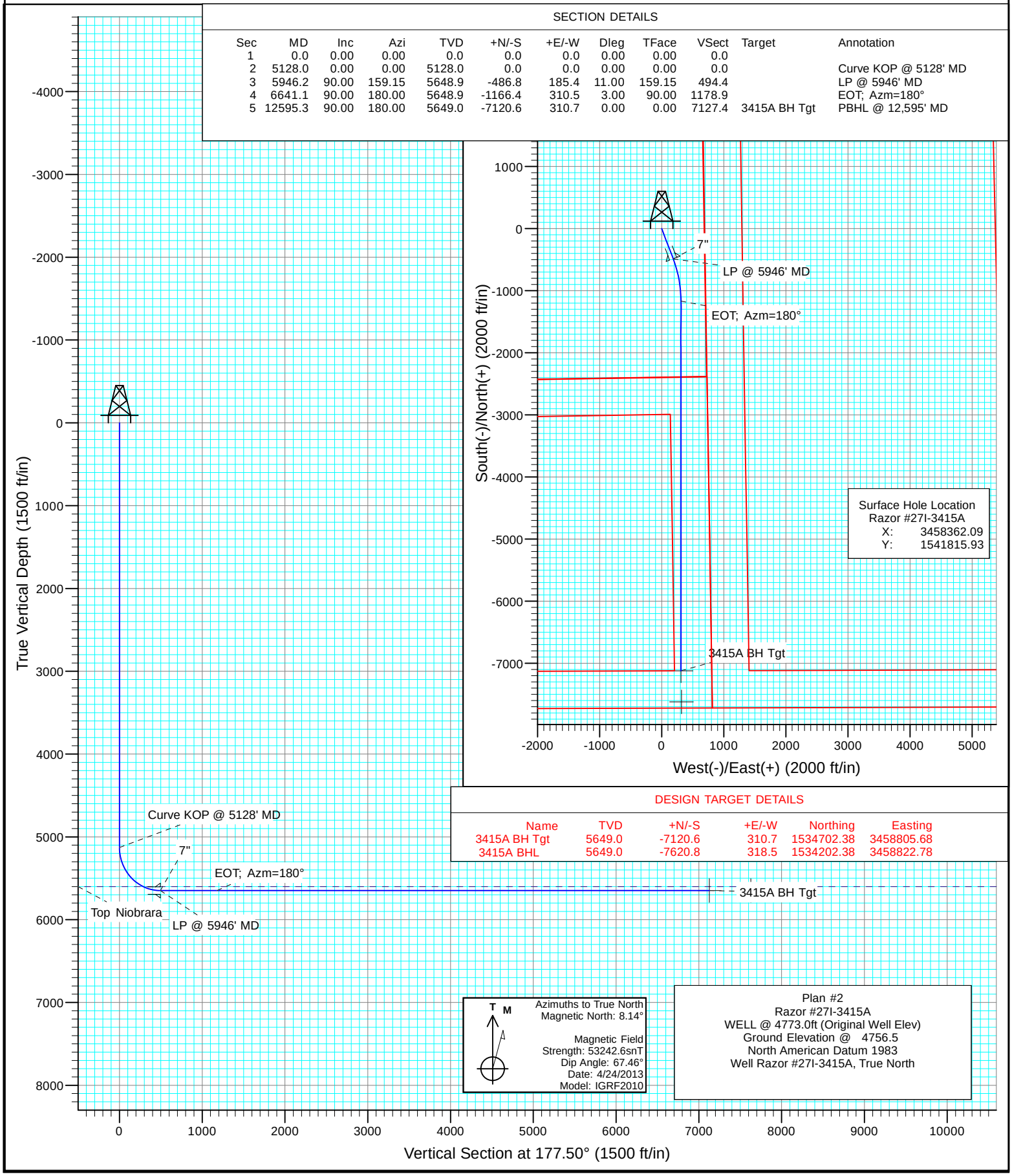
WHITING PETROLEUM CORPORATION

Project: Weld County, CO
Site: S27-T10N-R58W
Well: Razor #27I-3415A
Wellbore: HZ
Design: Plan #2

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	5128.0	0.00	0.00	5128.0	0.0	0.0	0.00	0.00	0.0		Curve KOP @ 5128' MD
3	5946.2	90.00	159.15	5648.9	-486.8	185.4	11.00	159.15	494.4		LP @ 5946' MD
4	6641.1	90.00	180.00	5648.9	-1166.4	310.5	3.00	90.00	1178.9		EOT; Azm=180°
5	12595.3	90.00	180.00	5649.0	-7120.6	310.7	0.00	0.00	7127.4	3415A BH Tgt	PBHL @ 12,595' MD



DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
3415A BH Tgt	5649.0	-7120.6	310.7	1534702.38	3458805.68
3415A BHL	5649.0	-7620.8	318.5	1534202.38	3458822.78

Azimuths to True North
Magnetic North: 8.14°

Magnetic Field
Strength: 53242.6snT
Dip Angle: 67.46°
Date: 4/24/2013
Model: IGRF2010

Plan #2
Razor #27I-3415A
WELL @ 4773.0ft (Original Well Elev)
Ground Elevation @ 4756.5
North American Datum 1983
Well Razor #27I-3415A, True North

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #27I-3415A
Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Site:	S27-T10N-R58W	**North Reference:**	True
Well:	Razor #27I-3415A	**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:**	1,541,650.73 ft	**Latitude:**	40.808594
From:	Lat/Long	**Easting:**	3,455,691.89 ft	**Longitude:**	-103.853833
Position Uncertainty:	0.0 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	1.06 °

Well Razor #27I-3415A

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,541,815.93 ft	**Latitude:**	40.808911
	+E/-W	0.0 ft	**Easting:**	3,458,362.09 ft	**Longitude:**	-103.844178
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,756.5 ft

Wellbore HZ

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/24/2013	8.14	67.46	53,243

Design Plan #2

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	177.50

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
5,128.0	0.00	0.00	5,128.0	0.0	0.0	0.00	0.00	0.00	0.00	
5,946.2	90.00	159.15	5,648.9	-486.8	185.4	11.00	11.00	0.00	159.15	
6,641.1	90.00	180.00	5,648.9	-1,166.4	310.5	3.00	0.00	3.00	90.00	
12,595.3	90.00	180.00	5,649.0	-7,120.6	310.7	0.00	0.00	0.00	0.00	3415A BH Tgt

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #27I-3415A
Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Site:	S27-T10N-R58W	**North Reference:**	True
Well:	Razor #27I-3415A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	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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Site:	S27-T10N-R58W	**North Reference:**	True
Well:	Razor #27I-3415A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
5,128.0	0.00	0.00	5,128.0	0.0	0.0	0.0	0.00	0.00	Curve KOP @ 5128' MD
5,200.0	7.92	159.15	5,199.8	-4.6	1.8	4.7	11.00	11.00	
5,300.0	18.92	159.15	5,296.9	-26.3	10.0	26.7	11.00	11.00	
5,400.0	29.92	159.15	5,387.8	-64.9	24.7	65.9	11.00	11.00	
5,500.0	40.92	159.15	5,469.2	-118.9	45.3	120.8	11.00	11.00	
5,600.0	51.92	159.15	5,538.0	-186.5	71.0	189.5	11.00	11.00	
5,700.0	62.92	159.15	5,591.8	-265.2	101.0	269.3	11.00	11.00	
5,718.8	64.98	159.15	5,600.0	-280.9	107.0	285.3	11.00	11.00	Top Niobrara
5,800.0	73.92	159.15	5,628.5	-351.9	134.0	357.4	11.00	11.00	
5,900.0	84.92	159.15	5,646.8	-443.7	169.0	450.6	11.00	11.00	
5,946.2	90.00	159.15	5,648.9	-486.8	185.4	494.4	11.00	11.00	LP @ 5946' MD - 7"
6,000.0	90.00	160.76	5,648.9	-537.3	203.8	545.7	3.00	0.00	
6,100.0	90.00	163.76	5,648.9	-632.5	234.3	642.2	3.00	0.00	
6,200.0	90.00	166.76	5,648.9	-729.2	259.7	739.9	3.00	0.00	
6,300.0	90.00	169.76	5,648.9	-827.1	280.1	838.6	3.00	0.00	
6,400.0	90.00	172.76	5,648.9	-926.0	295.2	938.0	3.00	0.00	
6,500.0	90.00	175.76	5,648.9	-1,025.5	305.2	1,037.8	3.00	0.00	
6,600.0	90.00	178.76	5,648.9	-1,125.3	310.0	1,137.8	3.00	0.00	
6,641.1	90.00	180.00	5,648.9	-1,166.4	310.5	1,178.9	3.00	0.00	EOT; Azm=180°
6,700.0	90.00	180.00	5,648.9	-1,225.3	310.5	1,237.7	0.00	0.00	
6,800.0	90.00	180.00	5,648.9	-1,325.3	310.5	1,337.6	0.00	0.00	
6,900.0	90.00	180.00	5,648.9	-1,425.3	310.5	1,437.5	0.00	0.00	
7,000.0	90.00	180.00	5,648.9	-1,525.3	310.5	1,537.4	0.00	0.00	
7,100.0	90.00	180.00	5,648.9	-1,625.3	310.5	1,637.3	0.00	0.00	
7,200.0	90.00	180.00	5,648.9	-1,725.3	310.5	1,737.2	0.00	0.00	
7,300.0	90.00	180.00	5,648.9	-1,825.3	310.5	1,837.1	0.00	0.00	
7,400.0	90.00	180.00	5,648.9	-1,925.3	310.5	1,937.0	0.00	0.00	
7,500.0	90.00	180.00	5,648.9	-2,025.3	310.5	2,036.9	0.00	0.00	
7,600.0	90.00	180.00	5,648.9	-2,125.3	310.5	2,136.8	0.00	0.00	
7,700.0	90.00	180.00	5,648.9	-2,225.3	310.5	2,236.8	0.00	0.00	
7,800.0	90.00	180.00	5,648.9	-2,325.3	310.5	2,336.7	0.00	0.00	
7,900.0	90.00	180.00	5,648.9	-2,425.3	310.5	2,436.6	0.00	0.00	
8,000.0	90.00	180.00	5,648.9	-2,525.3	310.5	2,536.5	0.00	0.00	
8,100.0	90.00	180.00	5,648.9	-2,625.3	310.5	2,636.4	0.00	0.00	
8,200.0	90.00	180.00	5,648.9	-2,725.3	310.5	2,736.3	0.00	0.00	
8,300.0	90.00	180.00	5,648.9	-2,825.3	310.5	2,836.2	0.00	0.00	
8,400.0	90.00	180.00	5,648.9	-2,925.3	310.5	2,936.1	0.00	0.00	
8,500.0	90.00	180.00	5,648.9	-3,025.3	310.5	3,036.0	0.00	0.00	
8,600.0	90.00	180.00	5,648.9	-3,125.3	310.5	3,135.9	0.00	0.00	
8,700.0	90.00	180.00	5,648.9	-3,225.3	310.5	3,235.8	0.00	0.00	
8,800.0	90.00	180.00	5,648.9	-3,325.3	310.5	3,335.7	0.00	0.00	
8,900.0	90.00	180.00	5,648.9	-3,425.3	310.5	3,435.6	0.00	0.00	
9,000.0	90.00	180.00	5,648.9	-3,525.3	310.6	3,535.5	0.00	0.00	
9,100.0	90.00	180.00	5,648.9	-3,625.3	310.6	3,635.4	0.00	0.00	
9,200.0	90.00	180.00	5,648.9	-3,725.3	310.6	3,735.3	0.00	0.00	
9,300.0	90.00	180.00	5,648.9	-3,825.3	310.6	3,835.2	0.00	0.00	
9,400.0	90.00	180.00	5,648.9	-3,925.3	310.6	3,935.1	0.00	0.00	
9,500.0	90.00	180.00	5,648.9	-4,025.3	310.6	4,035.0	0.00	0.00	
9,600.0	90.00	180.00	5,648.9	-4,125.3	310.6	4,134.9	0.00	0.00	
9,700.0	90.00	180.00	5,649.0	-4,225.3	310.6	4,234.9	0.00	0.00	
9,800.0	90.00	180.00	5,649.0	-4,325.3	310.6	4,334.8	0.00	0.00	
9,900.0	90.00	180.00	5,649.0	-4,425.3	310.6	4,434.7	0.00	0.00	

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Well:	Razor #27I-3415A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
10,000.0	90.00	180.00	5,649.0	-4,525.3	310.6	4,534.6	0.00	0.00	
10,100.0	90.00	180.00	5,649.0	-4,625.3	310.6	4,634.5	0.00	0.00	
10,200.0	90.00	180.00	5,649.0	-4,725.3	310.6	4,734.4	0.00	0.00	
10,300.0	90.00	180.00	5,649.0	-4,825.3	310.6	4,834.3	0.00	0.00	
10,400.0	90.00	180.00	5,649.0	-4,925.3	310.6	4,934.2	0.00	0.00	
10,500.0	90.00	180.00	5,649.0	-5,025.3	310.6	5,034.1	0.00	0.00	
10,600.0	90.00	180.00	5,649.0	-5,125.3	310.6	5,134.0	0.00	0.00	
10,700.0	90.00	180.00	5,649.0	-5,225.3	310.6	5,233.9	0.00	0.00	
10,800.0	90.00	180.00	5,649.0	-5,325.3	310.6	5,333.8	0.00	0.00	
10,900.0	90.00	180.00	5,649.0	-5,425.3	310.6	5,433.7	0.00	0.00	
11,000.0	90.00	180.00	5,649.0	-5,525.3	310.6	5,533.6	0.00	0.00	
11,100.0	90.00	180.00	5,649.0	-5,625.3	310.6	5,633.5	0.00	0.00	
11,200.0	90.00	180.00	5,649.0	-5,725.3	310.6	5,733.4	0.00	0.00	
11,300.0	90.00	180.00	5,649.0	-5,825.3	310.6	5,833.3	0.00	0.00	
11,400.0	90.00	180.00	5,649.0	-5,925.3	310.6	5,933.2	0.00	0.00	
11,500.0	90.00	180.00	5,649.0	-6,025.3	310.7	6,033.1	0.00	0.00	
11,600.0	90.00	180.00	5,649.0	-6,125.3	310.7	6,133.1	0.00	0.00	
11,700.0	90.00	180.00	5,649.0	-6,225.3	310.7	6,233.0	0.00	0.00	
11,800.0	90.00	180.00	5,649.0	-6,325.3	310.7	6,332.9	0.00	0.00	
11,900.0	90.00	180.00	5,649.0	-6,425.3	310.7	6,432.8	0.00	0.00	
12,000.0	90.00	180.00	5,649.0	-6,525.3	310.7	6,532.7	0.00	0.00	
12,100.0	90.00	180.00	5,649.0	-6,625.3	310.7	6,632.6	0.00	0.00	
12,200.0	90.00	180.00	5,649.0	-6,725.3	310.7	6,732.5	0.00	0.00	
12,300.0	90.00	180.00	5,649.0	-6,825.3	310.7	6,832.4	0.00	0.00	
12,400.0	90.00	180.00	5,649.0	-6,925.3	310.7	6,932.3	0.00	0.00	
12,500.0	90.00	180.00	5,649.0	-7,025.3	310.7	7,032.2	0.00	0.00	
12,595.3	90.00	180.00	5,649.0	-7,120.6	310.7	7,127.4	0.00	0.00	PBHL @ 12,595' MD

