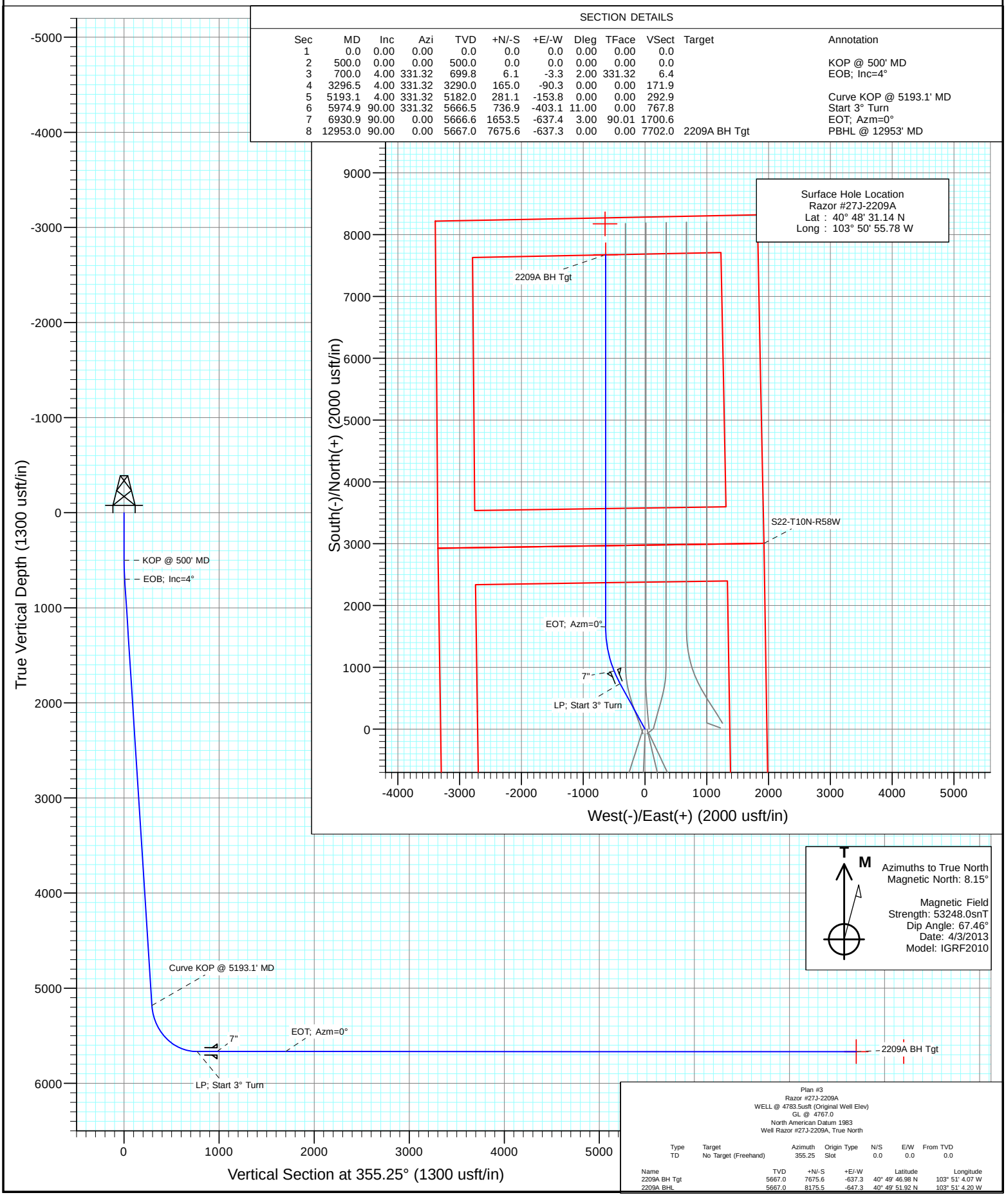
WHITING PETROLEUM CORPORATION

Project: Weld County, CO
Site: S27-T10N-R58W
Well: Razor #27J-2209A
Wellbore: HZ
Design: Plan #3

CATHEDRAL

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		
2	500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.0		KOP @ 500' MD
3	700.0	4.00	331.32	699.8	6.1	-3.3	2.00	331.32	6.4		EOB; Inc=4°
4	3296.5	4.00	331.32	3290.0	165.0	-90.3	0.00	0.00	171.9		
5	5193.1	4.00	331.32	5182.0	281.1	-153.8	0.00	0.00	292.9		Curve KOP @ 5193.1' MD
6	5974.9	90.00	331.32	5666.5	736.9	-403.1	11.00	0.00	767.8		Start 3° Turn
7	6930.9	90.00	0.00	5666.6	1653.5	-637.4	3.00	90.01	1700.6		EOT; Azm=0°
8	12953.0	90.00	0.00	5667.0	7675.6	-637.3	0.00	0.00	7702.0	2209A BH Tgt	PBHL @ 12953' MD



Plan #3
Razor #27J-2209A
WELL @ 4783.5usft (Original Well Elev)
GL @ 4767.0
North American Datum 1983
Well Razor #27J-2209A, True North

Type	Target	Azimuth	Origin Type	N/S	E/W	From TVD
TD	No Target (Freehand)	355.25	Slot	0.0	0.0	0.0

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
2209A BH Tgt	5667.0	7675.6	-637.3	40° 49' 46.98 N	103° 51' 4.07 W
2209A BHL	5667.0	8175.5	-647.3	40° 49' 51.92 N	103° 51' 4.20 W

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #27J-2209A
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-2209A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #3		

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° 48' 30.94 N
From:	Lat/Long	**Easting:**	3,455,684.98 usft	**Longitude:**	103° 51' 13.80 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	1.06 °

Well Razor #27J-2209A

Well Position	**+N/-S**	0.0 usft	**Northing:**	1,541,693.78 usft	**Latitude:**	40° 48' 31.14 N
	+E/-W	0.0 usft	**Easting:**	3,457,069.90 usft	**Longitude:**	103° 50' 55.78 W
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 #3

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	355.25

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	
500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.00	0.00	
700.0	4.00	331.32	699.8	6.1	-3.3	2.00	2.00	0.00	331.32	
3,296.5	4.00	331.32	3,290.0	165.0	-90.3	0.00	0.00	0.00	0.00	
5,193.1	4.00	331.32	5,182.0	281.1	-153.8	0.00	0.00	0.00	0.00	
5,974.9	90.00	331.32	5,666.5	736.9	-403.1	11.00	11.00	0.00	0.00	
6,930.9	90.00	0.00	5,666.6	1,653.5	-637.4	3.00	0.00	3.00	90.01	
12,953.0	90.00	0.00	5,667.0	7,675.6	-637.3	0.00	0.00	0.00	0.00	2209A BH Tgt

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #27J-2209A
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-2209A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #3		

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	KOP @ 500' MD
600.0	2.00	331.32	600.0	1.5	-0.8	1.6	2.00	2.00	
700.0	4.00	331.32	699.8	6.1	-3.3	6.4	2.00	2.00	EOB; Inc=4°
800.0	4.00	331.32	799.6	12.2	-6.7	12.8	0.00	0.00	
900.0	4.00	331.32	899.4	18.4	-10.0	19.1	0.00	0.00	
1,000.0	4.00	331.32	999.1	24.5	-13.4	25.5	0.00	0.00	
1,100.0	4.00	331.32	1,098.9	30.6	-16.7	31.9	0.00	0.00	
1,200.0	4.00	331.32	1,198.6	36.7	-20.1	38.3	0.00	0.00	
1,300.0	4.00	331.32	1,298.4	42.8	-23.4	44.6	0.00	0.00	
1,400.0	4.00	331.32	1,398.1	49.0	-26.8	51.0	0.00	0.00	
1,500.0	4.00	331.32	1,497.9	55.1	-30.1	57.4	0.00	0.00	
1,600.0	4.00	331.32	1,597.6	61.2	-33.5	63.8	0.00	0.00	
1,700.0	4.00	331.32	1,697.4	67.3	-36.8	70.1	0.00	0.00	
1,800.0	4.00	331.32	1,797.2	73.4	-40.2	76.5	0.00	0.00	
1,900.0	4.00	331.32	1,896.9	79.6	-43.5	82.9	0.00	0.00	
2,000.0	4.00	331.32	1,996.7	85.7	-46.9	89.3	0.00	0.00	
2,100.0	4.00	331.32	2,096.4	91.8	-50.2	95.6	0.00	0.00	
2,200.0	4.00	331.32	2,196.2	97.9	-53.6	102.0	0.00	0.00	
2,300.0	4.00	331.32	2,295.9	104.0	-56.9	108.4	0.00	0.00	
2,400.0	4.00	331.32	2,395.7	110.2	-60.3	114.8	0.00	0.00	
2,500.0	4.00	331.32	2,495.5	116.3	-63.6	121.1	0.00	0.00	
2,600.0	4.00	331.32	2,595.2	122.4	-67.0	127.5	0.00	0.00	
2,700.0	4.00	331.32	2,695.0	128.5	-70.3	133.9	0.00	0.00	
2,800.0	4.00	331.32	2,794.7	134.6	-73.7	140.3	0.00	0.00	
2,900.0	4.00	331.32	2,894.5	140.8	-77.0	146.6	0.00	0.00	
3,000.0	4.00	331.32	2,994.2	146.9	-80.3	153.0	0.00	0.00	
3,100.0	4.00	331.32	3,094.0	153.0	-83.7	159.4	0.00	0.00	
3,200.0	4.00	331.32	3,193.7	159.1	-87.0	165.8	0.00	0.00	
3,296.5	4.00	331.32	3,290.0	165.0	-90.3	171.9	0.00	0.00	
3,300.0	4.00	331.32	3,293.5	165.2	-90.4	172.2	0.00	0.00	
3,400.0	4.00	331.32	3,393.3	171.4	-93.7	178.5	0.00	0.00	
3,500.0	4.00	331.32	3,493.0	177.5	-97.1	184.9	0.00	0.00	
3,600.0	4.00	331.32	3,592.8	183.6	-100.4	191.3	0.00	0.00	
3,700.0	4.00	331.32	3,692.5	189.7	-103.8	197.7	0.00	0.00	
3,800.0	4.00	331.32	3,792.3	195.8	-107.1	204.0	0.00	0.00	
3,900.0	4.00	331.32	3,892.0	202.0	-110.5	210.4	0.00	0.00	
4,000.0	4.00	331.32	3,991.8	208.1	-113.8	216.8	0.00	0.00	
4,100.0	4.00	331.32	4,091.6	214.2	-117.2	223.2	0.00	0.00	
4,200.0	4.00	331.32	4,191.3	220.3	-120.5	229.5	0.00	0.00	
4,300.0	4.00	331.32	4,291.1	226.4	-123.9	235.9	0.00	0.00	
4,400.0	4.00	331.32	4,390.8	232.6	-127.2	242.3	0.00	0.00	
4,500.0	4.00	331.32	4,490.6	238.7	-130.6	248.7	0.00	0.00	
4,600.0	4.00	331.32	4,590.3	244.8	-133.9	255.0	0.00	0.00	
4,700.0	4.00	331.32	4,690.1	250.9	-137.3	261.4	0.00	0.00	
4,800.0	4.00	331.32	4,789.9	257.0	-140.6	267.8	0.00	0.00	
4,900.0	4.00	331.32	4,889.6	263.2	-144.0	274.2	0.00	0.00	
5,000.0	4.00	331.32	4,989.4	269.3	-147.3	280.5	0.00	0.00	

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Site:	S27-T10N-R58W	**North Reference:**	True
Well:	Razor #27J-2209A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #3		

