	600.0	1.2	1.2	-24.41	74.3	-33.7	81.6	79.1	2.44	33.490 CC, ES	
700.0	700.0	700.0	700.0	1.4	1.4	164.23	74.3	-33.7	83.2	80.4	2.86	29.115	
800.0	799.8	799.8	799.8	1.6	1.7	165.13	74.3	-33.7	88.3	85.0	3.27	27.034	
900.0	899.6	899.6	899.6	1.8	1.9	166.21	74.3	-33.7	95.0	91.4	3.68	25.822	
1,000.0	999.4	999.4	999.4	2.0	2.1	167.14	74.3	-33.7	101.8	97.7	4.10	24.810	
1,100.0	1,099.1	1,102.4	1,102.4	2.2	2.3	167.50	72.5	-34.0	107.1	102.6	4.51	23.745	
1,200.0	1,198.9	1,205.6	1,205.4	2.5	2.5	166.86	67.0	-34.9	109.3	104.4	4.90	22.291	
1,300.0	1,298.6	1,305.6	1,305.1	2.7	2.7	165.83	60.1	-36.0	110.1	104.8	5.30	20.758	
1,400.0	1,398.4	1,405.5	1,404.9	3.0	2.9	164.81	53.2	-37.2	111.0	105.2	5.72	19.406	
1,500.0	1,498.1	1,505.5	1,504.6	3.2	3.1	163.81	46.4	-38.3	111.8	105.7	6.14	18.213	
1,600.0	1,597.9	1,605.5	1,604.4	3.5	3.3	162.82	39.5	-39.4	112.8	106.2	6.57	17.157	
1,700.0	1,697.6	1,705.5	1,704.1	3.7	3.5	161.85	32.6	-40.6	113.7	106.7	7.01	16.219	
1,800.0	1,797.4	1,805.5	1,803.8	4.0	3.8	160.90	25.7	-41.7	114.7	107.3	7.46	15.383	
1,900.0	1,897.2	1,905.4	1,903.6	4.2	4.0	159.96	18.8	-42.8	115.7	107.8	7.91	14.634	
2,000.0	1,996.9	2,005.4	2,003.3	4.5	4.2	159.04	11.9	-44.0	116.8	108.4	8.36	13.962	
2,100.0	2,096.7	2,105.4	2,103.0	4.7	4.5	158.13	5.1	-45.1	117.9	109.0	8.83	13.355	
2,200.0	2,196.4	2,205.4	2,202.8	5.0	4.7	157.25	-1.8	-46.2	119.0	109.7	9.29	12.806	
2,300.0	2,296.2	2,305.3	2,302.5	5.3	5.0	156.38	-8.7	-47.4	120.1	110.3	9.76	12.307	
2,400.0	2,395.9	2,405.3	2,402.2	5.5	5.2	155.52	-15.6	-48.5	121.3	111.0	10.23	11.852	
2,500.0	2,495.7	2,505.3	2,502.0	5.8	5.5	154.68	-22.5	-49.6	122.5	111.8	10.71	11.437	
2,600.0	2,595.5	2,605.3	2,601.7	6.0	5.7	153.86	-29.3	-50.8	123.7	112.5	11.19	11.056	
2,700.0	2,695.2	2,705.3	2,701.4	6.3	6.0	153.06	-36.2	-51.9	124.9	113.2	11.67	10.706	
2,800.0	2,795.0	2,805.2	2,801.2	6.6	6.2	152.27	-43.1	-53.0	126.2	114.0	12.15	10.383	
2,900.0	2,894.7	2,905.2	2,900.9	6.8	6.5	151.49	-50.0	-54.2	127.5	114.8	12.64	10.084	
3,000.0	2,994.5	3,005.2	3,000.6	7.1	6.7	150.74	-56.9	-55.3	128.8	115.6	13.13	9.808	
3,100.0	3,094.2	3,105.2	3,100.4	7.3	7.0	149.99	-63.7	-56.4	130.1	116.5	13.62	9.552	
3,200.0	3,194.0	3,205.1	3,200.1	7.6	7.3	149.27	-70.6	-57.6	131.5	117.3	14.12	9.314	
3,300.0	3,293.8	3,305.1	3,299.8	7.9	7.5	148.55	-77.5	-58.7	132.8	118.2	14.61	9.091	
3,400.0	3,393.5	3,405.1	3,399.6	8.1	7.8	147.86	-84.4	-59.8	134.2	119.1	15.11	8.884	
3,500.0	3,493.3	3,505.1	3,499.3	8.4	8.0	147.17	-91.3	-61.0	135.6	120.0	15.61	8.690	
3,600.0	3,593.0	3,605.0	3,599.0	8.7	8.3	146.50	-98.2	-62.1	137.1	121.0	16.11	8.509	
3,700.0	3,692.8	3,705.0	3,698.8	8.9	8.5	145.85	-105.0	-63.2	138.5	121.9	16.61	8.338	
3,800.0	3,792.5	3,805.0	3,798.5	9.2	8.8	145.21	-111.9	-64.4	140.0	122.9	17.12	8.178	
3,900.0	3,892.3	3,905.0	3,898.2	9.4	9.1	144.58	-118.8	-65.5	141.5	123.9	17.62	8.028	
4,000.0	3,992.1	4,005.0	3,998.0	9.7	9.3	143.96	-125.7	-66.6	143.0	124.9	18.13	7.886	
4,100.0	4,091.8	4,104.9	4,097.7	10.0	9.6	143.36	-132.6	-67.8	144.5	125.9	18.64	7.752	
4,200.0	4,191.6	4,204.9	4,197.4	10.2	9.8	142.77	-139.4	-68.9	146.0	126.9	19.15	7.626	
4,300.0	4,291.3	4,304.9	4,297.2	10.5	10.1	142.19	-146.3	-70.0	147.6	127.9	19.66	7.506	
4,400.0	4,391.1	4,404.9	4,396.9	10.8	10.4	141.63	-153.2	-71.2	149.2	129.0	20.18	7.393	
4,500.0	4,490.8	4,504.8	4,496.6	11.0	10.6	141.07	-160.1	-72.3	150.7	130.0	20.69	7.286	
4,600.0	4,590.6	4,604.8	4,596.4	11.3	10.9	140.53	-167.0	-73.4	152.3	131.1	21.20	7.184	
4,700.0	4,690.3	4,704.8	4,696.1	11.6	11.1	140.00	-173.9	-74.6	153.9	132.2	21.72	7.088	
4,800.0	4,790.1	4,804.8	4,795.8	11.8	11.4	139.48	-180.7	-75.7	155.6	133.3	22.24	6.996	
4,900.0	4,889.9	4,904.7	4,895.6	12.1	11.7	138.97	-187.6	-76.8	157.2	134.4	22.75	6.908	
5,000.0	4,989.6	5,004.7	4,995.3	12.3	11.9	138.48	-194.5	-78.0	158.8	135.6	23.27	6.825	
5,100.0	5,089.4	5,105.7	5,096.1	12.6	12.2	137.97	-201.5	-79.1	160.5	136.7	23.80	6.743	

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #261-3514B
Project:	Weld County, CO	TVD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	MD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	Grid
