WHITING PETROLEUM CORPORATION

Project: Weld County, CO
Site: S12-T10N-R58W
Well: Razor #12F-0106B
Wellbore: HZ
Design: Plan #3

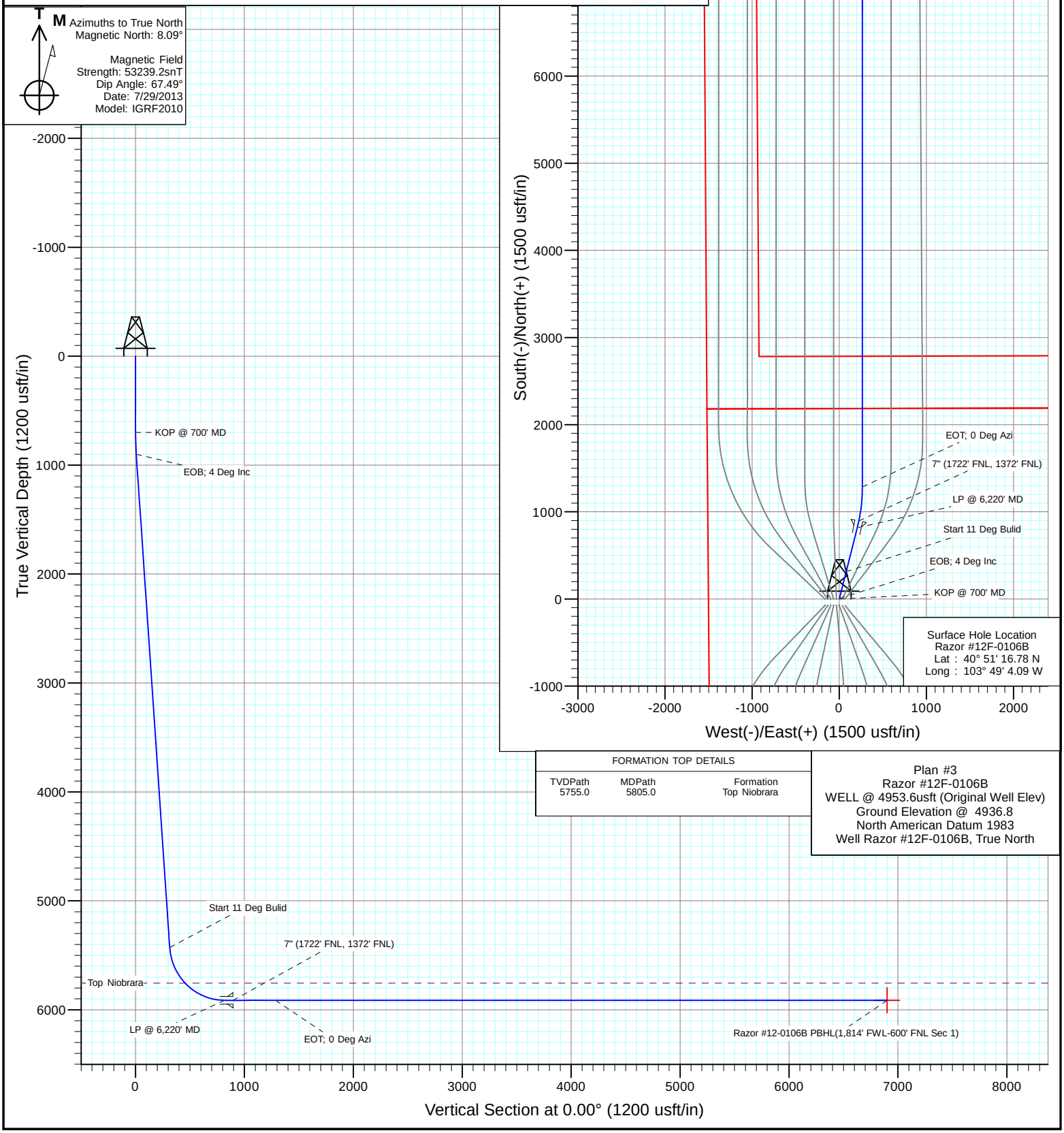
CATHEDRAL

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSect	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	700.0	0.00	0.00	700.0	0.0	0.0	0.00	0.00	0.0	KOP @ 700' MD
3	900.0	4.00	14.19	899.8	6.8	1.7	2.00	14.19	6.8	EOB; 4 Deg Inc
4	5439.0	4.00	14.19	5427.8	313.7	79.3	0.00	0.00	313.7	Start 11 Deg Bulid
5	6220.8	90.00	14.19	5912.3	817.5	206.7	11.00	0.00	817.5	LP @ 6,220' MD
6	6693.8	90.00	0.00	5912.3	1285.6	265.0	3.00	-89.99	1285.6	EOT; 0 Deg Azi
7	12307.5	90.00	0.00	5912.0	6899.3	265.0	0.00	0.00	6899.3	PBHL @ 12,307.5' MD

T M Azimuths to True North
Magnetic North: 8.09°

Magnetic Field
Strength: 53239.2snT
Dip Angle: 67.49°
Date: 7/29/2013
Model: IGRF2010



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5755.0	5805.0	Top Niobrara

Plan #3
Razor #12F-0106B
WELL @ 4953.6usft (Original Well Elev)
Ground Elevation @ 4936.8
North American Datum 1983
Well Razor #12F-0106B, True North

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #12F-0106B
Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site:	S12-T10N-R58W	**North Reference:**	True