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
5,100.0	4.00	331.32	5,089.1	275.4	-150.6	286.9	0.00	0.00	
5,193.1	4.00	331.32	5,182.0	281.1	-153.8	292.9	0.00	0.00	Curve KOP @ 5193.1' MD
5,200.0	4.76	331.32	5,188.9	281.6	-154.0	293.3	10.99	10.99	
5,300.0	15.76	331.32	5,287.1	297.2	-162.6	309.6	11.00	11.00	
5,400.0	26.76	331.32	5,380.2	328.9	-179.9	342.7	11.00	11.00	
5,500.0	37.76	331.32	5,464.6	375.7	-205.5	391.4	11.00	11.00	
5,600.0	48.76	331.32	5,537.3	435.7	-238.3	453.9	11.00	11.00	
5,700.0	59.76	331.32	5,595.6	506.8	-277.2	528.0	11.00	11.00	
5,800.0	70.76	331.32	5,637.4	586.4	-320.8	610.9	11.00	11.00	
5,900.0	81.76	331.32	5,661.1	671.4	-367.3	699.5	11.00	11.00	
5,974.9	90.00	331.32	5,666.5	736.9	-403.1	767.8	11.00	11.00	Start 3° Turn
6,000.0	90.00	332.07	5,666.5	759.0	-415.0	790.8	3.00	0.01	
6,100.0	90.00	335.07	5,666.5	848.6	-459.5	883.7	3.00	0.00	
6,200.0	90.00	338.07	5,666.5	940.3	-499.3	978.4	3.00	0.00	7"
6,300.0	90.00	341.07	5,666.5	1,034.0	-534.2	1,074.7	3.00	0.00	
6,400.0	90.00	344.07	5,666.5	1,129.4	-564.1	1,172.2	3.00	0.00	
6,500.0	90.00	347.07	5,666.5	1,226.3	-589.0	1,270.8	3.00	0.00	
6,600.0	90.00	350.07	5,666.5	1,324.3	-608.8	1,370.1	3.00	0.00	
6,700.0	90.00	353.07	5,666.5	1,423.2	-623.5	1,469.9	3.00	0.00	
6,800.0	90.00	356.07	5,666.6	1,522.7	-633.0	1,569.9	3.00	0.00	
6,900.0	90.00	359.07	5,666.6	1,622.6	-637.2	1,669.8	3.00	0.00	
6,930.9	90.00	360.00	5,666.6	1,653.5	-637.4	1,700.6	3.00	0.00	EOT; Azm=0°
7,000.0	90.00	0.00	5,666.6	1,722.6	-637.4	1,769.4	0.00	0.00	
7,100.0	90.00	0.00	5,666.6	1,822.6	-637.4	1,869.1	0.00	0.00	
7,200.0	90.00	0.00	5,666.6	1,922.6	-637.4	1,968.8	0.00	0.00	
7,300.0	90.00	0.00	5,666.6	2,022.6	-637.4	2,068.4	0.00	0.00	
7,400.0	90.00	0.00	5,666.6	2,122.6	-637.4	2,168.1	0.00	0.00	
7,500.0	90.00	0.00	5,666.6	2,222.6	-637.4	2,267.7	0.00	0.00	
7,600.0	90.00	0.00	5,666.6	2,322.6	-637.4	2,367.4	0.00	0.00	
7,700.0	90.00	0.00	5,666.6	2,422.6	-637.4	2,467.0	0.00	0.00	
7,800.0	90.00	0.00	5,666.6	2,522.6	-637.4	2,566.7	0.00	0.00	
7,900.0	90.00	0.00	5,666.6	2,622.6	-637.4	2,666.4	0.00	0.00	
8,000.0	90.00	0.00	5,666.6	2,722.6	-637.4	2,766.0	0.00	0.00	
8,100.0	90.00	0.00	5,666.6	2,822.6	-637.4	2,865.7	0.00	0.00	
8,200.0	90.00	0.00	5,666.7	2,922.6	-637.4	2,965.3	0.00	0.00	
8,300.0	90.00	0.00	5,666.7	3,022.6	-637.4	3,065.0	0.00	0.00	
8,400.0	90.00	0.00	5,666.7	3,122.6	-637.4	3,164.6	0.00	0.00	
8,500.0	90.00	0.00	5,666.7	3,222.6	-637.4	3,264.3	0.00	0.00	
8,600.0	90.00	0.00	5,666.7	3,322.6	-637.4	3,364.0	0.00	0.00	
8,700.0	90.00	0.00	5,666.7	3,422.6	-637.4	3,463.6	0.00	0.00	
8,800.0	90.00	0.00	5,666.7	3,522.6	-637.4	3,563.3	0.00	0.00	
8,900.0	90.00	0.00	5,666.7	3,622.6	-637.4	3,662.9	0.00	0.00	
9,000.0	90.00	0.00	5,666.7	3,722.6	-637.4	3,762.6	0.00	0.00	
9,100.0	90.00	0.00	5,666.7	3,822.6	-637.4	3,862.2	0.00	0.00	
9,200.0	90.00	0.00	5,666.7	3,922.6	-637.4	3,961.9	0.00	0.00	
9,300.0	90.00	0.00	5,666.7	4,022.6	-637.4	4,061.6	0.00	0.00	
9,400.0	90.00	0.00	5,666.7	4,122.6	-637.4	4,161.2	0.00	0.00	
9,500.0	90.00	0.00	5,666.7	4,222.6	-637.4	4,260.9	0.00	0.00	
9,600.0	90.00	0.00	5,666.8	4,322.6	-637.4	4,360.5	0.00	0.00	
9,700.0	90.00	0.00	5,666.8	4,422.6	-637.4	4,460.2	0.00	0.00	
9,800.0	90.00	0.00	5,666.8	4,522.6	-637.4	4,559.8	0.00	0.00	
9,900.0	90.00	0.00	5,666.8	4,622.6	-637.4	4,659.5	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-2209A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #3		

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
10,000.0	90.00	0.00	5,666.8	4,722.6	-637.4	4,759.2	0.00	0.00	
10,100.0	90.00	0.00	5,666.8	4,822.6	-637.4	4,858.8	0.00	0.00	
10,200.0	90.00	0.00	5,666.8	4,922.6	-637.4	4,958.5	0.00	0.00	
10,300.0	90.00	0.00	5,666.8	5,022.6	-637.4	5,058.1	0.00	0.00	
10,400.0	90.00	0.00	5,666.8	5,122.6	-637.4	5,157.8	0.00	0.00	
10,500.0	90.00	0.00	5,666.8	5,222.6	-637.4	5,257.4	0.00	0.00	
10,600.0	90.00	0.00	5,666.8	5,322.6	-637.4	5,357.1	0.00	0.00	
10,700.0	90.00	0.00	5,666.8	5,422.6	-637.4	5,456.8	0.00	0.00	
10,800.0	90.00	0.00	5,666.8	5,522.6	-637.4	5,556.4	0.00	0.00	
10,900.0	90.00	0.00	5,666.8	5,622.6	-637.4	5,656.1	0.00	0.00	
11,000.0	90.00	0.00	5,666.8	5,722.6	-637.4	5,755.7	0.00	0.00	
11,100.0	90.00	0.00	5,666.9	5,822.6	-637.4	5,855.4	0.00	0.00	
11,200.0	90.00	0.00	5,666.9	5,922.6	-637.4	5,955.0	0.00	0.00	
11,300.0	90.00	0.00	5,666.9	6,022.6	-637.4	6,054.7	0.00	0.00	
11,400.0	90.00	0.00	5,666.9	6,122.6	-637.4	6,154.4	0.00	0.00	
11,500.0	90.00	0.00	5,666.9	6,222.6	-637.4	6,254.0	0.00	0.00	
11,600.0	90.00	0.00	5,666.9	6,322.6	-637.4	6,353.7	0.00	0.00	
11,700.0	90.00	0.00	5,666.9	6,422.6	-637.4	6,453.3	0.00	0.00	
11,800.0	90.00	0.00	5,666.9	6,522.6	-637.4	6,553.0	0.00	0.00	
11,900.0	90.00	0.00	5,666.9	6,622.6	-637.4	6,652.6	0.00	0.00	
12,000.0	90.00	0.00	5,666.9	6,722.6	-637.4	6,752.3	0.00	0.00	
12,100.0	90.00	0.00	5,666.9	6,822.6	-637.4	6,851.9	0.00	0.00	
12,200.0	90.00	0.00	5,666.9	6,922.6	-637.4	6,951.6	0.00	0.00	
12,300.0	90.00	0.00	5,666.9	7,022.6	-637.4	7,051.3	0.00	0.00	
12,400.0	90.00	0.00	5,666.9	7,122.6	-637.4	7,150.9	0.00	0.00	
12,500.0	90.00	0.00	5,667.0	7,222.6	-637.4	7,250.6	0.00	0.00	
12,600.0	90.00	0.00	5,667.0	7,322.6	-637.3	7,350.2	0.00	0.00	
12,700.0	90.00	0.00	5,667.0	7,422.6	-637.3	7,449.9	0.00	0.00	
12,800.0	90.00	0.00	5,667.0	7,522.6	-637.3	7,549.5	0.00	0.00	
12,900.0	90.00	0.00	5,667.0	7,622.6	-637.3	7,649.2	0.00	0.00	
12,953.0	90.00	0.00	5,667.0	7,675.6	-637.3	7,702.0	0.00	0.00	PBHL @ 12953' 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
2209A BH Tgt - plan hits target center - Point	0.00	1.07	5,667.0	7,675.6	-637.3	1,549,356.16	3,456,289.76	40° 49' 46.98 N	103° 51' 4.07 W
2209A BHL - plan misses target center by 500.0usft at 12953.0usft MD (5667.0 TVD, 7675.6 N, -637.3 E) - Point	0.00	1.07	5,667.0	8,175.5	-647.3	1,549,855.77	3,456,270.50	40° 49' 51.92 N	103° 51' 4.20 W

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
6,200.0	5,666.5	7"	0	0

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #27J-2209A
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-2209A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #3		

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
500.0	500.0	0.0	0.0	KOP @ 500' MD
700.0	699.8	6.1	-3.3	EOB; Inc=4°
5,193.1	5,182.0	281.1	-153.8	Curve KOP @ 5193.1' MD
5,974.9	5,666.5	736.9	-403.1	Start 3° Turn
6,930.9	5,666.6	1,653.5	-637.4	EOT; Azm=0°
12,953.0	5,667.0	7,675.6	-637.3	PBHL @ 12953' MD

WHITING PETROLEUM CORPORATION

Whiting Petroleum Corporation

Weld County, CO
S27-T10N-R58W
Razor #27J-2209A
HZ
Plan #3

Anticollision Report

08 July, 2013

CATHEDRAL

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2209A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27J-2209A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Reference Plan #3

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

Survey Tool Program **Date** 7/8/2013

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	12,952.8	Plan #3 (HZ)	ISCWSA MWD	MWD - ISCWSA

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
S27-T10N-R58W						
Razor #27I-2213A - HZ - Plan #2						Out of range
Razor #27I-2214B - HZ - Plan #3						Out of range
Razor #27J-2210B - HZ - Plan #2	500.0	497.0	81.6	79.7	41.247	CC
Razor #27J-2210B - HZ - Plan #2	12,953.0	13,322.3	332.1	47.0	1.165	Level 2, ES, SF
Razor #27J-2211A - HZ - Plan #2	500.0	500.0	66.2	64.2	33.318	CC, ES
Razor #27J-2211A - HZ - Plan #2	5,750.0	6,011.5	319.1	287.3	10.049	SF
Razor #27J-2212B - HZ - Plan #2	500.0	497.0	82.1	80.1	41.470	CC, ES
Razor #27J-2212B - HZ - Plan #2	5,193.1	5,183.5	398.2	374.9	17.079	SF
Razor #27J-3409A - Hz - Plan #3	597.9	597.4	32.0	29.6	13.338	CC
Razor #27J-3409A - Hz - Plan #3	600.0	599.6	32.0	29.6	13.288	ES
Razor #27J-3409A - Hz - Plan #3	700.0	698.5	33.4	30.6	11.855	SF
Razor #27J-3410B - HZ - Plan #3	500.0	497.0	75.1	73.1	37.924	CC, ES
Razor #27J-3410B - HZ - Plan #3	5,193.1	5,179.0	388.2	365.0	16.698	SF
Razor #27J-3411A - HZ - Plan #3	466.7	466.7	33.2	31.4	18.094	CC
Razor #27J-3411A - HZ - Plan #3	500.0	500.0	33.2	31.2	16.729	ES
Razor #27J-3411A - HZ - Plan #3	700.0	698.5	40.3	37.5	14.272	SF
Razor #27J-3412B - HZ - Plan #3	500.0	497.0	100.0	98.1	50.554	CC, ES
Razor #27J-3412B - HZ - Plan #3	3,400.0	3,363.1	486.7	471.8	32.683	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2209A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27J-2209A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27J-2210B - HZ - Plan #2