Reference Well:	Razor Federal #261-3514B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S26-T10N-R58W - Razor Federal #261-3513A - HZ - Plan #2												Offset Site Error:	0.0 ft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,187.3	5,176.5	5,207.4	5,196.0	12.8	12.6	133.94	-219.4	-82.1	157.3	132.8	24.52	6.417	
5,200.0	5,189.1	5,221.8	5,209.7	12.9	12.6	132.96	-223.5	-82.7	156.4	131.8	24.64	6.347	
5,250.0	5,238.6	5,277.2	5,261.6	13.0	12.9	128.66	-242.7	-85.9	153.9	128.7	25.15	6.118	
5,287.9	5,275.5	5,318.1	5,298.4	13.2	13.2	125.03	-260.3	-88.8	153.3	127.7	25.59	5.991	
5,300.0	5,287.2	5,331.0	5,309.7	13.2	13.2	123.81	-266.4	-89.8	153.3	127.6	25.73	5.960	
5,350.0	5,334.4	5,383.2	5,353.8	13.5	13.6	118.60	-294.0	-94.3	155.0	128.6	26.41	5.870	
5,400.0	5,379.8	5,433.9	5,393.7	13.8	14.0	113.25	-324.8	-99.4	159.1	131.9	27.21	5.848	
5,450.0	5,423.0	5,483.2	5,429.4	14.1	14.5	107.95	-358.3	-104.9	165.5	137.4	28.11	5.888	
5,500.0	5,463.6	5,531.1	5,460.8	14.5	14.9	102.85	-393.9	-110.8	174.2	145.1	29.10	5.985	
5,550.0	5,501.3	5,577.7	5,488.2	15.0	15.4	98.07	-431.1	-116.9	184.8	154.6	30.15	6.129	
5,600.0	5,535.6	5,623.1	5,511.5	15.5	16.0	93.67	-469.6	-123.3	197.1	165.9	31.22	6.312	
5,650.0	5,566.3	5,667.6	5,530.9	16.0	16.5	89.66	-509.0	-129.7	210.7	178.4	32.29	6.526	
5,700.0	5,593.0	5,711.1	5,546.5	16.6	17.1	86.04	-549.0	-136.3	225.4	192.0	33.34	6.760	
5,750.0	5,615.6	5,753.8	5,558.5	17.3	17.7	82.80	-589.5	-143.0	240.8	206.4	34.38	7.004	
5,800.0	5,633.8	5,795.8	5,567.0	17.9	18.3	79.90	-630.1	-149.7	256.7	221.3	35.41	7.250	
5,850.0	5,647.4	5,837.3	5,572.1	18.6	18.9	77.32	-670.7	-156.4	272.9	236.4	36.44	7.488	
5,900.0	5,656.4	5,878.3	5,574.0	19.4	19.5	75.03	-711.1	-163.0	289.1	251.7	37.48	7.714	
5,950.0	5,660.6	5,933.3	5,574.0	20.1	20.3	73.38	-765.5	-171.2	304.2	265.5	38.73	7.855	
5,969.1	5,661.0	5,955.0	5,574.0	20.4	20.5	73.09	-787.0	-174.1	309.3	270.0	39.28	7.875	
6,000.0	5,661.0	5,990.5	5,574.0	20.9	21.0	73.63	-822.3	-178.1	316.7	276.4	40.32	7.855	
6,100.0	5,661.0	6,108.3	5,574.0	22.2	22.7	74.78	-939.7	-187.0	333.8	290.2	43.60	7.656	
6,200.0	5,661.0	6,222.4	5,574.0	23.6	24.4	75.18	-1,053.8	-188.8	340.2	293.4	46.79	7.270	
6,246.4	5,661.0	6,268.7	5,574.0	24.3	25.1	75.20	-1,100.1	-188.8	340.7	292.5	48.20	7.069	
6,300.0	5,661.0	6,322.4	5,574.0	25.1	26.0	75.20	-1,153.8	-188.8	340.7	290.8	49.89	6.830	
6,400.0	5,661.0	6,422.4	5,574.0	26.8	27.7	75.20	-1,253.8	-188.8	340.7	287.5	53.17	6.408	
6,500.0	5,661.0	6,522.4	5,574.0	28.5	29.4	75.20	-1,353.8	-188.8	340.7	284.2	56.51	6.030	
6,600.0	5,661.0	6,622.4	5,574.0	30.3	31.2	75.21	-1,453.8	-188.8	340.7	280.8	59.89	5.689	
6,700.0	5,661.0	6,722.4	5,574.0	32.0	32.9	75.21	-1,553.8	-188.8	340.7	277.4	63.32	5.381	
6,800.0	5,661.0	6,822.4	5,574.0	33.8	34.7	75.21	-1,653.8	-188.8	340.7	274.0	66.77	5.103	
6,900.0	5,661.0	6,922.4	5,574.0	35.6	36.5	75.21	-1,753.8	-188.8	340.8	270.5	70.26	4.850	
7,000.0	5,661.0	7,022.4	5,574.0	37.4	38.3	75.21	-1,853.8	-188.9	340.8	267.0	73.77	4.620	
7,100.0	5,661.0	7,122.4	5,574.0	39.2	40.1	75.21	-1,953.8	-188.9	340.8	263.5	77.29	4.409	
7,200.0	5,661.0	7,222.4	5,574.0	41.0	41.9	75.21	-2,053.8	-188.9	340.8	259.9	80.84	4.216	
7,300.0	5,661.0	7,322.4	5,574.0	42.8	43.8	75.21	-2,153.8	-188.9	340.8	256.4	84.40	4.038	
7,400.0	5,661.0	7,422.4	5,574.0	44.6	45.6	75.21	-2,253.8	-188.9	340.8	252.8	87.98	3.874	
7,500.0	5,661.0	7,522.4	5,574.0	46.5	47.4	75.21	-2,353.8	-188.9	340.8	249.2	91.56	3.722	
7,600.0	5,661.0	7,622.4	5,574.0	48.3	49.3	75.21	-2,453.8	-188.9	340.8	245.7	95.16	3.581	
7,700.0	5,661.0	7,722.4	5,574.0	50.2	51.1	75.21	-2,553.8	-188.9	340.8	242.1	98.77	3.451	
7,800.0	5,661.0	7,822.4	5,574.0	52.0	53.0	75.21	-2,653.8	-188.9	340.8	238.4	102.39	3.329	
7,900.0	5,661.0	7,922.4	5,574.0	53.9	54.9	75.21	-2,753.8	-188.9	340.8	234.8	106.01	3.215	
8,000.0	5,661.0	8,022.4	5,574.0	55.8	56.7	75.21	-2,853.8	-188.9	340.8	231.2	109.64	3.109	
8,100.0	5,661.0	8,122.4	5,574.0	57.6	58.6	75.21	-2,953.8	-188.9	340.9	227.6	113.28	3.009	
8,200.0	5,661.0	8,222.4	5,574.0	59.5	60.5	75.21	-3,053.8	-188.9	340.9	223.9	116.92	2.915	
8,300.0	5,661.0	8,322.4	5,574.0	61.4	62.4	75.21	-3,153.8	-188.9	340.9	220.3	120.57	2.827	
8,400.0	5,661.0	8,422.4	5,574.0	63.3	64.2	75.21	-3,253.8	-188.9	340.9	216.7	124.22	2.744	
8,500.0	5,661.0	8,522.4	5,574.0	65.1	66.1	75.21	-3,353.8	-188.9	340.9	213.0	127.88	2.666	