Well:	Razor #12F-0106B	**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	S12-T10N-R58W				
Site Position:		**Northing:**	1,558,537.97 usft	**Latitude:**	40° 51' 16.04 N
From:	Lat/Long	**Easting:**	3,465,176.15 usft	**Longitude:**	103° 49' 6.23 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	1.09 °

Well	Razor #12F-0106B				
Well Position	**+N/-S** 0.0 usft	**Northing:**	1,558,615.96 usft	**Latitude:**	40° 51' 16.78 N
	+E/-W 0.0 usft	**Easting:**	3,465,339.15 usft	**Longitude:**	103° 49' 4.09 W
Position Uncertainty	0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	4,936.8 usft

Wellbore	HZ			
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	7/29/2013	8.09	67.49	53,239

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	0.00

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	
700.0	0.00	0.00	700.0	0.0	0.0	0.00	0.00	0.00	0.00	
900.0	4.00	14.19	899.8	6.8	1.7	2.00	2.00	0.00	14.19	
5,439.0	4.00	14.19	5,427.8	313.7	79.3	0.00	0.00	0.00	0.00	
6,220.8	90.00	14.19	5,912.3	817.5	206.7	11.00	11.00	0.00	0.00	
6,693.8	90.00	0.00	5,912.3	1,285.6	265.0	3.00	0.00	-3.00	-89.99	
12,307.5	90.00	0.00	5,912.0	6,899.3	265.0	0.00	0.00	0.00	0.00	Razor #12-0106B PBl