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-156.83	-75.0	-32.1	81.7				
100.0	100.0	97.0	97.0	0.1	0.1	-156.83	-75.0	-32.1	81.6	81.4	0.18	441.574	
200.0	200.0	197.0	197.0	0.3	0.3	-156.83	-75.0	-32.1	81.6	81.0	0.63	129.477	
300.0	300.0	297.0	297.0	0.5	0.5	-156.83	-75.0	-32.1	81.6	80.6	1.08	75.585	
400.0	400.0	397.0	397.0	0.8	0.8	-156.83	-75.0	-32.1	81.6	80.1	1.53	53.370	
500.0	500.0	497.0	497.0	1.0	1.0	-156.83	-75.0	-32.1	81.6	79.7	1.98	41.247 CC	
600.0	600.0	597.0	597.0	1.2	1.2	-129.09	-75.0	-32.1	82.7	80.3	2.43	34.064	
700.0	699.8	696.8	696.8	1.4	1.4	-131.74	-75.0	-32.1	86.1	83.2	2.88	29.895	
800.0	799.6	796.6	796.6	1.7	1.7	-135.02	-75.0	-32.1	90.9	87.6	3.34	27.255	
900.0	899.4	896.4	896.4	1.9	1.9	-137.96	-75.0	-32.1	96.0	92.2	3.79	25.308	
1,000.0	999.1	996.1	996.1	2.2	2.1	-140.60	-75.0	-32.1	101.3	97.0	4.25	23.827	
1,100.0	1,098.9	1,095.9	1,095.9	2.4	2.3	-142.97	-75.0	-32.1	106.8	102.1	4.71	22.676	
1,200.0	1,198.6	1,195.6	1,195.6	2.7	2.6	-145.11	-75.0	-32.1	112.4	107.3	5.17	21.762	
1,300.0	1,298.4	1,295.4	1,295.4	2.9	2.8	-147.05	-75.0	-32.1	118.2	112.6	5.62	21.023	
1,400.0	1,398.1	1,395.1	1,395.1	3.2	3.0	-148.80	-75.0	-32.1	124.1	118.0	6.08	20.418	
1,500.0	1,497.9	1,494.9	1,494.9	3.4	3.2	-150.39	-75.0	-32.1	130.1	123.6	6.54	19.914	
1,600.0	1,597.6	1,594.6	1,594.6	3.7	3.5	-151.84	-75.0	-32.1	136.3	129.3	6.99	19.491	
1,700.0	1,697.4	1,694.4	1,694.4	3.9	3.7	-153.16	-75.0	-32.1	142.4	135.0	7.45	19.131	
1,800.0	1,797.2	1,794.2	1,794.2	4.2	3.9	-154.37	-75.0	-32.1	148.7	140.8	7.90	18.822	
1,900.0	1,896.9	1,893.9	1,893.9	4.4	4.1	-155.49	-75.0	-32.1	155.0	146.7	8.36	18.554	
2,000.0	1,996.7	1,993.7	1,993.7	4.7	4.4	-156.51	-75.0	-32.1	161.4	152.6	8.81	18.321	
2,100.0	2,096.4	2,093.4	2,093.4	4.9	4.6	-157.46	-75.0	-32.1	167.8	158.6	9.26	18.116	
2,200.0	2,196.2	2,193.2	2,193.2	5.2	4.8	-158.34	-75.0	-32.1	174.3	164.6	9.72	17.935	
2,300.0	2,295.9	2,292.9	2,292.9	5.5	5.0	-159.16	-75.0	-32.1	180.8	170.6	10.17	17.775	
2,400.0	2,395.7	2,392.7	2,392.7	5.7	5.2	-159.92	-75.0	-32.1	187.3	176.7	10.63	17.631	
2,500.0	2,495.5	2,492.5	2,492.5	6.0	5.5	-160.62	-75.0	-32.1	193.9	182.8	11.08	17.502	
2,600.0	2,595.2	2,592.2	2,592.2	6.2	5.7	-161.29	-75.0	-32.1	200.5	189.0	11.53	17.386	
2,700.0	2,695.0	2,692.0	2,692.0	6.5	5.9	-161.90	-75.0	-32.1	207.1	195.1	11.99	17.280	
2,800.0	2,794.7	2,791.7	2,791.7	6.7	6.1	-162.49	-75.0	-32.1	213.8	201.3	12.44	17.184	
2,900.0	2,894.5	2,891.5	2,891.5	7.0	6.4	-163.03	-75.0	-32.1	220.4	207.5	12.89	17.097	
3,000.0	2,994.2	2,991.2	2,991.2	7.2	6.6	-163.54	-75.0	-32.1	227.1	213.8	13.35	17.017	
3,100.0	3,094.0	3,091.0	3,091.0	7.5	6.8	-164.03	-75.0	-32.1	233.8	220.0	13.80	16.943	
3,200.0	3,193.7	3,190.7	3,190.7	7.8	7.0	-164.49	-75.0	-32.1	240.5	226.3	14.25	16.876	
3,296.5	3,290.0	3,287.0	3,287.0	8.0	7.3	-164.90	-75.0	-32.1	247.0	232.3	14.69	16.815	
3,300.0	3,293.5	3,290.5	3,290.5	8.0	7.3	-164.92	-75.0	-32.1	247.3	232.5	14.71	16.813	
3,400.0	3,393.3	3,390.3	3,390.3	8.3	7.5	-165.33	-75.0	-32.1	254.0	238.8	15.16	16.755	
3,500.0	3,493.0	3,490.0	3,490.0	8.5	7.7	-165.72	-75.0	-32.1	260.8	245.1	15.61	16.701	
3,600.0	3,592.8	3,589.8	3,589.8	8.8	7.9	-166.08	-75.0	-32.1	267.5	251.5	16.07	16.651	
3,700.0	3,692.5	3,689.5	3,689.5	9.0	8.2	-166.43	-75.0	-32.1	274.3	257.8	16.52	16.605	
3,800.0	3,792.3	3,789.3	3,789.3	9.3	8.4	-166.77	-75.0	-32.1	281.1	264.1	16.97	16.561	
3,900.0	3,892.0	3,889.0	3,889.0	9.6	8.6	-167.09	-75.0	-32.1	287.9	270.5	17.43	16.520	
4,000.0	3,991.8	3,988.8	3,988.8	9.8	8.8	-167.39	-75.0	-32.1	294.7	276.8	17.88	16.482	
4,100.0	4,091.6	4,088.6	4,088.6	10.1	9.1	-167.68	-75.0	-32.1	301.5	283.2	18.33	16.446	
4,200.0	4,191.3	4,188.3	4,188.3	10.3	9.3	-167.95	-75.0	-32.1	308.3	289.5	18.79	16.412	
4,300.0	4,291.1	4,288.1	4,288.1	10.6	9.5	-168.22	-75.0	-32.1	315.1	295.9	19.24	16.380	
4,400.0	4,390.8	4,387.8	4,387.8	10.8	9.7	-168.47	-75.0	-32.1	322.0	302.3	19.69	16.350	
4,500.0	4,490.6	4,487.6	4,487.6	11.1	10.0	-168.72	-75.0	-32.1	328.8	308.7	20.15	16.322	
4,600.0	4,590.3	4,587.3	4,587.3	11.4	10.2	-168.95	-75.0	-32.1	335.7	315.1	20.60	16.295	
4,700.0	4,690.1	4,687.1	4,687.1	11.6	10.4	-169.17	-75.0	-32.1	342.5	321.5	21.05	16.269	
4,800.0	4,789.9	4,786.9	4,786.9	11.9	10.6	-169.39	-75.0	-32.1	349.4	327.9	21.51	16.245	
4,900.0	4,889.6	4,886.6	4,886.6	12.1	10.9	-169.59	-75.0	-32.1	356.2	334.3	21.96	16.222	
5,000.0	4,989.4	4,986.4	4,986.4	12.4	11.1	-169.79	-75.0	-32.1	363.1	340.7	22.41	16.200	

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-2209A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27J-2209A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27J-2210B - HZ - Plan #2

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.0	5,089.1	5,086.1	5,086.1	12.6	11.3	-169.98	-75.0	-32.1	369.9	347.1	22.87	16.179	
5,193.1	5,182.0	5,179.0	5,179.0	12.9	11.5	-170.16	-75.0	-32.1	376.3	353.1	23.29	16.161	
5,200.0	5,188.9	5,185.9	5,185.9	12.9	11.5	-170.16	-75.0	-32.1	376.9	353.6	23.31	16.170	
5,250.0	5,238.4	5,246.4	5,246.4	13.1	11.7	-170.26	-74.8	-32.2	383.2	359.9	23.36	16.405	
5,300.0	5,287.1	5,436.9	5,431.6	13.3	12.1	-171.26	-37.4	-45.5	383.9	360.4	23.49	16.344	
5,350.0	5,334.5	5,614.0	5,580.5	13.5	12.6	-172.88	51.4	-77.1	371.6	348.2	23.37	15.897	
5,400.0	5,380.2	5,759.6	5,673.6	13.8	13.4	-175.10	156.3	-114.5	349.3	326.3	22.98	15.196	
5,450.0	5,423.7	5,873.8	5,723.0	14.1	14.4	-177.90	253.1	-149.0	320.5	298.1	22.34	14.343	
5,500.0	5,464.6	5,964.2	5,745.4	14.5	15.3	178.76	335.5	-178.3	287.9	266.3	21.53	13.371	
5,550.0	5,502.6	6,037.9	5,752.2	14.9	16.2	174.85	404.6	-202.9	253.3	232.5	20.73	12.215	
5,600.0	5,537.3	6,078.8	5,752.4	15.4	16.7	172.20	443.1	-216.4	219.3	199.5	19.79	11.080	
5,650.0	5,568.4	6,116.7	5,752.4	15.9	17.2	169.14	479.2	-228.2	189.4	170.4	18.97	9.985	
5,700.0	5,595.6	6,157.0	5,752.4	16.5	17.7	165.06	517.7	-240.0	164.4	145.8	18.61	8.832	
5,750.0	5,618.7	6,200.0	5,752.4	17.1	18.2	159.71	559.1	-251.6	145.1	125.9	19.18	7.566	
5,800.0	5,637.4	6,243.0	5,752.4	17.8	18.8	153.48	600.7	-262.4	132.4	111.5	20.90	6.335	
5,850.0	5,651.6	6,287.6	5,752.4	18.6	19.5	146.44	644.1	-272.5	126.8	103.1	23.78	5.334	
5,863.7	5,654.7	6,300.0	5,752.4	18.8	19.6	144.46	656.3	-275.1	126.6	101.9	24.64	5.137	
5,900.0	5,661.1	6,332.6	5,752.4	19.4	20.1	139.40	688.3	-281.7	128.4	101.1	27.26	4.711	
5,950.0	5,665.9	6,377.6	5,752.4	20.2	20.7	133.07	732.5	-289.9	136.3	105.6	30.69	4.440	
5,974.9	5,666.5	6,400.0	5,752.4	20.6	21.1	130.34	754.6	-293.5	142.2	109.9	32.26	4.408	
6,000.0	5,666.5	6,422.2	5,752.4	21.0	21.4	128.28	776.5	-296.9	148.8	115.1	33.70	4.416	
6,100.0	5,666.5	6,510.3	5,752.4	22.5	22.7	121.66	863.9	-307.8	176.5	137.7	38.84	4.545	
6,200.0	5,666.5	6,600.0	5,752.4	24.1	24.1	116.78	953.4	-314.7	205.2	162.0	43.30	4.740	
6,300.0	5,666.5	6,683.0	5,752.4	25.8	25.4	113.35	1,036.3	-317.4	234.3	187.2	47.11	4.973	
6,400.0	5,666.5	6,776.1	5,752.4	27.4	26.8	110.54	1,129.4	-317.5	262.1	211.3	50.83	5.157	
6,500.0	5,666.5	6,872.9	5,752.4	29.1	28.3	108.56	1,226.2	-317.5	285.7	231.4	54.30	5.262	
6,600.0	5,666.5	6,970.9	5,752.4	30.8	29.9	107.21	1,324.2	-317.5	304.6	247.0	57.56	5.292	
6,700.0	5,666.5	7,069.9	5,752.4	32.4	31.5	106.31	1,423.2	-317.5	318.7	258.0	60.65	5.254	
6,800.0	5,666.6	7,169.4	5,752.4	34.0	33.1	105.77	1,522.7	-317.5	327.7	264.2	63.56	5.157	
6,900.0	5,666.6	7,269.3	5,752.4	35.6	34.8	105.54	1,622.6	-317.5	331.8	265.6	66.27	5.007	
6,930.9	5,666.6	7,300.2	5,752.4	36.1	35.4	105.52	1,653.5	-317.5	332.1	265.0	67.07	4.951	
7,000.0	5,666.6	7,369.3	5,752.4	37.2	36.5	105.52	1,722.6	-317.5	332.1	262.7	69.36	4.788	
7,100.0	5,666.6	7,469.3	5,752.5	38.8	38.3	105.53	1,822.6	-317.5	332.1	259.4	72.69	4.568	
7,200.0	5,666.6	7,569.3	5,752.5	40.5	40.0	105.53	1,922.6	-317.5	332.1	256.0	76.07	4.366	
7,300.0	5,666.6	7,669.3	5,752.5	42.1	41.8	105.53	2,022.6	-317.5	332.1	252.6	79.47	4.179	
7,400.0	5,666.6	7,769.3	5,752.5	43.8	43.6	105.53	2,122.6	-317.5	332.1	249.2	82.90	4.006	
7,500.0	5,666.6	7,869.3	5,752.5	45.5	45.4	105.53	2,222.6	-317.5	332.1	245.7	86.35	3.846	
7,600.0	5,666.6	7,969.3	5,752.5	47.2	47.2	105.53	2,322.6	-317.5	332.1	242.2	89.83	3.697	
7,700.0	5,666.6	8,069.3	5,752.5	48.9	49.0	105.53	2,422.6	-317.5	332.1	238.7	93.32	3.558	
7,800.0	5,666.6	8,169.3	5,752.5	50.7	50.8	105.53	2,522.6	-317.5	332.1	235.2	96.83	3.429	
7,900.0	5,666.6	8,269.3	5,752.5	52.4	52.6	105.53	2,622.6	-317.5	332.1	231.7	100.36	3.309	
8,000.0	5,666.6	8,369.3	5,752.5	54.2	54.4	105.53	2,722.6	-317.5	332.1	228.2	103.90	3.196	
8,100.0	5,666.6	8,469.3	5,752.5	56.0	56.3	105.53	2,822.6	-317.5	332.1	224.6	107.45	3.090	
8,200.0	5,666.7	8,569.3	5,752.5	57.8	58.1	105.53	2,922.6	-317.5	332.1	221.0	111.02	2.991	
8,300.0	5,666.7	8,669.3	5,752.6	59.6	60.0	105.53	3,022.6	-317.5	332.1	217.5	114.59	2.898	
8,400.0	5,666.7	8,769.3	5,752.6	61.4	61.8	105.53	3,122.6	-317.5	332.1	213.9	118.17	2.810	
8,500.0	5,666.7	8,869.3	5,752.6	63.2	63.7	105.53	3,222.6	-317.5	332.1	210.3	121.76	2.727	
8,600.0	5,666.7	8,969.3	5,752.6	65.0	65.5	105.53	3,322.6	-317.5	332.1	206.7	125.36	2.649	
8,700.0	5,666.7	9,069.3	5,752.6	66.8	67.4	105.53	3,422.6	-317.5	332.1	203.1	128.97	2.575	
8,800.0	5,666.7	9,169.3	5,752.6	68.6	69.3	105.53	3,522.6	-317.5	332.1	199.5	132.58	2.505	
8,900.0	5,666.7	9,269.3	5,752.6	70.5	71.1	105.53	3,622.6	-317.5	332.1	195.9	136.20	2.438	
9,000.0	5,666.7	9,369.3	5,752.6	72.3	73.0	105.53	3,722.6	-317.5	332.1	192.2	139.82	2.375	

