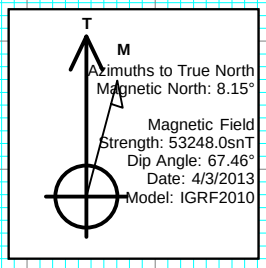
Whiting Petroleum Corporation

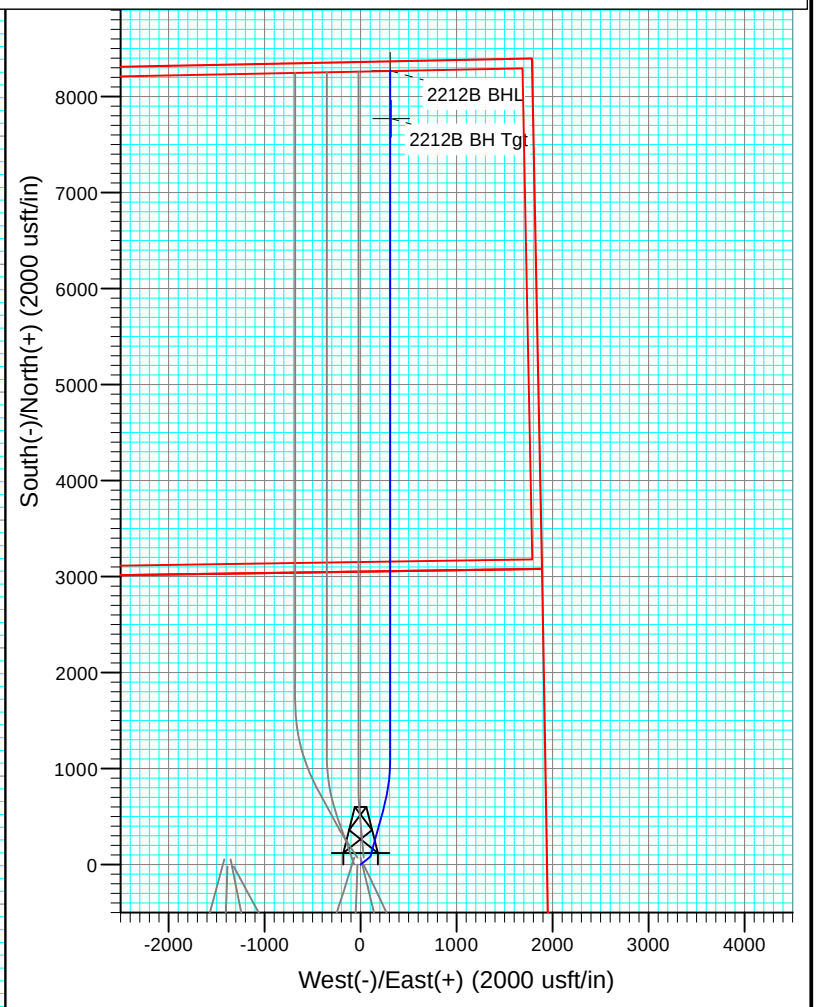
Project: Weld County, CO
Site: S27-T10N-R58W
Well: Razor #27J-2212B
Wellbore: HZ
Design: Plan #2

CATHEDRAL

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSect	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1500.0	0.00	0.00	1500.0	0.0	0.0	0.00	0.00	0.0	KOP @ 1500' MD
3	1700.0	4.00	51.07	1699.8	4.4	5.4	2.00	51.07	4.6	EOB; Inc=4°
4	3400.0	4.00	51.07	3395.7	78.9	97.7	0.00	0.00	82.5	Start 2° Drop
5	3600.0	0.00	0.00	3595.5	83.3	103.1	2.00	180.00	87.1	EOD; Vertical
6	5237.0	0.00	0.00	5232.5	83.3	103.1	0.00	0.00	87.1	Curve KOP @ 5237' MD
7	6055.1	90.00	15.30	5753.4	585.7	240.5	11.00	15.30	594.3	Start 3° Turn
8	6565.0	90.00	0.00	5753.3	1089.5	308.2	3.00	-89.99	1100.2	EOT;Azm=0°
9	13745.3	90.00	0.00	5753.0	8269.8	308.8	0.00	0.00	8275.6	PBHL @ 13745.3' MD





DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
2212B BH Tgt	5753.0	7770.7	318.8	1549394.62	3457278.57	40.829772	-103.847556
2212B BHL	5753.0	8269.8	308.8	1549893.49	3457259.31	40.831142	-103.847592

Plan #2
Razor #27J-2212B
WELL @ 4780.5usft (Original Well Elev)
Ground Elevation @ 4764.0
North American Datum 1983
Well Razor #27J-2212B, True North

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #27J-2212B
Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 4780.5usft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 4780.5usft (Original Well Elev)
Site:	S27-T10N-R58W	**North Reference:**	True
Well:	Razor #27J-2212B	**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 S27-T10N-R58W

Site Position:		**Northing:**	1,541,647.64 usft	**Latitude:**	40.808594
From:	Lat/Long	**Easting:**	3,455,684.98 usft	**Longitude:**	-103.853833
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	1.06 °

Well Razor #27J-2212B

Well Position	**+N/-S**	0.0 usft	**Northing:**	1,541,619.37 usft	**Latitude:**	40.808444
	+E/-W	0.0 usft	**Easting:**	3,457,104.52 usft	**Longitude:**	-103.848708
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	4,764.0 usft

Wellbore HZ

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/3/2013	8.15	67.46	53,248

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	2.14

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	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,700.0	4.00	51.07	1,699.8	4.4	5.4	2.00	2.00	0.00	51.07	
3,400.0	4.00	51.07	3,395.7	78.9	97.7	0.00	0.00	0.00	0.00	
3,600.0	0.00	0.00	3,595.5	83.3	103.1	2.00	-2.00	0.00	180.00	
5,237.0	0.00	0.00	5,232.5	83.3	103.1	0.00	0.00	0.00	0.00	
6,055.1	90.00	15.30	5,753.4	585.7	240.5	11.00	11.00	0.00	15.30	
6,565.0	90.00	0.00	5,753.3	1,089.5	308.2	3.00	0.00	-3.00	-89.99	
13,745.3	90.00	0.00	5,753.0	8,269.8	308.8	0.00	0.00	0.00	0.00	2212B BHL

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #27J-2212B
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Project:	Weld County, CO	**MD Reference:**	WELL @ 4780.5usft (Original Well Elev)
Site:	S27-T10N-R58W	**North Reference:**	True
Well:	Razor #27J-2212B	**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	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	KOP @ 1500' MD
1,600.0	2.00	51.07	1,600.0	1.1	1.4	1.1	2.00	2.00	
1,700.0	4.00	51.07	1,699.8	4.4	5.4	4.6	2.00	2.00	EOB; Inc=4°
1,800.0	4.00	51.07	1,799.6	8.8	10.9	9.2	0.00	0.00	
1,900.0	4.00	51.07	1,899.4	13.2	16.3	13.8	0.00	0.00	
2,000.0	4.00	51.07	1,999.1	17.5	21.7	18.3	0.00	0.00	
2,100.0	4.00	51.07	2,098.9	21.9	27.1	22.9	0.00	0.00	
2,200.0	4.00	51.07	2,198.6	26.3	32.6	27.5	0.00	0.00	
2,300.0	4.00	51.07	2,298.4	30.7	38.0	32.1	0.00	0.00	
2,400.0	4.00	51.07	2,398.1	35.1	43.4	36.7	0.00	0.00	
2,500.0	4.00	51.07	2,497.9	39.5	48.8	41.2	0.00	0.00	
2,600.0	4.00	51.07	2,597.6	43.8	54.3	45.8	0.00	0.00	
2,700.0	4.00	51.07	2,697.4	48.2	59.7	50.4	0.00	0.00	
2,800.0	4.00	51.07	2,797.2	52.6	65.1	55.0	0.00	0.00	
2,900.0	4.00	51.07	2,896.9	57.0	70.5	59.6	0.00	0.00	
3,000.0	4.00	51.07	2,996.7	61.4	76.0	64.2	0.00	0.00	
3,100.0	4.00	51.07	3,096.4	65.8	81.4	68.7	0.00	0.00	
3,200.0	4.00	51.07	3,196.2	70.1	86.8	73.3	0.00	0.00	
3,300.0	4.00	51.07	3,295.9	74.5	92.2	77.9	0.00	0.00	
3,400.0	4.00	51.07	3,395.7	78.9	97.7	82.5	0.00	0.00	Start 2° Drop
3,500.0	2.00	51.07	3,495.6	82.2	101.7	85.9	2.00	-2.00	
3,600.0	0.00	0.00	3,595.5	83.3	103.1	87.1	2.00	-2.00	EOD; Vertical
3,700.0	0.00	0.00	3,695.5	83.3	103.1	87.1	0.00	0.00	
3,800.0	0.00	0.00	3,795.5	83.3	103.1	87.1	0.00	0.00	
3,900.0	0.00	0.00	3,895.5	83.3	103.1	87.1	0.00	0.00	
4,000.0	0.00	0.00	3,995.5	83.3	103.1	87.1	0.00	0.00	
4,100.0	0.00	0.00	4,095.5	83.3	103.1	87.1	0.00	0.00	
4,200.0	0.00	0.00	4,195.5	83.3	103.1	87.1	0.00	0.00	
4,300.0	0.00	0.00	4,295.5	83.3	103.1	87.1	0.00	0.00	
4,400.0	0.00	0.00	4,395.5	83.3	103.1	87.1	0.00	0.00	
4,500.0	0.00	0.00	4,495.5	83.3	103.1	87.1	0.00	0.00	
4,600.0	0.00	0.00	4,595.5	83.3	103.1	87.1	0.00	0.00	
4,700.0	0.00	0.00	4,695.5	83.3	103.1	87.1	0.00	0.00	
4,800.0	0.00	0.00	4,795.5	83.3	103.1	87.1	0.00	0.00	
4,900.0	0.00	0.00	4,895.5	83.3	103.1	87.1	0.00	0.00	
5,000.0	0.00	0.00	4,995.5	83.3	103.1	87.1	0.00	0.00	
5,100.0	0.00	0.00	5,095.5	83.3	103.1	87.1	0.00	0.00	

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Site:	S27-T10N-R58W	**North Reference:**	True
Well:	Razor #27J-2212B	**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
5,200.0	0.00	0.00	5,195.5	83.3	103.1	87.1	0.00	0.00	
5,237.0	0.00	0.00	5,232.5	83.3	103.1	87.1	0.00	0.00	Curve KOP @ 5237' MD
5,300.0	6.93	15.30	5,295.4	87.0	104.1	90.8	11.00	11.00	
5,400.0	17.93	15.30	5,392.9	107.7	109.8	111.7	11.00	11.00	
5,500.0	28.93	15.30	5,484.5	146.0	120.3	150.4	11.00	11.00	
5,600.0	39.93	15.30	5,566.8	200.5	135.2	205.4	11.00	11.00	
5,700.0	50.93	15.30	5,636.9	269.1	153.9	274.6	11.00	11.00	
5,800.0	61.94	15.30	5,692.1	349.3	175.9	355.7	11.00	11.00	
5,900.0	72.94	15.30	5,730.4	438.3	200.2	445.4	11.00	11.00	
6,000.0	83.94	15.30	5,750.4	532.6	226.0	540.7	11.00	11.00	
6,055.1	90.00	15.30	5,753.4	585.7	240.5	594.3	11.00	11.00	Start 3° Turn
6,100.0	90.00	13.95	5,753.4	629.1	251.9	638.1	3.00	0.00	
6,200.0	90.00	10.95	5,753.4	726.7	273.4	736.4	3.00	0.00	
6,300.0	90.00	7.95	5,753.4	825.4	289.9	835.6	3.00	0.00	
6,400.0	90.00	4.95	5,753.4	924.7	301.1	935.3	3.00	0.00	
6,500.0	90.00	1.95	5,753.3	1,024.5	307.1	1,035.3	3.00	0.00	
6,565.0	90.00	0.00	5,753.3	1,089.5	308.2	1,100.2	3.00	0.00	EOT;Azm=0°
6,600.0	90.00	0.00	5,753.3	1,124.5	308.2	1,135.2	0.00	0.00	
6,700.0	90.00	0.00	5,753.3	1,224.5	308.2	1,235.2	0.00	0.00	
6,800.0	90.00	0.00	5,753.3	1,324.5	308.3	1,335.1	0.00	0.00	
6,900.0	90.00	0.00	5,753.3	1,424.5	308.3	1,435.0	0.00	0.00	
7,000.0	90.00	0.00	5,753.3	1,524.5	308.3	1,535.0	0.00	0.00	
7,100.0	90.00	0.00	5,753.3	1,624.5	308.3	1,634.9	0.00	0.00	
7,200.0	90.00	0.00	5,753.3	1,724.5	308.3	1,734.8	0.00	0.00	
7,300.0	90.00	0.00	5,753.3	1,824.5	308.3	1,834.8	0.00	0.00	
7,400.0	90.00	0.00	5,753.3	1,924.5	308.3	1,934.7	0.00	0.00	
7,500.0	90.00	0.00	5,753.3	2,024.5	308.3	2,034.6	0.00	0.00	
7,600.0	90.00	0.00	5,753.3	2,124.5	308.3	2,134.6	0.00	0.00	
7,700.0	90.00	0.00	5,753.3	2,224.5	308.3	2,234.5	0.00	0.00	
7,800.0	90.00	0.00	5,753.3	2,324.5	308.3	2,334.4	0.00	0.00	
7,900.0	90.00	0.00	5,753.3	2,424.5	308.3	2,434.3	0.00	0.00	
8,000.0	90.00	0.00	5,753.3	2,524.5	308.4	2,534.3	0.00	0.00	
8,100.0	90.00	0.00	5,753.3	2,624.5	308.4	2,634.2	0.00	0.00	
8,200.0	90.00	0.00	5,753.3	2,724.5	308.4	2,734.1	0.00	0.00	
8,300.0	90.00	0.00	5,753.3	2,824.5	308.4	2,834.1	0.00	0.00	
8,400.0	90.00	0.00	5,753.3	2,924.5	308.4	2,934.0	0.00	0.00	
8,500.0	90.00	0.00	5,753.3	3,024.5	308.4	3,033.9	0.00	0.00	
8,600.0	90.00	0.00	5,753.2	3,124.5	308.4	3,133.9	0.00	0.00	
8,700.0	90.00	0.00	5,753.2	3,224.5	308.4	3,233.8	0.00	0.00	
8,800.0	90.00	0.00	5,753.2	3,324.5	308.4	3,333.7	0.00	0.00	
8,900.0	90.00	0.00	5,753.2	3,424.5	308.4	3,433.6	0.00	0.00	
9,000.0	90.00	0.00	5,753.2	3,524.5	308.4	3,533.6	0.00	0.00	
9,100.0	90.00	0.00	5,753.2	3,624.5	308.4	3,633.5	0.00	0.00	
9,200.0	90.00	0.00	5,753.2	3,724.5	308.5	3,733.4	0.00	0.00	
9,300.0	90.00	0.00	5,753.2	3,824.5	308.5	3,833.4	0.00	0.00	
9,400.0	90.00	0.00	5,753.2	3,924.5	308.5	3,933.3	0.00	0.00	
9,500.0	90.00	0.00	5,753.2	4,024.5	308.5	4,033.2	0.00	0.00	
9,600.0	90.00	0.00	5,753.2	4,124.5	308.5	4,133.2	0.00	0.00	
9,700.0	90.00	0.00	5,753.2	4,224.5	308.5	4,233.1	0.00	0.00	
9,800.0	90.00	0.00	5,753.2	4,324.5	308.5	4,333.0	0.00	0.00	
9,900.0	90.00	0.00	5,753.2	4,424.5	308.5	4,433.0	0.00	0.00	
10,000.0	90.00	0.00	5,753.2	4,524.5	308.5	4,532.9	0.00	0.00	

