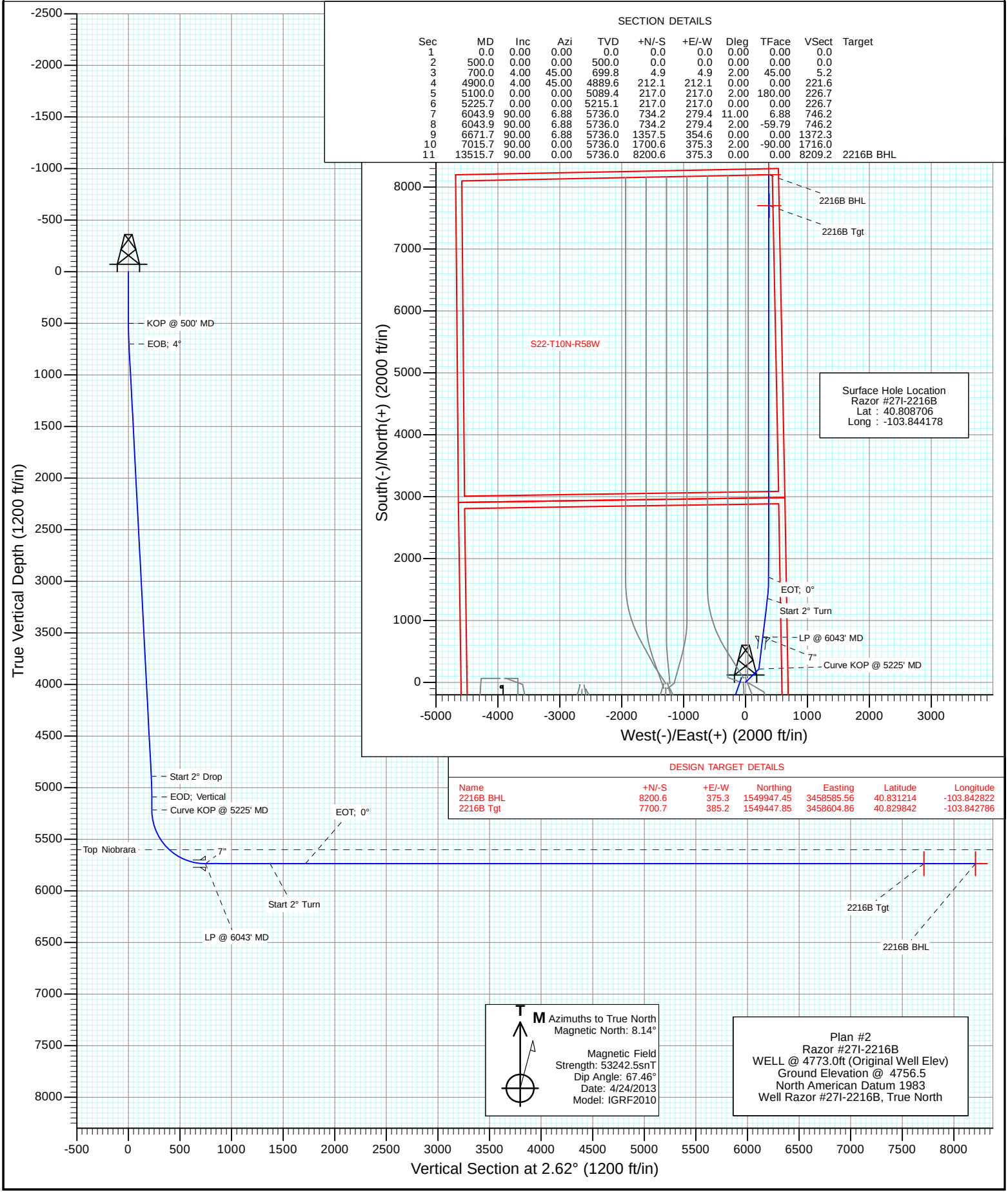
WHITING PETROLEUM CORPORATION

Project: Weld County, CO
Site: S27-T10N-R58W
Well: Razor #27I-2216B
Wellbore: HZ
Design: Plan #2

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	500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.0	
3	700.0	4.00	45.00	699.8	4.9	4.9	2.00	45.00	5.2	
4	4900.0	4.00	45.00	4889.6	212.1	212.1	0.00	0.00	221.6	
5	5100.0	0.00	0.00	5089.4	217.0	217.0	2.00	180.00	226.7	
6	5225.7	0.00	0.00	5215.1	217.0	217.0	0.00	0.00	226.7	
7	6043.9	90.00	6.88	5736.0	734.2	279.4	11.00	6.88	746.2	
8	6043.9	90.00	6.88	5736.0	734.2	279.4	2.00	-59.79	746.2	
9	6671.7	90.00	6.88	5736.0	1357.5	354.6	0.00	0.00	1372.3	
10	7015.7	90.00	0.00	5736.0	1700.6	375.3	2.00	-90.00	1716.0	
11	13515.7	90.00	0.00	5736.0	8200.6	375.3	0.00	0.00	8209.2	2216B BHL



DESIGN TARGET DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
2216B BHL	8200.6	375.3	1549947.45	3458585.56	40.831214	-103.842822
2216B Tgt	7700.7	385.2	1549447.85	3458604.86	40.829842	-103.842786

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 #2
Razor #27I-2216B
WELL @ 4773.0ft (Original Well Elev)
Ground Elevation @ 4756.5
North American Datum 1983
Well Razor #27I-2216B, True North

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #27I-2216B
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-2216B	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Project Weld County, CO

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

Site S27-T10N-R58W

Site Position:		**Northing:**	1,541,650.73 ft	**Latitude:**	40.808594
From:	Lat/Long	**Easting:**	3,455,691.89 ft	**Longitude:**	-103.853833
Position Uncertainty:	0.0 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	1.06 °

Well Razor #27I-2216B

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,541,741.26 ft	**Latitude:**	40.808706
	+E/-W	0.0 ft	**Easting:**	3,458,363.48 ft	**Longitude:**	-103.844178
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,756.5 ft

Wellbore HZ

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

Design Plan #2

Audit Notes:

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

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	2.62

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	
500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.00	0.00	
700.0	4.00	45.00	699.8	4.9	4.9	2.00	2.00	0.00	45.00	
4,900.0	4.00	45.00	4,889.6	212.1	212.1	0.00	0.00	0.00	0.00	
5,100.0	0.00	0.00	5,089.4	217.0	217.0	2.00	-2.00	0.00	180.00	
5,225.7	0.00	0.00	5,215.1	217.0	217.0	0.00	0.00	0.00	0.00	
6,043.9	90.00	6.88	5,736.0	734.2	279.4	11.00	11.00	0.00	6.88	
6,043.9	90.00	6.88	5,736.0	734.2	279.4	2.00	1.00	-1.72	-59.79	
6,671.7	90.00	6.88	5,736.0	1,357.5	354.6	0.00	0.00	0.00	0.00	
7,015.7	90.00	0.00	5,736.0	1,700.6	375.3	2.00	0.00	-2.00	-90.00	
13,515.7	90.00	0.00	5,736.0	8,200.6	375.3	0.00	0.00	0.00	0.00	2216B BHL

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #27I-2216B
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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-2216B	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	KOP @ 500' MD
600.0	2.00	45.00	600.0	1.2	1.2	1.3	2.00	2.00	
700.0	4.00	45.00	699.8	4.9	4.9	5.2	2.00	2.00	EOB; 4°
800.0	4.00	45.00	799.6	9.9	9.9	10.3	0.00	0.00	
900.0	4.00	45.00	899.4	14.8	14.8	15.5	0.00	0.00	
1,000.0	4.00	45.00	999.1	19.7	19.7	20.6	0.00	0.00	
1,100.0	4.00	45.00	1,098.9	24.7	24.7	25.8	0.00	0.00	
1,200.0	4.00	45.00	1,198.6	29.6	29.6	30.9	0.00	0.00	
1,300.0	4.00	45.00	1,298.4	34.5	34.5	36.1	0.00	0.00	
1,400.0	4.00	45.00	1,398.1	39.5	39.5	41.2	0.00	0.00	
1,500.0	4.00	45.00	1,497.9	44.4	44.4	46.4	0.00	0.00	
1,600.0	4.00	45.00	1,597.6	49.3	49.3	51.5	0.00	0.00	
1,700.0	4.00	45.00	1,697.4	54.3	54.3	56.7	0.00	0.00	
1,800.0	4.00	45.00	1,797.2	59.2	59.2	61.8	0.00	0.00	
1,900.0	4.00	45.00	1,896.9	64.1	64.1	67.0	0.00	0.00	
2,000.0	4.00	45.00	1,996.7	69.1	69.1	72.1	0.00	0.00	
2,100.0	4.00	45.00	2,096.4	74.0	74.0	77.3	0.00	0.00	
2,200.0	4.00	45.00	2,196.2	78.9	78.9	82.4	0.00	0.00	
2,300.0	4.00	45.00	2,295.9	83.9	83.9	87.6	0.00	0.00	
2,400.0	4.00	45.00	2,395.7	88.8	88.8	92.8	0.00	0.00	
2,500.0	4.00	45.00	2,495.5	93.7	93.7	97.9	0.00	0.00	
2,600.0	4.00	45.00	2,595.2	98.7	98.7	103.1	0.00	0.00	
2,700.0	4.00	45.00	2,695.0	103.6	103.6	108.2	0.00	0.00	
2,800.0	4.00	45.00	2,794.7	108.5	108.5	113.4	0.00	0.00	
2,900.0	4.00	45.00	2,894.5	113.5	113.5	118.5	0.00	0.00	
3,000.0	4.00	45.00	2,994.2	118.4	118.4	123.7	0.00	0.00	
3,100.0	4.00	45.00	3,094.0	123.3	123.3	128.8	0.00	0.00	
3,200.0	4.00	45.00	3,193.7	128.2	128.2	134.0	0.00	0.00	
3,300.0	4.00	45.00	3,293.5	133.2	133.2	139.1	0.00	0.00	
3,400.0	4.00	45.00	3,393.3	138.1	138.1	144.3	0.00	0.00	
3,500.0	4.00	45.00	3,493.0	143.0	143.0	149.4	0.00	0.00	
3,600.0	4.00	45.00	3,592.8	148.0	148.0	154.6	0.00	0.00	
3,700.0	4.00	45.00	3,692.5	152.9	152.9	159.7	0.00	0.00	
3,800.0	4.00	45.00	3,792.3	157.8	157.8	164.9	0.00	0.00	
3,900.0	4.00	45.00	3,892.0	162.8	162.8	170.0	0.00	0.00	
4,000.0	4.00	45.00	3,991.8	167.7	167.7	175.2	0.00	0.00	
4,100.0	4.00	45.00	4,091.6	172.6	172.6	180.4	0.00	0.00	
4,200.0	4.00	45.00	4,191.3	177.6	177.6	185.5	0.00	0.00	
4,300.0	4.00	45.00	4,291.1	182.5	182.5	190.7	0.00	0.00	
4,400.0	4.00	45.00	4,390.8	187.4	187.4	195.8	0.00	0.00	
4,500.0	4.00	45.00	4,490.6	192.4	192.4	201.0	0.00	0.00	
4,600.0	4.00	45.00	4,590.3	197.3	197.3	206.1	0.00	0.00	
4,700.0	4.00	45.00	4,690.1	202.2	202.2	211.3	0.00	0.00	
4,800.0	4.00	45.00	4,789.9	207.2	207.2	216.4	0.00	0.00	
4,900.0	4.00	45.00	4,889.6	212.1	212.1	221.6	0.00	0.00	Start 2° Drop
5,000.0	2.00	45.00	4,989.5	215.8	215.8	225.4	2.00	-2.00	
5,100.0	0.00	0.00	5,089.4	217.0	217.0	226.7	2.00	-2.00	EOD; Vertical

