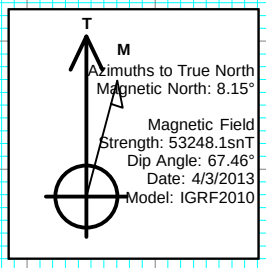
Whiting Petroleum Corporation

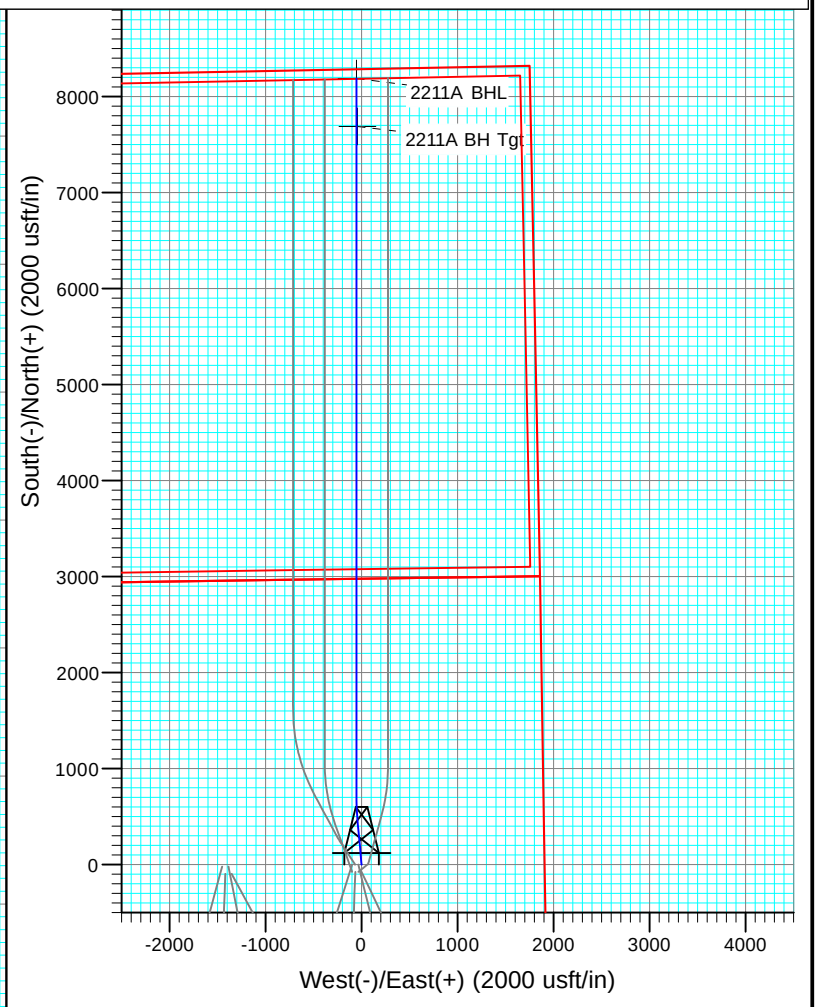
Project: Weld County, CO
Site: S27-T10N-R58W
Well: Razor #27J-2211A
Wellbore: HZ
Design: Plan #2

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	5146.0	0.00	0.00	5146.0	0.0	0.0	0.00	0.00	0.0	Curve KOP @ 5146' MD
3	5964.2	90.00	354.90	5666.9	518.8	-46.3	11.00	354.90	519.1	Start 3° Turn
4	6134.2	90.00	0.00	5666.9	688.6	-53.9	3.00	90.01	689.0	EOT; Azm=0°
5	13634.1	90.00	0.00	5667.0	8188.6	-53.7	0.00	0.00	8188.7	PBHL @ 13634.2' MD





DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
2211A BH Tgt	5667.0	7688.7	-43.7	1549381.55	3456949.16	40.829753	-103.848747
2211A BHL	5667.0	8188.6	-53.7	1549881.16	3456929.89	40.831125	-103.848783

Plan #2
Razor #27J-2211A
WELL @ 4783.5usft (Original Well Elev)
Ground Elevation @ 4767.0
North American Datum 1983
Well Razor #27J-2211A, True North

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #27J-2211A
Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Site:	S27-T10N-R58W	**North Reference:**	True
Well:	Razor #27J-2211A	**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-2211A

Well Position	**+N/-S**	0.0 usft	**Northing:**	1,541,695.02 usft	**Latitude:**	40.808650
	+E/-W	0.0 usft	**Easting:**	3,457,136.06 usft	**Longitude:**	-103.848589
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	4,767.0 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	359.62

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	
5,146.0	0.00	0.00	5,146.0	0.0	0.0	0.00	0.00	0.00	0.00	
5,964.2	90.00	354.90	5,666.9	518.8	-46.3	11.00	11.00	0.00	354.90	
6,134.2	90.00	0.00	5,666.9	688.6	-53.9	3.00	0.00	3.00	90.01	
13,634.1	90.00	0.00	5,667.0	8,188.6	-53.7	0.00	0.00	0.00	0.00	2211A BHL

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #27J-2211A
Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Site:	S27-T10N-R58W	**North Reference:**	True
Well:	Razor #27J-2211A	**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	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	

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Project:	Weld County, CO	**MD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Site:	S27-T10N-R58W	**North Reference:**	True
Well:	Razor #27J-2211A	**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
5,146.0	0.00	0.00	5,146.0	0.0	0.0	0.0	0.00	0.00	Curve KOP @ 5146' MD
5,200.0	5.94	354.90	5,199.9	2.8	-0.2	2.8	11.00	11.00	
5,300.0	16.94	354.90	5,297.8	22.5	-2.0	22.5	11.00	11.00	
5,400.0	27.94	354.90	5,390.1	60.5	-5.4	60.5	11.00	11.00	
5,500.0	38.94	354.90	5,473.4	115.3	-10.3	115.3	11.00	11.00	
5,600.0	49.94	354.90	5,544.7	184.9	-16.5	185.0	11.00	11.00	
5,700.0	60.94	354.90	5,601.3	266.8	-23.8	267.0	11.00	11.00	
5,800.0	71.94	354.90	5,641.2	358.0	-31.9	358.2	11.00	11.00	
5,900.0	82.94	354.90	5,662.9	455.1	-40.6	455.3	11.00	11.00	
5,964.2	90.00	354.90	5,666.9	518.8	-46.3	519.1	11.00	11.00	Start 3° Turn
6,000.0	90.00	355.97	5,666.9	554.5	-49.2	554.8	3.00	0.00	
6,100.0	90.00	358.97	5,666.9	654.4	-53.6	654.8	3.00	0.00	
6,134.2	90.00	0.00	5,666.9	688.6	-53.9	689.0	3.00	0.00	EOT; Azm=0°
6,200.0	90.00	0.00	5,666.9	754.4	-53.9	754.8	0.00	0.00	
6,300.0	90.00	0.00	5,666.9	854.4	-53.9	854.7	0.00	0.00	
6,400.0	90.00	0.00	5,666.9	954.4	-53.9	954.7	0.00	0.00	
6,500.0	90.00	0.00	5,666.9	1,054.4	-53.9	1,054.7	0.00	0.00	
6,600.0	90.00	0.00	5,666.9	1,154.4	-53.9	1,154.7	0.00	0.00	
6,700.0	90.00	0.00	5,666.9	1,254.4	-53.9	1,254.7	0.00	0.00	
6,800.0	90.00	0.00	5,666.9	1,354.4	-53.8	1,354.7	0.00	0.00	
6,900.0	90.00	0.00	5,666.9	1,454.4	-53.8	1,454.7	0.00	0.00	
7,000.0	90.00	0.00	5,666.9	1,554.4	-53.8	1,554.7	0.00	0.00	
7,100.0	90.00	0.00	5,666.9	1,654.4	-53.8	1,654.7	0.00	0.00	
7,200.0	90.00	0.00	5,666.9	1,754.4	-53.8	1,754.7	0.00	0.00	
7,300.0	90.00	0.00	5,666.9	1,854.4	-53.8	1,854.7	0.00	0.00	
7,400.0	90.00	0.00	5,666.9	1,954.4	-53.8	1,954.7	0.00	0.00	
7,500.0	90.00	0.00	5,666.9	2,054.4	-53.8	2,054.7	0.00	0.00	
7,600.0	90.00	0.00	5,666.9	2,154.4	-53.8	2,154.7	0.00	0.00	
7,700.0	90.00	0.00	5,666.9	2,254.4	-53.8	2,254.7	0.00	0.00	
7,800.0	90.00	0.00	5,666.9	2,354.4	-53.8	2,354.7	0.00	0.00	
7,900.0	90.00	0.00	5,666.9	2,454.4	-53.8	2,454.7	0.00	0.00	
8,000.0	90.00	0.00	5,666.9	2,554.4	-53.8	2,554.7	0.00	0.00	
8,100.0	90.00	0.00	5,666.9	2,654.4	-53.8	2,654.7	0.00	0.00	
8,200.0	90.00	0.00	5,666.9	2,754.4	-53.8	2,754.7	0.00	0.00	
8,300.0	90.00	0.00	5,666.9	2,854.4	-53.8	2,854.7	0.00	0.00	
8,400.0	90.00	0.00	5,666.9	2,954.4	-53.8	2,954.7	0.00	0.00	
8,500.0	90.00	0.00	5,666.9	3,054.4	-53.8	3,054.7	0.00	0.00	
8,600.0	90.00	0.00	5,666.9	3,154.4	-53.8	3,154.7	0.00	0.00	
8,700.0	90.00	0.00	5,666.9	3,254.4	-53.8	3,254.7	0.00	0.00	
8,800.0	90.00	0.00	5,666.9	3,354.4	-53.8	3,354.7	0.00	0.00	
8,900.0	90.00	0.00	5,666.9	3,454.4	-53.8	3,454.7	0.00	0.00	
9,000.0	90.00	0.00	5,666.9	3,554.4	-53.8	3,554.7	0.00	0.00	
9,100.0	90.00	0.00	5,666.9	3,654.4	-53.8	3,654.7	0.00	0.00	
9,200.0	90.00	0.00	5,666.9	3,754.4	-53.8	3,754.7	0.00	0.00	
9,300.0	90.00	0.00	5,666.9	3,854.4	-53.8	3,854.7	0.00	0.00	
9,400.0	90.00	0.00	5,666.9	3,954.4	-53.8	3,954.7	0.00	0.00	
9,500.0	90.00	0.00	5,666.9	4,054.4	-53.8	4,054.7	0.00	0.00	
9,600.0	90.00	0.00	5,666.9	4,154.4	-53.8	4,154.7	0.00	0.00	
9,700.0	90.00	0.00	5,666.9	4,254.4	-53.8	4,254.7	0.00	0.00	
9,800.0	90.00	0.00	5,666.9	4,354.4	-53.8	4,354.7	0.00	0.00	
9,900.0	90.00	0.00	5,666.9	4,454.4	-53.8	4,454.7	0.00	0.00	
10,000.0	90.00	0.00	5,666.9	4,554.4	-53.8	4,554.7	0.00	0.00	

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Well:	Razor #27J-2211A	**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	5,666.9	4,654.4	-53.8	4,654.7	0.00	0.00	
10,200.0	90.00	0.00	5,666.9	4,754.4	-53.8	4,754.7	0.00	0.00	
10,300.0	90.00	0.00	5,666.9	4,854.4	-53.8	4,854.7	0.00	0.00	
10,400.0	90.00	0.00	5,666.9	4,954.4	-53.8	4,954.7	0.00	0.00	
10,500.0	90.00	0.00	5,666.9	5,054.4	-53.8	5,054.7	0.00	0.00	
10,600.0	90.00	0.00	5,666.9	5,154.4	-53.8	5,154.7	0.00	0.00	
10,700.0	90.00	0.00	5,666.9	5,254.4	-53.8	5,254.7	0.00	0.00	
10,800.0	90.00	0.00	5,666.9	5,354.4	-53.8	5,354.7	0.00	0.00	
10,900.0	90.00	0.00	5,666.9	5,454.4	-53.8	5,454.6	0.00	0.00	
11,000.0	90.00	0.00	5,667.0	5,554.4	-53.7	5,554.6	0.00	0.00	
11,100.0	90.00	0.00	5,667.0	5,654.4	-53.7	5,654.6	0.00	0.00	
11,200.0	90.00	0.00	5,667.0	5,754.4	-53.7	5,754.6	0.00	0.00	
11,300.0	90.00	0.00	5,667.0	5,854.4	-53.7	5,854.6	0.00	0.00	
11,400.0	90.00	0.00	5,667.0	5,954.4	-53.7	5,954.6	0.00	0.00	
11,500.0	90.00	0.00	5,667.0	6,054.4	-53.7	6,054.6	0.00	0.00	
11,600.0	90.00	0.00	5,667.0	6,154.4	-53.7	6,154.6	0.00	0.00	
11,700.0	90.00	0.00	5,667.0	6,254.4	-53.7	6,254.6	0.00	0.00	
11,800.0	90.00	0.00	5,667.0	6,354.4	-53.7	6,354.6	0.00	0.00	
11,900.0	90.00	0.00	5,667.0	6,454.4	-53.7	6,454.6	0.00	0.00	
12,000.0	90.00	0.00	5,667.0	6,554.4	-53.7	6,554.6	0.00	0.00	
12,100.0	90.00	0.00	5,667.0	6,654.4	-53.7	6,654.6	0.00	0.00	
12,200.0	90.00	0.00	5,667.0	6,754.4	-53.7	6,754.6	0.00	0.00	
12,300.0	90.00	0.00	5,667.0	6,854.4	-53.7	6,854.6	0.00	0.00	
12,400.0	90.00	0.00	5,667.0	6,954.4	-53.7	6,954.6	0.00	0.00	
12,500.0	90.00	0.00	5,667.0	7,054.4	-53.7	7,054.6	0.00	0.00	
12,600.0	90.00	0.00	5,667.0	7,154.4	-53.7	7,154.6	0.00	0.00	
12,700.0	90.00	0.00	5,667.0	7,254.4	-53.7	7,254.6	0.00	0.00	
12,800.0	90.00	0.00	5,667.0	7,354.4	-53.7	7,354.6	0.00	0.00	
12,900.0	90.00	0.00	5,667.0	7,454.4	-53.7	7,454.6	0.00	0.00	
13,000.0	90.00	0.00	5,667.0	7,554.4	-53.7	7,554.6	0.00	0.00	
13,100.0	90.00	0.00	5,667.0	7,654.4	-53.7	7,654.6	0.00	0.00	
13,200.0	90.00	0.00	5,667.0	7,754.4	-53.7	7,754.6	0.00	0.00	
13,300.0	90.00	0.00	5,667.0	7,854.4	-53.7	7,854.6	0.00	0.00	
13,400.0	90.00	0.00	5,667.0	7,954.4	-53.7	7,954.6	0.00	0.00	
13,500.0	90.00	0.00	5,667.0	8,054.4	-53.7	8,054.6	0.00	0.00	
13,600.0	90.00	0.00	5,667.0	8,154.4	-53.7	8,154.6	0.00	0.00	
13,634.1	90.00	0.00	5,667.0	8,188.6	-53.7	8,188.7	0.00	0.00	PBHL @ 13634.2' 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
2211A BHL - plan hits target center - Point	0.00	1.07	5,667.0	8,188.6	-53.7	1,549,881.16	3,456,929.89	40.831125	-103.848783
2211A BH Tgt - plan misses target center by 10.0usft at 13134.3usft MD (5667.0 TVD, 7688.7 N, -53.7 E) - Point	0.00	1.07	5,667.0	7,688.7	-43.7	1,549,381.55	3,456,949.16	40.829753	-103.848747