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #12F-0106B
Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site:	S12-T10N-R58W	**North Reference:**	True
Well:	Razor #12F-0106B	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #3		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft	Build Rate (°/100u	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	KOP @ 700' MD
800.0	2.00	14.19	800.0	1.7	0.4	1.7	2.00	2.00	
900.0	4.00	14.19	899.8	6.8	1.7	6.8	2.00	2.00	EOB; 4 Deg Inc
1,000.0	4.00	14.19	999.6	13.5	3.4	13.5	0.00	0.00	
1,100.0	4.00	14.19	1,099.4	20.3	5.1	20.3	0.00	0.00	
1,200.0	4.00	14.19	1,199.1	27.1	6.8	27.1	0.00	0.00	
1,300.0	4.00	14.19	1,298.9	33.8	8.6	33.8	0.00	0.00	
1,400.0	4.00	14.19	1,398.6	40.6	10.3	40.6	0.00	0.00	
1,500.0	4.00	14.19	1,498.4	47.3	12.0	47.3	0.00	0.00	
1,600.0	4.00	14.19	1,598.1	54.1	13.7	54.1	0.00	0.00	
1,700.0	4.00	14.19	1,697.9	60.9	15.4	60.9	0.00	0.00	
1,800.0	4.00	14.19	1,797.6	67.6	17.1	67.6	0.00	0.00	
1,900.0	4.00	14.19	1,897.4	74.4	18.8	74.4	0.00	0.00	
2,000.0	4.00	14.19	1,997.2	81.2	20.5	81.2	0.00	0.00	
2,100.0	4.00	14.19	2,096.9	87.9	22.2	87.9	0.00	0.00	
2,200.0	4.00	14.19	2,196.7	94.7	23.9	94.7	0.00	0.00	
2,300.0	4.00	14.19	2,296.4	101.4	25.7	101.4	0.00	0.00	
2,400.0	4.00	14.19	2,396.2	108.2	27.4	108.2	0.00	0.00	
2,500.0	4.00	14.19	2,495.9	115.0	29.1	115.0	0.00	0.00	
2,600.0	4.00	14.19	2,595.7	121.7	30.8	121.7	0.00	0.00	
2,700.0	4.00	14.19	2,695.5	128.5	32.5	128.5	0.00	0.00	
2,800.0	4.00	14.19	2,795.2	135.3	34.2	135.3	0.00	0.00	
2,900.0	4.00	14.19	2,895.0	142.0	35.9	142.0	0.00	0.00	
3,000.0	4.00	14.19	2,994.7	148.8	37.6	148.8	0.00	0.00	
3,100.0	4.00	14.19	3,094.5	155.5	39.3	155.5	0.00	0.00	
3,200.0	4.00	14.19	3,194.2	162.3	41.0	162.3	0.00	0.00	
3,300.0	4.00	14.19	3,294.0	169.1	42.8	169.1	0.00	0.00	
3,400.0	4.00	14.19	3,393.7	175.8	44.5	175.8	0.00	0.00	
3,500.0	4.00	14.19	3,493.5	182.6	46.2	182.6	0.00	0.00	
3,600.0	4.00	14.19	3,593.3	189.4	47.9	189.4	0.00	0.00	
3,700.0	4.00	14.19	3,693.0	196.1	49.6	196.1	0.00	0.00	
3,800.0	4.00	14.19	3,792.8	202.9	51.3	202.9	0.00	0.00	
3,900.0	4.00	14.19	3,892.5	209.6	53.0	209.6	0.00	0.00	
4,000.0	4.00	14.19	3,992.3	216.4	54.7	216.4	0.00	0.00	
4,100.0	4.00	14.19	4,092.0	223.2	56.4	223.2	0.00	0.00	
4,200.0	4.00	14.19	4,191.8	229.9	58.1	229.9	0.00	0.00	
4,300.0	4.00	14.19	4,291.6	236.7	59.9	236.7	0.00	0.00	
4,400.0	4.00	14.19	4,391.3	243.5	61.6	243.5	0.00	0.00	
4,500.0	4.00	14.19	4,491.1	250.2	63.3	250.2	0.00	0.00	
4,600.0	4.00	14.19	4,590.8	257.0	65.0	257.0	0.00	0.00	
4,700.0	4.00	14.19	4,690.6	263.8	66.7	263.8	0.00	0.00	
4,800.0	4.00	14.19	4,790.3	270.5	68.4	270.5	0.00	0.00	
4,900.0	4.00	14.19	4,890.1	277.3	70.1	277.3	0.00	0.00	
5,000.0	4.00	14.19	4,989.9	284.0	71.8	284.0	0.00	0.00	
5,100.0	4.00	14.19	5,089.6	290.8	73.5	290.8	0.00	0.00	

