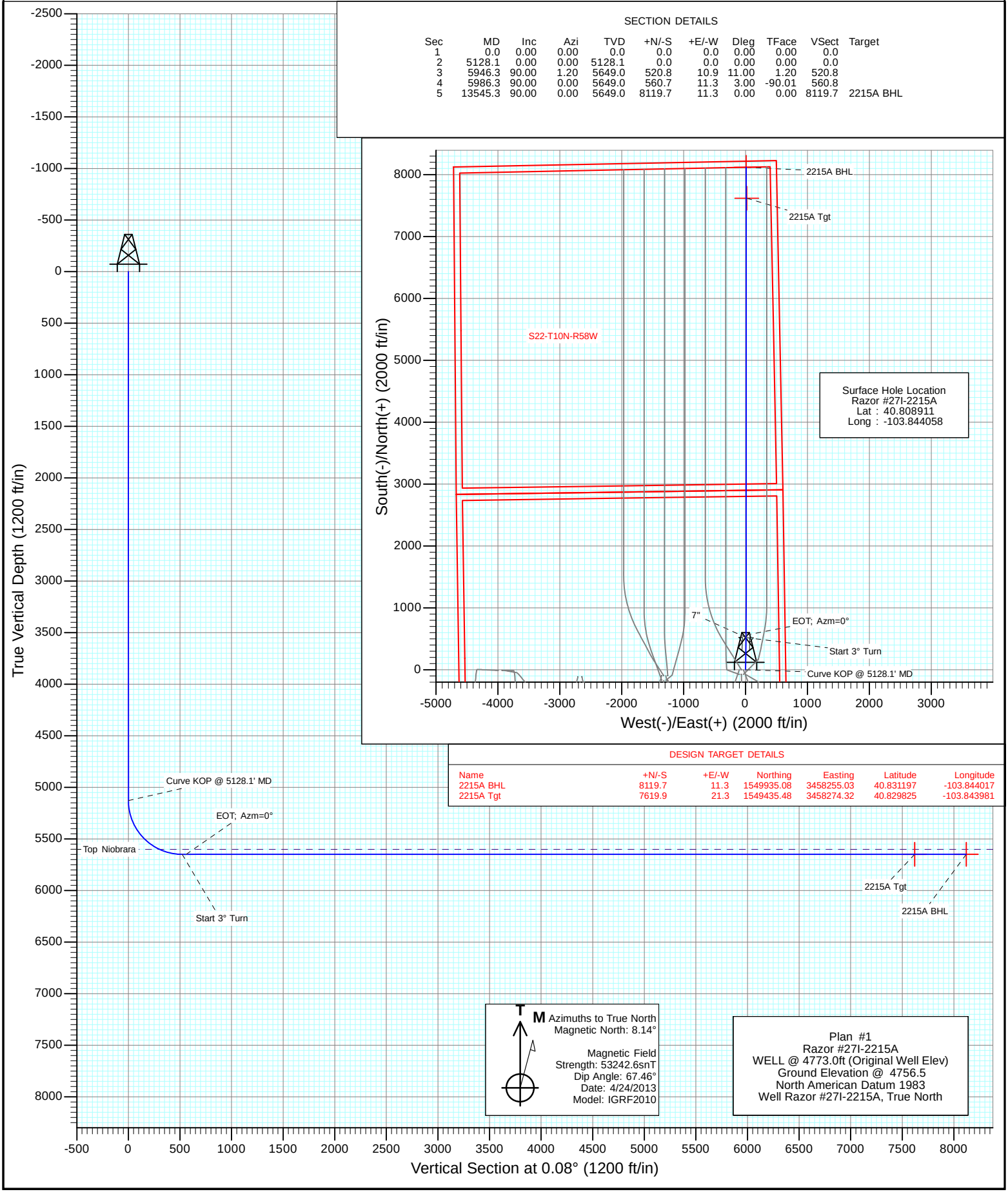
WHITING PETROLEUM CORPORATION

Project: Weld County, CO
Site: S27-T10N-R58W
Well: Razor #27I-2215A
Wellbore: HZ
Design: Plan #1

CATHEDRAL

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	5128.1	0.00	0.00	5128.1	0.0	0.0	0.00	0.00	0.0	
3	5946.3	90.00	1.20	5649.0	520.8	10.9	11.00	1.20	520.8	
4	5986.3	90.00	0.00	5649.0	560.7	11.3	3.00	-90.01	560.8	
5	13545.3	90.00	0.00	5649.0	8119.7	11.3	0.00	0.00	8119.7	2215A BHL



DESIGN TARGET DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
2215A BHL	8119.7	11.3	1549935.08	3458255.03	40.831197	-103.844017
2215A Tgt	7619.9	21.3	1549435.48	3458274.32	40.829825	-103.843981

T M Azimuths to True North
Magnetic North: 8.14°

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

Plan #1
Razor #27I-2215A
WELL @ 4773.0ft (Original Well Elev)
Ground Elevation @ 4756.5
North American Datum 1983
Well Razor #27I-2215A, True North

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #27I-2215A
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-2215A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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-2215A

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,541,816.55 ft	**Latitude:**	40.808911
	+E/-W	0.0 ft	**Easting:**	3,458,395.30 ft	**Longitude:**	-103.844058
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 #1

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	0.08

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	
5,128.1	0.00	0.00	5,128.1	0.0	0.0	0.00	0.00	0.00	0.00	
5,946.3	90.00	1.20	5,649.0	520.8	10.9	11.00	11.00	0.00	1.20	
5,986.3	90.00	0.00	5,649.0	560.7	11.3	3.00	0.00	-3.00	-90.01	
13,545.3	90.00	0.00	5,649.0	8,119.7	11.3	0.00	0.00	0.00	0.00	2215A BHL

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Project:	Weld County, CO	**MD Reference:**	WELL @ 4773.0ft (Original Well Elev)
Site:	S27-T10N-R58W	**North Reference:**	True
Well:	Razor #27I-2215A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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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Well:	Razor #27I-2215A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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
5,128.1	0.00	0.00	5,128.1	0.0	0.0	0.0	0.00	0.00	Curve KOP @ 5128.1' MD
5,200.0	7.91	1.20	5,199.8	5.0	0.1	5.0	11.00	11.00	
5,300.0	18.91	1.20	5,296.9	28.1	0.6	28.1	11.00	11.00	
5,400.0	29.91	1.20	5,387.8	69.3	1.5	69.4	11.00	11.00	
5,500.0	40.91	1.20	5,469.2	127.2	2.7	127.2	11.00	11.00	
5,600.0	51.91	1.20	5,538.0	199.5	4.2	199.5	11.00	11.00	
5,700.0	62.91	1.20	5,591.8	283.6	5.9	283.6	11.00	11.00	
5,718.6	64.96	1.20	5,600.0	300.3	6.3	300.3	11.00	11.00	Top Niobrara
5,800.0	73.91	1.20	5,628.6	376.4	7.9	376.4	11.00	11.00	
5,900.0	84.91	1.20	5,646.9	474.5	9.9	474.5	11.00	11.00	
5,946.3	90.00	1.20	5,649.0	520.8	10.9	520.8	11.00	11.00	Start 3° Turn - 7"
5,986.3	90.00	0.00	5,649.0	560.7	11.3	560.8	3.00	0.00	EOT; Azm=0°
6,000.0	90.00	0.00	5,649.0	574.5	11.3	574.5	0.00	0.00	
6,100.0	90.00	0.00	5,649.0	674.5	11.3	674.5	0.00	0.00	
6,200.0	90.00	0.00	5,649.0	774.5	11.3	774.5	0.00	0.00	
6,300.0	90.00	0.00	5,649.0	874.5	11.3	874.5	0.00	0.00	
6,400.0	90.00	0.00	5,649.0	974.5	11.3	974.5	0.00	0.00	
6,500.0	90.00	0.00	5,649.0	1,074.5	11.3	1,074.5	0.00	0.00	
6,600.0	90.00	0.00	5,649.0	1,174.5	11.3	1,174.5	0.00	0.00	
6,700.0	90.00	0.00	5,649.0	1,274.5	11.3	1,274.5	0.00	0.00	
6,800.0	90.00	0.00	5,649.0	1,374.5	11.3	1,374.5	0.00	0.00	
6,900.0	90.00	0.00	5,649.0	1,474.5	11.3	1,474.5	0.00	0.00	
7,000.0	90.00	0.00	5,649.0	1,574.5	11.3	1,574.5	0.00	0.00	
7,100.0	90.00	0.00	5,649.0	1,674.5	11.3	1,674.5	0.00	0.00	
7,200.0	90.00	0.00	5,649.0	1,774.5	11.3	1,774.5	0.00	0.00	
7,300.0	90.00	0.00	5,649.0	1,874.5	11.3	1,874.5	0.00	0.00	
7,400.0	90.00	0.00	5,649.0	1,974.5	11.3	1,974.5	0.00	0.00	
7,500.0	90.00	0.00	5,649.0	2,074.5	11.3	2,074.5	0.00	0.00	
7,600.0	90.00	0.00	5,649.0	2,174.5	11.3	2,174.5	0.00	0.00	
7,700.0	90.00	0.00	5,649.0	2,274.5	11.3	2,274.5	0.00	0.00	
7,800.0	90.00	0.00	5,649.0	2,374.5	11.3	2,374.5	0.00	0.00	
7,900.0	90.00	0.00	5,649.0	2,474.5	11.3	2,474.5	0.00	0.00	
8,000.0	90.00	0.00	5,649.0	2,574.5	11.3	2,574.5	0.00	0.00	
8,100.0	90.00	0.00	5,649.0	2,674.5	11.3	2,674.5	0.00	0.00	
8,200.0	90.00	0.00	5,649.0	2,774.5	11.3	2,774.5	0.00	0.00	
8,300.0	90.00	0.00	5,649.0	2,874.5	11.3	2,874.5	0.00	0.00	
8,400.0	90.00	0.00	5,649.0	2,974.5	11.3	2,974.5	0.00	0.00	
8,500.0	90.00	0.00	5,649.0	3,074.5	11.3	3,074.5	0.00	0.00	
8,600.0	90.00	0.00	5,649.0	3,174.5	11.3	3,174.5	0.00	0.00	
8,700.0	90.00	0.00	5,649.0	3,274.5	11.3	3,274.5	0.00	0.00	
8,800.0	90.00	0.00	5,649.0	3,374.5	11.3	3,374.5	0.00	0.00	
8,900.0	90.00	0.00	5,649.0	3,474.5	11.3	3,474.5	0.00	0.00	
9,000.0	90.00	0.00	5,649.0	3,574.5	11.3	3,574.5	0.00	0.00	
9,100.0	90.00	0.00	5,649.0	3,674.5	11.3	3,674.5	0.00	0.00	
9,200.0	90.00	0.00	5,649.0	3,774.5	11.3	3,774.5	0.00	0.00	
9,300.0	90.00	0.00	5,649.0	3,874.5	11.3	3,874.5	0.00	0.00	
9,400.0	90.00	0.00	5,649.0	3,974.5	11.3	3,974.5	0.00	0.00	
9,500.0	90.00	0.00	5,649.0	4,074.5	11.3	4,074.5	0.00	0.00	
9,600.0	90.00	0.00	5,649.0	4,174.5	11.3	4,174.5	0.00	0.00	
9,700.0	90.00	0.00	5,649.0	4,274.5	11.3	4,274.5	0.00	0.00	
9,800.0	90.00	0.00	5,649.0	4,374.5	11.3	4,374.5	0.00	0.00	
9,900.0	90.00	0.00	5,649.0	4,474.5	11.3	4,474.5	0.00	0.00	

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Wellbore:	HZ		
Design:	Plan #1		