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #27J-2211A
Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Site:	S27-T10N-R58W	**North Reference:**	True
Well:	Razor #27J-2211A	**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
5,146.0	5,146.0	0.0	0.0	Curve KOP @ 5146' MD
5,964.2	5,666.9	518.8	-46.3	Start 3° Turn
6,134.2	5,666.9	688.6	-53.9	EOT; Azm=0°
13,634.1	5,667.0	8,188.6	-53.7	PBHL @ 13634.2' MD

Whiting Petroleum Corporation

Weld County, CO
S27-T10N-R58W
Razor #27J-2211A
HZ
Plan #2

Anticollision Report

19 April, 2013

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2211A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2211A	**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 1,563.5ft	**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	13,634.2	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	500.0	500.0	66.2	64.5	39.202	CC, ES
Razor #27J-2209A - HZ - Plan #2	13,635.1	13,462.8	659.9	369.3	2.271	SF
Razor #27J-2210B - HZ - Plan #2	5,100.0	5,097.0	123.7	105.9	6.971	CC
Razor #27J-2210B - HZ - Plan #2	13,635.1	13,828.4	341.8	59.7	1.211	Level 2, ES, SF
Razor #27J-2212B - HZ - Plan #2	2,644.0	2,643.5	37.7	28.3	4.026	CC
Razor #27J-2212B - HZ - Plan #2	2,700.0	2,699.3	37.9	28.3	3.958	ES
Razor #27J-2212B - HZ - Plan #2	13,635.1	13,740.0	341.4	59.2	1.210	Level 2, SF
Razor #27J-3409A - Hz - Plan #2	466.7	466.7	98.3	96.7	62.541	CC
Razor #27J-3409A - Hz - Plan #2	500.0	500.0	98.3	96.6	58.229	ES
Razor #27J-3409A - Hz - Plan #2	5,100.0	5,086.9	355.9	338.0	19.858	SF
Razor #27J-3410B - HZ - Plan #2	5,100.0	5,097.0	99.5	81.8	5.609	CC, ES
Razor #27J-3410B - HZ - Plan #2	5,122.8	5,119.8	99.7	81.9	5.595	SF
Razor #27J-3411A - HZ - Plan #2	711.6	711.8	32.0	29.6	13.102	CC, ES
Razor #27J-3411A - HZ - Plan #2	1,000.0	999.5	37.8	34.3	10.800	SF
Razor #27J-3412B - HZ - Plan #2	500.0	497.0	75.1	73.4	44.608	CC, ES
Razor #27J-3412B - HZ - Plan #2	5,100.0	5,081.2	382.6	364.9	21.549	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2211A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2211A	**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	0.0	0.0	0.0	0.0	-90.00	0.0	-66.2	66.2				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-66.2	66.2	65.9	0.29	226.997	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-66.2	66.2	65.5	0.64	103.293	
300.0	300.0	300.0	300.0	0.5	0.5	-90.00	0.0	-66.2	66.2	65.2	0.99	66.858	
400.0	400.0	400.0	400.0	0.7	0.7	-90.00	0.0	-66.2	66.2	64.8	1.34	49.424	
500.0	500.0	500.0	500.0	0.8	0.8	-90.00	0.0	-66.2	66.2	64.5	1.69	39.202	CC, ES
600.0	600.0	598.7	598.7	1.0	1.0	-88.79	1.4	-67.1	67.1	65.1	2.04	32.972	
700.0	700.0	697.2	697.0	1.2	1.2	-85.35	5.7	-69.9	70.2	67.8	2.39	29.376	
800.0	800.0	796.9	796.5	1.4	1.4	-81.12	11.5	-73.7	74.6	71.9	2.74	27.191	
900.0	900.0	896.7	896.0	1.5	1.6	-77.38	17.3	-77.5	79.5	76.4	3.10	25.628	
1,000.0	1,000.0	996.4	995.5	1.7	1.8	-74.09	23.2	-81.3	84.6	81.2	3.46	24.482	
1,100.0	1,100.0	1,096.2	1,095.1	1.9	2.0	-71.17	29.0	-85.1	90.0	86.2	3.81	23.623	
1,200.0	1,200.0	1,195.9	1,194.6	2.1	2.2	-68.60	34.8	-88.9	95.6	91.4	4.16	22.968	
1,300.0	1,300.0	1,295.7	1,294.1	2.2	2.4	-66.31	40.7	-92.7	101.4	96.8	4.51	22.458	
1,400.0	1,400.0	1,395.5	1,393.6	2.4	2.6	-64.27	46.5	-96.5	107.3	102.4	4.86	22.057	
1,500.0	1,500.0	1,495.2	1,493.1	2.6	2.8	-62.44	52.3	-100.3	113.3	108.1	5.21	21.735	
1,600.0	1,600.0	1,595.0	1,592.6	2.8	3.0	-60.80	58.2	-104.0	119.4	113.9	5.56	21.475	
1,700.0	1,700.0	1,694.7	1,692.1	2.9	3.2	-59.32	64.0	-107.8	125.6	119.7	5.91	21.263	
1,800.0	1,800.0	1,794.5	1,791.6	3.1	3.5	-57.98	69.8	-111.6	131.9	125.7	6.26	21.087	
1,900.0	1,900.0	1,894.2	1,891.2	3.3	3.7	-56.77	75.6	-115.4	138.3	131.7	6.60	20.940	
2,000.0	2,000.0	1,994.0	1,990.7	3.5	3.9	-55.66	81.5	-119.2	144.7	137.8	6.95	20.817	
2,100.0	2,100.0	2,093.7	2,090.2	3.6	4.1	-54.64	87.3	-123.0	151.2	143.9	7.30	20.713	
2,200.0	2,200.0	2,193.5	2,189.7	3.8	4.3	-53.71	93.1	-126.8	157.7	150.1	7.65	20.624	
2,300.0	2,300.0	2,293.3	2,289.2	4.0	4.5	-52.85	99.0	-130.6	164.2	156.3	7.99	20.548	
2,400.0	2,400.0	2,393.0	2,388.7	4.2	4.7	-52.06	104.8	-134.4	170.8	162.5	8.34	20.482	
2,500.0	2,500.0	2,492.8	2,488.2	4.3	4.9	-51.33	110.6	-138.2	177.4	168.8	8.69	20.425	
2,600.0	2,600.0	2,592.5	2,587.8	4.5	5.1	-50.65	116.5	-142.0	184.1	175.0	9.03	20.375	
2,700.0	2,700.0	2,692.3	2,687.3	4.7	5.4	-50.02	122.3	-145.8	190.7	181.4	9.38	20.332	
2,800.0	2,800.0	2,792.0	2,786.8	4.9	5.6	-49.43	128.1	-149.6	197.4	187.7	9.73	20.293	
2,900.0	2,900.0	2,891.8	2,886.3	5.0	5.8	-48.88	133.9	-153.4	204.1	194.1	10.08	20.260	
3,000.0	3,000.0	2,991.6	2,985.8	5.2	6.0	-48.36	139.8	-157.2	210.9	200.4	10.42	20.230	
3,100.0	3,100.0	3,091.3	3,085.3	5.4	6.2	-47.88	145.6	-161.0	217.6	206.8	10.77	20.203	
3,200.0	3,200.0	3,191.1	3,184.8	5.6	6.4	-47.42	151.4	-164.8	224.3	213.2	11.12	20.180	
3,300.0	3,300.0	3,290.8	3,284.3	5.7	6.6	-46.99	157.3	-168.6	231.1	219.6	11.46	20.158	
3,400.0	3,400.0	3,390.6	3,383.9	5.9	6.8	-46.59	163.1	-172.4	237.9	226.1	11.81	20.140	
3,500.0	3,500.0	3,490.3	3,483.4	6.1	7.0	-46.21	168.9	-176.2	244.7	232.5	12.16	20.123	
3,600.0	3,600.0	3,590.1	3,582.9	6.3	7.3	-45.85	174.8	-180.0	251.5	239.0	12.51	20.107	
3,700.0	3,700.0	3,689.8	3,682.4	6.4	7.5	-45.51	180.6	-183.8	258.3	245.4	12.85	20.093	
3,800.0	3,800.0	3,789.6	3,781.9	6.6	7.7	-45.18	186.4	-187.6	265.1	251.9	13.20	20.081	
3,900.0	3,900.0	3,889.4	3,881.4	6.8	7.9	-44.87	192.3	-191.4	271.9	258.4	13.55	20.070	
4,000.0	4,000.0	3,989.1	3,980.9	7.0	8.1	-44.58	198.1	-195.2	278.8	264.9	13.90	20.059	
4,100.0	4,100.0	4,088.9	4,080.5	7.1	8.3	-44.30	203.9	-199.0	285.6	271.4	14.24	20.050	
4,200.0	4,200.0	4,188.6	4,180.0	7.3	8.5	-44.04	209.7	-202.8	292.4	277.9	14.59	20.041	
4,300.0	4,300.0	4,288.4	4,279.5	7.5	8.7	-43.78	215.6	-206.6	299.3	284.4	14.94	20.034	
4,400.0	4,400.0	4,388.1	4,379.0	7.7	8.9	-43.54	221.4	-210.4	306.2	290.9	15.29	20.027	
4,500.0	4,500.0	4,487.9	4,478.5	7.8	9.2	-43.31	227.2	-214.2	313.0	297.4	15.64	20.020	
4,600.0	4,600.0	4,587.7	4,578.0	8.0	9.4	-43.09	233.1	-218.0	319.9	303.9	15.98	20.014	
4,700.0	4,700.0	4,687.4	4,677.5	8.2	9.6	-42.87	238.9	-221.8	326.8	310.4	16.33	20.009	
4,800.0	4,800.0	4,787.2	4,777.1	8.3	9.8	-42.67	244.7	-225.6	333.6	317.0	16.68	20.004	
4,900.0	4,900.0	4,886.9	4,876.6	8.5	10.0	-42.48	250.6	-229.4	340.5	323.5	17.03	19.999	
5,000.0	5,000.0	4,986.7	4,976.1	8.7	10.2	-42.29	256.4	-233.2	347.4	330.0	17.37	19.995	
5,100.0	5,100.0	5,086.4	5,075.6	8.9	10.4	-42.11	262.2	-237.0	354.3	336.6	17.72	19.991	

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-2211A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2211A	**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

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	5,199.9	5,186.3	5,175.2	9.0	10.6	-37.00	268.1	-240.8	358.9	340.8	18.10	19.835	
5,300.0	5,297.8	5,250.0	5,238.4	9.2	10.8	-38.27	274.5	-244.7	354.8	336.6	18.19	19.508	
5,400.0	5,390.1	5,300.0	5,287.1	9.5	11.0	-40.27	284.3	-250.2	347.3	329.2	18.12	19.171	
5,500.0	5,473.4	5,367.5	5,350.8	9.8	11.4	-44.10	303.9	-261.2	337.0	318.8	18.22	18.497	
5,600.0	5,544.7	5,426.4	5,403.4	10.4	11.8	-48.73	326.9	-273.8	326.0	307.3	18.72	17.416	
5,700.0	5,601.3	5,484.9	5,452.6	11.1	12.2	-54.33	354.7	-289.0	316.5	296.6	19.92	15.887	
5,800.0	5,641.2	5,550.0	5,502.6	12.1	12.8	-61.26	391.2	-308.8	311.4	289.4	22.02	14.142	
5,826.3	5,648.7	5,558.5	5,508.8	12.4	12.9	-62.22	396.4	-311.6	311.0	288.5	22.50	13.824	
5,900.0	5,662.9	5,600.0	5,537.4	13.3	13.3	-66.68	422.8	-325.9	313.4	289.1	24.30	12.896	
6,000.0	5,666.9	5,660.8	5,574.7	14.6	14.0	-73.20	465.0	-348.7	326.0	299.0	26.96	12.093	
6,100.0	5,666.9	5,727.1	5,608.8	16.0	14.9	-79.85	515.0	-375.7	355.8	326.3	29.44	12.085	
6,200.0	5,666.9	5,801.8	5,638.1	17.4	16.0	-85.36	575.5	-408.2	398.0	366.0	31.97	12.449	
6,300.0	5,666.9	5,884.6	5,658.8	18.9	17.2	-88.82	646.0	-446.0	444.2	409.5	34.62	12.828	
6,400.0	5,666.9	5,972.3	5,666.7	20.4	18.7	-89.97	722.9	-487.2	491.2	453.9	37.39	13.139	
6,500.0	5,666.9	6,093.9	5,666.7	22.0	20.7	-89.98	831.9	-541.2	535.7	495.0	40.75	13.145	
6,600.0	5,666.9	6,224.0	5,666.7	23.6	22.9	-89.98	952.0	-591.1	574.2	529.8	44.36	12.943	
6,700.0	5,666.9	6,361.2	5,666.7	25.2	25.2	-89.98	1,082.0	-634.9	606.0	557.9	48.16	12.583	
6,800.0	5,666.9	6,504.5	5,666.7	26.8	27.6	-89.98	1,220.8	-670.4	630.9	578.8	52.12	12.105	
6,900.0	5,666.9	6,652.6	5,666.7	28.5	29.9	-89.98	1,366.6	-696.2	648.3	592.1	56.19	11.537	
7,000.0	5,666.9	6,803.9	5,666.7	30.2	32.3	-89.98	1,517.2	-710.7	657.9	597.6	60.33	10.904	
7,100.0	5,666.9	6,941.2	5,666.7	31.8	34.4	-89.98	1,654.4	-713.7	659.9	595.6	64.26	10.270	
7,200.0	5,666.9	7,041.2	5,666.7	33.5	36.0	-89.98	1,754.4	-713.7	659.9	592.3	67.59	9.764	
7,300.0	5,666.9	7,141.2	5,666.7	35.2	37.6	-89.98	1,854.4	-713.7	659.9	589.0	70.93	9.303	
7,400.0	5,666.9	7,241.2	5,666.7	36.9	39.2	-89.98	1,954.4	-713.7	659.9	585.6	74.29	8.882	
7,500.0	5,666.9	7,341.2	5,666.7	38.6	40.8	-89.98	2,054.4	-713.7	659.9	582.2	77.67	8.496	
7,600.0	5,666.9	7,441.2	5,666.7	40.3	42.4	-89.98	2,154.4	-713.7	659.9	578.8	81.06	8.141	
7,700.0	5,666.9	7,541.2	5,666.7	42.0	44.0	-89.98	2,254.4	-713.7	659.9	575.4	84.45	7.814	
7,800.0	5,666.9	7,641.2	5,666.7	43.7	45.6	-89.98	2,354.4	-713.7	659.9	572.0	87.86	7.511	
7,900.0	5,666.9	7,741.2	5,666.7	45.4	47.3	-89.98	2,454.4	-713.7	659.9	568.6	91.27	7.230	
8,000.0	5,666.9	7,841.2	5,666.7	47.1	48.9	-89.98	2,554.4	-713.7	659.9	565.2	94.69	6.969	
8,100.0	5,666.9	7,941.2	5,666.7	48.9	50.6	-89.99	2,654.4	-713.7	659.9	561.8	98.11	6.726	
8,200.0	5,666.9	8,041.2	5,666.7	50.6	52.3	-89.99	2,754.4	-713.7	659.9	558.3	101.55	6.498	
8,300.0	5,666.9	8,141.2	5,666.7	52.3	53.9	-89.99	2,854.4	-713.7	659.9	554.9	104.98	6.286	
8,400.0	5,666.9	8,241.2	5,666.8	54.0	55.6	-89.99	2,954.4	-713.7	659.9	551.4	108.42	6.086	
8,500.0	5,666.9	8,341.2	5,666.8	55.8	57.3	-89.99	3,054.4	-713.7	659.9	548.0	111.87	5.899	
8,600.0	5,666.9	8,441.2	5,666.8	57.5	59.0	-89.99	3,154.4	-713.7	659.9	544.5	115.32	5.722	
8,700.0	5,666.9	8,541.2	5,666.8	59.2	60.7	-89.99	3,254.4	-713.7	659.9	541.1	118.77	5.556	
8,800.0	5,666.9	8,641.2	5,666.8	60.9	62.3	-89.99	3,354.4	-713.7	659.9	537.6	122.23	5.399	
8,900.0	5,666.9	8,741.2	5,666.8	62.7	64.0	-89.99	3,454.4	-713.7	659.9	534.2	125.68	5.250	
9,000.0	5,666.9	8,841.2	5,666.8	64.4	65.7	-89.99	3,554.4	-713.7	659.9	530.7	129.15	5.109	
9,100.0	5,666.9	8,941.2	5,666.8	66.1	67.4	-89.99	3,654.4	-713.6	659.9	527.2	132.61	4.976	
9,200.0	5,666.9	9,041.2	5,666.8	67.9	69.1	-89.99	3,754.4	-713.6	659.9	523.8	136.08	4.849	
9,300.0	5,666.9	9,141.2	5,666.8	69.6	70.9	-89.99	3,854.4	-713.6	659.8	520.3	139.54	4.729	
9,400.0	5,666.9	9,241.2	5,666.8	71.4	72.6	-89.99	3,954.4	-713.6	659.8	516.8	143.01	4.614	
9,500.0	5,666.9	9,341.2	5,666.8	73.1	74.3	-89.99	4,054.4	-713.6	659.8	513.4	146.49	4.505	
9,600.0	5,666.9	9,441.2	5,666.8	74.8	76.0	-89.99	4,154.4	-713.6	659.8	509.9	149.96	4.400	
9,700.0	5,666.9	9,541.2	5,666.8	76.6	77.7	-89.99	4,254.4	-713.6	659.8	506.4	153.43	4.300	
9,800.0	5,666.9	9,641.2	5,666.8	78.3	79.4	-89.99	4,354.4	-713.6	659.8	502.9	156.91	4.205	
9,900.0	5,666.9	9,741.2	5,666.8	80.1	81.1	-89.99	4,454.4	-713.6	659.8	499.4	160.39	4.114	
10,000.0	5,666.9	9,841.2	5,666.8	81.8	82.9	-89.99	4,554.4	-713.6	659.8	496.0	163.87	4.027	
10,100.0	5,666.9	9,941.2	5,666.8	83.5	84.6	-89.99	4,654.4	-713.6	659.8	492.5	167.35	3.943	
10,200.0	5,666.9	10,041.2	5,666.8	85.3	86.3	-89.99	4,754.4	-713.6	659.8	489.0	170.83	3.863	