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Project:	Weld County, CO	**MD Reference:**	WELL @ 4780.5usft (Original Well Elev)
Site:	S27-T10N-R58W	**North Reference:**	True
Well:	Razor #27J-2212B	**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
10,100.0	90.00	0.00	5,753.2	4,624.5	308.5	4,632.8	0.00	0.00	
10,200.0	90.00	0.00	5,753.2	4,724.5	308.5	4,732.7	0.00	0.00	
10,300.0	90.00	0.00	5,753.2	4,824.5	308.6	4,832.7	0.00	0.00	
10,400.0	90.00	0.00	5,753.2	4,924.5	308.6	4,932.6	0.00	0.00	
10,500.0	90.00	0.00	5,753.2	5,024.5	308.6	5,032.5	0.00	0.00	
10,600.0	90.00	0.00	5,753.2	5,124.5	308.6	5,132.5	0.00	0.00	
10,700.0	90.00	0.00	5,753.1	5,224.5	308.6	5,232.4	0.00	0.00	
10,800.0	90.00	0.00	5,753.1	5,324.5	308.6	5,332.3	0.00	0.00	
10,900.0	90.00	0.00	5,753.1	5,424.5	308.6	5,432.3	0.00	0.00	
11,000.0	90.00	0.00	5,753.1	5,524.5	308.6	5,532.2	0.00	0.00	
11,100.0	90.00	0.00	5,753.1	5,624.5	308.6	5,632.1	0.00	0.00	
11,200.0	90.00	0.00	5,753.1	5,724.5	308.6	5,732.1	0.00	0.00	
11,300.0	90.00	0.00	5,753.1	5,824.5	308.6	5,832.0	0.00	0.00	
11,400.0	90.00	0.00	5,753.1	5,924.5	308.6	5,931.9	0.00	0.00	
11,500.0	90.00	0.00	5,753.1	6,024.5	308.7	6,031.8	0.00	0.00	
11,600.0	90.00	0.00	5,753.1	6,124.5	308.7	6,131.8	0.00	0.00	
11,700.0	90.00	0.00	5,753.1	6,224.5	308.7	6,231.7	0.00	0.00	
11,800.0	90.00	0.00	5,753.1	6,324.5	308.7	6,331.6	0.00	0.00	
11,900.0	90.00	0.00	5,753.1	6,424.5	308.7	6,431.6	0.00	0.00	
12,000.0	90.00	0.00	5,753.1	6,524.5	308.7	6,531.5	0.00	0.00	
12,100.0	90.00	0.00	5,753.1	6,624.5	308.7	6,631.4	0.00	0.00	
12,200.0	90.00	0.00	5,753.1	6,724.5	308.7	6,731.4	0.00	0.00	
12,300.0	90.00	0.00	5,753.1	6,824.5	308.7	6,831.3	0.00	0.00	
12,400.0	90.00	0.00	5,753.1	6,924.5	308.7	6,931.2	0.00	0.00	
12,500.0	90.00	0.00	5,753.1	7,024.5	308.7	7,031.2	0.00	0.00	
12,600.0	90.00	0.00	5,753.1	7,124.5	308.7	7,131.1	0.00	0.00	
12,700.0	90.00	0.00	5,753.1	7,224.5	308.8	7,231.0	0.00	0.00	
12,800.0	90.00	0.00	5,753.0	7,324.5	308.8	7,330.9	0.00	0.00	
12,900.0	90.00	0.00	5,753.0	7,424.5	308.8	7,430.9	0.00	0.00	
13,000.0	90.00	0.00	5,753.0	7,524.5	308.8	7,530.8	0.00	0.00	
13,100.0	90.00	0.00	5,753.0	7,624.5	308.8	7,630.7	0.00	0.00	
13,200.0	90.00	0.00	5,753.0	7,724.5	308.8	7,730.7	0.00	0.00	
13,300.0	90.00	0.00	5,753.0	7,824.5	308.8	7,830.6	0.00	0.00	
13,400.0	90.00	0.00	5,753.0	7,924.5	308.8	7,930.5	0.00	0.00	
13,500.0	90.00	0.00	5,753.0	8,024.5	308.8	8,030.5	0.00	0.00	
13,600.0	90.00	0.00	5,753.0	8,124.5	308.8	8,130.4	0.00	0.00	
13,700.0	90.00	0.00	5,753.0	8,224.5	308.8	8,230.3	0.00	0.00	
13,745.3	90.00	0.00	5,753.0	8,269.8	308.8	8,275.6	0.00	0.00	PBHL @ 13745.3' MD

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
2212B BH Tgt	0.00	1.07	5,753.0	7,770.7	318.8	1,549,394.62	3,457,278.57	40.829772	-103.847556
- plan misses target center by 10.0usft at 13246.1usft MD (5753.0 TVD, 7770.7 N, 308.8 E)									
- Point									
2212B BHL	0.00	1.07	5,753.0	8,269.8	308.8	1,549,893.49	3,457,259.31	40.831142	-103.847592
- plan hits target center									
- Point									

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #27J-2212B
Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 4780.5usft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 4780.5usft (Original Well Elev)
Site:	S27-T10N-R58W	**North Reference:**	True
Well:	Razor #27J-2212B	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
1,500.0	1,500.0	0.0	0.0	KOP @ 1500' MD
1,700.0	1,699.8	4.4	5.4	EOB; Inc=4°
3,400.0	3,395.7	78.9	97.7	Start 2° Drop
3,600.0	3,595.5	83.3	103.1	EOD; Vertical
5,237.0	5,232.5	83.3	103.1	Curve KOP @ 5237' MD
6,055.1	5,753.4	585.7	240.5	Start 3° Turn
6,565.0	5,753.3	1,089.5	308.2	EOT;Azm=0°
13,745.3	5,753.0	8,269.8	308.8	PBHL @ 13745.3' MD

Whiting Petroleum Corporation

Weld County, CO
S27-T10N-R58W
Razor #27J-2212B
HZ
Plan #2

Anticollision Report

19 April, 2013

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2212B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2212B	**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:	GLOBAL FILTER APPLIED: All wellpaths within 200'+ 100/1000 of reference		
Interpolation Method:	MD Interval 100.0ft	**Error Model:**	Systematic Ellipse
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,574.6ft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	2.00 **Sigma**		

Survey Tool Program **Date** 4/19/2013

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	13,745.3	Plan #2 (HZ)	MWD	Geolink MWD

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
S27-T10N-R58W						
Razor #27J-2209A - HZ - Plan #2	465.6	468.6	82.1	80.5	52.176	CC
Razor #27J-2209A - HZ - Plan #2	500.0	502.9	82.1	80.4	48.483	ES
Razor #27J-2209A - HZ - Plan #2	13,746.0	13,462.8	993.5	702.6	3.415	SF
Razor #27J-2210B - HZ - Plan #2	1,500.0	1,500.0	65.3	60.2	12.616	CC, ES
Razor #27J-2210B - HZ - Plan #2	13,746.0	13,828.4	659.6	366.2	2.248	SF
Razor #27J-2211A - HZ - Plan #2	2,643.5	2,644.0	37.7	28.3	4.025	CC
Razor #27J-2211A - HZ - Plan #2	2,700.0	2,700.4	37.9	28.3	3.959	ES
Razor #27J-2211A - HZ - Plan #2	13,746.0	13,635.1	341.5	59.2	1.210	Level 2, SF
Razor #27J-3409A - Hz - Plan #2	1,340.1	1,344.8	84.9	80.2	18.029	CC
Razor #27J-3409A - Hz - Plan #2	1,400.0	1,404.6	85.0	80.0	17.292	ES
Razor #27J-3409A - Hz - Plan #2	1,600.0	1,604.0	88.0	82.2	15.170	SF
Razor #27J-3410B - HZ - Plan #2	1,500.0	1,500.0	32.4	27.2	6.255	CC, ES
Razor #27J-3410B - HZ - Plan #2	1,600.0	1,600.0	33.8	28.2	6.110	SF
Razor #27J-3411A - HZ - Plan #2	1,701.0	1,705.9	13.5	7.4	2.207	CC, ES, SF
Razor #27J-3412B - HZ - Plan #2	500.0	500.0	32.9	31.3	19.519	CC, ES
Razor #27J-3412B - HZ - Plan #2	900.0	898.2	46.0	42.8	14.652	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2212B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2212B	**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 S27-T10N-R58W - Razor #27J-2209A - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	3.0	3.0	0.0	0.0	-23.88	75.1	-33.2	82.1				
100.0	100.0	103.0	103.0	0.1	0.2	-23.88	75.1	-33.2	82.1	81.8	0.30	276.631	
200.0	200.0	203.0	203.0	0.3	0.3	-23.88	75.1	-33.2	82.1	81.4	0.65	127.097	
300.0	300.0	303.0	303.0	0.5	0.5	-23.88	75.1	-33.2	82.1	81.1	0.99	82.501	
400.0	400.0	403.0	403.0	0.7	0.7	-23.88	75.1	-33.2	82.1	80.7	1.34	61.072	
465.6	465.6	468.6	468.6	0.8	0.8	-23.88	75.1	-33.2	82.1	80.5	1.57	52.176	CC
500.0	500.0	502.9	502.9	0.8	0.8	-23.88	75.1	-33.2	82.1	80.4	1.69	48.483	ES
600.0	600.0	600.0	600.0	1.0	1.0	-24.07	76.5	-34.2	83.9	81.8	2.04	41.151	
700.0	700.0	697.1	696.9	1.2	1.2	-24.58	80.7	-36.9	89.0	86.6	2.39	37.274	
800.0	800.0	796.8	796.4	1.4	1.4	-25.19	86.6	-40.7	95.9	93.1	2.74	34.932	
900.0	900.0	896.5	895.9	1.5	1.6	-25.73	92.4	-44.5	102.8	99.7	3.11	33.102	
1,000.0	1,000.0	996.3	995.4	1.7	1.8	-26.19	98.2	-48.3	109.7	106.2	3.47	31.637	
1,100.0	1,100.0	1,096.0	1,094.9	1.9	2.0	-26.60	104.0	-52.1	116.6	112.8	3.83	30.439	
1,200.0	1,200.0	1,195.8	1,194.4	2.1	2.2	-26.97	109.9	-55.9	123.6	119.4	4.20	29.442	
1,300.0	1,300.0	1,295.5	1,293.9	2.2	2.4	-27.29	115.7	-59.7	130.5	126.0	4.56	28.599	
1,400.0	1,400.0	1,395.3	1,393.4	2.4	2.6	-27.59	121.5	-63.5	137.5	132.5	4.93	27.878	
1,500.0	1,500.0	1,495.1	1,493.0	2.6	2.8	-27.85	127.4	-67.3	144.4	139.1	5.30	27.254	
1,600.0	1,600.0	1,594.8	1,592.5	2.8	3.0	-79.68	133.2	-71.1	151.0	145.5	5.52	27.360	
1,700.0	1,699.8	1,694.5	1,691.9	2.9	3.2	-81.63	139.0	-74.9	157.2	151.3	5.87	26.761	
1,800.0	1,799.6	1,794.0	1,791.2	3.1	3.5	-84.15	144.8	-78.7	163.3	157.1	6.23	26.213	
1,900.0	1,899.4	1,893.6	1,890.5	3.3	3.7	-86.48	150.7	-82.5	169.7	163.1	6.59	25.750	
2,000.0	1,999.1	1,993.1	1,989.8	3.5	3.9	-88.64	156.5	-86.3	176.4	169.4	6.96	25.357	
2,100.0	2,098.9	2,092.7	2,089.2	3.7	4.1	-90.64	162.3	-90.1	183.3	176.0	7.33	25.022	
2,200.0	2,198.6	2,192.3	2,188.5	3.9	4.3	-92.50	168.1	-93.9	190.4	182.7	7.70	24.736	
2,300.0	2,298.4	2,291.8	2,287.8	4.1	4.5	-94.22	173.9	-97.6	197.7	189.7	8.07	24.490	
2,400.0	2,398.1	2,391.4	2,387.1	4.3	4.7	-95.81	179.8	-101.4	205.2	196.8	8.45	24.278	
2,500.0	2,497.9	2,491.0	2,486.4	4.5	4.9	-97.29	185.6	-105.2	212.8	204.0	8.83	24.096	
2,600.0	2,597.6	2,590.5	2,585.8	4.7	5.1	-98.67	191.4	-109.0	220.6	211.4	9.21	23.938	
2,700.0	2,697.4	2,690.1	2,685.1	4.9	5.3	-99.96	197.2	-112.8	228.4	218.8	9.60	23.801	
2,800.0	2,797.2	2,789.7	2,784.4	5.1	5.6	-101.16	203.0	-116.6	236.4	226.4	9.98	23.683	
2,900.0	2,896.9	2,889.2	2,883.7	5.3	5.8	-102.28	208.9	-120.4	244.5	234.1	10.37	23.580	
3,000.0	2,996.7	2,988.8	2,983.0	5.5	6.0	-103.33	214.7	-124.2	252.7	241.9	10.76	23.490	
3,100.0	3,096.4	3,088.3	3,082.4	5.7	6.2	-104.31	220.5	-128.0	260.9	249.8	11.14	23.412	
3,200.0	3,196.2	3,187.9	3,181.7	5.9	6.4	-105.24	226.3	-131.8	269.2	257.7	11.53	23.344	
3,300.0	3,295.9	3,287.5	3,281.0	6.1	6.6	-106.10	232.1	-135.6	277.6	265.7	11.92	23.284	
3,400.0	3,395.7	3,387.0	3,380.3	6.3	6.8	-106.92	237.9	-139.3	286.0	273.7	12.31	23.232	
3,500.0	3,495.6	3,486.7	3,479.7	6.5	7.0	-107.52	243.8	-143.1	294.0	281.3	12.68	23.179	
3,600.0	3,595.5	3,586.4	3,579.2	6.7	7.2	-56.37	249.6	-146.9	300.9	287.7	13.19	22.810	
3,700.0	3,695.5	3,686.2	3,678.7	6.8	7.5	-55.86	255.4	-150.7	307.3	293.8	13.54	22.694	
3,800.0	3,795.5	3,785.9	3,778.3	7.0	7.7	-55.36	261.3	-154.5	313.8	299.9	13.89	22.587	
3,900.0	3,895.5	3,885.7	3,877.8	7.2	7.9	-54.89	267.1	-158.3	320.3	306.0	14.24	22.486	
4,000.0	3,995.5	3,985.5	3,977.3	7.3	8.1	-54.44	272.9	-162.1	326.7	312.1	14.59	22.391	
4,100.0	4,095.5	4,085.2	4,076.8	7.5	8.3	-54.00	278.8	-165.9	333.2	318.3	14.94	22.303	
4,200.0	4,195.5	4,185.0	4,176.3	7.7	8.5	-53.58	284.6	-169.7	339.8	324.5	15.29	22.220	
4,300.0	4,295.5	4,284.7	4,275.8	7.8	8.7	-53.18	290.4	-173.5	346.3	330.7	15.64	22.142	
4,400.0	4,395.5	4,384.5	4,375.3	8.0	8.9	-52.79	296.2	-177.3	352.9	336.9	15.99	22.068	
4,500.0	4,495.5	4,484.2	4,474.9	8.2	9.2	-52.41	302.1	-181.1	359.5	343.1	16.34	21.999	
4,600.0	4,595.5	4,584.0	4,574.4	8.3	9.4	-52.05	307.9	-184.9	366.0	349.4	16.69	21.933	
4,700.0	4,695.5	4,683.8	4,673.9	8.5	9.6	-51.70	313.7	-188.7	372.7	355.6	17.04	21.871	
4,800.0	4,795.5	4,783.5	4,773.4	8.7	9.8	-51.37	319.6	-192.5	379.3	361.9	17.39	21.812	
4,900.0	4,895.5	4,883.3	4,872.9	8.8	10.0	-51.04	325.4	-196.3	385.9	368.2	17.74	21.757	
5,000.0	4,995.5	4,983.0	4,972.4	9.0	10.2	-50.73	331.2	-200.1	392.5	374.5	18.09	21.704	