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
3415A BHL	0.00	0.00	5,649.0	-7,620.8	318.5	1,534,202.38	3,458,822.78	40.787994	-103.843028
- plan misses target center by 500.3ft at 12595.3ft MD (5649.0 TVD, -7120.6 N, 310.7 E)									
- Point									
3415A BH Tgt	0.00	0.00	5,649.0	-7,120.6	310.7	1,534,702.38	3,458,805.68	40.789367	-103.843056
- plan hits target center									
- Point									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
5,946.2	5,648.9	7"	0.000	0.000

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #27I-3415A
Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Site:	S27-T10N-R58W	**North Reference:**	True
Well:	Razor #27I-3415A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,718.8	5,600.0	Top Niobrara		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
5,128.0	5,128.0	0.0	0.0	Curve KOP @ 5128' MD
5,946.2	5,648.9	-486.8	185.4	LP @ 5946' MD
6,641.1	5,648.9	-1,166.4	310.5	EOT; Azm=180°
12,595.3	5,649.0	-7,120.6	310.7	PBHL @ 12,595' MD

WHITING PETROLEUM CORPORATION

Whiting Petroleum Corporation

Weld County, CO
S27-T10N-R58W
Razor #27I-3415A
HZ
Plan #2

Anticollision Report

18 June, 2013

CATHEDRAL

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-3415A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27I-3415A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Reference Plan #2

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

Survey Tool Program **Date** 6/18/2013

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	12,595.0	Plan #2 (HZ)	ISCWSA MWD	MWD - ISCWSA

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 #27I-2213A - HZ - Plan #2	1,000.0	1,000.0	33.0	28.7	7.786	CC, ES
Razor #27I-2213A - HZ - Plan #2	5,128.0	5,128.8	53.8	31.1	2.372	SF
Razor #27I-2214B - HZ - Plan #3	300.0	300.0	99.8	98.7	96.100	CC, ES
Razor #27I-2214B - HZ - Plan #3	5,200.0	5,207.8	287.7	266.9	13.817	SF
Razor #27I-2215A - HZ - Plan #1	5,183.5	5,182.9	32.7	12.2	1.596	CC, ES, SF
Razor #27I-2216B - HZ - Plan #2	1,355.3	1,357.1	52.8	47.4	9.728	CC
Razor #27I-2216B - HZ - Plan #2	1,400.0	1,401.7	52.9	47.3	9.400	ES
Razor #27I-2216B - HZ - Plan #2	1,800.0	1,800.7	61.2	53.9	8.308	SF
Razor #27I-3413A - HZ - Plan #2	5,128.0	5,128.0	66.2	43.4	2.903	CC, ES, SF
Razor #27I-3414B - HZ - Plan #2	5,361.0	5,344.2	67.2	43.7	2.868	CC, ES
Razor #27I-3414B - HZ - Plan #2	12,595.3	12,558.4	341.1	76.2	1.288	Level 3, SF
Razor #27I-3416B - HZ - Plan #3	500.0	500.0	81.8	79.8	41.168	CC
Razor #27I-3416B - HZ - Plan #3	12,595.3	12,472.1	341.4	78.8	1.300	Level 3, ES, SF
Razor #27J-3410B - HZ - Plan #3						Out of range
Razor #27J-3411A - HZ - Plan #3						Out of range
Razor #27J-3412B - HZ - Plan #3						Out of range

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-3415A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27I-3415A	**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 #27I-2213A - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA 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	-88.08	1.1	-32.9	33.0				
100.0	100.0	100.0	100.0	0.1	0.1	-88.08	1.1	-32.9	33.0	32.8	0.19	175.626	
200.0	200.0	200.0	200.0	0.3	0.3	-88.08	1.1	-32.9	33.0	32.3	0.64	51.728	
300.0	300.0	300.0	300.0	0.5	0.5	-88.08	1.1	-32.9	33.0	31.9	1.09	30.330	
400.0	400.0	400.0	400.0	0.8	0.8	-88.08	1.1	-32.9	33.0	31.4	1.54	21.455	
500.0	500.0	500.0	500.0	1.0	1.0	-88.08	1.1	-32.9	33.0	31.0	1.99	16.598	
600.0	600.0	600.0	600.0	1.2	1.2	-88.08	1.1	-32.9	33.0	30.5	2.44	13.535	
700.0	700.0	700.0	700.0	1.4	1.4	-88.08	1.1	-32.9	33.0	30.1	2.88	11.426	
800.0	800.0	800.0	800.0	1.7	1.7	-88.08	1.1	-32.9	33.0	29.6	3.33	9.885	
900.0	900.0	900.0	900.0	1.9	1.9	-88.08	1.1	-32.9	33.0	29.2	3.78	8.711	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-88.08	1.1	-32.9	33.0	28.7	4.23	7.786	CC, ES
1,100.0	1,100.0	1,099.3	1,099.3	2.3	2.3	-85.67	2.6	-33.9	34.0	29.3	4.68	7.257	
1,200.0	1,200.0	1,198.4	1,198.2	2.6	2.6	-79.28	6.9	-36.6	37.3	32.2	5.13	7.271	
1,300.0	1,300.0	1,298.1	1,297.7	2.8	2.8	-72.34	12.8	-40.3	42.3	36.8	5.58	7.589	
1,400.0	1,400.0	1,397.9	1,397.3	3.0	3.0	-66.94	18.7	-44.0	47.9	41.8	6.03	7.941	
1,500.0	1,500.0	1,499.2	1,498.4	3.2	3.2	-63.58	23.3	-46.8	52.3	45.8	6.45	8.102	
1,600.0	1,600.0	1,600.8	1,600.0	3.5	3.4	-62.59	24.8	-47.8	53.8	46.9	6.86	7.844	
1,700.0	1,700.0	1,700.8	1,700.0	3.7	3.6	-62.59	24.8	-47.8	53.8	46.5	7.28	7.385	
1,800.0	1,800.0	1,800.8	1,800.0	3.9	3.8	-62.59	24.8	-47.8	53.8	46.1	7.73	6.958	
1,900.0	1,900.0	1,900.8	1,900.0	4.1	4.1	-62.59	24.8	-47.8	53.8	45.6	8.18	6.577	
2,000.0	2,000.0	2,000.8	2,000.0	4.4	4.3	-62.59	24.8	-47.8	53.8	45.2	8.63	6.235	
2,100.0	2,100.0	2,100.8	2,100.0	4.6	4.5	-62.59	24.8	-47.8	53.8	44.7	9.08	5.927	
2,200.0	2,200.0	2,200.8	2,200.0	4.8	4.7	-62.59	24.8	-47.8	53.8	44.3	9.52	5.648	
2,300.0	2,300.0	2,300.8	2,300.0	5.0	4.9	-62.59	24.8	-47.8	53.8	43.8	9.97	5.394	
2,400.0	2,400.0	2,400.8	2,400.0	5.3	5.2	-62.59	24.8	-47.8	53.8	43.4	10.42	5.162	
2,500.0	2,500.0	2,500.8	2,500.0	5.5	5.4	-62.59	24.8	-47.8	53.8	42.9	10.87	4.949	
2,600.0	2,600.0	2,600.8	2,600.0	5.7	5.6	-62.59	24.8	-47.8	53.8	42.5	11.32	4.752	
2,700.0	2,700.0	2,700.8	2,700.0	5.9	5.8	-62.59	24.8	-47.8	53.8	42.0	11.77	4.571	
2,800.0	2,800.0	2,800.8	2,800.0	6.2	6.1	-62.59	24.8	-47.8	53.8	41.6	12.22	4.403	
2,900.0	2,900.0	2,900.8	2,900.0	6.4	6.3	-62.59	24.8	-47.8	53.8	41.1	12.67	4.247	
3,000.0	3,000.0	3,000.8	3,000.0	6.6	6.5	-62.59	24.8	-47.8	53.8	40.7	13.11	4.102	
3,100.0	3,100.0	3,100.8	3,100.0	6.8	6.7	-62.59	24.8	-47.8	53.8	40.2	13.56	3.966	
3,200.0	3,200.0	3,200.8	3,200.0	7.1	7.0	-62.59	24.8	-47.8	53.8	39.8	14.01	3.839	
3,300.0	3,300.0	3,300.8	3,300.0	7.3	7.2	-62.59	24.8	-47.8	53.8	39.3	14.46	3.720	
3,400.0	3,400.0	3,400.8	3,400.0	7.5	7.4	-62.59	24.8	-47.8	53.8	38.9	14.91	3.608	
3,500.0	3,500.0	3,500.8	3,500.0	7.7	7.6	-62.59	24.8	-47.8	53.8	38.4	15.36	3.502	
3,600.0	3,600.0	3,600.8	3,600.0	8.0	7.9	-62.59	24.8	-47.8	53.8	38.0	15.81	3.403	
3,700.0	3,700.0	3,700.8	3,700.0	8.2	8.1	-62.59	24.8	-47.8	53.8	37.5	16.26	3.309	
3,800.0	3,800.0	3,800.8	3,800.0	8.4	8.3	-62.59	24.8	-47.8	53.8	37.1	16.71	3.220	
3,900.0	3,900.0	3,900.8	3,900.0	8.6	8.5	-62.59	24.8	-47.8	53.8	36.6	17.16	3.135	
4,000.0	4,000.0	4,000.8	4,000.0	8.9	8.7	-62.59	24.8	-47.8	53.8	36.2	17.61	3.055	
4,100.0	4,100.0	4,100.8	4,100.0	9.1	9.0	-62.59	24.8	-47.8	53.8	35.7	18.05	2.979	
4,200.0	4,200.0	4,200.8	4,200.0	9.3	9.2	-62.59	24.8	-47.8	53.8	35.3	18.50	2.907	
4,300.0	4,300.0	4,300.8	4,300.0	9.5	9.4	-62.59	24.8	-47.8	53.8	34.8	18.95	2.838	
4,400.0	4,400.0	4,400.8	4,400.0	9.8	9.6	-62.59	24.8	-47.8	53.8	34.4	19.40	2.772	
4,500.0	4,500.0	4,500.8	4,500.0	10.0	9.9	-62.59	24.8	-47.8	53.8	33.9	19.85	2.710	
4,600.0	4,600.0	4,600.8	4,600.0	10.2	10.1	-62.59	24.8	-47.8	53.8	33.5	20.30	2.650	
4,700.0	4,700.0	4,700.8	4,700.0	10.4	10.3	-62.59	24.8	-47.8	53.8	33.0	20.75	2.592	
4,800.0	4,800.0	4,800.8	4,800.0	10.7	10.5	-62.59	24.8	-47.8	53.8	32.6	21.20	2.537	
4,900.0	4,900.0	4,900.8	4,900.0	10.9	10.8	-62.59	24.8	-47.8	53.8	32.1	21.65	2.485	
5,000.0	5,000.0	5,000.8	5,000.0	11.1	11.0	-62.59	24.8	-47.8	53.8	31.7	22.10	2.434	
5,100.0	5,100.0	5,100.8	5,100.0	11.3	11.2	-62.59	24.8	-47.8	53.8	31.2	22.55	2.386	

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 #27I-3415A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27I-3415A	**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 #27I-2213A - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA 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
5,128.0	5,128.0	5,128.8	5,128.0	11.4	11.3	-62.59	24.8	-47.8	53.8	31.1	22.67	2.372	SF
5,150.0	5,150.0	5,149.0	5,148.2	11.4	11.3	138.70	25.1	-48.0	54.5	31.8	22.74	2.396	
5,200.0	5,199.8	5,193.9	5,192.9	11.5	11.4	142.45	28.1	-49.9	61.6	38.8	22.80	2.700	
5,250.0	5,248.9	5,235.7	5,234.2	11.6	11.5	147.62	33.9	-53.5	76.7	54.0	22.69	3.378	
5,300.0	5,296.9	5,273.0	5,270.4	11.7	11.6	151.91	41.5	-58.2	99.7	77.3	22.38	4.456	
5,350.0	5,343.3	5,300.0	5,296.2	11.8	11.7	153.93	48.3	-62.5	130.0	108.1	21.88	5.941	
5,400.0	5,387.8	5,331.2	5,325.3	11.9	11.8	155.86	57.5	-68.2	165.9	144.7	21.21	7.821	
5,450.0	5,429.9	5,350.0	5,342.7	12.0	11.8	155.35	63.8	-72.2	206.5	186.0	20.46	10.092	
5,500.0	5,469.2	5,367.6	5,358.5	12.2	11.9	153.76	70.1	-76.2	250.5	230.8	19.71	12.711	
5,550.0	5,505.3	5,378.7	5,368.5	12.4	11.9	149.37	74.4	-78.8	297.0	277.8	19.28	15.407	
5,600.0	5,538.0	5,385.9	5,374.8	12.7	11.9	139.94	77.2	-80.6	345.3	325.3	19.96	17.297	
5,650.0	5,566.9	5,400.0	5,387.2	13.0	12.0	126.16	83.0	-84.2	394.7	372.7	22.00	17.944	
5,700.0	5,591.8	5,400.0	5,387.2	13.3	12.0	85.34	83.0	-84.2	444.3	418.7	25.63	17.338	
5,750.0	5,612.4	5,400.0	5,387.2	13.8	12.0	45.27	83.0	-84.2	494.0	473.7	20.23	24.414	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-3415A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27I-3415A	**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 #27I-2214B - HZ - Plan #3