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	0.00	5,649.0	4,574.5	11.3	4,574.5	0.00	0.00	
10,100.0	90.00	0.00	5,649.0	4,674.5	11.3	4,674.5	0.00	0.00	
10,200.0	90.00	0.00	5,649.0	4,774.5	11.3	4,774.5	0.00	0.00	
10,300.0	90.00	0.00	5,649.0	4,874.5	11.3	4,874.5	0.00	0.00	
10,400.0	90.00	0.00	5,649.0	4,974.5	11.3	4,974.5	0.00	0.00	
10,500.0	90.00	0.00	5,649.0	5,074.5	11.3	5,074.5	0.00	0.00	
10,600.0	90.00	0.00	5,649.0	5,174.5	11.3	5,174.5	0.00	0.00	
10,700.0	90.00	0.00	5,649.0	5,274.5	11.3	5,274.5	0.00	0.00	
10,800.0	90.00	0.00	5,649.0	5,374.5	11.3	5,374.5	0.00	0.00	
10,900.0	90.00	0.00	5,649.0	5,474.5	11.3	5,474.5	0.00	0.00	
11,000.0	90.00	0.00	5,649.0	5,574.5	11.3	5,574.5	0.00	0.00	
11,100.0	90.00	0.00	5,649.0	5,674.5	11.3	5,674.5	0.00	0.00	
11,200.0	90.00	0.00	5,649.0	5,774.5	11.3	5,774.5	0.00	0.00	
11,300.0	90.00	0.00	5,649.0	5,874.5	11.3	5,874.5	0.00	0.00	
11,400.0	90.00	0.00	5,649.0	5,974.5	11.3	5,974.5	0.00	0.00	
11,500.0	90.00	0.00	5,649.0	6,074.5	11.3	6,074.5	0.00	0.00	
11,600.0	90.00	0.00	5,649.0	6,174.5	11.3	6,174.5	0.00	0.00	
11,700.0	90.00	0.00	5,649.0	6,274.5	11.3	6,274.5	0.00	0.00	
11,800.0	90.00	0.00	5,649.0	6,374.5	11.3	6,374.5	0.00	0.00	
11,900.0	90.00	0.00	5,649.0	6,474.5	11.3	6,474.5	0.00	0.00	
12,000.0	90.00	0.00	5,649.0	6,574.5	11.3	6,574.5	0.00	0.00	
12,100.0	90.00	0.00	5,649.0	6,674.5	11.3	6,674.5	0.00	0.00	
12,200.0	90.00	0.00	5,649.0	6,774.5	11.3	6,774.5	0.00	0.00	
12,300.0	90.00	0.00	5,649.0	6,874.5	11.3	6,874.5	0.00	0.00	
12,400.0	90.00	0.00	5,649.0	6,974.5	11.3	6,974.5	0.00	0.00	
12,500.0	90.00	0.00	5,649.0	7,074.5	11.3	7,074.5	0.00	0.00	
12,600.0	90.00	0.00	5,649.0	7,174.5	11.3	7,174.5	0.00	0.00	
12,700.0	90.00	0.00	5,649.0	7,274.5	11.3	7,274.5	0.00	0.00	
12,800.0	90.00	0.00	5,649.0	7,374.5	11.3	7,374.5	0.00	0.00	
12,900.0	90.00	0.00	5,649.0	7,474.5	11.3	7,474.5	0.00	0.00	
13,000.0	90.00	0.00	5,649.0	7,574.5	11.3	7,574.5	0.00	0.00	
13,100.0	90.00	0.00	5,649.0	7,674.5	11.3	7,674.5	0.00	0.00	
13,200.0	90.00	0.00	5,649.0	7,774.5	11.3	7,774.5	0.00	0.00	
13,300.0	90.00	0.00	5,649.0	7,874.5	11.3	7,874.5	0.00	0.00	
13,400.0	90.00	0.00	5,649.0	7,974.5	11.3	7,974.5	0.00	0.00	
13,500.0	90.00	0.00	5,649.0	8,074.5	11.3	8,074.5	0.00	0.00	
13,545.3	90.00	0.00	5,649.0	8,119.7	11.3	8,119.7	0.00	0.00	PBHL @ 13545.2' 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
2215A BHL - plan hits target center - Point	0.00	0.00	5,649.0	8,119.7	11.3	1,549,935.08	3,458,255.03	40.831197	-103.844017
2215A Tgt - plan misses target center by 10.0ft at 13045.4ft MD (5649.0 TVD, 7619.9 N, 11.3 E) - Point	0.00	0.00	5,649.0	7,619.9	21.3	1,549,435.48	3,458,274.32	40.829825	-103.843981

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #27I-2215A
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-2215A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
5,946.3	5,649.0	7"	0.000	0.000

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,718.6	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
5,128.1	5,128.1	0.0	0.0	Curve KOP @ 5128.1' MD
5,946.3	5,649.0	520.8	10.9	Start 3° Turn
5,986.3	5,649.0	560.7	11.3	EOT; Azm=0°
13,545.3	5,649.0	8,119.7	11.3	PBHL @ 13545.2' MD

Whiting Petroleum Corporation

Weld County, CO
S27-T10N-R58W
Razor #27I-2215A
HZ
Plan #1

Anticollision Report

30 April, 2013

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2215A
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-2215A	**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 #1	**Offset TVD Reference:**	Offset Datum

Reference Plan #1

Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	**Error Model:**	Systematic Ellipse
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 500.0ft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	2.00 **Sigma**		

Survey Tool Program **Date** 4/30/2013

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	13,545.2	Plan #1 (HZ)	MWD	Geolink MWD

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
S27-T10N-R58W						
Razor #27I-2213A - HZ - Plan #1	1,000.0	1,000.0	66.2	62.3	17.263	CC, ES
Razor #27I-2213A - HZ - Plan #1	5,200.0	5,192.9	86.6	66.1	4.214	SF
Razor #27I-2214B - HZ - Plan #1	300.0	300.0	124.3	123.3	125.611	CC
Razor #27I-2214B - HZ - Plan #1	13,545.3	13,633.7	340.9	60.9	1.217	Level 2, ES, SF
Razor #27I-2216B - HZ - Plan #1	1,609.3	1,611.9	29.3	23.4	4.989	CC, ES
Razor #27I-2216B - HZ - Plan #1	13,545.3	13,499.0	342.0	61.8	1.221	Level 2, SF
Razor #27I-3413A - HZ - Plan #1	5,100.0	5,100.0	99.4	79.2	4.919	CC
Razor #27I-3413A - HZ - Plan #1	5,110.0	5,110.0	99.4	79.1	4.909	ES, SF
Razor #27I-3414B - HZ - Plan #1	5,100.0	5,100.0	99.8	79.6	4.938	CC, ES, SF
Razor #27I-3415A - HZ - Plan #1	5,200.0	5,200.4	32.9	12.4	1.603	CC, ES, SF
Razor #27I-3416B - HZ - Plan #1	500.0	500.0	74.7	72.9	40.663	CC, ES
Razor #27I-3416B - HZ - Plan #1	5,100.0	5,086.4	357.2	337.0	17.697	SF
Razor #27J-2209A - HZ - Plan #2						Out of range
Razor #27J-2210B - HZ - Plan #2						Out of range
Razor #27J-2211A - HZ - Plan #2						Out of range
Razor #27J-2212B - HZ - Plan #2						Out of range
Razor #27J-3409A - Hz - Plan #2						Out of range
Razor #27J-3410B - HZ - Plan #2						Out of range
Razor #27J-3411A - HZ - Plan #2						Out of range
Razor #27J-3412B - HZ - Plan #2						Out of range
Razor #27K-3405A - HZ - Plan #2						Out of range
Razor #27K-3406B - HZ - Plan #2						Out of range
Razor #27K-3407A - HZ - Plan #2						Out of range
Razor #27K-3408B - HZ - Plan #2						Out of range
Razor #27L-3401B - Hz - Plan #1						Out of range
Razor #27L-3403B - Hz - Plan #1						Out of range
Razor #27L-3404B - Hz - Plan #1						Out of range

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2215A
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-2215A	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2213A - HZ - Plan #1 — **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	-89.04	1.1	-66.2	66.2				
100.0	100.0	100.0	100.0	0.1	0.1	-89.04	1.1	-66.2	66.2	65.9	0.24	276.205	
200.0	200.0	200.0	200.0	0.3	0.3	-89.04	1.1	-66.2	66.2	65.5	0.64	103.576	
300.0	300.0	300.0	300.0	0.5	0.5	-89.04	1.1	-66.2	66.2	65.1	1.04	63.739	
400.0	400.0	400.0	400.0	0.7	0.8	-89.04	1.1	-66.2	66.2	64.7	1.44	46.033	
500.0	500.0	500.0	500.0	0.8	1.0	-89.04	1.1	-66.2	66.2	64.3	1.84	36.026	
600.0	600.0	600.0	600.0	1.0	1.2	-89.04	1.1	-66.2	66.2	63.9	2.24	29.593	
700.0	700.0	700.0	700.0	1.2	1.4	-89.04	1.1	-66.2	66.2	63.5	2.64	25.109	
800.0	800.0	800.0	800.0	1.4	1.7	-89.04	1.1	-66.2	66.2	63.1	3.03	21.805	
900.0	900.0	900.0	900.0	1.5	1.9	-89.04	1.1	-66.2	66.2	62.7	3.43	19.270	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	2.1	-89.04	1.1	-66.2	66.2	62.3	3.83	17.263	CC, ES
1,100.0	1,100.0	1,098.7	1,098.7	1.9	2.3	-87.82	2.6	-67.1	67.1	62.9	4.23	15.880	
1,200.0	1,200.0	1,197.2	1,197.0	2.1	2.6	-84.38	6.9	-69.8	70.2	65.5	4.62	15.187	
1,300.0	1,300.0	1,296.9	1,296.5	2.2	2.8	-80.15	12.8	-73.5	74.6	69.6	5.02	14.873	
1,400.0	1,400.0	1,396.7	1,396.0	2.4	3.0	-76.41	18.7	-77.1	79.5	74.1	5.42	14.668	
1,500.0	1,500.0	1,498.6	1,497.8	2.6	3.2	-73.80	23.2	-80.0	83.4	77.6	5.80	14.377	
1,600.0	1,600.0	1,600.8	1,600.0	2.8	3.4	-72.99	24.8	-81.0	84.7	78.5	6.15	13.761	
1,700.0	1,700.0	1,700.8	1,700.0	2.9	3.6	-72.99	24.8	-81.0	84.7	78.1	6.53	12.971	
1,800.0	1,800.0	1,800.8	1,800.0	3.1	3.8	-72.99	24.8	-81.0	84.7	77.8	6.93	12.227	
1,900.0	1,900.0	1,900.8	1,900.0	3.3	4.1	-72.99	24.8	-81.0	84.7	77.4	7.32	11.564	
2,000.0	2,000.0	2,000.8	2,000.0	3.5	4.3	-72.99	24.8	-81.0	84.7	77.0	7.72	10.969	
2,100.0	2,100.0	2,100.8	2,100.0	3.6	4.5	-72.99	24.8	-81.0	84.7	76.6	8.12	10.432	
2,200.0	2,200.0	2,200.8	2,200.0	3.8	4.7	-72.99	24.8	-81.0	84.7	76.2	8.51	9.945	
2,300.0	2,300.0	2,300.8	2,300.0	4.0	4.9	-72.99	24.8	-81.0	84.7	75.8	8.91	9.501	
2,400.0	2,400.0	2,400.8	2,400.0	4.2	5.2	-72.99	24.8	-81.0	84.7	75.4	9.31	9.095	
2,500.0	2,500.0	2,500.8	2,500.0	4.3	5.4	-72.99	24.8	-81.0	84.7	75.0	9.71	8.722	
2,600.0	2,600.0	2,600.8	2,600.0	4.5	5.6	-72.99	24.8	-81.0	84.7	74.6	10.11	8.378	
2,700.0	2,700.0	2,700.8	2,700.0	4.7	5.8	-72.99	24.8	-81.0	84.7	74.2	10.51	8.060	
2,800.0	2,800.0	2,800.8	2,800.0	4.9	6.1	-72.99	24.8	-81.0	84.7	73.8	10.90	7.766	
2,900.0	2,900.0	2,900.8	2,900.0	5.0	6.3	-72.99	24.8	-81.0	84.7	73.4	11.30	7.492	
3,000.0	3,000.0	3,000.8	3,000.0	5.2	6.5	-72.99	24.8	-81.0	84.7	73.0	11.70	7.237	
3,100.0	3,100.0	3,100.8	3,100.0	5.4	6.7	-72.99	24.8	-81.0	84.7	72.6	12.10	6.999	
3,200.0	3,200.0	3,200.8	3,200.0	5.6	7.0	-72.99	24.8	-81.0	84.7	72.2	12.50	6.775	
3,300.0	3,300.0	3,300.8	3,300.0	5.7	7.2	-72.99	24.8	-81.0	84.7	71.8	12.90	6.566	
3,400.0	3,400.0	3,400.8	3,400.0	5.9	7.4	-72.99	24.8	-81.0	84.7	71.4	13.29	6.369	
3,500.0	3,500.0	3,500.8	3,500.0	6.1	7.6	-72.99	24.8	-81.0	84.7	71.0	13.69	6.184	
3,600.0	3,600.0	3,600.8	3,600.0	6.3	7.9	-72.99	24.8	-81.0	84.7	70.6	14.09	6.009	
3,700.0	3,700.0	3,700.8	3,700.0	6.4	8.1	-72.99	24.8	-81.0	84.7	70.2	14.49	5.843	
3,800.0	3,800.0	3,800.8	3,800.0	6.6	8.3	-72.99	24.8	-81.0	84.7	69.8	14.89	5.687	
3,900.0	3,900.0	3,900.8	3,900.0	6.8	8.5	-72.99	24.8	-81.0	84.7	69.4	15.29	5.539	
4,000.0	4,000.0	4,000.8	4,000.0	7.0	8.7	-72.99	24.8	-81.0	84.7	69.0	15.69	5.398	
4,100.0	4,100.0	4,100.8	4,100.0	7.1	9.0	-72.99	24.8	-81.0	84.7	68.6	16.09	5.264	
4,200.0	4,200.0	4,200.8	4,200.0	7.3	9.2	-72.99	24.8	-81.0	84.7	68.2	16.49	5.136	
4,300.0	4,300.0	4,300.8	4,300.0	7.5	9.4	-72.99	24.8	-81.0	84.7	67.8	16.88	5.015	
4,400.0	4,400.0	4,400.8	4,400.0	7.7	9.6	-72.99	24.8	-81.0	84.7	67.4	17.28	4.899	
4,500.0	4,500.0	4,500.8	4,500.0	7.8	9.9	-72.99	24.8	-81.0	84.7	67.0	17.68	4.789	
4,600.0	4,600.0	4,600.8	4,600.0	8.0	10.1	-72.99	24.8	-81.0	84.7	66.6	18.08	4.683	
4,700.0	4,700.0	4,700.8	4,700.0	8.2	10.3	-72.99	24.8	-81.0	84.7	66.2	18.48	4.582	
4,800.0	4,800.0	4,800.8	4,800.0	8.3	10.5	-72.99	24.8	-81.0	84.7	65.8	18.88	4.485	
4,900.0	4,900.0	4,900.8	4,900.0	8.5	10.8	-72.99	24.8	-81.0	84.7	65.4	19.28	4.392	
5,000.0	5,000.0	5,000.8	5,000.0	8.7	11.0	-72.99	24.8	-81.0	84.7	65.0	19.68	4.303	
5,100.0	5,100.0	5,100.8	5,100.0	8.9	11.2	-72.99	24.8	-81.0	84.7	64.6	20.08	4.218	

