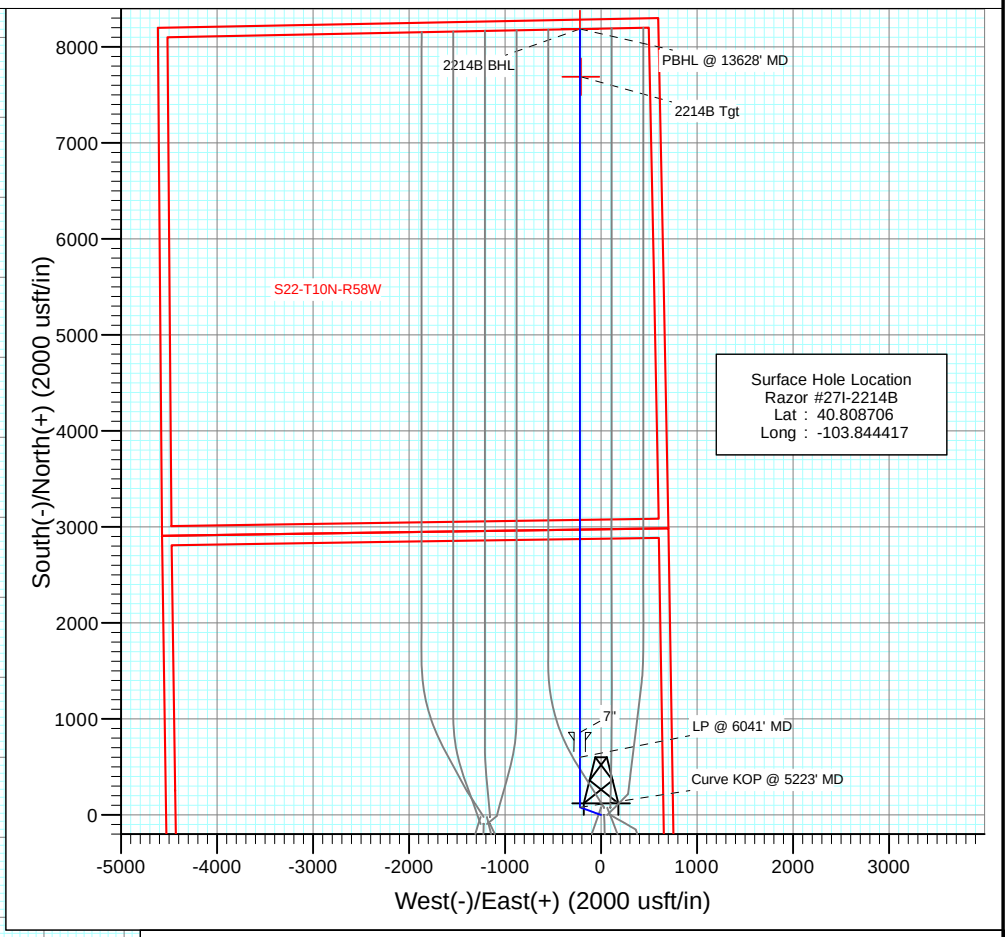
WHITING PETROLEUM CORPORATION

Project: Weld County, CO
Site: S27-T10N-R58W
Well: Razor #27I-2214B
Wellbore: HZ
Design: Plan #3

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	300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.0	
3	500.0	4.00	290.00	499.8	2.4	-6.6	2.00	290.00	2.6	
4	3650.0	4.00	290.00	3642.2	77.5	-213.0	0.00	0.00	83.2	
5	3850.0	0.00	0.00	3842.0	79.9	-219.6	2.00	180.00	85.8	
6	5223.1	0.00	0.00	5215.1	79.9	-219.6	0.00	0.00	85.8	
7	6041.3	90.00	0.00	5736.0	600.8	-219.6	11.00	0.00	606.4	
8	13628.0	90.00	0.00	5736.0	8187.5	-218.9	0.00	0.00	8190.4	2214B BHL



DESIGN TARGET DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
2214B BHL	8187.5	-218.9	1549918.91	3457918.70	40.831178	-103.845208
2214B Tgt	7688.3	-208.9	1549420.03	3457937.97	40.829808	-103.845172

T M Azimuths to True North
Magnetic North: 8.14°

Magnetic Field
Strength: 53242.5snT
Dip Angle: 67.46°
Date: 4/24/2013
Model: IGRF2010

Plan #3
Razor #27I-2214B
WELL @ 4773.0usft (Original Well Elev)
Ground Elevation @ 4756.5
North American Datum 1983
Well Razor #27I-2214B, True North

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #27I-2214B
Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Site:	S27-T10N-R58W	**North Reference:**	True
Well:	Razor #27I-2214B	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #3		

Project Weld County, CO

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site S27-T10N-R58W

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

Well Razor #27I-2214B

Well Position	**+N/-S**	0.0 usft	**Northing:**	1,541,736.95 usft	**Latitude:**	40.808706
	+E/-W	0.0 usft	**Easting:**	3,458,290.42 usft	**Longitude:**	-103.844417
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	4,756.5 usft

Wellbore HZ

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/24/2013	8.14	67.46	53,242

Design Plan #3

Audit Notes:

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

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	358.47

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.00	0.00	
500.0	4.00	290.00	499.8	2.4	-6.6	2.00	2.00	0.00	290.00	
3,650.0	4.00	290.00	3,642.2	77.5	-213.0	0.00	0.00	0.00	0.00	
3,850.0	0.00	0.00	3,842.0	79.9	-219.6	2.00	-2.00	0.00	180.00	
5,223.1	0.00	0.00	5,215.1	79.9	-219.6	0.00	0.00	0.00	0.00	
6,041.3	90.00	0.00	5,736.0	600.8	-219.6	11.00	11.00	0.00	0.00	
13,628.0	90.00	0.00	5,736.0	8,187.5	-218.9	0.00	0.00	0.00	0.00	2214B BHL

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #27I-2214B
Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Site:	S27-T10N-R58W	**North Reference:**	True
Well:	Razor #27I-2214B	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #3		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft	Build Rate (°/100u	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	KOP @ 300' MD
400.0	2.00	290.00	400.0	0.6	-1.6	0.6	2.00	2.00	
500.0	4.00	290.00	499.8	2.4	-6.6	2.6	2.00	2.00	EOB; 4°
600.0	4.00	290.00	599.6	4.8	-13.1	5.1	0.00	0.00	
700.0	4.00	290.00	699.4	7.2	-19.7	7.7	0.00	0.00	
800.0	4.00	290.00	799.1	9.5	-26.2	10.2	0.00	0.00	
900.0	4.00	290.00	898.9	11.9	-32.8	12.8	0.00	0.00	
1,000.0	4.00	290.00	998.6	14.3	-39.3	15.4	0.00	0.00	
1,100.0	4.00	290.00	1,098.4	16.7	-45.9	17.9	0.00	0.00	
1,200.0	4.00	290.00	1,198.1	19.1	-52.4	20.5	0.00	0.00	
1,300.0	4.00	290.00	1,297.9	21.5	-59.0	23.0	0.00	0.00	
1,400.0	4.00	290.00	1,397.6	23.9	-65.6	25.6	0.00	0.00	
1,500.0	4.00	290.00	1,497.4	26.2	-72.1	28.2	0.00	0.00	
1,600.0	4.00	290.00	1,597.2	28.6	-78.7	30.7	0.00	0.00	
1,700.0	4.00	290.00	1,696.9	31.0	-85.2	33.3	0.00	0.00	
1,800.0	4.00	290.00	1,796.7	33.4	-91.8	35.8	0.00	0.00	
1,900.0	4.00	290.00	1,896.4	35.8	-98.3	38.4	0.00	0.00	
2,000.0	4.00	290.00	1,996.2	38.2	-104.9	41.0	0.00	0.00	
2,100.0	4.00	290.00	2,095.9	40.6	-111.4	43.5	0.00	0.00	
2,200.0	4.00	290.00	2,195.7	42.9	-118.0	46.1	0.00	0.00	
2,300.0	4.00	290.00	2,295.5	45.3	-124.5	48.6	0.00	0.00	
2,400.0	4.00	290.00	2,395.2	47.7	-131.1	51.2	0.00	0.00	
2,500.0	4.00	290.00	2,495.0	50.1	-137.7	53.8	0.00	0.00	
2,600.0	4.00	290.00	2,594.7	52.5	-144.2	56.3	0.00	0.00	
2,700.0	4.00	290.00	2,694.5	54.9	-150.8	58.9	0.00	0.00	
2,800.0	4.00	290.00	2,794.2	57.3	-157.3	61.4	0.00	0.00	
2,900.0	4.00	290.00	2,894.0	59.6	-163.9	64.0	0.00	0.00	
3,000.0	4.00	290.00	2,993.7	62.0	-170.4	66.6	0.00	0.00	
3,100.0	4.00	290.00	3,093.5	64.4	-177.0	69.1	0.00	0.00	
3,200.0	4.00	290.00	3,193.3	66.8	-183.5	71.7	0.00	0.00	
3,300.0	4.00	290.00	3,293.0	69.2	-190.1	74.2	0.00	0.00	
3,400.0	4.00	290.00	3,392.8	71.6	-196.7	76.8	0.00	0.00	
3,500.0	4.00	290.00	3,492.5	74.0	-203.2	79.4	0.00	0.00	
3,600.0	4.00	290.00	3,592.3	76.3	-209.8	81.9	0.00	0.00	
3,650.0	4.00	290.00	3,642.2	77.5	-213.0	83.2	0.00	0.00	Start 2° Drop
3,700.0	3.00	290.00	3,692.1	78.6	-215.9	84.3	2.00	-2.00	
3,800.0	1.00	290.00	3,792.0	79.8	-219.2	85.6	2.00	-2.00	
3,850.0	0.00	0.00	3,842.0	79.9	-219.6	85.8	2.00	-2.00	EOD; Vertical
3,900.0	0.00	0.00	3,892.0	79.9	-219.6	85.8	0.00	0.00	
4,000.0	0.00	0.00	3,992.0	79.9	-219.6	85.8	0.00	0.00	
4,100.0	0.00	0.00	4,092.0	79.9	-219.6	85.8	0.00	0.00	
4,200.0	0.00	0.00	4,192.0	79.9	-219.6	85.8	0.00	0.00	
4,300.0	0.00	0.00	4,292.0	79.9	-219.6	85.8	0.00	0.00	
4,400.0	0.00	0.00	4,392.0	79.9	-219.6	85.8	0.00	0.00	
4,500.0	0.00	0.00	4,492.0	79.9	-219.6	85.8	0.00	0.00	
4,600.0	0.00	0.00	4,592.0	79.9	-219.6	85.8	0.00	0.00	
4,700.0	0.00	0.00	4,692.0	79.9	-219.6	85.8	0.00	0.00	
4,800.0	0.00	0.00	4,792.0	79.9	-219.6	85.8	0.00	0.00	
4,900.0	0.00	0.00	4,892.0	79.9	-219.6	85.8	0.00	0.00	

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Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Site:	S27-T10N-R58W	**North Reference:**	True
Well:	Razor #27I-2214B	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #3		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft	Build Rate (°/100u	Comments / Formations
5,000.0	0.00	0.00	4,992.0	79.9	-219.6	85.8	0.00	0.00	
5,100.0	0.00	0.00	5,092.0	79.9	-219.6	85.8	0.00	0.00	
5,200.0	0.00	0.00	5,192.0	79.9	-219.6	85.8	0.00	0.00	
5,223.1	0.00	0.00	5,215.1	79.9	-219.6	85.8	0.00	0.00	Curve KOP @ 5223' MD
5,300.0	8.46	0.00	5,291.7	85.6	-219.6	91.4	11.00	11.00	
5,400.0	19.46	0.00	5,388.6	109.7	-219.6	115.5	11.00	11.00	
5,500.0	30.46	0.00	5,479.1	151.8	-219.6	157.6	11.00	11.00	
5,600.0	41.46	0.00	5,560.0	210.4	-219.6	216.2	11.00	11.00	
5,656.2	47.64	0.00	5,600.0	249.8	-219.6	255.6	11.00	11.00	Top Niobrara
5,700.0	52.46	0.00	5,628.1	283.4	-219.6	289.2	11.00	11.00	
5,800.0	63.46	0.00	5,681.1	368.0	-219.6	373.8	11.00	11.00	
5,900.0	74.46	0.00	5,716.9	461.2	-219.6	466.9	11.00	11.00	
6,000.0	85.46	0.00	5,734.4	559.5	-219.6	565.2	11.00	11.00	
6,041.3	90.00	0.00	5,736.0	600.8	-219.6	606.4	11.00	11.00	LP @ 6041' MD
6,100.0	90.00	0.00	5,736.0	659.5	-219.5	665.1	0.00	0.00	
6,200.0	90.00	0.00	5,736.0	759.5	-219.5	765.1	0.00	0.00	
6,300.0	90.00	0.00	5,736.0	859.5	-219.5	865.0	0.00	0.00	7"
6,400.0	90.00	0.00	5,736.0	959.5	-219.5	965.0	0.00	0.00	
6,500.0	90.00	0.00	5,736.0	1,059.5	-219.5	1,065.0	0.00	0.00	
6,600.0	90.00	0.00	5,736.0	1,159.5	-219.5	1,164.9	0.00	0.00	
6,700.0	90.00	0.00	5,736.0	1,259.5	-219.5	1,264.9	0.00	0.00	
6,800.0	90.00	0.00	5,736.0	1,359.5	-219.5	1,364.9	0.00	0.00	
6,900.0	90.00	0.00	5,736.0	1,459.5	-219.5	1,464.8	0.00	0.00	
7,000.0	90.00	0.00	5,736.0	1,559.5	-219.5	1,564.8	0.00	0.00	
7,100.0	90.00	0.00	5,736.0	1,659.5	-219.5	1,664.8	0.00	0.00	
7,200.0	90.00	0.00	5,736.0	1,759.5	-219.5	1,764.7	0.00	0.00	
7,300.0	90.00	0.00	5,736.0	1,859.5	-219.4	1,864.7	0.00	0.00	
7,400.0	90.00	0.00	5,736.0	1,959.5	-219.4	1,964.7	0.00	0.00	
7,500.0	90.00	0.00	5,736.0	2,059.5	-219.4	2,064.6	0.00	0.00	
7,600.0	90.00	0.00	5,736.0	2,159.5	-219.4	2,164.6	0.00	0.00	
7,700.0	90.00	0.00	5,736.0	2,259.5	-219.4	2,264.5	0.00	0.00	
7,800.0	90.00	0.00	5,736.0	2,359.5	-219.4	2,364.5	0.00	0.00	
7,900.0	90.00	0.00	5,736.0	2,459.5	-219.4	2,464.5	0.00	0.00	
8,000.0	90.00	0.00	5,736.0	2,559.5	-219.4	2,564.4	0.00	0.00	
8,100.0	90.00	0.00	5,736.0	2,659.5	-219.4	2,664.4	0.00	0.00	
8,200.0	90.00	0.00	5,736.0	2,759.5	-219.4	2,764.4	0.00	0.00	
8,300.0	90.00	0.00	5,736.0	2,859.5	-219.4	2,864.3	0.00	0.00	
8,400.0	90.00	0.00	5,736.0	2,959.5	-219.3	2,964.3	0.00	0.00	
8,500.0	90.00	0.00	5,736.0	3,059.5	-219.3	3,064.3	0.00	0.00	
8,600.0	90.00	0.00	5,736.0	3,159.5	-219.3	3,164.2	0.00	0.00	
8,700.0	90.00	0.00	5,736.0	3,259.5	-219.3	3,264.2	0.00	0.00	
8,800.0	90.00	0.00	5,736.0	3,359.5	-219.3	3,364.1	0.00	0.00	
8,900.0	90.00	0.00	5,736.0	3,459.5	-219.3	3,464.1	0.00	0.00	
9,000.0	90.00	0.00	5,736.0	3,559.5	-219.3	3,564.1	0.00	0.00	
9,100.0	90.00	0.00	5,736.0	3,659.5	-219.3	3,664.0	0.00	0.00	
9,200.0	90.00	0.00	5,736.0	3,759.5	-219.3	3,764.0	0.00	0.00	
9,300.0	90.00	0.00	5,736.0	3,859.5	-219.3	3,864.0	0.00	0.00	
9,400.0	90.00	0.00	5,736.0	3,959.5	-219.3	3,963.9	0.00	0.00	
9,500.0	90.00	0.00	5,736.0	4,059.5	-219.3	4,063.9	0.00	0.00	
9,600.0	90.00	0.00	5,736.0	4,159.5	-219.2	4,163.9	0.00	0.00	
9,700.0	90.00	0.00	5,736.0	4,259.5	-219.2	4,263.8	0.00	0.00	
9,800.0	90.00	0.00	5,736.0	4,359.5	-219.2	4,363.8	0.00	0.00	