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Well:	Razor #27I-2216B	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
5,200.0	0.00	0.00	5,189.4	217.0	217.0	226.7	0.00	0.00	
5,225.7	0.00	0.00	5,215.1	217.0	217.0	226.7	0.00	0.00	Curve KOP @ 5225' MD
5,300.0	8.17	6.88	5,289.2	222.3	217.7	232.0	11.00	11.00	
5,400.0	19.17	6.88	5,386.2	245.7	220.5	255.5	11.00	11.00	
5,500.0	30.17	6.88	5,476.9	287.1	225.5	297.1	11.00	11.00	
5,600.0	41.17	6.88	5,558.1	344.9	232.5	355.2	11.00	11.00	
5,658.8	47.64	6.88	5,600.0	385.7	237.4	396.2	11.00	11.00	Top Niobrara
5,700.0	52.17	6.88	5,626.6	417.0	241.2	427.6	11.00	11.00	
5,800.0	63.17	6.88	5,680.0	500.8	251.3	511.7	11.00	11.00	
5,900.0	74.17	6.88	5,716.3	593.1	262.4	604.5	11.00	11.00	
6,000.0	85.17	6.88	5,734.2	690.6	274.2	702.5	11.00	11.00	
6,043.9	90.00	6.88	5,736.0	734.2	279.4	746.2	10.99	10.99	LP @ 6043' MD
6,044.9	90.00	6.88	5,736.0	735.2	279.6	747.2	0.06	0.03	7"
6,100.0	90.00	6.88	5,736.0	789.9	286.2	802.1	0.00	0.00	
6,200.0	90.00	6.88	5,736.0	889.1	298.1	901.8	0.00	0.00	
6,300.0	90.00	6.88	5,736.0	988.4	310.1	1,001.6	0.00	0.00	
6,400.0	90.00	6.88	5,736.0	1,087.7	322.1	1,101.3	0.00	0.00	
6,500.0	90.00	6.88	5,736.0	1,187.0	334.1	1,201.0	0.00	0.00	
6,600.0	90.00	6.88	5,736.0	1,286.3	346.0	1,300.7	0.00	0.00	
6,671.7	90.00	6.88	5,736.0	1,357.5	354.6	1,372.3	0.00	0.00	Start 2° Turn
6,700.0	90.00	6.31	5,736.0	1,385.6	357.9	1,400.5	2.00	0.00	
6,800.0	90.00	4.31	5,736.0	1,485.1	367.1	1,500.4	2.00	0.00	
6,900.0	90.00	2.31	5,736.0	1,585.0	372.9	1,600.3	2.00	0.00	
7,000.0	90.00	0.31	5,736.0	1,684.9	375.2	1,700.3	2.00	0.00	
7,015.7	90.00	0.00	5,736.0	1,700.6	375.3	1,716.0	2.00	0.00	EOT; 0°
7,100.0	90.00	0.00	5,736.0	1,784.9	375.3	1,800.2	0.00	0.00	
7,200.0	90.00	0.00	5,736.0	1,884.9	375.3	1,900.1	0.00	0.00	
7,300.0	90.00	0.00	5,736.0	1,984.9	375.3	2,000.0	0.00	0.00	
7,400.0	90.00	0.00	5,736.0	2,084.9	375.3	2,099.9	0.00	0.00	
7,500.0	90.00	0.00	5,736.0	2,184.9	375.3	2,199.8	0.00	0.00	
7,600.0	90.00	0.00	5,736.0	2,284.9	375.3	2,299.7	0.00	0.00	
7,700.0	90.00	0.00	5,736.0	2,384.9	375.3	2,399.6	0.00	0.00	
7,800.0	90.00	0.00	5,736.0	2,484.9	375.3	2,499.5	0.00	0.00	
7,900.0	90.00	0.00	5,736.0	2,584.9	375.3	2,599.4	0.00	0.00	
8,000.0	90.00	0.00	5,736.0	2,684.9	375.3	2,699.3	0.00	0.00	
8,100.0	90.00	0.00	5,736.0	2,784.9	375.3	2,799.2	0.00	0.00	
8,200.0	90.00	0.00	5,736.0	2,884.9	375.3	2,899.1	0.00	0.00	
8,300.0	90.00	0.00	5,736.0	2,984.9	375.3	2,999.0	0.00	0.00	
8,400.0	90.00	0.00	5,736.0	3,084.9	375.3	3,098.9	0.00	0.00	
8,500.0	90.00	0.00	5,736.0	3,184.9	375.3	3,198.8	0.00	0.00	
8,600.0	90.00	0.00	5,736.0	3,284.9	375.3	3,298.6	0.00	0.00	
8,700.0	90.00	0.00	5,736.0	3,384.9	375.3	3,398.5	0.00	0.00	
8,800.0	90.00	0.00	5,736.0	3,484.9	375.3	3,498.4	0.00	0.00	
8,900.0	90.00	0.00	5,736.0	3,584.9	375.3	3,598.3	0.00	0.00	
9,000.0	90.00	0.00	5,736.0	3,684.9	375.3	3,698.2	0.00	0.00	
9,100.0	90.00	0.00	5,736.0	3,784.9	375.3	3,798.1	0.00	0.00	
9,200.0	90.00	0.00	5,736.0	3,884.9	375.3	3,898.0	0.00	0.00	
9,300.0	90.00	0.00	5,736.0	3,984.9	375.3	3,997.9	0.00	0.00	
9,400.0	90.00	0.00	5,736.0	4,084.9	375.3	4,097.8	0.00	0.00	
9,500.0	90.00	0.00	5,736.0	4,184.9	375.3	4,197.7	0.00	0.00	
9,600.0	90.00	0.00	5,736.0	4,284.9	375.3	4,297.6	0.00	0.00	
9,700.0	90.00	0.00	5,736.0	4,384.9	375.3	4,397.5	0.00	0.00	

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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-2216B	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
9,800.0	90.00	0.00	5,736.0	4,484.9	375.3	4,497.4	0.00	0.00	
9,900.0	90.00	0.00	5,736.0	4,584.9	375.3	4,597.3	0.00	0.00	
10,000.0	90.00	0.00	5,736.0	4,684.9	375.3	4,697.2	0.00	0.00	
10,100.0	90.00	0.00	5,736.0	4,784.9	375.3	4,797.1	0.00	0.00	
10,200.0	90.00	0.00	5,736.0	4,884.9	375.3	4,897.0	0.00	0.00	
10,300.0	90.00	0.00	5,736.0	4,984.9	375.3	4,996.9	0.00	0.00	
10,400.0	90.00	0.00	5,736.0	5,084.9	375.3	5,096.8	0.00	0.00	
10,500.0	90.00	0.00	5,736.0	5,184.9	375.3	5,196.7	0.00	0.00	
10,600.0	90.00	0.00	5,736.0	5,284.9	375.3	5,296.6	0.00	0.00	
10,700.0	90.00	0.00	5,736.0	5,384.9	375.3	5,396.5	0.00	0.00	
10,800.0	90.00	0.00	5,736.0	5,484.9	375.3	5,496.3	0.00	0.00	
10,900.0	90.00	0.00	5,736.0	5,584.9	375.3	5,596.2	0.00	0.00	
11,000.0	90.00	0.00	5,736.0	5,684.9	375.3	5,696.1	0.00	0.00	
11,100.0	90.00	0.00	5,736.0	5,784.9	375.3	5,796.0	0.00	0.00	
11,200.0	90.00	0.00	5,736.0	5,884.9	375.3	5,895.9	0.00	0.00	
11,300.0	90.00	0.00	5,736.0	5,984.9	375.3	5,995.8	0.00	0.00	
11,400.0	90.00	0.00	5,736.0	6,084.9	375.3	6,095.7	0.00	0.00	
11,500.0	90.00	0.00	5,736.0	6,184.9	375.3	6,195.6	0.00	0.00	
11,600.0	90.00	0.00	5,736.0	6,284.9	375.3	6,295.5	0.00	0.00	
11,700.0	90.00	0.00	5,736.0	6,384.9	375.3	6,395.4	0.00	0.00	
11,800.0	90.00	0.00	5,736.0	6,484.9	375.3	6,495.3	0.00	0.00	
11,900.0	90.00	0.00	5,736.0	6,584.9	375.3	6,595.2	0.00	0.00	
12,000.0	90.00	0.00	5,736.0	6,684.9	375.3	6,695.1	0.00	0.00	
12,100.0	90.00	0.00	5,736.0	6,784.9	375.3	6,795.0	0.00	0.00	
12,200.0	90.00	0.00	5,736.0	6,884.9	375.3	6,894.9	0.00	0.00	
12,300.0	90.00	0.00	5,736.0	6,984.9	375.3	6,994.8	0.00	0.00	
12,400.0	90.00	0.00	5,736.0	7,084.9	375.3	7,094.7	0.00	0.00	
12,500.0	90.00	0.00	5,736.0	7,184.9	375.3	7,194.6	0.00	0.00	
12,600.0	90.00	0.00	5,736.0	7,284.9	375.3	7,294.5	0.00	0.00	
12,700.0	90.00	0.00	5,736.0	7,384.9	375.3	7,394.4	0.00	0.00	
12,800.0	90.00	0.00	5,736.0	7,484.9	375.3	7,494.3	0.00	0.00	
12,900.0	90.00	0.00	5,736.0	7,584.9	375.3	7,594.2	0.00	0.00	
13,000.0	90.00	0.00	5,736.0	7,684.9	375.3	7,694.0	0.00	0.00	
13,100.0	90.00	0.00	5,736.0	7,784.9	375.3	7,793.9	0.00	0.00	
13,200.0	90.00	0.00	5,736.0	7,884.9	375.3	7,893.8	0.00	0.00	
13,300.0	90.00	0.00	5,736.0	7,984.9	375.3	7,993.7	0.00	0.00	
13,400.0	90.00	0.00	5,736.0	8,084.9	375.3	8,093.6	0.00	0.00	
13,500.0	90.00	0.00	5,736.0	8,184.9	375.3	8,193.5	0.00	0.00	
13,515.7	90.00	0.00	5,736.0	8,200.6	375.3	8,209.2	0.00	0.00	PBHL @ 13515' MD

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #27I-2216B
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-2216B	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

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
2216B Tgt - plan misses target center by 10.0ft at 13015.8ft MD (5736.0 TVD, 7700.7 N, 375.3 E) - Point	0.00	0.00	5,736.0	7,700.7	385.2	1,549,447.85	3,458,604.86	40.829842	-103.842786
2216B BHL - plan hits target center - Point	0.00	0.00	5,736.0	8,200.6	375.3	1,549,947.45	3,458,585.56	40.831214	-103.842822

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
6,044.9	5,736.0	7"	0.000	0.000

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,658.8	5,600.0	Top Niobrara		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
500.0	500.0	0.0	0.0	KOP @ 500' MD
700.0	699.8	4.9	4.9	EOB; 4°
4,900.0	4,889.6	212.1	212.1	Start 2° Drop
5,100.0	5,089.4	217.0	217.0	EOD; Vertical
5,225.7	5,215.1	217.0	217.0	Curve KOP @ 5225' MD
6,043.9	5,736.0	734.2	279.4	LP @ 6043' MD
6,671.7	5,736.0	1,357.5	354.6	Start 2° Turn
7,015.7	5,736.0	1,700.6	375.3	EOT; 0°
13,515.7	5,736.0	8,200.6	375.3	PBHL @ 13515' MD

Whiting Petroleum Corporation

Weld County, CO
S27-T10N-R58W
Razor #27I-2216B
HZ
Plan #2

Anticollision Report

02 May, 2013

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2216B
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-2216B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Reference Plan #2

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

Survey Tool Program **Date** 5/2/2013

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	13,515.0	Plan #2 (HZ)	MWD	Geolink MWD

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
S27-T10N-R58W						
Razor #27I-2213A - HZ - Plan #1	1,006.3	1,005.2	76.9	73.0	19.506	CC, ES
Razor #27I-2213A - HZ - Plan #1	3,000.0	2,995.0	167.2	155.2	13.925	SF
Razor #27I-2214B - HZ - Plan #2	300.0	300.0	66.2	65.2	66.858	CC, ES
Razor #27I-2214B - HZ - Plan #2	4,600.0	4,598.3	497.1	480.4	29.783	SF
Razor #27I-2215A - HZ - Plan #1	1,693.7	1,691.1	29.3	23.2	4.755	CC
Razor #27I-2215A - HZ - Plan #1	1,700.0	1,697.4	29.3	23.1	4.738	ES
Razor #27I-2215A - HZ - Plan #1	13,515.7	13,545.3	342.0	61.7	1.220	Level 2, SF
Razor #27I-3413A - HZ - Plan #1	686.0	685.9	99.6	97.0	38.439	CC
Razor #27I-3413A - HZ - Plan #1	800.0	799.6	99.9	96.9	32.578	ES
Razor #27I-3413A - HZ - Plan #1	5,200.0	5,170.7	318.8	298.2	15.494	SF
Razor #27I-3414B - HZ - Plan #1	500.0	500.0	32.9	31.1	17.935	CC, ES
Razor #27I-3414B - HZ - Plan #1	800.0	799.6	43.9	40.9	14.426	SF
Razor #27I-3415A - HZ - Plan #1	1,357.1	1,355.3	52.8	47.4	9.684	CC
Razor #27I-3415A - HZ - Plan #1	1,400.0	1,398.1	52.9	47.3	9.382	ES
Razor #27I-3415A - HZ - Plan #1	1,800.0	1,797.2	61.2	53.9	8.397	SF
Razor #27I-3416B - HZ - Plan #2	500.0	500.0	33.2	31.4	18.086	CC
Razor #27I-3416B - HZ - Plan #2	600.0	599.0	33.5	31.3	15.139	ES
Razor #27I-3416B - HZ - Plan #2	900.0	896.9	44.3	40.9	13.028	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 #2						Out of range
Razor #27L-3403B - Hz - Plan #2						Out of range
Razor #27L-3404B - Hz - Plan #2						Out of range
RAZOR 27-3414H (EXISTING) - EXSITING - SURVEYS						Out of range