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Site:	S12-T10N-R58W	**North Reference:**	True
Well:	Razor #12F-0106B	**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
5,200.0	4.00	14.19	5,189.4	297.6	75.2	297.6	0.00	0.00	
5,300.0	4.00	14.19	5,289.1	304.3	77.0	304.3	0.00	0.00	
5,400.0	4.00	14.19	5,388.9	311.1	78.7	311.1	0.00	0.00	
5,439.0	4.00	14.19	5,427.8	313.7	79.3	313.7	0.00	0.00	Start 11 Deg Bulid
5,450.0	5.21	14.19	5,438.7	314.6	79.5	314.6	11.00	11.00	
5,500.0	10.71	14.19	5,488.2	321.3	81.2	321.3	11.00	11.00	
5,550.0	16.21	14.19	5,536.9	332.6	84.1	332.6	11.00	11.00	
5,600.0	21.71	14.19	5,584.1	348.3	88.1	348.3	11.00	11.00	
5,650.0	27.21	14.19	5,629.6	368.4	93.1	368.4	11.00	11.00	
5,700.0	32.71	14.19	5,672.9	392.6	99.3	392.6	11.00	11.00	
5,750.0	38.21	14.19	5,713.6	420.7	106.4	420.7	11.00	11.00	
5,800.0	43.71	14.19	5,751.4	452.5	114.4	452.5	11.00	11.00	
5,805.0	44.26	14.19	5,755.0	455.9	115.3	455.9	11.00	11.00	Top Niobrara
5,850.0	49.21	14.19	5,785.8	487.6	123.3	487.6	11.00	11.00	
5,900.0	54.71	14.19	5,816.6	525.7	132.9	525.7	11.00	11.00	
5,950.0	60.21	14.19	5,843.5	566.6	143.3	566.6	11.00	11.00	
6,000.0	65.71	14.19	5,866.2	609.8	154.2	609.8	11.00	11.00	
6,050.0	71.21	14.19	5,884.6	654.8	165.6	654.8	11.00	11.00	
6,100.0	76.71	14.19	5,898.4	701.4	177.3	701.4	11.00	11.00	
6,150.0	82.21	14.19	5,907.5	749.0	189.4	749.0	11.00	11.00	
6,200.0	87.71	14.19	5,911.9	797.3	201.6	797.3	11.00	11.00	
6,220.8	90.00	14.19	5,912.3	817.5	206.7	817.5	11.00	11.00	LP @ 6,220' MD
6,300.0	90.00	11.81	5,912.3	894.6	224.5	894.6	3.00	0.00	7" (1722' FNL, 1372' FNL)
6,400.0	90.00	8.81	5,912.3	993.0	242.4	993.0	3.00	0.00	
6,500.0	90.00	5.81	5,912.3	1,092.2	255.1	1,092.2	3.00	0.00	
6,600.0	90.00	2.81	5,912.3	1,191.9	262.7	1,191.9	3.00	0.00	
6,693.8	90.00	0.00	5,912.3	1,285.6	265.0	1,285.6	3.00	0.00	EOT; 0 Deg Azi
6,700.0	90.00	0.00	5,912.3	1,291.8	265.0	1,291.8	0.00	0.00	
6,800.0	90.00	0.00	5,912.3	1,391.8	265.0	1,391.8	0.00	0.00	
6,900.0	90.00	0.00	5,912.3	1,491.8	265.0	1,491.8	0.00	0.00	
7,000.0	90.00	0.00	5,912.3	1,591.8	265.0	1,591.8	0.00	0.00	
7,100.0	90.00	0.00	5,912.3	1,691.8	265.0	1,691.8	0.00	0.00	
7,200.0	90.00	0.00	5,912.3	1,791.8	265.0	1,791.8	0.00	0.00	
7,300.0	90.00	0.00	5,912.3	1,891.8	265.0	1,891.8	0.00	0.00	
7,400.0	90.00	0.00	5,912.3	1,991.8	265.0	1,991.8	0.00	0.00	
7,500.0	90.00	0.00	5,912.3	2,091.8	265.0	2,091.8	0.00	0.00	
7,600.0	90.00	0.00	5,912.3	2,191.8	265.0	2,191.8	0.00	0.00	
7,700.0	90.00	0.00	5,912.2	2,291.8	265.0	2,291.8	0.00	0.00	
7,800.0	90.00	0.00	5,912.2	2,391.8	265.0	2,391.8	0.00	0.00	
7,900.0	90.00	0.00	5,912.2	2,491.8	265.0	2,491.8	0.00	0.00	
8,000.0	90.00	0.00	5,912.2	2,591.8	265.0	2,591.8	0.00	0.00	
8,100.0	90.00	0.00	5,912.2	2,691.8	265.0	2,691.8	0.00	0.00	
8,200.0	90.00	0.00	5,912.2	2,791.8	265.0	2,791.8	0.00	0.00	
8,300.0	90.00	0.00	5,912.2	2,891.8	265.0	2,891.8	0.00	0.00	
8,400.0	90.00	0.00	5,912.2	2,991.8	265.0	2,991.8	0.00	0.00	
8,500.0	90.00	0.00	5,912.2	3,091.8	265.0	3,091.8	0.00	0.00	
8,600.0	90.00	0.00	5,912.2	3,191.8	265.0	3,191.8	0.00	0.00	
8,700.0	90.00	0.00	5,912.2	3,291.8	265.0	3,291.8	0.00	0.00	
8,800.0	90.00	0.00	5,912.2	3,391.8	265.0	3,391.8	0.00	0.00	
8,900.0	90.00	0.00	5,912.2	3,491.8	265.0	3,491.8	0.00	0.00	
9,000.0	90.00	0.00	5,912.2	3,591.8	265.0	3,591.8	0.00	0.00	
9,100.0	90.00	0.00	5,912.2	3,691.8	265.0	3,691.8	0.00	0.00	