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #27I-2214B
Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Site:	S27-T10N-R58W	**North Reference:**	True
Well:	Razor #27I-2214B	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #3		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft	Build Rate (°/100u	Comments / Formations
9,900.0	90.00	0.00	5,736.0	4,459.5	-219.2	4,463.8	0.00	0.00	
10,000.0	90.00	0.00	5,736.0	4,559.5	-219.2	4,563.7	0.00	0.00	
10,100.0	90.00	0.00	5,736.0	4,659.5	-219.2	4,663.7	0.00	0.00	
10,200.0	90.00	0.00	5,736.0	4,759.5	-219.2	4,763.6	0.00	0.00	
10,300.0	90.00	0.00	5,736.0	4,859.5	-219.2	4,863.6	0.00	0.00	
10,400.0	90.00	0.00	5,736.0	4,959.5	-219.2	4,963.6	0.00	0.00	
10,500.0	90.00	0.00	5,736.0	5,059.5	-219.2	5,063.5	0.00	0.00	
10,600.0	90.00	0.00	5,736.0	5,159.5	-219.2	5,163.5	0.00	0.00	
10,700.0	90.00	0.00	5,736.0	5,259.5	-219.2	5,263.5	0.00	0.00	
10,800.0	90.00	0.00	5,736.0	5,359.5	-219.1	5,363.4	0.00	0.00	
10,900.0	90.00	0.00	5,736.0	5,459.5	-219.1	5,463.4	0.00	0.00	
11,000.0	90.00	0.00	5,736.0	5,559.5	-219.1	5,563.4	0.00	0.00	
11,100.0	90.00	0.00	5,736.0	5,659.5	-219.1	5,663.3	0.00	0.00	
11,200.0	90.00	0.00	5,736.0	5,759.5	-219.1	5,763.3	0.00	0.00	
11,300.0	90.00	0.00	5,736.0	5,859.5	-219.1	5,863.3	0.00	0.00	
11,400.0	90.00	0.00	5,736.0	5,959.5	-219.1	5,963.2	0.00	0.00	
11,500.0	90.00	0.00	5,736.0	6,059.5	-219.1	6,063.2	0.00	0.00	
11,600.0	90.00	0.00	5,736.0	6,159.5	-219.1	6,163.1	0.00	0.00	
11,700.0	90.00	0.00	5,736.0	6,259.5	-219.1	6,263.1	0.00	0.00	
11,800.0	90.00	0.00	5,736.0	6,359.5	-219.1	6,363.1	0.00	0.00	
11,900.0	90.00	0.00	5,736.0	6,459.5	-219.0	6,463.0	0.00	0.00	
12,000.0	90.00	0.00	5,736.0	6,559.5	-219.0	6,563.0	0.00	0.00	
12,100.0	90.00	0.00	5,736.0	6,659.5	-219.0	6,663.0	0.00	0.00	
12,200.0	90.00	0.00	5,736.0	6,759.5	-219.0	6,762.9	0.00	0.00	
12,300.0	90.00	0.00	5,736.0	6,859.5	-219.0	6,862.9	0.00	0.00	
12,400.0	90.00	0.00	5,736.0	6,959.5	-219.0	6,962.9	0.00	0.00	
12,500.0	90.00	0.00	5,736.0	7,059.5	-219.0	7,062.8	0.00	0.00	
12,600.0	90.00	0.00	5,736.0	7,159.5	-219.0	7,162.8	0.00	0.00	
12,700.0	90.00	0.00	5,736.0	7,259.5	-219.0	7,262.7	0.00	0.00	
12,800.0	90.00	0.00	5,736.0	7,359.5	-219.0	7,362.7	0.00	0.00	
12,900.0	90.00	0.00	5,736.0	7,459.5	-219.0	7,462.7	0.00	0.00	
13,000.0	90.00	0.00	5,736.0	7,559.5	-219.0	7,562.6	0.00	0.00	
13,100.0	90.00	0.00	5,736.0	7,659.5	-218.9	7,662.6	0.00	0.00	
13,200.0	90.00	0.00	5,736.0	7,759.5	-218.9	7,762.6	0.00	0.00	
13,300.0	90.00	0.00	5,736.0	7,859.5	-218.9	7,862.5	0.00	0.00	
13,400.0	90.00	0.00	5,736.0	7,959.5	-218.9	7,962.5	0.00	0.00	
13,500.0	90.00	0.00	5,736.0	8,059.5	-218.9	8,062.5	0.00	0.00	
13,600.0	90.00	0.00	5,736.0	8,159.5	-218.9	8,162.4	0.00	0.00	
13,628.0	90.00	0.00	5,736.0	8,187.5	-218.9	8,190.4	0.00	0.00	PBHL @ 13628' MD

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #27I-2214B
Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Site:	S27-T10N-R58W	**North Reference:**	True
Well:	Razor #27I-2214B	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #3		

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
2214B Tgt	0.00	0.00	5,736.0	7,688.3	-208.9	1,549,420.03	3,457,937.97	40.829808	-103.845172
- plan misses target center by 10.0usft at 13128.8usft MD (5736.0 TVD, 7688.3 N, -218.9 E)									
- Point									
2214B BHL	0.00	0.00	5,736.0	8,187.5	-218.9	1,549,918.91	3,457,918.70	40.831178	-103.845208
- plan hits target center									
- Point									

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
6,300.0	5,736.0	7"	0	0

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,656.2	5,600.0	Top Niobrara		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
300.0	300.0	0.0	0.0	KOP @ 300' MD
500.0	499.8	2.4	-6.6	EOB; 4°
3,650.0	3,642.2	77.5	-213.0	Start 2° Drop
3,850.0	3,842.0	79.9	-219.6	EOD; Vertical
5,223.1	5,215.1	79.9	-219.6	Curve KOP @ 5223' MD
6,041.3	5,736.0	600.8	-219.6	LP @ 6041' MD
13,628.0	5,736.0	8,187.5	-218.9	PBHL @ 13628' MD

Whiting Petroleum Corporation

Weld County, CO
S27-T10N-R58W
Razor #27I-2214B
HZ
Plan #3

Anticollision Report

20 May, 2013

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2214B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27I-2214B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Reference Plan #3

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

Survey Tool Program **Date** 5/20/2013

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	13,628.0	Plan #3 (HZ)	MWD	Geolink MWD

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
S27-T10N-R58W						
Razor #27I-2213A - HZ - Plan #2	5,873.4	5,850.0	73.8	55.5	4.034	CC
Razor #27I-2213A - HZ - Plan #2	13,628.0	13,643.2	341.2	50.3	1.173	Level 2, ES, SF
Razor #27I-2215A - HZ - Plan #1	300.0	300.0	124.3	123.3	125.611	CC
Razor #27I-2215A - HZ - Plan #1	13,628.0	13,538.3	340.9	61.0	1.218	Level 2, ES, SF
Razor #27I-2216B - HZ - Plan #2	300.0	300.0	66.2	65.2	66.858	CC, ES
Razor #27I-2216B - HZ - Plan #2	4,600.0	4,572.0	496.3	479.7	29.792	SF
Razor #27I-3413A - HZ - Plan #1	766.1	765.3	70.2	67.2	23.450	CC
Razor #27I-3413A - HZ - Plan #1	800.0	799.1	70.2	67.1	22.373	ES
Razor #27I-3413A - HZ - Plan #1	5,318.3	5,323.2	213.4	192.4	10.165	SF
Razor #27I-3414B - HZ - Plan #1	300.0	300.0	33.2	32.2	31.998	CC, ES
Razor #27I-3414B - HZ - Plan #1	5,250.0	5,238.0	265.6	244.8	12.786	SF
Razor #27I-3415A - HZ - Plan #1	300.0	300.0	99.8	98.7	96.100	CC, ES
Razor #27I-3415A - HZ - Plan #1	5,200.0	5,180.8	287.1	266.4	13.918	SF
Razor #27I-3416B - HZ - Plan #2	300.0	300.0	99.4	98.3	95.728	CC, ES
Razor #27I-3416B - HZ - Plan #2	3,400.0	3,365.5	493.8	480.5	37.209	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

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2214B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27I-2214B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2213A - HZ - Plan #2

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	23.67	75.8	33.2	82.7				
100.0	100.0	100.0	100.0	0.1	0.1	23.67	75.8	33.2	82.7	82.5	0.24	345.362	
200.0	200.0	200.0	200.0	0.3	0.3	23.67	75.8	33.2	82.7	82.1	0.64	129.509	
300.0	300.0	300.0	300.0	0.5	0.5	23.67	75.8	33.2	82.7	81.7	1.04	79.698	
400.0	400.0	400.0	400.0	0.7	0.8	94.87	75.8	33.2	82.9	81.4	1.44	57.541	
500.0	499.8	499.8	499.8	0.9	1.0	98.44	75.8	33.2	83.5	81.6	1.86	44.982	
600.0	599.6	599.6	599.6	1.1	1.2	103.09	75.8	33.2	84.8	82.5	2.28	37.220	
700.0	699.4	699.4	699.4	1.3	1.4	107.58	75.8	33.2	86.6	83.9	2.70	32.065	
800.0	799.1	799.1	799.1	1.5	1.7	111.86	75.8	33.2	89.0	85.9	3.12	28.479	
900.0	898.9	898.9	898.9	1.7	1.9	115.89	75.8	33.2	91.8	88.3	3.55	25.898	
1,000.0	998.6	998.6	998.6	1.9	2.1	119.67	75.8	33.2	95.1	91.1	3.96	23.990	
1,100.0	1,098.4	1,098.1	1,098.0	2.1	2.3	122.20	77.2	32.3	98.9	94.5	4.38	22.584	
1,200.0	1,198.1	1,197.6	1,197.5	2.3	2.6	122.63	81.6	29.6	103.1	98.3	4.80	21.486	
1,300.0	1,297.9	1,297.5	1,297.1	2.5	2.8	122.06	87.5	25.9	107.5	102.3	5.23	20.557	
1,400.0	1,397.6	1,397.4	1,396.8	2.7	3.0	121.53	93.4	22.2	112.0	106.3	5.67	19.753	
1,500.0	1,497.4	1,497.8	1,497.0	2.9	3.2	121.86	97.9	19.4	116.2	110.1	6.08	19.123	
1,600.0	1,597.2	1,598.0	1,597.2	3.2	3.4	123.83	99.4	18.4	120.1	113.7	6.44	18.644	
1,700.0	1,696.9	1,697.7	1,696.9	3.4	3.6	126.50	99.4	18.4	124.2	117.4	6.82	18.196	
1,800.0	1,796.7	1,797.5	1,796.7	3.6	3.8	129.00	99.4	18.4	128.5	121.2	7.22	17.781	
1,900.0	1,896.4	1,897.2	1,896.4	3.8	4.0	131.33	99.4	18.4	133.0	125.3	7.62	17.443	
2,000.0	1,996.2	1,997.0	1,996.2	4.0	4.3	133.51	99.4	18.4	137.7	129.7	8.02	17.167	
2,100.0	2,095.9	2,096.8	2,095.9	4.2	4.5	135.54	99.4	18.4	142.6	134.2	8.42	16.942	
2,200.0	2,195.7	2,196.5	2,195.7	4.4	4.7	137.43	99.4	18.4	147.6	138.8	8.81	16.758	
2,300.0	2,295.5	2,296.3	2,295.5	4.6	4.9	139.20	99.4	18.4	152.9	143.6	9.20	16.608	
2,400.0	2,395.2	2,396.0	2,395.2	4.9	5.2	140.85	99.4	18.4	158.2	148.6	9.60	16.485	
2,500.0	2,495.0	2,495.8	2,495.0	5.1	5.4	142.39	99.4	18.4	163.7	153.7	9.99	16.384	
2,600.0	2,594.7	2,595.5	2,594.7	5.3	5.6	143.83	99.4	18.4	169.3	158.9	10.38	16.303	
2,700.0	2,694.5	2,695.3	2,694.5	5.5	5.8	145.18	99.4	18.4	174.9	164.2	10.77	16.237	
2,800.0	2,794.2	2,795.0	2,794.2	5.7	6.0	146.44	99.4	18.4	180.7	169.6	11.17	16.184	
2,900.0	2,894.0	2,894.8	2,894.0	5.9	6.3	147.62	99.4	18.4	186.6	175.0	11.56	16.142	
3,000.0	2,993.7	2,994.6	2,993.7	6.1	6.5	148.74	99.4	18.4	192.5	180.6	11.95	16.109	
3,100.0	3,093.5	3,094.3	3,093.5	6.3	6.7	149.78	99.4	18.4	198.5	186.2	12.34	16.083	
3,200.0	3,193.3	3,194.1	3,193.3	6.6	6.9	150.76	99.4	18.4	204.6	191.8	12.73	16.064	
3,300.0	3,293.0	3,293.8	3,293.0	6.8	7.2	151.69	99.4	18.4	210.7	197.6	13.13	16.050	
3,400.0	3,392.8	3,393.6	3,392.8	7.0	7.4	152.56	99.4	18.4	216.9	203.3	13.52	16.041	
3,500.0	3,492.5	3,493.3	3,492.5	7.2	7.6	153.39	99.4	18.4	223.1	209.2	13.91	16.035	
3,600.0	3,592.3	3,593.1	3,592.3	7.4	7.8	154.17	99.4	18.4	229.3	215.0	14.30	16.033	
3,650.0	3,642.2	3,643.0	3,642.2	7.5	7.9	154.54	99.4	18.4	232.5	218.0	14.50	16.032	
3,700.0	3,692.1	3,692.9	3,692.1	7.6	8.1	154.89	99.4	18.4	235.2	220.5	14.70	16.001	
3,800.0	3,792.0	3,792.8	3,792.0	7.8	8.3	155.27	99.4	18.4	238.4	223.3	15.09	15.795	
3,850.0	3,842.0	3,842.8	3,842.0	7.8	8.4	85.31	99.4	18.4	238.8	223.5	15.30	15.611	
3,900.0	3,892.0	3,892.8	3,892.0	7.9	8.5	85.31	99.4	18.4	238.8	223.3	15.49	15.413	
4,000.0	3,992.0	3,992.8	3,992.0	8.1	8.7	85.31	99.4	18.4	238.8	222.9	15.89	15.031	
4,100.0	4,092.0	4,092.8	4,092.0	8.2	9.0	85.31	99.4	18.4	238.8	222.5	16.28	14.667	
4,200.0	4,192.0	4,192.8	4,192.0	8.4	9.2	85.31	99.4	18.4	238.8	222.1	16.68	14.320	
4,300.0	4,292.0	4,292.8	4,292.0	8.5	9.4	85.31	99.4	18.4	238.8	221.7	17.07	13.990	
4,400.0	4,392.0	4,392.8	4,392.0	8.7	9.6	85.31	99.4	18.4	238.8	221.3	17.46	13.673	
4,500.0	4,492.0	4,492.8	4,492.0	8.8	9.9	85.31	99.4	18.4	238.8	220.9	17.86	13.371	
4,600.0	4,592.0	4,592.8	4,592.0	9.0	10.1	85.31	99.4	18.4	238.8	220.5	18.25	13.082	
4,700.0	4,692.0	4,692.8	4,692.0	9.1	10.3	85.31	99.4	18.4	238.8	220.2	18.65	12.805	
4,800.0	4,792.0	4,792.8	4,792.0	9.3	10.5	85.31	99.4	18.4	238.8	219.8	19.05	12.539	
4,900.0	4,892.0	4,892.8	4,892.0	9.5	10.8	85.31	99.4	18.4	238.8	219.4	19.44	12.284	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2214B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27I-2214B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2213A - HZ - Plan #2