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-2209A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27J-2209A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27J-2210B - HZ - Plan #2

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
9,100.0	5,666.7	9,469.3	5,752.6	74.1	74.9	105.53	3,822.6	-317.5	332.1	188.6	143.45	2.315	
9,200.0	5,666.7	9,569.3	5,752.6	76.0	76.8	105.53	3,922.6	-317.5	332.1	185.0	147.08	2.258	
9,300.0	5,666.7	9,669.3	5,752.6	77.8	78.6	105.53	4,022.6	-317.5	332.1	181.3	150.72	2.203	
9,400.0	5,666.7	9,769.3	5,752.7	79.7	80.5	105.53	4,122.6	-317.5	332.1	177.7	154.36	2.151	
9,500.0	5,666.7	9,869.3	5,752.7	81.5	82.4	105.53	4,222.6	-317.5	332.1	174.1	158.01	2.102	
9,600.0	5,666.8	9,969.3	5,752.7	83.4	84.3	105.53	4,322.6	-317.5	332.1	170.4	161.66	2.054	
9,700.0	5,666.8	10,069.3	5,752.7	85.2	86.2	105.53	4,422.6	-317.5	332.1	166.8	165.31	2.009	
9,800.0	5,666.8	10,169.3	5,752.7	87.1	88.1	105.53	4,522.6	-317.5	332.1	163.1	168.96	1.965	
9,900.0	5,666.8	10,269.3	5,752.7	89.0	89.9	105.53	4,622.6	-317.5	332.1	159.4	172.62	1.924	
10,000.0	5,666.8	10,369.3	5,752.7	90.8	91.8	105.53	4,722.6	-317.5	332.1	155.8	176.28	1.884	
10,100.0	5,666.8	10,469.3	5,752.7	92.7	93.7	105.53	4,822.6	-317.5	332.1	152.1	179.95	1.845	
10,200.0	5,666.8	10,569.3	5,752.7	94.6	95.6	105.53	4,922.6	-317.5	332.1	148.5	183.61	1.809	
10,300.0	5,666.8	10,669.3	5,752.7	96.5	97.5	105.53	5,022.6	-317.5	332.1	144.8	187.28	1.773	
10,400.0	5,666.8	10,769.3	5,752.7	98.3	99.4	105.53	5,122.6	-317.5	332.1	141.1	190.95	1.739	
10,500.0	5,666.8	10,869.3	5,752.7	100.2	101.3	105.53	5,222.6	-317.5	332.1	137.4	194.62	1.706	
10,600.0	5,666.8	10,969.3	5,752.8	102.1	103.2	105.53	5,322.6	-317.5	332.1	133.8	198.29	1.675	
10,700.0	5,666.8	11,069.3	5,752.8	104.0	105.1	105.53	5,422.6	-317.5	332.1	130.1	201.97	1.644	
10,800.0	5,666.8	11,169.3	5,752.8	105.9	107.0	105.54	5,522.6	-317.4	332.1	126.4	205.65	1.615	
10,900.0	5,666.8	11,269.3	5,752.8	107.7	108.9	105.54	5,622.6	-317.4	332.1	122.7	209.32	1.586	
11,000.0	5,666.8	11,369.3	5,752.8	109.6	110.8	105.54	5,722.6	-317.4	332.1	119.1	213.00	1.559	
11,100.0	5,666.9	11,469.3	5,752.8	111.5	112.7	105.54	5,822.6	-317.4	332.1	115.4	216.69	1.532	
11,200.0	5,666.9	11,569.3	5,752.8	113.4	114.6	105.54	5,922.6	-317.4	332.1	111.7	220.37	1.507	
11,300.0	5,666.9	11,669.3	5,752.8	115.3	116.5	105.54	6,022.6	-317.4	332.1	108.0	224.05	1.482	Level 3
11,400.0	5,666.9	11,769.3	5,752.8	117.2	118.4	105.54	6,122.6	-317.4	332.1	104.3	227.74	1.458	Level 3
11,500.0	5,666.9	11,869.3	5,752.8	119.1	120.3	105.54	6,222.6	-317.4	332.1	100.6	231.42	1.435	Level 3
11,600.0	5,666.9	11,969.3	5,752.8	121.0	122.2	105.54	6,322.6	-317.4	332.1	96.9	235.11	1.412	Level 3
11,700.0	5,666.9	12,069.3	5,752.8	122.8	124.1	105.54	6,422.6	-317.4	332.1	93.3	238.80	1.391	Level 3
11,800.0	5,666.9	12,169.3	5,752.9	124.7	126.0	105.54	6,522.6	-317.4	332.1	89.6	242.49	1.369	Level 3
11,900.0	5,666.9	12,269.3	5,752.9	126.6	127.9	105.54	6,622.6	-317.4	332.1	85.9	246.18	1.349	Level 3
12,000.0	5,666.9	12,369.3	5,752.9	128.5	129.8	105.54	6,722.6	-317.4	332.1	82.2	249.87	1.329	Level 3
12,100.0	5,666.9	12,469.3	5,752.9	130.4	131.7	105.54	6,822.6	-317.4	332.1	78.5	253.56	1.310	Level 3
12,200.0	5,666.9	12,569.3	5,752.9	132.3	133.6	105.54	6,922.6	-317.4	332.1	74.8	257.26	1.291	Level 3
12,300.0	5,666.9	12,669.3	5,752.9	134.2	135.6	105.54	7,022.6	-317.4	332.1	71.1	260.95	1.272	Level 3
12,400.0	5,666.9	12,769.3	5,752.9	136.1	137.5	105.54	7,122.6	-317.4	332.1	67.4	264.65	1.255	Level 3
12,500.0	5,667.0	12,869.3	5,752.9	138.0	139.4	105.54	7,222.6	-317.4	332.1	63.7	268.34	1.237	Level 2
12,600.0	5,667.0	12,969.3	5,752.9	139.9	141.3	105.54	7,322.6	-317.4	332.1	60.0	272.04	1.221	Level 2
12,700.0	5,667.0	13,069.3	5,752.9	141.8	143.2	105.54	7,422.6	-317.4	332.1	56.3	275.73	1.204	Level 2
12,800.0	5,667.0	13,169.3	5,752.9	143.7	145.1	105.54	7,522.6	-317.4	332.1	52.6	279.43	1.188	Level 2
12,900.0	5,667.0	13,269.3	5,753.0	145.6	147.0	105.54	7,622.6	-317.4	332.1	48.9	283.13	1.173	Level 2
12,953.0	5,667.0	13,322.3	5,753.0	146.6	148.0	105.54	7,675.6	-317.4	332.1	47.0	285.09	1.165	Level 2, ES, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2209A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27J-2209A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27J-2211A - HZ - Plan #2