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

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2212B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2212B	**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 S27-T10N-R58W - Razor #27J-2209A - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.0	5,095.5	5,082.8	5,071.9	9.2	10.4	-50.42	337.1	-203.9	399.2	380.8	18.44	21.654	
5,200.0	5,195.5	5,182.5	5,171.5	9.3	10.6	-50.13	342.9	-207.7	405.9	387.1	18.79	21.606	
5,300.0	5,295.4	5,250.0	5,238.4	9.5	10.8	-64.80	349.6	-211.7	415.1	396.3	18.80	22.077	
5,400.0	5,392.9	5,300.0	5,287.1	9.8	11.0	-64.48	359.3	-217.3	426.8	407.6	19.12	22.317	
5,500.0	5,484.5	5,350.0	5,334.5	10.2	11.3	-64.67	373.2	-225.0	440.7	421.2	19.51	22.588	
5,600.0	5,566.8	5,400.0	5,380.2	10.7	11.6	-65.24	391.0	-234.8	457.3	437.3	20.05	22.810	
5,700.0	5,636.9	5,450.0	5,423.7	11.5	11.9	-66.05	412.6	-246.7	477.3	456.5	20.83	22.914	
5,800.0	5,692.1	5,500.0	5,464.6	12.4	12.3	-66.91	437.7	-260.4	501.3	479.3	21.91	22.876	
5,900.0	5,730.4	5,550.0	5,502.6	13.6	12.8	-67.67	466.2	-275.9	529.8	506.5	23.31	22.733	
6,000.0	5,750.5	5,587.2	5,528.8	14.9	13.2	-67.12	489.5	-288.5	563.0	538.3	24.76	22.742	
6,100.0	5,753.4	5,624.3	5,553.0	16.4	13.6	-68.25	514.3	-301.9	601.0	574.4	26.62	22.578	
6,200.0	5,753.4	5,666.5	5,577.9	17.8	14.1	-71.90	544.2	-318.0	644.2	615.3	28.93	22.265	
6,300.0	5,753.4	5,716.0	5,603.6	19.3	14.7	-75.44	581.4	-338.1	690.8	659.4	31.36	22.026	
6,400.0	5,753.4	5,773.6	5,628.2	20.9	15.5	-78.60	627.3	-362.7	738.7	704.8	33.88	21.799	
6,500.0	5,753.4	5,839.2	5,649.1	22.4	16.5	-81.12	682.0	-392.2	786.0	749.5	36.49	21.539	
6,600.0	5,753.4	5,911.7	5,662.8	23.9	17.7	-82.74	744.7	-425.7	831.7	792.5	39.17	21.233	
6,700.0	5,753.4	6,001.2	5,666.7	25.5	19.2	-83.41	823.6	-467.7	878.0	835.9	42.07	20.871	
6,800.0	5,753.3	6,172.0	5,666.7	27.1	22.0	-83.96	978.7	-539.2	919.7	873.4	46.28	19.872	
6,900.0	5,753.3	6,356.3	5,666.7	28.7	25.1	-84.36	1,152.3	-600.5	952.9	902.0	50.84	18.744	
7,000.0	5,753.3	6,551.8	5,666.7	30.3	28.3	-84.64	1,342.2	-646.9	976.6	920.9	55.66	17.546	
7,100.0	5,753.3	6,755.2	5,666.7	31.9	31.6	-84.79	1,543.6	-674.4	990.0	929.4	60.64	16.326	
7,200.0	5,753.3	6,936.3	5,666.7	33.6	34.4	-84.82	1,724.6	-680.8	993.1	927.9	65.26	15.217	
7,300.0	5,753.3	7,036.3	5,666.7	35.2	35.9	-84.82	1,824.6	-680.8	993.1	924.6	68.58	14.482	
7,400.0	5,753.3	7,136.3	5,666.7	36.9	37.5	-84.82	1,924.6	-680.8	993.2	921.2	71.91	13.811	
7,500.0	5,753.3	7,236.3	5,666.7	38.6	39.1	-84.82	2,024.6	-680.8	993.2	917.9	75.26	13.197	
7,600.0	5,753.3	7,336.3	5,666.7	40.2	40.7	-84.82	2,124.6	-680.8	993.2	914.5	78.61	12.633	
7,700.0	5,753.3	7,436.3	5,666.7	41.9	42.3	-84.82	2,224.6	-680.8	993.2	911.2	81.98	12.114	
7,800.0	5,753.3	7,536.3	5,666.7	43.6	43.9	-84.83	2,324.6	-680.8	993.2	907.8	85.36	11.634	
7,900.0	5,753.3	7,636.3	5,666.7	45.3	45.6	-84.83	2,424.6	-680.8	993.2	904.4	88.75	11.190	
8,000.0	5,753.3	7,736.3	5,666.7	47.0	47.2	-84.83	2,524.6	-680.8	993.2	901.0	92.15	10.778	
8,100.0	5,753.3	7,836.3	5,666.7	48.7	48.8	-84.83	2,624.6	-680.8	993.2	897.6	95.55	10.394	
8,200.0	5,753.3	7,936.3	5,666.7	50.4	50.5	-84.83	2,724.6	-680.8	993.2	894.2	98.96	10.036	
8,300.0	5,753.3	8,036.3	5,666.7	52.1	52.2	-84.83	2,824.6	-680.8	993.2	890.8	102.38	9.701	
8,400.0	5,753.3	8,136.3	5,666.7	53.9	53.8	-84.83	2,924.6	-680.7	993.2	887.4	105.80	9.387	
8,500.0	5,753.3	8,236.3	5,666.8	55.6	55.5	-84.83	3,024.6	-680.7	993.2	884.0	109.23	9.093	
8,600.0	5,753.3	8,336.3	5,666.8	57.3	57.2	-84.83	3,124.6	-680.7	993.2	880.5	112.66	8.816	
8,700.0	5,753.3	8,436.3	5,666.8	59.0	58.9	-84.83	3,224.6	-680.7	993.2	877.1	116.09	8.555	
8,800.0	5,753.3	8,536.3	5,666.8	60.7	60.6	-84.83	3,324.6	-680.7	993.2	873.7	119.53	8.309	
8,900.0	5,753.2	8,636.3	5,666.8	62.5	62.3	-84.83	3,424.6	-680.7	993.2	870.2	122.97	8.077	
9,000.0	5,753.2	8,736.3	5,666.8	64.2	64.0	-84.83	3,524.6	-680.7	993.2	866.8	126.41	7.857	
9,100.0	5,753.2	8,836.3	5,666.8	65.9	65.7	-84.83	3,624.6	-680.7	993.2	863.3	129.86	7.648	
9,200.0	5,753.2	8,936.3	5,666.8	67.6	67.4	-84.83	3,724.6	-680.7	993.2	859.9	133.30	7.451	
9,300.0	5,753.2	9,036.3	5,666.8	69.4	69.1	-84.83	3,824.6	-680.7	993.2	856.5	136.76	7.263	
9,400.0	5,753.2	9,136.3	5,666.8	71.1	70.8	-84.83	3,924.6	-680.7	993.2	853.0	140.21	7.084	
9,500.0	5,753.2	9,236.3	5,666.8	72.8	72.5	-84.84	4,024.6	-680.7	993.2	849.5	143.66	6.913	
9,600.0	5,753.2	9,336.3	5,666.8	74.6	74.2	-84.84	4,124.6	-680.7	993.2	846.1	147.12	6.751	
9,700.0	5,753.2	9,436.3	5,666.8	76.3	75.9	-84.84	4,224.6	-680.7	993.2	842.6	150.58	6.596	
9,800.0	5,753.2	9,536.3	5,666.8	78.0	77.6	-84.84	4,324.6	-680.7	993.2	839.2	154.04	6.448	
9,900.0	5,753.2	9,636.3	5,666.8	79.8	79.3	-84.84	4,424.6	-680.7	993.2	835.7	157.50	6.306	
10,000.0	5,753.2	9,736.3	5,666.8	81.5	81.0	-84.84	4,524.6	-680.7	993.2	832.3	160.96	6.170	
10,100.0	5,753.2	9,836.3	5,666.8	83.3	82.8	-84.84	4,624.6	-680.7	993.2	828.8	164.43	6.040	
10,200.0	5,753.2	9,936.3	5,666.8	85.0	84.5	-84.84	4,724.6	-680.7	993.2	825.3	167.89	5.916	

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

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2212B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2212B	**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 S27-T10N-R58W - Razor #27J-2209A - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
10,300.0	5,753.2	10,036.3	5,666.8	86.7	86.2	-84.84	4,824.6	-680.7	993.2	821.9	171.36	5.796	
10,400.0	5,753.2	10,136.3	5,666.8	88.5	87.9	-84.84	4,924.6	-680.7	993.2	818.4	174.83	5.681	
10,500.0	5,753.2	10,236.3	5,666.8	90.2	89.7	-84.84	5,024.6	-680.7	993.2	814.9	178.30	5.571	
10,600.0	5,753.2	10,336.3	5,666.9	92.0	91.4	-84.84	5,124.6	-680.6	993.2	811.5	181.77	5.464	
10,700.0	5,753.2	10,436.3	5,666.9	93.7	93.1	-84.84	5,224.6	-680.6	993.2	808.0	185.24	5.362	
10,800.0	5,753.2	10,536.3	5,666.9	95.4	94.8	-84.84	5,324.6	-680.6	993.3	804.5	188.71	5.263	
10,900.0	5,753.1	10,636.3	5,666.9	97.2	96.6	-84.84	5,424.6	-680.6	993.3	801.1	192.18	5.168	
11,000.0	5,753.1	10,736.3	5,666.9	98.9	98.3	-84.84	5,524.6	-680.6	993.3	797.6	195.66	5.077	
11,100.0	5,753.1	10,836.3	5,666.9	100.7	100.0	-84.84	5,624.6	-680.6	993.3	794.1	199.13	4.988	
11,200.0	5,753.1	10,936.3	5,666.9	102.4	101.8	-84.84	5,724.6	-680.6	993.3	790.7	202.61	4.902	
11,300.0	5,753.1	11,036.3	5,666.9	104.1	103.5	-84.85	5,824.6	-680.6	993.3	787.2	206.08	4.820	
11,400.0	5,753.1	11,136.3	5,666.9	105.9	105.2	-84.85	5,924.6	-680.6	993.3	783.7	209.56	4.740	
11,500.0	5,753.1	11,236.3	5,666.9	107.6	107.0	-84.85	6,024.6	-680.6	993.3	780.2	213.03	4.663	
11,600.0	5,753.1	11,336.3	5,666.9	109.4	108.7	-84.85	6,124.6	-680.6	993.3	776.8	216.51	4.588	
11,700.0	5,753.1	11,436.3	5,666.9	111.1	110.4	-84.85	6,224.6	-680.6	993.3	773.3	219.99	4.515	
11,800.0	5,753.1	11,536.3	5,666.9	112.9	112.2	-84.85	6,324.6	-680.6	993.3	769.8	223.47	4.445	
11,900.0	5,753.1	11,636.3	5,666.9	114.6	113.9	-84.85	6,424.6	-680.6	993.3	766.3	226.95	4.377	
12,000.0	5,753.1	11,736.3	5,666.9	116.4	115.6	-84.85	6,524.6	-680.6	993.3	762.9	230.43	4.311	
12,100.0	5,753.1	11,836.3	5,666.9	118.1	117.4	-84.85	6,624.6	-680.6	993.3	759.4	233.90	4.247	
12,200.0	5,753.1	11,936.3	5,666.9	119.9	119.1	-84.85	6,724.6	-680.6	993.3	755.9	237.39	4.184	
12,300.0	5,753.1	12,036.3	5,666.9	121.6	120.9	-84.85	6,824.6	-680.6	993.3	752.4	240.87	4.124	
12,400.0	5,753.1	12,136.3	5,666.9	123.3	122.6	-84.85	6,924.6	-680.6	993.3	749.0	244.35	4.065	
12,500.0	5,753.1	12,236.3	5,666.9	125.1	124.3	-84.85	7,024.6	-680.6	993.3	745.5	247.83	4.008	
12,600.0	5,753.1	12,336.3	5,666.9	126.8	126.1	-84.85	7,124.6	-680.6	993.3	742.0	251.31	3.953	
12,700.0	5,753.1	12,436.3	5,667.0	128.6	127.8	-84.85	7,224.6	-680.6	993.3	738.5	254.79	3.899	
12,800.0	5,753.1	12,536.3	5,667.0	130.3	129.6	-84.85	7,324.6	-680.5	993.3	735.0	258.27	3.846	
12,900.0	5,753.1	12,636.3	5,667.0	132.1	131.3	-84.85	7,424.6	-680.5	993.3	731.6	261.76	3.795	
13,000.0	5,753.0	12,736.3	5,667.0	133.8	133.0	-84.86	7,524.6	-680.5	993.3	728.1	265.24	3.745	
13,100.0	5,753.0	12,836.3	5,667.0	135.6	134.8	-84.86	7,624.6	-680.5	993.3	724.6	268.72	3.696	
13,200.0	5,753.0	12,936.3	5,667.0	137.3	136.5	-84.86	7,724.6	-680.5	993.3	721.1	272.21	3.649	
13,300.0	5,753.0	13,036.3	5,667.0	139.1	138.3	-84.86	7,824.6	-680.5	993.3	717.6	275.69	3.603	
13,400.0	5,753.0	13,136.3	5,667.0	140.8	140.0	-84.86	7,924.6	-680.5	993.3	714.2	279.18	3.558	
13,500.0	5,753.0	13,236.3	5,667.0	142.6	141.7	-84.86	8,024.6	-680.5	993.3	710.7	282.66	3.514	
13,600.0	5,753.0	13,336.3	5,667.0	144.3	143.5	-84.86	8,124.6	-680.5	993.3	707.2	286.14	3.471	
13,700.0	5,753.0	13,436.3	5,667.0	146.1	145.2	-84.86	8,224.6	-680.5	993.3	703.7	289.63	3.430	
13,713.7	5,753.0	13,450.1	5,667.0	146.3	145.5	-84.86	8,238.3	-680.5	993.3	703.2	290.11	3.424	
13,746.0	5,753.0	13,462.8	5,667.0	146.9	145.7	-84.86	8,251.1	-680.5	993.5	702.6	290.89	3.415	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2212B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2212B	**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 S27-T10N-R58W - Razor #27J-2210B - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
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	65.0	0.29	224.159	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-65.3	65.3	64.7	0.64	101.999	
300.0	300.0	300.0	300.0	0.5	0.5	-90.00	0.0	-65.3	65.3	64.3	0.99	66.020	
400.0	400.0	400.0	400.0	0.7	0.7	-90.00	0.0	-65.3	65.3	64.0	1.34	48.805	
500.0	500.0	500.0	500.0	0.8	0.8	-90.00	0.0	-65.3	65.3	63.6	1.69	38.711	
600.0	600.0	600.0	600.0	1.0	1.0	-90.00	0.0	-65.3	65.3	63.3	2.04	32.076	
700.0	700.0	700.0	700.0	1.2	1.2	-90.00	0.0	-65.3	65.3	62.9	2.39	27.383	
800.0	800.0	800.0	800.0	1.4	1.4	-90.00	0.0	-65.3	65.3	62.6	2.73	23.888	
900.0	900.0	900.0	900.0	1.5	1.5	-90.00	0.0	-65.3	65.3	62.2	3.08	21.184	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	-90.00	0.0	-65.3	65.3	61.9	3.43	19.030	
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	-90.00	0.0	-65.3	65.3	61.6	3.78	17.274	
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	-90.00	0.0	-65.3	65.3	61.2	4.13	15.815	
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	-90.00	0.0	-65.3	65.3	60.9	4.48	14.582	
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	-90.00	0.0	-65.3	65.3	60.5	4.83	13.528	
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	-90.00	0.0	-65.3	65.3	60.2	5.18	12.616	CC, ES
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	-141.99	0.0	-65.3	66.7	61.2	5.53	12.069	
1,700.0	1,699.8	1,699.8	1,699.8	2.9	2.9	-144.55	0.0	-65.3	70.9	65.0	5.87	12.074	
1,800.0	1,799.6	1,799.6	1,799.6	3.1	3.1	-147.57	0.0	-65.3	76.7	70.5	6.22	12.324	
1,900.0	1,899.4	1,899.3	1,899.3	3.3	3.3	-150.16	0.0	-65.3	82.7	76.1	6.57	12.576	
2,000.0	1,999.1	1,999.1	1,999.1	3.5	3.5	-152.40	0.0	-65.3	88.8	81.9	6.92	12.823	
2,100.0	2,098.9	2,098.9	2,098.9	3.7	3.6	-154.35	0.0	-65.3	95.0	87.8	7.27	13.063	
2,200.0	2,198.6	2,198.6	2,198.6	3.9	3.8	-156.06	0.0	-65.3	101.4	93.7	7.63	13.293	
2,300.0	2,298.4	2,298.4	2,298.4	4.1	4.0	-157.56	0.0	-65.3	107.8	99.8	7.98	13.514	
2,400.0	2,398.1	2,398.1	2,398.1	4.3	4.2	-158.89	0.0	-65.3	114.3	105.9	8.33	13.725	
2,500.0	2,497.9	2,497.9	2,497.9	4.5	4.3	-160.09	0.0	-65.3	120.8	112.1	8.67	13.925	
2,600.0	2,597.6	2,597.6	2,597.6	4.7	4.5	-161.15	0.0	-65.3	127.4	118.4	9.02	14.115	
2,700.0	2,697.4	2,697.4	2,697.4	4.9	4.7	-162.12	0.0	-65.3	134.0	124.6	9.37	14.296	
2,800.0	2,797.2	2,797.1	2,797.1	5.1	4.9	-162.99	0.0	-65.3	140.7	130.9	9.72	14.467	
2,900.0	2,896.9	2,896.9	2,896.9	5.3	5.0	-163.78	0.0	-65.3	147.3	137.3	10.07	14.630	
3,000.0	2,996.7	2,996.7	2,996.7	5.5	5.2	-164.51	0.0	-65.3	154.1	143.6	10.42	14.784	
3,100.0	3,096.4	3,096.4	3,096.4	5.7	5.4	-165.17	0.0	-65.3	160.8	150.0	10.77	14.930	
3,200.0	3,196.2	3,196.2	3,196.2	5.9	5.5	-165.78	0.0	-65.3	167.5	156.4	11.12	15.070	
3,300.0	3,295.9	3,295.9	3,295.9	6.1	5.7	-166.35	0.0	-65.3	174.3	162.8	11.47	15.202	
3,400.0	3,395.7	3,395.7	3,395.7	6.3	5.9	-166.87	0.0	-65.3	181.1	169.3	11.82	15.328	
3,500.0	3,495.6	3,495.5	3,495.5	6.5	6.1	-167.25	0.0	-65.3	186.2	174.0	12.17	15.297	
3,600.0	3,595.5	3,595.5	3,595.5	6.7	6.2	-116.31	0.0	-65.3	187.9	175.4	12.50	15.032	
3,700.0	3,695.5	3,695.5	3,695.5	6.8	6.4	-116.31	0.0	-65.3	187.9	175.1	12.85	14.624	
3,800.0	3,795.5	3,795.5	3,795.5	7.0	6.6	-116.31	0.0	-65.3	187.9	174.7	13.20	14.237	
3,900.0	3,895.5	3,895.5	3,895.5	7.2	6.8	-116.31	0.0	-65.3	187.9	174.4	13.55	13.870	
4,000.0	3,995.5	3,995.5	3,995.5	7.3	6.9	-116.31	0.0	-65.3	187.9	174.0	13.90	13.522	
4,100.0	4,095.5	4,095.5	4,095.5	7.5	7.1	-116.31	0.0	-65.3	187.9	173.7	14.25	13.190	
4,200.0	4,195.5	4,195.5	4,195.5	7.7	7.3	-116.31	0.0	-65.3	187.9	173.3	14.59	12.875	
4,300.0	4,295.5	4,295.5	4,295.5	7.8	7.5	-116.31	0.0	-65.3	187.9	173.0	14.94	12.574	
4,400.0	4,395.5	4,395.5	4,395.5	8.0	7.6	-116.31	0.0	-65.3	187.9	172.6	15.29	12.287	
4,500.0	4,495.5	4,495.5	4,495.5	8.2	7.8	-116.31	0.0	-65.3	187.9	172.3	15.64	12.013	
4,600.0	4,595.5	4,595.5	4,595.5	8.3	8.0	-116.31	0.0	-65.3	187.9	171.9	15.99	11.751	
4,700.0	4,695.5	4,695.5	4,695.5	8.5	8.2	-116.31	0.0	-65.3	187.9	171.6	16.34	11.500	
4,800.0	4,795.5	4,795.5	4,795.5	8.7	8.3	-116.31	0.0	-65.3	187.9	171.2	16.69	11.259	
4,900.0	4,895.5	4,895.5	4,895.5	8.8	8.5	-116.31	0.0	-65.3	187.9	170.9	17.04	11.028	
5,000.0	4,995.5	4,995.5	4,995.5	9.0	8.7	-116.31	0.0	-65.3	187.9	170.5	17.39	10.807	
5,100.0	5,095.5	5,095.5	5,095.5	9.2	8.9	-116.31	0.0	-65.3	187.9	170.2	17.74	10.594	