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-2215A
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-2215A	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2213A - HZ - Plan #1

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
5,200.0	5,199.8	5,192.9	5,192.0	9.0	11.4	-75.11	28.1	-83.0	86.6	66.1	20.56	4.214	SF
5,300.0	5,296.9	5,281.1	5,278.2	9.2	11.6	-78.71	43.4	-92.6	96.3	75.3	21.01	4.583	
5,400.0	5,387.8	5,367.6	5,358.5	9.5	11.9	-83.17	70.2	-109.4	114.6	93.2	21.42	5.353	
5,500.0	5,469.2	5,450.0	5,429.3	9.9	12.2	-86.64	105.8	-131.7	141.8	119.9	21.94	6.463	
5,600.0	5,538.1	5,533.1	5,493.1	10.5	12.5	-88.83	150.9	-160.0	177.0	154.1	22.84	7.750	
5,700.0	5,591.8	5,612.2	5,545.2	11.3	13.0	-89.36	201.3	-191.5	218.9	194.9	24.01	9.118	
5,800.0	5,628.6	5,689.7	5,586.9	12.3	13.6	-88.64	256.5	-226.1	266.2	240.7	25.49	10.444	
5,900.0	5,646.9	5,766.4	5,618.2	13.5	14.4	-87.03	315.8	-263.2	317.2	290.0	27.24	11.645	
6,000.0	5,649.0	5,844.8	5,639.3	14.8	15.4	-88.24	379.8	-303.3	370.1	340.7	29.33	12.620	
6,100.0	5,649.0	5,928.3	5,649.0	16.2	16.5	-90.01	450.0	-347.2	423.0	391.4	31.60	13.388	
6,200.0	5,649.0	6,034.8	5,649.4	17.6	18.1	-90.06	541.3	-402.0	474.6	440.3	34.27	13.847	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2215A
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-2215A	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2214B - 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	-126.92	-74.7	-99.4	124.3				
100.0	100.0	100.0	100.0	0.1	0.1	-126.92	-74.7	-99.4	124.3	124.0	0.29	426.477	
200.0	200.0	200.0	200.0	0.3	0.3	-126.92	-74.7	-99.4	124.3	123.7	0.64	194.064	
300.0	300.0	300.0	300.0	0.5	0.5	-126.92	-74.7	-99.4	124.3	123.3	0.99	125.611	CC
400.0	400.0	397.6	397.6	0.7	0.7	-126.28	-74.1	-100.9	125.2	123.9	1.34	93.712	
500.0	500.0	496.9	496.8	0.8	0.8	-124.72	-72.7	-104.9	127.6	125.9	1.69	75.532	
600.0	600.0	596.8	596.6	1.0	1.0	-123.17	-71.2	-108.9	130.2	128.1	2.05	63.640	
700.0	700.0	696.7	696.4	1.2	1.2	-121.67	-69.7	-113.0	132.8	130.4	2.40	55.300	
800.0	800.0	796.6	796.2	1.4	1.4	-120.24	-68.2	-117.1	135.5	132.8	2.76	49.147	
900.0	900.0	896.5	896.1	1.5	1.6	-118.86	-66.8	-121.1	138.4	135.2	3.11	44.431	
1,000.0	1,000.0	996.4	995.9	1.7	1.8	-117.54	-65.3	-125.2	141.2	137.8	3.47	40.708	
1,100.0	1,100.0	1,096.4	1,095.7	1.9	2.0	-116.27	-63.8	-129.2	144.2	140.4	3.82	37.701	
1,200.0	1,200.0	1,196.3	1,195.5	2.1	2.2	-115.06	-62.3	-133.3	147.2	143.0	4.18	35.225	
1,300.0	1,300.0	1,296.2	1,295.3	2.2	2.4	-113.89	-60.8	-137.4	150.3	145.8	4.53	33.154	
1,400.0	1,400.0	1,396.1	1,395.1	2.4	2.5	-112.77	-59.4	-141.4	153.5	148.6	4.89	31.397	
1,500.0	1,500.0	1,496.0	1,494.9	2.6	2.7	-111.69	-57.9	-145.5	156.7	151.4	5.24	29.892	
1,600.0	1,600.0	1,595.9	1,594.8	2.8	2.9	-110.66	-56.4	-149.6	159.9	154.3	5.59	28.588	
1,700.0	1,700.0	1,695.8	1,694.6	2.9	3.1	-109.67	-54.9	-153.6	163.2	157.3	5.95	27.448	
1,800.0	1,800.0	1,795.7	1,794.4	3.1	3.3	-108.72	-53.4	-157.7	166.6	160.3	6.30	26.446	
1,900.0	1,900.0	1,895.6	1,894.2	3.3	3.5	-107.81	-52.0	-161.7	170.0	163.3	6.65	25.557	
2,000.0	2,000.0	1,995.5	1,994.0	3.5	3.7	-106.94	-50.5	-165.8	173.4	166.4	7.00	24.765	
2,100.0	2,100.0	2,095.4	2,093.8	3.6	3.9	-106.09	-49.0	-169.9	176.9	169.5	7.35	24.054	
2,200.0	2,200.0	2,195.3	2,193.6	3.8	4.1	-105.29	-47.5	-173.9	180.4	172.7	7.71	23.415	
2,300.0	2,300.0	2,295.2	2,293.4	4.0	4.2	-104.51	-46.1	-178.0	184.0	175.9	8.06	22.835	
2,400.0	2,400.0	2,395.1	2,393.3	4.2	4.4	-103.76	-44.6	-182.1	187.6	179.1	8.41	22.309	
2,500.0	2,500.0	2,495.0	2,493.1	4.3	4.6	-103.04	-43.1	-186.1	191.2	182.4	8.76	21.829	
2,600.0	2,600.0	2,595.0	2,592.9	4.5	4.8	-102.34	-41.6	-190.2	194.8	185.7	9.11	21.389	
2,700.0	2,700.0	2,694.9	2,692.7	4.7	5.0	-101.68	-40.1	-194.2	198.5	189.0	9.46	20.986	
2,800.0	2,800.0	2,794.8	2,792.5	4.9	5.2	-101.03	-38.7	-198.3	202.2	192.4	9.81	20.614	
2,900.0	2,900.0	2,894.7	2,892.3	5.0	5.4	-100.41	-37.2	-202.4	205.9	195.7	10.16	20.270	
3,000.0	3,000.0	2,994.6	2,992.1	5.2	5.6	-99.81	-35.7	-206.4	209.6	199.1	10.51	19.952	
3,100.0	3,100.0	3,094.5	3,091.9	5.4	5.8	-99.24	-34.2	-210.5	213.4	202.5	10.86	19.656	
3,200.0	3,200.0	3,194.4	3,191.8	5.6	6.0	-98.68	-32.7	-214.6	217.2	206.0	11.21	19.382	
3,300.0	3,300.0	3,294.3	3,291.6	5.7	6.1	-98.14	-31.3	-218.6	221.0	209.4	11.56	19.125	
3,400.0	3,400.0	3,394.2	3,391.4	5.9	6.3	-97.62	-29.8	-222.7	224.8	212.9	11.90	18.885	
3,500.0	3,500.0	3,494.1	3,491.2	6.1	6.5	-97.12	-28.3	-226.7	228.7	216.4	12.25	18.661	
3,600.0	3,600.0	3,594.0	3,591.0	6.3	6.7	-96.63	-26.8	-230.8	232.5	219.9	12.60	18.450	
3,700.0	3,700.0	3,693.9	3,690.8	6.4	6.9	-96.16	-25.4	-234.9	236.4	223.5	12.95	18.253	
3,800.0	3,800.0	3,793.8	3,790.6	6.6	7.1	-95.71	-23.9	-238.9	240.3	227.0	13.30	18.066	
3,900.0	3,900.0	3,893.7	3,890.5	6.8	7.3	-95.27	-22.4	-243.0	244.2	230.6	13.65	17.891	
4,000.0	4,000.0	3,993.6	3,990.3	7.0	7.5	-94.84	-20.9	-247.0	248.1	234.1	14.00	17.725	
4,100.0	4,100.0	4,093.6	4,090.1	7.1	7.7	-94.43	-19.4	-251.1	252.1	237.7	14.35	17.568	
4,200.0	4,200.0	4,193.5	4,189.9	7.3	7.9	-94.03	-18.0	-255.2	256.0	241.3	14.70	17.420	
4,300.0	4,300.0	4,293.4	4,289.7	7.5	8.0	-93.64	-16.5	-259.2	260.0	244.9	15.04	17.280	
4,400.0	4,400.0	4,393.3	4,389.5	7.7	8.2	-93.26	-15.0	-263.3	263.9	248.5	15.39	17.146	
4,500.0	4,500.0	4,493.2	4,489.3	7.8	8.4	-92.90	-13.5	-267.4	267.9	252.2	15.74	17.019	
4,600.0	4,600.0	4,593.1	4,589.1	8.0	8.6	-92.54	-12.0	-271.4	271.9	255.8	16.09	16.899	
4,700.0	4,700.0	4,693.0	4,689.0	8.2	8.8	-92.20	-10.6	-275.5	275.9	259.5	16.44	16.784	
4,800.0	4,800.0	4,792.9	4,788.8	8.3	9.0	-91.86	-9.1	-279.5	279.9	263.1	16.79	16.674	
4,900.0	4,900.0	4,892.8	4,888.6	8.5	9.2	-91.54	-7.6	-283.6	283.9	266.8	17.14	16.570	
5,000.0	5,000.0	4,992.7	4,988.4	8.7	9.4	-91.22	-6.1	-287.7	288.0	270.5	17.48	16.470	
5,100.0	5,100.0	5,092.6	5,088.2	8.9	9.6	-90.91	-4.7	-291.7	292.0	274.2	17.83	16.375	