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	-138.46	-74.7	-66.2	99.8				
100.0	100.0	100.0	100.0	0.1	0.1	-138.46	-74.7	-66.2	99.8	99.5	0.24	416.438	
200.0	200.0	200.0	200.0	0.3	0.3	-138.46	-74.7	-66.2	99.8	99.1	0.64	156.162	
300.0	300.0	300.0	300.0	0.5	0.5	-138.46	-74.7	-66.2	99.8	98.7	1.04	96.100	CC, ES
400.0	400.0	398.7	398.7	0.8	0.7	-137.56	-74.1	-67.8	100.4	99.0	1.44	69.894	
500.0	500.0	497.2	497.0	1.0	0.9	-134.93	-72.4	-72.5	102.5	100.7	1.84	55.671	
600.0	600.0	596.9	596.5	1.2	1.1	-131.51	-70.0	-79.1	105.6	103.4	2.25	46.966	
700.0	700.0	696.6	696.0	1.4	1.3	-128.29	-67.6	-85.6	109.2	106.5	2.66	41.082	
800.0	800.0	796.4	795.5	1.7	1.5	-125.29	-65.2	-92.1	113.0	109.9	3.06	36.890	
900.0	900.0	896.1	895.0	1.9	1.7	-122.49	-62.8	-98.7	117.1	113.6	3.47	33.783	
1,000.0	1,000.0	995.9	994.5	2.1	1.9	-119.88	-60.5	-105.2	121.5	117.6	3.87	31.407	
1,100.0	1,100.0	1,095.7	1,094.0	2.3	2.1	-117.46	-58.1	-111.8	126.1	121.8	4.27	29.544	
1,200.0	1,200.0	1,195.4	1,193.6	2.6	2.3	-115.21	-55.7	-118.3	130.9	126.3	4.67	28.053	
1,300.0	1,300.0	1,295.2	1,293.1	2.8	2.5	-113.13	-53.3	-124.8	135.9	130.9	5.06	26.840	
1,400.0	1,400.0	1,394.9	1,392.6	3.0	2.7	-111.19	-50.9	-131.4	141.1	135.6	5.46	25.838	
1,500.0	1,500.0	1,494.7	1,492.1	3.2	2.9	-109.39	-48.6	-137.9	146.4	140.6	5.86	25.000	
1,600.0	1,600.0	1,594.4	1,591.6	3.5	3.1	-107.73	-46.2	-144.5	151.9	145.6	6.25	24.291	
1,700.0	1,700.0	1,694.2	1,691.1	3.7	3.4	-106.17	-43.8	-151.0	157.5	150.8	6.65	23.685	
1,800.0	1,800.0	1,794.0	1,790.6	3.9	3.6	-104.73	-41.4	-157.5	163.2	156.1	7.04	23.163	
1,900.0	1,900.0	1,893.7	1,890.2	4.1	3.8	-103.38	-39.0	-164.1	168.9	161.5	7.44	22.709	
2,000.0	2,000.0	1,993.5	1,989.7	4.4	4.0	-102.13	-36.7	-170.6	174.8	167.0	7.84	22.312	
2,100.0	2,100.0	2,093.2	2,089.2	4.6	4.2	-100.95	-34.3	-177.2	180.8	172.5	8.23	21.962	
2,200.0	2,200.0	2,193.0	2,188.7	4.8	4.4	-99.85	-31.9	-183.7	186.8	178.2	8.63	21.653	
2,300.0	2,300.0	2,292.7	2,288.2	5.0	4.6	-98.82	-29.5	-190.2	192.9	183.8	9.02	21.377	
2,400.0	2,400.0	2,392.5	2,387.7	5.3	4.8	-97.85	-27.1	-196.8	199.0	189.6	9.42	21.130	
2,500.0	2,500.0	2,492.2	2,487.2	5.5	5.0	-96.94	-24.8	-203.3	205.2	195.4	9.82	20.907	
2,600.0	2,600.0	2,592.0	2,586.7	5.7	5.3	-96.09	-22.4	-209.9	211.5	201.2	10.21	20.707	
2,700.0	2,700.0	2,691.8	2,686.3	5.9	5.5	-95.28	-20.0	-216.4	217.7	207.1	10.61	20.525	
2,800.0	2,800.0	2,791.5	2,785.8	6.2	5.7	-94.52	-17.6	-222.9	224.1	213.1	11.01	20.359	
2,900.0	2,900.0	2,891.3	2,885.3	6.4	5.9	-93.80	-15.2	-229.5	230.4	219.0	11.40	20.208	
3,000.0	3,000.0	2,991.0	2,984.8	6.6	6.1	-93.12	-12.9	-236.0	236.8	225.0	11.80	20.069	
3,100.0	3,100.0	3,090.8	3,084.3	6.8	6.3	-92.47	-10.5	-242.5	243.3	231.1	12.20	19.942	
3,200.0	3,200.0	3,190.5	3,183.8	7.1	6.5	-91.86	-8.1	-249.1	249.7	237.1	12.60	19.825	
3,300.0	3,300.0	3,290.3	3,283.3	7.3	6.7	-91.28	-5.7	-255.6	256.2	243.2	13.00	19.716	
3,400.0	3,400.0	3,390.1	3,382.9	7.5	7.0	-90.73	-3.3	-262.2	262.7	249.3	13.39	19.616	
3,500.0	3,500.0	3,489.8	3,482.4	7.7	7.2	-90.20	-1.0	-268.7	269.3	255.5	13.79	19.522	
3,600.0	3,600.0	3,589.6	3,581.9	8.0	7.4	-89.70	1.4	-275.2	275.8	261.6	14.19	19.436	
3,700.0	3,700.0	3,693.4	3,685.4	8.2	7.6	-89.23	3.8	-281.7	282.1	267.5	14.60	19.326	
3,800.0	3,800.0	3,803.6	3,795.6	8.4	7.8	-88.97	5.1	-285.4	285.5	270.5	15.02	19.012	
3,900.0	3,900.0	3,908.0	3,900.0	8.6	7.9	-88.95	5.3	-285.8	285.8	270.4	15.42	18.531	
4,000.0	4,000.0	4,008.0	4,000.0	8.9	8.1	-88.95	5.3	-285.8	285.8	270.0	15.82	18.063	
4,100.0	4,100.0	4,108.0	4,100.0	9.1	8.2	-88.95	5.3	-285.8	285.8	269.6	16.22	17.619	
4,200.0	4,200.0	4,208.0	4,200.0	9.3	8.4	-88.95	5.3	-285.8	285.8	269.2	16.62	17.195	
4,300.0	4,300.0	4,308.0	4,300.0	9.5	8.5	-88.95	5.3	-285.8	285.8	268.8	17.02	16.792	
4,400.0	4,400.0	4,408.0	4,400.0	9.8	8.7	-88.95	5.3	-285.8	285.8	268.4	17.42	16.407	
4,500.0	4,500.0	4,508.0	4,500.0	10.0	8.8	-88.95	5.3	-285.8	285.8	268.0	17.82	16.039	
4,600.0	4,600.0	4,608.0	4,600.0	10.2	9.0	-88.95	5.3	-285.8	285.8	267.6	18.22	15.687	
4,700.0	4,700.0	4,708.0	4,700.0	10.4	9.2	-88.95	5.3	-285.8	285.8	267.2	18.62	15.351	
4,800.0	4,800.0	4,808.0	4,800.0	10.7	9.3	-88.95	5.3	-285.8	285.8	266.8	19.02	15.029	
4,900.0	4,900.0	4,908.0	4,900.0	10.9	9.5	-88.95	5.3	-285.8	285.8	266.4	19.42	14.720	
5,000.0	5,000.0	5,008.0	5,000.0	11.1	9.6	-88.95	5.3	-285.8	285.8	266.0	19.82	14.423	
5,100.0	5,100.0	5,108.0	5,100.0	11.3	9.8	-88.95	5.3	-285.8	285.8	265.6	20.22	14.138	

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 #27I-3415A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27I-3415A	**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 #27I-2214B - HZ - Plan #3

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
5,128.0	5,128.0	5,136.0	5,128.0	11.4	9.8	-88.95	5.3	-285.8	285.8	265.5	20.33	14.060	
5,150.0	5,150.0	5,158.0	5,150.0	11.4	9.9	111.97	5.3	-285.8	286.0	265.4	20.56	13.912	
5,200.0	5,199.8	5,207.8	5,199.8	11.5	9.9	112.63	5.3	-285.8	287.7	266.9	20.82	13.817	SF
5,250.0	5,248.9	5,255.7	5,247.7	11.6	10.0	114.05	6.3	-285.8	291.5	270.4	21.07	13.831	
5,300.0	5,296.9	5,300.0	5,291.7	11.7	10.1	116.43	10.9	-285.8	298.1	276.8	21.31	13.991	
5,350.0	5,343.3	5,338.4	5,329.5	11.8	10.2	119.02	18.0	-285.8	308.8	287.3	21.52	14.355	
5,400.0	5,387.8	5,371.2	5,361.2	11.9	10.3	121.22	26.2	-285.8	324.6	302.9	21.68	14.973	
5,450.0	5,429.9	5,400.0	5,388.6	12.0	10.4	122.82	35.0	-285.8	346.1	324.3	21.82	15.864	
5,500.0	5,469.2	5,418.6	5,406.0	12.2	10.4	122.54	41.5	-285.8	373.3	351.3	22.00	16.968	
5,550.0	5,505.3	5,434.0	5,420.3	12.4	10.5	121.04	47.3	-285.8	405.6	383.4	22.28	18.207	
5,600.0	5,538.0	5,450.0	5,434.9	12.7	10.5	118.71	53.9	-285.8	442.4	419.7	22.70	19.487	
5,650.0	5,566.9	5,450.0	5,434.9	13.0	10.5	111.99	53.9	-285.8	482.6	459.1	23.44	20.586	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-3415A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27I-3415A	**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 #27I-2215A - HZ - Plan #1

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	90.01	0.0	33.2	33.2				
100.0	100.0	100.0	100.0	0.1	0.1	90.01	0.0	33.2	33.2	33.0	0.24	138.661	
200.0	200.0	200.0	200.0	0.3	0.3	90.01	0.0	33.2	33.2	32.6	0.64	51.997	
300.0	300.0	300.0	300.0	0.5	0.5	90.01	0.0	33.2	33.2	32.2	1.04	31.998	
400.0	400.0	400.0	400.0	0.8	0.7	90.01	0.0	33.2	33.2	31.8	1.44	23.110	
500.0	500.0	500.0	500.0	1.0	0.8	90.01	0.0	33.2	33.2	31.4	1.84	18.086	
600.0	600.0	600.0	600.0	1.2	1.0	90.01	0.0	33.2	33.2	31.0	2.24	14.856	
700.0	700.0	700.0	700.0	1.4	1.2	90.01	0.0	33.2	33.2	30.6	2.64	12.605	
800.0	800.0	800.0	800.0	1.7	1.4	90.01	0.0	33.2	33.2	30.2	3.03	10.947	
900.0	900.0	900.0	900.0	1.9	1.5	90.01	0.0	33.2	33.2	29.8	3.43	9.674	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	1.7	90.01	0.0	33.2	33.2	29.4	3.83	8.666	
1,100.0	1,100.0	1,100.0	1,100.0	2.3	1.9	90.01	0.0	33.2	33.2	29.0	4.23	7.849	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.1	90.01	0.0	33.2	33.2	28.6	4.63	7.172	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.2	90.01	0.0	33.2	33.2	28.2	5.03	6.603	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	2.4	90.01	0.0	33.2	33.2	27.8	5.43	6.117	
1,500.0	1,500.0	1,500.0	1,500.0	3.2	2.6	90.01	0.0	33.2	33.2	27.4	5.83	5.698	
1,600.0	1,600.0	1,600.0	1,600.0	3.5	2.8	90.01	0.0	33.2	33.2	27.0	6.23	5.333	
1,700.0	1,700.0	1,700.0	1,700.0	3.7	2.9	90.01	0.0	33.2	33.2	26.6	6.63	5.012	
1,800.0	1,800.0	1,800.0	1,800.0	3.9	3.1	90.01	0.0	33.2	33.2	26.2	7.03	4.727	
1,900.0	1,900.0	1,900.0	1,900.0	4.1	3.3	90.01	0.0	33.2	33.2	25.8	7.43	4.473	
2,000.0	2,000.0	2,000.0	2,000.0	4.4	3.5	90.01	0.0	33.2	33.2	25.4	7.83	4.245	
2,100.0	2,100.0	2,100.0	2,100.0	4.6	3.6	90.01	0.0	33.2	33.2	25.0	8.23	4.039	
2,200.0	2,200.0	2,200.0	2,200.0	4.8	3.8	90.01	0.0	33.2	33.2	24.6	8.62	3.852	
2,300.0	2,300.0	2,300.0	2,300.0	5.0	4.0	90.01	0.0	33.2	33.2	24.2	9.02	3.681	
2,400.0	2,400.0	2,400.0	2,400.0	5.3	4.2	90.01	0.0	33.2	33.2	23.8	9.42	3.525	
2,500.0	2,500.0	2,500.0	2,500.0	5.5	4.3	90.01	0.0	33.2	33.2	23.4	9.82	3.382	
2,600.0	2,600.0	2,600.0	2,600.0	5.7	4.5	90.01	0.0	33.2	33.2	23.0	10.22	3.250	
2,700.0	2,700.0	2,700.0	2,700.0	5.9	4.7	90.01	0.0	33.2	33.2	22.6	10.62	3.128	
2,800.0	2,800.0	2,800.0	2,800.0	6.2	4.9	90.01	0.0	33.2	33.2	22.2	11.02	3.014	
2,900.0	2,900.0	2,900.0	2,900.0	6.4	5.0	90.01	0.0	33.2	33.2	21.8	11.42	2.909	
3,000.0	3,000.0	3,000.0	3,000.0	6.6	5.2	90.01	0.0	33.2	33.2	21.4	11.82	2.811	
3,100.0	3,100.0	3,100.0	3,100.0	6.8	5.4	90.01	0.0	33.2	33.2	21.0	12.22	2.719	
3,200.0	3,200.0	3,200.0	3,200.0	7.1	5.6	90.01	0.0	33.2	33.2	20.6	12.62	2.633	
3,300.0	3,300.0	3,300.0	3,300.0	7.3	5.7	90.01	0.0	33.2	33.2	20.2	13.02	2.552	
3,400.0	3,400.0	3,400.0	3,400.0	7.5	5.9	90.01	0.0	33.2	33.2	19.8	13.42	2.476	
3,500.0	3,500.0	3,500.0	3,500.0	7.7	6.1	90.01	0.0	33.2	33.2	19.4	13.82	2.404	
3,600.0	3,600.0	3,600.0	3,600.0	8.0	6.3	90.01	0.0	33.2	33.2	19.0	14.22	2.337	
3,700.0	3,700.0	3,700.0	3,700.0	8.2	6.4	90.01	0.0	33.2	33.2	18.6	14.61	2.273	
3,800.0	3,800.0	3,800.0	3,800.0	8.4	6.6	90.01	0.0	33.2	33.2	18.2	15.01	2.213	
3,900.0	3,900.0	3,900.0	3,900.0	8.6	6.8	90.01	0.0	33.2	33.2	17.8	15.41	2.155	
4,000.0	4,000.0	4,000.0	4,000.0	8.9	7.0	90.01	0.0	33.2	33.2	17.4	15.81	2.101	
4,100.0	4,100.0	4,100.0	4,100.0	9.1	7.1	90.01	0.0	33.2	33.2	17.0	16.21	2.049	
4,200.0	4,200.0	4,200.0	4,200.0	9.3	7.3	90.01	0.0	33.2	33.2	16.6	16.61	2.000	
4,300.0	4,300.0	4,300.0	4,300.0	9.5	7.5	90.01	0.0	33.2	33.2	16.2	17.01	1.953	
4,400.0	4,400.0	4,400.0	4,400.0	9.8	7.7	90.01	0.0	33.2	33.2	15.8	17.41	1.908	
4,500.0	4,500.0	4,500.0	4,500.0	10.0	7.8	90.01	0.0	33.2	33.2	15.4	17.81	1.865	
4,600.0	4,600.0	4,600.0	4,600.0	10.2	8.0	90.01	0.0	33.2	33.2	15.0	18.21	1.824	
4,700.0	4,700.0	4,700.0	4,700.0	10.4	8.2	90.01	0.0	33.2	33.2	14.6	18.61	1.785	
4,800.0	4,800.0	4,800.0	4,800.0	10.7	8.3	90.01	0.0	33.2	33.2	14.2	19.01	1.748	
4,900.0	4,900.0	4,900.0	4,900.0	10.9	8.5	90.01	0.0	33.2	33.2	13.8	19.41	1.712	
5,000.0	5,000.0	5,000.0	5,000.0	11.1	8.7	90.01	0.0	33.2	33.2	13.4	19.81	1.677	
5,100.0	5,100.0	5,100.0	5,100.0	11.3	8.9	90.01	0.0	33.2	33.2	13.0	20.20	1.644	