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-2216B
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-2216B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2213A - HZ - Plan #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	-23.49	75.8	-32.9	82.6				
100.0	100.0	100.0	100.0	0.1	0.1	-23.49	75.8	-32.9	82.6	82.4	0.24	344.961	
200.0	200.0	200.0	200.0	0.3	0.3	-23.49	75.8	-32.9	82.6	82.0	0.64	129.359	
300.0	300.0	300.0	300.0	0.5	0.5	-23.49	75.8	-32.9	82.6	81.6	1.04	79.605	
400.0	400.0	400.0	400.0	0.7	0.8	-23.49	75.8	-32.9	82.6	81.2	1.44	57.493	
500.0	500.0	500.0	500.0	0.8	1.0	-23.49	75.8	-32.9	82.6	80.8	1.84	44.994	
600.0	600.0	600.0	600.0	1.0	1.2	-69.64	75.8	-32.9	82.0	79.8	2.24	36.642	
700.0	699.8	699.8	699.8	1.2	1.4	-73.17	75.8	-32.9	80.3	77.7	2.65	30.326	
800.0	799.6	799.6	799.6	1.4	1.7	-78.03	75.8	-32.9	78.6	75.5	3.07	25.628	
900.0	899.4	899.4	899.4	1.6	1.9	-83.07	75.8	-32.9	77.5	74.0	3.49	22.191	
1,000.0	999.1	999.1	999.1	1.8	2.1	-88.22	75.8	-32.9	76.9	73.0	3.92	19.639	
1,006.3	1,005.3	1,005.2	1,005.2	1.8	2.1	-88.54	75.8	-32.9	76.9	73.0	3.94	19.506	CC, ES
1,100.0	1,098.9	1,096.3	1,096.3	2.0	2.3	-92.94	77.2	-33.8	78.6	74.3	4.34	18.126	
1,200.0	1,198.6	1,193.4	1,193.3	2.2	2.6	-96.64	81.3	-36.4	84.0	79.3	4.76	17.656	
1,300.0	1,298.4	1,292.9	1,292.5	2.4	2.8	-99.50	87.2	-40.1	91.5	86.3	5.19	17.649	
1,400.0	1,398.1	1,392.5	1,391.9	2.6	3.0	-101.93	93.1	-43.8	99.2	93.6	5.61	17.681	
1,500.0	1,497.9	1,495.3	1,494.5	2.8	3.2	-104.46	97.8	-46.7	105.7	99.7	6.02	17.560	
1,600.0	1,597.6	1,598.4	1,597.6	3.0	3.4	-107.65	99.4	-47.8	109.3	102.9	6.40	17.069	
1,700.0	1,697.4	1,698.2	1,697.4	3.3	3.6	-111.06	99.4	-47.8	111.6	104.8	6.80	16.418	
1,800.0	1,797.2	1,798.0	1,797.2	3.5	3.8	-114.32	99.4	-47.8	114.3	107.1	7.21	15.848	
1,900.0	1,896.9	1,897.7	1,896.9	3.7	4.0	-117.42	99.4	-47.8	117.3	109.7	7.62	15.393	
2,000.0	1,996.7	1,997.5	1,996.7	3.9	4.3	-120.36	99.4	-47.8	120.7	112.7	8.03	15.030	
2,100.0	2,096.4	2,097.2	2,096.4	4.1	4.5	-123.12	99.4	-47.8	124.4	115.9	8.44	14.743	
2,200.0	2,196.2	2,197.0	2,196.2	4.3	4.7	-125.73	99.4	-47.8	128.3	119.5	8.84	14.518	
2,300.0	2,295.9	2,296.8	2,295.9	4.5	4.9	-128.17	99.4	-47.8	132.5	123.3	9.24	14.342	
2,400.0	2,395.7	2,396.5	2,395.7	4.7	5.2	-130.47	99.4	-47.8	137.0	127.3	9.64	14.208	
2,500.0	2,495.5	2,496.3	2,495.5	4.9	5.4	-132.61	99.4	-47.8	141.6	131.6	10.04	14.107	
2,600.0	2,595.2	2,596.0	2,595.2	5.2	5.6	-134.62	99.4	-47.8	146.4	136.0	10.43	14.033	
2,700.0	2,695.0	2,695.8	2,695.0	5.4	5.8	-136.50	99.4	-47.8	151.4	140.6	10.83	13.982	
2,800.0	2,794.7	2,795.5	2,794.7	5.6	6.0	-138.25	99.4	-47.8	156.5	145.3	11.22	13.949	
2,900.0	2,894.5	2,895.3	2,894.5	5.8	6.3	-139.90	99.4	-47.8	161.8	150.2	11.62	13.931	
3,000.0	2,994.2	2,995.0	2,994.2	6.0	6.5	-141.43	99.4	-47.8	167.2	155.2	12.01	13.925	SF
3,100.0	3,094.0	3,094.8	3,094.0	6.2	6.7	-142.87	99.4	-47.8	172.7	160.3	12.40	13.929	
3,200.0	3,193.7	3,194.6	3,193.7	6.4	6.9	-144.23	99.4	-47.8	178.3	165.5	12.79	13.941	
3,300.0	3,293.5	3,294.3	3,293.5	6.6	7.2	-145.50	99.4	-47.8	184.1	170.9	13.18	13.959	
3,400.0	3,393.3	3,394.1	3,393.3	6.9	7.4	-146.69	99.4	-47.8	189.8	176.3	13.58	13.983	
3,500.0	3,493.0	3,493.8	3,493.0	7.1	7.6	-147.81	99.4	-47.8	195.7	181.7	13.97	14.011	
3,600.0	3,592.8	3,593.6	3,592.8	7.3	7.8	-148.86	99.4	-47.8	201.7	187.3	14.36	14.042	
3,700.0	3,692.5	3,693.3	3,692.5	7.5	8.1	-149.86	99.4	-47.8	207.7	192.9	14.75	14.076	
3,800.0	3,792.3	3,793.1	3,792.3	7.7	8.3	-150.80	99.4	-47.8	213.7	198.6	15.14	14.113	
3,900.0	3,892.0	3,892.9	3,892.0	7.9	8.5	-151.68	99.4	-47.8	219.8	204.3	15.54	14.150	
4,000.0	3,991.8	3,992.6	3,991.8	8.1	8.7	-152.52	99.4	-47.8	226.0	210.1	15.93	14.189	
4,100.0	4,091.6	4,092.4	4,091.6	8.3	9.0	-153.31	99.4	-47.8	232.2	215.9	16.32	14.229	
4,200.0	4,191.3	4,192.1	4,191.3	8.6	9.2	-154.07	99.4	-47.8	238.5	221.8	16.71	14.269	
4,300.0	4,291.1	4,291.9	4,291.1	8.8	9.4	-154.78	99.4	-47.8	244.8	227.7	17.11	14.309	
4,400.0	4,390.8	4,391.6	4,390.8	9.0	9.6	-155.46	99.4	-47.8	251.1	233.6	17.50	14.350	
4,500.0	4,490.6	4,491.4	4,490.6	9.2	9.8	-156.10	99.4	-47.8	257.5	239.6	17.89	14.390	
4,600.0	4,590.3	4,591.1	4,590.3	9.4	10.1	-156.72	99.4	-47.8	263.9	245.6	18.29	14.431	
4,700.0	4,690.1	4,690.9	4,690.1	9.6	10.3	-157.30	99.4	-47.8	270.3	251.6	18.68	14.471	
4,800.0	4,789.9	4,790.7	4,789.9	9.8	10.5	-157.86	99.4	-47.8	276.7	257.7	19.07	14.510	
4,900.0	4,889.6	4,890.4	4,889.6	10.0	10.7	-158.39	99.4	-47.8	283.2	263.8	19.47	14.550	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2216B
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-2216B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2213A - HZ - Plan #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
5,000.0	4,989.5	4,990.3	4,989.5	10.2	11.0	-158.81	99.4	-47.8	288.1	268.2	19.87	14.498	
5,100.0	5,089.4	5,090.3	5,089.4	10.4	11.2	-113.94	99.4	-47.8	289.7	269.6	20.15	14.377	
5,118.9	5,108.4	5,109.2	5,108.4	10.4	11.2	-113.94	99.4	-47.8	289.7	269.5	20.23	14.323	
5,200.0	5,189.4	5,185.6	5,184.7	10.5	11.4	-113.35	102.0	-49.4	290.2	269.7	20.55	14.124	
5,225.7	5,215.1	5,209.0	5,207.9	10.6	11.5	-112.76	104.6	-51.0	290.7	270.1	20.65	14.077	
5,250.0	5,239.4	5,231.0	5,229.5	10.6	11.5	-118.89	107.8	-53.0	291.7	270.8	20.88	13.972	
5,300.0	5,289.2	5,275.5	5,272.7	10.7	11.6	-117.15	116.7	-58.6	296.2	275.1	21.12	14.026	
5,350.0	5,338.3	5,319.0	5,314.0	10.9	11.7	-115.18	128.4	-65.9	303.8	282.4	21.37	14.215	
5,400.0	5,386.2	5,361.5	5,353.1	11.1	11.9	-113.01	142.6	-74.8	314.5	292.8	21.67	14.515	
5,450.0	5,432.6	5,400.0	5,387.2	11.3	12.0	-110.74	157.7	-84.2	328.1	306.1	22.02	14.902	
5,500.0	5,476.9	5,443.0	5,423.6	11.6	12.1	-108.23	177.1	-96.4	344.3	321.8	22.47	15.323	
5,550.0	5,518.9	5,482.0	5,454.8	11.9	12.3	-105.67	196.8	-108.7	362.9	339.9	23.01	15.776	
5,600.0	5,558.1	5,519.7	5,483.4	12.3	12.5	-103.02	217.8	-121.8	383.7	360.1	23.64	16.236	
5,650.0	5,594.1	5,556.3	5,509.3	12.7	12.7	-100.29	239.7	-135.5	406.4	382.1	24.35	16.693	
5,700.0	5,626.6	5,591.9	5,532.6	13.2	12.9	-97.50	262.4	-149.8	430.8	405.6	25.14	17.138	
5,750.0	5,655.3	5,626.4	5,553.5	13.7	13.1	-94.67	285.7	-164.4	456.5	430.5	25.97	17.574	
5,800.0	5,680.0	5,660.1	5,572.1	14.3	13.4	-91.80	309.5	-179.3	483.3	456.5	26.83	18.012	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2216B
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-2216B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2214B - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	0.0	-66.2	66.2				
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	0.0	-66.2	66.2	65.9	0.29	226.997	
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-66.2	66.2	65.5	0.64	103.293	
300.0	300.0	300.0	300.0	0.5	0.5	-89.99	0.0	-66.2	66.2	65.2	0.99	66.858	CC, ES
400.0	400.0	397.8	397.8	0.7	0.7	-89.50	0.6	-67.7	67.8	66.4	1.34	50.685	
500.0	500.0	495.4	495.3	0.8	0.9	-88.18	2.3	-72.4	72.6	70.9	1.69	42.846	
600.0	600.0	595.0	594.6	1.0	1.1	-132.43	4.7	-78.9	80.4	78.4	2.03	39.577	
700.0	699.8	694.5	693.8	1.2	1.3	-133.40	7.0	-85.5	90.6	88.2	2.39	37.947	
800.0	799.6	793.8	792.9	1.4	1.5	-135.00	9.4	-92.0	102.1	99.3	2.75	37.113	
900.0	899.4	893.1	892.0	1.6	1.7	-136.28	11.8	-98.5	113.6	110.5	3.11	36.463	
1,000.0	999.1	992.4	991.0	1.8	1.9	-137.32	14.2	-105.0	125.1	121.6	3.48	35.945	
1,100.0	1,098.9	1,091.7	1,090.1	2.0	2.1	-138.18	16.5	-111.5	136.7	132.8	3.85	35.525	
1,200.0	1,198.6	1,191.0	1,189.2	2.2	2.3	-138.91	18.9	-118.0	148.3	144.1	4.22	35.178	
1,300.0	1,298.4	1,290.3	1,288.2	2.4	2.5	-139.54	21.3	-124.5	159.9	155.3	4.58	34.886	
1,400.0	1,398.1	1,389.6	1,387.3	2.6	2.7	-140.07	23.6	-131.0	171.6	166.6	4.95	34.639	
1,500.0	1,497.9	1,488.9	1,486.4	2.8	2.9	-140.55	26.0	-137.5	183.2	177.9	5.32	34.426	
1,600.0	1,597.6	1,588.3	1,585.4	3.0	3.1	-140.96	28.4	-144.1	194.9	189.2	5.69	34.241	
1,700.0	1,697.4	1,687.6	1,684.5	3.3	3.3	-141.33	30.7	-150.6	206.6	200.5	6.06	34.079	
1,800.0	1,797.2	1,786.9	1,783.6	3.5	3.6	-141.66	33.1	-157.1	218.3	211.8	6.43	33.936	
1,900.0	1,896.9	1,886.2	1,882.6	3.7	3.8	-141.95	35.5	-163.6	229.9	223.1	6.80	33.809	
2,000.0	1,996.7	1,985.5	1,981.7	3.9	4.0	-142.22	37.8	-170.1	241.6	234.5	7.17	33.696	
2,100.0	2,096.4	2,084.8	2,080.8	4.1	4.2	-142.46	40.2	-176.6	253.3	245.8	7.54	33.593	
2,200.0	2,196.2	2,184.1	2,179.8	4.3	4.4	-142.68	42.6	-183.1	265.0	257.1	7.91	33.501	
2,300.0	2,295.9	2,283.4	2,278.9	4.5	4.6	-142.88	45.0	-189.6	276.8	268.5	8.28	33.417	
2,400.0	2,395.7	2,382.7	2,378.0	4.7	4.8	-143.07	47.3	-196.1	288.5	279.8	8.65	33.340	
2,500.0	2,495.5	2,482.0	2,477.0	4.9	5.0	-143.24	49.7	-202.6	300.2	291.2	9.02	33.270	
2,600.0	2,595.2	2,581.3	2,576.1	5.2	5.2	-143.39	52.1	-209.2	311.9	302.5	9.39	33.205	
2,700.0	2,695.0	2,680.6	2,675.2	5.4	5.5	-143.54	54.4	-215.7	323.6	313.9	9.76	33.145	
2,800.0	2,794.7	2,779.9	2,774.2	5.6	5.7	-143.68	56.8	-222.2	335.3	325.2	10.13	33.090	
2,900.0	2,894.5	2,879.3	2,873.3	5.8	5.9	-143.80	59.2	-228.7	347.1	336.6	10.50	33.039	
3,000.0	2,994.2	2,978.6	2,972.4	6.0	6.1	-143.92	61.5	-235.2	358.8	347.9	10.88	32.991	
3,100.0	3,094.0	3,077.9	3,071.4	6.2	6.3	-144.03	63.9	-241.7	370.5	359.3	11.25	32.947	
3,200.0	3,193.7	3,177.2	3,170.5	6.4	6.5	-144.14	66.3	-248.2	382.2	370.6	11.62	32.905	
3,300.0	3,293.5	3,276.5	3,269.6	6.6	6.7	-144.24	68.6	-254.7	394.0	382.0	11.99	32.866	
3,400.0	3,393.3	3,375.8	3,368.6	6.9	6.9	-144.33	71.0	-261.2	405.7	393.3	12.36	32.829	
3,500.0	3,493.0	3,475.1	3,467.7	7.1	7.1	-144.42	73.4	-267.7	417.4	404.7	12.73	32.795	
3,600.0	3,592.8	3,574.4	3,566.8	7.3	7.4	-144.50	75.8	-274.2	429.1	416.0	13.10	32.762	
3,700.0	3,692.5	3,677.4	3,669.5	7.5	7.6	-144.59	78.2	-280.9	440.8	427.3	13.47	32.711	
3,800.0	3,792.3	3,792.5	3,784.5	7.7	7.8	-144.89	79.7	-285.2	450.0	436.1	13.86	32.461	
3,900.0	3,892.0	3,900.0	3,892.0	7.9	7.9	-145.40	79.9	-285.8	456.1	441.9	14.23	32.057	
4,000.0	3,991.8	3,999.8	3,991.8	8.1	8.1	-145.89	79.9	-285.8	461.9	447.3	14.58	31.676	
4,100.0	4,091.6	4,099.6	4,091.6	8.3	8.2	-146.37	79.9	-285.8	467.7	452.7	14.93	31.316	
4,200.0	4,191.3	4,199.3	4,191.3	8.6	8.4	-146.83	79.9	-285.8	473.5	458.2	15.29	30.975	
4,300.0	4,291.1	4,299.1	4,291.1	8.8	8.5	-147.29	79.9	-285.8	479.4	463.7	15.64	30.653	
4,400.0	4,390.8	4,398.8	4,390.8	9.0	8.7	-147.74	79.9	-285.8	485.3	469.3	15.99	30.348	
4,500.0	4,490.6	4,498.6	4,490.6	9.2	8.8	-148.17	79.9	-285.8	491.2	474.8	16.34	30.058	
4,600.0	4,590.3	4,598.3	4,590.3	9.4	9.0	-148.59	79.9	-285.8	497.1	480.4	16.69	29.783	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2216B
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-2216B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	23.98	74.7	33.2	81.7				
100.0	100.0	100.0	100.0	0.1	0.1	23.98	74.7	33.2	81.7	81.4	0.29	280.429	
200.0	200.0	200.0	200.0	0.3	0.3	23.98	74.7	33.2	81.7	81.1	0.64	127.607	
300.0	300.0	300.0	300.0	0.5	0.5	23.98	74.7	33.2	81.7	80.7	0.99	82.596	
400.0	400.0	400.0	400.0	0.7	0.7	23.98	74.7	33.2	81.7	80.4	1.34	61.058	
500.0	500.0	500.0	500.0	0.8	0.8	23.98	74.7	33.2	81.7	80.0	1.69	48.430	
600.0	600.0	600.0	600.0	1.0	1.0	-21.48	74.7	33.2	80.1	78.1	2.04	39.341	
700.0	699.8	699.8	699.8	1.2	1.2	-22.98	74.7	33.2	75.3	72.9	2.38	31.560	
800.0	799.6	799.6	799.6	1.4	1.4	-25.24	74.7	33.2	68.9	66.2	2.74	25.166	
900.0	899.4	899.4	899.4	1.6	1.5	-27.96	74.7	33.2	62.7	59.6	3.09	20.256	
1,000.0	999.1	999.1	999.1	1.8	1.7	-31.27	74.7	33.2	56.6	53.1	3.45	16.389	
1,100.0	1,098.9	1,098.9	1,098.9	2.0	1.9	-35.36	74.7	33.2	50.7	46.9	3.82	13.294	
1,200.0	1,198.6	1,198.6	1,198.6	2.2	2.1	-40.48	74.7	33.2	45.2	41.0	4.19	10.796	
1,300.0	1,298.4	1,298.4	1,298.4	2.4	2.2	-46.94	74.7	33.2	40.2	35.6	4.57	8.785	
1,400.0	1,398.1	1,398.1	1,398.1	2.6	2.4	-55.12	74.7	33.2	35.8	30.8	4.97	7.197	
1,500.0	1,497.9	1,497.9	1,497.9	2.8	2.6	-65.31	74.7	33.2	32.3	26.9	5.38	6.001	
1,600.0	1,597.6	1,597.6	1,597.6	3.0	2.8	-77.46	74.7	33.2	30.0	24.2	5.79	5.186	
1,693.7	1,691.1	1,691.1	1,691.1	3.2	2.9	-90.00	74.7	33.2	29.3	23.2	6.17	4.755	CC
1,700.0	1,697.4	1,697.4	1,697.4	3.3	2.9	-90.85	74.7	33.2	29.3	23.1	6.19	4.738	ES
1,800.0	1,797.2	1,797.2	1,797.2	3.5	3.1	-104.16	74.7	33.2	30.2	23.7	6.55	4.615	
1,900.0	1,896.9	1,896.9	1,896.9	3.7	3.3	-116.09	74.7	33.2	32.7	25.8	6.89	4.743	
2,000.0	1,996.7	1,996.7	1,996.7	3.9	3.5	-126.01	74.7	33.2	36.3	29.1	7.20	5.039	
2,100.0	2,096.4	2,096.4	2,096.4	4.1	3.6	-133.96	74.7	33.2	40.8	33.3	7.51	5.430	
2,200.0	2,196.2	2,196.2	2,196.2	4.3	3.8	-140.23	74.7	33.2	45.9	38.1	7.82	5.867	
2,300.0	2,295.9	2,295.9	2,295.9	4.5	4.0	-145.20	74.7	33.2	51.5	43.3	8.14	6.320	
2,400.0	2,395.7	2,395.7	2,395.7	4.7	4.2	-149.18	74.7	33.2	57.3	48.9	8.47	6.772	
2,500.0	2,495.5	2,495.5	2,495.5	4.9	4.3	-152.41	74.7	33.2	63.4	54.6	8.79	7.212	
2,600.0	2,595.2	2,595.2	2,595.2	5.2	4.5	-155.07	74.7	33.2	69.7	60.6	9.13	7.636	
2,700.0	2,695.0	2,695.0	2,695.0	5.4	4.7	-157.28	74.7	33.2	76.1	66.6	9.46	8.040	
2,800.0	2,794.7	2,794.7	2,794.7	5.6	4.8	-159.15	74.7	33.2	82.6	72.8	9.80	8.425	
2,900.0	2,894.5	2,894.5	2,894.5	5.8	5.0	-160.75	74.7	33.2	89.1	79.0	10.14	8.790	
3,000.0	2,994.2	2,994.2	2,994.2	6.0	5.2	-162.12	74.7	33.2	95.7	85.2	10.48	9.135	
3,100.0	3,094.0	3,094.0	3,094.0	6.2	5.4	-163.32	74.7	33.2	102.4	91.6	10.82	9.462	
3,200.0	3,193.7	3,193.7	3,193.7	6.4	5.5	-164.37	74.7	33.2	109.1	97.9	11.16	9.772	
3,300.0	3,293.5	3,293.5	3,293.5	6.6	5.7	-165.30	74.7	33.2	115.8	104.3	11.51	10.066	
3,400.0	3,393.3	3,393.3	3,393.3	6.9	5.9	-166.13	74.7	33.2	122.6	110.7	11.85	10.344	
3,500.0	3,493.0	3,493.0	3,493.0	7.1	6.1	-166.87	74.7	33.2	129.4	117.2	12.19	10.608	
3,600.0	3,592.8	3,592.8	3,592.8	7.3	6.2	-167.54	74.7	33.2	136.2	123.6	12.54	10.859	
3,700.0	3,692.5	3,692.5	3,692.5	7.5	6.4	-168.14	74.7	33.2	143.0	130.1	12.89	11.097	
3,800.0	3,792.3	3,792.3	3,792.3	7.7	6.6	-168.69	74.7	33.2	149.8	136.6	13.23	11.323	
3,900.0	3,892.0	3,892.0	3,892.0	7.9	6.8	-169.19	74.7	33.2	156.7	143.1	13.58	11.539	
4,000.0	3,991.8	3,991.8	3,991.8	8.1	6.9	-169.65	74.7	33.2	163.5	149.6	13.92	11.745	
4,100.0	4,091.6	4,091.6	4,091.6	8.3	7.1	-170.07	74.7	33.2	170.4	156.1	14.27	11.941	
4,200.0	4,191.3	4,191.3	4,191.3	8.6	7.3	-170.46	74.7	33.2	177.3	162.7	14.62	12.128	
4,300.0	4,291.1	4,291.1	4,291.1	8.8	7.5	-170.82	74.7	33.2	184.2	169.2	14.96	12.307	
4,400.0	4,390.8	4,390.8	4,390.8	9.0	7.6	-171.15	74.7	33.2	191.0	175.7	15.31	12.478	
4,500.0	4,490.6	4,490.6	4,490.6	9.2	7.8	-171.46	74.7	33.2	197.9	182.3	15.66	12.642	
4,600.0	4,590.3	4,590.3	4,590.3	9.4	8.0	-171.75	74.7	33.2	204.8	188.8	16.00	12.799	
4,700.0	4,690.1	4,690.1	4,690.1	9.6	8.2	-172.02	74.7	33.2	211.7	195.4	16.35	12.949	
4,800.0	4,789.9	4,789.9	4,789.9	9.8	8.3	-172.28	74.7	33.2	218.7	202.0	16.70	13.094	
4,900.0	4,889.6	4,889.6	4,889.6	10.0	8.5	-172.51	74.7	33.2	225.6	208.5	17.05	13.233	
5,000.0	4,989.5	4,989.5	4,989.5	10.2	8.7	-172.70	74.7	33.2	230.8	213.4	17.40	13.260	