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 #27I-2215A
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-2215A	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2214B - 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
5,200.0	5,199.8	5,192.4	5,187.9	9.0	9.8	-92.43	-3.2	-295.8	296.2	278.1	18.18	16.300	
5,300.0	5,296.9	5,293.2	5,288.3	9.2	10.0	-95.23	2.4	-299.9	301.7	283.1	18.58	16.236	
5,400.0	5,387.8	5,398.5	5,390.3	9.5	10.2	-98.03	27.6	-304.0	308.3	289.2	19.12	16.128	
5,500.0	5,469.2	5,508.1	5,488.8	9.9	10.7	-100.47	75.0	-308.0	315.7	295.8	19.88	15.876	
5,600.0	5,538.1	5,621.9	5,578.3	10.5	11.3	-102.45	144.9	-311.7	323.1	302.1	20.99	15.391	
5,700.0	5,591.8	5,739.8	5,652.7	11.3	12.1	-103.88	236.0	-314.7	329.8	307.3	22.53	14.641	
5,800.0	5,628.6	5,860.9	5,705.9	12.3	13.4	-104.71	344.4	-316.9	335.4	310.8	24.55	13.661	
5,900.0	5,646.9	5,984.0	5,732.9	13.5	14.8	-104.91	464.2	-318.0	339.2	312.2	27.02	12.554	
6,000.0	5,649.0	6,094.3	5,735.8	14.8	16.3	-104.76	574.5	-318.1	340.7	310.9	29.75	11.451	
6,100.0	5,649.0	6,194.3	5,735.8	16.2	17.7	-104.76	674.5	-318.1	340.7	308.2	32.50	10.482	
6,200.0	5,649.0	6,294.3	5,735.8	17.6	19.2	-104.76	774.5	-318.1	340.7	305.3	35.36	9.635	
6,300.0	5,649.0	6,394.3	5,735.8	19.1	20.7	-104.76	874.5	-318.1	340.7	302.4	38.31	8.893	
6,400.0	5,649.0	6,494.3	5,735.8	20.7	22.2	-104.76	974.5	-318.1	340.7	299.4	41.32	8.244	
6,500.0	5,649.0	6,594.3	5,735.8	22.3	23.8	-104.76	1,074.5	-318.1	340.7	296.3	44.39	7.674	
6,600.0	5,649.0	6,694.3	5,735.8	23.9	25.4	-104.76	1,174.5	-318.1	340.7	293.2	47.51	7.171	
6,700.0	5,649.0	6,794.3	5,735.8	25.5	27.0	-104.76	1,274.5	-318.1	340.7	290.0	50.66	6.725	
6,800.0	5,649.0	6,894.3	5,735.8	27.1	28.6	-104.76	1,374.5	-318.1	340.7	286.8	53.84	6.328	
6,900.0	5,649.0	6,994.3	5,735.8	28.8	30.3	-104.76	1,474.5	-318.1	340.7	283.6	57.04	5.972	
7,000.0	5,649.0	7,094.3	5,735.8	30.4	31.9	-104.76	1,574.5	-318.1	340.7	280.4	60.27	5.653	
7,100.0	5,649.0	7,194.3	5,735.8	32.1	33.6	-104.76	1,674.5	-318.1	340.7	277.2	63.51	5.364	
7,200.0	5,649.0	7,294.3	5,735.8	33.8	35.3	-104.76	1,774.5	-318.1	340.7	273.9	66.77	5.102	
7,300.0	5,649.0	7,394.3	5,735.8	35.5	37.0	-104.76	1,874.5	-318.1	340.7	270.7	70.04	4.864	
7,400.0	5,649.0	7,494.3	5,735.8	37.2	38.7	-104.76	1,974.5	-318.1	340.7	267.4	73.32	4.647	
7,500.0	5,649.0	7,594.3	5,735.8	38.9	40.4	-104.76	2,074.5	-318.1	340.7	264.1	76.62	4.447	
7,600.0	5,649.0	7,694.3	5,735.8	40.6	42.1	-104.76	2,174.5	-318.1	340.7	260.8	79.92	4.263	
7,700.0	5,649.0	7,794.3	5,735.8	42.3	43.8	-104.76	2,274.5	-318.1	340.7	257.5	83.22	4.094	
7,800.0	5,649.0	7,894.3	5,735.8	44.0	45.5	-104.76	2,374.5	-318.1	340.7	254.2	86.54	3.937	
7,900.0	5,649.0	7,994.3	5,735.8	45.7	47.2	-104.76	2,474.5	-318.1	340.7	250.9	89.86	3.792	
8,000.0	5,649.0	8,094.3	5,735.8	47.4	48.9	-104.76	2,574.5	-318.1	340.7	247.5	93.19	3.656	
8,100.0	5,649.0	8,194.3	5,735.8	49.2	50.6	-104.76	2,674.5	-318.1	340.7	244.2	96.52	3.530	
8,200.0	5,649.0	8,294.3	5,735.8	50.9	52.3	-104.76	2,774.5	-318.1	340.7	240.9	99.85	3.412	
8,300.0	5,649.0	8,394.3	5,735.8	52.6	54.1	-104.77	2,874.5	-318.1	340.7	237.5	103.19	3.302	
8,400.0	5,649.0	8,494.3	5,735.8	54.3	55.8	-104.77	2,974.5	-318.1	340.7	234.2	106.53	3.198	
8,500.0	5,649.0	8,594.3	5,735.8	56.1	57.5	-104.77	3,074.5	-318.1	340.7	230.9	109.88	3.101	
8,600.0	5,649.0	8,694.3	5,735.8	57.8	59.2	-104.77	3,174.5	-318.2	340.7	227.5	113.22	3.009	
8,700.0	5,649.0	8,794.3	5,735.8	59.5	61.0	-104.77	3,274.5	-318.2	340.7	224.2	116.57	2.923	
8,800.0	5,649.0	8,894.3	5,735.8	61.3	62.7	-104.77	3,374.5	-318.2	340.7	220.8	119.93	2.841	
8,900.0	5,649.0	8,994.3	5,735.9	63.0	64.4	-104.77	3,474.5	-318.2	340.7	217.5	123.28	2.764	
9,000.0	5,649.0	9,094.3	5,735.9	64.7	66.2	-104.77	3,574.5	-318.2	340.8	214.1	126.64	2.691	
9,100.0	5,649.0	9,194.3	5,735.9	66.5	67.9	-104.77	3,674.5	-318.2	340.8	210.8	130.00	2.621	
9,200.0	5,649.0	9,294.3	5,735.9	68.2	69.6	-104.77	3,774.5	-318.2	340.8	207.4	133.36	2.555	
9,300.0	5,649.0	9,394.3	5,735.9	69.9	71.4	-104.77	3,874.5	-318.2	340.8	204.0	136.72	2.492	
9,400.0	5,649.0	9,494.3	5,735.9	71.7	73.1	-104.77	3,974.5	-318.2	340.8	200.7	140.09	2.433	
9,500.0	5,649.0	9,594.3	5,735.9	73.4	74.8	-104.77	4,074.5	-318.2	340.8	197.3	143.45	2.375	
9,600.0	5,649.0	9,694.3	5,735.9	75.2	76.6	-104.77	4,174.5	-318.2	340.8	194.0	146.82	2.321	
9,700.0	5,649.0	9,794.3	5,735.9	76.9	78.3	-104.77	4,274.5	-318.2	340.8	190.6	150.19	2.269	
9,800.0	5,649.0	9,894.3	5,735.9	78.6	80.0	-104.77	4,374.5	-318.2	340.8	187.2	153.55	2.219	
9,900.0	5,649.0	9,994.3	5,735.9	80.4	81.8	-104.77	4,474.5	-318.2	340.8	183.9	156.92	2.172	
10,000.0	5,649.0	10,094.3	5,735.9	82.1	83.5	-104.77	4,574.5	-318.2	340.8	180.5	160.30	2.126	
10,100.0	5,649.0	10,194.3	5,735.9	83.9	85.3	-104.77	4,674.5	-318.2	340.8	177.1	163.67	2.082	
10,200.0	5,649.0	10,294.3	5,735.9	85.6	87.0	-104.77	4,774.5	-318.2	340.8	173.7	167.04	2.040	
10,300.0	5,649.0	10,394.3	5,735.9	87.4	88.8	-104.77	4,874.5	-318.2	340.8	170.4	170.41	2.000	

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-2215A
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-2215A	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2214B - 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
10,400.0	5,649.0	10,494.3	5,735.9	89.1	90.5	-104.77	4,974.5	-318.2	340.8	167.0	173.79	1.961	
10,500.0	5,649.0	10,594.3	5,735.9	90.8	92.2	-104.77	5,074.5	-318.2	340.8	163.6	177.16	1.924	
10,600.0	5,649.0	10,694.3	5,735.9	92.6	94.0	-104.77	5,174.5	-318.2	340.8	160.3	180.54	1.888	
10,700.0	5,649.0	10,794.3	5,735.9	94.3	95.7	-104.78	5,274.5	-318.2	340.8	156.9	183.91	1.853	
10,800.0	5,649.0	10,894.3	5,735.9	96.1	97.5	-104.78	5,374.5	-318.2	340.8	153.5	187.29	1.820	
10,900.0	5,649.0	10,994.3	5,735.9	97.8	99.2	-104.78	5,474.5	-318.2	340.8	150.1	190.67	1.787	
11,000.0	5,649.0	11,094.3	5,735.9	99.6	101.0	-104.78	5,574.5	-318.2	340.8	146.8	194.05	1.756	
11,100.0	5,649.0	11,194.3	5,735.9	101.3	102.7	-104.78	5,674.5	-318.2	340.8	143.4	197.42	1.726	
11,200.0	5,649.0	11,294.3	5,735.9	103.1	104.5	-104.78	5,774.5	-318.2	340.8	140.0	200.80	1.697	
11,300.0	5,649.0	11,394.3	5,735.9	104.8	106.2	-104.78	5,874.5	-318.2	340.8	136.6	204.18	1.669	
11,400.0	5,649.0	11,494.3	5,735.9	106.6	107.9	-104.78	5,974.5	-318.2	340.8	133.3	207.56	1.642	
11,500.0	5,649.0	11,594.3	5,735.9	108.3	109.7	-104.78	6,074.5	-318.2	340.8	129.9	210.94	1.616	
11,600.0	5,649.0	11,694.3	5,735.9	110.1	111.4	-104.78	6,174.5	-318.2	340.8	126.5	214.32	1.590	
11,700.0	5,649.0	11,794.3	5,735.9	111.8	113.2	-104.78	6,274.5	-318.2	340.8	123.1	217.70	1.566	
11,800.0	5,649.0	11,894.3	5,736.0	113.6	114.9	-104.78	6,374.5	-318.2	340.8	119.7	221.09	1.542	
11,900.0	5,649.0	11,994.3	5,736.0	115.3	116.7	-104.78	6,474.5	-318.2	340.8	116.4	224.47	1.518	
12,000.0	5,649.0	12,094.3	5,736.0	117.0	118.4	-104.78	6,574.5	-318.2	340.8	113.0	227.85	1.496	Level 3
12,100.0	5,649.0	12,194.3	5,736.0	118.8	120.2	-104.78	6,674.5	-318.2	340.8	109.6	231.23	1.474	Level 3
12,200.0	5,649.0	12,294.3	5,736.0	120.5	121.9	-104.78	6,774.5	-318.2	340.8	106.2	234.61	1.453	Level 3
12,300.0	5,649.0	12,394.3	5,736.0	122.3	123.7	-104.78	6,874.5	-318.2	340.8	102.9	238.00	1.432	Level 3
12,400.0	5,649.0	12,494.3	5,736.0	124.0	125.4	-104.78	6,974.5	-318.2	340.9	99.5	241.38	1.412	Level 3
12,500.0	5,649.0	12,594.3	5,736.0	125.8	127.2	-104.78	7,074.5	-318.2	340.9	96.1	244.76	1.393	Level 3
12,600.0	5,649.0	12,694.3	5,736.0	127.5	128.9	-104.78	7,174.5	-318.2	340.9	92.7	248.15	1.374	Level 3
12,700.0	5,649.0	12,794.3	5,736.0	129.3	130.7	-104.78	7,274.5	-318.2	340.9	89.3	251.53	1.355	Level 3
12,800.0	5,649.0	12,894.3	5,736.0	131.0	132.4	-104.78	7,374.5	-318.2	340.9	85.9	254.92	1.337	Level 3
12,900.0	5,649.0	12,994.3	5,736.0	132.8	134.2	-104.78	7,474.5	-318.2	340.9	82.6	258.30	1.320	Level 3
13,000.0	5,649.0	13,094.3	5,736.0	134.5	135.9	-104.78	7,574.5	-318.2	340.9	79.2	261.69	1.303	Level 3
13,100.0	5,649.0	13,194.3	5,736.0	136.3	137.7	-104.78	7,674.5	-318.2	340.9	75.8	265.07	1.286	Level 3
13,200.0	5,649.0	13,294.3	5,736.0	138.0	139.4	-104.79	7,774.5	-318.2	340.9	72.4	268.46	1.270	Level 3
13,300.0	5,649.0	13,394.3	5,736.0	139.8	141.2	-104.79	7,874.5	-318.2	340.9	69.0	271.84	1.254	Level 3
13,400.0	5,649.0	13,494.3	5,736.0	141.5	142.9	-104.79	7,974.5	-318.2	340.9	65.7	275.23	1.239	Level 2
13,500.0	5,649.0	13,594.3	5,736.0	143.3	144.7	-104.79	8,074.5	-318.2	340.9	62.3	278.61	1.224	Level 2
13,522.3	5,649.0	13,616.6	5,736.0	143.7	145.0	-104.79	8,096.8	-318.3	340.9	61.5	279.37	1.220	Level 2
13,545.3	5,649.0	13,633.7	5,736.0	144.1	145.3	-104.79	8,113.8	-318.3	340.9	60.9	280.04	1.217	Level 2, ES, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2215A
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-2215A	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2216B - 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	-156.02	-74.7	-33.2	81.7				
100.0	100.0	100.0	100.0	0.1	0.1	-156.02	-74.7	-33.2	81.7	81.4	0.29	280.429	
200.0	200.0	200.0	200.0	0.3	0.3	-156.02	-74.7	-33.2	81.7	81.1	0.64	127.607	
300.0	300.0	300.0	300.0	0.5	0.5	-156.02	-74.7	-33.2	81.7	80.7	0.99	82.595	
400.0	400.0	400.0	400.0	0.7	0.7	-156.02	-74.7	-33.2	81.7	80.4	1.34	61.058	
500.0	500.0	500.0	500.0	0.8	0.8	-156.02	-74.7	-33.2	81.7	80.0	1.69	48.430	
600.0	600.0	605.1	604.9	1.0	1.0	-157.66	-70.4	-28.9	76.3	74.2	2.05	37.255	
700.0	700.0	704.9	704.4	1.2	1.2	-159.86	-65.5	-24.0	69.9	67.5	2.40	29.123	
800.0	800.0	804.6	803.9	1.4	1.4	-162.50	-60.6	-19.1	63.6	60.9	2.75	23.095	
900.0	900.0	904.4	903.5	1.5	1.6	-165.71	-55.6	-14.2	57.5	54.4	3.11	18.473	
1,000.0	1,000.0	1,004.1	1,003.0	1.7	1.8	-169.66	-50.7	-9.2	51.6	48.2	3.48	14.849	
1,100.0	1,100.0	1,103.9	1,102.5	1.9	2.0	-174.60	-45.8	-4.3	46.1	42.2	3.85	11.968	
1,200.0	1,200.0	1,203.6	1,202.0	2.1	2.2	179.17	-40.9	0.6	40.9	36.7	4.23	9.674	
1,300.0	1,300.0	1,303.4	1,301.5	2.2	2.5	171.28	-36.0	5.5	36.4	31.8	4.62	7.871	
1,400.0	1,400.0	1,403.2	1,401.0	2.4	2.7	161.42	-31.0	10.4	32.8	27.7	5.03	6.509	
1,500.0	1,500.0	1,502.9	1,500.5	2.6	2.9	149.54	-26.1	15.4	30.3	24.9	5.44	5.565	
1,600.0	1,600.0	1,602.7	1,600.0	2.8	3.1	136.26	-21.2	20.3	29.3	23.5	5.84	5.020	
1,609.3	1,609.3	1,611.9	1,609.3	2.8	3.1	135.00	-20.7	20.7	29.3	23.4	5.88	4.989	CC, ES
1,700.0	1,700.0	1,702.4	1,699.6	2.9	3.3	122.85	-16.3	25.2	30.0	23.8	6.21	4.831	
1,800.0	1,800.0	1,802.2	1,799.1	3.1	3.5	110.65	-11.3	30.1	32.2	25.7	6.54	4.921	
1,900.0	1,900.0	1,901.9	1,898.6	3.3	3.7	100.39	-6.4	35.0	35.6	28.8	6.86	5.198	
2,000.0	2,000.0	2,001.7	1,998.1	3.5	3.9	92.16	-1.5	40.0	40.0	32.9	7.17	5.585	
2,100.0	2,100.0	2,101.5	2,097.6	3.6	4.1	85.65	3.4	44.9	45.1	37.6	7.48	6.025	
2,200.0	2,200.0	2,201.2	2,197.1	3.8	4.3	80.50	8.3	49.8	50.6	42.8	7.80	6.486	
2,300.0	2,300.0	2,301.0	2,296.6	4.0	4.6	76.38	13.3	54.7	56.4	48.3	8.12	6.945	
2,400.0	2,400.0	2,400.7	2,396.2	4.2	4.8	73.05	18.2	59.6	62.5	54.0	8.45	7.393	
2,500.0	2,500.0	2,500.5	2,495.7	4.3	5.0	70.32	23.1	64.6	68.7	59.9	8.78	7.824	
2,600.0	2,600.0	2,600.2	2,595.2	4.5	5.2	68.04	28.0	69.5	75.1	66.0	9.12	8.235	
2,700.0	2,700.0	2,700.0	2,694.7	4.7	5.4	66.12	32.9	74.4	81.5	72.1	9.45	8.626	
2,800.0	2,800.0	2,799.8	2,794.2	4.9	5.6	64.49	37.9	79.3	88.1	78.3	9.79	8.995	
2,900.0	2,900.0	2,899.5	2,893.7	5.0	5.8	63.08	42.8	84.2	94.7	84.6	10.13	9.345	
3,000.0	3,000.0	2,999.3	2,993.2	5.2	6.0	61.85	47.7	89.2	101.3	90.9	10.47	9.676	
3,100.0	3,100.0	3,099.0	3,092.8	5.4	6.2	60.78	52.6	94.1	108.0	97.2	10.82	9.988	
3,200.0	3,200.0	3,198.8	3,192.3	5.6	6.5	59.83	57.5	99.0	114.8	103.6	11.16	10.284	
3,300.0	3,300.0	3,298.5	3,291.8	5.7	6.7	58.99	62.5	103.9	121.5	110.0	11.50	10.563	
3,400.0	3,400.0	3,398.3	3,391.3	5.9	6.9	58.24	67.4	108.8	128.3	116.5	11.85	10.828	
3,500.0	3,500.0	3,498.1	3,490.8	6.1	7.1	57.56	72.3	113.8	135.1	122.9	12.19	11.079	
3,600.0	3,600.0	3,597.8	3,590.3	6.3	7.3	56.95	77.2	118.7	141.9	129.4	12.54	11.318	
3,700.0	3,700.0	3,697.6	3,689.8	6.4	7.5	56.39	82.1	123.6	148.8	135.9	12.89	11.544	
3,800.0	3,800.0	3,797.3	3,789.3	6.6	7.7	55.89	87.1	128.5	155.6	142.4	13.23	11.760	
3,900.0	3,900.0	3,897.1	3,888.9	6.8	7.9	55.42	92.0	133.4	162.5	148.9	13.58	11.965	
4,000.0	4,000.0	3,996.8	3,988.4	7.0	8.2	54.99	96.9	138.4	169.3	155.4	13.92	12.160	
4,100.0	4,100.0	4,096.6	4,087.9	7.1	8.4	54.60	101.8	143.3	176.2	161.9	14.27	12.346	
4,200.0	4,200.0	4,196.3	4,187.4	7.3	8.6	54.24	106.7	148.2	183.1	168.5	14.62	12.524	
4,300.0	4,300.0	4,296.1	4,286.9	7.5	8.8	53.90	111.7	153.1	190.0	175.0	14.97	12.694	
4,400.0	4,400.0	4,395.9	4,386.4	7.7	9.0	53.59	116.6	158.0	196.9	181.6	15.31	12.857	
4,500.0	4,500.0	4,495.6	4,485.9	7.8	9.2	53.29	121.5	163.0	203.8	188.1	15.66	13.012	
4,600.0	4,600.0	4,595.4	4,585.5	8.0	9.4	53.02	126.4	167.9	210.7	194.7	16.01	13.161	
4,700.0	4,700.0	4,695.1	4,685.0	8.2	9.6	52.76	131.3	172.8	217.6	201.2	16.35	13.304	
4,800.0	4,800.0	4,794.9	4,784.5	8.3	9.8	52.52	136.3	177.7	224.5	207.8	16.70	13.441	
4,900.0	4,900.0	4,894.6	4,884.0	8.5	10.1	52.30	141.2	182.7	231.4	214.4	17.05	13.573	
5,000.0	5,000.0	4,994.4	4,983.5	8.7	10.3	52.08	146.1	187.6	238.3	220.9	17.40	13.700	