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	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	66.0	0.19	352.530	
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	66.2	66.2	65.5	0.64	103.832	
300.0	300.0	300.0	300.0	0.5	0.5	90.00	0.0	66.2	66.2	65.1	1.09	60.882	
400.0	400.0	400.0	400.0	0.8	0.8	90.00	0.0	66.2	66.2	64.6	1.54	43.067	
500.0	500.0	500.0	500.0	1.0	1.0	90.00	0.0	66.2	66.2	64.2	1.99	33.318	CC, ES
600.0	600.0	600.0	600.0	1.2	1.2	119.97	0.0	66.2	67.0	64.6	2.43	27.537	
700.0	699.8	699.8	699.8	1.4	1.4	123.65	0.0	66.2	69.8	66.9	2.88	24.206	
800.0	799.6	799.6	799.6	1.7	1.7	128.15	0.0	66.2	73.9	70.5	3.34	22.151	
900.0	899.4	899.4	899.4	1.9	1.9	132.15	0.0	66.2	78.4	74.6	3.79	20.681	
1,000.0	999.1	999.1	999.1	2.2	2.1	135.71	0.0	66.2	83.2	79.0	4.25	19.604	
1,100.0	1,098.9	1,098.9	1,098.9	2.4	2.3	138.87	0.0	66.2	88.4	83.7	4.70	18.796	
1,200.0	1,198.6	1,198.6	1,198.6	2.7	2.6	141.67	0.0	66.2	93.7	88.6	5.16	18.178	
1,300.0	1,298.4	1,298.4	1,298.4	2.9	2.8	144.17	0.0	66.2	99.3	93.7	5.61	17.698	
1,400.0	1,398.1	1,398.1	1,398.1	3.2	3.0	146.39	0.0	66.2	105.1	99.0	6.07	17.319	
1,500.0	1,497.9	1,497.9	1,497.9	3.4	3.2	148.39	0.0	66.2	110.9	104.4	6.52	17.015	
1,600.0	1,597.6	1,597.6	1,597.6	3.7	3.5	150.18	0.0	66.2	116.9	110.0	6.97	16.769	
1,700.0	1,697.4	1,697.4	1,697.4	3.9	3.7	151.79	0.0	66.2	123.0	115.6	7.43	16.568	
1,800.0	1,797.2	1,797.2	1,797.2	4.2	3.9	153.25	0.0	66.2	129.2	121.4	7.88	16.401	
1,900.0	1,896.9	1,896.9	1,896.9	4.4	4.1	154.58	0.0	66.2	135.5	127.2	8.33	16.262	
2,000.0	1,996.7	1,996.7	1,996.7	4.7	4.4	155.79	0.0	66.2	141.8	133.0	8.78	16.146	
2,100.0	2,096.4	2,096.4	2,096.4	4.9	4.6	156.89	0.0	66.2	148.2	139.0	9.24	16.046	
2,200.0	2,196.2	2,196.2	2,196.2	5.2	4.8	157.91	0.0	66.2	154.7	145.0	9.69	15.962	
2,300.0	2,295.9	2,295.9	2,295.9	5.5	5.0	158.84	0.0	66.2	161.2	151.0	10.14	15.889	
2,400.0	2,395.7	2,395.7	2,395.7	5.7	5.3	159.70	0.0	66.2	167.7	157.1	10.59	15.827	
2,500.0	2,495.5	2,495.5	2,495.5	6.0	5.5	160.50	0.0	66.2	174.2	163.2	11.05	15.772	
2,600.0	2,595.2	2,595.2	2,595.2	6.2	5.7	161.23	0.0	66.2	180.8	169.3	11.50	15.725	
2,700.0	2,695.0	2,695.0	2,695.0	6.5	5.9	161.92	0.0	66.2	187.5	175.5	11.95	15.683	
2,800.0	2,794.7	2,794.7	2,794.7	6.7	6.2	162.56	0.0	66.2	194.1	181.7	12.41	15.647	
2,900.0	2,894.5	2,894.5	2,894.5	7.0	6.4	163.16	0.0	66.2	200.8	187.9	12.86	15.615	
3,000.0	2,994.2	2,994.2	2,994.2	7.2	6.6	163.71	0.0	66.2	207.5	194.1	13.31	15.586	
3,100.0	3,094.0	3,094.0	3,094.0	7.5	6.8	164.24	0.0	66.2	214.2	200.4	13.76	15.561	
3,200.0	3,193.7	3,193.7	3,193.7	7.8	7.0	164.73	0.0	66.2	220.9	206.7	14.22	15.538	
3,296.5	3,290.0	3,290.0	3,290.0	8.0	7.3	165.18	0.0	66.2	227.4	212.7	14.65	15.519	
3,300.0	3,293.5	3,293.5	3,293.5	8.0	7.3	165.19	0.0	66.2	227.6	213.0	14.67	15.518	
3,400.0	3,393.3	3,393.3	3,393.3	8.3	7.5	165.63	0.0	66.2	234.4	219.3	15.12	15.500	
3,500.0	3,493.0	3,493.0	3,493.0	8.5	7.7	166.04	0.0	66.2	241.1	225.6	15.57	15.483	
3,600.0	3,592.8	3,592.8	3,592.8	8.8	7.9	166.43	0.0	66.2	247.9	231.9	16.03	15.469	
3,700.0	3,692.5	3,692.5	3,692.5	9.0	8.2	166.80	0.0	66.2	254.7	238.2	16.48	15.456	
3,800.0	3,792.3	3,792.3	3,792.3	9.3	8.4	167.14	0.0	66.2	261.5	244.6	16.93	15.444	
3,900.0	3,892.0	3,892.0	3,892.0	9.6	8.6	167.48	0.0	66.2	268.3	250.9	17.39	15.433	
4,000.0	3,991.8	3,991.8	3,991.8	9.8	8.8	167.79	0.0	66.2	275.1	257.3	17.84	15.423	
4,100.0	4,091.6	4,091.6	4,091.6	10.1	9.1	168.09	0.0	66.2	281.9	263.6	18.29	15.414	
4,200.0	4,191.3	4,191.3	4,191.3	10.3	9.3	168.38	0.0	66.2	288.8	270.0	18.74	15.406	
4,300.0	4,291.1	4,291.1	4,291.1	10.6	9.5	168.65	0.0	66.2	295.6	276.4	19.20	15.398	
4,400.0	4,390.8	4,390.8	4,390.8	10.8	9.7	168.91	0.0	66.2	302.4	282.8	19.65	15.392	
4,500.0	4,490.6	4,490.6	4,490.6	11.1	10.0	169.16	0.0	66.2	309.3	289.2	20.10	15.385	
4,600.0	4,590.3	4,590.3	4,590.3	11.4	10.2	169.39	0.0	66.2	316.2	295.6	20.56	15.380	
4,700.0	4,690.1	4,690.1	4,690.1	11.6	10.4	169.62	0.0	66.2	323.0	302.0	21.01	15.374	
4,800.0	4,789.9	4,789.9	4,789.9	11.9	10.6	169.84	0.0	66.2	329.9	308.4	21.46	15.370	
4,900.0	4,889.6	4,889.6	4,889.6	12.1	10.9	170.05	0.0	66.2	336.7	314.8	21.92	15.365	
5,000.0	4,989.4	4,989.4	4,989.4	12.4	11.1	170.25	0.0	66.2	343.6	321.2	22.37	15.361	

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-2209A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27J-2209A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27J-2211A - HZ - Plan #2

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.0	5,089.1	5,089.1	5,089.1	12.6	11.3	170.44	0.0	66.2	350.5	327.7	22.82	15.358	
5,193.1	5,182.0	5,230.0	5,229.6	12.9	11.6	170.11	6.7	65.6	354.5	331.1	23.35	15.179	
5,200.0	5,188.9	5,245.9	5,245.3	12.9	11.7	169.90	9.5	65.3	354.0	330.6	23.39	15.132	
5,250.0	5,238.4	5,357.6	5,351.8	13.1	11.9	167.40	42.2	62.4	348.0	324.4	23.57	14.764	
5,300.0	5,287.1	5,460.6	5,441.8	13.3	12.2	163.35	91.8	58.0	338.7	315.1	23.60	14.352	
5,350.0	5,334.5	5,553.0	5,512.8	13.5	12.5	158.16	150.5	52.7	327.5	303.9	23.58	13.887	
5,400.0	5,380.2	5,635.1	5,566.3	13.8	12.9	152.24	212.4	47.2	315.9	292.3	23.66	13.351	
5,450.0	5,423.7	5,707.9	5,605.1	14.1	13.4	145.95	273.7	41.7	305.5	281.5	23.97	12.742	
5,500.0	5,464.6	5,772.9	5,632.1	14.5	13.9	139.49	332.6	36.5	297.5	272.8	24.62	12.080	
5,550.0	5,502.6	5,831.6	5,650.1	14.9	14.4	133.01	388.2	31.5	292.9	267.3	25.64	11.426	
5,578.8	5,523.1	5,863.0	5,657.1	15.2	14.7	129.27	418.7	28.8	292.2	265.8	26.38	11.075	
5,600.0	5,537.3	5,885.2	5,660.9	15.4	15.0	126.54	440.4	26.9	292.6	265.6	26.99	10.841	
5,650.0	5,568.4	5,934.6	5,666.0	15.9	15.5	120.11	489.4	22.5	296.8	268.2	28.60	10.376	
5,700.0	5,595.6	5,976.7	5,666.9	16.5	16.0	114.25	531.3	18.8	305.5	275.2	30.23	10.103	
5,750.0	5,618.7	6,011.5	5,666.9	17.1	16.4	109.19	566.0	16.2	319.1	287.3	31.75	10.049	SF
5,800.0	5,637.4	6,047.2	5,666.9	17.8	16.8	104.22	601.6	14.3	336.7	303.4	33.29	10.113	
5,850.0	5,651.6	6,083.5	5,666.9	18.6	17.2	99.56	637.9	13.0	357.2	322.4	34.77	10.273	
5,900.0	5,661.1	6,119.9	5,666.9	19.4	17.7	95.37	674.3	12.4	379.7	343.5	36.16	10.501	
5,950.0	5,665.9	6,160.7	5,666.9	20.2	18.2	91.65	715.1	12.3	403.5	365.9	37.53	10.751	
5,974.9	5,666.5	6,182.5	5,666.9	20.6	18.5	90.05	736.9	12.3	415.4	377.2	38.20	10.874	
6,000.0	5,666.5	6,204.6	5,666.9	21.0	18.8	90.05	759.0	12.3	427.3	388.4	38.90	10.986	
6,100.0	5,666.5	6,294.1	5,666.9	22.5	20.1	90.05	848.6	12.3	471.8	430.1	41.74	11.304	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2209A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27J-2209A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27J-2212B - HZ - Plan #2

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	156.12	-75.0	33.2	82.1				
100.0	100.0	97.0	97.0	0.1	0.1	156.12	-75.0	33.2	82.1	81.9	0.18	443.943	
200.0	200.0	197.0	197.0	0.3	0.3	156.12	-75.0	33.2	82.1	81.4	0.63	130.174	
300.0	300.0	297.0	297.0	0.5	0.5	156.12	-75.0	33.2	82.1	81.0	1.08	75.992	
400.0	400.0	397.0	397.0	0.8	0.8	156.12	-75.0	33.2	82.1	80.5	1.53	53.658	
500.0	500.0	497.0	497.0	1.0	1.0	156.12	-75.0	33.2	82.1	80.1	1.98	41.470	CC, ES
600.0	600.0	597.0	597.0	1.2	1.2	-175.29	-75.0	33.2	83.8	81.4	2.43	34.496	
700.0	699.8	696.8	696.8	1.4	1.4	-175.56	-75.0	33.2	89.0	86.1	2.88	30.905	
800.0	799.6	796.6	796.6	1.7	1.7	-175.88	-75.0	33.2	96.0	92.7	3.33	28.844	
900.0	899.4	896.4	896.4	1.9	1.9	-176.16	-75.0	33.2	102.9	99.2	3.78	27.259	
1,000.0	999.1	996.1	996.1	2.2	2.1	-176.41	-75.0	33.2	109.9	105.7	4.23	26.005	
1,100.0	1,098.9	1,095.9	1,095.9	2.4	2.3	-176.62	-75.0	33.2	116.9	112.2	4.68	24.988	
1,200.0	1,198.6	1,195.6	1,195.6	2.7	2.6	-176.81	-75.0	33.2	123.8	118.7	5.13	24.147	
1,300.0	1,298.4	1,295.4	1,295.4	2.9	2.8	-176.98	-75.0	33.2	130.8	125.2	5.58	23.441	
1,400.0	1,398.1	1,395.1	1,395.1	3.2	3.0	-177.13	-75.0	33.2	137.8	131.7	6.03	22.839	
1,500.0	1,497.9	1,494.9	1,494.9	3.4	3.2	-177.27	-75.0	33.2	144.7	138.2	6.48	22.321	
1,600.0	1,597.6	1,595.7	1,595.7	3.7	3.5	-177.99	-74.0	34.5	151.4	144.4	6.93	21.829	
1,700.0	1,697.4	1,696.5	1,696.4	3.9	3.7	-179.91	-70.8	38.5	157.3	150.0	7.38	21.320	
1,800.0	1,797.2	1,796.1	1,795.7	4.2	3.9	177.68	-66.4	43.9	163.2	155.4	7.83	20.848	
1,900.0	1,896.9	1,895.7	1,895.1	4.4	4.1	175.44	-62.1	49.3	169.3	161.1	8.28	20.447	
2,000.0	1,996.7	1,995.3	1,994.5	4.7	4.3	173.36	-57.7	54.7	175.7	167.0	8.74	20.106	
2,100.0	2,096.4	2,094.9	2,093.8	4.9	4.6	171.43	-53.4	60.1	182.3	173.1	9.20	19.814	
2,200.0	2,196.2	2,194.5	2,193.2	5.2	4.8	169.63	-49.0	65.5	189.1	179.4	9.67	19.563	
2,300.0	2,295.9	2,294.1	2,292.5	5.5	5.0	167.96	-44.6	70.9	196.0	185.9	10.13	19.347	
2,400.0	2,395.7	2,393.7	2,391.9	5.7	5.3	166.41	-40.3	76.3	203.2	192.6	10.60	19.160	
2,500.0	2,495.5	2,493.3	2,491.2	6.0	5.5	164.96	-35.9	81.7	210.4	199.3	11.07	18.998	
2,600.0	2,595.2	2,592.9	2,590.6	6.2	5.8	163.61	-31.5	87.1	217.8	206.2	11.55	18.857	
2,700.0	2,695.0	2,692.5	2,690.0	6.5	6.0	162.35	-27.2	92.5	225.3	213.2	12.02	18.734	
2,800.0	2,794.7	2,792.1	2,789.3	6.7	6.3	161.16	-22.8	97.9	232.9	220.4	12.50	18.627	
2,900.0	2,894.5	2,891.7	2,888.7	7.0	6.5	160.06	-18.4	103.3	240.5	227.6	12.98	18.532	
3,000.0	2,994.2	2,991.3	2,988.0	7.2	6.7	159.02	-14.1	108.7	248.3	234.8	13.46	18.449	
3,100.0	3,094.0	3,090.9	3,087.4	7.5	7.0	158.04	-9.7	114.1	256.2	242.2	13.94	18.376	
3,200.0	3,193.7	3,190.5	3,186.7	7.8	7.2	157.13	-5.3	119.5	264.1	249.6	14.42	18.312	
3,296.5	3,290.0	3,286.6	3,282.6	8.0	7.5	156.29	-1.1	124.7	271.8	256.9	14.89	18.257	
3,300.0	3,293.5	3,290.1	3,286.1	8.0	7.5	156.27	-1.0	124.9	272.0	257.1	14.90	18.255	
3,400.0	3,393.3	3,389.7	3,385.5	8.3	7.7	155.45	3.4	130.3	280.1	264.7	15.38	18.204	
3,500.0	3,493.0	3,491.7	3,487.3	8.5	8.0	154.95	7.0	134.7	287.8	271.9	15.84	18.165	
3,600.0	3,592.8	3,594.1	3,589.6	8.8	8.1	155.15	8.2	136.3	294.6	278.4	16.26	18.119	
3,700.0	3,692.5	3,694.0	3,689.5	9.0	8.3	155.71	8.2	136.3	301.0	284.3	16.68	18.043	
3,800.0	3,792.3	3,793.8	3,789.3	9.3	8.5	156.25	8.2	136.3	307.3	290.2	17.12	17.950	
3,900.0	3,892.0	3,893.5	3,889.1	9.6	8.8	156.76	8.2	136.3	313.7	296.2	17.56	17.862	
4,000.0	3,991.8	3,993.3	3,988.8	9.8	9.0	157.25	8.2	136.3	320.2	302.2	18.01	17.780	
4,100.0	4,091.6	4,093.0	4,088.6	10.1	9.2	157.72	8.2	136.3	326.6	308.2	18.45	17.702	
4,200.0	4,191.3	4,192.8	4,188.3	10.3	9.4	158.18	8.2	136.3	333.1	314.2	18.89	17.628	
4,300.0	4,291.1	4,292.5	4,288.1	10.6	9.6	158.62	8.2	136.3	339.6	320.2	19.34	17.559	
4,400.0	4,390.8	4,392.3	4,387.8	10.8	9.8	159.04	8.2	136.3	346.1	326.3	19.78	17.493	
4,500.0	4,490.6	4,492.1	4,487.6	11.1	10.0	159.44	8.2	136.3	352.6	332.4	20.23	17.431	
4,600.0	4,590.3	4,591.8	4,587.3	11.4	10.3	159.83	8.2	136.3	359.1	338.5	20.67	17.372	
4,700.0	4,690.1	4,691.6	4,687.1	11.6	10.5	160.21	8.2	136.3	365.7	344.6	21.12	17.317	
4,800.0	4,789.9	4,791.3	4,786.9	11.9	10.7	160.57	8.2	136.3	372.3	350.7	21.56	17.264	
4,900.0	4,889.6	4,891.1	4,886.6	12.1	10.9	160.92	8.2	136.3	378.9	356.9	22.01	17.213	
5,000.0	4,989.4	4,990.8	4,986.4	12.4	11.1	161.26	8.2	136.3	385.5	363.0	22.46	17.165	