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,000.0	4,992.0	4,992.8	4,992.0	9.6	11.0	85.31	99.4	18.4	238.8	219.0	19.84	12.039	
5,100.0	5,092.0	5,092.8	5,092.0	9.8	11.2	85.31	99.4	18.4	238.8	218.6	20.23	11.803	
5,200.0	5,192.0	5,209.1	5,208.0	9.9	11.5	84.00	104.6	15.2	236.6	215.9	20.69	11.437	
5,223.1	5,215.1	5,237.5	5,235.9	10.0	11.5	82.88	108.9	12.5	234.8	214.0	20.81	11.281	
5,250.0	5,242.0	5,269.8	5,267.3	10.0	11.6	81.66	115.4	8.4	232.0	211.0	20.99	11.053	
5,300.0	5,291.7	5,328.3	5,322.7	10.1	11.8	79.44	131.3	-1.5	225.0	203.6	21.38	10.524	
5,350.0	5,340.8	5,384.5	5,373.6	10.2	11.9	77.25	151.4	-14.1	215.5	193.7	21.82	9.877	
5,400.0	5,388.6	5,438.2	5,419.6	10.4	12.1	75.00	174.8	-28.8	204.0	181.7	22.33	9.134	
5,450.0	5,434.9	5,489.6	5,460.8	10.5	12.3	72.59	200.9	-45.1	190.6	167.7	22.91	8.321	
5,500.0	5,479.1	5,538.7	5,497.1	10.7	12.6	69.89	228.9	-62.7	175.8	152.2	23.54	7.466	
5,550.0	5,521.0	5,585.7	5,528.7	10.9	12.8	66.74	258.3	-81.1	159.7	135.5	24.20	6.600	
5,600.0	5,560.0	5,630.6	5,555.9	11.2	13.2	62.86	288.6	-100.0	142.9	118.1	24.84	5.754	
5,650.0	5,595.8	5,673.8	5,579.1	11.5	13.5	57.91	319.5	-119.3	125.8	100.5	25.34	4.966	
5,700.0	5,628.1	5,715.4	5,598.5	11.9	13.9	51.39	350.6	-138.9	109.1	83.7	25.49	4.281	
5,750.0	5,656.6	5,755.6	5,614.4	12.3	14.3	42.67	381.9	-158.5	93.9	69.0	24.94	3.767	
5,800.0	5,681.1	5,794.7	5,627.1	12.8	14.7	31.21	413.3	-178.1	81.7	58.6	23.15	3.531	
5,850.0	5,701.3	5,832.8	5,636.8	13.3	15.2	17.12	444.5	-197.6	74.7	54.8	19.95	3.745	
5,873.4	5,709.2	5,850.0	5,640.3	13.5	15.4	10.15	458.8	-206.6	73.8	55.5	18.29	4.034 CC	
5,900.0	5,716.9	5,870.2	5,643.6	13.9	15.7	1.86	475.7	-217.1	74.7	58.0	16.75	4.463	
5,950.0	5,728.0	5,907.1	5,647.8	14.5	16.2	-12.23	506.7	-236.6	82.1	65.5	16.58	4.950	
6,000.0	5,734.4	5,943.5	5,649.4	15.1	16.7	-23.64	537.5	-255.9	95.0	75.8	19.19	4.953	
6,041.3	5,736.0	5,978.9	5,649.4	15.6	17.2	-32.36	567.7	-274.4	107.8	85.6	22.22	4.851	
6,100.0	5,736.0	6,031.8	5,649.4	16.4	18.0	-43.28	613.3	-301.1	127.6	101.6	26.04	4.902	
6,200.0	5,736.0	6,125.7	5,649.4	17.8	19.4	-55.46	696.2	-345.4	165.4	134.7	30.71	5.386	
6,300.0	5,736.0	6,224.6	5,649.4	19.3	21.0	-62.72	785.6	-387.5	202.9	168.3	34.60	5.865	
6,400.0	5,736.0	6,328.2	5,649.4	20.8	22.7	-67.30	881.5	-426.6	237.6	199.1	38.51	6.172	
6,500.0	5,736.0	6,436.2	5,649.4	22.4	24.4	-70.32	983.6	-461.8	268.3	226.0	42.22	6.354	
6,600.0	5,736.0	6,548.1	5,649.4	24.0	26.3	-72.37	1,091.4	-492.1	294.0	248.2	45.88	6.408	
6,700.0	5,736.0	6,663.5	5,649.4	25.6	28.2	-73.75	1,204.0	-516.7	314.5	264.9	49.54	6.348	
6,800.0	5,736.0	6,781.4	5,649.4	27.2	30.1	-74.63	1,320.6	-534.7	329.2	276.0	53.20	6.188	
6,900.0	5,736.0	6,901.3	5,649.3	28.8	32.1	-75.12	1,439.9	-545.7	338.1	281.2	56.85	5.946	
7,000.0	5,736.0	7,020.9	5,649.3	30.5	33.9	-75.27	1,559.5	-549.1	340.8	280.4	60.44	5.639	
7,100.0	5,736.0	7,120.9	5,649.3	32.1	35.5	-75.27	1,659.5	-549.1	340.8	277.2	63.64	5.355	
7,200.0	5,736.0	7,220.9	5,649.3	33.8	37.0	-75.27	1,759.5	-549.1	340.8	274.0	66.85	5.098	
7,300.0	5,736.0	7,320.9	5,649.3	35.5	38.6	-75.27	1,859.5	-549.1	340.8	270.7	70.09	4.863	
7,400.0	5,736.0	7,420.9	5,649.3	37.1	40.2	-75.27	1,959.5	-549.1	340.8	267.5	73.36	4.646	
7,500.0	5,736.0	7,520.9	5,649.3	38.8	41.8	-75.27	2,059.5	-549.1	340.8	264.2	76.66	4.446	
7,600.0	5,736.0	7,620.9	5,649.3	40.5	43.5	-75.27	2,159.5	-549.1	340.8	260.9	79.98	4.262	
7,700.0	5,736.0	7,720.9	5,649.3	42.2	45.2	-75.27	2,259.5	-549.1	340.9	257.5	83.32	4.091	
7,800.0	5,736.0	7,820.9	5,649.3	43.9	46.9	-75.26	2,359.5	-549.0	340.9	254.2	86.68	3.932	
7,900.0	5,736.0	7,920.9	5,649.3	45.6	48.6	-75.26	2,459.5	-549.0	340.9	250.8	90.06	3.785	
8,000.0	5,736.0	8,020.9	5,649.3	47.4	50.3	-75.26	2,559.5	-549.0	340.9	247.4	93.44	3.648	
8,100.0	5,736.0	8,120.9	5,649.3	49.1	52.0	-75.26	2,659.5	-549.0	340.9	244.0	96.85	3.520	
8,200.0	5,736.0	8,220.9	5,649.3	50.8	53.8	-75.26	2,759.5	-549.0	340.9	240.6	100.26	3.400	
8,300.0	5,736.0	8,320.9	5,649.3	52.5	55.6	-75.26	2,859.5	-549.0	340.9	237.2	103.68	3.288	
8,400.0	5,736.0	8,420.9	5,649.3	54.2	57.3	-75.26	2,959.5	-549.0	340.9	233.8	107.11	3.183	
8,500.0	5,736.0	8,520.9	5,649.3	56.0	59.1	-75.26	3,059.5	-549.0	340.9	230.3	110.55	3.084	
8,600.0	5,736.0	8,620.9	5,649.3	57.7	60.9	-75.26	3,159.5	-549.0	340.9	226.9	114.00	2.990	
8,700.0	5,736.0	8,720.9	5,649.3	59.4	62.7	-75.26	3,259.5	-549.0	340.9	223.4	117.46	2.902	
8,800.0	5,736.0	8,820.9	5,649.2	61.1	64.5	-75.26	3,359.5	-549.0	340.9	220.0	120.92	2.819	
8,900.0	5,736.0	8,920.9	5,649.2	62.9	66.3	-75.26	3,459.5	-549.0	340.9	216.5	124.39	2.741	
9,000.0	5,736.0	9,020.9	5,649.2	64.6	68.1	-75.26	3,559.5	-549.0	340.9	213.1	127.86	2.666	

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-2214B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27I-2214B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2213A - HZ - Plan #2