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-2211A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2211A	**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

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
10,300.0	5,666.9	10,141.2	5,666.8	87.0	88.0	-89.99	4,854.4	-713.6	659.8	485.5	174.31	3.785	
10,400.0	5,667.0	10,241.2	5,666.8	88.8	89.7	-89.99	4,954.4	-713.6	659.8	482.0	177.80	3.711	
10,500.0	5,667.0	10,341.2	5,666.9	90.5	91.5	-89.99	5,054.4	-713.6	659.8	478.5	181.28	3.640	
10,600.0	5,667.0	10,441.2	5,666.9	92.3	93.2	-89.99	5,154.4	-713.6	659.8	475.1	184.77	3.571	
10,700.0	5,667.0	10,541.2	5,666.9	94.0	94.9	-89.99	5,254.4	-713.6	659.8	471.6	188.25	3.505	
10,800.0	5,667.0	10,641.2	5,666.9	95.8	96.7	-89.99	5,354.4	-713.6	659.8	468.1	191.74	3.441	
10,900.0	5,667.0	10,741.2	5,666.9	97.5	98.4	-89.99	5,454.4	-713.6	659.8	464.6	195.23	3.380	
11,000.0	5,667.0	10,841.2	5,666.9	99.2	100.1	-89.99	5,554.4	-713.6	659.8	461.1	198.72	3.320	
11,100.0	5,667.0	10,941.2	5,666.9	101.0	101.8	-89.99	5,654.4	-713.6	659.8	457.6	202.20	3.263	
11,200.0	5,667.0	11,041.2	5,666.9	102.7	103.6	-89.99	5,754.4	-713.5	659.8	454.1	205.69	3.208	
11,300.0	5,667.0	11,141.2	5,666.9	104.5	105.3	-89.99	5,854.4	-713.5	659.8	450.6	209.18	3.154	
11,400.0	5,667.0	11,241.2	5,666.9	106.2	107.0	-89.99	5,954.4	-713.5	659.8	447.1	212.68	3.102	
11,500.0	5,667.0	11,341.2	5,666.9	108.0	108.8	-89.99	6,054.4	-713.5	659.8	443.6	216.17	3.052	
11,600.0	5,667.0	11,441.2	5,666.9	109.7	110.5	-89.99	6,154.4	-713.5	659.8	440.1	219.66	3.004	
11,700.0	5,667.0	11,541.2	5,666.9	111.5	112.3	-89.99	6,254.4	-713.5	659.8	436.6	223.15	2.957	
11,800.0	5,667.0	11,641.2	5,666.9	113.2	114.0	-89.99	6,354.4	-713.5	659.8	433.1	226.65	2.911	
11,900.0	5,667.0	11,741.2	5,666.9	115.0	115.7	-89.99	6,454.4	-713.5	659.8	429.6	230.14	2.867	
12,000.0	5,667.0	11,841.2	5,666.9	116.7	117.5	-89.99	6,554.4	-713.5	659.8	426.2	233.63	2.824	
12,100.0	5,667.0	11,941.2	5,666.9	118.5	119.2	-90.00	6,654.4	-713.5	659.8	422.7	237.13	2.782	
12,200.0	5,667.0	12,041.2	5,666.9	120.2	120.9	-90.00	6,754.4	-713.5	659.8	419.2	240.62	2.742	
12,300.0	5,667.0	12,141.2	5,666.9	122.0	122.7	-90.00	6,854.4	-713.5	659.8	415.7	244.12	2.703	
12,400.0	5,667.0	12,241.2	5,666.9	123.7	124.4	-90.00	6,954.4	-713.5	659.8	412.2	247.61	2.665	
12,500.0	5,667.0	12,341.2	5,666.9	125.5	126.2	-90.00	7,054.4	-713.5	659.8	408.7	251.11	2.627	
12,600.0	5,667.0	12,441.2	5,667.0	127.2	127.9	-90.00	7,154.4	-713.5	659.8	405.2	254.60	2.591	
12,700.0	5,667.0	12,541.2	5,667.0	129.0	129.6	-90.00	7,254.4	-713.5	659.8	401.7	258.10	2.556	
12,800.0	5,667.0	12,641.2	5,667.0	130.7	131.4	-90.00	7,354.4	-713.5	659.8	398.2	261.60	2.522	
12,900.0	5,667.0	12,741.2	5,667.0	132.5	133.1	-90.00	7,454.4	-713.5	659.8	394.7	265.10	2.489	
13,000.0	5,667.0	12,841.2	5,667.0	134.2	134.9	-90.00	7,554.4	-713.5	659.8	391.2	268.59	2.456	
13,100.0	5,667.0	12,941.2	5,667.0	136.0	136.6	-90.00	7,654.4	-713.5	659.8	387.7	272.09	2.425	
13,200.0	5,667.0	13,041.2	5,667.0	137.7	138.3	-90.00	7,754.4	-713.5	659.8	384.2	275.59	2.394	
13,300.0	5,667.0	13,141.2	5,667.0	139.5	140.1	-90.00	7,854.4	-713.5	659.8	380.7	279.09	2.364	
13,400.0	5,667.0	13,241.2	5,667.0	141.2	141.8	-90.00	7,954.4	-713.4	659.8	377.2	282.59	2.335	
13,500.0	5,667.0	13,341.2	5,667.0	143.0	143.6	-90.00	8,054.4	-713.4	659.8	373.7	286.08	2.306	
13,600.0	5,667.0	13,441.2	5,667.0	144.7	145.3	-90.00	8,154.4	-713.4	659.7	370.2	289.58	2.278	
13,621.1	5,667.0	13,462.4	5,667.0	145.1	145.7	-90.00	8,175.6	-713.4	659.7	369.4	290.32	2.272	
13,635.1	5,667.0	13,462.8	5,667.0	145.3	145.7	-90.00	8,176.0	-713.4	659.9	369.3	290.58	2.271	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2211A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2211A	**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	-127.37	-75.1	-98.3	123.7				
100.0	100.0	97.0	97.0	0.1	0.1	-127.37	-75.1	-98.3	123.7	123.4	0.29	430.715	
200.0	200.0	197.0	197.0	0.3	0.3	-127.37	-75.1	-98.3	123.7	123.0	0.64	194.644	
300.0	300.0	297.0	297.0	0.5	0.5	-127.37	-75.1	-98.3	123.7	122.7	0.98	125.621	
400.0	400.0	397.0	397.0	0.7	0.7	-127.37	-75.1	-98.3	123.7	122.3	1.33	92.736	
500.0	500.0	497.0	497.0	0.8	0.8	-127.37	-75.1	-98.3	123.7	122.0	1.68	73.496	
600.0	600.0	597.0	597.0	1.0	1.0	-127.37	-75.1	-98.3	123.7	121.6	2.03	60.868	
700.0	700.0	697.0	697.0	1.2	1.2	-127.37	-75.1	-98.3	123.7	121.3	2.38	51.943	
800.0	800.0	797.0	797.0	1.4	1.4	-127.37	-75.1	-98.3	123.7	120.9	2.73	45.301	
900.0	900.0	897.0	897.0	1.5	1.5	-127.37	-75.1	-98.3	123.7	120.6	3.08	40.165	
1,000.0	1,000.0	997.0	997.0	1.7	1.7	-127.37	-75.1	-98.3	123.7	120.2	3.43	36.075	
1,100.0	1,100.0	1,097.0	1,097.0	1.9	1.9	-127.37	-75.1	-98.3	123.7	119.9	3.78	32.741	
1,200.0	1,200.0	1,197.0	1,197.0	2.1	2.1	-127.37	-75.1	-98.3	123.7	119.5	4.13	29.971	
1,300.0	1,300.0	1,297.0	1,297.0	2.2	2.2	-127.37	-75.1	-98.3	123.7	119.2	4.48	27.633	
1,400.0	1,400.0	1,397.0	1,397.0	2.4	2.4	-127.37	-75.1	-98.3	123.7	118.8	4.82	25.633	
1,500.0	1,500.0	1,497.0	1,497.0	2.6	2.6	-127.37	-75.1	-98.3	123.7	118.5	5.17	23.904	
1,600.0	1,600.0	1,597.0	1,597.0	2.8	2.8	-127.37	-75.1	-98.3	123.7	118.1	5.52	22.393	
1,700.0	1,700.0	1,697.0	1,697.0	2.9	2.9	-127.37	-75.1	-98.3	123.7	117.8	5.87	21.061	
1,800.0	1,800.0	1,797.0	1,797.0	3.1	3.1	-127.37	-75.1	-98.3	123.7	117.4	6.22	19.879	
1,900.0	1,900.0	1,897.0	1,897.0	3.3	3.3	-127.37	-75.1	-98.3	123.7	117.1	6.57	18.823	
2,000.0	2,000.0	1,997.0	1,997.0	3.5	3.5	-127.37	-75.1	-98.3	123.7	116.7	6.92	17.873	
2,100.0	2,100.0	2,097.0	2,097.0	3.6	3.6	-127.37	-75.1	-98.3	123.7	116.4	7.27	17.015	
2,200.0	2,200.0	2,197.0	2,197.0	3.8	3.8	-127.37	-75.1	-98.3	123.7	116.0	7.62	16.235	
2,300.0	2,300.0	2,297.0	2,297.0	4.0	4.0	-127.37	-75.1	-98.3	123.7	115.7	7.97	15.524	
2,400.0	2,400.0	2,397.0	2,397.0	4.2	4.2	-127.37	-75.1	-98.3	123.7	115.3	8.31	14.872	
2,500.0	2,500.0	2,497.0	2,497.0	4.3	4.3	-127.37	-75.1	-98.3	123.7	115.0	8.66	14.273	
2,600.0	2,600.0	2,597.0	2,597.0	4.5	4.5	-127.37	-75.1	-98.3	123.7	114.6	9.01	13.720	
2,700.0	2,700.0	2,697.0	2,697.0	4.7	4.7	-127.37	-75.1	-98.3	123.7	114.3	9.36	13.209	
2,800.0	2,800.0	2,797.0	2,797.0	4.9	4.9	-127.37	-75.1	-98.3	123.7	113.9	9.71	12.734	
2,900.0	2,900.0	2,897.0	2,897.0	5.0	5.0	-127.37	-75.1	-98.3	123.7	113.6	10.06	12.292	
3,000.0	3,000.0	2,997.0	2,997.0	5.2	5.2	-127.37	-75.1	-98.3	123.7	113.2	10.41	11.880	
3,100.0	3,100.0	3,097.0	3,097.0	5.4	5.4	-127.37	-75.1	-98.3	123.7	112.9	10.76	11.494	
3,200.0	3,200.0	3,197.0	3,197.0	5.6	5.6	-127.37	-75.1	-98.3	123.7	112.6	11.11	11.133	
3,300.0	3,300.0	3,297.0	3,297.0	5.7	5.7	-127.37	-75.1	-98.3	123.7	112.2	11.46	10.794	
3,400.0	3,400.0	3,397.0	3,397.0	5.9	5.9	-127.37	-75.1	-98.3	123.7	111.9	11.81	10.475	
3,500.0	3,500.0	3,497.0	3,497.0	6.1	6.1	-127.37	-75.1	-98.3	123.7	111.5	12.15	10.174	
3,600.0	3,600.0	3,597.0	3,597.0	6.3	6.2	-127.37	-75.1	-98.3	123.7	111.2	12.50	9.890	
3,700.0	3,700.0	3,697.0	3,697.0	6.4	6.4	-127.37	-75.1	-98.3	123.7	110.8	12.85	9.621	
3,800.0	3,800.0	3,797.0	3,797.0	6.6	6.6	-127.37	-75.1	-98.3	123.7	110.5	13.20	9.367	
3,900.0	3,900.0	3,897.0	3,897.0	6.8	6.8	-127.37	-75.1	-98.3	123.7	110.1	13.55	9.126	
4,000.0	4,000.0	3,997.0	3,997.0	7.0	6.9	-127.37	-75.1	-98.3	123.7	109.8	13.90	8.896	
4,100.0	4,100.0	4,097.0	4,097.0	7.1	7.1	-127.37	-75.1	-98.3	123.7	109.4	14.25	8.678	
4,200.0	4,200.0	4,197.0	4,197.0	7.3	7.3	-127.37	-75.1	-98.3	123.7	109.1	14.60	8.471	
4,300.0	4,300.0	4,297.0	4,297.0	7.5	7.5	-127.37	-75.1	-98.3	123.7	108.7	14.95	8.273	
4,400.0	4,400.0	4,397.0	4,397.0	7.7	7.6	-127.37	-75.1	-98.3	123.7	108.4	15.30	8.084	
4,500.0	4,500.0	4,497.0	4,497.0	7.8	7.8	-127.37	-75.1	-98.3	123.7	108.0	15.65	7.904	
4,600.0	4,600.0	4,597.0	4,597.0	8.0	8.0	-127.37	-75.1	-98.3	123.7	107.7	15.99	7.731	
4,700.0	4,700.0	4,697.0	4,697.0	8.2	8.2	-127.37	-75.1	-98.3	123.7	107.3	16.34	7.566	
4,800.0	4,800.0	4,797.0	4,797.0	8.3	8.3	-127.37	-75.1	-98.3	123.7	107.0	16.69	7.408	
4,900.0	4,900.0	4,897.0	4,897.0	8.5	8.5	-127.37	-75.1	-98.3	123.7	106.6	17.04	7.256	
5,000.0	5,000.0	4,997.0	4,997.0	8.7	8.7	-127.37	-75.1	-98.3	123.7	106.3	17.39	7.111	
5,100.0	5,100.0	5,097.0	5,097.0	8.9	8.9	-127.37	-75.1	-98.3	123.7	105.9	17.74	6.971	CC