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 #27I-3415A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27I-3415A	**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 #27I-2215A - HZ - Plan #1

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
5,128.0	5,128.0	5,128.0	5,128.0	11.4	8.9	90.01	0.0	33.2	33.2	12.9	20.32	1.635	
5,150.0	5,150.0	5,149.9	5,149.9	11.4	9.0	-70.69	0.4	33.2	33.1	12.7	20.40	1.622	
5,183.5	5,183.4	5,182.9	5,182.8	11.5	9.0	-78.99	2.9	33.3	32.7	12.2	20.51	1.596	CC, ES, SF
5,200.0	5,199.8	5,198.6	5,198.4	11.5	9.0	-85.45	4.8	33.3	32.9	12.4	20.56	1.602	
5,250.0	5,248.9	5,243.8	5,242.9	11.6	9.1	-109.17	12.8	33.5	39.0	18.1	20.95	1.864	
5,300.0	5,296.9	5,283.8	5,281.5	11.7	9.2	-127.70	23.1	33.7	56.9	35.6	21.26	2.676	
5,350.0	5,343.3	5,317.8	5,313.6	11.8	9.3	-137.69	34.1	33.9	85.0	63.6	21.32	3.986	
5,400.0	5,387.8	5,350.0	5,343.3	11.9	9.4	-143.32	46.5	34.2	120.3	99.1	21.20	5.676	
5,450.0	5,429.9	5,367.1	5,358.8	12.0	9.4	-143.15	53.9	34.3	160.5	139.5	21.04	7.629	
5,500.0	5,469.2	5,383.3	5,373.2	12.2	9.5	-141.23	61.3	34.5	204.4	183.5	20.91	9.777	
5,550.0	5,505.3	5,400.0	5,387.8	12.4	9.5	-137.63	69.3	34.7	250.9	230.0	20.91	12.000	
5,600.0	5,538.0	5,400.0	5,387.8	12.7	9.5	-123.13	69.3	34.7	298.9	277.2	21.72	13.761	
5,650.0	5,566.9	5,400.0	5,387.8	13.0	9.5	-96.78	69.3	34.7	348.0	325.6	22.36	15.564	
5,700.0	5,591.8	5,400.0	5,387.8	13.3	9.5	-63.44	69.3	34.7	397.4	376.1	21.26	18.689	
5,750.0	5,612.4	5,400.0	5,387.8	13.8	9.5	-39.85	69.3	34.7	446.6	429.0	17.58	25.396	
5,800.0	5,628.5	5,400.0	5,387.8	14.3	9.5	-26.92	69.3	34.7	495.2	480.6	14.67	33.753	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-3415A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27I-3415A	**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 #27I-2216B - 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	-74.7	0.0	74.7				
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-74.7	0.0	74.7	74.5	0.24	311.759	
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-74.7	0.0	74.7	74.1	0.64	116.908	
300.0	300.0	300.0	300.0	0.5	0.5	180.00	-74.7	0.0	74.7	73.7	1.04	71.943	
400.0	400.0	400.0	400.0	0.8	0.7	180.00	-74.7	0.0	74.7	73.3	1.44	51.959	
500.0	500.0	500.0	500.0	1.0	0.8	180.00	-74.7	0.0	74.7	72.9	1.84	40.664	
600.0	600.0	601.8	601.8	1.2	1.0	179.00	-73.4	1.3	73.4	71.2	2.24	32.792	
700.0	700.0	703.4	703.2	1.4	1.2	175.81	-69.6	5.1	69.8	67.2	2.64	26.412	
800.0	800.0	803.1	802.7	1.7	1.4	171.19	-64.7	10.0	65.5	62.4	3.05	21.472	
900.0	900.0	902.9	902.2	1.9	1.6	165.96	-59.7	14.9	61.6	58.2	3.46	17.803	
1,000.0	1,000.0	1,002.6	1,001.7	2.1	1.8	160.09	-54.8	19.9	58.3	54.5	3.88	15.036	
1,100.0	1,100.0	1,102.4	1,101.2	2.3	2.0	153.59	-49.9	24.8	55.7	51.4	4.31	12.942	
1,200.0	1,200.0	1,202.1	1,200.8	2.6	2.2	146.57	-45.0	29.7	53.9	49.2	4.74	11.370	
1,300.0	1,300.0	1,301.9	1,300.3	2.8	2.4	139.17	-40.1	34.6	53.0	47.8	5.18	10.217	
1,355.3	1,355.3	1,357.1	1,355.3	2.9	2.5	135.00	-37.3	37.3	52.8	47.4	5.43	9.728	CC
1,400.0	1,400.0	1,401.7	1,399.8	3.0	2.6	131.63	-35.1	39.5	52.9	47.3	5.63	9.400	ES
1,500.0	1,500.0	1,501.4	1,499.3	3.2	2.8	124.21	-30.2	44.5	53.8	47.7	6.07	8.854	
1,600.0	1,600.0	1,601.2	1,598.8	3.5	3.0	117.13	-25.3	49.4	55.5	49.0	6.51	8.522	
1,700.0	1,700.0	1,700.9	1,698.3	3.7	3.3	110.57	-20.4	54.3	58.0	51.1	6.95	8.354	
1,800.0	1,800.0	1,800.7	1,797.8	3.9	3.5	104.63	-15.5	59.2	61.2	53.9	7.37	8.308	SF
1,900.0	1,900.0	1,900.4	1,897.3	4.1	3.7	99.33	-10.5	64.1	65.1	57.3	7.79	8.349	
2,000.0	2,000.0	2,000.2	1,996.9	4.4	3.9	94.65	-5.6	69.1	69.4	61.2	8.21	8.453	
2,100.0	2,100.0	2,099.9	2,096.4	4.6	4.1	90.54	-0.7	74.0	74.1	65.5	8.62	8.598	
2,200.0	2,200.0	2,199.7	2,195.9	4.8	4.3	86.94	4.2	78.9	79.1	70.1	9.02	8.770	
2,300.0	2,300.0	2,299.5	2,295.4	5.0	4.5	83.78	9.1	83.8	84.5	75.0	9.43	8.958	
2,400.0	2,400.0	2,399.2	2,394.9	5.3	4.7	81.00	14.1	88.7	90.0	80.2	9.83	9.156	
2,500.0	2,500.0	2,499.0	2,494.4	5.5	4.9	78.55	19.0	93.7	95.7	85.5	10.23	9.357	
2,600.0	2,600.0	2,598.7	2,593.9	5.7	5.2	76.37	23.9	98.6	101.6	91.0	10.63	9.558	
2,700.0	2,700.0	2,698.5	2,693.5	5.9	5.4	74.44	28.8	103.5	107.6	96.6	11.03	9.757	
2,800.0	2,800.0	2,798.2	2,793.0	6.2	5.6	72.72	33.7	108.4	113.8	102.3	11.43	9.951	
2,900.0	2,900.0	2,898.0	2,892.5	6.4	5.8	71.17	38.7	113.4	120.0	108.2	11.83	10.141	
3,000.0	3,000.0	2,997.8	2,992.0	6.6	6.0	69.77	43.6	118.3	126.3	114.1	12.23	10.324	
3,100.0	3,100.0	3,097.5	3,091.5	6.8	6.2	68.51	48.5	123.2	132.7	120.0	12.63	10.501	
3,200.0	3,200.0	3,197.3	3,191.0	7.1	6.4	67.36	53.4	128.1	139.1	126.1	13.03	10.671	
3,300.0	3,300.0	3,297.0	3,290.5	7.3	6.6	66.32	58.3	133.0	145.6	132.1	13.44	10.835	
3,400.0	3,400.0	3,396.8	3,390.1	7.5	6.8	65.36	63.3	138.0	152.1	138.3	13.84	10.992	
3,500.0	3,500.0	3,496.5	3,489.6	7.7	7.1	64.49	68.2	142.9	158.7	144.4	14.24	11.144	
3,600.0	3,600.0	3,596.3	3,589.1	8.0	7.3	63.68	73.1	147.8	165.2	150.6	14.64	11.289	
3,700.0	3,700.0	3,696.1	3,688.6	8.2	7.5	62.94	78.0	152.7	171.9	156.8	15.04	11.428	
3,800.0	3,800.0	3,795.8	3,788.1	8.4	7.7	62.25	82.9	157.6	178.5	163.1	15.44	11.562	
3,900.0	3,900.0	3,895.6	3,887.6	8.6	7.9	61.61	87.9	162.6	185.2	169.4	15.84	11.690	
4,000.0	4,000.0	3,995.3	3,987.1	8.9	8.1	61.01	92.8	167.5	191.9	175.7	16.24	11.813	
4,100.0	4,100.0	4,095.1	4,086.6	9.1	8.3	60.46	97.7	172.4	198.6	182.0	16.65	11.932	
4,200.0	4,200.0	4,194.8	4,186.2	9.3	8.5	59.94	102.6	177.3	205.3	188.3	17.05	12.045	
4,300.0	4,300.0	4,294.6	4,285.7	9.5	8.8	59.45	107.5	182.2	212.1	194.6	17.45	12.155	
4,400.0	4,400.0	4,394.3	4,385.2	9.8	9.0	59.00	112.5	187.2	218.9	201.0	17.85	12.260	
4,500.0	4,500.0	4,494.1	4,484.7	10.0	9.2	58.57	117.4	192.1	225.6	207.4	18.25	12.361	
4,600.0	4,600.0	4,593.9	4,584.2	10.2	9.4	58.17	122.3	197.0	232.4	213.8	18.66	12.458	
4,700.0	4,700.0	4,693.6	4,683.7	10.4	9.6	57.78	127.2	201.9	239.2	220.2	19.06	12.552	
4,800.0	4,800.0	4,793.4	4,783.2	10.7	9.8	57.43	132.2	206.8	246.0	226.6	19.46	12.642	
4,900.0	4,900.0	4,893.1	4,882.8	10.9	10.0	57.09	137.1	211.8	252.8	233.0	19.86	12.729	
5,000.0	5,000.0	5,001.9	4,991.4	11.1	10.2	56.82	141.2	215.8	258.1	237.8	20.27	12.729	