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

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2212B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2212B	**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 S27-T10N-R58W - Razor #27J-2210B - HZ - Plan #2

Survey Program: 0-MWD

Offset Site Error: 0.0 ft

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,195.5	5,195.5	5,195.5	9.3	9.0	-116.31	0.0	-65.3	187.9	169.8	18.09	10.390	
5,205.1	5,200.6	5,200.6	5,200.6	9.3	9.0	-131.62	0.0	-65.3	187.9	169.8	18.12	10.372	
5,300.0	5,295.4	5,298.2	5,298.1	9.5	9.2	-131.06	4.0	-66.8	190.0	171.5	18.43	10.305	
5,400.0	5,392.9	5,401.0	5,398.1	9.8	9.4	-128.24	25.8	-74.5	201.7	183.1	18.68	10.800	
5,500.0	5,484.5	5,500.5	5,488.7	10.2	9.7	-123.65	64.0	-88.1	224.0	204.9	19.03	11.768	
5,600.0	5,566.8	5,595.4	5,566.5	10.7	10.0	-118.01	114.9	-106.3	256.1	236.4	19.75	12.967	
5,700.0	5,636.9	5,685.5	5,630.1	11.5	10.5	-111.83	174.9	-127.6	296.9	276.0	20.99	14.148	
5,800.0	5,692.1	5,771.2	5,679.7	12.4	11.2	-105.39	240.7	-151.0	344.7	322.0	22.71	15.177	
5,900.0	5,730.4	5,853.7	5,715.9	13.6	12.0	-98.89	310.4	-175.9	397.5	372.7	24.77	16.050	
6,000.0	5,750.5	5,934.3	5,739.6	14.9	12.9	-92.52	382.9	-201.7	453.3	426.3	26.97	16.805	
6,100.0	5,753.4	6,015.2	5,751.2	16.4	13.9	-89.71	458.2	-228.5	509.9	480.6	29.27	17.421	
6,200.0	5,753.4	6,120.7	5,752.4	17.8	15.4	-89.88	558.0	-262.6	562.0	529.9	32.05	17.535	
6,300.0	5,753.4	6,251.2	5,752.4	19.3	17.3	-89.90	683.8	-297.5	604.2	568.9	35.36	17.088	
6,400.0	5,753.4	6,392.1	5,752.4	20.9	19.4	-89.91	821.8	-325.5	635.0	596.0	38.99	16.285	
6,500.0	5,753.4	6,540.5	5,752.4	22.4	21.7	-89.91	969.0	-343.8	653.3	610.4	42.85	15.247	
6,600.0	5,753.4	6,692.6	5,752.4	23.9	24.0	-89.92	1,120.9	-350.7	658.9	612.1	46.79	14.082	
6,700.0	5,753.4	6,796.2	5,752.4	25.5	25.6	-89.92	1,224.5	-350.7	659.0	608.9	50.03	13.170	
6,800.0	5,753.3	6,896.2	5,752.4	27.1	27.2	-89.92	1,324.5	-350.7	659.0	605.7	53.26	12.373	
6,900.0	5,753.3	6,996.2	5,752.4	28.7	28.8	-89.92	1,424.5	-350.7	659.0	602.5	56.52	11.659	
7,000.0	5,753.3	7,096.2	5,752.4	30.3	30.4	-89.92	1,524.5	-350.7	659.0	599.2	59.81	11.019	
7,100.0	5,753.3	7,196.2	5,752.4	31.9	32.0	-89.92	1,624.5	-350.7	659.0	595.9	63.12	10.441	
7,200.0	5,753.3	7,296.2	5,752.5	33.6	33.7	-89.92	1,724.5	-350.7	659.0	592.6	66.45	9.917	
7,300.0	5,753.3	7,396.2	5,752.5	35.2	35.3	-89.93	1,824.5	-350.7	659.0	589.2	69.80	9.442	
7,400.0	5,753.3	7,496.2	5,752.5	36.9	37.0	-89.93	1,924.5	-350.7	659.0	585.9	73.16	9.008	
7,500.0	5,753.3	7,596.2	5,752.5	38.6	38.7	-89.93	2,024.5	-350.7	659.0	582.5	76.54	8.610	
7,600.0	5,753.3	7,696.2	5,752.5	40.2	40.3	-89.93	2,124.5	-350.7	659.0	579.1	79.93	8.245	
7,700.0	5,753.3	7,796.2	5,752.5	41.9	42.0	-89.93	2,224.5	-350.7	659.0	575.7	83.33	7.909	
7,800.0	5,753.3	7,896.2	5,752.5	43.6	43.7	-89.93	2,324.5	-350.7	659.0	572.3	86.73	7.599	
7,900.0	5,753.3	7,996.2	5,752.5	45.3	45.4	-89.93	2,424.5	-350.7	659.1	568.9	90.15	7.311	
8,000.0	5,753.3	8,096.2	5,752.5	47.0	47.1	-89.93	2,524.5	-350.7	659.1	565.5	93.57	7.044	
8,100.0	5,753.3	8,196.2	5,752.5	48.7	48.8	-89.94	2,624.5	-350.7	659.1	562.1	97.00	6.795	
8,200.0	5,753.3	8,296.2	5,752.5	50.4	50.5	-89.94	2,724.5	-350.7	659.1	558.6	100.43	6.563	
8,300.0	5,753.3	8,396.2	5,752.5	52.1	52.2	-89.94	2,824.5	-350.7	659.1	555.2	103.87	6.345	
8,400.0	5,753.3	8,496.2	5,752.6	53.9	53.9	-89.94	2,924.5	-350.7	659.1	551.8	107.31	6.142	
8,500.0	5,753.3	8,596.2	5,752.6	55.6	55.7	-89.94	3,024.5	-350.7	659.1	548.3	110.76	5.951	
8,600.0	5,753.3	8,696.2	5,752.6	57.3	57.4	-89.94	3,124.5	-350.7	659.1	544.9	114.21	5.771	
8,700.0	5,753.3	8,796.2	5,752.6	59.0	59.1	-89.94	3,224.5	-350.7	659.1	541.4	117.66	5.602	
8,800.0	5,753.3	8,896.2	5,752.6	60.7	60.8	-89.94	3,324.5	-350.7	659.1	538.0	121.12	5.442	
8,900.0	5,753.2	8,996.2	5,752.6	62.5	62.5	-89.94	3,424.5	-350.7	659.1	534.5	124.58	5.291	
9,000.0	5,753.2	9,096.2	5,752.6	64.2	64.3	-89.95	3,524.5	-350.7	659.1	531.1	128.04	5.148	
9,100.0	5,753.2	9,196.2	5,752.6	65.9	66.0	-89.95	3,624.5	-350.7	659.1	527.6	131.51	5.012	
9,200.0	5,753.2	9,296.2	5,752.6	67.6	67.7	-89.95	3,724.5	-350.7	659.1	524.2	134.97	4.884	
9,300.0	5,753.2	9,396.2	5,752.6	69.4	69.4	-89.95	3,824.5	-350.7	659.2	520.7	138.44	4.761	
9,400.0	5,753.2	9,496.2	5,752.6	71.1	71.2	-89.95	3,924.5	-350.7	659.2	517.2	141.91	4.645	
9,500.0	5,753.2	9,596.2	5,752.6	72.8	72.9	-89.95	4,024.5	-350.7	659.2	513.8	145.39	4.534	
9,600.0	5,753.2	9,696.2	5,752.7	74.6	74.6	-89.95	4,124.5	-350.7	659.2	510.3	148.86	4.428	
9,700.0	5,753.2	9,796.2	5,752.7	76.3	76.4	-89.95	4,224.5	-350.7	659.2	506.8	152.34	4.327	
9,800.0	5,753.2	9,896.2	5,752.7	78.0	78.1	-89.95	4,324.5	-350.7	659.2	503.4	155.81	4.231	
9,900.0	5,753.2	9,996.2	5,752.7	79.8	79.8	-89.96	4,424.5	-350.7	659.2	499.9	159.29	4.138	
10,000.0	5,753.2	10,096.2	5,752.7	81.5	81.6	-89.96	4,524.5	-350.7	659.2	496.4	162.77	4.050	
10,100.0	5,753.2	10,196.2	5,752.7	83.3	83.3	-89.96	4,624.5	-350.7	659.2	493.0	166.25	3.965	
10,200.0	5,753.2	10,296.2	5,752.7	85.0	85.1	-89.96	4,724.5	-350.7	659.2	489.5	169.74	3.884	