8,600.0	5,661.0	8,622.4	5,574.0	67.0	68.0	75.21	-3,453.8	-188.9	340.9	209.4	131.54	2.592	
8,700.0	5,661.0	8,722.4	5,574.0	68.9	69.9	75.21	-3,553.8	-188.9	340.9	205.7	135.20	2.522	
8,800.0	5,661.0	8,822.4	5,574.0	70.8	71.8	75.21	-3,653.8	-188.9	340.9	202.0	138.87	2.455	
8,900.0	5,661.0	8,922.4	5,574.0	72.7	73.6	75.21	-3,753.8	-188.9	340.9	198.4	142.54	2.392	
9,000.0	5,661.0	9,022.4	5,574.0	74.6	75.5	75.21	-3,853.8	-188.9	340.9	194.7	146.21	2.332	
9,100.0	5,661.0	9,122.4	5,574.0	76.5	77.4	75.22	-3,953.8	-188.9	340.9	191.1	149.89	2.275	

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #26I-3514B
Project:	Weld County, CO	TVD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	MD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	Grid
Reference Well:	Razor Federal #26I-3514B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S26-T10N-R58W - Razor Federal #26I-3513A - HZ - Plan #2											Offset Site Error: 0.0 ft		
Survey Program: 0-ISCSWA MWD											Offset Well Error: 0.0 ft		
Reference		Offset		Semi Major Axis			Distance					Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis		Separation Factor
9,200.0	5,661.0	9,222.4	5,574.0	78.3	79.3	75.22	-4,053.8	-188.9	340.9	187.4	153.56	2.220	
9,300.0	5,661.0	9,322.4	5,574.0	80.2	81.2	75.22	-4,153.8	-188.9	341.0	183.7	157.24	2.168	
9,400.0	5,661.0	9,422.4	5,574.0	82.1	83.1	75.22	-4,253.8	-188.9	341.0	180.0	160.93	2.119	
9,500.0	5,661.0	9,522.4	5,574.0	84.0	85.0	75.22	-4,353.8	-188.9	341.0	176.4	164.61	2.071	
9,600.0	5,661.0	9,622.4	5,574.0	85.9	86.9	75.22	-4,453.8	-189.0	341.0	172.7	168.30	2.026	
9,700.0	5,661.0	9,722.4	5,574.0	87.8	88.8	75.22	-4,553.8	-189.0	341.0	169.0	171.98	1.983	
9,800.0	5,661.0	9,822.4	5,574.0	89.7	90.7	75.22	-4,653.8	-189.0	341.0	165.3	175.67	1.941	
9,900.0	5,661.0	9,922.4	5,574.0	91.6	92.6	75.22	-4,753.8	-189.0	341.0	161.6	179.37	1.901	
10,000.0	5,661.0	10,022.4	5,574.0	93.5	94.5	75.22	-4,853.8	-189.0	341.0	158.0	183.06	1.863	
10,100.0	5,661.0	10,122.4	5,574.0	95.4	96.4	75.22	-4,953.8	-189.0	341.0	154.3	186.75	1.826	
10,200.0	5,661.0	10,222.4	5,574.0	97.3	98.3	75.22	-5,053.8	-189.0	341.0	150.6	190.45	1.791	
10,300.0	5,661.0	10,322.4	5,574.0	99.2	100.2	75.22	-5,153.8	-189.0	341.0	146.9	194.14	1.757	
10,400.0	5,661.0	10,422.4	5,574.0	101.1	102.1	75.22	-5,253.8	-189.0	341.0	143.2	197.84	1.724	
10,500.0	5,661.0	10,522.4	5,574.0	103.0	104.0	75.22	-5,353.8	-189.0	341.1	139.5	201.54	1.692	
10,600.0	5,661.0	10,622.4	5,574.0	104.9	105.9	75.22	-5,453.8	-189.0	341.1	135.8	205.24	1.662	
10,700.0	5,661.0	10,722.4	5,574.0	106.8	107.8	75.22	-5,553.8	-189.0	341.1	132.1	208.94	1.632	
10,800.0	5,661.0	10,822.4	5,574.0	108.7	109.7	75.22	-5,653.8	-189.0	341.1	128.4	212.64	1.604	
10,900.0	5,661.0	10,922.4	5,574.0	110.6	111.6	75.22	-5,753.8	-189.0	341.1	124.8	216.34	1.577	
11,000.0	5,661.0	11,022.4	5,574.0	112.5	113.5	75.22	-5,853.8	-189.0	341.1	121.1	220.04	1.550	
11,100.0	5,661.0	11,122.4	5,574.0	114.4	115.4	75.22	-5,953.8	-189.0	341.1	117.4	223.75	1.525	
11,200.0	5,661.0	11,222.4	5,574.0	116.3	117.3	75.22	-6,053.8	-189.0	341.1	113.7	227.45	1.500 Level 3	
11,300.0	5,661.0	11,322.4	5,574.0	118.2	119.2	75.22	-6,153.8	-189.0	341.1	110.0	231.16	1.476 Level 3	
11,400.0	5,661.0	11,422.4	5,574.0	120.2	121.1	75.22	-6,253.8	-189.0	341.1	106.3	234.86	1.452 Level 3	
11,500.0	5,661.0	11,522.4	5,574.0	122.1	123.0	75.22	-6,353.8	-189.0	341.1	102.6	238.57	1.430 Level 3	
11,600.0	5,661.0	11,622.4	5,574.0	124.0	124.9	75.23	-6,453.8	-189.0	341.1	98.9	242.28	1.408 Level 3	
11,700.0	5,661.0	11,722.4	5,574.0	125.9	126.9	75.23	-6,553.8	-189.0	341.2	95.2	245.98	1.387 Level 3	
11,800.0	5,661.0	11,822.4	5,574.0	127.8	128.8	75.23	-6,653.8	-189.0	341.2	91.5	249.69	1.366 Level 3	
11,900.0	5,661.0	11,922.4	5,574.0	129.7	130.7	75.23	-6,753.8	-189.0	341.2	87.8	253.40	1.346 Level 3	
12,000.0	5,661.0	12,022.4	5,574.0	131.6	132.6	75.23	-6,853.8	-189.0	341.2	84.1	257.11	1.327 Level 3	
12,032.8	5,661.0	12,055.2	5,574.0	132.1	133.2	75.23	-6,886.6	-189.0	341.2	83.0	258.21	1.321 Level 3, SF	

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #261-3514B