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 #27I-3415A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27I-3415A	**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 #27I-2216B - 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	5,110.6	5,100.0	11.3	10.4	56.74	142.3	217.0	259.6	238.9	20.68	12.553	
5,128.0	5,128.0	5,138.6	5,128.0	11.4	10.4	56.74	142.3	217.0	259.6	238.8	20.79	12.487	
5,150.0	5,150.0	5,160.5	5,150.0	11.4	10.5	-102.50	142.3	217.0	259.7	239.1	20.50	12.664	
5,200.0	5,199.8	5,210.3	5,199.8	11.5	10.5	-103.35	142.3	217.0	260.7	239.9	20.73	12.575	
5,250.0	5,248.9	5,250.0	5,239.4	11.6	10.6	-104.66	142.9	217.1	263.5	242.6	20.93	12.588	
5,300.0	5,296.9	5,285.2	5,274.5	11.7	10.7	-106.38	145.7	217.4	270.4	249.3	21.13	12.794	
5,350.0	5,343.3	5,316.3	5,305.3	11.8	10.8	-108.06	150.2	218.0	282.0	260.7	21.32	13.228	
5,400.0	5,387.8	5,350.0	5,338.3	11.9	10.9	-110.07	157.0	218.8	298.9	277.4	21.49	13.907	
5,450.0	5,429.9	5,366.7	5,354.5	12.0	11.0	-109.71	161.2	219.3	321.0	299.4	21.64	14.831	
5,500.0	5,469.2	5,385.7	5,372.6	12.2	11.0	-109.04	166.5	220.0	348.3	326.5	21.82	15.964	
5,550.0	5,505.3	5,400.0	5,386.2	12.4	11.1	-106.94	171.0	220.5	380.2	358.2	22.04	17.251	
5,600.0	5,538.0	5,411.8	5,397.3	12.7	11.1	-103.54	175.0	221.0	415.9	393.6	22.32	18.634	
5,650.0	5,566.9	5,419.6	5,404.6	13.0	11.2	-98.36	177.8	221.3	454.6	432.0	22.61	20.107	
5,700.0	5,591.8	5,424.3	5,409.0	13.3	11.2	-91.46	179.5	221.5	495.6	472.4	23.19	21.375	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-3415A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27I-3415A	**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 #27I-3413A - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA 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	-89.99	0.0	-66.2	66.2				
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	0.0	-66.2	66.2	66.0	0.19	352.529	
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-66.2	66.2	65.5	0.64	103.831	
300.0	300.0	300.0	300.0	0.5	0.5	-89.99	0.0	-66.2	66.2	65.1	1.09	60.882	
400.0	400.0	400.0	400.0	0.8	0.8	-89.99	0.0	-66.2	66.2	64.6	1.54	43.067	
500.0	500.0	500.0	500.0	1.0	1.0	-89.99	0.0	-66.2	66.2	64.2	1.99	33.318	
600.0	600.0	600.0	600.0	1.2	1.2	-89.99	0.0	-66.2	66.2	63.7	2.44	27.168	
700.0	700.0	700.0	700.0	1.4	1.4	-89.99	0.0	-66.2	66.2	63.3	2.88	22.934	
800.0	800.0	800.0	800.0	1.7	1.7	-89.99	0.0	-66.2	66.2	62.8	3.33	19.842	
900.0	900.0	900.0	900.0	1.9	1.9	-89.99	0.0	-66.2	66.2	62.4	3.78	17.485	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-89.99	0.0	-66.2	66.2	61.9	4.23	15.628	
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	-89.99	0.0	-66.2	66.2	61.5	4.68	14.128	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-89.99	0.0	-66.2	66.2	61.0	5.13	12.891	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-89.99	0.0	-66.2	66.2	60.6	5.58	11.853	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-89.99	0.0	-66.2	66.2	60.1	6.03	10.969	
1,500.0	1,500.0	1,500.0	1,500.0	3.2	3.2	-89.99	0.0	-66.2	66.2	59.7	6.48	10.208	
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	-89.99	0.0	-66.2	66.2	59.2	6.93	9.546	
1,700.0	1,700.0	1,700.0	1,700.0	3.7	3.7	-89.99	0.0	-66.2	66.2	58.8	7.38	8.965	
1,800.0	1,800.0	1,800.0	1,800.0	3.9	3.9	-89.99	0.0	-66.2	66.2	58.3	7.83	8.450	
1,900.0	1,900.0	1,900.0	1,900.0	4.1	4.1	-89.99	0.0	-66.2	66.2	57.9	8.28	7.991	
2,000.0	2,000.0	2,000.0	2,000.0	4.4	4.4	-89.99	0.0	-66.2	66.2	57.4	8.73	7.580	
2,100.0	2,100.0	2,100.0	2,100.0	4.6	4.6	-89.99	0.0	-66.2	66.2	57.0	9.18	7.209	
2,200.0	2,200.0	2,200.0	2,200.0	4.8	4.8	-89.99	0.0	-66.2	66.2	56.5	9.63	6.872	
2,300.0	2,300.0	2,300.0	2,300.0	5.0	5.0	-89.99	0.0	-66.2	66.2	56.1	10.08	6.565	
2,400.0	2,400.0	2,400.0	2,400.0	5.3	5.3	-89.99	0.0	-66.2	66.2	55.6	10.53	6.285	
2,500.0	2,500.0	2,500.0	2,500.0	5.5	5.5	-89.99	0.0	-66.2	66.2	55.2	10.98	6.028	
2,600.0	2,600.0	2,600.0	2,600.0	5.7	5.7	-89.99	0.0	-66.2	66.2	54.7	11.43	5.791	
2,700.0	2,700.0	2,700.0	2,700.0	5.9	5.9	-89.99	0.0	-66.2	66.2	54.3	11.88	5.571	
2,800.0	2,800.0	2,800.0	2,800.0	6.2	6.2	-89.99	0.0	-66.2	66.2	53.8	12.33	5.368	
2,900.0	2,900.0	2,900.0	2,900.0	6.4	6.4	-89.99	0.0	-66.2	66.2	53.4	12.77	5.179	
3,000.0	3,000.0	3,000.0	3,000.0	6.6	6.6	-89.99	0.0	-66.2	66.2	52.9	13.22	5.003	
3,100.0	3,100.0	3,100.0	3,100.0	6.8	6.8	-89.99	0.0	-66.2	66.2	52.5	13.67	4.839	
3,200.0	3,200.0	3,200.0	3,200.0	7.1	7.1	-89.99	0.0	-66.2	66.2	52.0	14.12	4.685	
3,300.0	3,300.0	3,300.0	3,300.0	7.3	7.3	-89.99	0.0	-66.2	66.2	51.6	14.57	4.540	
3,400.0	3,400.0	3,400.0	3,400.0	7.5	7.5	-89.99	0.0	-66.2	66.2	51.1	15.02	4.404	
3,500.0	3,500.0	3,500.0	3,500.0	7.7	7.7	-89.99	0.0	-66.2	66.2	50.7	15.47	4.276	
3,600.0	3,600.0	3,600.0	3,600.0	8.0	8.0	-89.99	0.0	-66.2	66.2	50.2	15.92	4.156	
3,700.0	3,700.0	3,700.0	3,700.0	8.2	8.2	-89.99	0.0	-66.2	66.2	49.8	16.37	4.041	
3,800.0	3,800.0	3,800.0	3,800.0	8.4	8.4	-89.99	0.0	-66.2	66.2	49.3	16.82	3.933	
3,900.0	3,900.0	3,900.0	3,900.0	8.6	8.6	-89.99	0.0	-66.2	66.2	48.9	17.27	3.831	
4,000.0	4,000.0	4,000.0	4,000.0	8.9	8.9	-89.99	0.0	-66.2	66.2	48.4	17.72	3.734	
4,100.0	4,100.0	4,100.0	4,100.0	9.1	9.1	-89.99	0.0	-66.2	66.2	48.0	18.17	3.642	
4,200.0	4,200.0	4,200.0	4,200.0	9.3	9.3	-89.99	0.0	-66.2	66.2	47.5	18.62	3.554	
4,300.0	4,300.0	4,300.0	4,300.0	9.5	9.5	-89.99	0.0	-66.2	66.2	47.1	19.07	3.470	
4,400.0	4,400.0	4,400.0	4,400.0	9.8	9.8	-89.99	0.0	-66.2	66.2	46.6	19.52	3.390	
4,500.0	4,500.0	4,500.0	4,500.0	10.0	10.0	-89.99	0.0	-66.2	66.2	46.2	19.97	3.314	
4,600.0	4,600.0	4,600.0	4,600.0	10.2	10.2	-89.99	0.0	-66.2	66.2	45.7	20.42	3.241	
4,700.0	4,700.0	4,700.0	4,700.0	10.4	10.4	-89.99	0.0	-66.2	66.2	45.3	20.87	3.171	
4,800.0	4,800.0	4,800.0	4,800.0	10.7	10.7	-89.99	0.0	-66.2	66.2	44.8	21.32	3.104	
4,900.0	4,900.0	4,900.0	4,900.0	10.9	10.9	-89.99	0.0	-66.2	66.2	44.4	21.77	3.040	
5,000.0	5,000.0	5,000.0	5,000.0	11.1	11.1	-89.99	0.0	-66.2	66.2	43.9	22.21	2.978	
5,100.0	5,100.0	5,100.0	5,100.0	11.3	11.3	-89.99	0.0	-66.2	66.2	43.5	22.66	2.919	

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 #27I-3415A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27I-3415A	**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 #27I-3413A - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA 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
5,128.0	5,128.0	5,128.0	5,128.0	11.4	11.4	-89.99	0.0	-66.2	66.2	43.4	22.79	2.903	CC, ES, SF
5,150.0	5,150.0	5,149.1	5,149.1	11.4	11.4	110.84	-0.4	-66.3	66.5	43.6	22.87	2.906	
5,200.0	5,199.8	5,196.9	5,196.7	11.5	11.5	110.64	-4.3	-67.7	69.5	46.5	23.01	3.021	
5,250.0	5,248.9	5,244.4	5,243.4	11.6	11.6	110.24	-12.2	-70.5	75.8	52.6	23.12	3.276	
5,300.0	5,296.9	5,291.1	5,288.5	11.7	11.7	109.64	-23.9	-74.6	85.1	61.9	23.22	3.664	
5,350.0	5,343.3	5,337.0	5,331.5	11.8	11.8	108.85	-39.0	-80.0	97.4	74.1	23.34	4.173	
5,400.0	5,387.8	5,381.9	5,372.0	11.9	11.9	107.88	-57.2	-86.4	112.5	89.0	23.49	4.790	
5,450.0	5,429.9	5,425.7	5,409.7	12.0	12.0	106.72	-78.0	-93.8	130.2	106.5	23.69	5.498	
5,500.0	5,469.2	5,468.2	5,444.5	12.2	12.1	105.38	-101.0	-101.9	150.4	126.4	23.97	6.274	
5,550.0	5,505.3	5,509.5	5,476.3	12.4	12.2	103.85	-125.9	-110.7	172.7	148.3	24.34	7.095	
5,600.0	5,538.0	5,550.0	5,505.3	12.7	12.4	102.15	-152.5	-120.2	197.0	172.1	24.81	7.937	
5,650.0	5,566.9	5,588.6	5,530.9	13.0	12.5	100.25	-179.7	-129.8	222.9	197.5	25.40	8.777	
5,700.0	5,591.8	5,626.5	5,553.8	13.3	12.7	98.19	-208.2	-139.9	250.4	224.3	26.09	9.598	
5,750.0	5,612.4	5,663.6	5,574.1	13.8	13.0	95.98	-237.5	-150.3	279.2	252.3	26.87	10.390	
5,800.0	5,628.5	5,700.0	5,591.8	14.3	13.2	93.65	-267.5	-160.9	309.0	281.2	27.72	11.147	
5,850.0	5,640.0	5,735.8	5,607.0	14.8	13.5	91.22	-298.0	-171.7	339.6	311.0	28.63	11.863	
5,900.0	5,646.8	5,771.2	5,619.8	15.4	13.8	88.73	-329.1	-182.7	370.9	341.3	29.57	12.543	
5,946.2	5,648.9	5,803.9	5,629.6	16.0	14.1	86.41	-358.5	-193.1	400.1	369.7	30.45	13.142	
6,000.0	5,648.9	5,843.1	5,638.7	16.7	14.5	88.28	-394.4	-205.8	434.0	402.4	31.62	13.726	
6,100.0	5,648.9	5,921.3	5,648.3	18.0	15.4	89.92	-467.5	-231.7	494.4	460.5	33.88	14.592	

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 #27I-3415A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27I-3415A	**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 #27I-3414B - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA 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	-156.20	-74.7	-32.9	81.6				
100.0	100.0	100.0	100.0	0.1	0.1	-156.20	-74.7	-32.9	81.6	81.4	0.19	434.896	
200.0	200.0	200.0	200.0	0.3	0.3	-156.20	-74.7	-32.9	81.6	81.0	0.64	128.091	
300.0	300.0	300.0	300.0	0.5	0.5	-156.20	-74.7	-32.9	81.6	80.5	1.09	75.106	
400.0	400.0	400.0	400.0	0.8	0.8	-156.20	-74.7	-32.9	81.6	80.1	1.54	53.129	
500.0	500.0	500.0	500.0	1.0	1.0	-156.20	-74.7	-32.9	81.6	79.6	1.99	41.102	
600.0	600.0	600.0	600.0	1.2	1.2	-156.20	-74.7	-32.9	81.6	79.2	2.44	33.515	
700.0	700.0	700.0	700.0	1.4	1.4	-156.20	-74.7	-32.9	81.6	78.7	2.88	28.293	
800.0	800.0	800.0	800.0	1.7	1.7	-156.20	-74.7	-32.9	81.6	78.3	3.33	24.478	
900.0	900.0	900.0	900.0	1.9	1.9	-156.20	-74.7	-32.9	81.6	77.8	3.78	21.570	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-156.20	-74.7	-32.9	81.6	77.4	4.23	19.280	
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	-156.20	-74.7	-32.9	81.6	76.9	4.68	17.429	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-156.20	-74.7	-32.9	81.6	76.5	5.13	15.903	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-156.20	-74.7	-32.9	81.6	76.0	5.58	14.622	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-156.20	-74.7	-32.9	81.6	75.6	6.03	13.532	
1,500.0	1,500.0	1,500.0	1,500.0	3.2	3.2	-156.20	-74.7	-32.9	81.6	75.1	6.48	12.594	
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	-156.20	-74.7	-32.9	81.6	74.7	6.93	11.777	
1,700.0	1,700.0	1,700.0	1,700.0	3.7	3.7	-156.20	-74.7	-32.9	81.6	74.2	7.38	11.059	
1,800.0	1,800.0	1,800.0	1,800.0	3.9	3.9	-156.20	-74.7	-32.9	81.6	73.8	7.83	10.425	
1,900.0	1,900.0	1,900.0	1,900.0	4.1	4.1	-156.20	-74.7	-32.9	81.6	73.3	8.28	9.859	
2,000.0	2,000.0	2,000.0	2,000.0	4.4	4.4	-156.20	-74.7	-32.9	81.6	72.9	8.73	9.351	
2,100.0	2,100.0	2,100.0	2,100.0	4.6	4.6	-156.20	-74.7	-32.9	81.6	72.4	9.18	8.893	
2,200.0	2,200.0	2,200.0	2,200.0	4.8	4.8	-156.20	-74.7	-32.9	81.6	72.0	9.63	8.478	
2,300.0	2,300.0	2,300.0	2,300.0	5.0	5.0	-156.20	-74.7	-32.9	81.6	71.5	10.08	8.099	
2,400.0	2,400.0	2,400.0	2,400.0	5.3	5.3	-156.20	-74.7	-32.9	81.6	71.1	10.53	7.754	
2,500.0	2,500.0	2,500.0	2,500.0	5.5	5.5	-156.20	-74.7	-32.9	81.6	70.6	10.98	7.436	
2,600.0	2,600.0	2,600.0	2,600.0	5.7	5.7	-156.20	-74.7	-32.9	81.6	70.2	11.43	7.143	
2,700.0	2,700.0	2,700.0	2,700.0	5.9	5.9	-156.20	-74.7	-32.9	81.6	69.7	11.88	6.873	
2,800.0	2,800.0	2,800.0	2,800.0	6.2	6.2	-156.20	-74.7	-32.9	81.6	69.3	12.33	6.622	
2,900.0	2,900.0	2,900.0	2,900.0	6.4	6.4	-156.20	-74.7	-32.9	81.6	68.8	12.77	6.389	
3,000.0	3,000.0	3,000.0	3,000.0	6.6	6.6	-156.20	-74.7	-32.9	81.6	68.4	13.22	6.172	
3,100.0	3,100.0	3,100.0	3,100.0	6.8	6.8	-156.20	-74.7	-32.9	81.6	67.9	13.67	5.969	
3,200.0	3,200.0	3,200.0	3,200.0	7.1	7.1	-156.20	-74.7	-32.9	81.6	67.5	14.12	5.779	
3,300.0	3,300.0	3,300.0	3,300.0	7.3	7.3	-156.20	-74.7	-32.9	81.6	67.0	14.57	5.601	
3,400.0	3,400.0	3,400.0	3,400.0	7.5	7.5	-156.20	-74.7	-32.9	81.6	66.6	15.02	5.433	
3,500.0	3,500.0	3,500.0	3,500.0	7.7	7.7	-156.20	-74.7	-32.9	81.6	66.1	15.47	5.275	
3,600.0	3,600.0	3,600.0	3,600.0	8.0	8.0	-156.20	-74.7	-32.9	81.6	65.7	15.92	5.127	
3,700.0	3,700.0	3,700.0	3,700.0	8.2	8.2	-156.20	-74.7	-32.9	81.6	65.3	16.37	4.986	
3,800.0	3,800.0	3,800.0	3,800.0	8.4	8.4	-156.20	-74.7	-32.9	81.6	64.8	16.82	4.853	
3,900.0	3,900.0	3,900.0	3,900.0	8.6	8.6	-156.20	-74.7	-32.9	81.6	64.4	17.27	4.726	
4,000.0	4,000.0	4,000.0	4,000.0	8.9	8.9	-156.20	-74.7	-32.9	81.6	63.9	17.72	4.606	
4,100.0	4,100.0	4,100.0	4,100.0	9.1	9.1	-156.20	-74.7	-32.9	81.6	63.5	18.17	4.492	
4,200.0	4,200.0	4,200.0	4,200.0	9.3	9.3	-156.20	-74.7	-32.9	81.6	63.0	18.62	4.384	
4,300.0	4,300.0	4,300.0	4,300.0	9.5	9.5	-156.20	-74.7	-32.9	81.6	62.6	19.07	4.281	
4,400.0	4,400.0	4,400.0	4,400.0	9.8	9.8	-156.20	-74.7	-32.9	81.6	62.1	19.52	4.182	
4,500.0	4,500.0	4,500.0	4,500.0	10.0	10.0	-156.20	-74.7	-32.9	81.6	61.7	19.97	4.088	
4,600.0	4,600.0	4,600.0	4,600.0	10.2	10.2	-156.20	-74.7	-32.9	81.6	61.2	20.42	3.998	
4,700.0	4,700.0	4,700.0	4,700.0	10.4	10.4	-156.20	-74.7	-32.9	81.6	60.8	20.87	3.912	
4,800.0	4,800.0	4,800.0	4,800.0	10.7	10.7	-156.20	-74.7	-32.9	81.6	60.3	21.32	3.829	
4,900.0	4,900.0	4,900.0	4,900.0	10.9	10.9	-156.20	-74.7	-32.9	81.6	59.9	21.77	3.750	
5,000.0	5,000.0	5,000.0	5,000.0	11.1	11.1	-156.20	-74.7	-32.9	81.6	59.4	22.21	3.674	
5,100.0	5,100.0	5,100.0	5,100.0	11.3	11.3	-156.20	-74.7	-32.9	81.6	59.0	22.66	3.601	