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-2215A
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-2215A	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2216B - 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
5,100.0	5,100.0	5,094.2	5,083.0	8.9	10.5	51.88	151.0	192.5	245.3	227.5	17.74	13.822	
5,200.0	5,199.8	5,193.9	5,182.6	9.0	10.7	51.21	156.0	197.4	249.1	231.0	18.10	13.763	
5,300.0	5,296.9	5,283.4	5,271.7	9.2	10.9	55.22	161.0	201.9	242.6	224.2	18.37	13.203	
5,400.0	5,387.8	5,357.7	5,344.7	9.5	11.2	60.40	173.6	207.2	234.6	215.9	18.76	12.507	
5,500.0	5,469.2	5,433.8	5,416.8	9.9	11.5	66.71	197.0	214.3	228.9	209.4	19.54	11.713	
5,578.7	5,524.6	5,495.4	5,472.0	10.3	11.9	72.29	223.3	221.3	227.3	206.8	20.56	11.056	
5,600.0	5,538.1	5,512.4	5,486.6	10.5	12.0	73.86	231.7	223.4	227.4	206.6	20.88	10.895	
5,700.0	5,591.8	5,594.2	5,552.7	11.3	12.6	81.38	278.4	234.5	231.9	209.2	22.69	10.222	
5,800.0	5,628.6	5,680.3	5,613.3	12.3	13.4	88.71	338.0	247.6	243.3	218.5	24.75	9.829	
5,900.0	5,646.9	5,772.4	5,666.0	13.5	14.4	95.42	411.7	263.0	261.5	234.6	26.86	9.735	
6,000.0	5,649.0	5,873.3	5,707.7	14.8	15.7	102.28	501.7	280.9	285.3	256.5	28.84	9.895	
6,100.0	5,649.0	5,988.1	5,732.6	16.2	17.3	106.06	611.6	301.7	308.6	277.3	31.31	9.858	
6,200.0	5,649.0	6,107.3	5,735.7	17.6	19.1	105.59	729.0	321.9	325.6	291.2	34.48	9.445	
6,300.0	5,649.0	6,226.7	5,735.7	19.1	20.9	104.97	847.6	335.5	336.6	298.8	37.80	8.906	
6,400.0	5,649.0	6,347.3	5,735.7	20.7	22.7	104.70	968.0	341.7	341.6	300.4	41.17	8.297	
6,500.0	5,649.0	6,453.8	5,735.7	22.3	24.3	104.69	1,074.5	342.0	341.9	297.5	44.35	7.710	
6,600.0	5,649.0	6,553.8	5,735.7	23.9	25.9	104.69	1,174.5	342.0	341.9	294.4	47.46	7.203	
6,700.0	5,649.0	6,653.8	5,735.7	25.5	27.5	104.69	1,274.5	342.0	341.9	291.3	50.62	6.755	
6,800.0	5,649.0	6,753.8	5,735.7	27.1	29.1	104.69	1,374.5	342.0	341.9	288.1	53.80	6.355	
6,900.0	5,649.0	6,853.8	5,735.7	28.8	30.7	104.69	1,474.5	342.0	341.9	284.9	57.01	5.997	
7,000.0	5,649.0	6,953.8	5,735.7	30.4	32.3	104.69	1,574.5	342.0	341.9	281.7	60.23	5.676	
7,100.0	5,649.0	7,053.8	5,735.7	32.1	34.0	104.69	1,674.5	342.0	341.9	278.4	63.48	5.386	
7,200.0	5,649.0	7,153.8	5,735.7	33.8	35.6	104.69	1,774.5	342.0	341.9	275.2	66.74	5.123	
7,300.0	5,649.0	7,253.8	5,735.7	35.5	37.3	104.69	1,874.5	342.0	341.9	271.9	70.01	4.883	
7,400.0	5,649.0	7,353.8	5,735.7	37.2	39.0	104.69	1,974.5	342.0	341.9	268.6	73.30	4.665	
7,500.0	5,649.0	7,453.8	5,735.7	38.9	40.7	104.69	2,074.5	342.0	341.9	265.3	76.59	4.464	
7,600.0	5,649.0	7,553.8	5,735.7	40.6	42.4	104.70	2,174.5	342.0	341.9	262.0	79.89	4.279	
7,700.0	5,649.0	7,653.8	5,735.7	42.3	44.0	104.70	2,274.5	342.0	341.9	258.7	83.20	4.109	
7,800.0	5,649.0	7,753.8	5,735.7	44.0	45.7	104.70	2,374.5	342.0	341.9	255.4	86.52	3.952	
7,900.0	5,649.0	7,853.8	5,735.7	45.7	47.4	104.70	2,474.5	342.0	341.9	252.1	89.84	3.806	
8,000.0	5,649.0	7,953.8	5,735.7	47.4	49.1	104.70	2,574.5	342.0	341.9	248.7	93.17	3.670	
8,100.0	5,649.0	8,053.8	5,735.7	49.2	50.9	104.70	2,674.5	342.0	341.9	245.4	96.50	3.543	
8,200.0	5,649.0	8,153.8	5,735.8	50.9	52.6	104.70	2,774.5	342.0	341.9	242.1	99.84	3.425	
8,300.0	5,649.0	8,253.8	5,735.8	52.6	54.3	104.70	2,874.5	342.0	341.9	238.7	103.18	3.314	
8,400.0	5,649.0	8,353.8	5,735.8	54.3	56.0	104.70	2,974.5	342.0	341.9	235.4	106.52	3.210	
8,500.0	5,649.0	8,453.8	5,735.8	56.1	57.7	104.70	3,074.5	342.0	341.9	232.0	109.86	3.112	
8,600.0	5,649.0	8,553.8	5,735.8	57.8	59.4	104.70	3,174.5	342.0	341.9	228.7	113.21	3.020	
8,700.0	5,649.0	8,653.8	5,735.8	59.5	61.2	104.70	3,274.5	342.0	341.9	225.3	116.57	2.933	
8,800.0	5,649.0	8,753.8	5,735.8	61.3	62.9	104.70	3,374.5	342.0	341.9	222.0	119.92	2.851	
8,900.0	5,649.0	8,853.8	5,735.8	63.0	64.6	104.70	3,474.5	342.0	341.9	218.6	123.28	2.774	
9,000.0	5,649.0	8,953.8	5,735.8	64.7	66.3	104.71	3,574.5	342.0	341.9	215.3	126.63	2.700	
9,100.0	5,649.0	9,053.8	5,735.8	66.5	68.1	104.71	3,674.5	342.0	341.9	211.9	129.99	2.630	
9,200.0	5,649.0	9,153.8	5,735.8	68.2	69.8	104.71	3,774.5	342.0	341.9	208.6	133.36	2.564	
9,300.0	5,649.0	9,253.8	5,735.8	69.9	71.5	104.71	3,874.5	342.0	341.9	205.2	136.72	2.501	
9,400.0	5,649.0	9,353.8	5,735.8	71.7	73.3	104.71	3,974.5	342.0	341.9	201.8	140.08	2.441	
9,500.0	5,649.0	9,453.8	5,735.8	73.4	75.0	104.71	4,074.5	342.0	341.9	198.5	143.45	2.384	
9,600.0	5,649.0	9,553.8	5,735.8	75.2	76.7	104.71	4,174.5	342.0	341.9	195.1	146.82	2.329	
9,700.0	5,649.0	9,653.8	5,735.8	76.9	78.5	104.71	4,274.5	342.0	341.9	191.7	150.19	2.277	
9,800.0	5,649.0	9,753.8	5,735.8	78.6	80.2	104.71	4,374.5	342.0	341.9	188.4	153.56	2.227	
9,900.0	5,649.0	9,853.8	5,735.8	80.4	81.9	104.71	4,474.5	342.0	341.9	185.0	156.93	2.179	
10,000.0	5,649.0	9,953.8	5,735.8	82.1	83.7	104.71	4,574.5	342.0	341.9	181.6	160.30	2.133	
10,100.0	5,649.0	10,053.8	5,735.8	83.9	85.4	104.71	4,674.5	342.0	341.9	178.3	163.67	2.089	