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
9,100.0	5,736.0	9,120.9	5,649.2	66.3	70.0	-75.26	3,659.5	-549.0	340.9	209.6	131.34	2.596	
9,200.0	5,736.0	9,220.9	5,649.2	68.1	71.8	-75.26	3,759.5	-549.0	340.9	206.1	134.82	2.529	
9,300.0	5,736.0	9,320.9	5,649.2	69.8	73.6	-75.25	3,859.5	-549.0	340.9	202.6	138.30	2.465	
9,400.0	5,736.0	9,420.9	5,649.2	71.5	75.5	-75.25	3,959.5	-549.0	340.9	199.1	141.79	2.404	
9,500.0	5,736.0	9,520.9	5,649.2	73.3	77.3	-75.25	4,059.5	-549.0	340.9	195.7	145.29	2.347	
9,600.0	5,736.0	9,620.9	5,649.2	75.0	79.1	-75.25	4,159.5	-549.0	340.9	192.2	148.78	2.292	
9,700.0	5,736.0	9,720.9	5,649.2	76.7	81.0	-75.25	4,259.5	-549.0	341.0	188.7	152.28	2.239	
9,800.0	5,736.0	9,820.9	5,649.2	78.5	82.8	-75.25	4,359.5	-549.0	341.0	185.2	155.79	2.189	
9,900.0	5,736.0	9,920.9	5,649.2	80.2	84.7	-75.25	4,459.5	-548.9	341.0	181.7	159.29	2.141	
10,000.0	5,736.0	10,020.9	5,649.2	82.0	86.6	-75.25	4,559.5	-548.9	341.0	178.2	162.80	2.094	
10,100.0	5,736.0	10,120.9	5,649.2	83.7	88.4	-75.25	4,659.5	-548.9	341.0	174.7	166.31	2.050	
10,200.0	5,736.0	10,220.9	5,649.2	85.5	90.3	-75.25	4,759.5	-548.9	341.0	171.2	169.82	2.008	
10,300.0	5,736.0	10,320.9	5,649.2	87.2	92.1	-75.25	4,859.5	-548.9	341.0	167.6	173.34	1.967	
10,400.0	5,736.0	10,420.9	5,649.2	88.9	94.0	-75.25	4,959.5	-548.9	341.0	164.1	176.85	1.928	
10,500.0	5,736.0	10,520.9	5,649.2	90.7	95.9	-75.25	5,059.5	-548.9	341.0	160.6	180.37	1.891	
10,600.0	5,736.0	10,620.9	5,649.2	92.4	97.8	-75.25	5,159.5	-548.9	341.0	157.1	183.89	1.854	
10,700.0	5,736.0	10,720.9	5,649.2	94.2	99.6	-75.25	5,259.5	-548.9	341.0	153.6	187.41	1.820	
10,800.0	5,736.0	10,820.9	5,649.1	95.9	101.5	-75.24	5,359.5	-548.9	341.0	150.1	190.94	1.786	
10,900.0	5,736.0	10,920.9	5,649.1	97.7	103.4	-75.24	5,459.5	-548.9	341.0	146.6	194.46	1.754	
11,000.0	5,736.0	11,020.9	5,649.1	99.4	105.3	-75.24	5,559.5	-548.9	341.0	143.0	197.99	1.722	
11,100.0	5,736.0	11,120.9	5,649.1	101.1	107.1	-75.24	5,659.5	-548.9	341.0	139.5	201.52	1.692	
11,200.0	5,736.0	11,220.9	5,649.1	102.9	109.0	-75.24	5,759.5	-548.9	341.0	136.0	205.04	1.663	
11,300.0	5,736.0	11,320.9	5,649.1	104.6	110.9	-75.24	5,859.5	-548.9	341.0	132.5	208.57	1.635	
11,400.0	5,736.0	11,420.9	5,649.1	106.4	112.8	-75.24	5,959.5	-548.9	341.0	128.9	212.10	1.608	
11,500.0	5,736.0	11,520.9	5,649.1	108.1	114.7	-75.24	6,059.5	-548.9	341.0	125.4	215.64	1.582	
11,600.0	5,736.0	11,620.9	5,649.1	109.9	116.6	-75.24	6,159.5	-548.9	341.1	121.9	219.17	1.556	
11,700.0	5,736.0	11,720.9	5,649.1	111.6	118.5	-75.24	6,259.5	-548.9	341.1	118.4	222.70	1.531	
11,800.0	5,736.0	11,820.9	5,649.1	113.4	120.3	-75.24	6,359.5	-548.9	341.1	114.8	226.24	1.508	
11,900.0	5,736.0	11,920.9	5,649.1	115.1	122.2	-75.24	6,459.5	-548.9	341.1	111.3	229.77	1.484	Level 3
12,000.0	5,736.0	12,020.9	5,649.1	116.9	124.1	-75.24	6,559.5	-548.9	341.1	107.8	233.31	1.462	Level 3
12,100.0	5,736.0	12,120.9	5,649.1	118.6	126.0	-75.24	6,659.5	-548.8	341.1	104.2	236.85	1.440	Level 3
12,200.0	5,736.0	12,220.9	5,649.1	120.4	127.9	-75.23	6,759.5	-548.8	341.1	100.7	240.39	1.419	Level 3
12,300.0	5,736.0	12,320.9	5,649.1	122.1	129.8	-75.23	6,859.5	-548.8	341.1	97.2	243.92	1.398	Level 3
12,400.0	5,736.0	12,420.9	5,649.1	123.9	131.7	-75.23	6,959.5	-548.8	341.1	93.6	247.46	1.378	Level 3
12,500.0	5,736.0	12,520.9	5,649.1	125.6	133.6	-75.23	7,059.5	-548.8	341.1	90.1	251.00	1.359	Level 3
12,600.0	5,736.0	12,620.9	5,649.1	127.3	135.5	-75.23	7,159.5	-548.8	341.1	86.6	254.54	1.340	Level 3
12,700.0	5,736.0	12,720.9	5,649.0	129.1	137.4	-75.23	7,259.5	-548.8	341.1	83.0	258.09	1.322	Level 3
12,800.0	5,736.0	12,820.9	5,649.0	130.8	139.3	-75.23	7,359.5	-548.8	341.1	79.5	261.63	1.304	Level 3
12,900.0	5,736.0	12,920.9	5,649.0	132.6	141.2	-75.23	7,459.5	-548.8	341.1	75.9	265.17	1.286	Level 3
13,000.0	5,736.0	13,020.9	5,649.0	134.3	143.1	-75.23	7,559.5	-548.8	341.1	72.4	268.71	1.269	Level 3
13,100.0	5,736.0	13,120.9	5,649.0	136.1	145.0	-75.23	7,659.5	-548.8	341.1	68.9	272.26	1.253	Level 3
13,200.0	5,736.0	13,220.9	5,649.0	137.8	146.9	-75.23	7,759.5	-548.8	341.1	65.3	275.80	1.237	Level 2
13,300.0	5,736.0	13,320.9	5,649.0	139.6	148.8	-75.23	7,859.5	-548.8	341.1	61.8	279.34	1.221	Level 2
13,400.0	5,736.0	13,420.9	5,649.0	141.3	150.7	-75.23	7,959.5	-548.8	341.1	58.3	282.89	1.206	Level 2
13,500.0	5,736.0	13,520.9	5,649.0	143.1	152.6	-75.23	8,059.5	-548.8	341.1	54.7	286.43	1.191	Level 2
13,600.0	5,736.0	13,620.9	5,649.0	144.8	154.5	-75.23	8,159.5	-548.8	341.2	51.2	289.98	1.176	Level 2
13,610.7	5,736.0	13,631.6	5,649.0	145.0	154.7	-75.23	8,170.2	-548.8	341.2	50.8	290.36	1.175	Level 2
13,628.0	5,736.0	13,643.2	5,649.0	145.3	154.9	-75.23	8,181.8	-548.8	341.2	50.3	290.86	1.173	Level 2, ES, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2214B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27I-2214B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2215A - HZ - Plan #1

Offset Site Error: 0.0 usft

Survey Program: 0-MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	53.08	74.7	99.4	124.3				
100.0	100.0	100.0	100.0	0.1	0.1	53.08	74.7	99.4	124.3	124.0	0.29	426.477	
200.0	200.0	200.0	200.0	0.3	0.3	53.08	74.7	99.4	124.3	123.7	0.64	194.064	
300.0	300.0	300.0	300.0	0.5	0.5	53.08	74.7	99.4	124.3	123.3	0.99	125.611	CC
400.0	400.0	400.0	400.0	0.7	0.7	123.74	74.7	99.4	125.3	123.9	1.34	93.455	
500.0	499.8	499.8	499.8	0.9	0.8	125.63	74.7	99.4	128.2	126.5	1.70	75.454	
600.0	599.6	599.6	599.6	1.1	1.0	128.08	74.7	99.4	132.4	130.4	2.06	64.194	
700.0	699.4	699.4	699.4	1.3	1.2	130.38	74.7	99.4	136.9	134.4	2.43	56.384	
800.0	799.1	799.1	799.1	1.5	1.4	132.53	74.7	99.4	141.5	138.7	2.79	50.696	
900.0	898.9	898.9	898.9	1.7	1.5	134.54	74.7	99.4	146.3	143.1	3.15	46.396	
1,000.0	998.6	998.6	998.6	1.9	1.7	136.42	74.7	99.4	151.3	147.8	3.51	43.048	
1,100.0	1,098.4	1,098.4	1,098.4	2.1	1.9	138.18	74.7	99.4	156.4	152.5	3.87	40.377	
1,200.0	1,198.1	1,198.1	1,198.1	2.3	2.1	139.82	74.7	99.4	161.7	157.4	4.23	38.206	
1,300.0	1,297.9	1,297.9	1,297.9	2.5	2.2	141.37	74.7	99.4	167.1	162.5	4.59	36.411	
1,400.0	1,397.6	1,397.6	1,397.6	2.7	2.4	142.81	74.7	99.4	172.6	167.6	4.94	34.907	
1,500.0	1,497.4	1,497.4	1,497.4	2.9	2.6	144.17	74.7	99.4	178.2	172.9	5.30	33.630	
1,600.0	1,597.2	1,597.2	1,597.2	3.2	2.8	145.44	74.7	99.4	183.9	178.2	5.65	32.536	
1,700.0	1,696.9	1,696.9	1,696.9	3.4	2.9	146.63	74.7	99.4	189.7	183.7	6.00	31.589	
1,800.0	1,796.7	1,796.7	1,796.7	3.6	3.1	147.76	74.7	99.4	195.6	189.2	6.36	30.764	
1,900.0	1,896.4	1,896.4	1,896.4	3.8	3.3	148.81	74.7	99.4	201.5	194.8	6.71	30.038	
2,000.0	1,996.2	1,996.2	1,996.2	4.0	3.5	149.81	74.7	99.4	207.5	200.4	7.06	29.396	
2,100.0	2,095.9	2,095.9	2,095.9	4.2	3.6	150.75	74.7	99.4	213.6	206.2	7.41	28.825	
2,200.0	2,195.7	2,195.7	2,195.7	4.4	3.8	151.64	74.7	99.4	219.7	211.9	7.76	28.314	
2,300.0	2,295.5	2,295.5	2,295.5	4.6	4.0	152.48	74.7	99.4	225.8	217.7	8.11	27.855	
2,400.0	2,395.2	2,395.2	2,395.2	4.9	4.2	153.28	74.7	99.4	232.1	223.6	8.46	27.440	
2,500.0	2,495.0	2,495.0	2,495.0	5.1	4.3	154.03	74.7	99.4	238.3	229.5	8.81	27.063	
2,600.0	2,594.7	2,594.7	2,594.7	5.3	4.5	154.74	74.7	99.4	244.6	235.4	9.15	26.721	
2,700.0	2,694.5	2,694.5	2,694.5	5.5	4.7	155.42	74.7	99.4	250.9	241.4	9.50	26.407	
2,800.0	2,794.2	2,794.2	2,794.2	5.7	4.8	156.07	74.7	99.4	257.3	247.4	9.85	26.120	
2,900.0	2,894.0	2,894.0	2,894.0	5.9	5.0	156.68	74.7	99.4	263.7	253.5	10.20	25.856	
3,000.0	2,993.7	2,993.7	2,993.7	6.1	5.2	157.27	74.7	99.4	270.1	259.6	10.55	25.613	
3,100.0	3,093.5	3,093.5	3,093.5	6.3	5.4	157.83	74.7	99.4	276.6	265.7	10.89	25.387	
3,200.0	3,193.3	3,193.3	3,193.3	6.6	5.5	158.36	74.7	99.4	283.0	271.8	11.24	25.178	
3,300.0	3,293.0	3,293.0	3,293.0	6.8	5.7	158.87	74.7	99.4	289.5	277.9	11.59	24.984	
3,400.0	3,392.8	3,392.8	3,392.8	7.0	5.9	159.36	74.7	99.4	296.0	284.1	11.94	24.803	
3,500.0	3,492.5	3,492.5	3,492.5	7.2	6.1	159.82	74.7	99.4	302.6	290.3	12.28	24.634	
3,600.0	3,592.3	3,592.3	3,592.3	7.4	6.2	160.27	74.7	99.4	309.1	296.5	12.63	24.476	
3,650.0	3,642.2	3,642.2	3,642.2	7.5	6.3	160.48	74.7	99.4	312.4	299.6	12.80	24.401	
3,700.0	3,692.1	3,692.1	3,692.1	7.6	6.4	160.69	74.7	99.4	315.3	302.3	12.98	24.291	
3,800.0	3,792.0	3,792.0	3,792.0	7.8	6.6	160.92	74.7	99.4	318.6	305.3	13.33	23.909	
3,850.0	3,842.0	3,842.0	3,842.0	7.8	6.7	90.94	74.7	99.4	319.0	305.5	13.50	23.639	
3,900.0	3,892.0	3,892.0	3,892.0	7.9	6.8	90.94	74.7	99.4	319.0	305.4	13.67	23.340	
4,000.0	3,992.0	3,992.0	3,992.0	8.1	6.9	90.94	74.7	99.4	319.0	305.0	14.01	22.764	
4,100.0	4,092.0	4,092.0	4,092.0	8.2	7.1	90.94	74.7	99.4	319.0	304.7	14.36	22.215	
4,200.0	4,192.0	4,192.0	4,192.0	8.4	7.3	90.94	74.7	99.4	319.0	304.3	14.71	21.692	
4,300.0	4,292.0	4,292.0	4,292.0	8.5	7.5	90.94	74.7	99.4	319.0	304.0	15.05	21.193	
4,400.0	4,392.0	4,392.0	4,392.0	8.7	7.6	90.94	74.7	99.4	319.0	303.6	15.40	20.716	
4,500.0	4,492.0	4,492.0	4,492.0	8.8	7.8	90.94	74.7	99.4	319.0	303.3	15.75	20.260	
4,600.0	4,592.0	4,592.0	4,592.0	9.0	8.0	90.94	74.7	99.4	319.0	302.9	16.09	19.824	
4,700.0	4,692.0	4,692.0	4,692.0	9.1	8.2	90.94	74.7	99.4	319.0	302.6	16.44	19.405	
4,800.0	4,792.0	4,792.0	4,792.0	9.3	8.3	90.94	74.7	99.4	319.0	302.2	16.79	19.004	
4,900.0	4,892.0	4,892.0	4,892.0	9.5	8.5	90.94	74.7	99.4	319.0	301.9	17.13	18.620	

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-2214B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27I-2214B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2215A - HZ - Plan #1