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2212B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2212B	**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 S27-T10N-R58W - Razor #27J-2210B - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
10,300.0	5,753.2	10,396.2	5,752.7	86.7	86.8	-89.96	4,824.5	-350.7	659.2	486.0	173.22	3.806	
10,400.0	5,753.2	10,496.2	5,752.7	88.5	88.5	-89.96	4,924.5	-350.7	659.2	482.5	176.70	3.731	
10,500.0	5,753.2	10,596.2	5,752.7	90.2	90.3	-89.96	5,024.5	-350.7	659.2	479.0	180.19	3.659	
10,600.0	5,753.2	10,696.2	5,752.7	92.0	92.0	-89.96	5,124.5	-350.7	659.2	475.6	183.68	3.589	
10,700.0	5,753.2	10,796.2	5,752.8	93.7	93.7	-89.97	5,224.5	-350.7	659.3	472.1	187.16	3.522	
10,800.0	5,753.2	10,896.2	5,752.8	95.4	95.5	-89.97	5,324.5	-350.7	659.3	468.6	190.65	3.458	
10,900.0	5,753.1	10,996.2	5,752.8	97.2	97.2	-89.97	5,424.5	-350.7	659.3	465.1	194.14	3.396	
11,000.0	5,753.1	11,096.2	5,752.8	98.9	99.0	-89.97	5,524.5	-350.7	659.3	461.6	197.63	3.336	
11,100.0	5,753.1	11,196.2	5,752.8	100.7	100.7	-89.97	5,624.5	-350.7	659.3	458.2	201.12	3.278	
11,200.0	5,753.1	11,296.2	5,752.8	102.4	102.5	-89.97	5,724.5	-350.7	659.3	454.7	204.61	3.222	
11,300.0	5,753.1	11,396.2	5,752.8	104.1	104.2	-89.97	5,824.5	-350.7	659.3	451.2	208.10	3.168	
11,400.0	5,753.1	11,496.2	5,752.8	105.9	105.9	-89.97	5,924.5	-350.7	659.3	447.7	211.59	3.116	
11,500.0	5,753.1	11,596.2	5,752.8	107.6	107.7	-89.97	6,024.5	-350.7	659.3	444.2	215.08	3.065	
11,600.0	5,753.1	11,696.2	5,752.8	109.4	109.4	-89.98	6,124.5	-350.7	659.3	440.7	218.58	3.016	
11,700.0	5,753.1	11,796.2	5,752.8	111.1	111.2	-89.98	6,224.5	-350.7	659.3	437.3	222.07	2.969	
11,800.0	5,753.1	11,896.2	5,752.8	112.9	112.9	-89.98	6,324.5	-350.7	659.3	433.8	225.56	2.923	
11,900.0	5,753.1	11,996.2	5,752.9	114.6	114.7	-89.98	6,424.5	-350.7	659.3	430.3	229.06	2.878	
12,000.0	5,753.1	12,096.2	5,752.9	116.4	116.4	-89.98	6,524.5	-350.7	659.3	426.8	232.55	2.835	
12,100.0	5,753.1	12,196.2	5,752.9	118.1	118.2	-89.98	6,624.5	-350.6	659.4	423.3	236.05	2.793	
12,200.0	5,753.1	12,296.2	5,752.9	119.9	119.9	-89.98	6,724.5	-350.6	659.4	419.8	239.54	2.753	
12,300.0	5,753.1	12,396.2	5,752.9	121.6	121.7	-89.98	6,824.5	-350.6	659.4	416.3	243.04	2.713	
12,400.0	5,753.1	12,496.2	5,752.9	123.3	123.4	-89.99	6,924.5	-350.6	659.4	412.8	246.53	2.675	
12,500.0	5,753.1	12,596.2	5,752.9	125.1	125.1	-89.99	7,024.5	-350.6	659.4	409.4	250.03	2.637	
12,600.0	5,753.1	12,696.2	5,752.9	126.8	126.9	-89.99	7,124.5	-350.6	659.4	405.9	253.53	2.601	
12,700.0	5,753.1	12,796.2	5,752.9	128.6	128.6	-89.99	7,224.5	-350.6	659.4	402.4	257.02	2.566	
12,800.0	5,753.1	12,896.2	5,752.9	130.3	130.4	-89.99	7,324.5	-350.6	659.4	398.9	260.52	2.531	
12,900.0	5,753.1	12,996.2	5,752.9	132.1	132.1	-89.99	7,424.5	-350.6	659.4	395.4	264.02	2.498	
13,000.0	5,753.0	13,096.2	5,752.9	133.8	133.9	-89.99	7,524.5	-350.6	659.4	391.9	267.52	2.465	
13,100.0	5,753.0	13,196.2	5,753.0	135.6	135.6	-89.99	7,624.5	-350.6	659.4	388.4	271.01	2.433	
13,200.0	5,753.0	13,296.2	5,753.0	137.3	137.4	-89.99	7,724.5	-350.6	659.4	384.9	274.51	2.402	
13,300.0	5,753.0	13,396.2	5,753.0	139.1	139.1	-90.00	7,824.5	-350.6	659.4	381.4	278.01	2.372	
13,400.0	5,753.0	13,496.2	5,753.0	140.8	140.9	-90.00	7,924.5	-350.6	659.4	377.9	281.51	2.343	
13,500.0	5,753.0	13,596.2	5,753.0	142.6	142.6	-90.00	8,024.5	-350.6	659.5	374.4	285.01	2.314	
13,600.0	5,753.0	13,696.2	5,753.0	144.3	144.4	-90.00	8,124.5	-350.6	659.5	371.0	288.51	2.286	
13,700.0	5,753.0	13,796.2	5,753.0	146.1	146.1	-90.00	8,224.5	-350.6	659.5	367.5	292.01	2.258	
13,718.4	5,753.0	13,814.6	5,753.0	146.4	146.4	-90.00	8,242.9	-350.6	659.5	366.8	292.65	2.253	
13,746.0	5,753.0	13,828.4	5,753.0	146.9	146.7	-90.00	8,256.7	-350.6	659.6	366.2	293.38	2.248	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2212B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2212B	**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 S27-T10N-R58W - Razor #27J-2211A - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	3.0	3.0	0.0	0.0	23.70	75.1	32.9	82.0				
100.0	100.0	103.0	103.0	0.1	0.2	23.70	75.1	32.9	82.0	81.7	0.30	276.267	
200.0	200.0	203.0	203.0	0.3	0.3	23.70	75.1	32.9	82.0	81.3	0.65	126.930	
300.0	300.0	303.0	303.0	0.5	0.5	23.70	75.1	32.9	82.0	81.0	0.99	82.392	
400.0	400.0	403.0	403.0	0.7	0.7	23.70	75.1	32.9	82.0	80.6	1.34	60.991	
500.0	500.0	503.0	503.0	0.8	0.8	23.70	75.1	32.9	82.0	80.3	1.69	48.416	
600.0	600.0	603.0	603.0	1.0	1.0	23.70	75.1	32.9	82.0	79.9	2.04	40.139	
700.0	700.0	703.0	703.0	1.2	1.2	23.70	75.1	32.9	82.0	79.6	2.39	34.280	
800.0	800.0	803.0	803.0	1.4	1.4	23.70	75.1	32.9	82.0	79.2	2.74	29.913	
900.0	900.0	903.0	903.0	1.5	1.5	23.70	75.1	32.9	82.0	78.9	3.09	26.533	
1,000.0	1,000.0	1,003.0	1,003.0	1.7	1.7	23.70	75.1	32.9	82.0	78.5	3.44	23.839	
1,100.0	1,100.0	1,103.0	1,103.0	1.9	1.9	23.70	75.1	32.9	82.0	78.2	3.79	21.642	
1,200.0	1,200.0	1,203.0	1,203.0	2.1	2.1	23.70	75.1	32.9	82.0	77.8	4.14	19.816	
1,300.0	1,300.0	1,303.0	1,303.0	2.2	2.2	23.70	75.1	32.9	82.0	77.5	4.49	18.274	
1,400.0	1,400.0	1,403.0	1,403.0	2.4	2.4	23.70	75.1	32.9	82.0	77.1	4.83	16.954	
1,500.0	1,500.0	1,503.0	1,503.0	2.6	2.6	23.70	75.1	32.9	82.0	76.8	5.18	15.812	
1,600.0	1,600.0	1,603.0	1,603.0	2.8	2.8	-27.96	75.1	32.9	80.4	74.9	5.53	14.540	
1,700.0	1,699.8	1,702.8	1,702.8	2.9	2.9	-29.85	75.1	32.9	75.8	70.0	5.88	12.906	
1,800.0	1,799.6	1,802.6	1,802.6	3.1	3.1	-32.70	75.1	32.9	69.9	63.6	6.23	11.219	
1,900.0	1,899.4	1,902.3	1,902.3	3.3	3.3	-36.07	75.1	32.9	64.1	57.5	6.58	9.739	
2,000.0	1,999.1	2,002.1	2,002.1	3.5	3.5	-40.08	75.1	32.9	58.6	51.7	6.94	8.445	
2,100.0	2,098.9	2,101.9	2,101.9	3.7	3.6	-44.90	75.1	32.9	53.5	46.1	7.30	7.320	
2,200.0	2,198.6	2,201.6	2,201.6	3.9	3.8	-50.68	75.1	32.9	48.8	41.1	7.67	6.356	
2,300.0	2,298.4	2,301.4	2,301.4	4.1	4.0	-57.61	75.1	32.9	44.7	36.6	8.04	5.551	
2,400.0	2,398.1	2,401.1	2,401.1	4.3	4.2	-65.79	75.1	32.9	41.3	32.9	8.43	4.905	
2,500.0	2,497.9	2,500.9	2,500.9	4.5	4.3	-75.16	75.1	32.9	39.0	30.2	8.81	4.424	
2,600.0	2,597.6	2,600.6	2,600.6	4.7	4.5	-85.41	75.1	32.9	37.8	28.6	9.20	4.111	
2,643.5	2,641.0	2,644.0	2,644.0	4.8	4.6	-90.00	75.1	32.9	37.7	28.3	9.36	4.025	CC
2,700.0	2,697.4	2,700.4	2,700.4	4.9	4.7	-95.96	75.1	32.9	37.9	28.3	9.57	3.959	ES
2,800.0	2,797.2	2,800.1	2,800.1	5.1	4.9	-106.12	75.1	32.9	39.2	29.3	9.93	3.950	
2,900.0	2,896.9	2,899.9	2,899.9	5.3	5.0	-115.35	75.1	32.9	41.7	31.4	10.28	4.058	
3,000.0	2,996.7	2,999.7	2,999.7	5.5	5.2	-123.36	75.1	32.9	45.1	34.5	10.62	4.253	
3,100.0	3,096.4	3,099.4	3,099.4	5.7	5.4	-130.13	75.1	32.9	49.3	38.4	10.95	4.506	
3,200.0	3,196.2	3,199.2	3,199.2	5.9	5.6	-135.78	75.1	32.9	54.1	42.8	11.28	4.796	
3,300.0	3,295.9	3,298.9	3,298.9	6.1	5.7	-140.49	75.1	32.9	59.3	47.7	11.61	5.107	
3,400.0	3,395.7	3,398.7	3,398.7	6.3	5.9	-144.41	75.1	32.9	64.8	52.9	11.95	5.428	
3,500.0	3,495.6	3,498.5	3,498.5	6.5	6.1	-146.98	75.1	32.9	69.2	56.9	12.29	5.630	
3,600.0	3,595.5	3,598.5	3,598.5	6.7	6.3	-96.70	75.1	32.9	70.6	58.1	12.54	5.633	
3,700.0	3,695.5	3,698.5	3,698.5	6.8	6.4	-96.70	75.1	32.9	70.6	57.8	12.89	5.481	
3,800.0	3,795.5	3,798.5	3,798.5	7.0	6.6	-96.70	75.1	32.9	70.6	57.4	13.24	5.337	
3,900.0	3,895.5	3,898.5	3,898.5	7.2	6.8	-96.70	75.1	32.9	70.6	57.1	13.59	5.200	
4,000.0	3,995.5	3,998.5	3,998.5	7.3	6.9	-96.70	75.1	32.9	70.6	56.7	13.93	5.070	
4,100.0	4,095.5	4,098.5	4,098.5	7.5	7.1	-96.70	75.1	32.9	70.6	56.4	14.28	4.946	
4,200.0	4,195.5	4,198.5	4,198.5	7.7	7.3	-96.70	75.1	32.9	70.6	56.0	14.63	4.828	
4,300.0	4,295.5	4,298.5	4,298.5	7.8	7.5	-96.70	75.1	32.9	70.6	55.7	14.98	4.716	
4,400.0	4,395.5	4,398.5	4,398.5	8.0	7.6	-96.70	75.1	32.9	70.6	55.3	15.33	4.609	
4,500.0	4,495.5	4,498.5	4,498.5	8.2	7.8	-96.70	75.1	32.9	70.6	55.0	15.68	4.506	
4,600.0	4,595.5	4,598.5	4,598.5	8.3	8.0	-96.70	75.1	32.9	70.6	54.6	16.02	4.408	
4,700.0	4,695.5	4,698.5	4,698.5	8.5	8.2	-96.70	75.1	32.9	70.6	54.3	16.37	4.315	
4,800.0	4,795.5	4,798.5	4,798.5	8.7	8.3	-96.70	75.1	32.9	70.6	53.9	16.72	4.225	
4,900.0	4,895.5	4,898.5	4,898.5	8.8	8.5	-96.70	75.1	32.9	70.6	53.6	17.07	4.138	
5,000.0	4,995.5	4,998.5	4,998.5	9.0	8.7	-96.70	75.1	32.9	70.6	53.2	17.42	4.056	

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

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2212B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2212B	**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 S27-T10N-R58W - Razor #27J-2211A - HZ - Plan #2

Survey Program: 0-MWD

Offset Site Error: 0.0 ft

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.0	5,095.5	5,098.5	5,098.5	9.2	8.9	-96.70	75.1	32.9	70.6	52.9	17.77	3.976	
5,177.7	5,173.2	5,176.3	5,176.3	9.3	9.0	-95.98	75.9	32.9	70.6	52.6	18.04	3.915	
5,200.0	5,195.5	5,198.5	5,198.5	9.3	9.0	-94.55	77.7	32.7	70.6	52.5	18.12	3.897	
5,300.0	5,295.4	5,295.7	5,293.7	9.5	9.2	-97.49	96.3	31.0	73.8	55.2	18.62	3.964	
5,400.0	5,392.9	5,389.4	5,380.7	9.8	9.5	-86.47	130.7	28.0	86.3	67.2	19.17	4.504	
5,500.0	5,484.5	5,479.7	5,457.4	10.2	9.8	-79.26	178.0	23.8	106.0	86.2	19.81	5.353	
5,600.0	5,566.8	5,566.9	5,522.6	10.7	10.2	-74.98	235.4	18.6	130.5	109.9	20.57	6.344	
5,700.0	5,636.9	5,650.0	5,575.0	11.5	10.7	-72.47	299.6	12.9	158.2	136.7	21.55	7.344	
5,800.0	5,692.1	5,733.5	5,616.6	12.4	11.4	-70.99	371.6	6.5	188.0	165.2	22.84	8.232	
5,900.0	5,730.4	5,814.2	5,645.4	13.6	12.3	-70.05	446.5	-0.2	219.0	194.6	24.45	8.958	
6,000.0	5,750.5	5,894.0	5,662.2	14.9	13.2	-69.46	524.2	-7.1	250.5	224.1	26.39	9.494	
6,100.0	5,753.4	5,977.6	5,666.9	16.4	14.3	-70.54	607.2	-14.5	281.9	253.0	28.84	9.772	
6,200.0	5,753.4	6,090.6	5,666.9	17.8	15.8	-72.70	720.0	-20.4	307.3	275.3	31.98	9.607	
6,300.0	5,753.4	6,195.9	5,666.9	19.3	17.3	-73.79	825.4	-20.9	323.4	288.4	35.01	9.238	
6,400.0	5,753.4	6,295.3	5,666.9	20.9	18.8	-74.42	924.7	-20.9	334.2	296.3	37.95	8.807	
6,500.0	5,753.4	6,395.1	5,666.9	22.4	20.4	-74.73	1,024.5	-20.9	340.0	299.2	40.86	8.321	
6,600.0	5,753.4	6,495.1	5,666.9	23.9	21.9	-74.79	1,124.5	-20.9	341.1	297.3	43.79	7.789	
6,700.0	5,753.4	6,595.1	5,666.9	25.5	23.5	-74.80	1,224.5	-20.9	341.1	294.2	46.87	7.277	
6,800.0	5,753.3	6,695.1	5,666.9	27.1	25.1	-74.80	1,324.5	-20.9	341.1	291.1	50.00	6.822	
6,900.0	5,753.3	6,795.1	5,666.9	28.7	26.8	-74.80	1,424.5	-20.9	341.1	288.0	53.15	6.417	
7,000.0	5,753.3	6,895.1	5,666.9	30.3	28.4	-74.80	1,524.5	-20.9	341.1	284.8	56.34	6.055	
7,100.0	5,753.3	6,995.1	5,666.9	31.9	30.1	-74.80	1,624.5	-20.9	341.1	281.6	59.54	5.729	
7,200.0	5,753.3	7,095.1	5,666.9	33.6	31.7	-74.80	1,724.5	-20.9	341.1	278.4	62.77	5.435	
7,300.0	5,753.3	7,195.1	5,666.9	35.2	33.4	-74.80	1,824.5	-20.9	341.1	275.1	66.01	5.168	
7,400.0	5,753.3	7,295.1	5,666.9	36.9	35.1	-74.80	1,924.5	-20.9	341.1	271.9	69.27	4.925	
7,500.0	5,753.3	7,395.1	5,666.9	38.6	36.8	-74.81	2,024.5	-20.9	341.1	268.6	72.53	4.703	
7,600.0	5,753.3	7,495.1	5,666.9	40.2	38.5	-74.81	2,124.5	-20.9	341.1	265.3	75.81	4.500	
7,700.0	5,753.3	7,595.1	5,666.9	41.9	40.2	-74.81	2,224.5	-20.9	341.1	262.0	79.10	4.313	
7,800.0	5,753.3	7,695.1	5,666.9	43.6	41.9	-74.81	2,324.5	-20.9	341.1	258.8	82.39	4.140	
7,900.0	5,753.3	7,795.1	5,666.9	45.3	43.6	-74.81	2,424.5	-20.9	341.2	255.5	85.70	3.981	
8,000.0	5,753.3	7,895.1	5,666.9	47.0	45.3	-74.81	2,524.5	-20.9	341.2	252.2	89.00	3.833	
8,100.0	5,753.3	7,995.1	5,666.9	48.7	47.0	-74.81	2,624.5	-20.9	341.2	248.8	92.32	3.695	
8,200.0	5,753.3	8,095.1	5,666.9	50.4	48.8	-74.82	2,724.5	-20.9	341.2	245.5	95.64	3.567	
8,300.0	5,753.3	8,195.1	5,666.9	52.1	50.5	-74.82	2,824.5	-20.9	341.2	242.2	98.96	3.447	
8,400.0	5,753.3	8,295.1	5,666.9	53.9	52.2	-74.82	2,924.5	-20.9	341.2	238.9	102.29	3.335	
8,500.0	5,753.3	8,395.1	5,666.9	55.6	53.9	-74.82	3,024.5	-20.9	341.2	235.6	105.63	3.230	
8,600.0	5,753.3	8,495.1	5,666.9	57.3	55.7	-74.82	3,124.5	-20.9	341.2	232.2	108.96	3.131	
8,700.0	5,753.3	8,595.1	5,666.9	59.0	57.4	-74.82	3,224.5	-20.9	341.2	228.9	112.30	3.038	
8,800.0	5,753.3	8,695.1	5,666.9	60.7	59.1	-74.82	3,324.5	-20.9	341.2	225.5	115.64	2.950	
8,900.0	5,753.2	8,795.1	5,666.9	62.5	60.9	-74.82	3,424.5	-20.9	341.2	222.2	118.99	2.867	
9,000.0	5,753.2	8,895.1	5,666.9	64.2	62.6	-74.83	3,524.5	-20.9	341.2	218.9	122.33	2.789	
9,100.0	5,753.2	8,995.1	5,666.9	65.9	64.3	-74.83	3,624.5	-20.9	341.2	215.5	125.68	2.715	
9,200.0	5,753.2	9,095.1	5,666.9	67.6	66.1	-74.83	3,724.5	-20.9	341.2	212.2	129.03	2.644	
9,300.0	5,753.2	9,195.1	5,666.9	69.4	67.8	-74.83	3,824.5	-20.9	341.2	208.8	132.39	2.577	
9,400.0	5,753.2	9,295.1	5,666.9	71.1	69.5	-74.83	3,924.5	-20.9	341.2	205.5	135.74	2.514	
9,500.0	5,753.2	9,395.1	5,666.9	72.8	71.3	-74.83	4,024.5	-20.8	341.2	202.1	139.10	2.453	
9,600.0	5,753.2	9,495.1	5,666.9	74.6	73.0	-74.83	4,124.5	-20.8	341.2	198.8	142.46	2.395	
9,700.0	5,753.2	9,595.1	5,666.9	76.3	74.8	-74.84	4,224.5	-20.8	341.2	195.4	145.82	2.340	
9,800.0	5,753.2	9,695.1	5,666.9	78.0	76.5	-74.84	4,324.5	-20.8	341.2	192.1	149.18	2.287	
9,900.0	5,753.2	9,795.1	5,666.9	79.8	78.2	-74.84	4,424.5	-20.8	341.2	188.7	152.54	2.237	
10,000.0	5,753.2	9,895.1	5,666.9	81.5	80.0	-74.84	4,524.5	-20.8	341.2	185.3	155.90	2.189	
10,100.0	5,753.2	9,995.1	5,666.9	83.3	81.7	-74.84	4,624.5	-20.8	341.2	182.0	159.27	2.143	