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-2216B
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-2216B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.0	5,089.4	5,089.4	5,089.4	10.4	8.9	-127.76	74.7	33.2	232.5	214.8	17.72	13.121	
5,200.0	5,189.4	5,212.6	5,212.3	10.5	9.1	-126.42	81.5	33.4	229.4	211.3	18.11	12.665	
5,225.7	5,215.1	5,247.0	5,246.0	10.6	9.1	-125.07	88.2	33.5	226.4	208.1	18.22	12.422	
5,250.0	5,239.4	5,278.8	5,276.7	10.6	9.2	-130.67	96.3	33.7	223.0	204.6	18.39	12.129	
5,300.0	5,289.2	5,342.3	5,336.3	10.7	9.3	-127.63	118.1	34.1	216.2	197.6	18.64	11.599	
5,350.0	5,338.3	5,403.3	5,390.7	10.9	9.5	-124.10	145.7	34.7	209.8	190.9	18.94	11.079	
5,400.0	5,386.2	5,462.0	5,439.6	11.1	9.7	-120.12	178.0	35.4	204.2	184.9	19.33	10.561	
5,450.0	5,432.6	5,518.3	5,482.8	11.3	10.0	-115.77	214.1	36.1	199.6	179.8	19.87	10.047	
5,500.0	5,476.9	5,572.5	5,520.5	11.6	10.3	-111.11	253.0	37.0	196.5	175.9	20.58	9.549	
5,550.0	5,518.9	5,624.7	5,552.8	11.9	10.6	-106.26	294.0	37.8	195.0	173.5	21.46	9.087	
5,568.8	5,533.9	5,643.8	5,563.6	12.1	10.8	-104.40	309.8	38.1	194.8	173.0	21.82	8.927	
5,600.0	5,558.1	5,675.1	5,580.0	12.3	11.0	-101.31	336.4	38.7	195.2	172.7	22.47	8.685	
5,650.0	5,594.1	5,723.9	5,602.2	12.7	11.5	-96.37	379.7	39.6	197.2	173.6	23.58	8.364	
5,700.0	5,626.6	5,771.1	5,619.8	13.2	12.0	-91.55	423.6	40.5	200.9	176.2	24.70	8.131	
5,750.0	5,655.3	5,817.1	5,633.0	13.7	12.5	-86.93	467.5	41.4	206.1	180.3	25.80	7.986	
5,800.0	5,680.0	5,861.8	5,642.1	14.3	13.0	-82.58	511.3	42.4	212.6	185.7	26.83	7.923	
5,850.0	5,700.3	5,905.5	5,647.4	14.9	13.5	-78.55	554.7	43.3	220.1	192.3	27.77	7.927	
5,900.0	5,716.3	5,946.3	5,649.0	15.6	14.1	-74.98	595.4	44.1	228.4	199.8	28.60	7.988	
5,950.0	5,727.6	5,992.3	5,649.0	16.3	14.7	-71.92	641.5	44.5	237.1	207.7	29.44	8.053	
6,000.0	5,734.2	6,041.5	5,649.0	17.0	15.4	-70.09	690.6	44.5	244.9	214.5	30.44	8.046	
6,043.9	5,736.0	6,085.0	5,649.0	17.6	16.0	-69.53	734.2	44.5	250.5	219.0	31.47	7.961	
6,043.9	5,736.0	6,085.0	5,649.0	17.6	16.0	-69.53	734.2	44.5	250.5	219.0	31.47	7.960	
6,100.0	5,736.0	6,140.7	5,649.0	18.5	16.8	-70.06	789.9	44.5	256.8	223.7	33.10	7.757	
6,200.0	5,736.0	6,240.0	5,649.0	20.0	18.2	-70.93	889.1	44.5	268.1	232.0	36.10	7.428	
6,300.0	5,736.0	6,339.3	5,649.0	21.6	19.7	-71.73	988.4	44.5	279.5	240.3	39.17	7.134	
6,400.0	5,736.0	6,438.6	5,649.0	23.2	21.3	-72.47	1,087.7	44.5	290.9	248.6	42.31	6.874	
6,500.0	5,736.0	6,537.8	5,649.0	24.8	22.9	-73.15	1,187.0	44.5	302.3	256.8	45.51	6.643	
6,600.0	5,736.0	6,637.1	5,649.0	26.4	24.5	-73.79	1,286.3	44.5	313.8	265.1	48.75	6.438	
6,671.7	5,736.0	6,708.3	5,649.0	27.6	25.6	-74.21	1,357.5	44.5	322.1	271.0	51.09	6.304	
6,700.0	5,736.0	6,736.4	5,649.0	28.1	26.1	-74.39	1,385.6	44.5	325.2	273.2	52.01	6.252	
6,800.0	5,736.0	6,836.0	5,649.0	29.7	27.7	-74.86	1,485.1	44.5	334.1	278.9	55.23	6.050	
6,900.0	5,736.0	6,935.8	5,649.0	31.3	29.4	-75.15	1,585.0	44.5	339.7	281.3	58.38	5.819	
7,000.0	5,736.0	7,035.8	5,649.0	33.0	31.0	-75.26	1,684.9	44.5	341.9	280.5	61.46	5.563	
7,015.7	5,736.0	7,051.5	5,649.0	33.2	31.3	-75.26	1,700.6	44.5	342.0	280.0	61.94	5.521	
7,100.0	5,736.0	7,135.8	5,649.0	34.6	32.7	-75.26	1,784.9	44.5	342.0	277.3	64.67	5.288	
7,200.0	5,736.0	7,235.8	5,649.0	36.3	34.4	-75.26	1,884.9	44.5	342.0	274.0	67.94	5.034	
7,300.0	5,736.0	7,335.8	5,649.0	38.0	36.1	-75.26	1,984.9	44.5	342.0	270.8	71.21	4.802	
7,400.0	5,736.0	7,435.8	5,649.0	39.6	37.8	-75.26	2,084.9	44.5	342.0	267.5	74.50	4.590	
7,500.0	5,736.0	7,535.8	5,649.0	41.3	39.5	-75.26	2,184.9	44.5	342.0	264.2	77.79	4.396	
7,600.0	5,736.0	7,635.8	5,649.0	43.0	41.2	-75.26	2,284.9	44.5	342.0	260.9	81.09	4.217	
7,700.0	5,736.0	7,735.8	5,649.0	44.7	42.9	-75.26	2,384.9	44.5	342.0	257.6	84.41	4.052	
7,800.0	5,736.0	7,835.8	5,649.0	46.4	44.6	-75.26	2,484.9	44.5	342.0	254.2	87.72	3.898	
7,900.0	5,736.0	7,935.8	5,649.0	48.1	46.3	-75.26	2,584.9	44.5	342.0	250.9	91.04	3.756	
8,000.0	5,736.0	8,035.8	5,649.0	49.8	48.1	-75.26	2,684.9	44.5	342.0	247.6	94.37	3.624	
8,100.0	5,736.0	8,135.8	5,649.0	51.5	49.8	-75.26	2,784.9	44.5	342.0	244.3	97.70	3.500	
8,200.0	5,736.0	8,235.8	5,649.0	53.2	51.5	-75.26	2,884.9	44.5	342.0	240.9	101.04	3.384	
8,300.0	5,736.0	8,335.8	5,649.0	54.9	53.2	-75.26	2,984.9	44.5	342.0	237.6	104.38	3.276	
8,400.0	5,736.0	8,435.8	5,649.0	56.6	55.0	-75.26	3,084.9	44.5	342.0	234.2	107.72	3.175	
8,500.0	5,736.0	8,535.8	5,649.0	58.4	56.7	-75.26	3,184.9	44.5	342.0	230.9	111.07	3.079	
8,600.0	5,736.0	8,635.8	5,649.0	60.1	58.4	-75.26	3,284.9	44.5	342.0	227.5	114.42	2.989	
8,700.0	5,736.0	8,735.8	5,649.0	61.8	60.2	-75.26	3,384.9	44.5	342.0	224.2	117.77	2.904	
8,800.0	5,736.0	8,835.8	5,649.0	63.5	61.9	-75.26	3,484.9	44.5	342.0	220.8	121.12	2.823	