Project:	Weld County, CO	TVD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	MD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	Grid
Reference Well:	Razor Federal #261-3514B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S26-T10N-R58W - Razor Federal #261-3515A - HZ - Plan #3												Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	22.75	75.5	31.6	81.8				
100.0	100.0	100.0	100.0	0.1	0.1	22.75	75.5	31.6	81.8	81.7	0.19	436.108	
200.0	200.0	200.0	200.0	0.3	0.3	22.75	75.5	31.6	81.8	81.2	0.64	128.448	
300.0	300.0	300.0	300.0	0.5	0.5	22.75	75.5	31.6	81.8	80.8	1.09	75.315	
400.0	400.0	400.0	400.0	0.8	0.8	22.75	75.5	31.6	81.8	80.3	1.54	53.277	
500.0	500.0	500.0	500.0	1.0	1.0	22.75	75.5	31.6	81.8	79.9	1.99	41.217	
600.0	600.0	600.0	600.0	1.2	1.2	22.75	75.5	31.6	81.8	79.4	2.44	33.609 CC	
700.0	700.0	702.1	702.1	1.4	1.4	-148.69	73.8	32.3	82.1	79.2	2.84	28.943 ES	
800.0	799.8	804.1	803.9	1.6	1.6	-147.95	68.7	34.3	82.7	79.5	3.21	25.814	
900.0	899.6	904.1	903.6	1.8	1.8	-147.09	62.2	36.9	83.8	80.2	3.60	23.261	
1,000.0	999.4	1,004.0	1,003.4	2.0	2.0	-146.25	55.8	39.5	84.8	80.8	4.02	21.104	
1,100.0	1,099.1	1,104.0	1,103.1	2.2	2.3	-145.43	49.3	42.0	85.9	81.4	4.45	19.288	
1,200.0	1,198.9	1,204.0	1,202.9	2.5	2.5	-144.63	42.8	44.6	86.9	82.0	4.90	17.753	
1,300.0	1,298.6	1,304.0	1,302.6	2.7	2.7	-143.84	36.3	47.2	88.0	82.7	5.35	16.448	
1,400.0	1,398.4	1,404.0	1,402.4	3.0	3.0	-143.08	29.8	49.7	89.1	83.3	5.81	15.329	
1,500.0	1,498.1	1,504.0	1,502.1	3.2	3.2	-142.34	23.3	52.3	90.2	84.0	6.28	14.363	
1,600.0	1,597.9	1,604.0	1,601.8	3.5	3.5	-141.61	16.9	54.9	91.4	84.6	6.76	13.523	
1,700.0	1,697.6	1,704.0	1,701.6	3.7	3.7	-140.91	10.4	57.5	92.5	85.3	7.24	12.787	
1,800.0	1,797.4	1,803.9	1,801.3	4.0	4.0	-140.22	3.9	60.0	93.7	86.0	7.72	12.138	
1,900.0	1,897.2	1,903.9	1,901.1	4.2	4.2	-139.54	-2.6	62.6	94.9	86.7	8.21	11.562	
2,000.0	1,996.9	2,003.9	2,000.8	4.5	4.5	-138.89	-9.1	65.2	96.1	87.4	8.70	11.048	
2,100.0	2,096.7	2,103.9	2,100.6	4.7	4.8	-138.25	-15.6	67.7	97.3	88.1	9.19	10.587	
2,200.0	2,196.4	2,203.9	2,200.3	5.0	5.0	-137.62	-22.0	70.3	98.5	88.8	9.68	10.171	
2,300.0	2,296.2	2,303.9	2,300.1	5.3	5.3	-137.02	-28.5	72.9	99.7	89.5	10.18	9.795	
2,400.0	2,395.9	2,403.9	2,399.8	5.5	5.5	-136.42	-35.0	75.4	100.9	90.3	10.68	9.453	
2,500.0	2,495.7	2,503.9	2,499.5	5.8	5.8	-135.84	-41.5	78.0	102.2	91.0	11.18	9.141	
2,600.0	2,595.5	2,603.8	2,599.3	6.0	6.1	-135.28	-48.0	80.6	103.4	91.8	11.68	8.855	
2,700.0	2,695.2	2,703.8	2,699.0	6.3	6.3	-134.72	-54.5	83.1	104.7	92.5	12.19	8.593	
2,800.0	2,795.0	2,803.8	2,798.8	6.6	6.6	-134.19	-60.9	85.7	106.0	93.3	12.69	8.351	
2,900.0	2,894.7	2,903.8	2,898.5	6.8	6.8	-133.66	-67.4	88.3	107.3	94.1	13.20	8.127	
3,000.0	2,994.5	3,003.8	2,998.3	7.1	7.1	-133.15	-73.9	90.9	108.6	94.9	13.71	7.920	
3,100.0	3,094.2	3,103.8	3,098.0	7.3	7.4	-132.64	-80.4	93.4	109.9	95.7	14.22	7.728	
3,200.0	3,194.0	3,203.8	3,197.7	7.6	7.6	-132.16	-86.9	96.0	111.2	96.5	14.73	7.548	
3,300.0	3,293.8	3,303.7	3,297.5	7.9	7.9	-131.68	-93.4	98.6	112.5	97.3	15.24	7.381	
3,400.0	3,393.5	3,403.7	3,397.2	8.1	8.2	-131.21	-99.9	101.1	113.8	98.1	15.75	7.225	
3,500.0	3,493.3	3,503.7	3,497.0	8.4	8.4	-130.75	-106.3	103.7	115.2	98.9	16.27	7.079	
3,600.0	3,593.0	3,603.7	3,596.7	8.7	8.7	-130.31	-112.8	106.3	116.5	99.7	16.78	6.941	
3,700.0	3,692.8	3,703.7	3,696.5	8.9	8.9	-129.87	-119.3	108.8	117.9	100.6	17.30	6.812	
3,800.0	3,792.5	3,803.7	3,796.2	9.2	9.2	-129.45	-125.8	111.4	119.2	101.4	17.82	6.691	
3,900.0	3,892.3	3,903.7	3,895.9	9.4	9.5	-129.03	-132.3	114.0	120.6	102.2	18.33	6.576	
4,000.0	3,992.1	4,003.7	3,995.7	9.7	9.7	-128.62	-138.8	116.6	121.9	103.1	18.85	6.468	
4,100.0	4,091.8	4,103.6	4,095.4	10.0	10.0	-128.23	-145.2	119.1	123.3	103.9	19.37	6.366	
4,200.0	4,191.6	4,203.6	4,195.2	10.2	10.3	-127.84	-151.7	121.7	124.7	104.8	19.89	6.269	
4,300.0	4,291.3	4,303.6	4,294.9	10.5	10.5	-127.46	-158.2	124.3	126.1	105.7	20.41	6.177	
4,400.0	4,391.1	4,403.6	4,394.7	10.8	10.8	-127.09	-164.7	126.8	127.5	106.5	20.93	6.090	
4,500.0	4,490.8	4,503.6	4,494.4	11.0	11.0	-126.72	-171.2	129.4	128.9	107.4	21.45	6.007	
4,600.0	4,590.6	4,603.6	4,594.2	11.3	11.3	-126.37	-177.7	132.0	130.3	108.3	21.97	5.928	
4,700.0	4,690.3	4,703.6	4,693.9	11.6	11.6	-126.02	-184.1	134.5	131.7	109.2	22.49	5.853	