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Well:	Razor #12F-0106B	**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
9,200.0	90.00	0.00	5,912.2	3,791.8	265.0	3,791.8	0.00	0.00	
9,300.0	90.00	0.00	5,912.2	3,891.8	265.0	3,891.8	0.00	0.00	
9,400.0	90.00	0.00	5,912.2	3,991.8	265.0	3,991.8	0.00	0.00	
9,500.0	90.00	0.00	5,912.2	4,091.8	265.0	4,091.8	0.00	0.00	
9,600.0	90.00	0.00	5,912.1	4,191.8	265.0	4,191.8	0.00	0.00	
9,700.0	90.00	0.00	5,912.1	4,291.8	265.0	4,291.8	0.00	0.00	
9,800.0	90.00	0.00	5,912.1	4,391.8	265.0	4,391.8	0.00	0.00	
9,900.0	90.00	0.00	5,912.1	4,491.8	265.0	4,491.8	0.00	0.00	
10,000.0	90.00	0.00	5,912.1	4,591.8	265.0	4,591.8	0.00	0.00	
10,100.0	90.00	0.00	5,912.1	4,691.8	265.0	4,691.8	0.00	0.00	
10,200.0	90.00	0.00	5,912.1	4,791.8	265.0	4,791.8	0.00	0.00	
10,300.0	90.00	0.00	5,912.1	4,891.8	265.0	4,891.8	0.00	0.00	
10,400.0	90.00	0.00	5,912.1	4,991.8	265.0	4,991.8	0.00	0.00	
10,500.0	90.00	0.00	5,912.1	5,091.8	265.0	5,091.8	0.00	0.00	
10,600.0	90.00	0.00	5,912.1	5,191.8	265.0	5,191.8	0.00	0.00	
10,700.0	90.00	0.00	5,912.1	5,291.8	265.0	5,291.8	0.00	0.00	
10,800.0	90.00	0.00	5,912.1	5,391.8	265.0	5,391.8	0.00	0.00	
10,900.0	90.00	0.00	5,912.1	5,491.8	265.0	5,491.8	0.00	0.00	
11,000.0	90.00	0.00	5,912.1	5,591.8	265.0	5,591.8	0.00	0.00	
11,100.0	90.00	0.00	5,912.1	5,691.8	265.0	5,691.8	0.00	0.00	
11,200.0	90.00	0.00	5,912.1	5,791.8	265.0	5,791.8	0.00	0.00	
11,300.0	90.00	0.00	5,912.1	5,891.8	265.0	5,891.8	0.00	0.00	
11,400.0	90.00	0.00	5,912.0	5,991.8	265.0	5,991.8	0.00	0.00	
11,500.0	90.00	0.00	5,912.0	6,091.8	265.0	6,091.8	0.00	0.00	
11,600.0	90.00	0.00	5,912.0	6,191.8	265.0	6,191.8	0.00	0.00	
11,700.0	90.00	0.00	5,912.0	6,291.8	265.0	6,291.8	0.00	0.00	
11,800.0	90.00	0.00	5,912.0	6,391.8	265.0	6,391.8	0.00	0.00	
11,900.0	90.00	0.00	5,912.0	6,491.8	265.0	6,491.8	0.00	0.00	
12,000.0	90.00	0.00	5,912.0	6,591.8	265.0	6,591.8	0.00	0.00	
12,100.0	90.00	0.00	5,912.0	6,691.8	265.0	6,691.8	0.00	0.00	
12,200.0	90.00	0.00	5,912.0	6,791.8	265.0	6,791.8	0.00	0.00	
12,307.5	90.00	0.00	5,912.0	6,899.3	265.0	6,899.3	0.00	0.00	PBHL @ 12,307.5' MD