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-2216B
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-2216B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
8,900.0	5,736.0	8,935.8	5,649.0	65.3	63.6	-75.26	3,584.9	44.5	342.0	217.5	124.48	2.747	
9,000.0	5,736.0	9,035.8	5,649.0	67.0	65.4	-75.26	3,684.9	44.5	342.0	214.1	127.84	2.675	
9,100.0	5,736.0	9,135.8	5,649.0	68.7	67.1	-75.26	3,784.9	44.5	342.0	210.8	131.20	2.606	
9,200.0	5,736.0	9,235.8	5,649.0	70.4	68.8	-75.26	3,884.9	44.5	342.0	207.4	134.56	2.541	
9,300.0	5,736.0	9,335.8	5,649.0	72.2	70.6	-75.26	3,984.9	44.6	342.0	204.0	137.92	2.479	
9,400.0	5,736.0	9,435.8	5,649.0	73.9	72.3	-75.26	4,084.9	44.6	342.0	200.7	141.29	2.420	
9,500.0	5,736.0	9,535.8	5,649.0	75.6	74.0	-75.26	4,184.9	44.6	342.0	197.3	144.66	2.364	
9,600.0	5,736.0	9,635.8	5,649.0	77.4	75.8	-75.26	4,284.9	44.6	342.0	193.9	148.02	2.310	
9,700.0	5,736.0	9,735.8	5,649.0	79.1	77.5	-75.26	4,384.9	44.6	342.0	190.6	151.39	2.259	
9,800.0	5,736.0	9,835.8	5,649.0	80.8	79.3	-75.26	4,484.9	44.6	342.0	187.2	154.76	2.210	
9,900.0	5,736.0	9,935.8	5,649.0	82.6	81.0	-75.26	4,584.9	44.6	342.0	183.8	158.13	2.163	
10,000.0	5,736.0	10,035.8	5,649.0	84.3	82.8	-75.26	4,684.9	44.6	342.0	180.5	161.50	2.117	
10,100.0	5,736.0	10,135.8	5,649.0	86.0	84.5	-75.26	4,784.9	44.6	342.0	177.1	164.88	2.074	
10,200.0	5,736.0	10,235.8	5,649.0	87.8	86.2	-75.26	4,884.9	44.6	342.0	173.7	168.25	2.032	
10,300.0	5,736.0	10,335.8	5,649.0	89.5	88.0	-75.26	4,984.9	44.6	342.0	170.3	171.62	1.993	
10,400.0	5,736.0	10,435.8	5,649.0	91.3	89.7	-75.26	5,084.9	44.6	342.0	167.0	175.00	1.954	
10,500.0	5,736.0	10,535.8	5,649.0	93.0	91.5	-75.26	5,184.9	44.6	342.0	163.6	178.38	1.917	
10,600.0	5,736.0	10,635.8	5,649.0	94.7	93.2	-75.26	5,284.9	44.6	342.0	160.2	181.75	1.881	
10,700.0	5,736.0	10,735.8	5,649.0	96.5	95.0	-75.26	5,384.9	44.6	342.0	156.8	185.13	1.847	
10,800.0	5,736.0	10,835.8	5,649.0	98.2	96.7	-75.26	5,484.9	44.6	342.0	153.5	188.51	1.814	
10,900.0	5,736.0	10,935.8	5,649.0	100.0	98.5	-75.26	5,584.9	44.6	342.0	150.1	191.89	1.782	
11,000.0	5,736.0	11,035.8	5,649.0	101.7	100.2	-75.26	5,684.9	44.6	342.0	146.7	195.27	1.751	
11,100.0	5,736.0	11,135.8	5,649.0	103.5	101.9	-75.26	5,784.9	44.6	342.0	143.3	198.64	1.721	
11,200.0	5,736.0	11,235.8	5,649.0	105.2	103.7	-75.26	5,884.9	44.6	342.0	139.9	202.02	1.693	
11,300.0	5,736.0	11,335.8	5,649.0	106.9	105.4	-75.26	5,984.9	44.6	342.0	136.6	205.40	1.665	
11,400.0	5,736.0	11,435.8	5,649.0	108.7	107.2	-75.26	6,084.9	44.6	342.0	133.2	208.79	1.638	
11,500.0	5,736.0	11,535.8	5,649.0	110.4	108.9	-75.26	6,184.9	44.6	342.0	129.8	212.17	1.612	
11,600.0	5,736.0	11,635.8	5,649.0	112.2	110.7	-75.26	6,284.9	44.6	342.0	126.4	215.55	1.586	
11,700.0	5,736.0	11,735.8	5,649.0	113.9	112.4	-75.26	6,384.9	44.6	342.0	123.0	218.93	1.562	
11,800.0	5,736.0	11,835.8	5,649.0	115.7	114.2	-75.26	6,484.9	44.6	342.0	119.6	222.31	1.538	
11,900.0	5,736.0	11,935.8	5,649.0	117.4	115.9	-75.26	6,584.9	44.6	342.0	116.3	225.70	1.515	
12,000.0	5,736.0	12,035.8	5,649.0	119.2	117.7	-75.26	6,684.9	44.6	342.0	112.9	229.08	1.493	Level 3
12,100.0	5,736.0	12,135.8	5,649.0	120.9	119.4	-75.26	6,784.9	44.6	342.0	109.5	232.46	1.471	Level 3
12,200.0	5,736.0	12,235.8	5,649.0	122.6	121.2	-75.26	6,884.9	44.6	342.0	106.1	235.85	1.450	Level 3
12,300.0	5,736.0	12,335.8	5,649.0	124.4	122.9	-75.26	6,984.9	44.6	342.0	102.7	239.23	1.429	Level 3
12,400.0	5,736.0	12,435.8	5,649.0	126.1	124.7	-75.26	7,084.9	44.6	342.0	99.3	242.62	1.409	Level 3
12,500.0	5,736.0	12,535.8	5,649.0	127.9	126.4	-75.26	7,184.9	44.6	342.0	96.0	246.00	1.390	Level 3
12,600.0	5,736.0	12,635.8	5,649.0	129.6	128.2	-75.26	7,284.9	44.6	342.0	92.6	249.38	1.371	Level 3
12,700.0	5,736.0	12,735.8	5,649.0	131.4	129.9	-75.26	7,384.9	44.6	342.0	89.2	252.77	1.353	Level 3
12,800.0	5,736.0	12,835.8	5,649.0	133.1	131.7	-75.26	7,484.9	44.6	342.0	85.8	256.16	1.335	Level 3
12,900.0	5,736.0	12,935.8	5,649.0	134.9	133.4	-75.26	7,584.9	44.6	342.0	82.4	259.54	1.318	Level 3
13,000.0	5,736.0	13,035.8	5,649.0	136.6	135.2	-75.26	7,684.9	44.6	342.0	79.0	262.93	1.301	Level 3
13,100.0	5,736.0	13,135.8	5,649.0	138.4	136.9	-75.26	7,784.9	44.6	342.0	75.6	266.31	1.284	Level 3
13,200.0	5,736.0	13,235.8	5,649.0	140.1	138.7	-75.26	7,884.9	44.6	342.0	72.3	269.70	1.268	Level 3
13,300.0	5,736.0	13,335.8	5,649.0	141.9	140.4	-75.26	7,984.9	44.6	342.0	68.9	273.09	1.252	Level 3
13,400.0	5,736.0	13,435.8	5,649.0	143.6	142.2	-75.26	8,084.9	44.6	342.0	65.5	276.47	1.237	Level 2
13,500.0	5,736.0	13,535.8	5,649.0	145.4	143.9	-75.26	8,184.9	44.6	342.0	62.1	279.86	1.222	Level 2
13,509.4	5,736.0	13,545.2	5,649.0	145.5	144.1	-75.26	8,194.4	44.6	342.0	61.8	280.18	1.220	Level 2
13,515.7	5,736.0	13,545.3	5,649.0	145.6	144.1	-75.26	8,194.4	44.6	342.0	61.7	280.29	1.220	Level 2, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2216B
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-2216B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-3413A - HZ - Plan #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	-41.53	74.7	-66.2	99.8				
100.0	100.0	100.0	100.0	0.1	0.1	-41.53	74.7	-66.2	99.8	99.5	0.24	416.524	
200.0	200.0	200.0	200.0	0.3	0.3	-41.53	74.7	-66.2	99.8	99.1	0.64	156.195	
300.0	300.0	300.0	300.0	0.5	0.5	-41.53	74.7	-66.2	99.8	98.8	1.04	96.120	
400.0	400.0	400.0	400.0	0.7	0.8	-41.53	74.7	-66.2	99.8	98.4	1.44	69.420	
500.0	500.0	500.0	500.0	0.8	1.0	-41.53	74.7	-66.2	99.8	98.0	1.84	54.328	
600.0	600.0	600.0	600.0	1.0	1.2	-87.53	74.7	-66.2	99.7	97.5	2.24	44.550	
686.0	685.9	685.9	685.9	1.2	1.4	-90.00	74.7	-66.2	99.6	97.0	2.59	38.439	CC
700.0	699.8	699.8	699.8	1.2	1.4	-90.54	74.7	-66.2	99.6	97.0	2.65	37.604	
800.0	799.6	799.6	799.6	1.4	1.7	-94.53	74.7	-66.2	99.9	96.9	3.07	32.578	ES
900.0	899.4	899.4	899.4	1.6	1.9	-98.48	74.7	-66.2	100.7	97.2	3.49	28.864	
1,000.0	999.1	999.1	999.1	1.8	2.1	-102.35	74.7	-66.2	102.0	98.1	3.91	26.062	
1,100.0	1,098.9	1,098.9	1,098.9	2.0	2.3	-106.11	74.7	-66.2	103.7	99.4	4.34	23.912	
1,200.0	1,198.6	1,198.6	1,198.6	2.2	2.6	-109.73	74.7	-66.2	105.9	101.1	4.76	22.242	
1,300.0	1,298.4	1,298.4	1,298.4	2.4	2.8	-113.20	74.7	-66.2	108.4	103.2	5.18	20.930	
1,400.0	1,398.1	1,398.1	1,398.1	2.6	3.0	-116.49	74.7	-66.2	111.3	105.8	5.60	19.892	
1,500.0	1,497.9	1,497.9	1,497.9	2.8	3.2	-119.61	74.7	-66.2	114.6	108.6	6.01	19.065	
1,600.0	1,597.6	1,597.6	1,597.6	3.0	3.5	-122.55	74.7	-66.2	118.2	111.8	6.43	18.402	
1,700.0	1,697.4	1,697.4	1,697.4	3.3	3.7	-125.30	74.7	-66.2	122.1	115.3	6.84	17.869	
1,800.0	1,797.2	1,797.2	1,797.2	3.5	3.9	-127.88	74.7	-66.2	126.3	119.1	7.24	17.438	
1,900.0	1,896.9	1,896.9	1,896.9	3.7	4.1	-130.29	74.7	-66.2	130.7	123.1	7.65	17.089	
2,000.0	1,996.7	1,996.7	1,996.7	3.9	4.4	-132.54	74.7	-66.2	135.3	127.3	8.05	16.807	
2,100.0	2,096.4	2,096.4	2,096.4	4.1	4.6	-134.64	74.7	-66.2	140.2	131.7	8.45	16.577	
2,200.0	2,196.2	2,196.2	2,196.2	4.3	4.8	-136.60	74.7	-66.2	145.1	136.3	8.86	16.391	
2,300.0	2,295.9	2,295.9	2,295.9	4.5	5.0	-138.42	74.7	-66.2	150.3	141.0	9.25	16.241	
2,400.0	2,395.7	2,395.7	2,395.7	4.7	5.3	-140.13	74.7	-66.2	155.6	145.9	9.65	16.119	
2,500.0	2,495.5	2,495.5	2,495.5	4.9	5.5	-141.72	74.7	-66.2	161.0	151.0	10.05	16.021	
2,600.0	2,595.2	2,595.2	2,595.2	5.2	5.7	-143.20	74.7	-66.2	166.5	156.1	10.45	15.942	
2,700.0	2,695.0	2,695.0	2,695.0	5.4	5.9	-144.59	74.7	-66.2	172.2	161.3	10.84	15.880	
2,800.0	2,794.7	2,794.7	2,794.7	5.6	6.2	-145.89	74.7	-66.2	177.9	166.7	11.24	15.831	
2,900.0	2,894.5	2,894.5	2,894.5	5.8	6.4	-147.11	74.7	-66.2	183.7	172.1	11.63	15.793	
3,000.0	2,994.2	2,994.2	2,994.2	6.0	6.6	-148.25	74.7	-66.2	189.6	177.6	12.03	15.765	
3,100.0	3,094.0	3,094.0	3,094.0	6.2	6.8	-149.33	74.7	-66.2	195.6	183.2	12.42	15.744	
3,200.0	3,193.7	3,193.7	3,193.7	6.4	7.0	-150.34	74.7	-66.2	201.6	188.8	12.82	15.730	
3,300.0	3,293.5	3,293.5	3,293.5	6.6	7.3	-151.29	74.7	-66.2	207.7	194.5	13.21	15.721	
3,400.0	3,393.3	3,393.3	3,393.3	6.9	7.5	-152.19	74.7	-66.2	213.9	200.3	13.61	15.717	
3,500.0	3,493.0	3,493.0	3,493.0	7.1	7.7	-153.03	74.7	-66.2	220.1	206.1	14.00	15.716	
3,600.0	3,592.8	3,592.8	3,592.8	7.3	7.9	-153.84	74.7	-66.2	226.3	211.9	14.40	15.719	
3,700.0	3,692.5	3,692.5	3,692.5	7.5	8.2	-154.59	74.7	-66.2	232.6	217.8	14.79	15.725	
3,800.0	3,792.3	3,792.3	3,792.3	7.7	8.4	-155.31	74.7	-66.2	238.9	223.7	15.19	15.732	
3,900.0	3,892.0	3,892.0	3,892.0	7.9	8.6	-155.99	74.7	-66.2	245.3	229.7	15.58	15.742	
4,000.0	3,991.8	3,991.8	3,991.8	8.1	8.8	-156.64	74.7	-66.2	251.7	235.7	15.98	15.753	
4,100.0	4,091.6	4,091.6	4,091.6	8.3	9.1	-157.25	74.7	-66.2	258.1	241.7	16.37	15.765	
4,200.0	4,191.3	4,191.3	4,191.3	8.6	9.3	-157.83	74.7	-66.2	264.6	247.8	16.77	15.778	
4,300.0	4,291.1	4,291.1	4,291.1	8.8	9.5	-158.39	74.7	-66.2	271.0	253.9	17.16	15.792	
4,400.0	4,390.8	4,390.8	4,390.8	9.0	9.7	-158.92	74.7	-66.2	277.5	260.0	17.56	15.807	
4,500.0	4,490.6	4,490.6	4,490.6	9.2	10.0	-159.43	74.7	-66.2	284.1	266.1	17.95	15.823	
4,600.0	4,590.3	4,590.3	4,590.3	9.4	10.2	-159.91	74.7	-66.2	290.6	272.2	18.35	15.838	
4,700.0	4,690.1	4,690.1	4,690.1	9.6	10.4	-160.37	74.7	-66.2	297.2	278.4	18.74	15.855	
4,800.0	4,789.9	4,789.9	4,789.9	9.8	10.6	-160.81	74.7	-66.2	303.7	284.6	19.14	15.871	
4,900.0	4,889.6	4,889.6	4,889.6	10.0	10.9	-161.24	74.7	-66.2	310.3	290.8	19.53	15.887	
5,000.0	4,989.5	4,989.5	4,989.5	10.2	11.1	-161.57	74.7	-66.2	315.3	295.4	19.94	15.811	