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 #27I-3415A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27I-3415A	**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 #27I-3414B - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA 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
5,128.0	5,128.0	5,128.0	5,128.0	11.4	11.4	-156.20	-74.7	-32.9	81.6	58.8	22.79	3.581	
5,150.0	5,150.0	5,150.0	5,150.0	11.4	11.4	44.91	-74.7	-32.9	81.3	58.4	22.87	3.554	
5,200.0	5,199.8	5,199.8	5,199.8	11.5	11.6	47.49	-74.7	-32.9	78.2	55.2	22.99	3.400	
5,250.0	5,248.9	5,245.3	5,245.3	11.6	11.7	52.47	-75.6	-32.9	73.0	50.0	23.06	3.168	
5,300.0	5,296.9	5,289.6	5,289.3	11.7	11.7	59.01	-80.0	-32.8	69.1	46.0	23.14	2.987	
5,350.0	5,343.3	5,334.3	5,333.2	11.8	11.8	66.97	-88.3	-32.6	67.2	43.9	23.33	2.881	
5,361.0	5,353.3	5,344.2	5,342.9	11.8	11.8	68.87	-90.6	-32.5	67.2	43.7	23.42	2.868	CC, ES
5,400.0	5,387.8	5,379.4	5,376.7	11.9	11.9	75.74	-100.4	-32.3	68.1	44.4	23.66	2.877	
5,450.0	5,429.9	5,425.0	5,419.4	12.0	12.0	84.42	-116.4	-31.8	72.0	48.0	24.02	2.997	
5,500.0	5,469.2	5,471.1	5,460.9	12.2	12.1	92.14	-136.4	-31.3	79.0	54.7	24.33	3.248	
5,550.0	5,505.3	5,517.7	5,501.0	12.4	12.1	98.45	-160.2	-30.7	88.9	64.3	24.55	3.620	
5,600.0	5,538.0	5,564.8	5,539.1	12.7	12.3	103.26	-187.8	-30.0	101.0	76.3	24.71	4.089	
5,650.0	5,566.9	5,612.6	5,575.1	13.0	12.4	106.73	-219.1	-29.2	115.1	90.2	24.90	4.624	
5,700.0	5,591.8	5,660.9	5,608.4	13.3	12.6	109.10	-254.1	-28.2	130.8	105.6	25.18	5.194	
5,750.0	5,612.4	5,710.0	5,638.8	13.8	12.9	110.58	-292.6	-27.2	147.6	122.0	25.60	5.767	
5,800.0	5,628.5	5,759.9	5,665.8	14.3	13.2	111.37	-334.5	-26.1	165.4	139.2	26.19	6.314	
5,850.0	5,640.0	5,810.7	5,689.1	14.8	13.5	111.62	-379.7	-25.0	183.9	156.9	26.98	6.816	
5,900.0	5,646.8	5,862.6	5,708.2	15.4	14.0	111.44	-427.8	-23.7	202.8	174.9	27.95	7.257	
5,946.2	5,648.9	5,911.5	5,721.7	16.0	14.4	110.98	-474.9	-22.5	220.6	191.6	28.99	7.608	
6,000.0	5,648.9	5,970.8	5,732.2	16.7	15.0	111.55	-533.2	-20.9	239.7	209.6	30.15	7.951	
6,100.0	5,648.9	6,071.9	5,735.9	18.0	16.2	109.68	-634.0	-18.7	267.5	234.6	32.93	8.123	
6,200.0	5,648.9	6,167.1	5,735.9	19.4	17.4	107.80	-729.2	-18.7	291.7	255.8	35.89	8.126	
6,300.0	5,648.9	6,264.9	5,735.9	20.9	18.7	106.49	-827.1	-18.7	311.1	272.2	38.93	7.993	
6,400.0	5,648.9	6,363.8	5,735.9	22.4	20.2	105.61	-925.9	-18.7	325.8	283.8	41.98	7.760	
6,500.0	5,648.9	6,463.3	5,735.9	23.9	21.7	105.07	-1,025.4	-18.7	335.4	290.4	45.01	7.452	
6,600.0	5,648.9	6,563.1	5,735.9	25.5	23.3	104.83	-1,125.3	-18.7	340.0	292.0	47.97	7.088	
6,641.1	5,648.9	6,604.3	5,735.9	26.1	24.0	104.81	-1,166.4	-18.7	340.5	291.3	49.16	6.925	
6,700.0	5,648.9	6,663.1	5,735.9	27.1	25.0	104.81	-1,225.3	-18.7	340.5	289.4	51.02	6.673	
6,800.0	5,648.9	6,763.1	5,735.9	28.6	26.6	104.81	-1,325.3	-18.7	340.5	286.2	54.22	6.279	
6,900.0	5,648.9	6,863.1	5,735.9	30.2	28.4	104.81	-1,425.3	-18.7	340.5	283.0	57.49	5.923	
7,000.0	5,648.9	6,963.1	5,735.9	31.9	30.1	104.80	-1,525.3	-18.7	340.5	279.7	60.81	5.599	
7,100.0	5,648.9	7,063.1	5,735.9	33.6	31.8	104.80	-1,625.3	-18.7	340.5	276.3	64.17	5.306	
7,200.0	5,648.9	7,163.1	5,735.9	35.3	33.6	104.80	-1,725.3	-18.7	340.5	272.9	67.58	5.039	
7,300.0	5,648.9	7,263.1	5,735.9	37.0	35.4	104.80	-1,825.3	-18.7	340.5	269.5	71.02	4.795	
7,400.0	5,648.9	7,363.1	5,735.9	38.7	37.2	104.80	-1,925.3	-18.7	340.5	266.0	74.49	4.572	
7,500.0	5,648.9	7,463.1	5,735.9	40.5	39.0	104.80	-2,025.3	-18.8	340.5	262.6	77.98	4.367	
7,600.0	5,648.9	7,563.1	5,735.9	42.3	40.9	104.80	-2,125.3	-18.8	340.6	259.1	81.49	4.179	
7,700.0	5,648.9	7,663.1	5,735.9	44.0	42.7	104.80	-2,225.3	-18.8	340.6	255.5	85.03	4.005	
7,800.0	5,648.9	7,763.1	5,735.9	45.8	44.5	104.80	-2,325.3	-18.8	340.6	252.0	88.58	3.845	
7,900.0	5,648.9	7,863.1	5,735.9	47.6	46.4	104.80	-2,425.3	-18.8	340.6	248.4	92.14	3.696	
8,000.0	5,648.9	7,963.1	5,735.9	49.5	48.2	104.80	-2,525.3	-18.8	340.6	244.9	95.72	3.558	
8,100.0	5,648.9	8,063.1	5,735.9	51.3	50.1	104.80	-2,625.3	-18.8	340.6	241.3	99.31	3.430	
8,200.0	5,648.9	8,163.1	5,735.9	53.1	51.9	104.80	-2,725.3	-18.8	340.6	237.7	102.91	3.310	
8,300.0	5,648.9	8,263.1	5,735.9	54.9	53.8	104.80	-2,825.3	-18.8	340.6	234.1	106.52	3.198	
8,400.0	5,648.9	8,363.1	5,735.9	56.8	55.7	104.80	-2,925.3	-18.8	340.6	230.5	110.13	3.093	
8,500.0	5,648.9	8,463.1	5,735.9	58.6	57.6	104.80	-3,025.3	-18.8	340.6	226.9	113.76	2.994	
8,600.0	5,648.9	8,563.1	5,735.9	60.5	59.4	104.80	-3,125.3	-18.8	340.7	223.3	117.39	2.902	
8,700.0	5,648.9	8,663.1	5,735.9	62.3	61.3	104.80	-3,225.3	-18.8	340.7	219.6	121.03	2.815	
8,800.0	5,648.9	8,763.1	5,735.9	64.2	63.2	104.80	-3,325.3	-18.8	340.7	216.0	124.67	2.733	
8,900.0	5,648.9	8,863.1	5,735.9	66.1	65.1	104.80	-3,425.3	-18.8	340.7	212.4	128.32	2.655	
9,000.0	5,648.9	8,963.1	5,735.9	67.9	67.0	104.80	-3,525.3	-18.9	340.7	208.7	131.98	2.582	
9,100.0	5,648.9	9,063.1	5,735.9	69.8	68.9	104.79	-3,625.3	-18.9	340.7	205.1	135.63	2.512	