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-2211A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2211A	**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
5,123.2	5,123.2	5,120.2	5,120.2	8.9	8.9	-122.37	-75.1	-98.3	123.8	106.0	17.82	6.948	
5,200.0	5,199.9	5,196.9	5,196.9	9.0	9.0	-123.21	-75.1	-98.3	125.2	107.1	18.07	6.927	
5,300.0	5,297.8	5,302.5	5,302.3	9.2	9.2	-127.95	-70.5	-99.9	135.2	117.0	18.26	7.406	
5,400.0	5,390.1	5,414.5	5,410.8	9.5	9.4	-130.43	-45.1	-109.0	149.8	131.4	18.31	8.177	
5,500.0	5,473.4	5,529.4	5,513.4	9.8	9.8	-130.23	3.0	-126.1	166.9	148.5	18.43	9.056	
5,600.0	5,544.7	5,646.3	5,603.8	10.4	10.3	-127.91	72.5	-150.8	185.9	166.9	18.95	9.807	
5,700.0	5,601.3	5,764.3	5,676.1	11.1	11.1	-124.04	160.1	-182.0	206.1	185.9	20.21	10.199	
5,800.0	5,641.2	5,882.5	5,725.8	12.1	12.3	-119.15	260.9	-217.9	227.3	205.0	22.32	10.183	
5,900.0	5,662.9	6,000.2	5,750.0	13.3	13.7	-113.67	369.1	-256.4	249.2	224.0	25.17	9.900	
6,000.0	5,666.9	6,114.1	5,752.4	14.6	15.3	-109.55	476.7	-293.6	271.4	243.1	28.22	9.615	
6,100.0	5,666.9	6,227.2	5,752.4	16.0	17.0	-108.00	585.4	-324.7	293.4	262.4	31.09	9.438	
6,200.0	5,666.9	6,342.4	5,752.4	17.4	18.7	-106.65	697.9	-349.7	313.9	279.7	34.20	9.179	
6,300.0	5,666.9	6,460.3	5,752.4	18.9	20.5	-105.72	814.2	-368.3	329.1	291.6	37.49	8.779	
6,400.0	5,666.9	6,580.0	5,752.4	20.4	22.3	-105.20	933.4	-379.7	338.3	297.5	40.83	8.286	
6,500.0	5,666.9	6,700.7	5,752.4	22.0	24.1	-105.02	1,054.0	-383.7	341.5	297.3	44.20	7.727	
6,600.0	5,666.9	6,801.1	5,752.4	23.6	25.7	-105.03	1,154.4	-383.7	341.5	294.2	47.28	7.223	
6,700.0	5,666.9	6,901.1	5,752.4	25.2	27.3	-105.03	1,254.4	-383.7	341.5	291.1	50.39	6.776	
6,800.0	5,666.9	7,001.1	5,752.4	26.8	28.9	-105.03	1,354.4	-383.7	341.5	287.9	53.54	6.378	
6,900.0	5,666.9	7,101.1	5,752.4	28.5	30.5	-105.03	1,454.4	-383.7	341.5	284.8	56.72	6.020	
7,000.0	5,666.9	7,201.1	5,752.4	30.2	32.1	-105.03	1,554.4	-383.7	341.5	281.6	59.92	5.699	
7,100.0	5,666.9	7,301.1	5,752.5	31.8	33.8	-105.03	1,654.4	-383.7	341.5	278.4	63.14	5.408	
7,200.0	5,666.9	7,401.1	5,752.5	33.5	35.4	-105.03	1,754.4	-383.7	341.5	275.1	66.38	5.145	
7,300.0	5,666.9	7,501.1	5,752.5	35.2	37.1	-105.03	1,854.4	-383.6	341.5	271.9	69.63	4.904	
7,400.0	5,666.9	7,601.1	5,752.5	36.9	38.8	-105.03	1,954.4	-383.6	341.5	268.6	72.89	4.685	
7,500.0	5,666.9	7,701.1	5,752.5	38.6	40.4	-105.03	2,054.4	-383.6	341.5	265.3	76.17	4.483	
7,600.0	5,666.9	7,801.1	5,752.5	40.3	42.1	-105.04	2,154.4	-383.6	341.5	262.1	79.45	4.298	
7,700.0	5,666.9	7,901.1	5,752.5	42.0	43.8	-105.04	2,254.4	-383.6	341.5	258.8	82.75	4.127	
7,800.0	5,666.9	8,001.1	5,752.5	43.7	45.5	-105.04	2,354.4	-383.6	341.5	255.5	86.05	3.969	
7,900.0	5,666.9	8,101.1	5,752.5	45.4	47.2	-105.04	2,454.4	-383.6	341.5	252.2	89.35	3.822	
8,000.0	5,666.9	8,201.1	5,752.5	47.1	48.9	-105.04	2,554.4	-383.6	341.5	248.9	92.67	3.685	
8,100.0	5,666.9	8,301.1	5,752.5	48.9	50.6	-105.04	2,654.4	-383.6	341.5	245.5	95.98	3.558	
8,200.0	5,666.9	8,401.1	5,752.5	50.6	52.3	-105.04	2,754.4	-383.6	341.5	242.2	99.31	3.439	
8,300.0	5,666.9	8,501.1	5,752.6	52.3	54.0	-105.04	2,854.4	-383.6	341.5	238.9	102.63	3.328	
8,400.0	5,666.9	8,601.1	5,752.6	54.0	55.7	-105.04	2,954.4	-383.6	341.5	235.6	105.97	3.223	
8,500.0	5,666.9	8,701.1	5,752.6	55.8	57.5	-105.05	3,054.4	-383.6	341.5	232.2	109.30	3.125	
8,600.0	5,666.9	8,801.1	5,752.6	57.5	59.2	-105.05	3,154.4	-383.6	341.5	228.9	112.64	3.032	
8,700.0	5,666.9	8,901.1	5,752.6	59.2	60.9	-105.05	3,254.4	-383.6	341.5	225.6	115.98	2.945	
8,800.0	5,666.9	9,001.1	5,752.6	60.9	62.6	-105.05	3,354.4	-383.6	341.5	222.2	119.32	2.862	
8,900.0	5,666.9	9,101.1	5,752.6	62.7	64.3	-105.05	3,454.4	-383.6	341.5	218.9	122.67	2.784	
9,000.0	5,666.9	9,201.1	5,752.6	64.4	66.1	-105.05	3,554.4	-383.6	341.5	215.5	126.02	2.710	
9,100.0	5,666.9	9,301.1	5,752.6	66.1	67.8	-105.05	3,654.4	-383.6	341.5	212.2	129.37	2.640	
9,200.0	5,666.9	9,401.1	5,752.6	67.9	69.5	-105.05	3,754.4	-383.6	341.6	208.8	132.72	2.574	
9,300.0	5,666.9	9,501.1	5,752.6	69.6	71.3	-105.05	3,854.4	-383.6	341.6	205.5	136.07	2.510	
9,400.0	5,666.9	9,601.1	5,752.6	71.4	73.0	-105.05	3,954.4	-383.6	341.6	202.1	139.43	2.450	
9,500.0	5,666.9	9,701.1	5,752.7	73.1	74.7	-105.06	4,054.4	-383.6	341.6	198.8	142.78	2.392	
9,600.0	5,666.9	9,801.1	5,752.7	74.8	76.5	-105.06	4,154.4	-383.6	341.6	195.4	146.14	2.337	
9,700.0	5,666.9	9,901.1	5,752.7	76.6	78.2	-105.06	4,254.4	-383.6	341.6	192.1	149.50	2.285	
9,800.0	5,666.9	10,001.1	5,752.7	78.3	79.9	-105.06	4,354.4	-383.6	341.6	188.7	152.86	2.234	
9,900.0	5,666.9	10,101.1	5,752.7	80.1	81.7	-105.06	4,454.4	-383.6	341.6	185.3	156.23	2.186	
10,000.0	5,666.9	10,201.1	5,752.7	81.8	83.4	-105.06	4,554.4	-383.6	341.6	182.0	159.59	2.140	
10,100.0	5,666.9	10,301.1	5,752.7	83.5	85.1	-105.06	4,654.4	-383.6	341.6	178.6	162.95	2.096	
10,200.0	5,666.9	10,401.1	5,752.7	85.3	86.9	-105.06	4,754.4	-383.6	341.6	175.3	166.32	2.054	