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-2215A
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-2215A	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2216B - 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
10,200.0	5,649.0	10,153.8	5,735.8	85.6	87.1	104.71	4,774.5	342.0	341.9	174.9	167.05	2.047	
10,300.0	5,649.0	10,253.8	5,735.9	87.4	88.9	104.72	4,874.5	342.0	341.9	171.5	170.42	2.006	
10,400.0	5,649.0	10,353.8	5,735.9	89.1	90.6	104.72	4,974.5	342.0	341.9	168.1	173.80	1.967	
10,500.0	5,649.0	10,453.8	5,735.9	90.8	92.4	104.72	5,074.5	342.0	341.9	164.8	177.17	1.930	
10,600.0	5,649.0	10,553.8	5,735.9	92.6	94.1	104.72	5,174.5	342.0	341.9	161.4	180.55	1.894	
10,700.0	5,649.0	10,653.8	5,735.9	94.3	95.8	104.72	5,274.5	342.0	341.9	158.0	183.92	1.859	
10,800.0	5,649.0	10,753.8	5,735.9	96.1	97.6	104.72	5,374.5	342.0	341.9	154.6	187.30	1.826	
10,900.0	5,649.0	10,853.8	5,735.9	97.8	99.3	104.72	5,474.5	342.0	341.9	151.3	190.68	1.793	
11,000.0	5,649.0	10,953.8	5,735.9	99.6	101.1	104.72	5,574.5	342.0	341.9	147.9	194.06	1.762	
11,100.0	5,649.0	11,053.8	5,735.9	101.3	102.8	104.72	5,674.5	342.0	341.9	144.5	197.44	1.732	
11,200.0	5,649.0	11,153.8	5,735.9	103.1	104.6	104.72	5,774.5	342.0	341.9	141.1	200.82	1.703	
11,300.0	5,649.0	11,253.8	5,735.9	104.8	106.3	104.72	5,874.5	342.0	341.9	137.7	204.20	1.675	
11,400.0	5,649.0	11,353.8	5,735.9	106.6	108.0	104.72	5,974.5	342.0	341.9	134.4	207.58	1.647	
11,500.0	5,649.0	11,453.8	5,735.9	108.3	109.8	104.72	6,074.5	342.0	341.9	131.0	210.96	1.621	
11,600.0	5,649.0	11,553.8	5,735.9	110.1	111.5	104.72	6,174.5	342.0	341.9	127.6	214.34	1.595	
11,700.0	5,649.0	11,653.8	5,735.9	111.8	113.3	104.73	6,274.5	342.0	341.9	124.2	217.72	1.571	
11,800.0	5,649.0	11,753.8	5,735.9	113.6	115.0	104.73	6,374.5	342.0	341.9	120.8	221.10	1.547	
11,900.0	5,649.0	11,853.8	5,735.9	115.3	116.8	104.73	6,474.5	342.0	341.9	117.5	224.49	1.523	
12,000.0	5,649.0	11,953.8	5,735.9	117.0	118.5	104.73	6,574.5	342.0	341.9	114.1	227.87	1.501	
12,100.0	5,649.0	12,053.8	5,735.9	118.8	120.3	104.73	6,674.5	342.0	341.9	110.7	231.25	1.479	Level 3
12,200.0	5,649.0	12,153.8	5,735.9	120.5	122.0	104.73	6,774.5	342.0	341.9	107.3	234.63	1.457	Level 3
12,300.0	5,649.0	12,253.8	5,736.0	122.3	123.8	104.73	6,874.5	342.0	341.9	103.9	238.02	1.437	Level 3
12,400.0	5,649.0	12,353.8	5,736.0	124.0	125.5	104.73	6,974.5	342.0	341.9	100.5	241.40	1.416	Level 3
12,500.0	5,649.0	12,453.8	5,736.0	125.8	127.2	104.73	7,074.5	342.0	341.9	97.2	244.79	1.397	Level 3
12,600.0	5,649.0	12,553.8	5,736.0	127.5	129.0	104.73	7,174.5	342.0	341.9	93.8	248.17	1.378	Level 3
12,700.0	5,649.0	12,653.8	5,736.0	129.3	130.7	104.73	7,274.5	342.0	341.9	90.4	251.55	1.359	Level 3
12,800.0	5,649.0	12,753.8	5,736.0	131.0	132.5	104.73	7,374.5	342.0	341.9	87.0	254.94	1.341	Level 3
12,900.0	5,649.0	12,853.8	5,736.0	132.8	134.2	104.73	7,474.5	342.0	341.9	83.6	258.32	1.324	Level 3
13,000.0	5,649.0	12,953.8	5,736.0	134.5	136.0	104.74	7,574.5	342.0	342.0	80.2	261.71	1.307	Level 3
13,100.0	5,649.0	13,053.8	5,736.0	136.3	137.7	104.74	7,674.5	342.0	342.0	76.9	265.09	1.290	Level 3
13,200.0	5,649.0	13,153.8	5,736.0	138.0	139.5	104.74	7,774.5	342.0	342.0	73.5	268.48	1.274	Level 3
13,300.0	5,649.0	13,253.8	5,736.0	139.8	141.2	104.74	7,874.5	342.0	342.0	70.1	271.87	1.258	Level 3
13,400.0	5,649.0	13,353.8	5,736.0	141.5	143.0	104.74	7,974.5	342.0	342.0	66.7	275.25	1.242	Level 2
13,500.0	5,649.0	13,453.8	5,736.0	143.3	144.7	104.74	8,074.5	342.0	342.0	63.3	278.64	1.227	Level 2
13,545.3	5,649.0	13,499.0	5,736.0	144.1	145.5	104.74	8,119.7	342.0	342.0	61.8	280.17	1.221	Level 2, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2215A
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-2215A	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-3413A - HZ - Plan #1

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	-99.4	99.4				
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	0.0	-99.4	99.4	99.1	0.24	414.827	
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-99.4	99.4	98.7	0.64	155.558	
300.0	300.0	300.0	300.0	0.5	0.5	-89.99	0.0	-99.4	99.4	98.3	1.04	95.728	
400.0	400.0	400.0	400.0	0.7	0.8	-89.99	0.0	-99.4	99.4	97.9	1.44	69.137	
500.0	500.0	500.0	500.0	0.8	1.0	-89.99	0.0	-99.4	99.4	97.5	1.84	54.107	
600.0	600.0	600.0	600.0	1.0	1.2	-89.99	0.0	-99.4	99.4	97.1	2.24	44.445	
700.0	700.0	700.0	700.0	1.2	1.4	-89.99	0.0	-99.4	99.4	96.7	2.64	37.711	
800.0	800.0	800.0	800.0	1.4	1.7	-89.99	0.0	-99.4	99.4	96.3	3.03	32.749	
900.0	900.0	900.0	900.0	1.5	1.9	-89.99	0.0	-99.4	99.4	95.9	3.43	28.941	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	2.1	-89.99	0.0	-99.4	99.4	95.5	3.83	25.926	
1,100.0	1,100.0	1,100.0	1,100.0	1.9	2.3	-89.99	0.0	-99.4	99.4	95.1	4.23	23.480	
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.6	-89.99	0.0	-99.4	99.4	94.8	4.63	21.456	
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.8	-89.99	0.0	-99.4	99.4	94.4	5.03	19.753	
1,400.0	1,400.0	1,400.0	1,400.0	2.4	3.0	-89.99	0.0	-99.4	99.4	94.0	5.43	18.301	
1,500.0	1,500.0	1,500.0	1,500.0	2.6	3.2	-89.99	0.0	-99.4	99.4	93.6	5.83	17.047	
1,600.0	1,600.0	1,600.0	1,600.0	2.8	3.5	-89.99	0.0	-99.4	99.4	93.2	6.23	15.955	
1,700.0	1,700.0	1,700.0	1,700.0	2.9	3.7	-89.99	0.0	-99.4	99.4	92.8	6.63	14.993	
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.9	-89.99	0.0	-99.4	99.4	92.4	7.03	14.142	
1,900.0	1,900.0	1,900.0	1,900.0	3.3	4.1	-89.99	0.0	-99.4	99.4	92.0	7.43	13.381	
2,000.0	2,000.0	2,000.0	2,000.0	3.5	4.4	-89.99	0.0	-99.4	99.4	91.6	7.83	12.699	
2,100.0	2,100.0	2,100.0	2,100.0	3.6	4.6	-89.99	0.0	-99.4	99.4	91.2	8.23	12.082	
2,200.0	2,200.0	2,200.0	2,200.0	3.8	4.8	-89.99	0.0	-99.4	99.4	90.8	8.62	11.523	
2,300.0	2,300.0	2,300.0	2,300.0	4.0	5.0	-89.99	0.0	-99.4	99.4	90.4	9.02	11.013	
2,400.0	2,400.0	2,400.0	2,400.0	4.2	5.3	-89.99	0.0	-99.4	99.4	90.0	9.42	10.546	
2,500.0	2,500.0	2,500.0	2,500.0	4.3	5.5	-89.99	0.0	-99.4	99.4	89.6	9.82	10.118	
2,600.0	2,600.0	2,600.0	2,600.0	4.5	5.7	-89.99	0.0	-99.4	99.4	89.2	10.22	9.722	
2,700.0	2,700.0	2,700.0	2,700.0	4.7	5.9	-89.99	0.0	-99.4	99.4	88.8	10.62	9.357	
2,800.0	2,800.0	2,800.0	2,800.0	4.9	6.2	-89.99	0.0	-99.4	99.4	88.4	11.02	9.018	
2,900.0	2,900.0	2,900.0	2,900.0	5.0	6.4	-89.99	0.0	-99.4	99.4	88.0	11.42	8.703	
3,000.0	3,000.0	3,000.0	3,000.0	5.2	6.6	-89.99	0.0	-99.4	99.4	87.6	11.82	8.408	
3,100.0	3,100.0	3,100.0	3,100.0	5.4	6.8	-89.99	0.0	-99.4	99.4	87.2	12.22	8.134	
3,200.0	3,200.0	3,200.0	3,200.0	5.6	7.1	-89.99	0.0	-99.4	99.4	86.8	12.62	7.876	
3,300.0	3,300.0	3,300.0	3,300.0	5.7	7.3	-89.99	0.0	-99.4	99.4	86.4	13.02	7.635	
3,400.0	3,400.0	3,400.0	3,400.0	5.9	7.5	-89.99	0.0	-99.4	99.4	86.0	13.42	7.407	
3,500.0	3,500.0	3,500.0	3,500.0	6.1	7.7	-89.99	0.0	-99.4	99.4	85.6	13.82	7.193	
3,600.0	3,600.0	3,600.0	3,600.0	6.3	8.0	-89.99	0.0	-99.4	99.4	85.2	14.22	6.991	
3,700.0	3,700.0	3,700.0	3,700.0	6.4	8.2	-89.99	0.0	-99.4	99.4	84.8	14.61	6.800	
3,800.0	3,800.0	3,800.0	3,800.0	6.6	8.4	-89.99	0.0	-99.4	99.4	84.4	15.01	6.619	
3,900.0	3,900.0	3,900.0	3,900.0	6.8	8.6	-89.99	0.0	-99.4	99.4	84.0	15.41	6.448	
4,000.0	4,000.0	4,000.0	4,000.0	7.0	8.9	-89.99	0.0	-99.4	99.4	83.6	15.81	6.285	
4,100.0	4,100.0	4,100.0	4,100.0	7.1	9.1	-89.99	0.0	-99.4	99.4	83.2	16.21	6.130	
4,200.0	4,200.0	4,200.0	4,200.0	7.3	9.3	-89.99	0.0	-99.4	99.4	82.8	16.61	5.983	
4,300.0	4,300.0	4,300.0	4,300.0	7.5	9.5	-89.99	0.0	-99.4	99.4	82.4	17.01	5.843	
4,400.0	4,400.0	4,400.0	4,400.0	7.7	9.8	-89.99	0.0	-99.4	99.4	82.0	17.41	5.709	
4,500.0	4,500.0	4,500.0	4,500.0	7.8	10.0	-89.99	0.0	-99.4	99.4	81.6	17.81	5.581	
4,600.0	4,600.0	4,600.0	4,600.0	8.0	10.2	-89.99	0.0	-99.4	99.4	81.2	18.21	5.458	
4,700.0	4,700.0	4,700.0	4,700.0	8.2	10.4	-89.99	0.0	-99.4	99.4	80.8	18.61	5.341	
4,800.0	4,800.0	4,800.0	4,800.0	8.3	10.7	-89.99	0.0	-99.4	99.4	80.4	19.01	5.229	
4,900.0	4,900.0	4,900.0	4,900.0	8.5	10.9	-89.99	0.0	-99.4	99.4	80.0	19.41	5.121	
5,000.0	5,000.0	5,000.0	5,000.0	8.7	11.1	-89.99	0.0	-99.4	99.4	79.6	19.81	5.018	
5,100.0	5,100.0	5,100.0	5,100.0	8.9	11.3	-89.99	0.0	-99.4	99.4	79.2	20.20	4.919	CC