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Razor #12-0106B PBHL - plan hits target center - Point	0.00	0.00	5,912.0	6,899.3	265.0	1,565,519.05	3,465,473.27	40° 52' 24.95 N	103° 49' 0.64 W

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
6,300.0	5,912.3	7" (1722' FNL, 1372' FNL)	0	0

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #12F-0106B
Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site:	S12-T10N-R58W	**North Reference:**	True
Well:	Razor #12F-0106B	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #3		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,805.0	5,755.0	Top Niobrara		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
700.0	700.0	0.0	0.0	KOP @ 700' MD
900.0	899.8	6.8	1.7	EOB; 4 Deg Inc
5,439.0	5,427.8	313.7	79.3	Start 11 Deg Bulid
6,220.8	5,912.3	817.5	206.7	LP @ 6,220' MD
6,693.8	5,912.3	1,285.6	265.0	EOT; 0 Deg Azi
12,307.5	5,912.0	6,899.3	265.0	PBHL @ 12,307.5' MD

Whiting Petroleum Corporation

Weld County, CO
S12-T10N-R58W
Razor #12F-0106B
HZ
Plan #3

Anticollision Report

08 November, 2013

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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:	MD Interval 100.0usft	**Error Model:**	Systematic Ellipse
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 750.0usft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	2.00 **Sigma**		

Survey Tool Program **Date** 11/8/2013

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	12,306.6	Plan #3 (HZ)	ISCWSA MWD	MWD - ISCWSA