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-2211A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2211A	**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	5,666.9	10,501.1	5,752.7	87.0	88.6	-105.06	4,854.4	-383.6	341.6	171.9	169.68	2.013	
10,400.0	5,667.0	10,601.1	5,752.7	88.8	90.4	-105.07	4,954.4	-383.6	341.6	168.5	173.05	1.974	
10,500.0	5,667.0	10,701.1	5,752.7	90.5	92.1	-105.07	5,054.4	-383.6	341.6	165.2	176.42	1.936	
10,600.0	5,667.0	10,801.1	5,752.8	92.3	93.8	-105.07	5,154.4	-383.6	341.6	161.8	179.79	1.900	
10,700.0	5,667.0	10,901.1	5,752.8	94.0	95.6	-105.07	5,254.4	-383.6	341.6	158.4	183.16	1.865	
10,800.0	5,667.0	11,001.1	5,752.8	95.8	97.3	-105.07	5,354.4	-383.6	341.6	155.1	186.53	1.831	
10,900.0	5,667.0	11,101.1	5,752.8	97.5	99.1	-105.07	5,454.4	-383.6	341.6	151.7	189.90	1.799	
11,000.0	5,667.0	11,201.1	5,752.8	99.2	100.8	-105.07	5,554.4	-383.6	341.6	148.3	193.27	1.767	
11,100.0	5,667.0	11,301.1	5,752.8	101.0	102.5	-105.07	5,654.4	-383.6	341.6	145.0	196.64	1.737	
11,200.0	5,667.0	11,401.1	5,752.8	102.7	104.3	-105.07	5,754.4	-383.6	341.6	141.6	200.01	1.708	
11,300.0	5,667.0	11,501.1	5,752.8	104.5	106.0	-105.07	5,854.4	-383.6	341.6	138.2	203.38	1.680	
11,400.0	5,667.0	11,601.1	5,752.8	106.2	107.8	-105.08	5,954.4	-383.6	341.6	134.9	206.76	1.652	
11,500.0	5,667.0	11,701.1	5,752.8	108.0	109.5	-105.08	6,054.4	-383.6	341.6	131.5	210.13	1.626	
11,600.0	5,667.0	11,801.1	5,752.8	109.7	111.3	-105.08	6,154.4	-383.6	341.6	128.1	213.50	1.600	
11,700.0	5,667.0	11,901.1	5,752.8	111.5	113.0	-105.08	6,254.4	-383.6	341.6	124.7	216.88	1.575	
11,800.0	5,667.0	12,001.1	5,752.9	113.2	114.8	-105.08	6,354.4	-383.6	341.6	121.4	220.25	1.551	
11,900.0	5,667.0	12,101.1	5,752.9	115.0	116.5	-105.08	6,454.4	-383.6	341.6	118.0	223.63	1.528	
12,000.0	5,667.0	12,201.1	5,752.9	116.7	118.2	-105.08	6,554.4	-383.6	341.6	114.6	227.00	1.505	
12,100.0	5,667.0	12,301.1	5,752.9	118.5	120.0	-105.08	6,654.4	-383.6	341.6	111.2	230.38	1.483	Level 3
12,200.0	5,667.0	12,401.1	5,752.9	120.2	121.7	-105.08	6,754.4	-383.6	341.6	107.9	233.75	1.461	Level 3
12,300.0	5,667.0	12,501.1	5,752.9	122.0	123.5	-105.09	6,854.4	-383.6	341.6	104.5	237.13	1.441	Level 3
12,400.0	5,667.0	12,601.1	5,752.9	123.7	125.2	-105.09	6,954.4	-383.6	341.6	101.1	240.51	1.420	Level 3
12,500.0	5,667.0	12,701.1	5,752.9	125.5	127.0	-105.09	7,054.4	-383.6	341.6	97.8	243.88	1.401	Level 3
12,600.0	5,667.0	12,801.1	5,752.9	127.2	128.7	-105.09	7,154.4	-383.6	341.6	94.4	247.26	1.382	Level 3
12,700.0	5,667.0	12,901.1	5,752.9	129.0	130.5	-105.09	7,254.4	-383.6	341.6	91.0	250.64	1.363	Level 3
12,800.0	5,667.0	13,001.1	5,752.9	130.7	132.2	-105.09	7,354.4	-383.6	341.6	87.6	254.02	1.345	Level 3
12,900.0	5,667.0	13,101.1	5,752.9	132.5	134.0	-105.09	7,454.4	-383.6	341.6	84.3	257.39	1.327	Level 3
13,000.0	5,667.0	13,201.1	5,753.0	134.2	135.7	-105.09	7,554.4	-383.6	341.7	80.9	260.77	1.310	Level 3
13,100.0	5,667.0	13,301.1	5,753.0	136.0	137.5	-105.09	7,654.4	-383.6	341.7	77.5	264.15	1.293	Level 3
13,200.0	5,667.0	13,401.1	5,753.0	137.7	139.2	-105.09	7,754.4	-383.6	341.7	74.1	267.53	1.277	Level 3
13,300.0	5,667.0	13,501.1	5,753.0	139.5	141.0	-105.10	7,854.4	-383.6	341.7	70.8	270.91	1.261	Level 3
13,400.0	5,667.0	13,601.1	5,753.0	141.2	142.7	-105.10	7,954.4	-383.6	341.7	67.4	274.29	1.246	Level 2
13,500.0	5,667.0	13,701.1	5,753.0	143.0	144.5	-105.10	8,054.4	-383.6	341.7	64.0	277.67	1.230	Level 2
13,600.0	5,667.0	13,801.1	5,753.0	144.7	146.2	-105.10	8,154.4	-383.6	341.7	60.6	281.04	1.216	Level 2
13,614.5	5,667.0	13,815.6	5,753.0	145.0	146.5	-105.10	8,168.9	-383.6	341.7	60.1	281.53	1.214	Level 2
13,635.1	5,667.0	13,828.4	5,753.0	145.3	146.7	-105.10	8,181.7	-383.6	341.8	59.7	282.10	1.211	Level 2, ES, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2211A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2211A	**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-2212B - 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	-156.30	-75.1	-32.9	82.0				
100.0	100.0	97.0	97.0	0.1	0.1	-156.30	-75.1	-32.9	82.0	81.7	0.29	285.482	
200.0	200.0	197.0	197.0	0.3	0.3	-156.30	-75.1	-32.9	82.0	81.3	0.64	129.015	
300.0	300.0	297.0	297.0	0.5	0.5	-156.30	-75.1	-32.9	82.0	81.0	0.98	83.266	
400.0	400.0	397.0	397.0	0.7	0.7	-156.30	-75.1	-32.9	82.0	80.6	1.33	61.469	
500.0	500.0	497.0	497.0	0.8	0.8	-156.30	-75.1	-32.9	82.0	80.3	1.68	48.716	
600.0	600.0	597.0	597.0	1.0	1.0	-156.30	-75.1	-32.9	82.0	79.9	2.03	40.346	
700.0	700.0	697.0	697.0	1.2	1.2	-156.30	-75.1	-32.9	82.0	79.6	2.38	34.430	
800.0	800.0	797.0	797.0	1.4	1.4	-156.30	-75.1	-32.9	82.0	79.2	2.73	30.027	
900.0	900.0	897.0	897.0	1.5	1.5	-156.30	-75.1	-32.9	82.0	78.9	3.08	26.623	
1,000.0	1,000.0	997.0	997.0	1.7	1.7	-156.30	-75.1	-32.9	82.0	78.5	3.43	23.912	
1,100.0	1,100.0	1,097.0	1,097.0	1.9	1.9	-156.30	-75.1	-32.9	82.0	78.2	3.78	21.702	
1,200.0	1,200.0	1,197.0	1,197.0	2.1	2.1	-156.30	-75.1	-32.9	82.0	77.8	4.13	19.866	
1,300.0	1,300.0	1,297.0	1,297.0	2.2	2.2	-156.30	-75.1	-32.9	82.0	77.5	4.48	18.316	
1,400.0	1,400.0	1,397.0	1,397.0	2.4	2.4	-156.30	-75.1	-32.9	82.0	77.1	4.82	16.991	
1,500.0	1,500.0	1,497.0	1,497.0	2.6	2.6	-156.30	-75.1	-32.9	82.0	76.8	5.17	15.844	
1,600.0	1,600.0	1,599.5	1,599.5	2.8	2.8	-156.87	-74.0	-31.6	80.5	74.9	5.53	14.561	
1,700.0	1,700.0	1,701.8	1,701.6	2.9	2.9	-158.77	-70.6	-27.4	75.9	70.0	5.88	12.901	
1,800.0	1,800.0	1,801.5	1,801.1	3.1	3.1	-161.62	-66.2	-22.0	69.9	63.7	6.23	11.217	
1,900.0	1,900.0	1,901.3	1,900.6	3.3	3.3	-164.98	-61.8	-16.6	64.1	57.6	6.58	9.741	
2,000.0	2,000.0	2,001.0	2,000.1	3.5	3.5	-168.99	-57.5	-11.2	58.6	51.7	6.94	8.449	
2,100.0	2,100.0	2,100.8	2,099.7	3.6	3.7	-173.80	-53.1	-5.8	53.5	46.2	7.30	7.326	
2,200.0	2,200.0	2,200.6	2,199.2	3.8	3.9	-179.58	-48.7	-0.4	48.8	41.1	7.66	6.364	
2,300.0	2,300.0	2,300.3	2,298.7	4.0	4.1	173.49	-44.4	5.1	44.7	36.6	8.04	5.558	
2,400.0	2,400.0	2,400.1	2,398.2	4.2	4.3	165.32	-40.0	10.5	41.3	32.9	8.42	4.912	
2,500.0	2,500.0	2,499.8	2,497.7	4.3	4.5	155.96	-35.6	15.9	39.0	30.2	8.80	4.430	
2,600.0	2,600.0	2,599.6	2,597.2	4.5	4.7	145.71	-31.2	21.3	37.8	28.6	9.19	4.114	
2,644.0	2,644.0	2,643.5	2,641.0	4.6	4.8	141.07	-29.3	23.7	37.7	28.3	9.36	4.026 CC	
2,700.0	2,700.0	2,699.3	2,696.7	4.7	4.9	135.16	-26.9	26.7	37.9	28.3	9.57	3.958 ES	
2,800.0	2,800.0	2,799.1	2,796.3	4.9	5.1	124.99	-22.5	32.1	39.2	29.3	9.94	3.946	
2,900.0	2,900.0	2,898.8	2,895.8	5.0	5.3	115.76	-18.1	37.5	41.7	31.4	10.29	4.051	
3,000.0	3,000.0	2,998.6	2,995.3	5.2	5.5	107.74	-13.7	43.0	45.1	34.5	10.64	4.242	
3,100.0	3,100.0	3,098.4	3,094.8	5.4	5.7	100.97	-9.4	48.4	49.3	38.3	10.98	4.492	
3,200.0	3,200.0	3,198.1	3,194.3	5.6	5.9	95.31	-5.0	53.8	54.1	42.8	11.31	4.780	
3,300.0	3,300.0	3,297.9	3,293.8	5.7	6.1	90.60	-0.6	59.2	59.3	47.6	11.65	5.088	
3,400.0	3,400.0	3,397.6	3,393.3	5.9	6.3	86.68	3.7	64.6	64.8	52.8	11.99	5.408	
3,500.0	3,500.0	3,499.4	3,495.0	6.1	6.5	84.08	7.1	68.8	69.2	56.9	12.32	5.614	
3,600.0	3,600.0	3,601.5	3,597.0	6.3	6.7	83.30	8.2	70.2	70.6	58.0	12.67	5.577	
3,700.0	3,700.0	3,701.5	3,697.0	6.4	6.8	83.30	8.2	70.2	70.6	57.6	13.01	5.429	
3,800.0	3,800.0	3,801.5	3,797.0	6.6	7.0	83.30	8.2	70.2	70.6	57.3	13.36	5.289	
3,900.0	3,900.0	3,901.5	3,897.0	6.8	7.2	83.30	8.2	70.2	70.6	56.9	13.70	5.156	
4,000.0	4,000.0	4,001.5	3,997.0	7.0	7.3	83.30	8.2	70.2	70.6	56.6	14.05	5.029	
4,100.0	4,100.0	4,101.5	4,097.0	7.1	7.5	83.30	8.2	70.2	70.6	56.2	14.39	4.908	
4,200.0	4,200.0	4,201.5	4,197.0	7.3	7.7	83.30	8.2	70.2	70.6	55.9	14.74	4.793	
4,300.0	4,300.0	4,301.5	4,297.0	7.5	7.8	83.30	8.2	70.2	70.6	55.6	15.08	4.683	
4,400.0	4,400.0	4,401.5	4,397.0	7.7	8.0	83.30	8.2	70.2	70.6	55.2	15.43	4.578	
4,500.0	4,500.0	4,501.5	4,497.0	7.8	8.2	83.30	8.2	70.2	70.6	54.9	15.78	4.477	
4,600.0	4,600.0	4,601.5	4,597.0	8.0	8.3	83.30	8.2	70.2	70.6	54.5	16.12	4.381	
4,700.0	4,700.0	4,701.5	4,697.0	8.2	8.5	83.30	8.2	70.2	70.6	54.2	16.47	4.289	
4,800.0	4,800.0	4,801.5	4,797.0	8.3	8.7	83.30	8.2	70.2	70.6	53.8	16.82	4.201	
4,900.0	4,900.0	4,901.5	4,897.0	8.5	8.8	83.30	8.2	70.2	70.6	53.5	17.16	4.116	
5,000.0	5,000.0	5,001.5	4,997.0	8.7	9.0	83.30	8.2	70.2	70.6	53.1	17.51	4.034	

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-2211A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2211A	**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-2212B - 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	5,100.0	5,101.5	5,097.0	8.9	9.2	83.30	8.2	70.2	70.6	52.8	17.86	3.956	
5,170.1	5,170.1	5,171.6	5,167.1	9.0	9.3	90.47	8.2	70.2	70.6	52.5	18.09	3.905	
5,200.0	5,199.9	5,201.4	5,196.9	9.0	9.3	90.67	8.2	70.2	70.6	52.4	18.19	3.882	
5,300.0	5,297.8	5,298.3	5,293.7	9.2	9.5	102.70	11.7	71.1	73.9	55.3	18.59	3.976	
5,400.0	5,390.1	5,396.0	5,389.1	9.5	9.8	112.60	31.5	76.5	86.9	68.0	18.94	4.589	
5,500.0	5,473.4	5,495.7	5,480.7	9.8	10.2	117.94	69.0	86.8	108.0	88.8	19.28	5.604	
5,600.0	5,544.7	5,597.2	5,564.7	10.4	10.7	119.53	123.7	101.7	135.1	115.3	19.84	6.810	
5,700.0	5,601.3	5,700.6	5,637.3	11.1	11.5	118.64	194.4	121.1	166.6	145.7	20.89	7.977	
5,800.0	5,641.2	5,805.9	5,694.9	12.1	12.5	116.22	279.3	144.3	201.2	178.6	22.55	8.922	
5,900.0	5,662.9	5,913.6	5,734.2	13.3	13.8	112.86	375.8	170.7	237.6	212.8	24.82	9.575	
6,000.0	5,666.9	6,024.5	5,752.5	14.6	15.3	110.04	481.1	199.5	274.0	246.4	27.58	9.936	
6,100.0	5,666.9	6,137.3	5,753.4	16.0	16.9	107.73	590.4	227.6	301.9	271.1	30.84	9.791	
6,200.0	5,666.9	6,253.6	5,753.4	17.4	18.6	106.41	704.4	249.9	320.6	286.5	34.08	9.407	
6,300.0	5,666.9	6,372.2	5,753.4	18.9	20.4	105.65	822.0	265.6	333.3	295.9	37.36	8.920	
6,400.0	5,666.9	6,492.4	5,753.4	20.4	22.3	105.27	941.9	273.9	340.0	299.3	40.70	8.353	
6,500.0	5,666.9	6,604.9	5,753.4	22.0	24.0	105.21	1,054.4	275.3	341.1	297.2	43.94	7.763	
6,600.0	5,666.9	6,704.9	5,753.4	23.6	25.5	105.20	1,154.4	275.3	341.1	294.1	47.03	7.253	
6,700.0	5,666.9	6,804.9	5,753.3	25.2	27.1	105.20	1,254.4	275.3	341.1	291.0	50.15	6.801	
6,800.0	5,666.9	6,904.9	5,753.3	26.8	28.7	105.20	1,354.4	275.3	341.1	287.8	53.31	6.398	
6,900.0	5,666.9	7,004.9	5,753.3	28.5	30.4	105.20	1,454.4	275.3	341.1	284.6	56.50	6.038	
7,000.0	5,666.9	7,104.9	5,753.3	30.2	32.0	105.20	1,554.4	275.3	341.1	281.4	59.70	5.714	
7,100.0	5,666.9	7,204.9	5,753.3	31.8	33.6	105.20	1,654.4	275.3	341.1	278.2	62.93	5.421	
7,200.0	5,666.9	7,304.9	5,753.3	33.5	35.3	105.20	1,754.4	275.4	341.1	275.0	66.17	5.155	
7,300.0	5,666.9	7,404.9	5,753.3	35.2	37.0	105.20	1,854.4	275.4	341.1	271.7	69.43	4.914	
7,400.0	5,666.9	7,504.9	5,753.3	36.9	38.6	105.19	1,954.4	275.4	341.1	268.4	72.69	4.693	
7,500.0	5,666.9	7,604.9	5,753.3	38.6	40.3	105.19	2,054.4	275.4	341.1	265.2	75.97	4.490	
7,600.0	5,666.9	7,704.9	5,753.3	40.3	42.0	105.19	2,154.4	275.4	341.1	261.9	79.26	4.304	
7,700.0	5,666.9	7,804.9	5,753.3	42.0	43.7	105.19	2,254.4	275.4	341.1	258.6	82.56	4.132	
7,800.0	5,666.9	7,904.9	5,753.3	43.7	45.4	105.19	2,354.4	275.4	341.2	255.3	85.86	3.973	
7,900.0	5,666.9	8,004.9	5,753.3	45.4	47.1	105.19	2,454.4	275.4	341.2	252.0	89.17	3.826	
8,000.0	5,666.9	8,104.9	5,753.3	47.1	48.8	105.19	2,554.4	275.4	341.2	248.7	92.48	3.689	
8,100.0	5,666.9	8,204.9	5,753.3	48.9	50.5	105.18	2,654.4	275.4	341.2	245.4	95.80	3.561	
8,200.0	5,666.9	8,304.9	5,753.3	50.6	52.2	105.18	2,754.4	275.4	341.2	242.0	99.13	3.442	
8,300.0	5,666.9	8,404.9	5,753.3	52.3	53.9	105.18	2,854.4	275.5	341.2	238.7	102.46	3.330	
8,400.0	5,666.9	8,504.9	5,753.3	54.0	55.7	105.18	2,954.4	275.5	341.2	235.4	105.79	3.225	
8,500.0	5,666.9	8,604.9	5,753.3	55.8	57.4	105.18	3,054.4	275.5	341.2	232.1	109.13	3.126	
8,600.0	5,666.9	8,704.9	5,753.3	57.5	59.1	105.18	3,154.4	275.5	341.2	228.7	112.46	3.034	
8,700.0	5,666.9	8,804.9	5,753.3	59.2	60.8	105.18	3,254.4	275.5	341.2	225.4	115.81	2.946	
8,800.0	5,666.9	8,904.9	5,753.2	60.9	62.5	105.18	3,354.4	275.5	341.2	222.0	119.15	2.864	
8,900.0	5,666.9	9,004.9	5,753.2	62.7	64.3	105.17	3,454.4	275.5	341.2	218.7	122.50	2.785	
9,000.0	5,666.9	9,104.9	5,753.2	64.4	66.0	105.17	3,554.4	275.5	341.2	215.4	125.85	2.711	
9,100.0	5,666.9	9,204.9	5,753.2	66.1	67.7	105.17	3,654.4	275.5	341.2	212.0	129.20	2.641	
9,200.0	5,666.9	9,304.9	5,753.2	67.9	69.5	105.17	3,754.4	275.5	341.2	208.7	132.55	2.574	
9,300.0	5,666.9	9,404.9	5,753.2	69.6	71.2	105.17	3,854.4	275.5	341.2	205.3	135.91	2.511	
9,400.0	5,666.9	9,504.9	5,753.2	71.4	72.9	105.17	3,954.4	275.5	341.2	202.0	139.27	2.450	
9,500.0	5,666.9	9,604.9	5,753.2	73.1	74.7	105.17	4,054.4	275.6	341.2	198.6	142.62	2.392	
9,600.0	5,666.9	9,704.9	5,753.2	74.8	76.4	105.16	4,154.4	275.6	341.2	195.2	145.98	2.337	
9,700.0	5,666.9	9,804.9	5,753.2	76.6	78.1	105.16	4,254.4	275.6	341.2	191.9	149.34	2.285	
9,800.0	5,666.9	9,904.9	5,753.2	78.3	79.9	105.16	4,354.4	275.6	341.2	188.5	152.71	2.235	
9,900.0	5,666.9	10,004.9	5,753.2	80.1	81.6	105.16	4,454.4	275.6	341.2	185.2	156.07	2.186	
10,000.0	5,666.9	10,104.9	5,753.2	81.8	83.3	105.16	4,554.4	275.6	341.2	181.8	159.43	2.140	
10,100.0	5,666.9	10,204.9	5,753.2	83.5	85.1	105.16	4,654.4	275.6	341.2	178.4	162.80	2.096	