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-2209A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27J-2209A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27J-2212B - HZ - Plan #2

Survey Program: 0-ISCWSA MWD

Offset Site Error: 0.0 usft

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.0	5,089.1	5,090.6	5,086.1	12.6	11.3	161.59	8.2	136.3	392.1	369.2	22.90	17.119	
5,193.1	5,182.0	5,183.5	5,179.0	12.9	11.5	161.88	8.2	136.3	398.2	374.9	23.32	17.079	SF
5,200.0	5,188.9	5,190.3	5,185.9	12.9	11.6	161.89	8.2	136.3	398.7	375.4	23.34	17.086	
5,250.0	5,238.4	5,241.6	5,237.1	13.1	11.7	161.98	8.3	136.3	405.0	381.6	23.38	17.319	
5,300.0	5,287.1	5,320.0	5,315.2	13.3	11.9	161.63	14.6	138.1	413.7	390.4	23.33	17.731	
5,350.0	5,334.5	5,398.2	5,391.2	13.5	12.1	160.14	32.1	142.9	423.5	400.3	23.17	18.278	
5,400.0	5,380.2	5,474.5	5,461.9	13.8	12.3	157.66	59.6	150.4	434.5	411.6	22.95	18.937	
5,450.0	5,423.7	5,547.5	5,525.0	14.1	12.6	154.39	94.9	160.0	447.2	424.4	22.73	19.676	
5,500.0	5,464.6	5,616.6	5,579.4	14.5	13.0	150.54	135.9	171.2	461.9	439.2	22.62	20.420	
5,550.0	5,502.6	5,681.2	5,624.8	14.9	13.4	146.26	180.2	183.4	479.0	456.3	22.71	21.088	
5,600.0	5,537.3	5,741.5	5,661.8	15.4	13.8	141.65	226.1	195.9	498.8	475.7	23.10	21.590	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2209A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27J-2209A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27J-3409A - Hz - Plan #3

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-32.1	32.1				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-32.1	32.1	31.9	0.19	171.082	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-32.1	32.1	31.5	0.64	50.394	
300.0	300.0	300.0	300.0	0.5	0.5	-90.00	0.0	-32.1	32.1	31.0	1.09	29.549	
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	0.0	-32.1	32.1	30.6	1.54	20.902	
466.7	466.7	466.7	466.7	0.9	0.9	-90.00	0.0	-32.1	32.1	30.3	1.84	17.491	
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	0.0	-32.1	32.1	30.1	1.99	16.171	
597.9	597.8	597.4	597.4	1.2	1.2	-66.77	-1.6	-32.6	32.0	29.6	2.40	13.338	CC
600.0	600.0	599.6	599.5	1.2	1.2	-67.01	-1.6	-32.6	32.0	29.6	2.41	13.288	ES
700.0	699.8	698.5	698.4	1.4	1.4	-83.46	-6.5	-34.2	33.4	30.6	2.82	11.855	SF
800.0	799.6	797.7	797.3	1.7	1.6	-101.61	-13.1	-36.3	39.1	35.8	3.26	11.998	
900.0	899.4	896.9	896.2	1.9	1.8	-114.29	-19.7	-38.5	47.6	43.9	3.70	12.865	
1,000.0	999.1	996.0	995.2	2.2	2.0	-122.85	-26.3	-40.6	57.7	53.6	4.15	13.928	
1,100.0	1,098.9	1,095.2	1,094.1	2.4	2.3	-128.79	-32.9	-42.7	68.8	64.2	4.59	14.974	
1,200.0	1,198.6	1,194.4	1,193.0	2.7	2.5	-133.05	-39.5	-44.8	80.3	75.3	5.04	15.932	
1,300.0	1,298.4	1,293.6	1,292.0	2.9	2.8	-136.24	-46.1	-47.0	92.2	86.7	5.49	16.787	
1,400.0	1,398.1	1,392.8	1,390.9	3.2	3.0	-138.69	-52.6	-49.1	104.3	98.3	5.94	17.542	
1,500.0	1,497.9	1,491.9	1,489.8	3.4	3.3	-140.63	-59.2	-51.2	116.5	110.1	6.40	18.207	
1,600.0	1,597.6	1,591.1	1,588.8	3.7	3.5	-142.21	-65.8	-53.3	128.9	122.0	6.86	18.796	
1,700.0	1,697.4	1,690.3	1,687.7	3.9	3.8	-143.50	-72.4	-55.4	141.3	134.0	7.31	19.319	
1,800.0	1,797.2	1,789.5	1,786.7	4.2	4.0	-144.59	-79.0	-57.6	153.8	146.0	7.77	19.785	
1,900.0	1,896.9	1,888.6	1,885.6	4.4	4.3	-145.51	-85.6	-59.7	166.3	158.1	8.23	20.202	
2,000.0	1,996.7	1,987.8	1,984.5	4.7	4.5	-146.30	-92.1	-61.8	178.9	170.2	8.69	20.577	
2,100.0	2,096.4	2,087.0	2,083.5	4.9	4.8	-146.99	-98.7	-63.9	191.5	182.3	9.15	20.916	
2,200.0	2,196.2	2,186.2	2,182.4	5.2	5.1	-147.60	-105.3	-66.0	204.1	194.5	9.62	21.224	
2,300.0	2,295.9	2,285.4	2,281.3	5.5	5.3	-148.13	-111.9	-68.2	216.7	206.6	10.08	21.504	
2,400.0	2,395.7	2,384.5	2,380.3	5.7	5.6	-148.61	-118.5	-70.3	229.4	218.8	10.54	21.761	
2,500.0	2,495.5	2,483.7	2,479.2	6.0	5.8	-149.03	-125.1	-72.4	242.1	231.1	11.00	21.996	
2,600.0	2,595.2	2,582.9	2,578.1	6.2	6.1	-149.41	-131.7	-74.5	254.7	243.3	11.47	22.213	
2,700.0	2,695.0	2,682.1	2,677.1	6.5	6.4	-149.76	-138.2	-76.7	267.4	255.5	11.93	22.413	
2,800.0	2,794.7	2,781.3	2,776.0	6.7	6.6	-150.08	-144.8	-78.8	280.1	267.7	12.40	22.598	
2,900.0	2,894.5	2,880.4	2,875.0	7.0	6.9	-150.36	-151.4	-80.9	292.8	280.0	12.86	22.770	
3,000.0	2,994.2	2,979.6	2,973.9	7.2	7.1	-150.63	-158.0	-83.0	305.6	292.2	13.33	22.930	
3,100.0	3,094.0	3,078.8	3,072.8	7.5	7.4	-150.87	-164.6	-85.1	318.3	304.5	13.79	23.080	
3,200.0	3,193.7	3,178.0	3,171.8	7.8	7.7	-151.09	-171.2	-87.3	331.0	316.8	14.26	23.220	
3,296.5	3,290.0	3,273.7	3,267.2	8.0	7.9	-151.29	-177.5	-89.3	343.3	328.6	14.70	23.346	
3,300.0	3,293.5	3,277.1	3,270.7	8.0	7.9	-151.30	-177.8	-89.4	343.7	329.0	14.72	23.351	
3,400.0	3,393.3	3,376.3	3,369.6	8.3	8.2	-151.49	-184.3	-91.5	356.5	341.3	15.19	23.474	
3,500.0	3,493.0	3,475.5	3,468.6	8.5	8.4	-151.67	-190.9	-93.6	369.2	353.6	15.65	23.590	
3,600.0	3,592.8	3,574.7	3,567.5	8.8	8.7	-151.84	-197.5	-95.8	382.0	365.9	16.12	23.699	
3,700.0	3,692.5	3,673.9	3,666.5	9.0	9.0	-152.00	-204.1	-97.9	394.7	378.1	16.58	23.802	
3,800.0	3,792.3	3,773.0	3,765.4	9.3	9.2	-152.14	-210.7	-100.0	407.5	390.4	17.05	23.899	
3,900.0	3,892.0	3,872.2	3,864.3	9.6	9.5	-152.28	-217.3	-102.1	420.2	402.7	17.52	23.991	
4,000.0	3,991.8	3,971.4	3,963.3	9.8	9.7	-152.41	-223.8	-104.2	433.0	415.0	17.98	24.079	
4,100.0	4,091.6	4,070.6	4,062.2	10.1	10.0	-152.53	-230.4	-106.4	445.7	427.3	18.45	24.162	
4,200.0	4,191.3	4,169.8	4,161.1	10.3	10.3	-152.65	-237.0	-108.5	458.5	439.6	18.91	24.241	
4,300.0	4,291.1	4,268.9	4,260.1	10.6	10.5	-152.76	-243.6	-110.6	471.2	451.9	19.38	24.316	
4,400.0	4,390.8	4,368.1	4,359.0	10.8	10.8	-152.86	-250.2	-112.7	484.0	464.2	19.85	24.388	
4,500.0	4,490.6	4,467.3	4,458.0	11.1	11.1	-152.96	-256.8	-114.8	496.8	476.5	20.31	24.456	

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-2209A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27J-2209A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27J-3410B - HZ - Plan #3