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 #27I-3415A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27I-3415A	**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 #27I-3414B - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA 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
9,200.0	5,648.9	9,163.1	5,735.9	71.7	70.7	104.79	-3,725.3	-18.9	340.7	201.4	139.30	2.446	
9,300.0	5,648.9	9,263.1	5,735.9	73.5	72.6	104.79	-3,825.3	-18.9	340.7	197.8	142.96	2.383	
9,400.0	5,648.9	9,363.1	5,735.9	75.4	74.5	104.79	-3,925.3	-18.9	340.7	194.1	146.63	2.324	
9,500.0	5,648.9	9,463.1	5,735.9	77.3	76.4	104.79	-4,025.3	-18.9	340.8	190.4	150.31	2.267	
9,600.0	5,648.9	9,563.1	5,736.0	79.2	78.3	104.79	-4,125.3	-18.9	340.8	186.8	153.98	2.213	
9,700.0	5,649.0	9,663.1	5,736.0	81.1	80.2	104.79	-4,225.3	-18.9	340.8	183.1	157.66	2.161	
9,800.0	5,649.0	9,763.1	5,736.0	82.9	82.1	104.79	-4,325.3	-18.9	340.8	179.4	161.34	2.112	
9,900.0	5,649.0	9,863.1	5,736.0	84.8	84.0	104.79	-4,425.3	-18.9	340.8	175.8	165.03	2.065	
10,000.0	5,649.0	9,963.1	5,736.0	86.7	85.9	104.79	-4,525.3	-18.9	340.8	172.1	168.71	2.020	
10,100.0	5,649.0	10,063.1	5,736.0	88.6	87.8	104.79	-4,625.3	-18.9	340.8	168.4	172.40	1.977	
10,200.0	5,649.0	10,163.1	5,736.0	90.5	89.7	104.79	-4,725.3	-18.9	340.8	164.7	176.09	1.936	
10,300.0	5,649.0	10,263.1	5,736.0	92.4	91.6	104.79	-4,825.3	-18.9	340.8	161.1	179.78	1.896	
10,400.0	5,649.0	10,363.1	5,736.0	94.3	93.5	104.79	-4,925.3	-19.0	340.9	157.4	183.48	1.858	
10,500.0	5,649.0	10,463.1	5,736.0	96.2	95.4	104.79	-5,025.3	-19.0	340.9	153.7	187.17	1.821	
10,600.0	5,649.0	10,563.1	5,736.0	98.1	97.3	104.79	-5,125.3	-19.0	340.9	150.0	190.87	1.786	
10,700.0	5,649.0	10,663.1	5,736.0	100.0	99.2	104.79	-5,225.3	-19.0	340.9	146.3	194.57	1.752	
10,800.0	5,649.0	10,763.1	5,736.0	101.9	101.1	104.79	-5,325.3	-19.0	340.9	142.6	198.27	1.719	
10,900.0	5,649.0	10,863.1	5,736.0	103.8	103.0	104.79	-5,425.3	-19.0	340.9	138.9	201.97	1.688	
11,000.0	5,649.0	10,963.1	5,736.0	105.7	105.0	104.79	-5,525.3	-19.0	340.9	135.2	205.67	1.658	
11,100.0	5,649.0	11,063.1	5,736.0	107.6	106.9	104.78	-5,625.3	-19.0	340.9	131.6	209.37	1.628	
11,200.0	5,649.0	11,163.1	5,736.0	109.5	108.8	104.78	-5,725.3	-19.0	340.9	127.9	213.08	1.600	
11,300.0	5,649.0	11,263.1	5,736.0	111.4	110.7	104.78	-5,825.3	-19.0	340.9	124.2	216.78	1.573	
11,400.0	5,649.0	11,363.1	5,736.0	113.3	112.6	104.78	-5,925.3	-19.0	341.0	120.5	220.49	1.546	
11,500.0	5,649.0	11,463.1	5,736.0	115.2	114.5	104.78	-6,025.3	-19.0	341.0	116.8	224.20	1.521	
11,600.0	5,649.0	11,563.1	5,736.0	117.1	116.4	104.78	-6,125.3	-19.0	341.0	113.1	227.91	1.496	Level 3
11,700.0	5,649.0	11,663.1	5,736.0	119.0	118.3	104.78	-6,225.3	-19.0	341.0	109.4	231.62	1.472	Level 3
11,800.0	5,649.0	11,763.1	5,736.0	120.9	120.2	104.78	-6,325.3	-19.1	341.0	105.7	235.33	1.449	Level 3
11,900.0	5,649.0	11,863.1	5,736.0	122.8	122.1	104.78	-6,425.3	-19.1	341.0	102.0	239.04	1.427	Level 3
12,000.0	5,649.0	11,963.1	5,736.0	124.7	124.0	104.78	-6,525.3	-19.1	341.0	98.3	242.75	1.405	Level 3
12,100.0	5,649.0	12,063.1	5,736.0	126.6	126.0	104.78	-6,625.3	-19.1	341.0	94.6	246.46	1.384	Level 3
12,200.0	5,649.0	12,163.1	5,736.0	128.5	127.9	104.78	-6,725.3	-19.1	341.0	90.9	250.17	1.363	Level 3
12,300.0	5,649.0	12,263.1	5,736.0	130.4	129.8	104.78	-6,825.3	-19.1	341.1	87.2	253.89	1.343	Level 3
12,400.0	5,649.0	12,363.1	5,736.0	132.3	131.7	104.78	-6,925.3	-19.1	341.1	83.5	257.60	1.324	Level 3
12,500.0	5,649.0	12,463.1	5,736.0	134.2	133.6	104.78	-7,025.3	-19.1	341.1	79.8	261.32	1.305	Level 3
12,595.3	5,649.0	12,558.4	5,736.0	136.0	135.4	104.78	-7,120.6	-19.1	341.1	76.2	264.86	1.288	Level 3, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-3415A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27I-3415A	**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 #27I-3416B - HZ - Plan #3

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA 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	156.02	-74.7	33.2	81.8				
100.0	100.0	100.0	100.0	0.1	0.1	156.02	-74.7	33.2	81.8	81.6	0.19	435.589	
200.0	200.0	200.0	200.0	0.3	0.3	156.02	-74.7	33.2	81.8	81.1	0.64	128.295	
300.0	300.0	300.0	300.0	0.5	0.5	156.02	-74.7	33.2	81.8	80.7	1.09	75.226	
400.0	400.0	400.0	400.0	0.8	0.8	156.02	-74.7	33.2	81.8	80.2	1.54	53.214	
500.0	500.0	500.0	500.0	1.0	1.0	156.02	-74.7	33.2	81.8	79.8	1.99	41.168	CC
600.0	600.0	597.7	597.7	1.2	1.2	155.35	-75.5	34.7	83.1	80.7	2.41	34.465	
700.0	700.0	695.2	695.0	1.4	1.4	153.46	-78.0	39.0	87.4	84.5	2.83	30.816	
800.0	800.0	794.8	794.4	1.7	1.6	151.11	-81.5	45.0	93.3	90.0	3.28	28.473	
900.0	900.0	894.6	893.9	1.9	1.8	149.04	-85.0	51.0	99.3	95.6	3.72	26.678	
1,000.0	1,000.0	994.3	993.4	2.1	2.1	147.20	-88.5	57.0	105.5	101.3	4.17	25.266	
1,100.0	1,100.0	1,094.1	1,093.0	2.3	2.3	145.58	-92.0	63.0	111.7	107.1	4.63	24.136	
1,200.0	1,200.0	1,193.8	1,192.5	2.6	2.6	144.12	-95.5	69.1	118.1	113.0	5.09	23.214	
1,300.0	1,300.0	1,293.6	1,292.0	2.8	2.8	142.81	-99.0	75.1	124.5	118.9	5.54	22.452	
1,400.0	1,400.0	1,393.4	1,391.5	3.0	3.1	141.64	-102.5	81.1	130.9	124.9	6.00	21.813	
1,500.0	1,500.0	1,493.1	1,491.0	3.2	3.3	140.57	-105.9	87.1	137.5	131.0	6.46	21.270	
1,600.0	1,600.0	1,592.9	1,590.5	3.5	3.6	139.60	-109.4	93.1	144.0	137.1	6.92	20.804	
1,700.0	1,700.0	1,692.6	1,690.0	3.7	3.8	138.71	-112.9	99.2	150.6	143.2	7.38	20.400	
1,800.0	1,800.0	1,792.4	1,789.6	3.9	4.1	137.90	-116.4	105.2	157.2	149.4	7.84	20.047	
1,900.0	1,900.0	1,892.1	1,889.1	4.1	4.3	137.16	-119.9	111.2	163.9	155.6	8.30	19.736	
2,000.0	2,000.0	1,991.9	1,988.6	4.4	4.6	136.47	-123.4	117.2	170.6	161.8	8.77	19.460	
2,100.0	2,100.0	2,091.6	2,088.1	4.6	4.9	135.83	-126.9	123.2	177.3	168.1	9.23	19.214	
2,200.0	2,200.0	2,191.4	2,187.6	4.8	5.1	135.24	-130.4	129.3	184.0	174.3	9.69	18.993	
2,300.0	2,300.0	2,291.2	2,287.1	5.0	5.4	134.70	-133.9	135.3	190.8	180.6	10.15	18.794	
2,400.0	2,400.0	2,390.9	2,386.6	5.3	5.6	134.19	-137.4	141.3	197.5	186.9	10.61	18.613	
2,500.0	2,500.0	2,490.7	2,486.1	5.5	5.9	133.71	-140.8	147.3	204.3	193.2	11.07	18.448	
2,600.0	2,600.0	2,590.4	2,585.7	5.7	6.2	133.27	-144.3	153.3	211.1	199.5	11.54	18.297	
2,700.0	2,700.0	2,690.2	2,685.2	5.9	6.4	132.85	-147.8	159.4	217.9	205.9	12.00	18.159	
2,800.0	2,800.0	2,789.9	2,784.7	6.2	6.7	132.46	-151.3	165.4	224.7	212.2	12.46	18.032	
2,900.0	2,900.0	2,889.7	2,884.2	6.4	6.9	132.09	-154.8	171.4	231.5	218.6	12.92	17.914	
3,000.0	3,000.0	2,989.5	2,983.7	6.6	7.2	131.74	-158.3	177.4	238.3	224.9	13.39	17.805	
3,100.0	3,100.0	3,089.2	3,083.2	6.8	7.5	131.41	-161.8	183.4	245.2	231.3	13.85	17.703	
3,200.0	3,200.0	3,189.0	3,182.7	7.1	7.7	131.10	-165.3	189.5	252.0	237.7	14.31	17.609	
3,300.0	3,300.0	3,288.7	3,282.3	7.3	8.0	130.80	-168.8	195.5	258.9	244.1	14.77	17.520	
3,400.0	3,400.0	3,388.5	3,381.8	7.5	8.2	130.52	-172.2	201.5	265.7	250.5	15.24	17.438	
3,500.0	3,500.0	3,488.2	3,481.3	7.7	8.5	130.26	-175.7	207.5	272.6	256.9	15.70	17.360	
3,600.0	3,600.0	3,588.0	3,580.8	8.0	8.8	130.01	-179.2	213.5	279.5	263.3	16.17	17.287	
3,700.0	3,700.0	3,687.7	3,680.3	8.2	9.0	129.77	-182.7	219.6	286.3	269.7	16.63	17.218	
3,800.0	3,800.0	3,787.5	3,779.8	8.4	9.3	129.54	-186.2	225.6	293.2	276.1	17.09	17.153	
3,900.0	3,900.0	3,887.3	3,879.3	8.6	9.5	129.32	-189.7	231.6	300.1	282.5	17.56	17.092	
4,000.0	4,000.0	3,987.0	3,978.8	8.9	9.8	129.11	-193.2	237.6	307.0	289.0	18.02	17.034	
4,100.0	4,100.0	4,086.8	4,078.4	9.1	10.1	128.91	-196.7	243.6	313.9	295.4	18.49	16.978	
4,200.0	4,200.0	4,186.5	4,177.9	9.3	10.3	128.72	-200.2	249.7	320.8	301.8	18.95	16.926	
4,300.0	4,300.0	4,286.3	4,277.4	9.5	10.6	128.54	-203.7	255.7	327.7	308.2	19.42	16.876	
4,400.0	4,400.0	4,386.0	4,376.9	9.8	10.8	128.36	-207.1	261.7	334.6	314.7	19.88	16.828	
4,500.0	4,500.0	4,485.8	4,476.4	10.0	11.1	128.19	-210.6	267.7	341.5	321.1	20.35	16.783	
4,600.0	4,600.0	4,585.6	4,575.9	10.2	11.4	128.03	-214.1	273.8	348.4	327.6	20.81	16.740	
4,700.0	4,700.0	4,685.3	4,675.4	10.4	11.6	127.88	-217.6	279.8	355.3	334.0	21.28	16.698	
4,800.0	4,800.0	4,785.1	4,775.0	10.7	11.9	127.73	-221.1	285.8	362.2	340.5	21.74	16.658	
4,900.0	4,900.0	4,884.8	4,874.5	10.9	12.2	127.58	-224.6	291.8	369.1	346.9	22.21	16.620	
5,000.0	5,000.0	4,997.2	4,986.7	11.1	12.4	127.46	-227.7	297.2	374.6	351.9	22.68	16.521	
5,100.0	5,100.0	5,110.6	5,100.0	11.3	12.6	127.42	-228.6	298.8	376.2	353.1	23.12	16.274	

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 #27I-3415A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27I-3415A	**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 #27I-3416B - HZ - Plan #3