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-2211A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2211A	**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-2212B - 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	5,666.9	10,304.9	5,753.2	85.3	86.8	105.16	4,754.4	275.6	341.3	175.1	166.17	2.054	
10,300.0	5,666.9	10,404.9	5,753.2	87.0	88.6	105.15	4,854.4	275.6	341.3	171.7	169.53	2.013	
10,400.0	5,667.0	10,504.9	5,753.2	88.8	90.3	105.15	4,954.4	275.6	341.3	168.4	172.90	1.974	
10,500.0	5,667.0	10,604.9	5,753.2	90.5	92.0	105.15	5,054.4	275.6	341.3	165.0	176.27	1.936	
10,600.0	5,667.0	10,704.9	5,753.2	92.3	93.8	105.15	5,154.4	275.6	341.3	161.6	179.64	1.900	
10,700.0	5,667.0	10,804.9	5,753.2	94.0	95.5	105.15	5,254.4	275.7	341.3	158.3	183.01	1.865	
10,800.0	5,667.0	10,904.9	5,753.1	95.8	97.3	105.15	5,354.4	275.7	341.3	154.9	186.38	1.831	
10,900.0	5,667.0	11,004.9	5,753.1	97.5	99.0	105.15	5,454.4	275.7	341.3	151.5	189.76	1.799	
11,000.0	5,667.0	11,104.9	5,753.1	99.2	100.7	105.15	5,554.4	275.7	341.3	148.2	193.13	1.767	
11,100.0	5,667.0	11,204.9	5,753.1	101.0	102.5	105.14	5,654.4	275.7	341.3	144.8	196.50	1.737	
11,200.0	5,667.0	11,304.9	5,753.1	102.7	104.2	105.14	5,754.4	275.7	341.3	141.4	199.88	1.708	
11,300.0	5,667.0	11,404.9	5,753.1	104.5	106.0	105.14	5,854.4	275.7	341.3	138.0	203.25	1.679	
11,400.0	5,667.0	11,504.9	5,753.1	106.2	107.7	105.14	5,954.4	275.7	341.3	134.7	206.63	1.652	
11,500.0	5,667.0	11,604.9	5,753.1	108.0	109.5	105.14	6,054.4	275.7	341.3	131.3	210.00	1.625	
11,600.0	5,667.0	11,704.9	5,753.1	109.7	111.2	105.14	6,154.4	275.7	341.3	127.9	213.38	1.600	
11,700.0	5,667.0	11,804.9	5,753.1	111.5	113.0	105.14	6,254.4	275.7	341.3	124.6	216.75	1.575	
11,800.0	5,667.0	11,904.9	5,753.1	113.2	114.7	105.13	6,354.4	275.8	341.3	121.2	220.13	1.551	
11,900.0	5,667.0	12,004.9	5,753.1	115.0	116.4	105.13	6,454.4	275.8	341.3	117.8	223.51	1.527	
12,000.0	5,667.0	12,104.9	5,753.1	116.7	118.2	105.13	6,554.4	275.8	341.3	114.4	226.89	1.504	
12,100.0	5,667.0	12,204.9	5,753.1	118.5	119.9	105.13	6,654.4	275.8	341.3	111.1	230.26	1.482	Level 3
12,200.0	5,667.0	12,304.9	5,753.1	120.2	121.7	105.13	6,754.4	275.8	341.3	107.7	233.64	1.461	Level 3
12,300.0	5,667.0	12,404.9	5,753.1	122.0	123.4	105.13	6,854.4	275.8	341.3	104.3	237.02	1.440	Level 3
12,400.0	5,667.0	12,504.9	5,753.1	123.7	125.2	105.13	6,954.4	275.8	341.3	100.9	240.40	1.420	Level 3
12,500.0	5,667.0	12,604.9	5,753.1	125.5	126.9	105.12	7,054.4	275.8	341.4	97.6	243.78	1.400	Level 3
12,600.0	5,667.0	12,704.9	5,753.1	127.2	128.7	105.12	7,154.4	275.8	341.4	94.2	247.16	1.381	Level 3
12,700.0	5,667.0	12,804.9	5,753.1	129.0	130.4	105.12	7,254.4	275.8	341.4	90.8	250.54	1.362	Level 3
12,800.0	5,667.0	12,904.9	5,753.1	130.7	132.2	105.12	7,354.4	275.8	341.4	87.4	253.92	1.344	Level 3
12,900.0	5,667.0	13,004.9	5,753.0	132.5	133.9	105.12	7,454.4	275.8	341.4	84.1	257.30	1.327	Level 3
13,000.0	5,667.0	13,104.9	5,753.0	134.2	135.7	105.12	7,554.4	275.9	341.4	80.7	260.68	1.310	Level 3
13,100.0	5,667.0	13,204.9	5,753.0	136.0	137.4	105.12	7,654.4	275.9	341.4	77.3	264.06	1.293	Level 3
13,200.0	5,667.0	13,304.9	5,753.0	137.7	139.2	105.12	7,754.4	275.9	341.4	73.9	267.44	1.276	Level 3
13,300.0	5,667.0	13,404.9	5,753.0	139.5	140.9	105.11	7,854.4	275.9	341.4	70.6	270.83	1.261	Level 3
13,400.0	5,667.0	13,504.9	5,753.0	141.2	142.7	105.11	7,954.4	275.9	341.4	67.2	274.21	1.245	Level 2
13,500.0	5,667.0	13,604.9	5,753.0	143.0	144.4	105.11	8,054.4	275.9	341.4	63.8	277.59	1.230	Level 2
13,600.0	5,667.0	13,704.9	5,753.0	144.7	146.2	105.11	8,154.4	275.9	341.4	60.4	280.97	1.215	Level 2
13,635.1	5,667.0	13,740.0	5,753.0	145.3	146.8	105.11	8,189.5	275.9	341.4	59.2	282.16	1.210	Level 2, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2211A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2211A	**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	0.0	0.0	0.0	0.0	-90.00	0.0	-98.3	98.3				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-98.3	98.3	98.0	0.29	337.152	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-98.3	98.3	97.6	0.64	153.423	
300.0	300.0	300.0	300.0	0.5	0.5	-90.00	0.0	-98.3	98.3	97.3	0.99	99.306	
400.0	400.0	400.0	400.0	0.7	0.7	-90.00	0.0	-98.3	98.3	96.9	1.34	73.412	
466.7	466.7	466.7	466.7	0.8	0.8	-90.00	0.0	-98.3	98.3	96.7	1.57	62.541	CC
500.0	500.0	500.0	500.0	0.8	0.8	-90.00	0.0	-98.3	98.3	96.6	1.69	58.229	ES
600.0	600.0	599.0	598.9	1.0	1.0	-90.95	-1.6	-98.8	98.8	96.8	2.04	48.514	
700.0	700.0	697.7	697.5	1.2	1.2	-93.71	-6.5	-100.3	100.6	98.2	2.39	42.001	
800.0	800.0	797.4	797.0	1.4	1.4	-97.31	-13.1	-102.4	103.3	100.5	2.76	37.431	
900.0	900.0	897.1	896.5	1.5	1.6	-100.72	-19.8	-104.5	106.4	103.3	3.13	34.026	
1,000.0	1,000.0	996.9	996.0	1.7	1.8	-103.92	-26.4	-106.6	109.9	106.4	3.50	31.434	
1,100.0	1,100.0	1,096.7	1,095.5	1.9	2.0	-106.91	-33.1	-108.7	113.7	109.8	3.86	29.425	
1,200.0	1,200.0	1,196.4	1,195.0	2.1	2.2	-109.71	-39.7	-110.8	117.8	113.5	4.23	27.842	
1,300.0	1,300.0	1,296.2	1,294.5	2.2	2.4	-112.32	-46.3	-112.9	122.1	117.5	4.60	26.577	
1,400.0	1,400.0	1,395.9	1,394.1	2.4	2.6	-114.74	-53.0	-115.0	126.7	121.7	4.96	25.555	
1,500.0	1,500.0	1,495.7	1,493.6	2.6	2.8	-116.99	-59.6	-117.0	131.5	126.2	5.32	24.720	
1,600.0	1,600.0	1,595.4	1,593.1	2.8	3.0	-119.07	-66.2	-119.1	136.5	130.8	5.68	24.031	
1,700.0	1,700.0	1,695.2	1,692.6	2.9	3.2	-121.01	-72.9	-121.2	141.6	135.6	6.04	23.458	
1,800.0	1,800.0	1,794.9	1,792.1	3.1	3.5	-122.81	-79.5	-123.3	146.9	140.5	6.39	22.977	
1,900.0	1,900.0	1,894.7	1,891.6	3.3	3.7	-124.49	-86.1	-125.4	152.4	145.6	6.75	22.572	
2,000.0	2,000.0	1,994.5	1,991.1	3.5	3.9	-126.05	-92.8	-127.5	157.9	150.8	7.11	22.228	
2,100.0	2,100.0	2,094.2	2,090.7	3.6	4.1	-127.50	-99.4	-129.6	163.6	156.1	7.46	21.934	
2,200.0	2,200.0	2,194.0	2,190.2	3.8	4.3	-128.85	-106.1	-131.7	169.4	161.6	7.81	21.681	
2,300.0	2,300.0	2,293.7	2,289.7	4.0	4.5	-130.11	-112.7	-133.8	175.2	167.1	8.16	21.463	
2,400.0	2,400.0	2,393.5	2,389.2	4.2	4.7	-131.30	-119.3	-135.9	181.1	172.6	8.52	21.274	
2,500.0	2,500.0	2,493.2	2,488.7	4.3	4.9	-132.40	-126.0	-137.9	187.2	178.3	8.87	21.109	
2,600.0	2,600.0	2,593.0	2,588.2	4.5	5.1	-133.44	-132.6	-140.0	193.2	184.0	9.22	20.965	
2,700.0	2,700.0	2,692.8	2,687.7	4.7	5.4	-134.41	-139.2	-142.1	199.4	189.8	9.57	20.839	
2,800.0	2,800.0	2,792.5	2,787.3	4.9	5.6	-135.33	-145.9	-144.2	205.5	195.6	9.92	20.727	
2,900.0	2,900.0	2,892.3	2,886.8	5.0	5.8	-136.19	-152.5	-146.3	211.8	201.5	10.27	20.629	
3,000.0	3,000.0	2,992.0	2,986.3	5.2	6.0	-137.00	-159.2	-148.4	218.0	207.4	10.61	20.542	
3,100.0	3,100.0	3,091.8	3,085.8	5.4	6.2	-137.77	-165.8	-150.5	224.4	213.4	10.96	20.465	
3,200.0	3,200.0	3,191.5	3,185.3	5.6	6.4	-138.50	-172.4	-152.6	230.7	219.4	11.31	20.396	
3,300.0	3,300.0	3,291.3	3,284.8	5.7	6.6	-139.18	-179.1	-154.7	237.1	225.4	11.66	20.334	
3,400.0	3,400.0	3,391.0	3,384.3	5.9	6.8	-139.83	-185.7	-156.8	243.5	231.5	12.01	20.279	
3,500.0	3,500.0	3,490.8	3,483.8	6.1	7.0	-140.45	-192.3	-158.8	250.0	237.6	12.36	20.230	
3,600.0	3,600.0	3,590.6	3,583.4	6.3	7.3	-141.03	-199.0	-160.9	256.5	243.8	12.71	20.185	
3,700.0	3,700.0	3,690.3	3,682.9	6.4	7.5	-141.59	-205.6	-163.0	263.0	249.9	13.05	20.145	
3,800.0	3,800.0	3,790.1	3,782.4	6.6	7.7	-142.12	-212.3	-165.1	269.5	256.1	13.40	20.110	
3,900.0	3,900.0	3,889.8	3,881.9	6.8	7.9	-142.62	-218.9	-167.2	276.0	262.3	13.75	20.077	
4,000.0	4,000.0	3,989.6	3,981.4	7.0	8.1	-143.11	-225.5	-169.3	282.6	268.5	14.10	20.048	
4,100.0	4,100.0	4,089.3	4,080.9	7.1	8.3	-143.57	-232.2	-171.4	289.2	274.8	14.45	20.021	
4,200.0	4,200.0	4,189.1	4,180.4	7.3	8.5	-144.00	-238.8	-173.5	295.8	281.0	14.79	19.997	
4,300.0	4,300.0	4,288.9	4,280.0	7.5	8.7	-144.42	-245.4	-175.6	302.4	287.3	15.14	19.975	
4,400.0	4,400.0	4,388.6	4,379.5	7.7	8.9	-144.83	-252.1	-177.7	309.1	293.6	15.49	19.955	
4,500.0	4,500.0	4,488.4	4,479.0	7.8	9.2	-145.21	-258.7	-179.8	315.7	299.9	15.84	19.937	
4,600.0	4,600.0	4,588.1	4,578.5	8.0	9.4	-145.58	-265.4	-181.8	322.4	306.2	16.18	19.921	
4,700.0	4,700.0	4,687.9	4,678.0	8.2	9.6	-145.93	-272.0	-183.9	329.1	312.6	16.53	19.906	
4,800.0	4,800.0	4,787.6	4,777.5	8.3	9.8	-146.27	-278.6	-186.0	335.8	318.9	16.88	19.892	
4,900.0	4,900.0	4,887.4	4,877.0	8.5	10.0	-146.60	-285.3	-188.1	342.5	325.3	17.23	19.880	
5,000.0	5,000.0	4,987.2	4,976.5	8.7	10.2	-146.91	-291.9	-190.2	349.2	331.6	17.58	19.868	