4,800.0	4,790.1	4,803.6	4,793.6	11.8	11.8	-125.68	-190.6	137.1	133.1	110.1	23.02	5.782	
4,900.0	4,889.9	4,903.5	4,893.4	12.1	12.1	-125.34	-197.1	139.7	134.5	110.9	23.54	5.713	
5,000.0	4,989.6	5,003.5	4,993.1	12.3	12.4	-125.01	-203.6	142.3	135.9	111.8	24.06	5.648	
5,100.0	5,089.4	5,103.9	5,093.2	12.6	12.6	-124.69	-210.1	144.8	137.3	112.7	24.59	5.585	

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #261-3514B
Project:	Weld County, CO	TVD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	MD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	Grid
Reference Well:	Razor Federal #261-3514B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S26-T10N-R58W - Razor Federal #261-3515A - HZ - Plan #3													Offset Site Error:	0.0 ft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,187.3	5,176.5	5,199.2	5,187.1	12.8	13.0	-120.69	-225.0	150.7	135.7	110.4	25.29	5.366		
5,200.0	5,189.1	5,212.7	5,200.1	12.9	13.0	-119.65	-228.4	152.1	135.2	109.8	25.41	5.320		
5,250.0	5,238.6	5,265.1	5,249.6	13.0	13.3	-115.31	-244.4	158.4	134.3	108.4	25.94	5.176		
5,251.1	5,239.7	5,266.3	5,250.6	13.0	13.3	-115.21	-244.8	158.6	134.3	108.3	25.95	5.174		
5,300.0	5,287.2	5,316.4	5,296.0	13.2	13.6	-110.67	-264.5	166.4	135.2	108.6	26.56	5.089		
5,350.0	5,334.4	5,366.5	5,339.1	13.5	14.0	-105.91	-288.2	175.8	137.9	110.6	27.26	5.057		
5,400.0	5,379.8	5,415.5	5,378.8	13.8	14.4	-101.21	-315.0	186.4	142.4	114.3	28.05	5.077		
5,450.0	5,423.0	5,463.5	5,414.8	14.1	14.8	-96.71	-344.4	198.1	148.6	119.7	28.91	5.142		
5,500.0	5,463.6	5,510.5	5,447.1	14.5	15.3	-92.51	-376.2	210.6	156.4	126.6	29.81	5.247		
5,550.0	5,501.3	5,556.6	5,475.7	15.0	15.8	-88.68	-409.8	224.0	165.5	134.7	30.73	5.385		
5,600.0	5,535.6	5,601.9	5,500.5	15.5	16.3	-85.23	-444.9	237.9	175.6	143.9	31.66	5.546		
5,650.0	5,566.3	5,646.4	5,521.7	16.0	16.9	-82.16	-481.4	252.3	186.6	154.0	32.60	5.722		
5,700.0	5,593.0	5,690.3	5,539.1	16.6	17.5	-79.45	-518.7	267.1	198.2	164.6	33.56	5.906		
5,750.0	5,615.6	5,733.5	5,553.0	17.3	18.1	-77.07	-556.8	282.2	210.2	175.7	34.53	6.088		
5,800.0	5,633.8	5,776.3	5,563.3	17.9	18.8	-75.00	-595.4	297.5	222.5	187.0	35.52	6.264		
5,850.0	5,647.4	5,818.6	5,570.2	18.6	19.4	-73.20	-634.2	312.9	234.9	198.3	36.55	6.426		
5,900.0	5,656.4	5,860.5	5,573.6	19.4	20.1	-71.65	-673.0	328.3	247.2	209.6	37.63	6.570		
5,950.0	5,660.6	5,909.1	5,574.0	20.1	20.8	-70.46	-718.2	346.0	259.1	220.3	38.87	6.666		
5,969.1	5,661.0	5,930.5	5,574.0	20.4	21.2	-70.30	-738.3	353.5	263.0	223.6	39.44	6.669		
6,000.0	5,661.0	5,965.3	5,574.0	20.9	21.6	-70.76	-771.1	365.2	269.0	228.6	40.42	6.656		
6,100.0	5,661.0	6,079.1	5,574.0	22.2	23.3	-72.09	-879.6	399.2	288.0	244.5	43.46	6.626		
6,200.0	5,661.0	6,194.4	5,574.0	23.6	25.1	-73.22	-991.5	427.1	306.4	259.8	46.51	6.587		
6,246.4	5,661.0	6,248.3	5,574.0	24.3	25.9	-73.69	-1,044.4	437.8	314.6	266.7	47.92	6.566		
6,300.0	5,661.0	6,311.3	5,574.0	25.1	26.9	-74.22	-1,106.5	448.4	323.3	273.5	49.84	6.487		
6,400.0	5,661.0	6,430.4	5,574.0	26.8	28.8	-74.89	-1,224.7	462.8	335.0	281.5	53.52	6.259		
6,500.0	5,661.0	6,550.9	5,574.0	28.5	30.7	-75.20	-1,344.9	469.8	340.7	283.5	57.19	5.957		
6,600.0	5,661.0	6,659.8	5,574.0	30.3	32.4	-75.23	-1,453.8	470.5	341.2	280.6	60.64	5.627		
6,700.0	5,661.0	6,759.8	5,574.0	32.0	34.1	-75.23	-1,553.8	470.6	341.2	277.2	64.01	5.331		
6,800.0	5,661.0	6,859.8	5,574.0	33.8	35.8	-75.23	-1,653.8	470.6	341.2	273.8	67.43	5.060		
6,900.0	5,661.0	6,959.8	5,574.0	35.6	37.5	-75.23	-1,753.8	470.6	341.2	270.3	70.89	4.814		
7,000.0	5,661.0	7,059.8	5,574.0	37.4	39.2	-75.23	-1,853.8	470.6	341.2	266.9	74.37	4.588		
7,100.0	5,661.0	7,159.8	5,574.0	39.2	41.0	-75.23	-1,953.8	470.6	341.2	263.3	77.87	4.382		
7,200.0	5,661.0	7,259.8	5,574.0	41.0	42.7	-75.23	-2,053.8	470.6	341.2	259.8	81.39	4.192		
7,300.0	5,661.0	7,359.8	5,574.0	42.8	44.5	-75.23	-2,153.8	470.6	341.2	256.3	84.93	4.018		
7,400.0	5,661.0	7,459.8	5,574.0	44.6	46.3	-75.23	-2,253.8	470.6	341.2	252.7	88.49	3.856		
7,500.0	5,661.0	7,559.8	5,574.0	46.5	48.1	-75.23	-2,353.8	470.6	341.2	249.2	92.06	3.707		
7,600.0	5,661.0	7,659.8	5,574.0	48.3	49.9	-75.23	-2,453.8	470.6	341.2	245.6	95.64	3.568		
7,700.0	5,661.0	7,759.8	5,574.0	50.2	51.7	-75.23	-2,553.8	470.6	341.2	242.0	99.23	3.439		