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-2216B
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-2216B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-3413A - HZ - Plan #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
5,100.0	5,089.4	5,089.4	5,089.4	10.4	11.3	-116.68	74.7	-66.2	317.0	296.7	20.24	15.662	
5,113.8	5,103.2	5,103.2	5,103.2	10.4	11.3	-116.68	74.7	-66.2	317.0	296.7	20.29	15.619	
5,200.0	5,189.4	5,170.7	5,170.6	10.5	11.5	-116.90	73.0	-66.7	318.8	298.2	20.57	15.494	SF
5,225.7	5,215.1	5,188.4	5,188.3	10.6	11.5	-117.12	71.4	-67.3	320.6	300.0	20.64	15.529	
5,250.0	5,239.4	5,200.0	5,199.8	10.6	11.5	-123.96	70.0	-67.8	323.3	302.5	20.80	15.540	
5,300.0	5,289.2	5,237.8	5,237.0	10.7	11.6	-124.39	63.8	-69.9	332.5	311.6	20.94	15.878	
5,350.0	5,338.3	5,268.2	5,266.5	10.9	11.6	-124.67	57.0	-72.3	347.0	326.0	21.04	16.496	
5,400.0	5,386.2	5,300.0	5,296.9	11.1	11.7	-125.05	48.1	-75.4	366.8	345.7	21.10	17.384	
5,450.0	5,432.6	5,318.7	5,314.5	11.3	11.7	-124.10	42.1	-77.5	391.7	370.5	21.18	18.491	
5,500.0	5,476.9	5,338.3	5,332.6	11.6	11.8	-122.71	35.1	-79.9	421.4	400.1	21.32	19.765	
5,550.0	5,518.9	5,350.0	5,343.3	11.9	11.8	-119.72	30.7	-81.4	455.3	433.7	21.63	21.054	
5,600.0	5,558.1	5,366.2	5,358.0	12.3	11.8	-116.36	24.1	-83.7	492.8	470.7	22.10	22.298	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2216B
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-2216B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-3414B - HZ - Plan #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	-89.98	0.0	-32.9	32.9				
100.0	100.0	100.0	100.0	0.1	0.1	-89.98	0.0	-32.9	32.9	32.7	0.24	137.506	
200.0	200.0	200.0	200.0	0.3	0.3	-89.98	0.0	-32.9	32.9	32.3	0.64	51.564	
300.0	300.0	300.0	300.0	0.5	0.5	-89.98	0.0	-32.9	32.9	31.9	1.04	31.732	
400.0	400.0	400.0	400.0	0.7	0.8	-89.98	0.0	-32.9	32.9	31.5	1.44	22.917	
500.0	500.0	500.0	500.0	0.8	1.0	-89.98	0.0	-32.9	32.9	31.1	1.84	17.935	CC, ES
600.0	600.0	600.0	600.0	1.0	1.2	-137.03	0.0	-32.9	34.2	32.0	2.24	15.283	
700.0	699.8	699.8	699.8	1.2	1.4	-142.34	0.0	-32.9	38.2	35.6	2.64	14.453	
800.0	799.6	799.6	799.6	1.4	1.7	-147.90	0.0	-32.9	43.9	40.9	3.05	14.426	SF
900.0	899.4	899.4	899.4	1.6	1.9	-152.15	0.0	-32.9	50.0	46.5	3.45	14.502	
1,000.0	999.1	999.1	999.1	1.8	2.1	-155.47	0.0	-32.9	56.2	52.4	3.85	14.622	
1,100.0	1,098.9	1,098.9	1,098.9	2.0	2.3	-158.12	0.0	-32.9	62.7	58.4	4.25	14.758	
1,200.0	1,198.6	1,198.6	1,198.6	2.2	2.6	-160.27	0.0	-32.9	69.2	64.5	4.64	14.895	
1,300.0	1,298.4	1,298.4	1,298.4	2.4	2.8	-162.05	0.0	-32.9	75.8	70.7	5.04	15.028	
1,400.0	1,398.1	1,398.1	1,398.1	2.6	3.0	-163.55	0.0	-32.9	82.5	77.0	5.44	15.153	
1,500.0	1,497.9	1,497.9	1,497.9	2.8	3.2	-164.82	0.0	-32.9	89.2	83.3	5.84	15.270	
1,600.0	1,597.6	1,597.6	1,597.6	3.0	3.5	-165.91	0.0	-32.9	95.9	89.7	6.24	15.378	
1,700.0	1,697.4	1,697.4	1,697.4	3.3	3.7	-166.85	0.0	-32.9	102.7	96.1	6.64	15.478	
1,800.0	1,797.2	1,797.2	1,797.2	3.5	3.9	-167.68	0.0	-32.9	109.5	102.5	7.03	15.570	
1,900.0	1,896.9	1,896.9	1,896.9	3.7	4.1	-168.42	0.0	-32.9	116.3	108.9	7.43	15.655	
2,000.0	1,996.7	1,996.7	1,996.7	3.9	4.4	-169.07	0.0	-32.9	123.2	115.3	7.83	15.734	
2,100.0	2,096.4	2,096.4	2,096.4	4.1	4.6	-169.65	0.0	-32.9	130.0	121.8	8.23	15.806	
2,200.0	2,196.2	2,196.2	2,196.2	4.3	4.8	-170.18	0.0	-32.9	136.9	128.3	8.62	15.873	
2,300.0	2,295.9	2,295.9	2,295.9	4.5	5.0	-170.65	0.0	-32.9	143.8	134.8	9.02	15.936	
2,400.0	2,395.7	2,395.7	2,395.7	4.7	5.3	-171.08	0.0	-32.9	150.7	141.2	9.42	15.994	
2,500.0	2,495.5	2,495.5	2,495.5	4.9	5.5	-171.47	0.0	-32.9	157.6	147.7	9.82	16.048	
2,600.0	2,595.2	2,595.2	2,595.2	5.2	5.7	-171.83	0.0	-32.9	164.5	154.2	10.22	16.099	
2,700.0	2,695.0	2,695.0	2,695.0	5.4	5.9	-172.17	0.0	-32.9	171.4	160.8	10.61	16.146	
2,800.0	2,794.7	2,794.7	2,794.7	5.6	6.2	-172.47	0.0	-32.9	178.3	167.3	11.01	16.190	
2,900.0	2,894.5	2,894.5	2,894.5	5.8	6.4	-172.75	0.0	-32.9	185.2	173.8	11.41	16.232	
3,000.0	2,994.2	2,994.2	2,994.2	6.0	6.6	-173.02	0.0	-32.9	192.1	180.3	11.81	16.271	
3,100.0	3,094.0	3,094.0	3,094.0	6.2	6.8	-173.26	0.0	-32.9	199.0	186.8	12.21	16.308	
3,200.0	3,193.7	3,193.7	3,193.7	6.4	7.0	-173.49	0.0	-32.9	206.0	193.4	12.60	16.343	
3,300.0	3,293.5	3,293.5	3,293.5	6.6	7.3	-173.70	0.0	-32.9	212.9	199.9	13.00	16.376	
3,400.0	3,393.3	3,393.3	3,393.3	6.9	7.5	-173.90	0.0	-32.9	219.8	206.4	13.40	16.407	
3,500.0	3,493.0	3,493.0	3,493.0	7.1	7.7	-174.09	0.0	-32.9	226.8	213.0	13.80	16.436	
3,600.0	3,592.8	3,592.8	3,592.8	7.3	7.9	-174.26	0.0	-32.9	233.7	219.5	14.20	16.464	
3,700.0	3,692.5	3,692.5	3,692.5	7.5	8.2	-174.43	0.0	-32.9	240.7	226.1	14.59	16.491	
3,800.0	3,792.3	3,792.3	3,792.3	7.7	8.4	-174.59	0.0	-32.9	247.6	232.6	14.99	16.516	
3,900.0	3,892.0	3,892.0	3,892.0	7.9	8.6	-174.73	0.0	-32.9	254.6	239.2	15.39	16.540	
4,000.0	3,991.8	3,991.8	3,991.8	8.1	8.8	-174.88	0.0	-32.9	261.5	245.7	15.79	16.563	
4,100.0	4,091.6	4,091.6	4,091.6	8.3	9.1	-175.01	0.0	-32.9	268.4	252.3	16.19	16.585	
4,200.0	4,191.3	4,191.3	4,191.3	8.6	9.3	-175.13	0.0	-32.9	275.4	258.8	16.58	16.606	
4,300.0	4,291.1	4,291.1	4,291.1	8.8	9.5	-175.25	0.0	-32.9	282.4	265.4	16.98	16.626	
4,400.0	4,390.8	4,390.8	4,390.8	9.0	9.7	-175.37	0.0	-32.9	289.3	271.9	17.38	16.645	
4,500.0	4,490.6	4,490.6	4,490.6	9.2	10.0	-175.48	0.0	-32.9	296.3	278.5	17.78	16.664	
4,600.0	4,590.3	4,590.3	4,590.3	9.4	10.2	-175.58	0.0	-32.9	303.2	285.0	18.18	16.681	
4,700.0	4,690.1	4,690.1	4,690.1	9.6	10.4	-175.68	0.0	-32.9	310.2	291.6	18.57	16.698	
4,800.0	4,789.9	4,789.9	4,789.9	9.8	10.6	-175.78	0.0	-32.9	317.1	298.2	18.97	16.714	
4,900.0	4,889.6	4,889.6	4,889.6	10.0	10.9	-175.87	0.0	-32.9	324.1	304.7	19.37	16.730	
5,000.0	4,989.5	4,989.5	4,989.5	10.2	11.1	-175.94	0.0	-32.9	329.3	309.5	19.79	16.643	
5,100.0	5,089.4	5,089.4	5,089.4	10.4	11.3	-130.96	0.0	-32.9	331.0	310.9	20.18	16.406	