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-2211A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2211A	**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	5,100.0	5,086.9	5,076.1	8.9	10.4	-147.21	-298.5	-192.3	355.9	338.0	17.92	19.858	SF
5,200.0	5,199.9	5,186.4	5,175.3	9.0	10.6	-142.28	-305.2	-194.4	364.9	346.7	18.12	20.141	
5,300.0	5,297.8	5,250.0	5,238.4	9.2	10.8	-141.90	-312.3	-196.6	391.8	373.7	18.10	21.650	
5,400.0	5,390.1	5,300.0	5,287.1	9.5	11.0	-140.24	-323.1	-200.0	442.2	424.3	17.93	24.659	
5,500.0	5,473.4	5,325.4	5,311.4	9.8	11.2	-134.91	-330.2	-202.3	511.4	493.4	18.02	28.387	
5,600.0	5,544.7	5,350.0	5,334.5	10.4	11.3	-124.98	-338.2	-204.8	594.4	575.3	19.01	31.262	
5,700.0	5,601.3	5,350.0	5,334.5	11.1	11.3	-102.45	-338.2	-204.8	685.5	663.9	21.66	31.647	
5,800.0	5,641.2	5,350.0	5,334.5	12.1	11.3	-70.83	-338.2	-204.8	780.1	757.7	22.39	34.837	
5,900.0	5,662.9	5,350.0	5,334.5	13.3	11.3	-45.42	-338.2	-204.8	874.1	854.7	19.39	45.082	
6,000.0	5,666.9	5,350.0	5,334.5	14.6	11.3	-33.25	-338.2	-204.8	965.2	947.9	17.34	55.674	
6,100.0	5,666.9	5,350.0	5,334.5	16.0	11.3	-26.95	-338.2	-204.8	1,057.6	1,041.1	16.51	64.069	
6,200.0	5,666.9	5,323.4	5,309.5	17.4	11.1	-22.52	-329.6	-202.1	1,151.0	1,135.0	15.95	72.182	
6,300.0	5,666.9	5,300.0	5,287.1	18.9	11.0	-21.05	-323.1	-200.0	1,245.8	1,229.7	16.08	77.466	
6,400.0	5,666.9	5,300.0	5,287.1	20.4	11.0	-21.05	-323.1	-200.0	1,340.7	1,324.1	16.65	80.545	
6,500.0	5,666.9	5,300.0	5,287.1	22.0	11.0	-21.05	-323.1	-200.0	1,436.3	1,419.1	17.22	83.413	
6,600.0	5,666.9	5,300.0	5,287.1	23.6	11.0	-21.05	-323.1	-200.0	1,532.5	1,514.7	17.80	86.084	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2211A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2211A	**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	-138.96	-75.1	-65.3	99.6				
100.0	100.0	97.0	97.0	0.1	0.1	-138.96	-75.1	-65.3	99.5	99.2	0.29	346.575	
200.0	200.0	197.0	197.0	0.3	0.3	-138.96	-75.1	-65.3	99.5	98.9	0.64	156.624	
300.0	300.0	297.0	297.0	0.5	0.5	-138.96	-75.1	-65.3	99.5	98.5	0.98	101.085	
400.0	400.0	397.0	397.0	0.7	0.7	-138.96	-75.1	-65.3	99.5	98.2	1.33	74.623	
500.0	500.0	497.0	497.0	0.8	0.8	-138.96	-75.1	-65.3	99.5	97.8	1.68	59.141	
600.0	600.0	597.0	597.0	1.0	1.0	-138.96	-75.1	-65.3	99.5	97.5	2.03	48.980	
700.0	700.0	697.0	697.0	1.2	1.2	-138.96	-75.1	-65.3	99.5	97.1	2.38	41.798	
800.0	800.0	797.0	797.0	1.4	1.4	-138.96	-75.1	-65.3	99.5	96.8	2.73	36.453	
900.0	900.0	897.0	897.0	1.5	1.5	-138.96	-75.1	-65.3	99.5	96.4	3.08	32.320	
1,000.0	1,000.0	997.0	997.0	1.7	1.7	-138.96	-75.1	-65.3	99.5	96.1	3.43	29.029	
1,100.0	1,100.0	1,097.0	1,097.0	1.9	1.9	-138.96	-75.1	-65.3	99.5	95.7	3.78	26.346	
1,200.0	1,200.0	1,197.0	1,197.0	2.1	2.1	-138.96	-75.1	-65.3	99.5	95.4	4.13	24.117	
1,300.0	1,300.0	1,297.0	1,297.0	2.2	2.2	-138.96	-75.1	-65.3	99.5	95.0	4.48	22.236	
1,400.0	1,400.0	1,397.0	1,397.0	2.4	2.4	-138.96	-75.1	-65.3	99.5	94.7	4.82	20.627	
1,500.0	1,500.0	1,497.0	1,497.0	2.6	2.6	-138.96	-75.1	-65.3	99.5	94.3	5.17	19.235	
1,600.0	1,600.0	1,597.0	1,597.0	2.8	2.8	-138.96	-75.1	-65.3	99.5	94.0	5.52	18.019	
1,700.0	1,700.0	1,697.0	1,697.0	2.9	2.9	-138.96	-75.1	-65.3	99.5	93.6	5.87	16.948	
1,800.0	1,800.0	1,797.0	1,797.0	3.1	3.1	-138.96	-75.1	-65.3	99.5	93.3	6.22	15.997	
1,900.0	1,900.0	1,897.0	1,897.0	3.3	3.3	-138.96	-75.1	-65.3	99.5	92.9	6.57	15.147	
2,000.0	2,000.0	1,997.0	1,997.0	3.5	3.5	-138.96	-75.1	-65.3	99.5	92.6	6.92	14.383	
2,100.0	2,100.0	2,097.0	2,097.0	3.6	3.6	-138.96	-75.1	-65.3	99.5	92.2	7.27	13.692	
2,200.0	2,200.0	2,197.0	2,197.0	3.8	3.8	-138.96	-75.1	-65.3	99.5	91.9	7.62	13.064	
2,300.0	2,300.0	2,297.0	2,297.0	4.0	4.0	-138.96	-75.1	-65.3	99.5	91.5	7.97	12.492	
2,400.0	2,400.0	2,397.0	2,397.0	4.2	4.2	-138.96	-75.1	-65.3	99.5	91.2	8.31	11.967	
2,500.0	2,500.0	2,497.0	2,497.0	4.3	4.3	-138.96	-75.1	-65.3	99.5	90.8	8.66	11.485	
2,600.0	2,600.0	2,597.0	2,597.0	4.5	4.5	-138.96	-75.1	-65.3	99.5	90.5	9.01	11.040	
2,700.0	2,700.0	2,697.0	2,697.0	4.7	4.7	-138.96	-75.1	-65.3	99.5	90.1	9.36	10.629	
2,800.0	2,800.0	2,797.0	2,797.0	4.9	4.9	-138.96	-75.1	-65.3	99.5	89.8	9.71	10.247	
2,900.0	2,900.0	2,897.0	2,897.0	5.0	5.0	-138.96	-75.1	-65.3	99.5	89.4	10.06	9.891	
3,000.0	3,000.0	2,997.0	2,997.0	5.2	5.2	-138.96	-75.1	-65.3	99.5	89.1	10.41	9.559	
3,100.0	3,100.0	3,097.0	3,097.0	5.4	5.4	-138.96	-75.1	-65.3	99.5	88.7	10.76	9.249	
3,200.0	3,200.0	3,197.0	3,197.0	5.6	5.6	-138.96	-75.1	-65.3	99.5	88.4	11.11	8.959	
3,300.0	3,300.0	3,297.0	3,297.0	5.7	5.7	-138.96	-75.1	-65.3	99.5	88.0	11.46	8.686	
3,400.0	3,400.0	3,397.0	3,397.0	5.9	5.9	-138.96	-75.1	-65.3	99.5	87.7	11.81	8.429	
3,500.0	3,500.0	3,497.0	3,497.0	6.1	6.1	-138.96	-75.1	-65.3	99.5	87.4	12.15	8.187	
3,600.0	3,600.0	3,597.0	3,597.0	6.3	6.2	-138.96	-75.1	-65.3	99.5	87.0	12.50	7.958	
3,700.0	3,700.0	3,697.0	3,697.0	6.4	6.4	-138.96	-75.1	-65.3	99.5	86.7	12.85	7.742	
3,800.0	3,800.0	3,797.0	3,797.0	6.6	6.6	-138.96	-75.1	-65.3	99.5	86.3	13.20	7.537	
3,900.0	3,900.0	3,897.0	3,897.0	6.8	6.8	-138.96	-75.1	-65.3	99.5	86.0	13.55	7.343	
4,000.0	4,000.0	3,997.0	3,997.0	7.0	6.9	-138.96	-75.1	-65.3	99.5	85.6	13.90	7.159	
4,100.0	4,100.0	4,097.0	4,097.0	7.1	7.1	-138.96	-75.1	-65.3	99.5	85.3	14.25	6.983	
4,200.0	4,200.0	4,197.0	4,197.0	7.3	7.3	-138.96	-75.1	-65.3	99.5	84.9	14.60	6.816	
4,300.0	4,300.0	4,297.0	4,297.0	7.5	7.5	-138.96	-75.1	-65.3	99.5	84.6	14.95	6.657	
4,400.0	4,400.0	4,397.0	4,397.0	7.7	7.6	-138.96	-75.1	-65.3	99.5	84.2	15.30	6.505	
4,500.0	4,500.0	4,497.0	4,497.0	7.8	7.8	-138.96	-75.1	-65.3	99.5	83.9	15.65	6.360	
4,600.0	4,600.0	4,597.0	4,597.0	8.0	8.0	-138.96	-75.1	-65.3	99.5	83.5	15.99	6.221	
4,700.0	4,700.0	4,697.0	4,697.0	8.2	8.2	-138.96	-75.1	-65.3	99.5	83.2	16.34	6.088	
4,800.0	4,800.0	4,797.0	4,797.0	8.3	8.3	-138.96	-75.1	-65.3	99.5	82.8	16.69	5.961	
4,900.0	4,900.0	4,897.0	4,897.0	8.5	8.5	-138.96	-75.1	-65.3	99.5	82.5	17.04	5.839	
5,000.0	5,000.0	4,997.0	4,997.0	8.7	8.7	-138.96	-75.1	-65.3	99.5	82.1	17.39	5.722	
5,100.0	5,100.0	5,097.0	5,097.0	8.9	8.9	-138.96	-75.1	-65.3	99.5	81.8	17.74	5.609	CC, ES

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-2211A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2211A	**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
5,122.8	5,122.8	5,119.8	5,119.8	8.9	8.9	-133.97	-75.1	-65.3	99.7	81.9	17.82	5.595	SF
5,200.0	5,199.9	5,196.9	5,196.9	9.0	9.0	-134.85	-75.1	-65.3	101.5	83.4	18.06	5.619	
5,300.0	5,297.8	5,284.5	5,284.4	9.2	9.2	-140.38	-77.7	-65.4	119.0	100.9	18.11	6.572	
5,400.0	5,390.1	5,350.0	5,349.0	9.5	9.3	-145.90	-88.3	-65.8	165.0	147.3	17.78	9.282	
5,500.0	5,473.4	5,400.0	5,397.1	9.8	9.4	-147.61	-101.9	-66.2	235.9	218.7	17.22	13.703	
5,600.0	5,544.7	5,428.4	5,423.7	10.4	9.5	-141.82	-111.6	-66.6	323.0	305.9	17.07	18.920	
5,700.0	5,601.3	5,450.0	5,443.7	11.1	9.5	-122.97	-119.9	-66.9	418.7	399.8	18.89	22.165	
5,800.0	5,641.2	5,450.0	5,443.7	12.1	9.5	-63.62	-119.9	-66.9	517.2	497.0	20.20	25.607	
5,900.0	5,662.9	5,433.4	5,428.4	13.3	9.5	-25.48	-113.4	-66.6	614.4	599.7	14.62	42.012	
6,000.0	5,666.9	5,419.1	5,415.1	14.6	9.5	-14.38	-108.2	-66.5	708.1	695.0	13.10	54.061	
6,100.0	5,666.9	5,400.0	5,397.1	16.0	9.4	-5.61	-101.9	-66.2	802.0	789.6	12.47	64.302	
6,200.0	5,666.9	5,400.0	5,397.1	17.4	9.4	-2.65	-101.9	-66.2	896.9	884.4	12.60	71.201	
6,300.0	5,666.9	5,382.8	5,380.7	18.9	9.4	-2.47	-96.7	-66.1	992.4	979.6	12.84	77.262	
6,400.0	5,666.9	5,373.6	5,371.9	20.4	9.4	-2.37	-94.1	-66.0	1,088.5	1,075.4	13.10	83.093	
6,500.0	5,666.9	5,350.0	5,349.0	22.0	9.3	-2.17	-88.3	-65.8	1,185.4	1,172.1	13.33	88.923	
6,600.0	5,666.9	5,350.0	5,349.0	23.6	9.3	-2.17	-88.3	-65.8	1,282.1	1,268.5	13.59	94.330	
6,700.0	5,666.9	5,350.0	5,349.0	25.2	9.3	-2.17	-88.3	-65.8	1,379.2	1,365.4	13.85	99.590	
6,800.0	5,666.9	5,350.0	5,349.0	26.8	9.3	-2.17	-88.3	-65.8	1,476.7	1,462.6	14.10	104.704	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2211A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2211A	**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	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	113.017	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-32.9	32.9	32.3	0.64	51.429	
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	24.608	
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	
600.0	600.0	600.2	600.2	1.0	1.0	-93.00	-1.7	-32.5	32.6	30.5	2.04	15.975	
700.0	700.0	700.2	700.1	1.2	1.2	-102.25	-6.8	-31.3	32.0	29.6	2.40	13.340	
711.6	711.6	711.8	711.6	1.2	1.2	-103.70	-7.6	-31.1	32.0	29.6	2.44	13.102	CC, ES
800.0	800.0	800.0	799.6	1.4	1.4	-114.58	-13.6	-29.6	32.6	29.8	2.77	11.775	
900.0	900.0	899.7	899.1	1.5	1.6	-125.97	-20.3	-28.0	34.6	31.5	3.14	11.032	
1,000.0	1,000.0	999.5	998.6	1.7	1.8	-135.79	-27.1	-26.3	37.8	34.3	3.50	10.800	SF
1,100.0	1,100.0	1,099.3	1,098.1	1.9	2.0	-143.88	-33.8	-24.7	41.9	38.1	3.86	10.868	
1,200.0	1,200.0	1,199.0	1,197.6	2.1	2.2	-150.42	-40.6	-23.0	46.7	42.5	4.21	11.097	
1,300.0	1,300.0	1,298.8	1,297.1	2.2	2.4	-155.69	-47.4	-21.4	52.0	47.5	4.56	11.407	
1,400.0	1,400.0	1,398.5	1,396.7	2.4	2.6	-159.95	-54.1	-19.8	57.7	52.8	4.91	11.749	
1,500.0	1,500.0	1,498.3	1,496.2	2.6	2.8	-163.44	-60.9	-18.1	63.6	58.4	5.26	12.098	
1,600.0	1,600.0	1,598.0	1,595.7	2.8	3.0	-166.33	-67.6	-16.5	69.7	64.1	5.61	12.439	
1,700.0	1,700.0	1,697.8	1,695.2	2.9	3.3	-168.75	-74.4	-14.8	76.0	70.1	5.95	12.766	
1,800.0	1,800.0	1,797.5	1,794.7	3.1	3.5	-170.79	-81.2	-13.2	82.4	76.1	6.30	13.076	
1,900.0	1,900.0	1,897.3	1,894.2	3.3	3.7	-172.54	-87.9	-11.5	88.9	82.2	6.65	13.367	
2,000.0	2,000.0	1,997.1	1,993.7	3.5	3.9	-174.05	-94.7	-9.9	95.4	88.4	7.00	13.638	
2,100.0	2,100.0	2,096.8	2,093.3	3.6	4.1	-175.37	-101.4	-8.2	102.0	94.7	7.34	13.892	
2,200.0	2,200.0	2,196.6	2,192.8	3.8	4.3	-176.53	-108.2	-6.6	108.6	101.0	7.69	14.129	
2,300.0	2,300.0	2,296.3	2,292.3	4.0	4.5	-177.55	-115.0	-4.9	115.3	107.3	8.04	14.351	
2,400.0	2,400.0	2,396.1	2,391.8	4.2	4.7	-178.46	-121.7	-3.3	122.0	113.7	8.38	14.557	
2,500.0	2,500.0	2,495.8	2,491.3	4.3	4.9	-179.28	-128.5	-1.6	128.8	120.1	8.73	14.750	
2,600.0	2,600.0	2,595.6	2,590.8	4.5	5.1	179.99	-135.2	0.0	135.6	126.5	9.08	14.931	
2,700.0	2,700.0	2,695.4	2,690.3	4.7	5.4	179.32	-142.0	1.7	142.3	132.9	9.43	15.100	
2,800.0	2,800.0	2,795.1	2,789.8	4.9	5.6	178.72	-148.8	3.3	149.2	139.4	9.77	15.260	
2,900.0	2,900.0	2,894.9	2,889.4	5.0	5.8	178.17	-155.5	5.0	156.0	145.9	10.12	15.409	
3,000.0	3,000.0	2,994.6	2,988.9	5.2	6.0	177.66	-162.3	6.6	162.8	152.3	10.47	15.550	
3,100.0	3,100.0	3,094.4	3,088.4	5.4	6.2	177.20	-169.1	8.3	169.7	158.8	10.82	15.682	
3,200.0	3,200.0	3,194.1	3,187.9	5.6	6.4	176.77	-175.8	9.9	176.5	165.3	11.17	15.808	
3,300.0	3,300.0	3,293.9	3,287.4	5.7	6.6	176.38	-182.6	11.6	183.4	171.9	11.51	15.926	
3,400.0	3,400.0	3,393.7	3,386.9	5.9	6.8	176.01	-189.3	13.2	190.2	178.4	11.86	16.038	
3,500.0	3,500.0	3,493.4	3,486.4	6.1	7.0	175.67	-196.1	14.9	197.1	184.9	12.21	16.144	
3,600.0	3,600.0	3,593.2	3,586.0	6.3	7.3	175.35	-202.9	16.5	204.0	191.5	12.56	16.245	
3,700.0	3,700.0	3,692.9	3,685.5	6.4	7.5	175.05	-209.6	18.2	210.9	198.0	12.91	16.341	
3,800.0	3,800.0	3,792.7	3,785.0	6.6	7.7	174.77	-216.4	19.8	217.8	204.5	13.25	16.432	
3,900.0	3,900.0	3,892.4	3,884.5	6.8	7.9	174.51	-223.1	21.5	224.7	211.1	13.60	16.519	
4,000.0	4,000.0	3,992.2	3,984.0	7.0	8.1	174.26	-229.9	23.1	231.6	217.7	13.95	16.601	
4,100.0	4,100.0	4,091.9	4,083.5	7.1	8.3	174.03	-236.7	24.7	238.5	224.2	14.30	16.680	
4,200.0	4,200.0	4,191.7	4,183.0	7.3	8.5	173.81	-243.4	26.4	245.4	230.8	14.65	16.756	
4,300.0	4,300.0	4,291.5	4,282.5	7.5	8.7	173.60	-250.2	28.0	252.4	237.4	15.00	16.828	
4,400.0	4,400.0	4,391.2	4,382.1	7.7	9.0	173.41	-256.9	29.7	259.3	243.9	15.34	16.897	
4,500.0	4,500.0	4,491.0	4,481.6	7.8	9.2	173.22	-263.7	31.3	266.2	250.5	15.69	16.963	
4,600.0	4,600.0	4,590.7	4,581.1	8.0	9.4	173.05	-270.5	33.0	273.1	257.1	16.04	17.026	
4,700.0	4,700.0	4,690.5	4,680.6	8.2	9.6	172.88	-277.2	34.6	280.1	263.7	16.39	17.087	
4,800.0	4,800.0	4,790.2	4,780.1	8.3	9.8	172.72	-284.0	36.3	287.0	270.2	16.74	17.146	
4,900.0	4,900.0	4,890.0	4,879.6	8.5	10.0	172.57	-290.7	37.9	293.9	276.8	17.09	17.202	
5,000.0	5,000.0	4,989.8	4,979.1	8.7	10.2	172.42	-297.5	39.6	300.9	283.4	17.43	17.256	