7,800.0	5,661.0	7,859.8	5,574.0	52.0	53.5	-75.23	-2,653.8	470.6	341.2	238.4	102.83	3.318		
7,900.0	5,661.0	7,959.8	5,574.0	53.9	55.4	-75.23	-2,753.8	470.6	341.2	234.8	106.44	3.206		
8,000.0	5,661.0	8,059.8	5,574.0	55.8	57.2	-75.23	-2,853.8	470.6	341.2	231.2	110.06	3.100		
8,100.0	5,661.0	8,159.8	5,574.0	57.6	59.0	-75.23	-2,953.8	470.6	341.2	227.5	113.69	3.001		
8,200.0	5,661.0	8,259.8	5,574.0	59.5	60.9	-75.23	-3,053.8	470.6	341.2	223.9	117.32	2.908		
8,300.0	5,661.0	8,359.8	5,574.0	61.4	62.7	-75.23	-3,153.8	470.6	341.2	220.3	120.96	2.821		
8,400.0	5,661.0	8,459.8	5,574.0	63.3	64.6	-75.23	-3,253.8	470.6	341.2	216.6	124.60	2.738		
8,500.0	5,661.0	8,559.8	5,574.0	65.1	66.4	-75.23	-3,353.8	470.6	341.2	213.0	128.25	2.661		
8,600.0	5,661.0	8,659.8	5,574.0	67.0	68.3	-75.23	-3,453.8	470.6	341.2	209.3	131.90	2.587		
8,700.0	5,661.0	8,759.8	5,574.0	68.9	70.2	-75.23	-3,553.8	470.6	341.2	205.7	135.55	2.517		
8,800.0	5,661.0	8,859.8	5,574.0	70.8	72.0	-75.23	-3,653.8	470.6	341.2	202.0	139.21	2.451		
8,900.0	5,661.0	8,959.8	5,574.0	72.7	73.9	-75.23	-3,753.8	470.6	341.2	198.3	142.88	2.388		
9,000.0	5,661.0	9,059.8	5,574.0	74.6	75.8	-75.23	-3,853.8	470.6	341.2	194.7	146.54	2.328		
9,100.0	5,661.0	9,159.8	5,574.0	76.5	77.6	-75.23	-3,953.8	470.7	341.2	191.0	150.21	2.271		

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #26I-3514B
Project:	Weld County, CO	TVD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	MD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	Grid
Reference Well:	Razor Federal #26I-3514B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S26-T10N-R58W - Razor Federal #26I-3515A - HZ - Plan #3												Offset Site Error:	0.0 ft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance					Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis		
9,200.0	5,661.0	9,259.8	5,574.0	78.3	79.5	-75.23	-4,053.8	470.7	341.2	187.3	153.88	2.217	
9,300.0	5,661.0	9,359.8	5,574.0	80.2	81.4	-75.23	-4,153.8	470.7	341.2	183.6	157.56	2.166	
9,400.0	5,661.0	9,459.8	5,574.0	82.1	83.3	-75.23	-4,253.8	470.7	341.2	180.0	161.24	2.116	
9,500.0	5,661.0	9,559.8	5,574.0	84.0	85.1	-75.23	-4,353.8	470.7	341.2	176.3	164.91	2.069	
9,600.0	5,661.0	9,659.8	5,574.0	85.9	87.0	-75.23	-4,453.8	470.7	341.2	172.6	168.60	2.024	
9,700.0	5,661.0	9,759.8	5,574.0	87.8	88.9	-75.23	-4,553.8	470.7	341.2	168.9	172.28	1.981	
9,800.0	5,661.0	9,859.8	5,574.0	89.7	90.8	-75.23	-4,653.8	470.7	341.2	165.2	175.96	1.939	
9,900.0	5,661.0	9,959.8	5,574.0	91.6	92.7	-75.23	-4,753.8	470.7	341.2	161.5	179.65	1.899	
10,000.0	5,661.0	10,059.8	5,574.0	93.5	94.6	-75.23	-4,853.8	470.7	341.2	157.9	183.34	1.861	
10,100.0	5,661.0	10,159.8	5,574.0	95.4	96.5	-75.23	-4,953.8	470.7	341.2	154.2	187.03	1.824	
10,200.0	5,661.0	10,259.8	5,574.0	97.3	98.3	-75.23	-5,053.8	470.7	341.2	150.5	190.72	1.789	
10,300.0	5,661.0	10,359.8	5,574.0	99.2	100.2	-75.23	-5,153.8	470.7	341.2	146.8	194.41	1.755	
10,400.0	5,661.0	10,459.8	5,574.0	101.1	102.1	-75.23	-5,253.8	470.7	341.2	143.1	198.11	1.722	
10,500.0	5,661.0	10,559.8	5,574.0	103.0	104.0	-75.23	-5,353.8	470.7	341.2	139.4	201.80	1.691	
10,600.0	5,661.0	10,659.8	5,574.0	104.9	105.9	-75.23	-5,453.8	470.7	341.2	135.7	205.50	1.660	
10,700.0	5,661.0	10,759.8	5,574.0	106.8	107.8	-75.23	-5,553.8	470.7	341.2	132.0	209.20	1.631	
10,800.0	5,661.0	10,859.8	5,574.0	108.7	109.7	-75.23	-5,653.8	470.7	341.2	128.3	212.89	1.603	
10,900.0	5,661.0	10,959.8	5,574.0	110.6	111.6	-75.23	-5,753.8	470.7	341.2	124.6	216.59	1.575	
11,000.0	5,661.0	11,059.8	5,574.0	112.5	113.5	-75.23	-5,853.8	470.7	341.2	120.9	220.29	1.549	
11,100.0	5,661.0	11,159.8	5,574.0	114.4	115.4	-75.23	-5,953.8	470.7	341.2	117.2	224.00	1.523	
11,200.0	5,661.0	11,259.8	5,574.0	116.3	117.3	-75.23	-6,053.8	470.7	341.2	113.5	227.70	1.498 Level 3	
11,300.0	5,661.0	11,359.8	5,574.0	118.2	119.2	-75.23	-6,153.8	470.7	341.2	109.8	231.40	1.474 Level 3	
11,400.0	5,661.0	11,459.8	5,574.0	120.2	121.1	-75.23	-6,253.8	470.7	341.2	106.1	235.10	1.451 Level 3	
11,500.0	5,661.0	11,559.8	5,574.0	122.1	123.0	-75.23	-6,353.8	470.7	341.2	102.4	238.81	1.429 Level 3	
11,600.0	5,661.0	11,659.8	5,574.0	124.0	124.9	-75.23	-6,453.8	470.8	341.2	98.7	242.51	1.407 Level 3	