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

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2215A
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-2215A	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-3413A - HZ - Plan #1

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
5,110.0	5,110.0	5,110.0	5,110.0	8.9	11.4	-91.23	0.0	-99.4	99.4	79.1	20.24	4.909	ES, SF
5,200.0	5,199.8	5,194.6	5,194.4	9.0	11.5	-95.80	-4.0	-100.8	101.4	80.9	20.56	4.933	
5,300.0	5,296.9	5,275.6	5,273.6	9.2	11.7	-110.57	-19.6	-106.2	119.2	98.5	20.78	5.738	
5,400.0	5,387.8	5,334.9	5,329.5	9.5	11.8	-120.66	-38.3	-112.7	167.4	146.7	20.69	8.090	
5,500.0	5,469.2	5,372.0	5,363.1	9.9	11.8	-120.47	-53.0	-117.7	241.3	220.6	20.69	11.659	
5,600.0	5,538.1	5,400.0	5,387.8	10.5	11.9	-111.23	-65.6	-122.1	329.8	308.3	21.56	15.296	
5,700.0	5,591.8	5,400.0	5,387.8	11.3	11.9	-79.93	-65.6	-122.1	424.2	400.7	23.50	18.051	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2215A
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-2215A	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-3414B - HZ - Plan #1

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	-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	416.425	
200.0	200.0	200.0	200.0	0.3	0.3	-138.46	-74.7	-66.2	99.8	99.1	0.64	156.158	
300.0	300.0	300.0	300.0	0.5	0.5	-138.46	-74.7	-66.2	99.8	98.7	1.04	96.097	
400.0	400.0	400.0	400.0	0.7	0.8	-138.46	-74.7	-66.2	99.8	98.3	1.44	69.403	
500.0	500.0	500.0	500.0	0.8	1.0	-138.46	-74.7	-66.2	99.8	97.9	1.84	54.315	
600.0	600.0	600.0	600.0	1.0	1.2	-138.46	-74.7	-66.2	99.8	97.5	2.24	44.616	
700.0	700.0	700.0	700.0	1.2	1.4	-138.46	-74.7	-66.2	99.8	97.1	2.64	37.856	
800.0	800.0	800.0	800.0	1.4	1.7	-138.46	-74.7	-66.2	99.8	96.7	3.03	32.875	
900.0	900.0	900.0	900.0	1.5	1.9	-138.46	-74.7	-66.2	99.8	96.3	3.43	29.052	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	2.1	-138.46	-74.7	-66.2	99.8	95.9	3.83	26.026	
1,100.0	1,100.0	1,100.0	1,100.0	1.9	2.3	-138.46	-74.7	-66.2	99.8	95.5	4.23	23.571	
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.6	-138.46	-74.7	-66.2	99.8	95.1	4.63	21.539	
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.8	-138.46	-74.7	-66.2	99.8	94.7	5.03	19.829	
1,400.0	1,400.0	1,400.0	1,400.0	2.4	3.0	-138.46	-74.7	-66.2	99.8	94.3	5.43	18.371	
1,500.0	1,500.0	1,500.0	1,500.0	2.6	3.2	-138.46	-74.7	-66.2	99.8	93.9	5.83	17.113	
1,600.0	1,600.0	1,600.0	1,600.0	2.8	3.5	-138.46	-74.7	-66.2	99.8	93.5	6.23	16.016	
1,700.0	1,700.0	1,700.0	1,700.0	2.9	3.7	-138.46	-74.7	-66.2	99.8	93.1	6.63	15.051	
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.9	-138.46	-74.7	-66.2	99.8	92.7	7.03	14.196	
1,900.0	1,900.0	1,900.0	1,900.0	3.3	4.1	-138.46	-74.7	-66.2	99.8	92.3	7.43	13.433	
2,000.0	2,000.0	2,000.0	2,000.0	3.5	4.4	-138.46	-74.7	-66.2	99.8	91.9	7.83	12.747	
2,100.0	2,100.0	2,100.0	2,100.0	3.6	4.6	-138.46	-74.7	-66.2	99.8	91.5	8.23	12.129	
2,200.0	2,200.0	2,200.0	2,200.0	3.8	4.8	-138.46	-74.7	-66.2	99.8	91.1	8.62	11.567	
2,300.0	2,300.0	2,300.0	2,300.0	4.0	5.0	-138.46	-74.7	-66.2	99.8	90.7	9.02	11.055	
2,400.0	2,400.0	2,400.0	2,400.0	4.2	5.3	-138.46	-74.7	-66.2	99.8	90.3	9.42	10.587	
2,500.0	2,500.0	2,500.0	2,500.0	4.3	5.5	-138.46	-74.7	-66.2	99.8	89.9	9.82	10.157	
2,600.0	2,600.0	2,600.0	2,600.0	4.5	5.7	-138.46	-74.7	-66.2	99.8	89.5	10.22	9.760	
2,700.0	2,700.0	2,700.0	2,700.0	4.7	5.9	-138.46	-74.7	-66.2	99.8	89.1	10.62	9.393	
2,800.0	2,800.0	2,800.0	2,800.0	4.9	6.2	-138.46	-74.7	-66.2	99.8	88.7	11.02	9.053	
2,900.0	2,900.0	2,900.0	2,900.0	5.0	6.4	-138.46	-74.7	-66.2	99.8	88.3	11.42	8.736	
3,000.0	3,000.0	3,000.0	3,000.0	5.2	6.6	-138.46	-74.7	-66.2	99.8	87.9	11.82	8.441	
3,100.0	3,100.0	3,100.0	3,100.0	5.4	6.8	-138.46	-74.7	-66.2	99.8	87.5	12.22	8.165	
3,200.0	3,200.0	3,200.0	3,200.0	5.6	7.1	-138.46	-74.7	-66.2	99.8	87.1	12.62	7.907	
3,300.0	3,300.0	3,300.0	3,300.0	5.7	7.3	-138.46	-74.7	-66.2	99.8	86.7	13.02	7.664	
3,400.0	3,400.0	3,400.0	3,400.0	5.9	7.5	-138.46	-74.7	-66.2	99.8	86.3	13.42	7.436	
3,500.0	3,500.0	3,500.0	3,500.0	6.1	7.7	-138.46	-74.7	-66.2	99.8	85.9	13.82	7.221	
3,600.0	3,600.0	3,600.0	3,600.0	6.3	8.0	-138.46	-74.7	-66.2	99.8	85.6	14.22	7.018	
3,700.0	3,700.0	3,700.0	3,700.0	6.4	8.2	-138.46	-74.7	-66.2	99.8	85.2	14.61	6.827	
3,800.0	3,800.0	3,800.0	3,800.0	6.6	8.4	-138.46	-74.7	-66.2	99.8	84.8	15.01	6.645	
3,900.0	3,900.0	3,900.0	3,900.0	6.8	8.6	-138.46	-74.7	-66.2	99.8	84.4	15.41	6.473	
4,000.0	4,000.0	4,000.0	4,000.0	7.0	8.9	-138.46	-74.7	-66.2	99.8	84.0	15.81	6.309	
4,100.0	4,100.0	4,100.0	4,100.0	7.1	9.1	-138.46	-74.7	-66.2	99.8	83.6	16.21	6.154	
4,200.0	4,200.0	4,200.0	4,200.0	7.3	9.3	-138.46	-74.7	-66.2	99.8	83.2	16.61	6.006	
4,300.0	4,300.0	4,300.0	4,300.0	7.5	9.5	-138.46	-74.7	-66.2	99.8	82.8	17.01	5.865	
4,400.0	4,400.0	4,400.0	4,400.0	7.7	9.8	-138.46	-74.7	-66.2	99.8	82.4	17.41	5.731	
4,500.0	4,500.0	4,500.0	4,500.0	7.8	10.0	-138.46	-74.7	-66.2	99.8	82.0	17.81	5.602	
4,600.0	4,600.0	4,600.0	4,600.0	8.0	10.2	-138.46	-74.7	-66.2	99.8	81.6	18.21	5.479	
4,700.0	4,700.0	4,700.0	4,700.0	8.2	10.4	-138.46	-74.7	-66.2	99.8	81.2	18.61	5.362	
4,800.0	4,800.0	4,800.0	4,800.0	8.3	10.7	-138.46	-74.7	-66.2	99.8	80.8	19.01	5.249	
4,900.0	4,900.0	4,900.0	4,900.0	8.5	10.9	-138.46	-74.7	-66.2	99.8	80.4	19.41	5.141	
5,000.0	5,000.0	5,000.0	5,000.0	8.7	11.1	-138.46	-74.7	-66.2	99.8	80.0	19.81	5.037	
5,100.0	5,100.0	5,100.0	5,100.0	8.9	11.3	-138.46	-74.7	-66.2	99.8	79.6	20.20	4.938	CC, ES, SF

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

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2215A
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-2215A	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-3414B - HZ - Plan #1

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
5,200.0	5,199.8	5,199.8	5,199.8	9.0	11.6	-141.16	-74.7	-66.2	103.6	83.1	20.51	5.051	
5,300.0	5,296.9	5,283.3	5,283.1	9.2	11.7	-146.80	-79.1	-66.0	127.0	106.7	20.32	6.248	
5,400.0	5,387.8	5,350.0	5,348.5	9.5	11.8	-152.39	-92.1	-65.5	179.1	159.6	19.55	9.160	
5,500.0	5,469.2	5,391.8	5,388.4	9.9	11.9	-152.97	-104.4	-65.0	254.4	236.0	18.46	13.784	
5,600.0	5,538.1	5,416.7	5,411.7	10.5	12.0	-146.55	-113.2	-64.7	344.2	326.3	17.90	19.228	
5,700.0	5,591.8	5,426.6	5,420.8	11.3	12.0	-116.41	-117.0	-64.5	441.3	419.6	21.62	20.406	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2215A
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-2215A	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-3415A - HZ - Plan #1