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-2211A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2211A	**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
5,100.0	5,100.0	5,089.5	5,078.7	8.9	10.4	172.28	-304.3	41.2	307.8	290.0	17.78	17.308	
5,200.0	5,199.9	5,189.0	5,177.9	9.0	10.6	177.24	-311.0	42.9	317.5	299.5	17.98	17.656	
5,300.0	5,297.8	5,250.0	5,238.4	9.2	10.8	177.03	-318.0	44.6	348.8	331.1	17.73	19.669	
5,400.0	5,390.1	5,300.0	5,287.2	9.5	11.0	176.59	-328.9	47.2	406.2	389.1	17.06	23.810	
5,500.0	5,473.4	5,330.8	5,316.5	9.8	11.2	175.72	-337.8	49.4	483.2	467.1	16.03	30.144	
5,600.0	5,544.7	5,350.0	5,334.6	10.4	11.3	173.69	-344.2	51.0	573.3	558.5	14.82	38.678	
5,700.0	5,601.3	5,350.0	5,334.6	11.1	11.3	162.93	-344.2	51.0	670.9	656.6	14.34	46.795	
5,800.0	5,641.2	5,350.0	5,334.6	12.1	11.3	15.56	-344.2	51.0	770.7	757.1	13.61	56.614	
5,900.0	5,662.9	5,350.0	5,334.6	13.3	11.3	5.08	-344.2	51.0	868.9	856.9	12.04	72.186	
6,000.0	5,666.9	5,350.0	5,334.6	14.6	11.3	6.32	-344.2	51.0	963.4	951.2	12.24	78.710	
6,100.0	5,666.9	5,350.0	5,334.6	16.0	11.3	14.61	-344.2	51.0	1,057.7	1,043.9	13.71	77.162	
6,200.0	5,666.9	5,323.5	5,309.7	17.4	11.1	16.05	-335.6	48.9	1,151.6	1,137.2	14.37	80.117	
6,300.0	5,666.9	5,300.0	5,287.2	18.9	11.0	14.91	-328.9	47.2	1,246.8	1,232.3	14.53	85.800	
6,400.0	5,666.9	5,300.0	5,287.2	20.4	11.0	14.91	-328.9	47.2	1,342.1	1,327.1	14.97	89.668	
6,500.0	5,666.9	5,300.0	5,287.2	22.0	11.0	14.91	-328.9	47.2	1,438.0	1,422.6	15.41	93.327	
6,600.0	5,666.9	5,300.0	5,287.2	23.6	11.0	14.91	-328.9	47.2	1,534.5	1,518.6	15.85	96.789	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2211A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2211A	**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	-180.00	-75.1	0.0	75.1				
100.0	100.0	97.0	97.0	0.1	0.1	-180.00	-75.1	0.0	75.1	74.8	0.29	261.410	
200.0	200.0	197.0	197.0	0.3	0.3	-180.00	-75.1	0.0	75.1	74.4	0.64	118.136	
300.0	300.0	297.0	297.0	0.5	0.5	-180.00	-75.1	0.0	75.1	74.1	0.98	76.245	
400.0	400.0	397.0	397.0	0.7	0.7	-180.00	-75.1	0.0	75.1	73.7	1.33	56.286	
500.0	500.0	497.0	497.0	0.8	0.8	-180.00	-75.1	0.0	75.1	73.4	1.68	44.608	CC, ES
600.0	600.0	594.7	594.7	1.0	1.0	179.49	-76.5	0.7	76.5	74.5	2.03	37.724	
700.0	700.0	692.2	692.0	1.2	1.2	178.04	-80.9	2.8	81.1	78.7	2.38	34.132	
800.0	800.0	791.7	791.3	1.4	1.4	176.22	-87.1	5.8	87.5	84.8	2.73	32.087	
900.0	900.0	891.5	890.9	1.5	1.6	174.65	-93.4	8.8	94.0	90.9	3.08	30.532	
1,000.0	1,000.0	991.2	990.4	1.7	1.8	173.28	-99.7	11.8	100.6	97.2	3.43	29.316	
1,100.0	1,100.0	1,091.0	1,089.9	1.9	2.0	172.08	-106.0	14.7	107.2	103.4	3.78	28.342	
1,200.0	1,200.0	1,190.7	1,189.4	2.1	2.2	171.02	-112.3	17.7	113.9	109.8	4.13	27.547	
1,300.0	1,300.0	1,290.5	1,288.9	2.2	2.4	170.08	-118.5	20.7	120.6	116.1	4.49	26.885	
1,400.0	1,400.0	1,390.3	1,388.4	2.4	2.6	169.23	-124.8	23.7	127.3	122.5	4.84	26.327	
1,500.0	1,500.0	1,490.0	1,487.9	2.6	2.8	168.48	-131.1	26.7	134.1	128.9	5.19	25.851	
1,600.0	1,600.0	1,589.8	1,587.4	2.8	3.0	167.79	-137.4	29.7	140.9	135.3	5.54	25.440	
1,700.0	1,700.0	1,689.5	1,687.0	2.9	3.2	167.17	-143.7	32.7	147.7	141.8	5.89	25.082	
1,800.0	1,800.0	1,789.3	1,786.5	3.1	3.4	166.60	-149.9	35.7	154.5	148.3	6.24	24.767	
1,900.0	1,900.0	1,889.0	1,886.0	3.3	3.7	166.08	-156.2	38.7	161.3	154.7	6.59	24.488	
2,000.0	2,000.0	1,988.8	1,985.5	3.5	3.9	165.60	-162.5	41.7	168.2	161.2	6.94	24.240	
2,100.0	2,100.0	2,088.6	2,085.0	3.6	4.1	165.16	-168.8	44.7	175.0	167.7	7.29	24.017	
2,200.0	2,200.0	2,188.3	2,184.5	3.8	4.3	164.76	-175.1	47.7	181.9	174.2	7.64	23.816	
2,300.0	2,300.0	2,288.1	2,284.0	4.0	4.5	164.38	-181.3	50.7	188.7	180.8	7.99	23.634	
2,400.0	2,400.0	2,387.8	2,383.6	4.2	4.7	164.03	-187.6	53.7	195.6	187.3	8.34	23.469	
2,500.0	2,500.0	2,487.6	2,483.1	4.3	4.9	163.70	-193.9	56.7	202.5	193.8	8.68	23.317	
2,600.0	2,600.0	2,587.3	2,582.6	4.5	5.1	163.40	-200.2	59.7	209.4	200.4	9.03	23.179	
2,700.0	2,700.0	2,687.1	2,682.1	4.7	5.3	163.11	-206.5	62.7	216.3	206.9	9.38	23.051	
2,800.0	2,800.0	2,786.9	2,781.6	4.9	5.5	162.84	-212.7	65.7	223.2	213.4	9.73	22.933	
2,900.0	2,900.0	2,886.6	2,881.1	5.0	5.8	162.59	-219.0	68.7	230.1	220.0	10.08	22.824	
3,000.0	3,000.0	2,986.4	2,980.6	5.2	6.0	162.35	-225.3	71.7	237.0	226.6	10.43	22.722	
3,100.0	3,100.0	3,086.1	3,080.1	5.4	6.2	162.13	-231.6	74.7	243.9	233.1	10.78	22.628	
3,200.0	3,200.0	3,185.9	3,179.7	5.6	6.4	161.92	-237.9	77.7	250.8	239.7	11.13	22.540	
3,300.0	3,300.0	3,285.6	3,279.2	5.7	6.6	161.72	-244.1	80.7	257.7	246.3	11.48	22.457	
3,400.0	3,400.0	3,385.4	3,378.7	5.9	6.8	161.53	-250.4	83.6	264.7	252.8	11.83	22.380	
3,500.0	3,500.0	3,485.1	3,478.2	6.1	7.0	161.35	-256.7	86.6	271.6	259.4	12.17	22.307	
3,600.0	3,600.0	3,584.9	3,577.7	6.3	7.2	161.18	-263.0	89.6	278.5	266.0	12.52	22.239	
3,700.0	3,700.0	3,684.7	3,677.2	6.4	7.5	161.02	-269.3	92.6	285.4	272.6	12.87	22.174	
3,800.0	3,800.0	3,784.4	3,776.7	6.6	7.7	160.86	-275.6	95.6	292.4	279.2	13.22	22.113	
3,900.0	3,900.0	3,884.2	3,876.3	6.8	7.9	160.71	-281.8	98.6	299.3	285.7	13.57	22.056	
4,000.0	4,000.0	3,983.9	3,975.8	7.0	8.1	160.57	-288.1	101.6	306.2	292.3	13.92	22.001	
4,100.0	4,100.0	4,083.7	4,075.3	7.1	8.3	160.44	-294.4	104.6	313.2	298.9	14.27	21.950	
4,200.0	4,200.0	4,183.4	4,174.8	7.3	8.5	160.31	-300.7	107.6	320.1	305.5	14.62	21.900	
4,300.0	4,300.0	4,283.2	4,274.3	7.5	8.7	160.18	-307.0	110.6	327.1	312.1	14.97	21.854	
4,400.0	4,400.0	4,383.0	4,373.8	7.7	8.9	160.06	-313.2	113.6	334.0	318.7	15.31	21.809	
4,500.0	4,500.0	4,482.7	4,473.3	7.8	9.1	159.95	-319.5	116.6	341.0	325.3	15.66	21.767	
4,600.0	4,600.0	4,582.5	4,572.8	8.0	9.4	159.84	-325.8	119.6	347.9	331.9	16.01	21.726	
4,700.0	4,700.0	4,682.2	4,672.4	8.2	9.6	159.74	-332.1	122.6	354.8	338.5	16.36	21.688	
4,800.0	4,800.0	4,782.0	4,771.9	8.3	9.8	159.64	-338.4	125.6	361.8	345.1	16.71	21.651	
4,900.0	4,900.0	4,881.7	4,871.4	8.5	10.0	159.54	-344.6	128.6	368.7	351.7	17.06	21.615	
5,000.0	5,000.0	4,981.5	4,970.9	8.7	10.2	159.45	-350.9	131.6	375.7	358.3	17.41	21.581	
5,100.0	5,100.0	5,081.2	5,070.4	8.9	10.4	159.36	-357.2	134.6	382.6	364.9	17.76	21.549	SF

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-2211A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2211A	**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

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	5,199.9	5,180.7	5,169.6	9.0	10.6	164.29	-363.5	137.6	392.3	374.3	17.97	21.832	
5,300.0	5,297.8	5,277.1	5,265.7	9.2	10.8	164.16	-369.5	140.5	418.1	400.3	17.81	23.472	
5,400.0	5,390.1	5,326.0	5,314.3	9.5	11.0	163.17	-374.4	142.8	465.2	448.0	17.22	27.011	
5,500.0	5,473.4	5,362.8	5,350.5	9.8	11.1	160.79	-380.8	145.8	533.7	517.3	16.41	32.523	
5,600.0	5,544.7	5,400.0	5,386.4	10.4	11.3	156.09	-389.6	150.0	618.0	602.2	15.79	39.143	
5,700.0	5,601.3	5,400.0	5,386.4	11.1	11.3	140.61	-389.6	150.0	711.3	694.2	17.17	41.430	
5,800.0	5,641.2	5,400.0	5,386.4	12.1	11.3	88.21	-389.6	150.0	809.6	786.4	23.18	34.921	
5,900.0	5,662.9	5,400.0	5,386.4	13.3	11.3	34.67	-389.6	150.0	908.1	890.9	17.14	52.980	
6,000.0	5,666.9	5,400.0	5,386.4	14.6	11.3	25.51	-389.6	150.0	1,004.0	988.5	15.54	64.587	
6,100.0	5,666.9	5,400.0	5,386.4	16.0	11.3	33.67	-389.6	150.0	1,099.3	1,081.1	18.17	60.486	
6,200.0	5,666.9	5,379.4	5,366.6	17.4	11.2	34.13	-384.5	147.6	1,194.1	1,175.1	19.03	62.740	
6,300.0	5,666.9	5,372.5	5,359.9	18.9	11.2	33.44	-382.9	146.8	1,289.8	1,270.1	19.65	65.629	
6,400.0	5,666.9	5,350.0	5,338.0	20.4	11.1	31.35	-378.3	144.7	1,386.3	1,366.5	19.79	70.065	
6,500.0	5,666.9	5,350.0	5,338.0	22.0	11.1	31.35	-378.3	144.7	1,482.7	1,462.1	20.60	71.970	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2211A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27J-2211A	**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 @ 4783.5ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Razor #27J-2211A
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.07°