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-2216B
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-2216B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-3414B - HZ - Plan #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	5,189.4	5,189.4	5,189.4	10.5	11.5	-130.96	0.0	-32.9	331.0	310.5	20.58	16.088	
5,217.1	5,206.5	5,206.5	5,206.5	10.5	11.6	-130.96	0.0	-32.9	331.0	310.4	20.65	16.034	
5,225.7	5,215.1	5,215.0	5,215.0	10.6	11.6	-130.96	0.0	-32.9	331.0	310.4	20.68	16.008	
5,250.0	5,239.4	5,232.5	5,232.5	10.6	11.6	-137.88	-0.3	-32.9	331.7	311.0	20.76	15.976	
5,300.0	5,289.2	5,267.5	5,267.4	10.7	11.7	-138.16	-2.6	-32.8	337.4	316.5	20.86	16.174	
5,350.0	5,338.3	5,300.0	5,299.6	10.9	11.7	-138.55	-6.9	-32.7	348.8	327.9	20.86	16.717	
5,400.0	5,386.2	5,330.9	5,330.0	11.1	11.8	-138.92	-12.8	-32.5	366.0	345.3	20.79	17.607	
5,450.0	5,432.6	5,350.0	5,348.5	11.3	11.8	-138.35	-17.4	-32.3	389.1	368.4	20.66	18.835	
5,500.0	5,476.9	5,380.2	5,377.5	11.6	11.9	-138.37	-26.0	-31.9	417.3	396.8	20.49	20.372	
5,550.0	5,518.9	5,400.0	5,396.1	11.9	11.9	-137.06	-32.5	-31.7	450.5	430.2	20.37	22.120	
5,600.0	5,558.1	5,413.7	5,408.9	12.3	11.9	-134.33	-37.4	-31.5	487.9	467.5	20.44	23.870	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2216B
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-2216B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-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	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	74.5	0.24	311.759	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	74.7	0.0	74.7	74.1	0.64	116.908	
300.0	300.0	300.0	300.0	0.5	0.5	0.00	74.7	0.0	74.7	73.7	1.04	71.943	
400.0	400.0	400.0	400.0	0.7	0.8	0.00	74.7	0.0	74.7	73.3	1.44	51.959	
500.0	500.0	500.0	500.0	0.8	1.0	0.00	74.7	0.0	74.7	72.9	1.84	40.663	
600.0	600.0	600.0	600.0	1.0	1.2	-45.98	74.7	0.0	73.5	71.2	2.24	32.814	
700.0	699.8	699.8	699.8	1.2	1.4	-49.12	74.7	0.0	69.9	67.3	2.65	26.411	
800.0	799.6	799.6	799.6	1.4	1.7	-53.72	74.7	0.0	65.6	62.5	3.06	21.427	
900.0	899.4	899.4	899.4	1.6	1.9	-58.94	74.7	0.0	61.7	58.2	3.48	17.730	
1,000.0	999.1	999.1	999.1	1.8	2.1	-64.80	74.7	0.0	58.4	54.5	3.91	14.951	
1,100.0	1,098.9	1,098.9	1,098.9	2.0	2.3	-71.29	74.7	0.0	55.8	51.4	4.34	12.859	
1,200.0	1,198.6	1,198.6	1,198.6	2.2	2.6	-78.31	74.7	0.0	53.9	49.2	4.77	11.302	
1,300.0	1,298.4	1,298.4	1,298.4	2.4	2.8	-85.70	74.7	0.0	53.0	47.8	5.21	10.171	
1,357.1	1,355.3	1,355.3	1,355.3	2.5	2.9	-90.00	74.7	0.0	52.8	47.4	5.45	9.684	CC
1,400.0	1,398.1	1,398.1	1,398.1	2.6	3.0	-93.24	74.7	0.0	52.9	47.3	5.64	9.382	ES
1,500.0	1,497.9	1,497.9	1,497.9	2.8	3.2	-100.66	74.7	0.0	53.7	47.7	6.06	8.863	
1,600.0	1,597.6	1,597.6	1,597.6	3.0	3.5	-107.75	74.7	0.0	55.5	49.0	6.48	8.559	
1,700.0	1,697.4	1,697.4	1,697.4	3.3	3.7	-114.32	74.7	0.0	58.0	51.1	6.89	8.418	
1,800.0	1,797.2	1,797.2	1,797.2	3.5	3.9	-120.27	74.7	0.0	61.2	53.9	7.29	8.397	SF
1,900.0	1,896.9	1,896.9	1,896.9	3.7	4.1	-125.58	74.7	0.0	65.0	57.3	7.68	8.462	
2,000.0	1,996.7	1,996.7	1,996.7	3.9	4.4	-130.27	74.7	0.0	69.3	61.2	8.07	8.586	
2,100.0	2,096.4	2,096.4	2,096.4	4.1	4.6	-134.39	74.7	0.0	74.0	65.5	8.46	8.750	
2,200.0	2,196.2	2,196.2	2,196.2	4.3	4.8	-138.00	74.7	0.0	79.0	70.2	8.84	8.938	
2,300.0	2,295.9	2,295.9	2,295.9	4.5	5.0	-141.17	74.7	0.0	84.4	75.1	9.23	9.141	
2,400.0	2,395.7	2,395.7	2,395.7	4.7	5.3	-143.96	74.7	0.0	89.9	80.3	9.61	9.350	
2,500.0	2,495.5	2,495.5	2,495.5	4.9	5.5	-146.41	74.7	0.0	95.6	85.6	10.00	9.562	
2,600.0	2,595.2	2,595.2	2,595.2	5.2	5.7	-148.59	74.7	0.0	101.5	91.1	10.39	9.772	
2,700.0	2,695.0	2,695.0	2,695.0	5.4	5.9	-150.53	74.7	0.0	107.5	96.8	10.78	9.979	
2,800.0	2,794.7	2,794.7	2,794.7	5.6	6.2	-152.26	74.7	0.0	113.7	102.5	11.17	10.180	
2,900.0	2,894.5	2,894.5	2,894.5	5.8	6.4	-153.81	74.7	0.0	119.9	108.3	11.55	10.376	
3,000.0	2,994.2	2,994.2	2,994.2	6.0	6.6	-155.21	74.7	0.0	126.2	114.2	11.95	10.564	
3,100.0	3,094.0	3,094.0	3,094.0	6.2	6.8	-156.47	74.7	0.0	132.6	120.2	12.34	10.745	
3,200.0	3,193.7	3,193.7	3,193.7	6.4	7.0	-157.62	74.7	0.0	139.0	126.3	12.73	10.920	
3,300.0	3,293.5	3,293.5	3,293.5	6.6	7.3	-158.66	74.7	0.0	145.5	132.3	13.12	11.087	
3,400.0	3,393.3	3,393.3	3,393.3	6.9	7.5	-159.62	74.7	0.0	152.0	138.5	13.51	11.248	
3,500.0	3,493.0	3,493.0	3,493.0	7.1	7.7	-160.50	74.7	0.0	158.5	144.6	13.91	11.402	
3,600.0	3,592.8	3,592.8	3,592.8	7.3	7.9	-161.31	74.7	0.0	165.1	150.8	14.30	11.549	
3,700.0	3,692.5	3,692.5	3,692.5	7.5	8.2	-162.05	74.7	0.0	171.8	157.1	14.69	11.690	
3,800.0	3,792.3	3,792.3	3,792.3	7.7	8.4	-162.74	74.7	0.0	178.4	163.3	15.09	11.826	
3,900.0	3,892.0	3,892.0	3,892.0	7.9	8.6	-163.38	74.7	0.0	185.1	169.6	15.48	11.956	
4,000.0	3,991.8	3,991.8	3,991.8	8.1	8.8	-163.98	74.7	0.0	191.8	175.9	15.88	12.080	
4,100.0	4,091.6	4,091.6	4,091.6	8.3	9.1	-164.53	74.7	0.0	198.5	182.2	16.27	12.200	
4,200.0	4,191.3	4,191.3	4,191.3	8.6	9.3	-165.05	74.7	0.0	205.2	188.6	16.66	12.315	
4,300.0	4,291.1	4,291.1	4,291.1	8.8	9.5	-165.54	74.7	0.0	212.0	194.9	17.06	12.425	
4,400.0	4,390.8	4,390.8	4,390.8	9.0	9.7	-166.00	74.7	0.0	218.7	201.3	17.46	12.531	
4,500.0	4,490.6	4,490.6	4,490.6	9.2	10.0	-166.42	74.7	0.0	225.5	207.7	17.85	12.633	
4,600.0	4,590.3	4,590.3	4,590.3	9.4	10.2	-166.83	74.7	0.0	232.3	214.1	18.25	12.731	
4,700.0	4,690.1	4,690.1	4,690.1	9.6	10.4	-167.21	74.7	0.0	239.1	220.5	18.64	12.825	
4,800.0	4,789.9	4,789.9	4,789.9	9.8	10.6	-167.57	74.7	0.0	245.9	226.9	19.04	12.916	
4,900.0	4,889.6	4,889.6	4,889.6	10.0	10.9	-167.91	74.7	0.0	252.7	233.3	19.44	13.003	
5,000.0	4,989.5	4,989.5	4,989.5	10.2	11.1	-168.17	74.7	0.0	257.8	238.0	19.85	12.992	