11,700.0	5,661.0	11,759.8	5,574.0	125.9	126.8	-75.23	-6,553.8	470.8	341.2	95.0	246.22	1.386 Level 3	
11,800.0	5,661.0	11,859.8	5,574.0	127.8	128.7	-75.23	-6,653.8	470.8	341.2	91.3	249.92	1.365 Level 3	
11,900.0	5,661.0	11,959.8	5,574.0	129.7	130.6	-75.23	-6,753.8	470.8	341.2	87.6	253.63	1.345 Level 3	
12,000.0	5,661.0	12,059.8	5,574.0	131.6	132.5	-75.23	-6,853.8	470.8	341.2	83.8	257.34	1.326 Level 3	
12,023.8	5,661.0	12,083.5	5,574.0	132.0	132.9	-75.23	-6,877.5	470.8	341.2	83.1	258.13	1.322 Level 3	
12,032.8	5,661.0	12,085.3	5,574.0	132.1	133.0	-75.23	-6,879.3	470.8	341.3	83.0	258.30	1.321 Level 3, SF	

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #261-3514B
Project:	Weld County, CO	TVD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	MD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	Grid
Reference Well:	Razor Federal #261-3514B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S26-T10N-R58W - Razor Federal #261-3516B - HZ - Plan #3													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	88.92	1.2	66.1	66.1					
100.0	100.0	100.0	100.0	0.1	0.1	88.92	1.2	66.1	66.1	65.9	0.19	352.367		
200.0	200.0	200.0	200.0	0.3	0.3	88.92	1.2	66.1	66.1	65.5	0.64	103.784		
300.0	300.0	300.0	300.0	0.5	0.5	88.92	1.2	66.1	66.1	65.0	1.09	60.854		
400.0	400.0	400.0	400.0	0.8	0.8	88.92	1.2	66.1	66.1	64.6	1.54	43.047		
500.0	500.0	500.0	500.0	1.0	1.0	88.92	1.2	66.1	66.1	64.1	1.99	33.302		
600.0	600.0	600.0	600.0	1.2	1.2	88.92	1.2	66.1	66.1	63.7	2.44	27.155		
700.0	700.0	700.0	700.0	1.4	1.4	-84.27	1.2	66.1	65.9	63.1	2.86	23.080		
800.0	799.8	799.8	799.8	1.6	1.7	-88.82	1.2	66.1	65.6	62.4	3.26	20.102		
819.4	819.2	819.2	819.2	1.6	1.7	-90.00	1.2	66.1	65.6	62.3	3.35	19.600 CC		
900.0	899.6	899.6	899.6	1.8	1.9	-94.89	1.2	66.1	65.8	62.2	3.69	17.836 ES		
1,000.0	999.4	999.4	999.4	2.0	2.1	-100.84	1.2	66.1	66.8	62.7	4.13	16.165		
1,100.0	1,099.1	1,099.1	1,099.1	2.2	2.3	-106.57	1.2	66.1	68.5	63.9	4.58	14.943		
1,200.0	1,198.9	1,198.8	1,198.8	2.5	2.5	-110.60	-0.2	67.0	70.8	65.8	5.01	14.137		
1,300.0	1,298.6	1,298.7	1,298.5	2.7	2.7	-111.65	-4.7	69.7	73.5	68.0	5.42	13.544		
1,400.0	1,398.4	1,398.7	1,398.3	3.0	2.9	-111.28	-10.6	73.3	76.2	70.3	5.86	13.003		
1,500.0	1,498.1	1,498.6	1,498.0	3.2	3.1	-110.94	-16.6	76.9	78.9	72.6	6.30	12.510		
1,600.0	1,597.9	1,598.6	1,597.7	3.5	3.3	-110.61	-22.6	80.4	81.6	74.8	6.76	12.062		
1,700.0	1,697.6	1,698.5	1,697.4	3.7	3.5	-110.31	-28.6	84.0	84.3	77.1	7.23	11.656		
1,800.0	1,797.4	1,798.5	1,797.1	4.0	3.8	-110.03	-34.5	87.6	87.0	79.3	7.71	11.289		
1,900.0	1,897.2	1,898.5	1,896.8	4.2	4.0	-109.77	-40.5	91.2	89.7	81.5	8.19	10.957		
2,000.0	1,996.9	1,998.4	1,996.6	4.5	4.2	-109.52	-46.5	94.8	92.4	83.7	8.67	10.655		
2,100.0	2,096.7	2,098.4	2,096.3	4.7	4.5	-109.28	-52.5	98.4	95.1	86.0	9.17	10.380		
2,200.0	2,196.4	2,198.4	2,196.0	5.0	4.7	-109.06	-58.4	102.0	97.9	88.2	9.66	10.130		
2,300.0	2,296.2	2,298.3	2,295.7	5.3	4.9	-108.85	-64.4	105.6	100.6	90.4	10.16	9.900		
2,400.0	2,395.9	2,398.3	2,395.4	5.5	5.2	-108.65	-70.4	109.2	103.3	92.6	10.66	9.690		
2,500.0	2,495.7	2,498.2	2,495.2	5.8	5.4	-108.46	-76.4	112.8	106.0	94.9	11.16	9.497		
2,600.0	2,595.5	2,598.2	2,594.9	6.0	5.7	-108.28	-82.4	116.4	108.7	97.1	11.67	9.319		
2,700.0	2,695.2	2,698.2	2,694.6	6.3	5.9	-108.11	-88.3	119.9	111.5	99.3	12.18	9.154		
2,800.0	2,795.0	2,798.1	2,794.3	6.6	6.2	-107.94	-94.3	123.5	114.2	101.5	12.69	9.002		
2,900.0	2,894.7	2,898.1	2,894.0	6.8	6.4	-107.79	-100.3	127.1	116.9	103.7	13.20	8.860		
3,000.0	2,994.5	2,998.1	2,993.8	7.1	6.7	-107.64	-106.3	130.7	119.6	105.9	13.71	8.728		
3,100.0	3,094.2	3,098.0	3,093.5	7.3	6.9	-107.50	-112.2	134.3	122.4	108.1	14.22	8.605		
3,200.0	3,194.0	3,198.0	3,193.2	7.6	7.2	-107.36	-118.2	137.9	125.1	110.4	14.73	8.490		
3,300.0	3,293.8	3,297.9	3,292.9	7.9	7.5	-107.23	-124.2	141.5	127.8	112.6	15.25	8.382		
3,400.0	3,393.5	3,397.9	3,392.6	8.1	7.7	-107.11	-130.2	145.1	130.5	114.8	15.76	8.281		
3,500.0	3,493.3	3,497.9	3,492.4	8.4	8.0	-106.99	-136.1	148.7	133.3	117.0	16.28	8.186		
3,600.0	3,593.0	3,597.8	3,592.1	8.7	8.2	-106.88	-142.1	152.3	136.0	119.2	16.80	8.097		
3,700.0	3,692.8	3,697.8	3,691.8	8.9	8.5	-106.77	-148.1	155.9	138.7	121.4	17.32	8.012		