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	179.37	-75.0	0.8	75.1				
100.0	100.0	97.0	97.0	0.1	0.1	179.37	-75.0	0.8	75.1	74.9	0.18	405.977	
200.0	200.0	197.0	197.0	0.3	0.3	179.37	-75.0	0.8	75.1	74.4	0.63	119.041	
300.0	300.0	297.0	297.0	0.5	0.5	179.37	-75.0	0.8	75.1	74.0	1.08	69.493	
400.0	400.0	397.0	397.0	0.8	0.8	179.37	-75.0	0.8	75.1	73.5	1.53	49.069	
500.0	500.0	497.0	497.0	1.0	1.0	179.37	-75.0	0.8	75.1	73.1	1.98	37.924	CC, ES
600.0	600.0	597.0	597.0	1.2	1.2	-152.55	-75.0	0.8	76.6	74.2	2.43	31.530	
700.0	699.8	696.8	696.8	1.4	1.4	-154.21	-75.0	0.8	81.3	78.4	2.88	28.208	
800.0	799.6	796.6	796.6	1.7	1.7	-156.20	-75.0	0.8	87.6	84.3	3.33	26.299	
900.0	899.4	896.4	896.4	1.9	1.9	-157.91	-75.0	0.8	94.0	90.3	3.78	24.858	
1,000.0	999.1	996.1	996.1	2.2	2.1	-159.41	-75.0	0.8	100.5	96.3	4.24	23.737	
1,100.0	1,098.9	1,095.9	1,095.9	2.4	2.3	-160.72	-75.0	0.8	107.1	102.4	4.69	22.843	
1,200.0	1,198.6	1,195.6	1,195.6	2.7	2.6	-161.88	-75.0	0.8	113.7	108.6	5.14	22.115	
1,300.0	1,298.4	1,295.4	1,295.4	2.9	2.8	-162.91	-75.0	0.8	120.4	114.8	5.60	21.512	
1,400.0	1,398.1	1,395.1	1,395.1	3.2	3.0	-163.84	-75.0	0.8	127.0	121.0	6.05	21.005	
1,500.0	1,497.9	1,494.9	1,494.9	3.4	3.2	-164.67	-75.0	0.8	133.8	127.3	6.50	20.574	
1,600.0	1,597.6	1,594.7	1,594.7	3.7	3.5	-165.42	-75.0	0.8	140.5	133.5	6.96	20.202	
1,700.0	1,697.4	1,694.4	1,694.4	3.9	3.7	-166.10	-75.0	0.8	147.3	139.9	7.41	19.878	
1,800.0	1,797.2	1,794.2	1,794.2	4.2	3.9	-166.73	-75.0	0.8	154.0	146.2	7.86	19.594	
1,900.0	1,896.9	1,893.9	1,893.9	4.4	4.1	-167.30	-75.0	0.8	160.8	152.5	8.32	19.343	
2,000.0	1,996.7	1,993.7	1,993.7	4.7	4.4	-167.82	-75.0	0.8	167.7	158.9	8.77	19.120	
2,100.0	2,096.4	2,093.4	2,093.4	4.9	4.6	-168.30	-75.0	0.8	174.5	165.3	9.22	18.920	
2,200.0	2,196.2	2,193.2	2,193.2	5.2	4.8	-168.75	-75.0	0.8	181.3	171.6	9.68	18.740	
2,300.0	2,295.9	2,292.9	2,292.9	5.5	5.0	-169.16	-75.0	0.8	188.2	178.0	10.13	18.577	
2,400.0	2,395.7	2,392.7	2,392.7	5.7	5.2	-169.55	-75.0	0.8	195.0	184.4	10.58	18.429	
2,500.0	2,495.5	2,492.5	2,492.5	6.0	5.5	-169.91	-75.0	0.8	201.9	190.9	11.04	18.294	
2,600.0	2,595.2	2,592.2	2,592.2	6.2	5.7	-170.24	-75.0	0.8	208.8	197.3	11.49	18.170	
2,700.0	2,695.0	2,692.0	2,692.0	6.5	5.9	-170.56	-75.0	0.8	215.6	203.7	11.94	18.056	
2,800.0	2,794.7	2,791.7	2,791.7	6.7	6.1	-170.85	-75.0	0.8	222.5	210.1	12.40	17.951	
2,900.0	2,894.5	2,891.5	2,891.5	7.0	6.4	-171.13	-75.0	0.8	229.4	216.6	12.85	17.853	
3,000.0	2,994.2	2,991.2	2,991.2	7.2	6.6	-171.39	-75.0	0.8	236.3	223.0	13.30	17.763	
3,100.0	3,094.0	3,091.0	3,091.0	7.5	6.8	-171.64	-75.0	0.8	243.2	229.5	13.76	17.679	
3,200.0	3,193.7	3,190.8	3,190.8	7.8	7.0	-171.87	-75.0	0.8	250.1	235.9	14.21	17.601	
3,296.5	3,290.0	3,287.0	3,287.0	8.0	7.3	-172.08	-75.0	0.8	256.8	242.1	14.65	17.530	
3,300.0	3,293.5	3,290.5	3,290.5	8.0	7.3	-172.09	-75.0	0.8	257.0	242.4	14.66	17.527	
3,400.0	3,393.3	3,390.3	3,390.3	8.3	7.5	-172.30	-75.0	0.8	263.9	248.8	15.12	17.459	
3,500.0	3,493.0	3,490.0	3,490.0	8.5	7.7	-172.50	-75.0	0.8	270.8	255.3	15.57	17.394	
3,600.0	3,592.8	3,589.8	3,589.8	8.8	7.9	-172.68	-75.0	0.8	277.8	261.7	16.02	17.334	
3,700.0	3,692.5	3,689.5	3,689.5	9.0	8.2	-172.86	-75.0	0.8	284.7	268.2	16.48	17.276	
3,800.0	3,792.3	3,789.3	3,789.3	9.3	8.4	-173.03	-75.0	0.8	291.6	274.7	16.93	17.223	
3,900.0	3,892.0	3,889.1	3,889.1	9.6	8.6	-173.19	-75.0	0.8	298.5	281.1	17.39	17.172	
4,000.0	3,991.8	3,988.8	3,988.8	9.8	8.8	-173.35	-75.0	0.8	305.5	287.6	17.84	17.123	
4,100.0	4,091.6	4,088.6	4,088.6	10.1	9.1	-173.50	-75.0	0.8	312.4	294.1	18.29	17.078	
4,200.0	4,191.3	4,188.3	4,188.3	10.3	9.3	-173.64	-75.0	0.8	319.3	300.6	18.75	17.034	
4,300.0	4,291.1	4,288.1	4,288.1	10.6	9.5	-173.78	-75.0	0.8	326.3	307.1	19.20	16.993	
4,400.0	4,390.8	4,387.8	4,387.8	10.8	9.7	-173.91	-75.0	0.8	333.2	313.5	19.65	16.953	
4,500.0	4,490.6	4,487.6	4,487.6	11.1	10.0	-174.03	-75.0	0.8	340.1	320.0	20.11	16.916	
4,600.0	4,590.3	4,587.3	4,587.3	11.4	10.2	-174.15	-75.0	0.8	347.1	326.5	20.56	16.880	
4,700.0	4,690.1	4,687.1	4,687.1	11.6	10.4	-174.27	-75.0	0.8	354.0	333.0	21.01	16.846	
4,800.0	4,789.9	4,786.9	4,786.9	11.9	10.6	-174.38	-75.0	0.8	361.0	339.5	21.47	16.813	
4,900.0	4,889.6	4,886.6	4,886.6	12.1	10.9	-174.48	-75.0	0.8	367.9	346.0	21.92	16.782	
5,000.0	4,989.4	4,986.4	4,986.4	12.4	11.1	-174.58	-75.0	0.8	374.8	352.5	22.38	16.752	

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-2209A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27J-2209A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27J-3410B - HZ - Plan #3

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.0	5,089.1	5,086.1	5,086.1	12.6	11.3	-174.68	-75.0	0.8	381.8	359.0	22.83	16.724	
5,193.1	5,182.0	5,179.0	5,179.0	12.9	11.5	-174.77	-75.0	0.8	388.2	365.0	23.25	16.698	SF
5,200.0	5,188.9	5,185.9	5,185.9	12.9	11.5	-174.77	-75.0	0.8	388.8	365.5	23.27	16.707	
5,250.0	5,238.4	5,232.1	5,232.1	13.1	11.6	-174.79	-75.0	0.8	395.3	372.0	23.29	16.973	
5,300.0	5,287.1	5,262.6	5,262.6	13.3	11.7	-174.69	-75.9	0.8	407.9	384.8	23.07	17.678	
5,350.0	5,334.5	5,300.0	5,299.8	13.5	11.7	-174.42	-79.5	0.6	427.4	404.8	22.67	18.851	
5,400.0	5,380.2	5,313.8	5,313.5	13.8	11.8	-174.05	-81.4	0.6	452.8	430.7	22.06	20.530	
5,450.0	5,423.7	5,335.4	5,334.7	14.1	11.8	-173.49	-85.3	0.4	483.9	462.7	21.28	22.740	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2209A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27J-2209A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27J-3411A - HZ - Plan #3

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	89.99	0.0	33.2	33.2				
100.0	100.0	100.0	100.0	0.1	0.1	89.99	0.0	33.2	33.2	33.0	0.19	176.982	
200.0	200.0	200.0	200.0	0.3	0.3	89.99	0.0	33.2	33.2	32.6	0.64	52.131	
300.0	300.0	300.0	300.0	0.5	0.5	89.99	0.0	33.2	33.2	32.1	1.09	30.568	
400.0	400.0	400.0	400.0	0.8	0.8	89.99	0.0	33.2	33.2	31.7	1.54	21.623	
466.7	466.7	466.7	466.7	0.9	0.9	89.99	0.0	33.2	33.2	31.4	1.84	18.094	CC
500.0	500.0	500.0	500.0	1.0	1.0	89.99	0.0	33.2	33.2	31.2	1.99	16.729	ES
600.0	600.0	599.6	599.6	1.2	1.2	123.97	-1.7	33.6	34.6	32.2	2.41	14.382	
700.0	699.8	698.5	698.4	1.4	1.4	137.07	-6.7	34.8	40.3	37.5	2.82	14.272	SF
800.0	799.6	797.6	797.2	1.7	1.6	149.28	-13.4	36.4	50.2	47.0	3.25	15.437	
900.0	899.4	896.6	896.0	1.9	1.8	157.25	-20.1	38.0	61.6	58.0	3.68	16.730	
1,000.0	999.1	995.7	994.8	2.2	2.0	162.67	-26.9	39.6	73.9	69.8	4.12	17.934	
1,100.0	1,098.9	1,094.7	1,093.6	2.4	2.3	166.53	-33.6	41.2	86.6	82.1	4.56	18.998	
1,200.0	1,198.6	1,193.7	1,192.4	2.7	2.5	169.39	-40.3	42.8	99.6	94.6	5.00	19.922	
1,300.0	1,298.4	1,292.8	1,291.2	2.9	2.8	171.59	-47.0	44.4	112.8	107.4	5.44	20.722	
1,400.0	1,398.1	1,391.8	1,390.0	3.2	3.0	173.33	-53.7	46.0	126.1	120.2	5.89	21.417	
1,500.0	1,497.9	1,490.9	1,488.8	3.4	3.3	174.73	-60.5	47.5	139.5	133.2	6.34	22.023	
1,600.0	1,597.6	1,589.9	1,587.6	3.7	3.5	175.89	-67.2	49.1	153.0	146.2	6.78	22.555	
1,700.0	1,697.4	1,689.0	1,686.4	3.9	3.8	176.86	-73.9	50.7	166.5	159.3	7.23	23.024	
1,800.0	1,797.2	1,788.0	1,785.2	4.2	4.0	177.68	-80.6	52.3	180.1	172.4	7.68	23.441	
1,900.0	1,896.9	1,887.0	1,884.0	4.4	4.3	178.39	-87.4	53.9	193.7	185.6	8.13	23.813	
2,000.0	1,996.7	1,986.1	1,982.8	4.7	4.5	179.01	-94.1	55.5	207.3	198.8	8.59	24.147	
2,100.0	2,096.4	2,085.1	2,081.6	4.9	4.8	179.55	-100.8	57.1	221.0	211.9	9.04	24.448	
2,200.0	2,196.2	2,184.2	2,180.4	5.2	5.1	-179.97	-107.5	58.7	234.7	225.2	9.49	24.722	
2,300.0	2,295.9	2,283.2	2,279.2	5.5	5.3	-179.55	-114.3	60.3	248.3	238.4	9.95	24.970	
2,400.0	2,395.7	2,382.3	2,378.0	5.7	5.6	-179.17	-121.0	61.9	262.0	251.6	10.40	25.197	
2,500.0	2,495.5	2,481.3	2,476.8	6.0	5.8	-178.83	-127.7	63.5	275.7	264.9	10.85	25.405	
2,600.0	2,595.2	2,580.4	2,575.6	6.2	6.1	-178.52	-134.4	65.1	289.4	278.1	11.31	25.597	
2,700.0	2,695.0	2,679.4	2,674.4	6.5	6.3	-178.23	-141.1	66.7	303.2	291.4	11.76	25.774	
2,800.0	2,794.7	2,778.4	2,773.2	6.7	6.6	-177.98	-147.9	68.3	316.9	304.7	12.22	25.938	
2,900.0	2,894.5	2,877.5	2,872.0	7.0	6.9	-177.74	-154.6	69.8	330.6	317.9	12.67	26.090	
3,000.0	2,994.2	2,976.5	2,970.8	7.2	7.1	-177.52	-161.3	71.4	344.3	331.2	13.13	26.231	
3,100.0	3,094.0	3,075.6	3,069.6	7.5	7.4	-177.32	-168.0	73.0	358.1	344.5	13.58	26.363	
3,200.0	3,193.7	3,174.6	3,168.4	7.8	7.6	-177.14	-174.8	74.6	371.8	357.8	14.04	26.486	
3,296.5	3,290.0	3,270.2	3,263.8	8.0	7.9	-176.97	-181.2	76.2	385.1	370.6	14.48	26.598	
3,300.0	3,293.5	3,273.7	3,267.2	8.0	7.9	-176.96	-181.5	76.2	385.6	371.1	14.49	26.602	
3,400.0	3,393.3	3,372.7	3,366.0	8.3	8.2	-176.80	-188.2	77.8	399.3	384.4	14.95	26.711	
3,500.0	3,493.0	3,471.8	3,464.8	8.5	8.4	-176.65	-194.9	79.4	413.1	397.7	15.41	26.813	
3,600.0	3,592.8	3,570.8	3,563.6	8.8	8.7	-176.51	-201.6	81.0	426.8	411.0	15.86	26.909	
3,700.0	3,692.5	3,669.8	3,662.4	9.0	8.9	-176.38	-208.4	82.6	440.6	424.3	16.32	27.000	
3,800.0	3,792.3	3,768.9	3,761.3	9.3	9.2	-176.26	-215.1	84.2	454.3	437.6	16.77	27.086	
3,900.0	3,892.0	3,867.9	3,860.1	9.6	9.5	-176.14	-221.8	85.8	468.1	450.9	17.23	27.167	
4,000.0	3,991.8	3,967.0	3,958.9	9.8	9.7	-176.03	-228.5	87.4	481.9	464.2	17.69	27.244	
4,100.0	4,091.6	4,066.0	4,057.7	10.1	10.0	-175.93	-235.3	89.0	495.6	477.5	18.14	27.317	