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2212B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2212B	**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 S27-T10N-R58W - Razor #27J-2211A - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
10,200.0	5,753.2	10,095.1	5,666.9	85.0	83.5	-74.84	4,724.5	-20.8	341.2	178.6	162.63	2.098	
10,300.0	5,753.2	10,195.1	5,666.9	86.7	85.2	-74.84	4,824.5	-20.8	341.3	175.3	166.00	2.056	
10,400.0	5,753.2	10,295.1	5,666.9	88.5	86.9	-74.85	4,924.5	-20.8	341.3	171.9	169.37	2.015	
10,500.0	5,753.2	10,395.1	5,667.0	90.2	88.7	-74.85	5,024.5	-20.8	341.3	168.5	172.74	1.976	
10,600.0	5,753.2	10,495.1	5,667.0	92.0	90.4	-74.85	5,124.5	-20.8	341.3	165.2	176.11	1.938	
10,700.0	5,753.2	10,595.1	5,667.0	93.7	92.2	-74.85	5,224.5	-20.8	341.3	161.8	179.48	1.901	
10,800.0	5,753.2	10,695.1	5,667.0	95.4	93.9	-74.85	5,324.5	-20.8	341.3	158.4	182.85	1.866	
10,900.0	5,753.1	10,795.1	5,667.0	97.2	95.7	-74.85	5,424.5	-20.8	341.3	155.1	186.22	1.833	
11,000.0	5,753.1	10,895.1	5,667.0	98.9	97.4	-74.85	5,524.5	-20.8	341.3	151.7	189.59	1.800	
11,100.0	5,753.1	10,995.1	5,667.0	100.7	99.2	-74.85	5,624.5	-20.8	341.3	148.3	192.96	1.769	
11,200.0	5,753.1	11,095.1	5,667.0	102.4	100.9	-74.86	5,724.5	-20.8	341.3	145.0	196.34	1.738	
11,300.0	5,753.1	11,195.1	5,667.0	104.1	102.7	-74.86	5,824.5	-20.8	341.3	141.6	199.71	1.709	
11,400.0	5,753.1	11,295.1	5,667.0	105.9	104.4	-74.86	5,924.5	-20.8	341.3	138.2	203.08	1.681	
11,500.0	5,753.1	11,395.1	5,667.0	107.6	106.1	-74.86	6,024.5	-20.8	341.3	134.8	206.46	1.653	
11,600.0	5,753.1	11,495.1	5,667.0	109.4	107.9	-74.86	6,124.5	-20.8	341.3	131.5	209.84	1.627	
11,700.0	5,753.1	11,595.1	5,667.0	111.1	109.6	-74.86	6,224.5	-20.8	341.3	128.1	213.21	1.601	
11,800.0	5,753.1	11,695.1	5,667.0	112.9	111.4	-74.86	6,324.5	-20.8	341.3	124.7	216.59	1.576	
11,900.0	5,753.1	11,795.1	5,667.0	114.6	113.1	-74.87	6,424.5	-20.8	341.3	121.4	219.96	1.552	
12,000.0	5,753.1	11,895.1	5,667.0	116.4	114.9	-74.87	6,524.5	-20.8	341.3	118.0	223.34	1.528	
12,100.0	5,753.1	11,995.1	5,667.0	118.1	116.6	-74.87	6,624.5	-20.8	341.3	114.6	226.72	1.506	
12,200.0	5,753.1	12,095.1	5,667.0	119.9	118.4	-74.87	6,724.5	-20.8	341.3	111.2	230.10	1.483	Level 3
12,300.0	5,753.1	12,195.1	5,667.0	121.6	120.1	-74.87	6,824.5	-20.8	341.3	107.9	233.48	1.462	Level 3
12,400.0	5,753.1	12,295.1	5,667.0	123.3	121.9	-74.87	6,924.5	-20.8	341.3	104.5	236.85	1.441	Level 3
12,500.0	5,753.1	12,395.1	5,667.0	125.1	123.6	-74.87	7,024.5	-20.8	341.3	101.1	240.23	1.421	Level 3
12,600.0	5,753.1	12,495.1	5,667.0	126.8	125.4	-74.88	7,124.5	-20.8	341.4	97.7	243.61	1.401	Level 3
12,700.0	5,753.1	12,595.1	5,667.0	128.6	127.1	-74.88	7,224.5	-20.8	341.4	94.4	246.99	1.382	Level 3
12,800.0	5,753.1	12,695.1	5,667.0	130.3	128.9	-74.88	7,324.5	-20.8	341.4	91.0	250.37	1.363	Level 3
12,900.0	5,753.1	12,795.1	5,667.0	132.1	130.6	-74.88	7,424.5	-20.8	341.4	87.6	253.75	1.345	Level 3
13,000.0	5,753.0	12,895.1	5,667.0	133.8	132.4	-74.88	7,524.5	-20.8	341.4	84.2	257.13	1.328	Level 3
13,100.0	5,753.0	12,995.1	5,667.0	135.6	134.1	-74.88	7,624.5	-20.8	341.4	80.9	260.51	1.310	Level 3
13,200.0	5,753.0	13,095.1	5,667.0	137.3	135.9	-74.88	7,724.5	-20.8	341.4	77.5	263.90	1.294	Level 3
13,300.0	5,753.0	13,195.1	5,667.0	139.1	137.6	-74.88	7,824.5	-20.8	341.4	74.1	267.28	1.277	Level 3
13,400.0	5,753.0	13,295.1	5,667.0	140.8	139.4	-74.89	7,924.5	-20.8	341.4	70.7	270.66	1.261	Level 3
13,500.0	5,753.0	13,395.1	5,667.0	142.6	141.1	-74.89	8,024.5	-20.8	341.4	67.3	274.04	1.246	Level 2
13,600.0	5,753.0	13,495.1	5,667.0	144.3	142.9	-74.89	8,124.5	-20.8	341.4	64.0	277.42	1.231	Level 2
13,700.0	5,753.0	13,595.1	5,667.0	146.1	144.6	-74.89	8,224.5	-20.8	341.4	60.6	280.81	1.216	Level 2
13,722.8	5,753.0	13,617.8	5,667.0	146.5	145.0	-74.89	8,247.3	-20.8	341.4	59.8	281.58	1.212	Level 2
13,746.0	5,753.0	13,635.1	5,667.0	146.9	145.3	-74.89	8,264.6	-20.8	341.5	59.2	282.26	1.210	Level 2, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2212B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2212B	**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 S27-T10N-R58W - Razor #27J-3409A - Hz - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	3.0	3.0	0.0	0.0	-41.04	75.1	-65.3	99.5				
100.0	100.0	103.0	103.0	0.1	0.2	-41.04	75.1	-65.3	99.5	99.2	0.30	335.358	
200.0	200.0	203.0	203.0	0.3	0.3	-41.04	75.1	-65.3	99.5	98.9	0.65	154.084	
300.0	300.0	303.0	303.0	0.5	0.5	-41.04	75.1	-65.3	99.5	98.5	0.99	100.019	
400.0	400.0	403.0	403.0	0.7	0.7	-41.04	75.1	-65.3	99.5	98.2	1.34	74.040	
500.0	500.0	503.1	503.1	0.8	0.8	-41.04	75.0	-65.3	99.5	97.8	1.69	58.769	
600.0	600.0	604.9	604.8	1.0	1.0	-41.99	73.2	-65.9	98.5	96.5	2.05	48.125	
700.0	700.0	706.3	706.1	1.2	1.2	-44.82	68.0	-67.6	95.9	93.5	2.41	39.796	
800.0	800.0	806.0	805.6	1.4	1.4	-48.63	61.3	-69.7	92.8	90.1	2.77	33.480	
900.0	900.0	905.8	905.1	1.5	1.6	-52.68	54.7	-71.7	90.2	87.1	3.14	28.760	
1,000.0	1,000.0	1,005.6	1,004.7	1.7	1.8	-56.94	48.1	-73.8	88.1	84.6	3.50	25.169	
1,100.0	1,100.0	1,105.3	1,104.2	1.9	2.0	-61.38	41.4	-75.9	86.5	82.6	3.86	22.404	
1,200.0	1,200.0	1,205.1	1,203.7	2.1	2.2	-65.97	34.8	-78.0	85.4	81.2	4.22	20.259	
1,300.0	1,300.0	1,304.8	1,303.2	2.2	2.4	-70.64	28.2	-80.1	84.9	80.3	4.57	18.590	
1,340.1	1,340.1	1,344.8	1,343.1	2.3	2.5	-72.52	25.5	-80.9	84.9	80.2	4.71	18.029	CC
1,400.0	1,400.0	1,404.6	1,402.7	2.4	2.6	-75.33	21.5	-82.2	85.0	80.0	4.91	17.292	ES
1,500.0	1,500.0	1,504.3	1,502.2	2.6	2.8	-79.99	14.9	-84.3	85.6	80.3	5.26	16.286	
1,600.0	1,600.0	1,604.0	1,601.6	2.8	3.1	-136.37	8.2	-86.4	88.0	82.2	5.80	15.170	SF
1,700.0	1,699.8	1,703.3	1,700.7	2.9	3.3	-142.62	1.6	-88.5	93.9	87.8	6.16	15.245	
1,800.0	1,799.6	1,802.4	1,799.5	3.1	3.5	-148.65	-5.0	-90.5	102.4	95.8	6.52	15.706	
1,900.0	1,899.4	1,901.5	1,898.4	3.3	3.7	-153.73	-11.5	-92.6	111.7	104.9	6.87	16.271	
2,000.0	1,999.1	2,000.6	1,997.3	3.5	3.9	-158.00	-18.1	-94.7	121.8	114.6	7.21	16.892	
2,100.0	2,098.9	2,099.7	2,096.1	3.7	4.1	-161.61	-24.7	-96.8	132.5	125.0	7.56	17.535	
2,200.0	2,198.6	2,198.8	2,195.0	3.9	4.3	-164.67	-31.3	-98.8	143.6	135.7	7.90	18.181	
2,300.0	2,298.4	2,297.9	2,293.9	4.1	4.5	-167.28	-37.9	-100.9	155.1	146.9	8.24	18.816	
2,400.0	2,398.1	2,397.0	2,392.7	4.3	4.7	-169.54	-44.5	-103.0	166.8	158.3	8.59	19.432	
2,500.0	2,497.9	2,496.2	2,491.6	4.5	4.9	-171.49	-51.1	-105.1	178.8	169.9	8.93	20.025	
2,600.0	2,597.6	2,595.3	2,590.5	4.7	5.1	-173.20	-57.7	-107.1	191.0	181.7	9.27	20.593	
2,700.0	2,697.4	2,694.4	2,689.3	4.9	5.4	-174.70	-64.3	-109.2	203.3	193.6	9.62	21.134	
2,800.0	2,797.2	2,793.5	2,788.2	5.1	5.6	-176.04	-70.9	-111.3	215.7	205.7	9.96	21.649	
2,900.0	2,896.9	2,892.6	2,887.1	5.3	5.8	-177.22	-77.5	-113.4	228.2	217.9	10.31	22.138	
3,000.0	2,996.7	2,991.7	2,985.9	5.5	6.0	-178.29	-84.1	-115.4	240.8	230.1	10.65	22.603	
3,100.0	3,096.4	3,090.8	3,084.8	5.7	6.2	-179.24	-90.7	-117.5	253.5	242.5	11.00	23.044	
3,200.0	3,196.2	3,189.9	3,183.7	5.9	6.4	179.89	-97.3	-119.6	266.2	254.9	11.35	23.463	
3,300.0	3,295.9	3,289.0	3,282.5	6.1	6.6	179.10	-103.9	-121.7	279.0	267.3	11.69	23.861	
3,400.0	3,395.7	3,388.1	3,381.4	6.3	6.8	178.38	-110.5	-123.8	291.9	279.8	12.04	24.239	
3,500.0	3,495.6	3,487.4	3,480.5	6.5	7.0	177.72	-117.1	-125.8	303.0	290.6	12.41	24.426	
3,600.0	3,595.5	3,587.1	3,579.9	6.7	7.2	-131.86	-123.7	-127.9	310.7	298.2	12.60	24.665	
3,700.0	3,695.5	3,686.8	3,679.4	6.8	7.5	-132.50	-130.3	-130.0	316.8	303.8	12.95	24.469	
3,800.0	3,795.5	3,786.6	3,778.9	7.0	7.7	-133.12	-137.0	-132.1	322.8	309.5	13.29	24.287	
3,900.0	3,895.5	3,886.3	3,878.4	7.2	7.9	-133.72	-143.6	-134.2	328.9	315.3	13.64	24.117	
4,000.0	3,995.5	3,986.1	3,977.9	7.3	8.1	-134.29	-150.2	-136.3	335.1	321.1	13.99	23.958	
4,100.0	4,095.5	4,085.9	4,077.4	7.5	8.3	-134.85	-156.9	-138.4	341.2	326.9	14.33	23.809	
4,200.0	4,195.5	4,185.6	4,177.0	7.7	8.5	-135.38	-163.5	-140.5	347.4	332.8	14.68	23.669	
4,300.0	4,295.5	4,285.4	4,276.5	7.8	8.7	-135.89	-170.2	-142.6	353.7	338.6	15.02	23.538	
4,400.0	4,395.5	4,385.1	4,376.0	8.0	8.9	-136.39	-176.8	-144.6	359.9	344.5	15.37	23.414	
4,500.0	4,495.5	4,484.9	4,475.5	8.2	9.2	-136.87	-183.4	-146.7	366.2	350.5	15.72	23.298	
4,600.0	4,595.5	4,584.6	4,575.0	8.3	9.4	-137.34	-190.1	-148.8	372.5	356.4	16.06	23.188	
4,700.0	4,695.5	4,684.4	4,674.5	8.5	9.6	-137.79	-196.7	-150.9	378.8	362.4	16.41	23.084	
4,800.0	4,795.5	4,784.1	4,774.0	8.7	9.8	-138.22	-203.3	-153.0	385.2	368.4	16.76	22.985	
4,900.0	4,895.5	4,883.9	4,873.6	8.8	10.0	-138.64	-210.0	-155.1	391.5	374.4	17.10	22.892	
5,000.0	4,995.5	4,983.7	4,973.1	9.0	10.2	-139.05	-216.6	-157.2	397.9	380.5	17.45	22.804	