Offset Site Error: 0.0 usft

Survey Program: 0-MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,000.0	4,992.0	4,992.0	4,992.0	9.6	8.7	90.94	74.7	99.4	319.0	301.5	17.48	18.250	
5,100.0	5,092.0	5,092.0	5,092.0	9.8	8.9	90.94	74.7	99.4	319.0	301.2	17.83	17.895	
5,138.3	5,130.3	5,130.3	5,130.3	9.8	8.9	90.94	74.7	99.4	319.0	301.1	17.96	17.762	
5,200.0	5,192.0	5,191.5	5,191.4	9.9	9.0	90.25	78.5	99.5	319.1	300.9	18.18	17.548	
5,223.1	5,215.1	5,214.1	5,213.7	10.0	9.1	89.67	81.7	99.5	319.1	300.9	18.27	17.469	
5,250.0	5,242.0	5,240.1	5,239.2	10.0	9.1	88.89	86.7	99.6	319.3	300.9	18.38	17.377	
5,300.0	5,291.7	5,287.9	5,285.4	10.1	9.2	87.46	99.0	99.9	319.8	301.2	18.59	17.201	
5,350.0	5,340.8	5,335.0	5,329.6	10.2	9.3	86.06	115.2	100.2	320.6	301.8	18.84	17.018	
5,400.0	5,388.6	5,381.5	5,371.6	10.4	9.4	84.71	135.1	100.6	321.7	302.6	19.13	16.820	
5,450.0	5,434.9	5,427.5	5,411.3	10.5	9.6	83.42	158.3	101.1	323.0	303.5	19.46	16.599	
5,500.0	5,479.1	5,472.9	5,448.3	10.7	9.8	82.20	184.7	101.7	324.4	304.6	19.84	16.350	
5,550.0	5,521.0	5,517.9	5,482.5	10.9	10.0	81.06	213.8	102.3	326.0	305.7	20.29	16.069	
5,600.0	5,560.0	5,562.5	5,513.9	11.2	10.2	80.01	245.5	103.0	327.7	306.9	20.80	15.755	
5,650.0	5,595.8	5,606.7	5,542.1	11.5	10.5	79.05	279.5	103.7	329.5	308.1	21.38	15.410	
5,700.0	5,628.1	5,650.0	5,566.9	11.9	10.8	78.19	314.9	104.4	331.2	309.2	22.03	15.037	
5,750.0	5,656.6	5,694.2	5,589.2	12.3	11.2	77.43	353.1	105.2	333.0	310.2	22.76	14.627	
5,800.0	5,681.1	5,737.6	5,607.7	12.8	11.6	76.78	392.3	106.0	334.7	311.1	23.57	14.199	
5,850.0	5,701.3	5,780.8	5,622.9	13.3	12.1	76.24	432.7	106.9	336.3	311.8	24.44	13.756	
5,900.0	5,716.9	5,823.8	5,634.6	13.9	12.5	75.81	474.1	107.7	337.7	312.4	25.39	13.304	
5,950.0	5,728.0	5,866.7	5,642.9	14.5	13.1	75.50	516.2	108.6	339.1	312.7	26.39	12.848	
6,000.0	5,734.4	5,909.6	5,647.7	15.1	13.6	75.30	558.8	109.5	340.3	312.8	27.46	12.393	
6,041.3	5,736.0	5,946.3	5,649.0	15.6	14.1	75.22	595.4	110.3	341.2	312.8	28.39	12.016	
6,100.0	5,736.0	6,010.4	5,649.0	16.4	14.9	75.24	659.5	110.7	341.5	311.5	30.02	11.375	
6,200.0	5,736.0	6,110.4	5,649.0	17.8	16.3	75.24	759.5	110.7	341.5	308.7	32.78	10.417	
6,300.0	5,736.0	6,210.4	5,649.0	19.3	17.8	75.24	859.5	110.7	341.5	305.9	35.65	9.578	
6,400.0	5,736.0	6,310.4	5,649.0	20.8	19.3	75.24	959.5	110.7	341.5	302.9	38.61	8.845	
6,500.0	5,736.0	6,410.4	5,649.0	22.4	20.8	75.24	1,059.5	110.7	341.5	299.9	41.63	8.203	
6,600.0	5,736.0	6,510.4	5,649.0	24.0	22.4	75.24	1,159.5	110.7	341.5	296.8	44.71	7.638	
6,700.0	5,736.0	6,610.4	5,649.0	25.6	24.0	75.24	1,259.5	110.7	341.5	293.6	47.83	7.140	
6,800.0	5,736.0	6,710.4	5,649.0	27.2	25.7	75.23	1,359.5	110.7	341.5	290.5	50.98	6.698	
6,900.0	5,736.0	6,810.4	5,649.0	28.8	27.3	75.23	1,459.5	110.7	341.5	287.3	54.16	6.304	
7,000.0	5,736.0	6,910.4	5,649.0	30.5	29.0	75.23	1,559.5	110.7	341.5	284.1	57.37	5.952	
7,100.0	5,736.0	7,010.4	5,649.0	32.1	30.6	75.23	1,659.5	110.7	341.4	280.8	60.60	5.634	
7,200.0	5,736.0	7,110.4	5,649.0	33.8	32.3	75.23	1,759.5	110.7	341.4	277.6	63.84	5.348	
7,300.0	5,736.0	7,210.4	5,649.0	35.5	34.0	75.23	1,859.5	110.7	341.4	274.3	67.10	5.088	
7,400.0	5,736.0	7,310.4	5,649.0	37.1	35.7	75.23	1,959.5	110.7	341.4	271.0	70.38	4.851	
7,500.0	5,736.0	7,410.4	5,649.0	38.8	37.4	75.23	2,059.5	110.7	341.4	267.7	73.66	4.635	
7,600.0	5,736.0	7,510.4	5,649.0	40.5	39.1	75.23	2,159.5	110.7	341.4	264.4	76.95	4.436	
7,700.0	5,736.0	7,610.4	5,649.0	42.2	40.8	75.23	2,259.5	110.7	341.4	261.1	80.25	4.254	
7,800.0	5,736.0	7,710.4	5,649.0	43.9	42.5	75.23	2,359.5	110.7	341.4	257.8	83.56	4.085	
7,900.0	5,736.0	7,810.4	5,649.0	45.6	44.2	75.23	2,459.5	110.7	341.4	254.5	86.88	3.929	
8,000.0	5,736.0	7,910.4	5,649.0	47.4	45.9	75.23	2,559.5	110.7	341.4	251.2	90.20	3.785	
8,100.0	5,736.0	8,010.4	5,649.0	49.1	47.6	75.23	2,659.5	110.7	341.4	247.8	93.53	3.650	
8,200.0	5,736.0	8,110.4	5,649.0	50.8	49.3	75.23	2,759.5	110.7	341.3	244.5	96.86	3.524	
8,300.0	5,736.0	8,210.4	5,649.0	52.5	51.1	75.23	2,859.5	110.7	341.3	241.1	100.19	3.407	
8,400.0	5,736.0	8,310.4	5,649.0	54.2	52.8	75.23	2,959.5	110.7	341.3	237.8	103.53	3.297	
8,500.0	5,736.0	8,410.4	5,649.0	56.0	54.5	75.23	3,059.5	110.7	341.3	234.5	106.87	3.194	
8,600.0	5,736.0	8,510.4	5,649.0	57.7	56.2	75.23	3,159.5	110.7	341.3	231.1	110.22	3.097	
8,700.0	5,736.0	8,610.4	5,649.0	59.4	58.0	75.23	3,259.5	110.7	341.3	227.7	113.57	3.005	
8,800.0	5,736.0	8,710.4	5,649.0	61.1	59.7	75.23	3,359.5	110.7	341.3	224.4	116.92	2.919	
8,900.0	5,736.0	8,810.4	5,649.0	62.9	61.4	75.23	3,459.5	110.7	341.3	221.0	120.27	2.838	
9,000.0	5,736.0	8,910.4	5,649.0	64.6	63.2	75.23	3,559.5	110.7	341.3	217.7	123.63	2.761	

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-2214B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27I-2214B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2215A - HZ - Plan #1

Offset Site Error: 0.0 usft

Survey Program: 0-MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
9,100.0	5,736.0	9,010.4	5,649.0	66.3	64.9	75.23	3,659.5	110.7	341.3	214.3	126.98	2.688	
9,200.0	5,736.0	9,110.4	5,649.0	68.1	66.6	75.23	3,759.5	110.7	341.3	210.9	130.34	2.618	
9,300.0	5,736.0	9,210.4	5,649.0	69.8	68.4	75.23	3,859.5	110.7	341.3	207.6	133.70	2.552	
9,400.0	5,736.0	9,310.4	5,649.0	71.5	70.1	75.23	3,959.5	110.7	341.2	204.2	137.07	2.490	
9,500.0	5,736.0	9,410.4	5,649.0	73.3	71.9	75.23	4,059.5	110.7	341.2	200.8	140.43	2.430	
9,600.0	5,736.0	9,510.4	5,649.0	75.0	73.6	75.23	4,159.5	110.7	341.2	197.4	143.80	2.373	
9,700.0	5,736.0	9,610.4	5,649.0	76.7	75.3	75.23	4,259.5	110.7	341.2	194.1	147.16	2.319	
9,800.0	5,736.0	9,710.4	5,649.0	78.5	77.1	75.23	4,359.5	110.7	341.2	190.7	150.53	2.267	
9,900.0	5,736.0	9,810.4	5,649.0	80.2	78.8	75.23	4,459.5	110.7	341.2	187.3	153.90	2.217	
10,000.0	5,736.0	9,910.4	5,649.0	82.0	80.6	75.22	4,559.5	110.7	341.2	183.9	157.27	2.170	
10,100.0	5,736.0	10,010.4	5,649.0	83.7	82.3	75.22	4,659.5	110.7	341.2	180.5	160.64	2.124	
10,200.0	5,736.0	10,110.4	5,649.0	85.5	84.1	75.22	4,759.5	110.7	341.2	177.2	164.01	2.080	
10,300.0	5,736.0	10,210.4	5,649.0	87.2	85.8	75.22	4,859.5	110.7	341.2	173.8	167.38	2.038	
10,400.0	5,736.0	10,310.4	5,649.0	88.9	87.5	75.22	4,959.5	110.7	341.2	170.4	170.76	1.998	
10,500.0	5,736.0	10,410.4	5,649.0	90.7	89.3	75.22	5,059.5	110.7	341.2	167.0	174.13	1.959	
10,600.0	5,736.0	10,510.4	5,649.0	92.4	91.0	75.22	5,159.5	110.7	341.1	163.6	177.51	1.922	
10,700.0	5,736.0	10,610.4	5,649.0	94.2	92.8	75.22	5,259.5	110.7	341.1	160.3	180.88	1.886	
10,800.0	5,736.0	10,710.4	5,649.0	95.9	94.5	75.22	5,359.5	110.7	341.1	156.9	184.26	1.851	
10,900.0	5,736.0	10,810.4	5,649.0	97.7	96.3	75.22	5,459.5	110.7	341.1	153.5	187.64	1.818	
11,000.0	5,736.0	10,910.4	5,649.0	99.4	98.0	75.22	5,559.5	110.7	341.1	150.1	191.01	1.786	
11,100.0	5,736.0	11,010.4	5,649.0	101.1	99.8	75.22	5,659.5	110.7	341.1	146.7	194.39	1.755	
11,200.0	5,736.0	11,110.4	5,649.0	102.9	101.5	75.22	5,759.5	110.7	341.1	143.3	197.77	1.725	
11,300.0	5,736.0	11,210.4	5,649.0	104.6	103.2	75.22	5,859.5	110.7	341.1	139.9	201.15	1.696	
11,400.0	5,736.0	11,310.4	5,649.0	106.4	105.0	75.22	5,959.5	110.7	341.1	136.5	204.53	1.668	
11,500.0	5,736.0	11,410.4	5,649.0	108.1	106.7	75.22	6,059.5	110.7	341.1	133.2	207.91	1.640	
11,600.0	5,736.0	11,510.4	5,649.0	109.9	108.5	75.22	6,159.5	110.7	341.1	129.8	211.29	1.614	
11,700.0	5,736.0	11,610.4	5,649.0	111.6	110.2	75.22	6,259.5	110.7	341.0	126.4	214.67	1.589	
11,800.0	5,736.0	11,710.4	5,649.0	113.4	112.0	75.22	6,359.5	110.7	341.0	123.0	218.05	1.564	
11,900.0	5,736.0	11,810.4	5,649.0	115.1	113.7	75.22	6,459.5	110.7	341.0	119.6	221.43	1.540	
12,000.0	5,736.0	11,910.4	5,649.0	116.9	115.5	75.22	6,559.5	110.7	341.0	116.2	224.81	1.517	
12,100.0	5,736.0	12,010.4	5,649.0	118.6	117.2	75.22	6,659.5	110.7	341.0	112.8	228.20	1.494	Level 3
12,200.0	5,736.0	12,110.4	5,649.0	120.4	119.0	75.22	6,759.5	110.7	341.0	109.4	231.58	1.473	Level 3
12,300.0	5,736.0	12,210.4	5,649.0	122.1	120.7	75.22	6,859.5	110.7	341.0	106.0	234.96	1.451	Level 3
12,400.0	5,736.0	12,310.4	5,649.0	123.9	122.5	75.22	6,959.5	110.7	341.0	102.6	238.34	1.431	Level 3
12,500.0	5,736.0	12,410.4	5,649.0	125.6	124.2	75.22	7,059.5	110.7	341.0	99.3	241.73	1.411	Level 3
12,600.0	5,736.0	12,510.4	5,649.0	127.3	126.0	75.22	7,159.5	110.7	341.0	95.9	245.11	1.391	Level 3
12,700.0	5,736.0	12,610.4	5,649.0	129.1	127.7	75.22	7,259.5	110.7	341.0	92.5	248.50	1.372	Level 3
12,800.0	5,736.0	12,710.4	5,649.0	130.8	129.5	75.22	7,359.5	110.7	341.0	89.1	251.88	1.354	Level 3
12,900.0	5,736.0	12,810.4	5,649.0	132.6	131.2	75.22	7,459.5	110.7	340.9	85.7	255.26	1.336	Level 3
13,000.0	5,736.0	12,910.4	5,649.0	134.3	133.0	75.22	7,559.5	110.7	340.9	82.3	258.65	1.318	Level 3
13,100.0	5,736.0	13,010.4	5,649.0	136.1	134.7	75.22	7,659.5	110.7	340.9	78.9	262.03	1.301	Level 3
13,200.0	5,736.0	13,110.4	5,649.0	137.8	136.5	75.21	7,759.5	110.7	340.9	75.5	265.42	1.284	Level 3
13,300.0	5,736.0	13,210.4	5,649.0	139.6	138.2	75.21	7,859.5	110.7	340.9	72.1	268.80	1.268	Level 3
13,400.0	5,736.0	13,310.4	5,649.0	141.3	140.0	75.21	7,959.5	110.7	340.9	68.7	272.19	1.252	Level 3
13,500.0	5,736.0	13,410.4	5,649.0	143.1	141.7	75.21	8,059.5	110.7	340.9	65.3	275.57	1.237	Level 2
13,600.0	5,736.0	13,510.4	5,649.0	144.8	143.5	75.21	8,159.5	110.7	340.9	61.9	278.96	1.222	Level 2
13,628.0	5,736.0	13,538.3	5,649.0	145.3	144.0	75.21	8,187.5	110.7	340.9	61.0	279.91	1.218	Level 2, ES, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2214B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27I-2214B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2216B - HZ - Plan #2