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	-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	0.24	138.661	
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-33.2	33.2	32.6	0.64	51.997	
300.0	300.0	300.0	300.0	0.5	0.5	-89.99	0.0	-33.2	33.2	32.2	1.04	31.998	
400.0	400.0	400.0	400.0	0.7	0.8	-89.99	0.0	-33.2	33.2	31.8	1.44	23.110	
500.0	500.0	500.0	500.0	0.8	1.0	-89.99	0.0	-33.2	33.2	31.4	1.84	18.086	
600.0	600.0	600.0	600.0	1.0	1.2	-89.99	0.0	-33.2	33.2	31.0	2.24	14.856	
700.0	700.0	700.0	700.0	1.2	1.4	-89.99	0.0	-33.2	33.2	30.6	2.64	12.605	
800.0	800.0	800.0	800.0	1.4	1.7	-89.99	0.0	-33.2	33.2	30.2	3.03	10.947	
900.0	900.0	900.0	900.0	1.5	1.9	-89.99	0.0	-33.2	33.2	29.8	3.43	9.674	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	2.1	-89.99	0.0	-33.2	33.2	29.4	3.83	8.666	
1,100.0	1,100.0	1,100.0	1,100.0	1.9	2.3	-89.99	0.0	-33.2	33.2	29.0	4.23	7.849	
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.6	-89.99	0.0	-33.2	33.2	28.6	4.63	7.172	
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.8	-89.99	0.0	-33.2	33.2	28.2	5.03	6.603	
1,400.0	1,400.0	1,400.0	1,400.0	2.4	3.0	-89.99	0.0	-33.2	33.2	27.8	5.43	6.117	
1,500.0	1,500.0	1,500.0	1,500.0	2.6	3.2	-89.99	0.0	-33.2	33.2	27.4	5.83	5.698	
1,600.0	1,600.0	1,600.0	1,600.0	2.8	3.5	-89.99	0.0	-33.2	33.2	27.0	6.23	5.333	
1,700.0	1,700.0	1,700.0	1,700.0	2.9	3.7	-89.99	0.0	-33.2	33.2	26.6	6.63	5.012	
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.9	-89.99	0.0	-33.2	33.2	26.2	7.03	4.727	
1,900.0	1,900.0	1,900.0	1,900.0	3.3	4.1	-89.99	0.0	-33.2	33.2	25.8	7.43	4.473	
2,000.0	2,000.0	2,000.0	2,000.0	3.5	4.4	-89.99	0.0	-33.2	33.2	25.4	7.83	4.245	
2,100.0	2,100.0	2,100.0	2,100.0	3.6	4.6	-89.99	0.0	-33.2	33.2	25.0	8.23	4.039	
2,200.0	2,200.0	2,200.0	2,200.0	3.8	4.8	-89.99	0.0	-33.2	33.2	24.6	8.62	3.852	
2,300.0	2,300.0	2,300.0	2,300.0	4.0	5.0	-89.99	0.0	-33.2	33.2	24.2	9.02	3.681	
2,400.0	2,400.0	2,400.0	2,400.0	4.2	5.3	-89.99	0.0	-33.2	33.2	23.8	9.42	3.525	
2,500.0	2,500.0	2,500.0	2,500.0	4.3	5.5	-89.99	0.0	-33.2	33.2	23.4	9.82	3.382	
2,600.0	2,600.0	2,600.0	2,600.0	4.5	5.7	-89.99	0.0	-33.2	33.2	23.0	10.22	3.250	
2,700.0	2,700.0	2,700.0	2,700.0	4.7	5.9	-89.99	0.0	-33.2	33.2	22.6	10.62	3.128	
2,800.0	2,800.0	2,800.0	2,800.0	4.9	6.2	-89.99	0.0	-33.2	33.2	22.2	11.02	3.014	
2,900.0	2,900.0	2,900.0	2,900.0	5.0	6.4	-89.99	0.0	-33.2	33.2	21.8	11.42	2.909	
3,000.0	3,000.0	3,000.0	3,000.0	5.2	6.6	-89.99	0.0	-33.2	33.2	21.4	11.82	2.811	
3,100.0	3,100.0	3,100.0	3,100.0	5.4	6.8	-89.99	0.0	-33.2	33.2	21.0	12.22	2.719	
3,200.0	3,200.0	3,200.0	3,200.0	5.6	7.1	-89.99	0.0	-33.2	33.2	20.6	12.62	2.633	
3,300.0	3,300.0	3,300.0	3,300.0	5.7	7.3	-89.99	0.0	-33.2	33.2	20.2	13.02	2.552	
3,400.0	3,400.0	3,400.0	3,400.0	5.9	7.5	-89.99	0.0	-33.2	33.2	19.8	13.42	2.476	
3,500.0	3,500.0	3,500.0	3,500.0	6.1	7.7	-89.99	0.0	-33.2	33.2	19.4	13.82	2.404	
3,600.0	3,600.0	3,600.0	3,600.0	6.3	8.0	-89.99	0.0	-33.2	33.2	19.0	14.22	2.337	
3,700.0	3,700.0	3,700.0	3,700.0	6.4	8.2	-89.99	0.0	-33.2	33.2	18.6	14.61	2.273	
3,800.0	3,800.0	3,800.0	3,800.0	6.6	8.4	-89.99	0.0	-33.2	33.2	18.2	15.01	2.213	
3,900.0	3,900.0	3,900.0	3,900.0	6.8	8.6	-89.99	0.0	-33.2	33.2	17.8	15.41	2.155	
4,000.0	4,000.0	4,000.0	4,000.0	7.0	8.9	-89.99	0.0	-33.2	33.2	17.4	15.81	2.101	
4,100.0	4,100.0	4,100.0	4,100.0	7.1	9.1	-89.99	0.0	-33.2	33.2	17.0	16.21	2.049	
4,200.0	4,200.0	4,200.0	4,200.0	7.3	9.3	-89.99	0.0	-33.2	33.2	16.6	16.61	2.000	
4,300.0	4,300.0	4,300.0	4,300.0	7.5	9.5	-89.99	0.0	-33.2	33.2	16.2	17.01	1.953	
4,400.0	4,400.0	4,400.0	4,400.0	7.7	9.8	-89.99	0.0	-33.2	33.2	15.8	17.41	1.908	
4,500.0	4,500.0	4,500.0	4,500.0	7.8	10.0	-89.99	0.0	-33.2	33.2	15.4	17.81	1.865	
4,600.0	4,600.0	4,600.0	4,600.0	8.0	10.2	-89.99	0.0	-33.2	33.2	15.0	18.21	1.824	
4,700.0	4,700.0	4,700.0	4,700.0	8.2	10.4	-89.99	0.0	-33.2	33.2	14.6	18.61	1.785	
4,800.0	4,800.0	4,800.0	4,800.0	8.3	10.7	-89.99	0.0	-33.2	33.2	14.2	19.01	1.748	
4,900.0	4,900.0	4,900.0	4,900.0	8.5	10.9	-89.99	0.0	-33.2	33.2	13.8	19.41	1.712	
5,000.0	5,000.0	5,000.0	5,000.0	8.7	11.1	-89.99	0.0	-33.2	33.2	13.4	19.81	1.677	
5,100.0	5,100.0	5,100.0	5,100.0	8.9	11.3	-89.99	0.0	-33.2	33.2	13.0	20.20	1.644	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2215A
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-2215A	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-3415A - HZ - Plan #1

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
5,171.5	5,171.4	5,172.0	5,172.0	9.0	11.5	-100.39	-1.7	-32.5	33.0	12.6	20.47	1.614	
5,200.0	5,199.8	5,200.4	5,200.1	9.0	11.5	-108.10	-4.7	-31.4	32.9	12.4	20.55	1.603	CC, ES, SF
5,300.0	5,296.9	5,287.3	5,284.9	9.2	11.7	-151.67	-22.5	-24.5	57.8	37.5	20.23	2.856	
5,400.0	5,387.8	5,350.0	5,343.4	9.5	11.8	-168.51	-43.4	-16.3	122.5	103.4	19.11	6.412	
5,500.0	5,469.2	5,387.8	5,377.2	9.9	11.9	-173.65	-59.1	-10.2	208.2	190.7	17.51	11.893	
5,600.0	5,538.1	5,400.0	5,387.8	10.5	11.9	-171.50	-64.7	-8.1	304.2	288.5	15.66	19.426	
5,700.0	5,591.8	5,400.0	5,387.8	11.3	11.9	-16.30	-64.7	-8.1	403.9	386.2	17.71	22.805	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2215A
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-2215A	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-3416B - HZ - Plan #1 — **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	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	311.758	
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	0.7	0.8	180.00	-74.7	0.0	74.7	73.3	1.44	51.959	
500.0	500.0	500.0	500.0	0.8	1.0	180.00	-74.7	0.0	74.7	72.9	1.84	40.663	CC, ES
600.0	600.0	598.7	598.7	1.0	1.2	178.89	-75.5	1.5	75.6	73.4	2.21	34.123	
700.0	700.0	697.1	697.0	1.2	1.4	175.71	-78.1	5.9	78.4	75.8	2.59	30.291	
800.0	800.0	796.8	796.4	1.4	1.6	171.71	-81.6	11.9	82.5	79.5	2.97	27.738	
900.0	900.0	896.6	895.9	1.5	1.8	168.12	-85.1	17.9	87.0	83.7	3.37	25.843	
1,000.0	1,000.0	996.3	995.4	1.7	2.1	164.88	-88.6	23.9	91.8	88.1	3.76	24.406	
1,100.0	1,100.0	1,096.1	1,095.0	1.9	2.3	161.98	-92.0	29.9	96.9	92.8	4.16	23.295	
1,200.0	1,200.0	1,195.8	1,194.5	2.1	2.6	159.37	-95.5	36.0	102.2	97.7	4.56	22.424	
1,300.0	1,300.0	1,295.6	1,294.0	2.2	2.8	157.03	-99.0	42.0	107.7	102.8	4.96	21.730	
1,400.0	1,400.0	1,395.4	1,393.5	2.4	3.1	154.91	-102.5	48.0	113.4	108.0	5.36	21.168	
1,500.0	1,500.0	1,495.1	1,493.0	2.6	3.3	153.00	-106.0	54.0	119.2	113.4	5.76	20.709	
1,600.0	1,600.0	1,594.9	1,592.5	2.8	3.6	151.26	-109.5	60.0	125.1	118.9	6.15	20.328	
1,700.0	1,700.0	1,694.6	1,692.0	2.9	3.8	149.68	-113.0	66.1	131.1	124.6	6.55	20.010	
1,800.0	1,800.0	1,794.4	1,791.6	3.1	4.1	148.25	-116.5	72.1	137.2	130.3	6.95	19.741	
1,900.0	1,900.0	1,894.1	1,891.1	3.3	4.3	146.93	-120.0	78.1	143.4	136.1	7.35	19.511	
2,000.0	2,000.0	1,993.9	1,990.6	3.5	4.6	145.73	-123.5	84.1	149.7	141.9	7.75	19.314	
2,100.0	2,100.0	2,093.7	2,090.1	3.6	4.9	144.62	-126.9	90.1	156.0	147.9	8.15	19.144	
2,200.0	2,200.0	2,193.4	2,189.6	3.8	5.1	143.60	-130.4	96.2	162.4	153.8	8.55	18.995	
2,300.0	2,300.0	2,293.2	2,289.1	4.0	5.4	142.66	-133.9	102.2	168.8	159.9	8.95	18.864	
2,400.0	2,400.0	2,392.9	2,388.6	4.2	5.6	141.78	-137.4	108.2	175.3	165.9	9.35	18.749	
2,500.0	2,500.0	2,492.7	2,488.2	4.3	5.9	140.97	-140.9	114.2	181.8	172.0	9.75	18.647	
2,600.0	2,600.0	2,592.4	2,587.7	4.5	6.2	140.21	-144.4	120.2	188.3	178.2	10.15	18.556	
2,700.0	2,700.0	2,692.2	2,687.2	4.7	6.4	139.51	-147.9	126.3	194.9	184.3	10.55	18.475	
2,800.0	2,800.0	2,792.0	2,786.7	4.9	6.7	138.85	-151.4	132.3	201.5	190.5	10.95	18.402	
2,900.0	2,900.0	2,891.7	2,886.2	5.0	6.9	138.23	-154.9	138.3	208.1	196.7	11.35	18.336	
3,000.0	3,000.0	2,991.5	2,985.7	5.2	7.2	137.65	-158.4	144.3	214.7	203.0	11.75	18.276	
3,100.0	3,100.0	3,091.2	3,085.2	5.4	7.5	137.11	-161.8	150.3	221.4	209.2	12.15	18.222	
3,200.0	3,200.0	3,191.0	3,184.7	5.6	7.7	136.60	-165.3	156.4	228.1	215.5	12.55	18.172	
3,300.0	3,300.0	3,290.7	3,284.3	5.7	8.0	136.11	-168.8	162.4	234.8	221.8	12.95	18.127	
3,400.0	3,400.0	3,390.5	3,383.8	5.9	8.2	135.66	-172.3	168.4	241.5	228.1	13.35	18.085	
3,500.0	3,500.0	3,490.2	3,483.3	6.1	8.5	135.22	-175.8	174.4	248.2	234.5	13.75	18.047	
3,600.0	3,600.0	3,590.0	3,582.8	6.3	8.8	134.82	-179.3	180.4	255.0	240.8	14.16	18.012	
3,700.0	3,700.0	3,689.8	3,682.3	6.4	9.0	134.43	-182.8	186.5	261.7	247.2	14.56	17.979	
3,800.0	3,800.0	3,789.5	3,781.8	6.6	9.3	134.06	-186.3	192.5	268.5	253.5	14.96	17.949	
3,900.0	3,900.0	3,889.3	3,881.3	6.8	9.5	133.71	-189.8	198.5	275.3	259.9	15.36	17.921	
4,000.0	4,000.0	3,989.0	3,980.9	7.0	9.8	133.38	-193.3	204.5	282.0	266.3	15.76	17.895	
4,100.0	4,100.0	4,088.8	4,080.4	7.1	10.1	133.06	-196.7	210.6	288.8	272.7	16.16	17.871	
4,200.0	4,200.0	4,188.5	4,179.9	7.3	10.3	132.76	-200.2	216.6	295.6	279.1	16.56	17.848	
4,300.0	4,300.0	4,288.3	4,279.4	7.5	10.6	132.47	-203.7	222.6	302.4	285.5	16.97	17.827	
4,400.0	4,400.0	4,388.1	4,378.9	7.7	10.9	132.19	-207.2	228.6	309.3	291.9	17.37	17.807	
4,500.0	4,500.0	4,487.8	4,478.4	7.8	11.1	131.92	-210.7	234.6	316.1	298.3	17.77	17.788	
4,600.0	4,600.0	4,587.6	4,577.9	8.0	11.4	131.67	-214.2	240.7	322.9	304.7	18.17	17.771	
4,700.0	4,700.0	4,687.3	4,677.5	8.2	11.6	131.43	-217.7	246.7	329.8	311.2	18.57	17.754	
4,800.0	4,800.0	4,787.1	4,777.0	8.3	11.9	131.19	-221.2	252.7	336.6	317.6	18.98	17.738	
4,900.0	4,900.0	4,886.8	4,876.5	8.5	12.2	130.97	-224.7	258.7	343.5	324.1	19.38	17.724	
5,000.0	5,000.0	4,986.6	4,976.0	8.7	12.4	130.76	-228.2	264.7	350.3	330.5	19.78	17.710	
5,100.0	5,100.0	5,086.4	5,075.5	8.9	12.7	130.55	-231.6	270.8	357.2	337.0	20.18	17.697	SF

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

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2215A
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-2215A	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-3416B - HZ - Plan #1

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
5,200.0	5,199.8	5,185.7	5,174.6	9.0	12.9	129.06	-235.1	276.7	367.2	346.7	20.47	17.936	
5,300.0	5,296.9	5,271.1	5,259.8	9.2	13.2	129.25	-238.3	282.0	389.3	368.8	20.47	19.014	
5,400.0	5,387.8	5,320.9	5,309.1	9.5	13.3	127.90	-243.7	286.4	430.6	410.3	20.29	21.220	
5,500.0	5,469.2	5,350.0	5,337.5	9.9	13.4	123.26	-248.9	289.7	491.1	470.7	20.37	24.111	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2215A
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-2215A	**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 #1	**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-2215A
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.07°