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-2216B
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-2216B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-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
5,100.0	5,089.4	5,089.4	5,089.4	10.4	11.3	-123.26	74.7	0.0	259.6	239.4	20.19	12.858	
5,116.8	5,106.3	5,106.3	5,106.3	10.4	11.3	-123.26	74.7	0.0	259.6	239.3	20.25	12.816	
5,200.0	5,189.4	5,183.5	5,183.4	10.5	11.5	-123.89	71.9	1.1	260.3	239.7	20.54	12.669	
5,225.7	5,215.1	5,206.4	5,206.1	10.6	11.5	-124.52	69.2	2.1	261.0	240.4	20.62	12.655	
5,250.0	5,239.4	5,227.6	5,227.0	10.6	11.6	-132.14	65.8	3.4	262.4	241.6	20.74	12.647	
5,300.0	5,289.2	5,269.3	5,267.6	10.7	11.7	-134.23	56.9	6.9	268.8	247.9	20.85	12.892	
5,350.0	5,338.3	5,306.9	5,303.4	10.9	11.7	-136.61	46.3	11.0	280.6	259.8	20.86	13.453	
5,400.0	5,386.2	5,339.6	5,333.8	11.1	11.8	-138.74	35.2	15.4	298.6	277.8	20.77	14.376	
5,450.0	5,432.6	5,366.9	5,358.6	11.3	11.8	-140.18	24.5	19.5	322.9	302.3	20.59	15.681	
5,500.0	5,476.9	5,389.0	5,378.2	11.6	11.9	-140.61	15.0	23.2	353.1	332.8	20.36	17.347	
5,550.0	5,518.9	5,400.0	5,387.8	11.9	11.9	-138.70	10.0	25.2	388.7	368.5	20.22	19.222	
5,600.0	5,558.1	5,418.8	5,404.0	12.3	12.0	-137.19	1.0	28.7	428.5	408.3	20.15	21.264	
5,650.0	5,594.1	5,427.5	5,411.3	12.7	12.0	-132.33	-3.4	30.4	471.6	451.0	20.58	22.918	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2216B
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-2216B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.01	0.0	33.2	33.2				
100.0	100.0	100.0	100.0	0.1	0.1	90.01	0.0	33.2	33.2	33.0	0.24	138.661	
200.0	200.0	200.0	200.0	0.3	0.3	90.01	0.0	33.2	33.2	32.6	0.64	51.997	
300.0	300.0	300.0	300.0	0.5	0.5	90.01	0.0	33.2	33.2	32.2	1.04	31.998	
400.0	400.0	400.0	400.0	0.7	0.8	90.01	0.0	33.2	33.2	31.8	1.44	23.110	
500.0	500.0	500.0	500.0	0.8	1.0	90.01	0.0	33.2	33.2	31.4	1.84	18.086	CC
600.0	600.0	599.0	598.9	1.0	1.2	48.56	-0.9	34.7	33.5	31.3	2.22	15.139	ES
700.0	699.8	697.7	697.5	1.2	1.4	58.58	-3.4	39.1	35.3	32.7	2.59	13.599	
800.0	799.6	797.3	796.9	1.4	1.6	70.23	-6.9	45.1	39.1	36.2	2.99	13.084	
900.0	899.4	896.9	896.3	1.6	1.8	79.48	-10.4	51.1	44.3	40.9	3.40	13.028	SF
1,000.0	999.1	996.5	995.7	1.8	2.1	86.67	-13.9	57.2	50.4	46.6	3.82	13.193	
1,100.0	1,098.9	1,096.2	1,095.1	2.0	2.3	92.24	-17.4	63.2	57.1	52.9	4.25	13.453	
1,200.0	1,198.6	1,195.8	1,194.5	2.2	2.6	96.61	-20.9	69.2	64.3	59.6	4.68	13.743	
1,300.0	1,298.4	1,295.5	1,293.9	2.4	2.8	100.09	-24.3	75.2	71.7	66.6	5.11	14.035	
1,400.0	1,398.1	1,395.1	1,393.2	2.6	3.1	102.91	-27.8	81.2	79.3	73.8	5.54	14.313	
1,500.0	1,497.9	1,494.7	1,492.6	2.8	3.3	105.24	-31.3	87.2	87.1	81.2	5.98	14.572	
1,600.0	1,597.6	1,594.4	1,592.0	3.0	3.6	107.17	-34.8	93.2	95.1	88.6	6.42	14.811	
1,700.0	1,697.4	1,694.0	1,691.4	3.3	3.8	108.81	-38.3	99.2	103.1	96.2	6.86	15.031	
1,800.0	1,797.2	1,793.7	1,790.8	3.5	4.1	110.21	-41.8	105.3	111.2	103.9	7.30	15.232	
1,900.0	1,896.9	1,893.3	1,890.2	3.7	4.3	111.42	-45.3	111.3	119.3	111.6	7.74	15.415	
2,000.0	1,996.7	1,992.9	1,989.6	3.9	4.6	112.48	-48.7	117.3	127.5	119.3	8.18	15.584	
2,100.0	2,096.4	2,092.6	2,089.0	4.1	4.9	113.41	-52.2	123.3	135.7	127.1	8.62	15.738	
2,200.0	2,196.2	2,192.2	2,188.4	4.3	5.1	114.23	-55.7	129.3	144.0	134.9	9.07	15.880	
2,300.0	2,295.9	2,291.8	2,287.8	4.5	5.4	114.96	-59.2	135.3	152.2	142.7	9.51	16.011	
2,400.0	2,395.7	2,391.5	2,387.2	4.7	5.6	115.62	-62.7	141.3	160.6	150.6	9.95	16.132	
2,500.0	2,495.5	2,491.1	2,486.6	4.9	5.9	116.21	-66.2	147.4	168.9	158.5	10.40	16.244	
2,600.0	2,595.2	2,590.8	2,586.0	5.2	6.2	116.75	-69.7	153.4	177.2	166.4	10.84	16.348	
2,700.0	2,695.0	2,690.4	2,685.4	5.4	6.4	117.24	-73.1	159.4	185.6	174.3	11.28	16.444	
2,800.0	2,794.7	2,790.0	2,784.8	5.6	6.7	117.68	-76.6	165.4	193.9	182.2	11.73	16.534	
2,900.0	2,894.5	2,889.7	2,884.2	5.8	6.9	118.09	-80.1	171.4	202.3	190.1	12.17	16.618	
3,000.0	2,994.2	2,989.3	2,983.6	6.0	7.2	118.47	-83.6	177.4	210.7	198.1	12.62	16.697	
3,100.0	3,094.0	3,089.0	3,083.0	6.2	7.5	118.82	-87.1	183.4	219.1	206.0	13.06	16.771	
3,200.0	3,193.7	3,188.6	3,182.4	6.4	7.7	119.14	-90.6	189.4	227.5	214.0	13.51	16.840	
3,300.0	3,293.5	3,288.2	3,281.8	6.6	8.0	119.44	-94.1	195.5	235.9	222.0	13.95	16.905	
3,400.0	3,393.3	3,387.9	3,381.2	6.9	8.2	119.72	-97.5	201.5	244.3	229.9	14.40	16.967	
3,500.0	3,493.0	3,487.5	3,480.6	7.1	8.5	119.98	-101.0	207.5	252.7	237.9	14.85	17.025	
3,600.0	3,592.8	3,587.2	3,580.0	7.3	8.8	120.22	-104.5	213.5	261.2	245.9	15.29	17.080	
3,700.0	3,692.5	3,686.8	3,679.4	7.5	9.0	120.45	-108.0	219.5	269.6	253.9	15.74	17.132	
3,800.0	3,792.3	3,786.4	3,778.7	7.7	9.3	120.66	-111.5	225.5	278.0	261.8	16.18	17.181	
3,900.0	3,892.0	3,886.1	3,878.1	7.9	9.5	120.87	-115.0	231.5	286.5	269.8	16.63	17.228	
4,000.0	3,991.8	3,985.7	3,977.5	8.1	9.8	121.06	-118.5	237.5	294.9	277.8	17.07	17.272	
4,100.0	4,091.6	4,085.3	4,076.9	8.3	10.1	121.24	-121.9	243.6	303.3	285.8	17.52	17.315	
4,200.0	4,191.3	4,185.0	4,176.3	8.6	10.3	121.41	-125.4	249.6	311.8	293.8	17.97	17.355	
4,300.0	4,291.1	4,284.6	4,275.7	8.8	10.6	121.57	-128.9	255.6	320.2	301.8	18.41	17.393	
4,400.0	4,390.8	4,384.3	4,375.1	9.0	10.8	121.72	-132.4	261.6	328.7	309.8	18.86	17.430	
4,500.0	4,490.6	4,483.9	4,474.5	9.2	11.1	121.86	-135.9	267.6	337.1	317.8	19.30	17.465	
4,600.0	4,590.3	4,583.5	4,573.9	9.4	11.4	122.00	-139.4	273.6	345.6	325.9	19.75	17.499	
4,700.0	4,690.1	4,683.2	4,673.3	9.6	11.6	122.13	-142.9	279.6	354.1	333.9	20.20	17.531	
4,800.0	4,789.9	4,782.8	4,772.7	9.8	11.9	122.26	-146.3	285.7	362.5	341.9	20.64	17.562	
4,900.0	4,889.6	4,882.5	4,872.1	10.0	12.1	122.38	-149.8	291.7	371.0	349.9	21.09	17.591	
5,000.0	4,989.5	4,990.2	4,979.7	10.2	12.4	122.53	-152.9	296.9	377.6	356.1	21.51	17.553	
5,100.0	5,089.4	5,100.0	5,089.4	10.4	12.6	167.58	-153.9	298.8	379.9	358.0	21.87	17.370	

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-2216B
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-2216B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

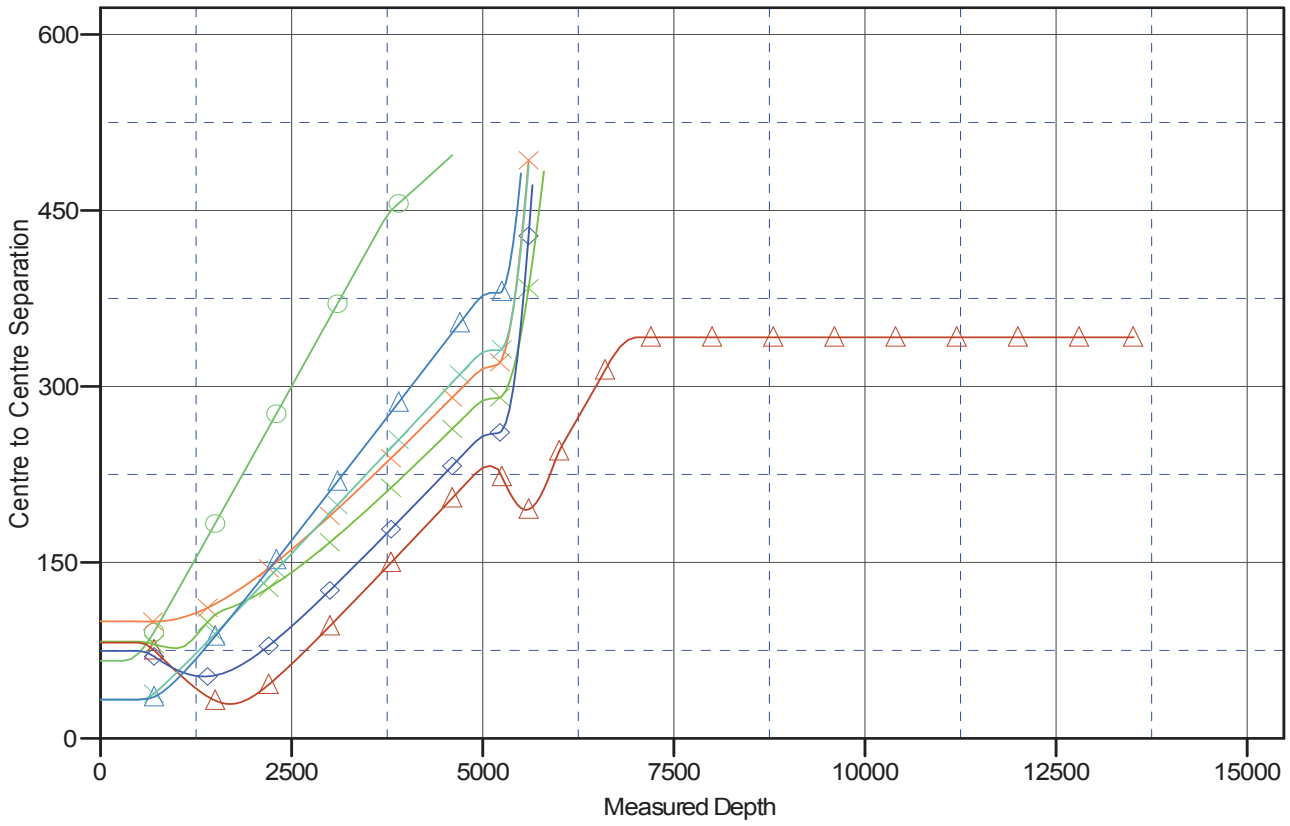
Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.4	5,200.0	5,189.4	10.5	12.8	167.58	-153.9	298.8	379.9	357.7	22.21	17.103	
5,217.1	5,206.6	5,217.1	5,206.6	10.5	12.8	167.58	-153.9	298.8	379.9	357.6	22.27	17.059	
5,225.7	5,215.1	5,225.7	5,215.1	10.6	12.8	167.58	-153.9	298.8	379.9	357.6	22.30	17.037	
5,250.0	5,239.4	5,239.7	5,229.2	10.6	12.8	160.68	-154.1	298.8	380.7	358.4	22.35	17.036	
5,300.0	5,289.2	5,268.2	5,257.6	10.7	12.9	160.54	-155.6	299.2	387.9	365.6	22.33	17.369	
5,350.0	5,338.3	5,300.0	5,289.2	10.9	13.0	160.28	-159.1	300.1	402.1	379.9	22.19	18.124	
5,400.0	5,386.2	5,320.7	5,309.6	11.1	13.0	159.71	-162.3	301.0	422.9	401.0	21.89	19.317	
5,450.0	5,432.6	5,350.0	5,338.3	11.3	13.1	159.04	-168.2	302.6	449.8	428.3	21.49	20.924	
5,500.0	5,476.9	5,363.6	5,351.4	11.6	13.2	157.69	-171.5	303.4	481.8	460.8	20.98	22.962	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #27I-2216B
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-2216B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

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

Coordinates are relative to: Razor #27I-2216B
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.07°

Ladder Plot



LEGEND

Razor #27I-2214B, HZ, Plan #2 V0
Razor #27I-3413A, HZ, Plan #1 V0
Razor #27I-3416B, HZ, Plan #2 V0
Razor #27I-2213A, HZ, Plan #1 V0
Razor #27I-3414B, HZ, Plan #1 V0
Razor #27I-2215A, HZ, Plan #1 V0
Razor #27I-3415A, HZ, Plan #1 V0