Offset Site Error: 0.0 usft

Survey Program: 0-MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.01	0.0	66.2	66.2				
100.0	100.0	100.0	100.0	0.1	0.1	90.01	0.0	66.2	66.2	65.9	0.29	226.996	
200.0	200.0	200.0	200.0	0.3	0.3	90.01	0.0	66.2	66.2	65.5	0.64	103.293	
300.0	300.0	300.0	300.0	0.5	0.5	90.01	0.0	66.2	66.2	65.2	0.99	66.858	CC, ES
400.0	400.0	400.0	400.0	0.7	0.7	160.51	0.0	66.2	67.8	66.5	1.34	50.658	
500.0	499.8	499.8	499.8	0.9	0.8	161.85	0.0	66.2	72.8	71.1	1.69	43.122	
600.0	599.6	597.8	597.7	1.1	1.0	162.50	1.2	67.3	80.6	78.5	2.04	39.570	
700.0	699.4	695.3	695.1	1.3	1.2	161.46	4.7	70.9	90.7	88.3	2.39	37.939	
800.0	799.1	794.5	794.1	1.5	1.4	159.87	9.6	75.8	102.1	99.4	2.75	37.108	
900.0	898.9	893.8	893.1	1.7	1.6	158.59	14.5	80.7	113.6	110.5	3.12	36.459	
1,000.0	998.6	993.1	992.2	1.9	1.8	157.55	19.4	85.6	125.2	121.7	3.48	35.941	
1,100.0	1,098.4	1,092.4	1,091.3	2.1	2.0	156.69	24.3	90.5	136.7	132.9	3.85	35.521	
1,200.0	1,198.1	1,191.7	1,190.3	2.3	2.2	155.96	29.2	95.3	148.3	144.1	4.22	35.174	
1,300.0	1,297.9	1,291.0	1,289.4	2.5	2.4	155.34	34.1	100.2	160.0	155.4	4.59	34.883	
1,400.0	1,397.6	1,390.3	1,388.5	2.7	2.6	154.80	39.0	105.1	171.6	166.7	4.95	34.636	
1,500.0	1,497.4	1,489.6	1,487.5	2.9	2.8	154.33	43.9	110.0	183.3	177.9	5.32	34.423	
1,600.0	1,597.2	1,588.9	1,586.6	3.2	3.0	153.91	48.8	114.9	194.9	189.2	5.69	34.239	
1,700.0	1,696.9	1,688.2	1,685.7	3.4	3.2	153.54	53.7	119.8	206.6	200.5	6.06	34.077	
1,800.0	1,796.7	1,787.5	1,784.7	3.6	3.4	153.22	58.6	124.7	218.3	211.9	6.43	33.934	
1,900.0	1,896.4	1,886.8	1,883.8	3.8	3.6	152.92	63.5	129.6	230.0	223.2	6.80	33.807	
2,000.0	1,996.2	1,986.1	1,982.9	4.0	3.9	152.66	68.4	134.5	241.7	234.5	7.17	33.694	
2,100.0	2,095.9	2,085.5	2,081.9	4.2	4.1	152.41	73.3	139.4	253.4	245.8	7.54	33.591	
2,200.0	2,195.7	2,184.8	2,181.0	4.4	4.3	152.19	78.2	144.3	265.1	257.2	7.91	33.499	
2,300.0	2,295.5	2,284.1	2,280.1	4.6	4.5	151.99	83.1	149.2	276.8	268.5	8.28	33.415	
2,400.0	2,395.2	2,383.4	2,379.1	4.9	4.7	151.81	88.0	154.1	288.5	279.9	8.65	33.338	
2,500.0	2,495.0	2,482.7	2,478.2	5.1	4.9	151.64	92.9	159.0	300.2	291.2	9.02	33.268	
2,600.0	2,594.7	2,582.0	2,577.2	5.3	5.1	151.48	97.7	163.9	311.9	302.5	9.39	33.203	
2,700.0	2,694.5	2,681.3	2,676.3	5.5	5.3	151.33	102.6	168.8	323.7	313.9	9.77	33.143	
2,800.0	2,794.2	2,780.6	2,775.4	5.7	5.5	151.20	107.5	173.7	335.4	325.2	10.14	33.088	
2,900.0	2,894.0	2,879.9	2,874.4	5.9	5.7	151.07	112.4	178.6	347.1	336.6	10.51	33.037	
3,000.0	2,993.7	2,979.2	2,973.5	6.1	6.0	150.95	117.3	183.5	358.8	347.9	10.88	32.989	
3,100.0	3,093.5	3,078.5	3,072.6	6.3	6.2	150.84	122.2	188.4	370.5	359.3	11.25	32.945	
3,200.0	3,193.3	3,177.8	3,171.6	6.6	6.4	150.73	127.1	193.3	382.3	370.7	11.62	32.903	
3,300.0	3,293.0	3,277.1	3,270.7	6.8	6.6	150.64	132.0	198.2	394.0	382.0	11.99	32.864	
3,400.0	3,392.8	3,376.5	3,369.8	7.0	6.8	150.54	136.9	203.1	405.7	393.4	12.36	32.828	
3,500.0	3,492.5	3,475.8	3,468.8	7.2	7.0	150.46	141.8	208.0	417.5	404.7	12.73	32.793	
3,600.0	3,592.3	3,575.1	3,567.9	7.4	7.2	150.37	146.7	212.9	429.2	416.1	13.10	32.761	
3,650.0	3,642.2	3,624.7	3,617.4	7.5	7.3	150.33	149.2	215.4	435.1	421.8	13.29	32.745	
3,700.0	3,692.1	3,674.4	3,667.0	7.6	7.4	150.32	151.6	217.8	440.5	427.1	13.48	32.690	
3,800.0	3,792.0	3,774.0	3,766.4	7.8	7.6	150.11	156.5	222.7	449.3	435.4	13.84	32.456	
3,850.0	3,842.0	3,823.9	3,816.1	7.8	7.8	79.92	159.0	225.2	452.5	438.5	14.02	32.276	
3,900.0	3,892.0	3,873.7	3,865.9	7.9	7.9	79.67	161.5	227.6	455.4	441.2	14.20	32.076	
4,000.0	3,992.0	3,973.5	3,965.4	8.1	8.1	79.17	166.4	232.6	461.1	446.6	14.55	31.692	
4,100.0	4,092.0	4,073.3	4,064.9	8.2	8.3	78.69	171.3	237.5	466.9	452.0	14.90	31.331	
4,200.0	4,192.0	4,173.0	4,164.4	8.4	8.5	78.23	176.2	242.4	472.7	457.5	15.26	30.989	
4,300.0	4,292.0	4,272.8	4,263.9	8.5	8.7	77.77	181.1	247.3	478.6	463.0	15.61	30.665	
4,400.0	4,392.0	4,372.5	4,363.4	8.7	8.9	77.32	186.1	252.2	484.5	468.5	15.96	30.359	
4,500.0	4,492.0	4,472.3	4,462.9	8.8	9.1	76.89	191.0	257.2	490.4	474.1	16.31	30.068	
4,600.0	4,592.0	4,572.0	4,562.4	9.0	9.3	76.46	195.9	262.1	496.3	479.7	16.66	29.792	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-2214B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27I-2214B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	0.00	74.7	0.0	74.7				
100.0	100.0	100.0	100.0	0.1	0.1	0.00	74.7	0.0	74.7	74.4	0.24	311.741	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	74.7	0.0	74.7	74.0	0.64	116.902	
300.0	300.0	300.0	300.0	0.5	0.5	0.00	74.7	0.0	74.7	73.6	1.04	71.939	
400.0	400.0	400.0	400.0	0.7	0.8	71.28	74.7	0.0	74.1	72.7	1.44	51.445	
500.0	499.8	499.8	499.8	0.9	1.0	75.22	74.7	0.0	72.6	70.7	1.86	39.115	
600.0	599.6	599.6	599.6	1.1	1.2	80.65	74.7	0.0	71.1	68.9	2.28	31.206	
700.0	699.4	699.4	699.4	1.3	1.4	86.25	74.7	0.0	70.3	67.6	2.71	25.972	
766.1	765.3	765.3	765.3	1.4	1.6	90.00	74.7	0.0	70.2	67.2	2.99	23.450	CC
800.0	799.1	799.1	799.1	1.5	1.7	91.92	74.7	0.0	70.2	67.1	3.14	22.373	ES
900.0	898.9	898.9	898.9	1.7	1.9	97.56	74.7	0.0	70.8	67.2	3.57	19.839	
1,000.0	998.6	998.6	998.6	1.9	2.1	103.05	74.7	0.0	72.1	68.1	4.00	18.031	
1,100.0	1,098.4	1,098.4	1,098.4	2.1	2.3	108.32	74.7	0.0	73.9	69.5	4.42	16.734	
1,200.0	1,198.1	1,198.1	1,198.1	2.3	2.6	113.28	74.7	0.0	76.4	71.6	4.84	15.802	
1,300.0	1,297.9	1,297.9	1,297.9	2.5	2.8	117.89	74.7	0.0	79.4	74.2	5.25	15.136	
1,400.0	1,397.6	1,397.6	1,397.6	2.7	3.0	122.15	74.7	0.0	82.9	77.3	5.66	14.663	
1,500.0	1,497.4	1,497.4	1,497.4	2.9	3.2	126.04	74.7	0.0	86.9	80.8	6.06	14.333	
1,600.0	1,597.2	1,597.2	1,597.2	3.2	3.5	129.58	74.7	0.0	91.2	84.7	6.46	14.109	
1,700.0	1,696.9	1,696.9	1,696.9	3.4	3.7	132.80	74.7	0.0	95.8	88.9	6.86	13.962	
1,800.0	1,796.7	1,796.7	1,796.7	3.6	3.9	135.71	74.7	0.0	100.6	93.4	7.25	13.873	
1,900.0	1,896.4	1,896.4	1,896.4	3.8	4.1	138.35	74.7	0.0	105.7	98.1	7.65	13.826	
2,000.0	1,996.2	1,996.2	1,996.2	4.0	4.4	140.74	74.7	0.0	111.1	103.0	8.04	13.811	
2,100.0	2,095.9	2,095.9	2,095.9	4.2	4.6	142.91	74.7	0.0	116.5	108.1	8.43	13.819	
2,200.0	2,195.7	2,195.7	2,195.7	4.4	4.8	144.88	74.7	0.0	122.2	113.4	8.83	13.845	
2,300.0	2,295.5	2,295.5	2,295.5	4.6	5.0	146.67	74.7	0.0	128.0	118.7	9.22	13.882	
2,400.0	2,395.2	2,395.2	2,395.2	4.9	5.3	148.31	74.7	0.0	133.8	124.2	9.61	13.929	
2,500.0	2,495.0	2,495.0	2,495.0	5.1	5.5	149.81	74.7	0.0	139.8	129.8	10.00	13.982	
2,600.0	2,594.7	2,594.7	2,594.7	5.3	5.7	151.19	74.7	0.0	145.9	135.5	10.39	14.039	
2,700.0	2,694.5	2,694.5	2,694.5	5.5	5.9	152.46	74.7	0.0	152.1	141.3	10.79	14.099	
2,800.0	2,794.2	2,794.2	2,794.2	5.7	6.1	153.62	74.7	0.0	158.3	147.1	11.18	14.161	
2,900.0	2,894.0	2,894.0	2,894.0	5.9	6.4	154.70	74.7	0.0	164.6	153.0	11.57	14.223	
3,000.0	2,993.7	2,993.7	2,993.7	6.1	6.6	155.70	74.7	0.0	170.9	158.9	11.96	14.285	
3,100.0	3,093.5	3,093.5	3,093.5	6.3	6.8	156.63	74.7	0.0	177.3	164.9	12.36	14.348	
3,200.0	3,193.3	3,193.3	3,193.3	6.6	7.0	157.49	74.7	0.0	183.7	171.0	12.75	14.409	
3,300.0	3,293.0	3,293.0	3,293.0	6.8	7.3	158.30	74.7	0.0	190.2	177.0	13.14	14.470	
3,400.0	3,392.8	3,392.8	3,392.8	7.0	7.5	159.05	74.7	0.0	196.7	183.1	13.54	14.529	
3,500.0	3,492.5	3,492.5	3,492.5	7.2	7.7	159.75	74.7	0.0	203.2	189.3	13.93	14.587	
3,600.0	3,592.3	3,592.3	3,592.3	7.4	7.9	160.41	74.7	0.0	209.8	195.4	14.33	14.643	
3,650.0	3,642.2	3,642.2	3,642.2	7.5	8.1	160.72	74.7	0.0	213.1	198.5	14.52	14.671	
3,700.0	3,692.1	3,692.1	3,692.1	7.6	8.2	161.01	74.7	0.0	215.9	201.2	14.73	14.664	
3,800.0	3,792.0	3,792.0	3,792.0	7.8	8.4	161.33	74.7	0.0	219.2	204.1	15.12	14.497	
3,850.0	3,842.0	3,842.0	3,842.0	7.8	8.5	91.37	74.7	0.0	219.7	204.3	15.32	14.340	
3,900.0	3,892.0	3,892.0	3,892.0	7.9	8.6	91.37	74.7	0.0	219.7	204.1	15.52	14.157	
4,000.0	3,992.0	3,992.0	3,992.0	8.1	8.8	91.37	74.7	0.0	219.7	203.7	15.91	13.804	
4,100.0	4,092.0	4,092.0	4,092.0	8.2	9.1	91.37	74.7	0.0	219.7	203.3	16.31	13.469	
4,200.0	4,192.0	4,192.0	4,192.0	8.4	9.3	91.37	74.7	0.0	219.7	203.0	16.71	13.149	
4,300.0	4,292.0	4,292.0	4,292.0	8.5	9.5	91.37	74.7	0.0	219.7	202.6	17.10	12.844	
4,400.0	4,392.0	4,392.0	4,392.0	8.7	9.7	91.37	74.7	0.0	219.7	202.2	17.50	12.553	
4,500.0	4,492.0	4,492.0	4,492.0	8.8	10.0	91.37	74.7	0.0	219.7	201.8	17.90	12.274	
4,600.0	4,592.0	4,592.0	4,592.0	9.0	10.2	91.37	74.7	0.0	219.7	201.4	18.29	12.008	
4,700.0	4,692.0	4,692.0	4,692.0	9.1	10.4	91.37	74.7	0.0	219.7	201.0	18.69	11.753	
4,800.0	4,792.0	4,792.0	4,792.0	9.3	10.6	91.37	74.7	0.0	219.7	200.6	19.09	11.508	