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
S12-T10N-R58W						
Razor #12F-0101A - HZ - Plan #3	500.0	500.0	164.4	162.5	82.840	CC, ES
Razor #12F-0101A - HZ - Plan #3	5,400.0	5,364.4	494.0	468.1	19.088	SF
Razor #12F-0102B - HZ - Plan #3	500.0	500.0	131.4	129.4	66.195	CC, ES
Razor #12F-0102B - HZ - Plan #3	5,400.0	5,385.3	417.2	391.1	15.990	SF
Razor #12F-0103A - HZ - Plan #3	700.0	700.0	98.4	95.5	34.104	CC
Razor #12F-0103A - HZ - Plan #3	800.0	800.0	98.8	95.5	29.650	ES
Razor #12F-0103A - HZ - Plan #3	5,400.0	5,381.7	325.4	299.4	12.509	SF
Razor #12F-0104B - HZ - Plan #3	700.0	700.0	65.3	62.4	22.647	CC, ES
Razor #12F-0104B - HZ - Plan #3	12,307.5	12,325.1	659.9	397.4	2.514	SF
Razor #12F-0105A - HZ - Plan #3	700.0	700.0	32.3	29.4	11.190	CC, ES
Razor #12F-0105A - HZ - Plan #3	12,307.5	12,208.6	344.7	91.5	1.361	Level 3, SF
Razor #12F-0107A - HZ - Plan #2	1,032.2	1,031.7	64.1	59.7	14.610	CC
Razor #12F-0107A - HZ - Plan #2	1,100.0	1,099.4	64.2	59.5	13.676	ES
Razor #12F-0107A - HZ - Plan #2	12,307.5	12,320.9	344.7	93.4	1.372	Level 3, SF
Razor #12F-0108B - HZ - Plan #3	700.0	700.0	81.9	79.0	28.392	CC, ES
Razor #12F-0108B - HZ - Plan #3	12,307.5	12,612.2	659.9	398.7	2.527	SF
Razor Federal #12F-1301A - HZ - Plan #3	700.0	700.0	180.7	177.8	62.652	CC, ES
Razor Federal #12F-1301A - HZ - Plan #3	5,300.0	5,248.1	737.1	713.6	31.376	SF
Razor Federal #12F-1302B - HZ - Plan #2	700.0	700.0	151.3	148.4	52.441	CC, ES
Razor Federal #12F-1302B - HZ - Plan #2	5,400.0	5,348.4	722.5	698.8	30.399	SF
Razor Federal #12F-1303A - HZ - Plan #3	500.0	500.0	123.6	121.6	62.278	CC, ES
Razor Federal #12F-1303A - HZ - Plan #3	5,300.0	5,248.5	743.8	720.3	31.581	SF
Razor Federal #12F-1304B - HZ - Plan #2	700.0	700.0	99.4	96.5	34.459	CC, ES
Razor Federal #12F-1304B - HZ - Plan #2	1,200.0	1,195.3	126.4	121.3	24.791	SF
Razor Federal #12F-1305A - HZ - Plan #3	700.0	700.0	81.6	78.7	28.275	CC, ES
Razor Federal #12F-1305A - HZ - Plan #3	1,000.0	996.7	96.9	92.7	23.057	SF
Razor Federal #12F-1306B - HZ - Plan #2	700.0	700.0	74.9	72.0	25.975	CC, ES
Razor Federal #12F-1306B - HZ - Plan #2	1,100.0	1,096.3	96.9	92.2	20.828	SF
Razor Federal #12F-1307A - HZ - Plan #3	400.0	400.0	81.9	80.3	53.308	CC, ES
Razor Federal #12F-1307A - HZ - Plan #3	5,300.0	5,255.9	679.5	655.5	28.372	SF
Razor Federal#12F-1308B - HZ - Plan #2	700.0	700.0	99.9	97.0	34.639	CC, ES
Razor Federal#12F-1308B - HZ - Plan #2	1,100.0	1,091.6	119.7	115.1	25.907	SF

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor #12F-0101A - HZ - Plan #3 — **Offset Site Error:** 0.0 usft