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

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2212B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2212B	**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 S27-T10N-R58W - Razor #27J-3409A - Hz - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.0	5,095.5	5,083.4	5,072.6	9.2	10.4	-139.44	-223.3	-159.3	404.3	386.5	17.80	22.720	
5,200.0	5,195.5	5,183.2	5,172.1	9.3	10.6	-139.82	-229.9	-161.4	410.8	392.6	18.14	22.640	
5,300.0	5,295.4	5,250.0	5,238.4	9.5	10.8	-155.17	-237.3	-163.7	424.8	406.3	18.53	22.919	
5,400.0	5,392.9	5,300.0	5,287.1	9.8	11.0	-154.46	-248.0	-167.1	463.7	445.3	18.39	25.208	
5,500.0	5,484.5	5,334.3	5,319.8	10.2	11.2	-152.04	-257.9	-170.2	525.0	507.0	18.04	29.097	
5,600.0	5,566.8	5,350.0	5,334.5	10.7	11.3	-145.62	-263.2	-171.8	603.8	585.8	17.97	33.602	
5,700.0	5,636.9	5,378.3	5,360.6	11.5	11.5	-133.92	-273.6	-175.1	693.4	674.2	19.18	36.160	
5,800.0	5,692.1	5,384.7	5,366.4	12.4	11.5	-102.15	-276.2	-175.9	789.3	765.9	23.41	33.722	
5,900.0	5,730.4	5,383.1	5,365.0	13.6	11.5	-55.21	-275.5	-175.7	886.9	865.0	21.89	40.525	
6,000.0	5,750.5	5,375.1	5,357.7	14.9	11.4	-30.11	-272.4	-174.7	982.5	965.6	16.83	58.368	
6,100.0	5,753.4	5,350.0	5,334.5	16.4	11.3	-24.92	-263.2	-171.8	1,074.1	1,058.1	15.95	67.338	
6,200.0	5,753.4	5,350.0	5,334.5	17.8	11.3	-30.56	-263.2	-171.8	1,164.5	1,146.4	18.15	64.165	
6,300.0	5,753.4	5,350.0	5,334.5	19.3	11.3	-36.01	-263.2	-171.8	1,255.4	1,234.8	20.54	61.109	
6,400.0	5,753.4	5,330.7	5,316.4	20.9	11.2	-39.84	-256.8	-169.8	1,345.9	1,323.3	22.52	59.753	
6,500.0	5,753.4	5,322.2	5,308.3	22.4	11.1	-43.97	-254.2	-169.0	1,436.2	1,411.5	24.71	58.127	
6,600.0	5,753.4	5,300.0	5,287.1	23.9	11.0	-45.36	-248.0	-167.1	1,526.4	1,500.3	26.07	58.547	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2212B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2212B	**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 S27-T10N-R58W - Razor #27J-3410B - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-32.4	32.4				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-32.4	32.4	32.1	0.29	111.124	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-32.4	32.4	31.7	0.64	50.566	
300.0	300.0	300.0	300.0	0.5	0.5	-90.00	0.0	-32.4	32.4	31.4	0.99	32.730	
400.0	400.0	400.0	400.0	0.7	0.7	-90.00	0.0	-32.4	32.4	31.1	1.34	24.195	
500.0	500.0	500.0	500.0	0.8	0.8	-90.00	0.0	-32.4	32.4	30.7	1.69	19.191	
600.0	600.0	600.0	600.0	1.0	1.0	-90.00	0.0	-32.4	32.4	30.4	2.04	15.902	
700.0	700.0	700.0	700.0	1.2	1.2	-90.00	0.0	-32.4	32.4	30.0	2.39	13.576	
800.0	800.0	800.0	800.0	1.4	1.4	-90.00	0.0	-32.4	32.4	29.7	2.73	11.843	
900.0	900.0	900.0	900.0	1.5	1.5	-90.00	0.0	-32.4	32.4	29.3	3.08	10.502	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	-90.00	0.0	-32.4	32.4	29.0	3.43	9.435	
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	-90.00	0.0	-32.4	32.4	28.6	3.78	8.564	
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	-90.00	0.0	-32.4	32.4	28.3	4.13	7.840	
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	-90.00	0.0	-32.4	32.4	27.9	4.48	7.229	
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	-90.00	0.0	-32.4	32.4	27.6	4.83	6.707	
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	-90.00	0.0	-32.4	32.4	27.2	5.18	6.255	CC, ES
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	-142.91	0.0	-32.4	33.8	28.2	5.53	6.110	SF
1,700.0	1,699.8	1,699.8	1,699.8	2.9	2.9	-147.62	0.0	-32.4	38.1	32.2	5.87	6.484	
1,800.0	1,799.6	1,799.6	1,799.6	3.1	3.1	-152.47	0.0	-32.4	44.1	37.9	6.22	7.093	
1,900.0	1,899.4	1,899.4	1,899.4	3.3	3.3	-156.14	0.0	-32.4	50.4	43.8	6.57	7.673	
2,000.0	1,999.1	1,999.1	1,999.1	3.5	3.5	-158.98	0.0	-32.4	56.9	49.9	6.92	8.218	
2,100.0	2,098.9	2,098.9	2,098.9	3.7	3.6	-161.24	0.0	-32.4	63.4	56.2	7.27	8.726	
2,200.0	2,198.6	2,198.6	2,198.6	3.9	3.8	-163.08	0.0	-32.4	70.1	62.5	7.62	9.199	
2,300.0	2,298.4	2,298.4	2,298.4	4.1	4.0	-164.59	0.0	-32.4	76.8	68.8	7.97	9.637	
2,400.0	2,398.1	2,398.1	2,398.1	4.3	4.2	-165.86	0.0	-32.4	83.5	75.2	8.32	10.044	
2,500.0	2,497.9	2,497.9	2,497.9	4.5	4.3	-166.94	0.0	-32.4	90.3	81.6	8.66	10.423	
2,600.0	2,597.6	2,597.6	2,597.6	4.7	4.5	-167.87	0.0	-32.4	97.1	88.1	9.01	10.775	
2,700.0	2,697.4	2,697.4	2,697.4	4.9	4.7	-168.68	0.0	-32.4	103.9	94.6	9.36	11.103	
2,800.0	2,797.2	2,797.2	2,797.2	5.1	4.9	-169.39	0.0	-32.4	110.8	101.1	9.71	11.410	
2,900.0	2,896.9	2,896.9	2,896.9	5.3	5.0	-170.01	0.0	-32.4	117.7	107.6	10.06	11.697	
3,000.0	2,996.7	2,996.7	2,996.7	5.5	5.2	-170.57	0.0	-32.4	124.5	114.1	10.41	11.967	
3,100.0	3,096.4	3,096.4	3,096.4	5.7	5.4	-171.07	0.0	-32.4	131.4	120.7	10.76	12.219	
3,200.0	3,196.2	3,196.2	3,196.2	5.9	5.5	-171.52	0.0	-32.4	138.3	127.2	11.10	12.457	
3,300.0	3,295.9	3,295.9	3,295.9	6.1	5.7	-171.92	0.0	-32.4	145.2	133.8	11.45	12.681	
3,400.0	3,395.7	3,395.7	3,395.7	6.3	5.9	-172.29	0.0	-32.4	152.1	140.3	11.80	12.892	
3,500.0	3,495.6	3,495.6	3,495.6	6.5	6.1	-172.56	0.0	-32.4	157.3	145.2	12.16	12.939	
3,600.0	3,595.5	3,595.5	3,595.5	6.7	6.2	-121.58	0.0	-32.4	159.0	146.5	12.51	12.716	
3,700.0	3,695.5	3,695.5	3,695.5	6.8	6.4	-121.58	0.0	-32.4	159.0	146.2	12.86	12.371	
3,800.0	3,795.5	3,795.5	3,795.5	7.0	6.6	-121.58	0.0	-32.4	159.0	145.8	13.21	12.044	
3,900.0	3,895.5	3,895.5	3,895.5	7.2	6.8	-121.58	0.0	-32.4	159.0	145.5	13.55	11.734	
4,000.0	3,995.5	3,995.5	3,995.5	7.3	6.9	-121.58	0.0	-32.4	159.0	145.1	13.90	11.440	
4,100.0	4,095.5	4,095.5	4,095.5	7.5	7.1	-121.58	0.0	-32.4	159.0	144.8	14.25	11.160	
4,200.0	4,195.5	4,195.5	4,195.5	7.7	7.3	-121.58	0.0	-32.4	159.0	144.4	14.60	10.893	
4,300.0	4,295.5	4,295.5	4,295.5	7.8	7.5	-121.58	0.0	-32.4	159.0	144.1	14.95	10.639	
4,400.0	4,395.5	4,395.5	4,395.5	8.0	7.6	-121.58	0.0	-32.4	159.0	143.7	15.30	10.396	
4,500.0	4,495.5	4,495.5	4,495.5	8.2	7.8	-121.58	0.0	-32.4	159.0	143.4	15.65	10.164	
4,600.0	4,595.5	4,595.5	4,595.5	8.3	8.0	-121.58	0.0	-32.4	159.0	143.0	16.00	9.942	
4,700.0	4,695.5	4,695.5	4,695.5	8.5	8.2	-121.58	0.0	-32.4	159.0	142.7	16.35	9.730	
4,800.0	4,795.5	4,795.5	4,795.5	8.7	8.3	-121.58	0.0	-32.4	159.0	142.4	16.69	9.527	
4,900.0	4,895.5	4,895.5	4,895.5	8.8	8.5	-121.58	0.0	-32.4	159.0	142.0	17.04	9.332	
5,000.0	4,995.5	4,995.5	4,995.5	9.0	8.7	-121.58	0.0	-32.4	159.0	141.7	17.39	9.144	
5,100.0	5,095.5	5,095.5	5,095.5	9.2	8.9	-121.58	0.0	-32.4	159.0	141.3	17.74	8.965	

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

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2212B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2212B	**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 S27-T10N-R58W - Razor #27J-3410B - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,195.5	5,195.5	5,195.5	9.3	9.0	-121.58	0.0	-32.4	159.0	141.0	18.09	8.792	
5,206.2	5,201.7	5,201.7	5,201.7	9.4	9.0	-136.89	0.0	-32.4	159.1	141.0	18.11	8.782	
5,300.0	5,295.4	5,285.7	5,285.6	9.5	9.2	-138.11	-2.8	-32.5	163.7	145.3	18.39	8.904	
5,400.0	5,392.9	5,361.6	5,360.3	9.8	9.3	-142.99	-16.0	-32.9	191.7	173.3	18.40	10.419	
5,500.0	5,484.5	5,419.2	5,415.2	10.2	9.5	-146.62	-33.2	-33.5	246.1	228.1	18.05	13.633	
5,600.0	5,566.8	5,450.0	5,443.7	10.7	9.5	-144.25	-44.9	-33.9	322.4	304.7	17.69	18.229	
5,700.0	5,636.9	5,477.1	5,468.2	11.5	9.6	-135.76	-56.5	-34.3	412.2	394.1	18.10	22.777	
5,800.0	5,692.1	5,483.7	5,474.0	12.4	9.6	-101.45	-59.6	-34.4	508.9	487.2	21.67	23.488	
5,900.0	5,730.4	5,480.0	5,470.7	13.6	9.6	-46.76	-57.9	-34.4	607.1	588.0	19.12	31.746	
6,000.0	5,750.5	5,468.6	5,460.6	14.9	9.6	-23.56	-52.8	-34.2	703.1	688.3	14.85	47.333	
6,100.0	5,753.4	5,450.0	5,443.7	16.4	9.5	-20.34	-44.9	-33.9	794.9	780.4	14.51	54.763	
6,200.0	5,753.4	5,450.0	5,443.7	17.8	9.5	-26.61	-44.9	-33.9	886.4	869.9	16.51	53.693	
6,300.0	5,753.4	5,423.2	5,418.9	19.3	9.5	-31.04	-34.6	-33.6	977.8	959.5	18.31	53.392	
6,400.0	5,753.4	5,400.0	5,397.1	20.9	9.4	-35.16	-26.8	-33.3	1,069.7	1,049.4	20.21	52.922	
6,500.0	5,753.4	5,400.0	5,397.1	22.4	9.4	-40.51	-26.8	-33.3	1,161.1	1,138.4	22.65	51.257	
6,600.0	5,753.4	5,400.0	5,397.1	23.9	9.4	-43.78	-26.8	-33.3	1,252.6	1,228.0	24.62	50.878	
6,700.0	5,753.4	5,400.0	5,397.1	25.5	9.4	-43.78	-26.8	-33.3	1,345.1	1,319.4	25.73	52.275	
6,800.0	5,753.3	5,374.7	5,372.9	27.1	9.4	-41.88	-19.4	-33.1	1,437.8	1,411.7	26.14	55.005	
6,900.0	5,753.3	5,350.0	5,349.0	28.7	9.3	-40.14	-13.3	-32.8	1,532.0	1,505.5	26.53	57.757	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2212B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2212B	**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 S27-T10N-R58W - Razor #27J-3411A - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	3.0	3.0	0.0	0.0	0.00	75.1	0.0	75.1				
100.0	100.0	103.0	103.0	0.1	0.2	0.00	75.1	0.0	75.1	74.8	0.30	252.957	
200.0	200.0	203.0	203.0	0.3	0.3	0.00	75.1	0.0	75.1	74.4	0.65	116.224	
300.0	300.0	303.0	303.0	0.5	0.5	0.00	75.1	0.0	75.1	74.1	0.99	75.443	
400.0	400.0	403.0	403.0	0.7	0.7	0.00	75.1	0.0	75.1	73.7	1.34	55.848	
500.0	500.0	503.1	503.1	0.8	0.8	0.00	75.1	0.0	75.1	73.4	1.69	44.327	
600.0	600.0	605.6	605.6	1.0	1.0	0.36	73.2	0.5	73.2	71.2	2.05	35.754	
700.0	700.0	707.8	707.6	1.2	1.2	1.51	67.7	1.8	67.9	65.5	2.40	28.246	
800.0	800.0	807.5	807.1	1.4	1.4	3.22	61.0	3.4	61.2	58.5	2.76	22.187	
900.0	900.0	907.3	906.6	1.5	1.6	5.35	54.2	5.1	54.6	51.5	3.11	17.530	
1,000.0	1,000.0	1,007.0	1,006.1	1.7	1.8	8.06	47.5	6.7	48.0	44.6	3.47	13.859	
1,100.0	1,100.0	1,106.8	1,105.6	1.9	2.0	11.62	40.7	8.4	41.6	37.8	3.82	10.911	
1,200.0	1,200.0	1,206.5	1,205.1	2.1	2.2	16.45	33.9	10.0	35.5	31.3	4.16	8.520	
1,300.0	1,300.0	1,306.3	1,304.7	2.2	2.4	23.23	27.2	11.7	29.6	25.1	4.50	6.581	
1,400.0	1,400.0	1,406.0	1,404.2	2.4	2.6	33.11	20.4	13.3	24.4	19.6	4.84	5.043	
1,500.0	1,500.0	1,505.8	1,503.7	2.6	2.8	47.60	13.7	15.0	20.3	15.1	5.20	3.902	
1,600.0	1,600.0	1,605.5	1,603.1	2.8	3.1	18.10	6.9	16.6	16.3	10.5	5.81	2.808	
1,700.0	1,699.8	1,704.9	1,702.3	2.9	3.3	57.08	0.2	18.3	13.5	7.4	6.12	2.208	
1,701.0	1,700.8	1,705.9	1,703.3	2.9	3.3	57.55	0.1	18.3	13.5	7.4	6.12	2.207	CC, ES, SF
1,800.0	1,799.6	1,804.3	1,801.4	3.1	3.5	98.12	-6.6	19.9	17.8	11.6	6.28	2.842	
1,900.0	1,899.4	1,903.6	1,900.5	3.3	3.7	117.39	-13.3	21.5	27.0	20.4	6.60	4.098	
2,000.0	1,999.1	2,002.9	1,999.5	3.5	3.9	126.40	-20.0	23.2	37.7	30.7	6.96	5.410	
2,100.0	2,098.9	2,102.2	2,098.6	3.7	4.1	131.39	-26.8	24.8	48.8	41.5	7.34	6.656	
2,200.0	2,198.6	2,201.5	2,197.7	3.9	4.3	134.50	-33.5	26.5	60.2	52.5	7.71	7.811	
2,300.0	2,298.4	2,300.8	2,296.7	4.1	4.5	136.62	-40.2	28.1	71.7	63.7	8.08	8.875	
2,400.0	2,398.1	2,400.1	2,395.8	4.3	4.7	138.16	-46.9	29.7	83.3	74.9	8.45	9.855	
2,500.0	2,497.9	2,499.4	2,494.9	4.5	4.9	139.32	-53.7	31.4	94.9	86.1	8.82	10.759	
2,600.0	2,597.6	2,598.7	2,593.9	4.7	5.2	140.22	-60.4	33.0	106.6	97.4	9.19	11.593	
2,700.0	2,697.4	2,698.0	2,693.0	4.9	5.4	140.95	-67.1	34.7	118.3	108.7	9.56	12.365	
2,800.0	2,797.2	2,797.3	2,792.0	5.1	5.6	141.54	-73.9	36.3	130.0	120.0	9.93	13.082	
2,900.0	2,896.9	2,896.6	2,891.1	5.3	5.8	142.04	-80.6	37.9	141.7	131.4	10.30	13.748	
3,000.0	2,996.7	2,995.9	2,990.2	5.5	6.0	142.46	-87.3	39.6	153.4	142.7	10.67	14.370	
3,100.0	3,096.4	3,095.2	3,089.2	5.7	6.2	142.83	-94.1	41.2	165.1	154.1	11.04	14.950	
3,200.0	3,196.2	3,194.5	3,188.3	5.9	6.4	143.14	-100.8	42.9	176.8	165.4	11.41	15.493	
3,300.0	3,295.9	3,293.8	3,287.4	6.1	6.6	143.42	-107.5	44.5	188.6	176.8	11.78	16.003	
3,400.0	3,395.7	3,393.2	3,386.4	6.3	6.8	143.66	-114.2	46.1	200.3	188.1	12.15	16.481	
3,500.0	3,495.6	3,492.6	3,485.6	6.5	7.0	143.72	-121.0	47.8	210.6	198.1	12.53	16.815	
3,600.0	3,595.5	3,592.3	3,585.1	6.7	7.3	-165.73	-127.7	49.4	218.2	205.4	12.80	17.038	
3,700.0	3,695.5	3,692.1	3,684.6	6.8	7.5	-166.57	-134.5	51.1	224.4	211.2	13.15	17.065	
3,800.0	3,795.5	3,791.8	3,784.1	7.0	7.7	-167.36	-141.3	52.7	230.6	217.1	13.49	17.093	
3,900.0	3,895.5	3,891.6	3,883.6	7.2	7.9	-168.11	-148.0	54.4	236.9	223.0	13.83	17.124	
4,000.0	3,995.5	3,991.3	3,983.1	7.3	8.1	-168.82	-154.8	56.0	243.2	229.0	14.17	17.155	
4,100.0	4,095.5	4,091.1	4,082.7	7.5	8.3	-169.49	-161.5	57.7	249.5	235.0	14.52	17.187	
4,200.0	4,195.5	4,190.8	4,182.2	7.7	8.5	-170.13	-168.3	59.3	255.9	241.0	14.86	17.220	
4,300.0	4,295.5	4,290.6	4,281.7	7.8	8.7	-170.74	-175.1	61.0	262.3	247.1	15.20	17.253	
4,400.0	4,395.5	4,390.3	4,381.2	8.0	9.0	-171.32	-181.8	62.6	268.8	253.2	15.55	17.287	
4,500.0	4,495.5	4,490.1	4,480.7	8.2	9.2	-171.87	-188.6	64.3	275.2	259.3	15.89	17.320	
4,600.0	4,595.5	4,589.9	4,580.2	8.3	9.4	-172.40	-195.3	65.9	281.7	265.5	16.23	17.353	
4,700.0	4,695.5	4,689.6	4,679.7	8.5	9.6	-172.90	-202.1	67.6	288.2	271.6	16.58	17.386	
4,800.0	4,795.5	4,789.4	4,779.2	8.7	9.8	-173.38	-208.9	69.2	294.8	277.8	16.92	17.419	
4,900.0	4,895.5	4,889.1	4,878.8	8.8	10.0	-173.84	-215.6	70.9	301.3	284.0	17.27	17.452	
5,000.0	4,995.5	4,988.9	4,978.3	9.0	10.2	-174.28	-222.4	72.5	307.9	290.3	17.61	17.484	