3,800.0	3,792.5	3,797.8	3,791.5	9.2	8.7	-106.66	-154.1	159.5	141.5	123.6	17.83	7.933		
3,900.0	3,892.3	3,897.7	3,891.2	9.4	9.0	-106.56	-160.1	163.0	144.2	125.8	18.35	7.857		
4,000.0	3,992.1	3,997.7	3,990.9	9.7	9.3	-106.46	-166.0	166.6	146.9	128.1	18.87	7.786		
4,100.0	4,091.8	4,097.6	4,090.7	10.0	9.5	-106.37	-172.0	170.2	149.7	130.3	19.39	7.718		
4,200.0	4,191.6	4,197.6	4,190.4	10.2	9.8	-106.28	-178.0	173.8	152.4	132.5	19.91	7.654		
4,300.0	4,291.3	4,297.6	4,290.1	10.5	10.0	-106.19	-184.0	177.4	155.1	134.7	20.43	7.593		
4,400.0	4,391.1	4,397.5	4,389.8	10.8	10.3	-106.10	-189.9	181.0	157.9	136.9	20.95	7.534		
4,500.0	4,490.8	4,497.5	4,489.5	11.0	10.6	-106.02	-195.9	184.6	160.6	139.1	21.47	7.479		
4,600.0	4,590.6	4,597.5	4,589.3	11.3	10.8	-105.94	-201.9	188.2	163.3	141.3	21.99	7.426		
4,700.0	4,690.3	4,697.4	4,689.0	11.6	11.1	-105.87	-207.9	191.8	166.1	143.5	22.52	7.375		
4,800.0	4,790.1	4,797.4	4,788.7	11.8	11.3	-105.79	-213.9	195.4	168.8	145.8	23.04	7.327		
4,900.0	4,889.9	4,897.3	4,888.4	12.1	11.6	-105.72	-219.8	199.0	171.5	148.0	23.56	7.281		
5,000.0	4,989.6	4,997.3	4,988.1	12.3	11.9	-105.65	-225.8	202.5	174.3	150.2	24.08	7.236		

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #26I-3514B
Project:	Weld County, CO	TVD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	MD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	Grid
Reference Well:	Razor Federal #26I-3514B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S26-T10N-R58W - Razor Federal #26I-3516B - HZ - Plan #3													Offset Site Error:	0.0 ft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,100.0	5,089.4	5,097.3	5,087.9	12.6	12.1	-105.59	-231.8	206.1	177.0	152.4	24.61	7.194		
5,187.3	5,176.5	5,184.5	5,174.9	12.8	12.3	-105.53	-237.0	209.3	179.4	154.3	25.06	7.158		
5,200.0	5,189.1	5,196.8	5,187.1	12.9	12.4	-105.49	-237.8	209.8	179.8	154.7	25.13	7.155 SF		
5,250.0	5,238.6	5,244.6	5,234.5	13.0	12.5	-105.23	-243.4	213.1	182.5	157.1	25.43	7.179		
5,300.0	5,287.2	5,292.4	5,281.0	13.2	12.7	-104.79	-252.6	218.7	187.1	161.3	25.79	7.254		
5,350.0	5,334.4	5,339.9	5,326.1	13.5	12.9	-104.20	-265.4	226.4	193.4	167.2	26.23	7.374		
5,400.0	5,379.8	5,387.1	5,369.3	13.8	13.2	-103.47	-281.6	236.0	201.5	174.7	26.75	7.532		
5,450.0	5,423.0	5,434.0	5,410.5	14.1	13.5	-102.60	-300.8	247.6	211.1	183.8	27.35	7.719		
5,500.0	5,463.6	5,480.5	5,449.1	14.5	13.9	-101.62	-323.0	261.0	222.3	194.3	28.05	7.927		
5,550.0	5,501.3	5,526.7	5,485.0	15.0	14.3	-100.54	-347.9	275.9	234.9	206.1	28.84	8.147		
5,600.0	5,535.6	5,572.5	5,518.0	15.5	14.7	-99.37	-375.2	292.3	248.8	219.1	29.73	8.371		
5,650.0	5,566.3	5,618.1	5,547.9	16.0	15.2	-98.14	-404.6	310.0	263.9	233.2	30.72	8.591		
5,700.0	5,593.0	5,663.3	5,574.5	16.6	15.7	-96.84	-436.0	328.9	280.0	248.2	31.82	8.800		
5,750.0	5,615.6	5,708.4	5,597.7	17.3	16.2	-95.49	-469.1	348.7	297.1	264.0	33.02	8.997		
5,800.0	5,633.8	5,753.3	5,617.4	17.9	16.8	-94.11	-503.7	369.5	314.8	280.5	34.29	9.182		
5,850.0	5,647.4	5,798.3	5,633.6	18.6	17.5	-92.72	-539.6	391.1	333.2	297.5	35.63	9.351		
5,900.0	5,656.4	5,843.3	5,646.2	19.4	18.2	-91.32	-576.6	413.3	352.0	314.9	37.04	9.503		
5,950.0	5,660.6	5,888.5	5,655.0	20.1	18.9	-89.92	-614.6	436.2	371.0	332.6	38.49	9.639		
5,969.1	5,661.0	5,905.8	5,657.3	20.4	19.2	-89.40	-629.4	445.0	378.4	339.3	39.06	9.687		
6,000.0	5,661.0	5,934.0	5,659.9	20.9	19.6	-89.83	-653.4	459.5	390.5	350.6	39.87	9.795		
6,100.0	5,661.0	6,041.0	5,661.0	22.2	21.3	-90.00	-745.8	513.4	431.9	389.3	42.54	10.153		
6,200.0	5,661.0	6,160.6	5,661.0	23.6	23.1	-90.00	-852.4	567.7	472.7	427.4	45.31	10.433		
6,246.4	5,661.0	6,217.4	5,661.0	24.3	24.1	-90.00	-904.1	591.1	491.3	444.7	46.61	10.541		

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #26I-3514B
Project:	Weld County, CO	TVD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	MD Reference:	KB=16.5' @ 4728.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	Grid
Reference Well:	Razor Federal #26I-3514B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB=16.5' @ 4728.2ft (Original Well Ele
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Razor Federal #26I-3514B
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.08°