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-2214B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27I-2214B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
4,900.0	4,892.0	4,892.0	4,892.0	9.5	10.9	91.37	74.7	0.0	219.7	200.2	19.48	11.273	
5,000.0	4,992.0	4,992.0	4,992.0	9.6	11.1	91.37	74.7	0.0	219.7	199.8	19.88	11.048	
5,100.0	5,092.0	5,092.0	5,092.0	9.8	11.3	91.37	74.7	0.0	219.7	199.4	20.28	10.832	
5,200.0	5,192.0	5,201.0	5,200.7	9.9	11.5	92.64	69.9	-1.7	218.3	197.7	20.65	10.574	
5,223.1	5,215.1	5,226.8	5,226.2	10.0	11.6	93.72	65.9	-3.1	217.3	196.6	20.72	10.486	
5,250.0	5,242.0	5,256.0	5,254.7	10.0	11.6	95.68	59.9	-5.1	215.8	195.1	20.80	10.378	
5,300.0	5,291.7	5,306.4	5,302.9	10.1	11.7	100.98	46.1	-9.9	213.7	192.7	20.95	10.202	
5,318.3	5,309.8	5,323.2	5,318.6	10.2	11.7	103.23	40.5	-11.8	213.4	192.4	21.00	10.165	SF
5,350.0	5,340.8	5,350.0	5,343.4	10.2	11.8	107.23	30.6	-15.3	214.3	193.3	21.07	10.173	
5,400.0	5,388.6	5,386.2	5,375.7	10.4	11.9	113.00	15.5	-20.5	220.6	199.5	21.14	10.435	
5,450.0	5,434.9	5,414.8	5,400.5	10.5	11.9	117.28	2.0	-25.2	234.5	213.4	21.14	11.093	
5,500.0	5,479.1	5,436.5	5,418.8	10.7	12.0	119.57	-9.1	-29.0	256.6	235.5	21.10	12.162	
5,550.0	5,521.0	5,450.0	5,429.9	10.9	12.0	119.13	-16.4	-31.5	286.2	265.1	21.13	13.545	
5,600.0	5,560.0	5,462.6	5,440.1	11.2	12.0	117.31	-23.4	-34.0	321.7	300.4	21.30	15.105	
5,650.0	5,595.8	5,468.7	5,444.9	11.5	12.1	112.26	-26.9	-35.2	361.7	339.9	21.82	16.578	
5,700.0	5,628.1	5,471.1	5,446.8	11.9	12.1	104.08	-28.3	-35.6	404.8	382.1	22.70	17.829	
5,750.0	5,656.6	5,470.3	5,446.2	12.3	12.1	92.66	-27.9	-35.5	449.7	426.1	23.67	18.999	
5,800.0	5,681.1	5,467.0	5,443.6	12.8	12.1	78.85	-25.9	-34.8	495.7	471.0	24.74	20.037	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2214B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27I-2214B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.01	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	CC, ES
400.0	400.0	400.0	400.0	0.7	0.8	160.98	0.0	33.2	34.9	33.4	1.44	24.197	
500.0	499.8	499.8	499.8	0.9	1.0	163.40	0.0	33.2	39.8	38.0	1.85	21.576	
600.0	599.6	599.6	599.6	1.1	1.2	165.85	0.0	33.2	46.6	44.3	2.24	20.752	
700.0	699.4	699.4	699.4	1.3	1.4	167.68	0.0	33.2	53.4	50.7	2.64	20.199	
800.0	799.1	799.1	799.1	1.5	1.7	169.10	0.0	33.2	60.2	57.2	3.04	19.804	
900.0	898.9	898.9	898.9	1.7	1.9	170.23	0.0	33.2	67.1	63.6	3.44	19.509	
1,000.0	998.6	998.6	998.6	1.9	2.1	171.14	0.0	33.2	74.0	70.1	3.84	19.280	
1,100.0	1,098.4	1,098.4	1,098.4	2.1	2.3	171.90	0.0	33.2	80.9	76.6	4.23	19.098	
1,200.0	1,198.1	1,198.1	1,198.1	2.3	2.6	172.55	0.0	33.2	87.8	83.1	4.63	18.950	
1,300.0	1,297.9	1,297.9	1,297.9	2.5	2.8	173.09	0.0	33.2	94.7	89.7	5.03	18.827	
1,400.0	1,397.6	1,397.6	1,397.6	2.7	3.0	173.57	0.0	33.2	101.6	96.2	5.43	18.723	
1,500.0	1,497.4	1,497.4	1,497.4	2.9	3.2	173.98	0.0	33.2	108.5	102.7	5.83	18.634	
1,600.0	1,597.2	1,597.2	1,597.2	3.2	3.5	174.34	0.0	33.2	115.5	109.3	6.22	18.558	
1,700.0	1,696.9	1,696.9	1,696.9	3.4	3.7	174.66	0.0	33.2	122.4	115.8	6.62	18.491	
1,800.0	1,796.7	1,796.7	1,796.7	3.6	3.9	174.95	0.0	33.2	129.4	122.4	7.02	18.432	
1,900.0	1,896.4	1,896.4	1,896.4	3.8	4.1	175.21	0.0	33.2	136.3	128.9	7.42	18.380	
2,000.0	1,996.2	1,996.2	1,996.2	4.0	4.4	175.44	0.0	33.2	143.3	135.5	7.82	18.333	
2,100.0	2,095.9	2,095.9	2,095.9	4.2	4.6	175.65	0.0	33.2	150.2	142.0	8.21	18.291	
2,200.0	2,195.7	2,195.7	2,195.7	4.4	4.8	175.85	0.0	33.2	157.2	148.6	8.61	18.253	
2,300.0	2,295.5	2,295.5	2,295.5	4.6	5.0	176.02	0.0	33.2	164.2	155.1	9.01	18.219	
2,400.0	2,395.2	2,395.2	2,395.2	4.9	5.3	176.18	0.0	33.2	171.1	161.7	9.41	18.188	
2,500.0	2,495.0	2,495.0	2,495.0	5.1	5.5	176.33	0.0	33.2	178.1	168.3	9.81	18.159	
2,600.0	2,594.7	2,594.7	2,594.7	5.3	5.7	176.47	0.0	33.2	185.0	174.8	10.20	18.133	
2,700.0	2,694.5	2,694.5	2,694.5	5.5	5.9	176.60	0.0	33.2	192.0	181.4	10.60	18.109	
2,800.0	2,794.2	2,794.2	2,794.2	5.7	6.1	176.72	0.0	33.2	199.0	188.0	11.00	18.086	
2,900.0	2,894.0	2,894.0	2,894.0	5.9	6.4	176.83	0.0	33.2	205.9	194.5	11.40	18.065	
3,000.0	2,993.7	2,993.7	2,993.7	6.1	6.6	176.93	0.0	33.2	212.9	201.1	11.80	18.046	
3,100.0	3,093.5	3,093.5	3,093.5	6.3	6.8	177.03	0.0	33.2	219.9	207.7	12.20	18.028	
3,200.0	3,193.3	3,193.3	3,193.3	6.6	7.0	177.12	0.0	33.2	226.8	214.2	12.59	18.011	
3,300.0	3,293.0	3,293.0	3,293.0	6.8	7.3	177.21	0.0	33.2	233.8	220.8	12.99	17.995	
3,400.0	3,392.8	3,392.8	3,392.8	7.0	7.5	177.29	0.0	33.2	240.8	227.4	13.39	17.981	
3,500.0	3,492.5	3,492.5	3,492.5	7.2	7.7	177.37	0.0	33.2	247.7	233.9	13.79	17.967	
3,600.0	3,592.3	3,592.3	3,592.3	7.4	7.9	177.44	0.0	33.2	254.7	240.5	14.19	17.953	
3,650.0	3,642.2	3,642.2	3,642.2	7.5	8.1	177.47	0.0	33.2	258.2	243.8	14.39	17.947	
3,700.0	3,692.1	3,692.1	3,692.1	7.6	8.2	177.50	0.0	33.2	261.2	246.6	14.59	17.902	
3,800.0	3,792.0	3,792.0	3,792.0	7.8	8.4	177.54	0.0	33.2	264.7	249.7	15.00	17.653	
3,850.0	3,842.0	3,842.0	3,842.0	7.8	8.5	107.54	0.0	33.2	265.2	250.0	15.19	17.453	
3,900.0	3,892.0	3,892.0	3,892.0	7.9	8.6	107.54	0.0	33.2	265.2	249.8	15.39	17.226	
4,000.0	3,992.0	3,992.0	3,992.0	8.1	8.8	107.54	0.0	33.2	265.2	249.4	15.79	16.791	
4,100.0	4,092.0	4,092.0	4,092.0	8.2	9.1	107.54	0.0	33.2	265.2	249.0	16.19	16.377	
4,200.0	4,192.0	4,192.0	4,192.0	8.4	9.3	107.54	0.0	33.2	265.2	248.6	16.59	15.982	
4,300.0	4,292.0	4,292.0	4,292.0	8.5	9.5	107.54	0.0	33.2	265.2	248.2	16.99	15.607	
4,400.0	4,392.0	4,392.0	4,392.0	8.7	9.7	107.54	0.0	33.2	265.2	247.8	17.39	15.248	
4,500.0	4,492.0	4,492.0	4,492.0	8.8	10.0	107.54	0.0	33.2	265.2	247.4	17.79	14.906	
4,600.0	4,592.0	4,592.0	4,592.0	9.0	10.2	107.54	0.0	33.2	265.2	247.0	18.19	14.579	
4,700.0	4,692.0	4,692.0	4,692.0	9.1	10.4	107.54	0.0	33.2	265.2	246.6	18.59	14.265	
4,800.0	4,792.0	4,792.0	4,792.0	9.3	10.6	107.54	0.0	33.2	265.2	246.2	18.99	13.965	
4,900.0	4,892.0	4,892.0	4,892.0	9.5	10.9	107.54	0.0	33.2	265.2	245.8	19.39	13.678	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2214B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27I-2214B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,000.0	4,992.0	4,992.0	4,992.0	9.6	11.1	107.54	0.0	33.2	265.2	245.4	19.79	13.402	
5,100.0	5,092.0	5,092.0	5,092.0	9.8	11.3	107.54	0.0	33.2	265.2	245.0	20.18	13.136	
5,200.0	5,192.0	5,192.0	5,192.0	9.9	11.5	107.54	0.0	33.2	265.2	244.6	20.58	12.882	
5,215.4	5,207.4	5,207.4	5,207.4	10.0	11.6	107.54	0.0	33.2	265.2	244.5	20.65	12.843	
5,223.1	5,215.1	5,215.0	5,215.0	10.0	11.6	107.54	0.0	33.2	265.2	244.5	20.68	12.824	
5,250.0	5,242.0	5,238.0	5,238.0	10.0	11.6	107.72	-0.5	33.2	265.6	244.8	20.77	12.786	SF
5,300.0	5,291.7	5,279.5	5,279.4	10.1	11.7	108.93	-4.0	33.4	268.6	247.7	20.92	12.841	
5,350.0	5,340.8	5,318.3	5,317.6	10.2	11.8	110.92	-10.2	33.6	275.3	254.2	21.04	13.084	
5,400.0	5,388.6	5,350.0	5,348.5	10.4	11.8	112.77	-17.4	33.9	286.4	265.2	21.12	13.559	
5,450.0	5,434.9	5,382.7	5,379.9	10.5	11.9	114.85	-26.8	34.2	302.6	281.5	21.16	14.299	
5,500.0	5,479.1	5,407.4	5,403.1	10.7	11.9	115.74	-35.1	34.6	324.5	303.3	21.20	15.310	
5,550.0	5,521.0	5,427.0	5,421.2	10.9	12.0	115.41	-42.5	34.9	351.9	330.6	21.28	16.538	
5,600.0	5,560.0	5,450.0	5,442.1	11.2	12.0	114.97	-52.1	35.2	384.4	362.9	21.42	17.945	
5,650.0	5,595.8	5,450.0	5,442.1	11.5	12.0	109.58	-52.1	35.2	420.7	398.7	21.96	19.158	
5,700.0	5,628.1	5,450.0	5,442.1	11.9	12.0	102.59	-52.1	35.2	460.5	437.8	22.73	20.258	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2214B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27I-2214B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	41.54	74.7	66.2	99.8				
100.0	100.0	100.0	100.0	0.1	0.1	41.54	74.7	66.2	99.8	99.5	0.24	416.437	
200.0	200.0	200.0	200.0	0.3	0.3	41.54	74.7	66.2	99.8	99.1	0.64	156.162	
300.0	300.0	300.0	300.0	0.5	0.5	41.54	74.7	66.2	99.8	98.7	1.04	96.100	CC, ES
400.0	400.0	400.0	400.0	0.7	0.8	112.46	74.7	66.2	100.4	99.0	1.44	69.723	
500.0	499.8	499.8	499.8	0.9	1.0	115.12	74.7	66.2	102.5	100.7	1.85	55.297	
600.0	599.6	599.6	599.6	1.1	1.2	118.54	74.7	66.2	105.7	103.4	2.27	46.531	
700.0	699.4	699.4	699.4	1.3	1.4	121.75	74.7	66.2	109.2	106.5	2.69	40.605	
800.0	799.1	799.1	799.1	1.5	1.7	124.75	74.7	66.2	113.0	109.9	3.11	36.389	
900.0	898.9	898.9	898.9	1.7	1.9	127.55	74.7	66.2	117.2	113.6	3.52	33.270	
1,000.0	998.6	998.6	998.6	1.9	2.1	130.16	74.7	66.2	121.5	117.6	3.93	30.891	
1,100.0	1,098.4	1,098.4	1,098.4	2.1	2.3	132.57	74.7	66.2	126.2	121.8	4.35	29.032	
1,200.0	1,198.1	1,198.1	1,198.1	2.3	2.6	134.82	74.7	66.2	131.0	126.2	4.75	27.550	
1,300.0	1,297.9	1,297.9	1,297.9	2.5	2.8	136.90	74.7	66.2	136.0	130.8	5.16	26.349	
1,400.0	1,397.6	1,397.6	1,397.6	2.7	3.0	138.83	74.7	66.2	141.2	135.6	5.57	25.360	
1,500.0	1,497.4	1,497.4	1,497.4	2.9	3.2	140.63	74.7	66.2	146.5	140.5	5.97	24.537	
1,600.0	1,597.2	1,597.2	1,597.2	3.2	3.5	142.30	74.7	66.2	152.0	145.6	6.37	23.843	
1,700.0	1,696.9	1,696.9	1,696.9	3.4	3.7	143.85	74.7	66.2	157.5	150.8	6.78	23.254	
1,800.0	1,796.7	1,796.7	1,796.7	3.6	3.9	145.29	74.7	66.2	163.2	156.1	7.18	22.748	
1,900.0	1,896.4	1,896.4	1,896.4	3.8	4.1	146.64	74.7	66.2	169.0	161.4	7.58	22.311	
2,000.0	1,996.2	1,996.2	1,996.2	4.0	4.4	147.89	74.7	66.2	174.9	166.9	7.97	21.931	
2,100.0	2,095.9	2,095.9	2,095.9	4.2	4.6	149.07	74.7	66.2	180.8	172.5	8.37	21.597	
2,200.0	2,195.7	2,195.7	2,195.7	4.4	4.8	150.16	74.7	66.2	186.9	178.1	8.77	21.303	
2,300.0	2,295.5	2,295.5	2,295.5	4.6	5.0	151.19	74.7	66.2	193.0	183.8	9.17	21.043	
2,400.0	2,395.2	2,395.2	2,395.2	4.9	5.3	152.16	74.7	66.2	199.1	189.5	9.57	20.810	
2,500.0	2,495.0	2,495.0	2,495.0	5.1	5.5	153.07	74.7	66.2	205.3	195.3	9.96	20.603	
2,600.0	2,594.7	2,594.7	2,594.7	5.3	5.7	153.93	74.7	66.2	211.5	201.2	10.36	20.416	
2,700.0	2,694.5	2,694.5	2,694.5	5.5	5.9	154.73	74.7	66.2	217.8	207.1	10.76	20.248	
2,800.0	2,794.2	2,794.2	2,794.2	5.7	6.1	155.49	74.7	66.2	224.2	213.0	11.16	20.095	
2,900.0	2,894.0	2,894.0	2,894.0	5.9	6.4	156.21	74.7	66.2	230.5	219.0	11.55	19.956	
3,000.0	2,993.7	2,993.7	2,993.7	6.1	6.6	156.89	74.7	66.2	236.9	225.0	11.95	19.830	
3,100.0	3,093.5	3,093.5	3,093.5	6.3	6.8	157.54	74.7	66.2	243.4	231.0	12.34	19.714	
3,200.0	3,193.3	3,193.3	3,193.3	6.6	7.0	158.15	74.7	66.2	249.8	237.1	12.74	19.608	
3,300.0	3,293.0	3,293.0	3,293.0	6.8	7.3	158.73	74.7	66.2	256.3	243.2	13.14	19.510	
3,400.0	3,392.8	3,392.8	3,392.8	7.0	7.5	159.28	74.7	66.2	262.8	249.3	13.53	19.420	
3,500.0	3,492.5	3,492.5	3,492.5	7.2	7.7	159.80	74.7	66.2	269.4	255.4	13.93	19.337	
3,600.0	3,592.3	3,592.3	3,592.3	7.4	7.9	160.30	74.7	66.2	275.9	261.6	14.33	19.260	
3,650.0	3,642.2	3,642.2	3,642.2	7.5	8.1	160.54	74.7	66.2	279.2	264.7	14.52	19.223	
3,700.0	3,692.1	3,692.1	3,692.1	7.6	8.2	160.77	74.7	66.2	282.1	267.4	14.73	19.153	
3,800.0	3,792.0	3,792.0	3,792.0	7.8	8.4	161.02	74.7	66.2	285.4	270.3	15.13	18.866	
3,850.0	3,842.0	3,842.0	3,842.0	7.8	8.5	91.05	74.7	66.2	285.8	270.5	15.32	18.653	
3,900.0	3,892.0	3,892.0	3,892.0	7.9	8.6	91.05	74.7	66.2	285.8	270.3	15.52	18.415	
4,000.0	3,992.0	3,992.0	3,992.0	8.1	8.8	91.05	74.7	66.2	285.8	269.9	15.92	17.957	
4,100.0	4,092.0	4,092.0	4,092.0	8.2	9.1	91.05	74.7	66.2	285.8	269.5	16.31	17.520	
4,200.0	4,192.0	4,192.0	4,192.0	8.4	9.3	91.05	74.7	66.2	285.8	269.1	16.71	17.105	
4,300.0	4,292.0	4,292.0	4,292.0	8.5	9.5	91.05	74.7	66.2	285.8	268.7	17.11	16.708	
4,400.0	4,392.0	4,392.0	4,392.0	8.7	9.7	91.05	74.7	66.2	285.8	268.3	17.50	16.329	
4,500.0	4,492.0	4,492.0	4,492.0	8.8	10.0	91.05	74.7	66.2	285.8	267.9	17.90	15.967	
4,600.0	4,592.0	4,592.0	4,592.0	9.0	10.2	91.05	74.7	66.2	285.8	267.5	18.30	15.621	
4,700.0	4,692.0	4,692.0	4,692.0	9.1	10.4	91.05	74.7	66.2	285.8	267.1	18.69	15.289	
4,800.0	4,792.0	4,792.0	4,792.0	9.3	10.6	91.05	74.7	66.2	285.8	266.7	19.09	14.971	
4,900.0	4,892.0	4,892.0	4,892.0	9.5	10.9	91.05	74.7	66.2	285.8	266.3	19.49	14.666	