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

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2212B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2212B	**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 S27-T10N-R58W - Razor #27J-3411A - HZ - Plan #2

Survey Program: 0-MWD

Offset Site Error: 0.0 ft

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.0	5,095.5	5,088.6	5,077.8	9.2	10.4	-174.71	-229.2	74.2	314.5	296.5	17.95	17.516	
5,200.0	5,195.5	5,188.4	5,177.3	9.3	10.6	-175.11	-235.9	75.8	321.1	302.8	18.30	17.547	
5,300.0	5,295.4	5,250.0	5,238.4	9.5	10.8	168.99	-243.0	77.5	336.4	317.9	18.56	18.125	
5,400.0	5,392.9	5,300.0	5,287.2	9.8	11.0	167.67	-253.8	80.2	378.7	360.4	18.28	20.719	
5,500.0	5,484.5	5,350.0	5,334.6	10.2	11.3	165.35	-269.2	83.9	443.9	426.3	17.63	25.187	
5,600.0	5,566.8	5,380.1	5,362.4	10.7	11.5	160.97	-280.5	86.7	526.1	509.3	16.80	31.314	
5,700.0	5,636.9	5,400.0	5,380.3	11.5	11.6	150.40	-288.9	88.7	618.8	602.1	16.78	36.888	
5,800.0	5,692.1	5,400.0	5,380.3	12.4	11.6	105.01	-288.9	88.7	716.9	694.2	22.76	31.494	
5,900.0	5,730.4	5,400.0	5,380.3	13.6	11.6	34.40	-288.9	88.7	816.0	798.3	17.71	46.066	
6,000.0	5,750.5	5,400.0	5,380.3	14.9	11.6	16.56	-288.9	88.7	912.7	898.8	13.87	65.784	
6,100.0	5,753.4	5,383.3	5,365.2	16.4	11.5	8.67	-281.8	87.0	1,005.0	992.2	12.76	78.775	
6,200.0	5,753.4	5,370.5	5,353.5	17.8	11.4	0.91	-276.7	85.8	1,097.5	1,085.1	12.41	88.437	
6,300.0	5,753.4	5,350.0	5,334.6	19.3	11.3	-7.09	-269.2	83.9	1,190.9	1,177.9	13.03	91.415	
6,400.0	5,753.4	5,350.0	5,334.6	20.9	11.3	-15.03	-269.2	83.9	1,284.7	1,269.9	14.82	86.684	
6,500.0	5,753.4	5,350.0	5,334.6	22.4	11.3	-22.99	-269.2	83.9	1,378.9	1,361.3	17.58	78.418	
6,600.0	5,753.4	5,329.0	5,314.8	23.9	11.2	-27.09	-262.2	82.2	1,472.8	1,453.2	19.58	75.234	
6,700.0	5,753.4	5,320.7	5,307.0	25.5	11.1	-26.75	-259.7	81.6	1,567.2	1,547.0	20.17	77.718	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2212B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2212B	**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 S27-T10N-R58W - Razor #27J-3412B - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	32.9	32.9				
100.0	100.0	100.0	100.0	0.1	0.1	90.00	0.0	32.9	32.9	32.7	0.29	113.024	
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	32.9	32.9	32.3	0.64	51.431	
300.0	300.0	300.0	300.0	0.5	0.5	90.00	0.0	32.9	32.9	32.0	0.99	33.289	
400.0	400.0	400.0	400.0	0.7	0.7	90.00	0.0	32.9	32.9	31.6	1.34	24.609	
500.0	500.0	500.0	500.0	0.8	0.8	90.00	0.0	32.9	32.9	31.3	1.69	19.519	CC, ES
600.0	600.0	599.5	599.4	1.0	1.0	92.65	-1.6	33.7	33.7	31.7	2.04	16.554	
700.0	700.0	698.7	698.5	1.2	1.2	99.82	-6.2	35.9	36.5	34.1	2.40	15.220	
800.0	800.0	798.4	798.0	1.4	1.4	107.81	-12.5	38.9	40.9	38.1	2.76	14.796	
900.0	900.0	898.2	897.6	1.5	1.6	114.14	-18.8	41.9	46.0	42.8	3.14	14.652	SF
1,000.0	1,000.0	998.0	997.1	1.7	1.8	119.17	-25.1	44.9	51.5	48.0	3.51	14.655	
1,100.0	1,100.0	1,097.7	1,096.6	1.9	2.0	123.20	-31.3	47.9	57.3	53.4	3.89	14.737	
1,200.0	1,200.0	1,197.5	1,196.1	2.1	2.2	126.47	-37.6	50.9	63.4	59.1	4.27	14.857	
1,300.0	1,300.0	1,297.2	1,295.6	2.2	2.4	129.17	-43.9	53.9	69.6	65.0	4.64	14.996	
1,400.0	1,400.0	1,397.0	1,395.1	2.4	2.6	131.42	-50.2	56.9	76.0	71.0	5.02	15.140	
1,500.0	1,500.0	1,496.7	1,494.6	2.6	2.8	133.32	-56.5	59.9	82.5	77.1	5.40	15.283	
1,600.0	1,600.0	1,596.4	1,594.1	2.8	3.0	84.87	-62.7	62.9	88.8	83.3	5.55	16.005	
1,700.0	1,699.8	1,696.0	1,693.4	2.9	3.2	89.20	-69.0	65.9	95.3	89.4	5.89	16.166	
1,800.0	1,799.6	1,795.4	1,792.5	3.1	3.5	94.04	-75.3	68.8	102.3	96.1	6.24	16.400	
1,900.0	1,899.4	1,894.8	1,891.7	3.3	3.7	98.24	-81.5	71.8	110.0	103.4	6.59	16.689	
2,000.0	1,999.1	1,994.2	1,990.9	3.5	3.9	101.87	-87.8	74.8	118.2	111.3	6.95	17.008	
2,100.0	2,098.9	2,093.6	2,090.0	3.7	4.1	105.03	-94.0	77.8	126.9	119.5	7.31	17.342	
2,200.0	2,198.6	2,193.0	2,189.2	3.9	4.3	107.77	-100.3	80.8	135.8	128.1	7.68	17.680	
2,300.0	2,298.4	2,292.4	2,288.3	4.1	4.5	110.18	-106.6	83.8	145.0	137.0	8.05	18.015	
2,400.0	2,398.1	2,391.8	2,387.5	4.3	4.7	112.29	-112.8	86.8	154.5	146.1	8.42	18.342	
2,500.0	2,497.9	2,491.2	2,486.7	4.5	4.9	114.16	-119.1	89.7	164.1	155.3	8.79	18.660	
2,600.0	2,597.6	2,590.6	2,585.8	4.7	5.1	115.82	-125.3	92.7	173.9	164.7	9.17	18.965	
2,700.0	2,697.4	2,690.0	2,685.0	4.9	5.3	117.31	-131.6	95.7	183.8	174.3	9.54	19.258	
2,800.0	2,797.2	2,789.4	2,784.1	5.1	5.6	118.64	-137.8	98.7	193.8	183.9	9.92	19.539	
2,900.0	2,896.9	2,888.8	2,883.3	5.3	5.8	119.84	-144.1	101.7	203.9	193.7	10.30	19.807	
3,000.0	2,996.7	2,988.2	2,982.4	5.5	6.0	120.93	-150.4	104.7	214.1	203.5	10.67	20.063	
3,100.0	3,096.4	3,087.6	3,081.6	5.7	6.2	121.91	-156.6	107.6	224.4	213.4	11.05	20.307	
3,200.0	3,196.2	3,187.0	3,180.8	5.9	6.4	122.81	-162.9	110.6	234.7	223.3	11.43	20.539	
3,300.0	3,295.9	3,286.4	3,279.9	6.1	6.6	123.64	-169.1	113.6	245.1	233.3	11.81	20.761	
3,400.0	3,395.7	3,385.8	3,379.1	6.3	6.8	124.40	-175.4	116.6	255.5	243.4	12.18	20.973	
3,500.0	3,495.6	3,485.3	3,478.4	6.5	7.0	124.94	-181.7	119.6	265.0	252.5	12.56	21.108	
3,600.0	3,595.5	3,585.0	3,577.8	6.7	7.2	175.89	-187.9	122.6	272.5	259.6	12.86	21.189	
3,700.0	3,695.5	3,684.8	3,677.3	6.8	7.5	175.37	-194.2	125.6	279.0	265.8	13.20	21.137	
3,800.0	3,795.5	3,784.5	3,776.9	7.0	7.7	174.87	-200.5	128.6	285.5	272.0	13.54	21.089	
3,900.0	3,895.5	3,884.3	3,876.4	7.2	7.9	174.39	-206.8	131.6	292.1	278.2	13.88	21.044	
4,000.0	3,995.5	3,984.0	3,975.9	7.3	8.1	173.94	-213.1	134.6	298.7	284.4	14.22	21.002	
4,100.0	4,095.5	4,083.8	4,075.4	7.5	8.3	173.50	-219.3	137.6	305.3	290.7	14.56	20.963	
4,200.0	4,195.5	4,183.6	4,174.9	7.7	8.5	173.09	-225.6	140.6	311.9	297.0	14.90	20.926	
4,300.0	4,295.5	4,283.3	4,274.4	7.8	8.7	172.69	-231.9	143.6	318.5	303.2	15.24	20.892	
4,400.0	4,395.5	4,383.1	4,373.9	8.0	8.9	172.30	-238.2	146.6	325.1	309.5	15.59	20.859	
4,500.0	4,495.5	4,482.8	4,473.4	8.2	9.1	171.93	-244.5	149.5	331.8	315.8	15.93	20.829	
4,600.0	4,595.5	4,582.6	4,573.0	8.3	9.4	171.58	-250.8	152.5	338.4	322.2	16.27	20.800	
4,700.0	4,695.5	4,682.3	4,672.5	8.5	9.6	171.24	-257.0	155.5	345.1	328.5	16.61	20.773	
4,800.0	4,795.5	4,782.1	4,772.0	8.7	9.8	170.91	-263.3	158.5	351.8	334.8	16.96	20.747	
4,900.0	4,895.5	4,881.9	4,871.5	8.8	10.0	170.60	-269.6	161.5	358.5	341.2	17.30	20.723	
5,000.0	4,995.5	4,981.6	4,971.0	9.0	10.2	170.29	-275.9	164.5	365.2	347.6	17.64	20.700	
5,100.0	5,095.5	5,081.4	5,070.5	9.2	10.4	170.00	-282.2	167.5	371.9	353.9	17.99	20.678	

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

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2212B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2212B	**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 S27-T10N-R58W - Razor #27J-3412B - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,195.5	5,181.1	5,170.0	9.3	10.6	169.72	-288.4	170.5	378.6	360.3	18.33	20.657	
5,300.0	5,295.4	5,280.0	5,268.7	9.5	10.8	154.02	-294.7	173.5	388.8	370.2	18.64	20.854	
5,400.0	5,392.9	5,334.6	5,322.8	9.8	11.0	152.93	-300.7	176.4	419.6	401.2	18.48	22.713	
5,500.0	5,484.5	5,380.1	5,367.3	10.2	11.2	150.39	-309.6	180.6	474.3	456.2	18.06	26.259	
5,600.0	5,566.8	5,414.5	5,400.1	10.7	11.4	145.27	-318.6	184.9	547.4	529.7	17.74	30.851	
5,700.0	5,636.9	5,450.0	5,433.4	11.5	11.5	136.00	-329.9	190.3	633.7	615.4	18.33	34.570	
5,800.0	5,692.1	5,450.0	5,433.4	12.4	11.5	112.02	-329.9	190.3	727.0	705.3	21.70	33.497	
5,900.0	5,730.4	5,450.0	5,433.4	13.6	11.5	71.19	-329.9	190.3	823.7	800.2	23.51	35.036	
6,000.0	5,750.5	5,450.0	5,433.4	14.9	11.5	40.47	-329.9	190.3	919.7	900.4	19.26	47.755	
6,100.0	5,753.4	5,450.0	5,433.4	16.4	11.5	28.19	-329.9	190.3	1,012.9	996.0	16.91	59.887	
6,200.0	5,753.4	5,429.4	5,414.2	17.8	11.4	18.68	-323.1	187.1	1,106.6	1,091.5	15.10	73.285	
6,300.0	5,753.4	5,419.9	5,405.3	19.3	11.4	9.03	-320.2	185.7	1,201.8	1,188.3	13.52	88.902	
6,400.0	5,753.4	5,400.0	5,386.4	20.9	11.3	-1.66	-314.5	183.0	1,297.8	1,284.9	12.96	100.108	
6,500.0	5,753.4	5,400.0	5,386.4	22.4	11.3	-12.06	-314.5	183.0	1,394.0	1,379.5	14.52	95.989	
6,600.0	5,753.4	5,400.0	5,386.4	23.9	11.3	-18.83	-314.5	183.0	1,490.4	1,473.6	16.75	88.967	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2212B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4780.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2212B	**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 WELL @ 4780.5ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Razor #27J-2212B
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.07°