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-2209A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27J-2209A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27J-3412B - HZ - Plan #3

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

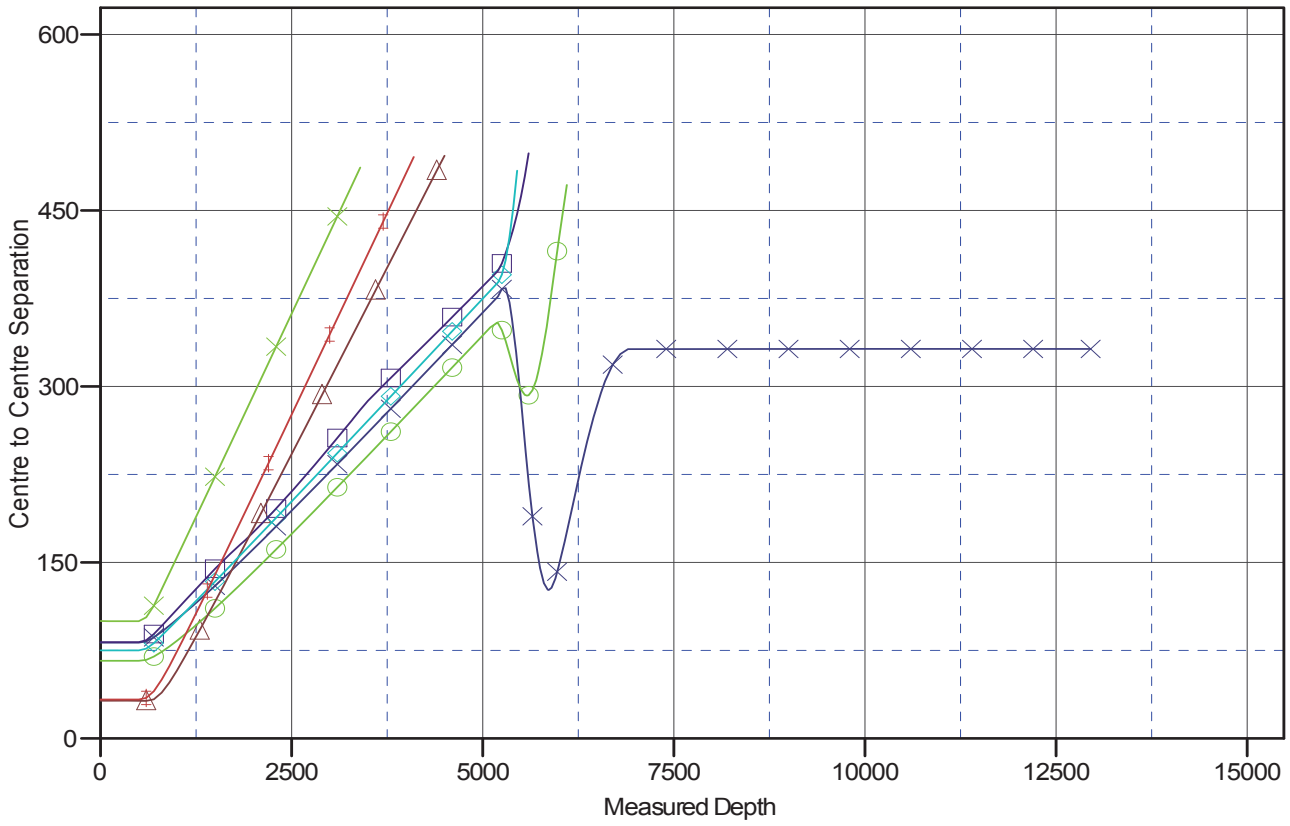
Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	138.60	-75.0	66.2	100.1				
100.0	100.0	97.0	97.0	0.1	0.1	138.60	-75.0	66.2	100.0	99.9	0.18	541.180	
200.0	200.0	197.0	197.0	0.3	0.3	138.60	-75.0	66.2	100.0	99.4	0.63	158.686	
300.0	300.0	297.0	297.0	0.5	0.5	138.60	-75.0	66.2	100.0	99.0	1.08	92.637	
400.0	400.0	397.0	397.0	0.8	0.8	138.60	-75.0	66.2	100.0	98.5	1.53	65.411	
500.0	500.0	497.0	497.0	1.0	1.0	138.60	-75.0	66.2	100.0	98.1	1.98	50.554	CC, ES
600.0	600.0	593.7	593.7	1.2	1.2	167.71	-76.4	66.8	103.3	100.9	2.40	43.019	
700.0	699.8	689.7	689.6	1.4	1.4	168.86	-80.7	68.9	113.2	110.4	2.82	40.131	
800.0	799.6	788.4	788.0	1.7	1.6	170.24	-86.9	71.8	126.8	123.5	3.24	39.108	
900.0	899.4	887.4	886.8	1.9	1.8	171.35	-93.1	74.8	140.4	136.8	3.66	38.324	
1,000.0	999.1	986.4	985.6	2.2	2.0	172.27	-99.4	77.8	154.2	150.1	4.09	37.650	
1,100.0	1,098.9	1,085.4	1,084.3	2.4	2.3	173.04	-105.6	80.7	167.9	163.4	4.53	37.068	
1,200.0	1,198.6	1,184.5	1,183.1	2.7	2.5	173.69	-111.9	83.7	181.7	176.7	4.97	36.565	
1,300.0	1,298.4	1,283.5	1,281.9	2.9	2.7	174.25	-118.1	86.7	195.5	190.1	5.41	36.128	
1,400.0	1,398.1	1,382.5	1,380.7	3.2	3.0	174.74	-124.3	89.7	209.3	203.4	5.85	35.746	
1,500.0	1,497.9	1,481.6	1,479.5	3.4	3.2	175.17	-130.6	92.6	223.1	216.8	6.30	35.409	
1,600.0	1,597.6	1,580.6	1,578.3	3.7	3.5	175.54	-136.8	95.6	236.9	230.2	6.75	35.113	
1,700.0	1,697.4	1,679.6	1,677.1	3.9	3.8	175.88	-143.0	98.6	250.8	243.6	7.20	34.849	
1,800.0	1,797.2	1,778.6	1,775.8	4.2	4.0	176.18	-149.3	101.6	264.6	257.0	7.65	34.612	
1,900.0	1,896.9	1,877.7	1,874.6	4.4	4.3	176.45	-155.5	104.5	278.5	270.4	8.10	34.400	
2,000.0	1,996.7	1,976.7	1,973.4	4.7	4.5	176.69	-161.7	107.5	292.3	283.8	8.55	34.207	
2,100.0	2,096.4	2,075.7	2,072.2	4.9	4.8	176.92	-168.0	110.5	306.2	297.2	9.00	34.033	
2,200.0	2,196.2	2,174.7	2,171.0	5.2	5.0	177.12	-174.2	113.5	320.1	310.6	9.45	33.873	
2,300.0	2,295.9	2,273.8	2,269.8	5.5	5.3	177.30	-180.4	116.4	333.9	324.0	9.90	33.728	
2,400.0	2,395.7	2,372.8	2,368.6	5.7	5.6	177.48	-186.7	119.4	347.8	337.5	10.35	33.594	
2,500.0	2,495.5	2,471.8	2,467.3	6.0	5.8	177.63	-192.9	122.4	361.7	350.9	10.81	33.470	
2,600.0	2,595.2	2,570.9	2,566.1	6.2	6.1	177.78	-199.1	125.4	375.6	364.3	11.26	33.356	
2,700.0	2,695.0	2,669.9	2,664.9	6.5	6.3	177.92	-205.4	128.3	389.4	377.7	11.71	33.251	
2,800.0	2,794.7	2,768.9	2,763.7	6.7	6.6	178.04	-211.6	131.3	403.3	391.2	12.17	33.152	
2,900.0	2,894.5	2,867.9	2,862.5	7.0	6.8	178.16	-217.8	134.3	417.2	404.6	12.62	33.061	
3,000.0	2,994.2	2,967.0	2,961.3	7.2	7.1	178.27	-224.1	137.2	431.1	418.0	13.07	32.975	
3,100.0	3,094.0	3,066.0	3,060.1	7.5	7.4	178.38	-230.3	140.2	445.0	431.5	13.53	32.895	
3,200.0	3,193.7	3,165.0	3,158.9	7.8	7.6	178.47	-236.5	143.2	458.9	444.9	13.98	32.820	
3,296.5	3,290.0	3,260.6	3,254.2	8.0	7.9	178.56	-242.6	146.1	472.3	457.9	14.42	32.752	
3,300.0	3,293.5	3,264.0	3,257.6	8.0	7.9	178.57	-242.8	146.2	472.8	458.3	14.44	32.750	
3,400.0	3,393.3	3,363.1	3,356.4	8.3	8.2	178.65	-249.0	149.1	486.7	471.8	14.89	32.683	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27J-2209A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4783.5usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27J-2209A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4783.5usft (Original Well Elev
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.00 W °

Coordinates are relative to: Razor #27J-2209A
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.07°

Ladder Plot



LEGEND

Razor #27J-2210B, HZ, Plan #2 V0
Razor #27J-3409A, Hz, Plan #3 V0
Razor #27J-3412B, HZ, Plan #3 V0
Razor #27J-2211A, HZ, Plan #2 V0
Razor #27J-3410B, HZ, Plan #3 V0
Razor #27J-2212B, HZ, Plan #2 V0
Razor #27J-3411A, HZ, Plan #3 V0