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA 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
5,128.0	5,128.0	5,138.6	5,128.0	11.4	12.7	127.42	-228.6	298.8	376.2	353.0	23.23	16.192	
5,150.0	5,150.0	5,160.5	5,150.0	11.4	12.7	-31.79	-228.6	298.8	375.8	353.0	22.83	16.459	
5,200.0	5,199.8	5,210.3	5,199.8	11.5	12.8	-32.38	-228.6	298.8	372.0	349.1	22.93	16.221	
5,250.0	5,248.9	5,250.0	5,239.4	11.6	12.9	-33.39	-229.2	299.0	364.8	341.9	22.88	15.945	
5,300.0	5,296.9	5,277.6	5,267.0	11.7	12.9	-34.47	-231.0	299.7	356.0	333.3	22.69	15.690	
5,350.0	5,343.3	5,300.0	5,289.2	11.8	13.0	-35.64	-233.5	300.8	346.1	323.7	22.40	15.452	
5,400.0	5,387.8	5,339.7	5,328.2	11.9	13.1	-37.56	-240.1	303.5	334.6	312.5	22.12	15.128	
5,450.0	5,429.9	5,371.0	5,358.6	12.0	13.2	-39.58	-247.3	306.4	322.2	300.4	21.84	14.757	
5,500.0	5,469.2	5,400.0	5,386.2	12.2	13.4	-41.84	-255.4	309.8	308.9	287.3	21.62	14.285	
5,550.0	5,505.3	5,434.6	5,418.5	12.4	13.5	-44.78	-266.9	314.5	294.8	273.2	21.64	13.622	
5,600.0	5,538.0	5,467.0	5,447.9	12.7	13.7	-48.06	-279.4	319.6	280.3	258.3	21.91	12.791	
5,650.0	5,566.9	5,500.0	5,476.9	13.0	13.9	-51.88	-293.9	325.6	265.5	243.0	22.52	11.790	
5,700.0	5,591.8	5,533.1	5,505.0	13.3	14.1	-56.23	-310.1	332.3	251.1	227.6	23.51	10.679	
5,750.0	5,612.4	5,567.1	5,532.6	13.8	14.3	-61.17	-328.4	339.8	237.4	212.5	24.85	9.551	
5,800.0	5,628.5	5,600.0	5,558.1	14.3	14.6	-66.45	-347.8	347.7	225.1	198.7	26.40	8.525	
5,850.0	5,640.0	5,637.3	5,585.2	14.8	14.9	-72.70	-371.4	357.4	214.8	186.7	28.17	7.628	
5,900.0	5,646.8	5,673.9	5,610.0	15.4	15.2	-79.10	-396.2	367.7	207.6	177.8	29.82	6.961	
5,946.2	5,648.9	5,708.7	5,631.9	16.0	15.6	-85.22	-421.4	378.0	204.1	173.0	31.15	6.554	
5,961.8	5,648.9	5,721.0	5,639.1	16.2	15.7	-87.24	-430.5	381.8	203.8	172.3	31.51	6.469	
6,000.0	5,648.9	5,752.6	5,656.7	16.7	16.0	-92.18	-454.8	391.7	205.4	173.1	32.26	6.367	
6,100.0	5,648.9	5,847.4	5,699.4	18.0	17.2	-103.53	-533.0	423.9	220.0	186.5	33.53	6.562	
6,200.0	5,648.9	5,957.4	5,728.8	19.4	18.7	-109.85	-630.7	464.1	240.6	205.6	34.94	6.885	
6,300.0	5,648.9	6,073.2	5,736.0	20.9	20.4	-109.95	-737.6	507.8	259.7	222.2	37.57	6.914	
6,400.0	5,648.9	6,186.4	5,736.0	22.4	22.0	-108.58	-844.1	546.1	277.9	237.5	40.38	6.882	
6,500.0	5,648.9	6,301.1	5,736.0	23.9	23.6	-107.42	-954.2	578.4	295.4	252.3	43.16	6.844	
6,600.0	5,648.9	6,417.3	5,736.0	25.5	25.3	-106.43	-1,067.3	604.3	312.3	266.4	45.94	6.799	
6,641.1	5,648.9	6,465.4	5,736.0	26.1	26.0	-106.07	-1,114.7	613.0	319.0	272.0	47.06	6.779	
6,700.0	5,648.9	6,535.0	5,736.0	27.1	27.1	-105.55	-1,183.5	623.5	327.6	278.5	49.11	6.670	
6,800.0	5,648.9	6,654.6	5,736.0	28.6	28.8	-105.00	-1,302.4	635.6	337.4	284.8	52.61	6.412	
6,900.0	5,648.9	6,775.2	5,736.0	30.2	30.7	-104.80	-1,423.0	640.3	341.1	285.0	56.12	6.078	
7,000.0	5,648.9	6,877.6	5,736.0	31.9	32.2	-104.80	-1,525.3	640.3	341.2	281.8	59.40	5.743	
7,100.0	5,648.9	6,977.6	5,736.0	33.6	33.8	-104.79	-1,625.3	640.3	341.2	278.5	62.70	5.441	
7,200.0	5,648.9	7,077.6	5,736.0	35.3	35.5	-104.79	-1,725.3	640.3	341.2	275.1	66.05	5.165	
7,300.0	5,648.9	7,177.6	5,736.0	37.0	37.1	-104.79	-1,825.3	640.3	341.2	271.7	69.44	4.913	
7,400.0	5,648.9	7,277.6	5,736.0	38.7	38.8	-104.79	-1,925.3	640.3	341.2	268.3	72.86	4.683	
7,500.0	5,648.9	7,377.6	5,736.0	40.5	40.5	-104.79	-2,025.3	640.4	341.2	264.9	76.31	4.471	
7,600.0	5,648.9	7,477.6	5,736.0	42.3	42.2	-104.79	-2,125.3	640.4	341.2	261.4	79.79	4.276	
7,700.0	5,648.9	7,577.6	5,736.0	44.0	44.0	-104.79	-2,225.3	640.4	341.2	257.9	83.28	4.097	
7,800.0	5,648.9	7,677.6	5,736.0	45.8	45.7	-104.79	-2,325.3	640.4	341.2	254.4	86.80	3.931	
7,900.0	5,648.9	7,777.6	5,736.0	47.6	47.5	-104.79	-2,425.3	640.4	341.2	250.8	90.34	3.777	
8,000.0	5,648.9	7,877.6	5,736.0	49.5	49.3	-104.79	-2,525.3	640.4	341.2	247.3	93.89	3.634	
8,100.0	5,648.9	7,977.6	5,736.0	51.3	51.1	-104.79	-2,625.3	640.4	341.2	243.7	97.45	3.501	
8,200.0	5,648.9	8,077.6	5,736.0	53.1	52.8	-104.79	-2,725.3	640.4	341.2	240.2	101.03	3.377	
8,300.0	5,648.9	8,177.6	5,736.0	54.9	54.6	-104.79	-2,825.3	640.4	341.2	236.6	104.62	3.261	
8,400.0	5,648.9	8,277.6	5,736.0	56.8	56.5	-104.79	-2,925.3	640.4	341.2	233.0	108.21	3.153	
8,500.0	5,648.9	8,377.6	5,736.0	58.6	58.3	-104.79	-3,025.3	640.4	341.2	229.4	111.82	3.051	
8,600.0	5,648.9	8,477.6	5,736.0	60.5	60.1	-104.79	-3,125.3	640.4	341.2	225.8	115.43	2.956	
8,700.0	5,648.9	8,577.6	5,736.0	62.3	61.9	-104.79	-3,225.3	640.5	341.2	222.2	119.05	2.866	
8,800.0	5,648.9	8,677.6	5,736.0	64.2	63.8	-104.79	-3,325.3	640.5	341.2	218.5	122.68	2.781	
8,900.0	5,648.9	8,777.6	5,736.0	66.1	65.6	-104.79	-3,425.3	640.5	341.2	214.9	126.32	2.701	
9,000.0	5,648.9	8,877.6	5,736.0	67.9	67.5	-104.78	-3,525.3	640.5	341.2	211.3	129.96	2.626	
9,100.0	5,648.9	8,977.6	5,736.0	69.8	69.3	-104.78	-3,625.3	640.5	341.2	207.6	133.60	2.554	

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 #27I-3415A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27I-3415A	**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 #27I-3416B - HZ - Plan #3

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

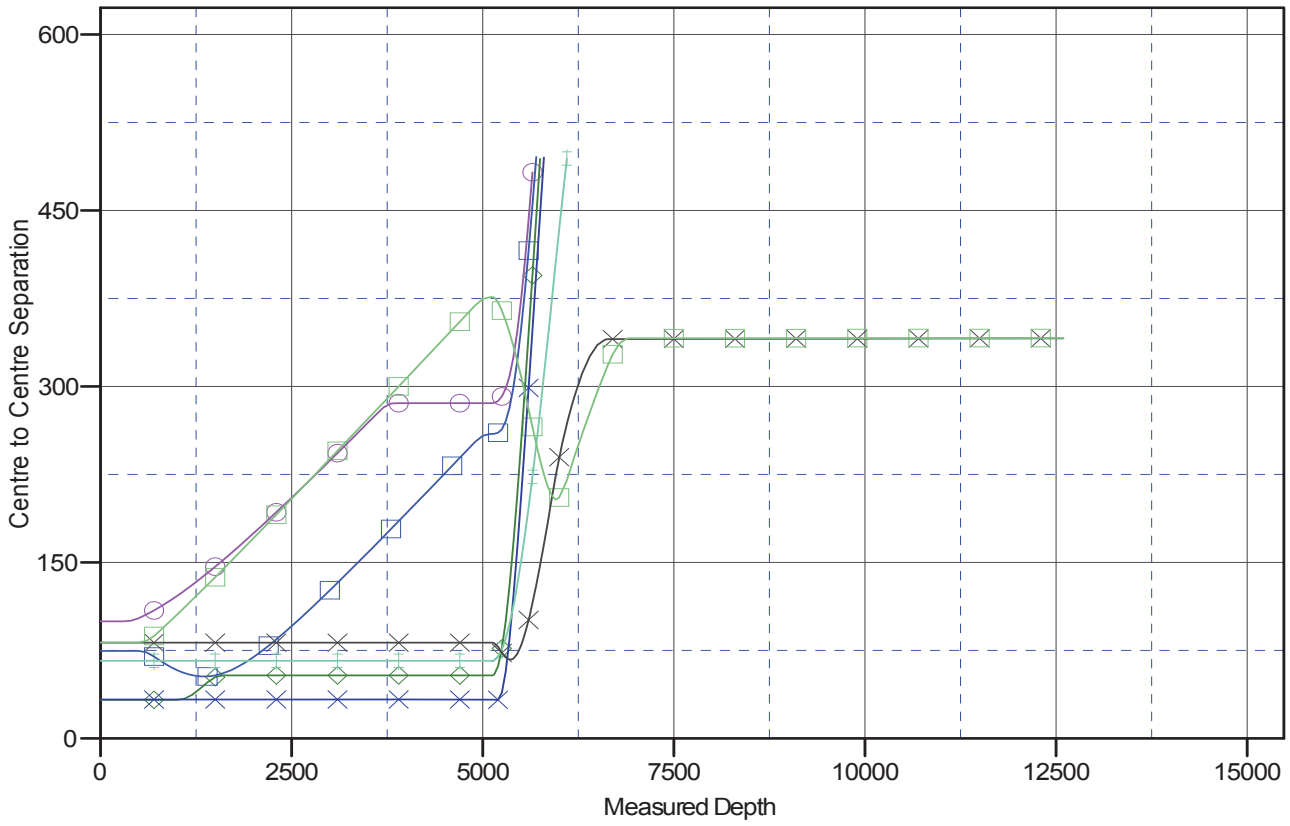
Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
9,200.0	5,648.9	9,077.6	5,736.0	71.7	71.2	-104.78	-3,725.3	640.5	341.2	204.0	137.25	2.486	
9,300.0	5,648.9	9,177.6	5,736.0	73.5	73.0	-104.78	-3,825.3	640.5	341.2	200.3	140.91	2.422	
9,400.0	5,648.9	9,277.6	5,736.0	75.4	74.9	-104.78	-3,925.3	640.5	341.2	196.7	144.57	2.360	
9,500.0	5,648.9	9,377.6	5,736.0	77.3	76.7	-104.78	-4,025.3	640.5	341.2	193.0	148.23	2.302	
9,600.0	5,648.9	9,477.6	5,736.0	79.2	78.6	-104.78	-4,125.3	640.5	341.2	189.4	151.89	2.247	
9,700.0	5,649.0	9,577.6	5,736.0	81.1	80.5	-104.78	-4,225.3	640.5	341.2	185.7	155.56	2.194	
9,800.0	5,649.0	9,677.6	5,736.0	82.9	82.3	-104.78	-4,325.3	640.5	341.3	182.0	159.23	2.143	
9,900.0	5,649.0	9,777.6	5,736.0	84.8	84.2	-104.78	-4,425.3	640.6	341.3	178.3	162.91	2.095	
10,000.0	5,649.0	9,877.6	5,736.0	86.7	86.1	-104.78	-4,525.3	640.6	341.3	174.7	166.59	2.049	
10,100.0	5,649.0	9,977.6	5,736.0	88.6	88.0	-104.78	-4,625.3	640.6	341.3	171.0	170.27	2.004	
10,200.0	5,649.0	10,077.6	5,736.0	90.5	89.8	-104.78	-4,725.3	640.6	341.3	167.3	173.95	1.962	
10,300.0	5,649.0	10,177.6	5,736.0	92.4	91.7	-104.78	-4,825.3	640.6	341.3	163.6	177.63	1.921	
10,400.0	5,649.0	10,277.6	5,736.0	94.3	93.6	-104.78	-4,925.3	640.6	341.3	160.0	181.32	1.882	
10,500.0	5,649.0	10,377.6	5,736.0	96.2	95.5	-104.78	-5,025.3	640.6	341.3	156.3	185.01	1.845	
10,600.0	5,649.0	10,477.6	5,736.0	98.1	97.4	-104.78	-5,125.3	640.6	341.3	152.6	188.70	1.809	
10,700.0	5,649.0	10,577.6	5,736.0	100.0	99.3	-104.78	-5,225.3	640.6	341.3	148.9	192.39	1.774	
10,800.0	5,649.0	10,677.6	5,736.0	101.9	101.1	-104.78	-5,325.3	640.6	341.3	145.2	196.08	1.741	
10,900.0	5,649.0	10,777.6	5,736.0	103.8	103.0	-104.77	-5,425.3	640.6	341.3	141.5	199.78	1.708	
11,000.0	5,649.0	10,877.6	5,736.0	105.7	104.9	-104.77	-5,525.3	640.6	341.3	137.8	203.47	1.677	
11,100.0	5,649.0	10,977.6	5,736.0	107.6	106.8	-104.77	-5,625.3	640.6	341.3	134.1	207.17	1.647	
11,200.0	5,649.0	11,077.6	5,736.0	109.5	108.7	-104.77	-5,725.3	640.7	341.3	130.4	210.87	1.619	
11,300.0	5,649.0	11,177.6	5,736.0	111.4	110.6	-104.77	-5,825.3	640.7	341.3	126.7	214.57	1.591	
11,400.0	5,649.0	11,277.6	5,736.0	113.3	112.5	-104.77	-5,925.3	640.7	341.3	123.0	218.27	1.564	
11,500.0	5,649.0	11,377.6	5,736.0	115.2	114.4	-104.77	-6,025.3	640.7	341.3	119.3	221.97	1.538	
11,600.0	5,649.0	11,477.6	5,736.0	117.1	116.3	-104.77	-6,125.3	640.7	341.3	115.6	225.68	1.512	
11,700.0	5,649.0	11,577.6	5,736.0	119.0	118.2	-104.77	-6,225.3	640.7	341.3	111.9	229.38	1.488	Level 3
11,800.0	5,649.0	11,677.6	5,736.0	120.9	120.1	-104.77	-6,325.3	640.7	341.3	108.2	233.09	1.464	Level 3
11,900.0	5,649.0	11,777.6	5,736.0	122.8	122.0	-104.77	-6,425.3	640.7	341.3	104.5	236.79	1.441	Level 3
12,000.0	5,649.0	11,877.6	5,736.0	124.7	123.9	-104.77	-6,525.3	640.7	341.3	100.8	240.50	1.419	Level 3
12,100.0	5,649.0	11,977.6	5,736.0	126.6	125.8	-104.77	-6,625.3	640.7	341.3	97.1	244.21	1.398	Level 3
12,200.0	5,649.0	12,077.6	5,736.0	128.5	127.7	-104.77	-6,725.3	640.7	341.3	93.4	247.92	1.377	Level 3
12,300.0	5,649.0	12,177.6	5,736.0	130.4	129.6	-104.77	-6,825.3	640.7	341.3	89.7	251.63	1.357	Level 3
12,400.0	5,649.0	12,277.6	5,736.0	132.3	131.5	-104.77	-6,925.3	640.8	341.3	86.0	255.34	1.337	Level 3
12,500.0	5,649.0	12,377.6	5,736.0	134.2	133.4	-104.77	-7,025.3	640.8	341.3	82.3	259.05	1.318	Level 3
12,556.9	5,649.0	12,434.5	5,736.0	135.3	134.5	-104.77	-7,082.2	640.8	341.3	80.2	261.16	1.307	Level 3
12,595.3	5,649.0	12,472.1	5,736.0	136.0	135.2	-104.77	-7,119.9	640.8	341.4	78.8	262.57	1.300	Level 3, ES, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-3415A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #27I-3415A	**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 @ 4773.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Razor #27I-3415A
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.07°

Ladder Plot



LEGEND

Razor #27I-2213A, HZ, Plan #2 V0
Razor #27I-2216B, HZ, Plan #2 V0
Razor #27I-3416B, HZ, Plan #3 V0
Razor #27I-2214B, HZ, Plan #3 V0
Razor #27I-3413A, HZ, Plan #2 V0
Razor #27I-2215A, HZ, Plan #1 V0
Razor #27I-3414B, HZ, Plan #2 V0