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-2214B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27I-2214B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,000.0	4,992.0	4,992.0	4,992.0	9.6	11.1	91.05	74.7	66.2	285.8	265.9	19.89	14.373	
5,100.0	5,092.0	5,092.0	5,092.0	9.8	11.3	91.05	74.7	66.2	285.8	265.5	20.28	14.091	
5,109.0	5,101.0	5,101.0	5,101.0	9.8	11.3	91.05	74.7	66.2	285.8	265.5	20.32	14.066	
5,200.0	5,192.0	5,180.8	5,180.7	9.9	11.5	91.55	72.2	67.1	287.1	266.4	20.62	13.918	SF
5,223.1	5,215.1	5,200.0	5,199.8	10.0	11.5	91.97	70.0	68.0	288.1	267.4	20.69	13.925	
5,250.0	5,242.0	5,221.2	5,220.7	10.0	11.6	92.49	66.9	69.2	289.9	269.1	20.77	13.955	
5,300.0	5,291.7	5,259.5	5,258.1	10.1	11.6	94.13	59.3	72.1	294.8	273.9	20.93	14.091	
5,350.0	5,340.8	5,300.0	5,296.9	10.2	11.7	96.72	48.4	76.4	302.8	281.8	21.08	14.363	
5,400.0	5,388.6	5,324.7	5,320.0	10.4	11.8	98.07	40.5	79.5	314.5	293.3	21.24	14.808	
5,450.0	5,434.9	5,350.0	5,343.3	10.5	11.8	99.30	31.2	83.0	330.8	309.4	21.41	15.452	
5,500.0	5,479.1	5,371.3	5,362.5	10.7	11.8	99.68	22.7	86.4	352.0	330.4	21.61	16.286	
5,550.0	5,521.0	5,387.7	5,377.0	10.9	11.9	98.82	15.6	89.1	377.9	356.0	21.88	17.273	
5,600.0	5,560.0	5,400.0	5,387.8	11.2	11.9	96.64	10.0	91.3	408.0	385.8	22.23	18.354	
5,650.0	5,595.8	5,400.0	5,387.8	11.5	11.9	91.58	10.0	91.3	441.9	419.2	22.70	19.470	
5,700.0	5,628.1	5,413.6	5,399.5	11.9	11.9	88.03	3.5	93.8	478.4	455.0	23.32	20.516	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2214B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27I-2214B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-3416B - HZ - Plan #2

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

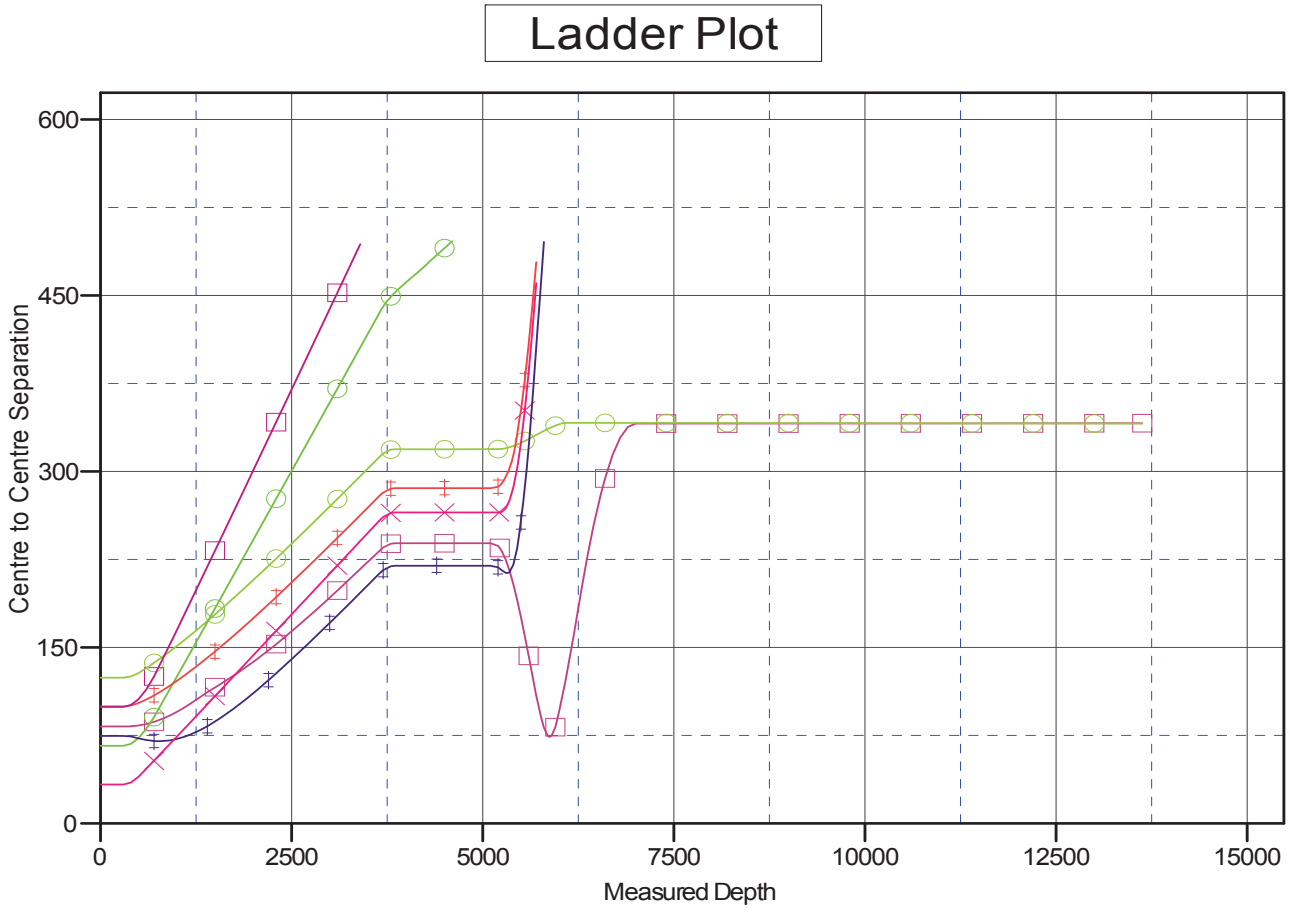
Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.01	0.0	99.4	99.4				
100.0	100.0	100.0	100.0	0.1	0.1	90.01	0.0	99.4	99.4	99.1	0.24	414.827	
200.0	200.0	200.0	200.0	0.3	0.3	90.01	0.0	99.4	99.4	98.7	0.64	155.559	
300.0	300.0	300.0	300.0	0.5	0.5	90.01	0.0	99.4	99.4	98.3	1.04	95.728	CC, ES
400.0	400.0	400.0	400.0	0.7	0.8	160.34	0.0	99.4	101.0	99.6	1.44	70.114	
500.0	499.8	499.8	499.8	0.9	1.0	161.26	0.0	99.4	106.0	104.1	1.85	57.369	
600.0	599.6	596.2	596.2	1.1	1.2	162.74	-0.8	100.8	114.1	111.9	2.22	51.305	
700.0	699.4	691.9	691.8	1.3	1.4	164.67	-3.2	104.9	125.3	122.7	2.60	48.261	
800.0	799.1	790.6	790.2	1.5	1.6	166.66	-6.7	110.9	138.4	135.4	2.98	46.489	
900.0	898.9	889.7	889.0	1.7	1.8	168.32	-10.2	116.9	151.6	148.2	3.36	45.163	
1,000.0	998.6	988.7	987.8	1.9	2.1	169.70	-13.6	122.8	164.9	161.2	3.74	44.086	
1,100.0	1,098.4	1,087.7	1,086.6	2.1	2.3	170.88	-17.1	128.8	178.3	174.2	4.13	43.195	
1,200.0	1,198.1	1,186.8	1,185.4	2.3	2.5	171.90	-20.6	134.8	191.8	187.3	4.52	42.448	
1,300.0	1,297.9	1,285.8	1,284.2	2.5	2.8	172.78	-24.0	140.8	205.3	200.4	4.91	41.815	
1,400.0	1,397.6	1,384.8	1,383.0	2.7	3.0	173.55	-27.5	146.7	218.9	213.6	5.30	41.273	
1,500.0	1,497.4	1,483.9	1,481.8	2.9	3.3	174.23	-30.9	152.7	232.5	226.8	5.70	40.802	
1,600.0	1,597.2	1,582.9	1,580.6	3.2	3.5	174.84	-34.4	158.7	246.2	240.1	6.09	40.394	
1,700.0	1,696.9	1,681.9	1,679.4	3.4	3.8	175.38	-37.9	164.7	259.8	253.3	6.49	40.034	
1,800.0	1,796.7	1,781.0	1,778.2	3.6	4.1	175.87	-41.3	170.7	273.5	266.6	6.89	39.715	
1,900.0	1,896.4	1,880.0	1,877.0	3.8	4.3	176.31	-44.8	176.6	287.2	279.9	7.28	39.430	
2,000.0	1,996.2	1,979.0	1,975.8	4.0	4.6	176.71	-48.3	182.6	300.9	293.2	7.68	39.175	
2,100.0	2,095.9	2,078.1	2,074.6	4.2	4.8	177.08	-51.7	188.6	314.6	306.5	8.08	38.944	
2,200.0	2,195.7	2,177.1	2,173.3	4.4	5.1	177.41	-55.2	194.6	328.4	319.9	8.48	38.736	
2,300.0	2,295.5	2,276.1	2,272.1	4.6	5.3	177.72	-58.7	200.5	342.1	333.2	8.88	38.545	
2,400.0	2,395.2	2,375.2	2,370.9	4.9	5.6	178.01	-62.1	206.5	355.9	346.6	9.27	38.372	
2,500.0	2,495.0	2,474.2	2,469.7	5.1	5.8	178.27	-65.6	212.5	369.6	360.0	9.67	38.212	
2,600.0	2,594.7	2,573.2	2,568.5	5.3	6.1	178.52	-69.1	218.5	383.4	373.3	10.07	38.065	
2,700.0	2,694.5	2,672.3	2,667.3	5.5	6.4	178.74	-72.5	224.4	397.2	386.7	10.47	37.930	
2,800.0	2,794.2	2,771.3	2,766.1	5.7	6.6	178.96	-76.0	230.4	411.0	400.1	10.87	37.804	
2,900.0	2,894.0	2,870.3	2,864.9	5.9	6.9	179.16	-79.4	236.4	424.8	413.5	11.27	37.687	
3,000.0	2,993.7	2,969.4	2,963.7	6.1	7.1	179.34	-82.9	242.4	438.5	426.9	11.67	37.579	
3,100.0	3,093.5	3,068.4	3,062.5	6.3	7.4	179.52	-86.4	248.4	452.3	440.3	12.07	37.477	
3,200.0	3,193.3	3,167.4	3,161.3	6.6	7.7	179.68	-89.8	254.3	466.1	453.7	12.47	37.382	
3,300.0	3,293.0	3,266.5	3,260.1	6.8	7.9	179.84	-93.3	260.3	480.0	467.1	12.87	37.293	
3,400.0	3,392.8	3,365.5	3,358.9	7.0	8.2	179.98	-96.8	266.3	493.8	480.5	13.27	37.209	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-2214B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Reference Site:	S27-T10N-R58W	**MD Reference:**	WELL @ 4773.0usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #27I-2214B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4773.0usft (Original Well Elev
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Razor #27I-2214B
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.07°



LEGEND

Razor #27I-2213A, HZ, Plan #2 V0
Razor #27I-2215A, HZ, Plan #1 V0
Razor #27I-2216B, HZ, Plan #2 V0
Razor #27I-3413A, HZ, Plan #1 V0
Razor #27I-3414B, HZ, Plan #1 V0
Razor #27I-3415A, HZ, Plan #1 V0
Razor #27I-3416B, HZ, Plan #2 V0