Survey Program: 0-ISCWSA MWD — **Offset Well Error:** 0.0 usft

Reference		Offset		Semi Major Axis			Offset Wellbore Centre		Distance				
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-164.4	164.4				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-164.4	164.4	164.3	0.19	879.378	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-164.4	164.4	163.8	0.64	258.348	
300.0	300.0	300.0	300.0	0.5	0.5	-90.00	0.0	-164.4	164.4	163.4	1.09	151.416	
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	0.0	-164.4	164.4	162.9	1.54	107.091	
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	0.0	-164.4	164.4	162.5	1.99	82.840	CC, ES
600.0	600.0	596.0	595.9	1.2	1.2	-89.62	1.1	-165.6	165.7	163.3	2.42	68.411	
700.0	700.0	691.7	691.5	1.4	1.4	-88.52	4.4	-169.1	169.4	166.5	2.86	59.239	
800.0	800.0	791.1	790.7	1.7	1.7	-101.64	9.1	-174.2	175.0	171.7	3.31	52.887	
900.0	899.8	890.9	890.3	1.9	1.9	-101.70	13.9	-179.2	181.3	177.6	3.76	48.217	
1,000.0	999.6	990.7	989.8	2.1	2.1	-102.39	18.7	-184.3	188.0	183.8	4.22	44.550	
1,100.0	1,099.4	1,090.4	1,089.3	2.4	2.4	-103.03	23.4	-189.4	194.8	190.1	4.69	41.542	
1,200.0	1,199.1	1,190.2	1,188.8	2.6	2.6	-103.63	28.2	-194.4	201.5	196.4	5.16	39.042	
1,300.0	1,298.9	1,289.9	1,288.3	2.8	2.9	-104.19	33.0	-199.5	208.3	202.7	5.64	36.939	
1,400.0	1,398.6	1,389.7	1,387.8	3.1	3.1	-104.72	37.7	-204.6	215.1	209.0	6.12	35.148	
1,500.0	1,498.4	1,489.4	1,487.3	3.3	3.4	-105.21	42.5	-209.6	221.9	215.3	6.60	33.607	
1,600.0	1,598.1	1,589.2	1,586.8	3.6	3.6	-105.68	47.3	-214.7	228.8	221.7	7.09	32.270	
1,700.0	1,697.9	1,688.9	1,686.3	3.8	3.9	-106.11	52.0	-219.8	235.6	228.0	7.58	31.099	
1,800.0	1,797.6	1,788.7	1,785.8	4.1	4.1	-106.52	56.8	-224.8	242.5	234.4	8.06	30.065	
1,900.0	1,897.4	1,888.4	1,885.4	4.3	4.4	-106.91	61.6	-229.9	249.3	240.8	8.55	29.147	
2,000.0	1,997.2	1,988.2	1,984.9	4.6	4.7	-107.28	66.4	-235.0	256.2	247.2	9.04	28.327	
2,100.0	2,096.9	2,087.9	2,084.4	4.8	4.9	-107.63	71.1	-240.0	263.1	253.6	9.54	27.590	
2,200.0	2,196.7	2,187.7	2,183.9	5.1	5.2	-107.96	75.9	-245.1	270.0	260.0	10.03	26.924	
2,300.0	2,296.4	2,287.4	2,283.4	5.3	5.4	-108.28	80.7	-250.2	276.9	266.4	10.52	26.320	
2,400.0	2,396.2	2,387.2	2,382.9	5.6	5.7	-108.58	85.4	-255.2	283.8	272.8	11.01	25.769	
2,500.0	2,495.9	2,486.9	2,482.4	5.8	5.9	-108.86	90.2	-260.3	290.8	279.2	11.51	25.265	
2,600.0	2,595.7	2,586.7	2,581.9	6.1	6.2	-109.14	95.0	-265.4	297.7	285.7	12.00	24.802	
2,700.0	2,695.5	2,686.4	2,681.4	6.4	6.5	-109.40	99.7	-270.4	304.6	292.1	12.50	24.376	
2,800.0	2,795.2	2,786.2	2,780.9	6.6	6.7	-109.64	104.5	-275.5	311.6	298.6	12.99	23.982	
2,900.0	2,895.0	2,885.9	2,880.4	6.9	7.0	-109.88	109.3	-280.6	318.5	305.0	13.49	23.617	
3,000.0	2,994.7	2,985.7	2,979.9	7.1	7.2	-110.11	114.0	-285.6	325.5	311.5	13.98	23.277	
3,100.0	3,094.5	3,085.4	3,079.4	7.4	7.5	-110.33	118.8	-290.7	332.4	317.9	14.48	22.961	
3,200.0	3,194.2	3,185.2	3,178.9	7.6	7.7	-110.54	123.6	-295.8	339.4	324.4	14.97	22.666	
3,300.0	3,294.0	3,284.9	3,278.4	7.9	8.0	-110.74	128.3	-300.8	346.3	330.9	15.47	22.389	
3,400.0	3,393.7	3,384.7	3,378.0	8.1	8.3	-110.93	133.1	-305.9	353.3	337.4	15.97	22.130	
3,500.0	3,493.5	3,484.4	3,477.5	8.4	8.5	-111.11	137.9	-311.0	360.3	343.8	16.46	21.887	
3,600.0	3,593.3	3,584.2	3,577.0	8.6	8.8	-111.29	142.6	-316.0	367.3	350.3	16.96	21.657	
3,700.0	3,693.0	3,683.9	3,676.5	8.9	9.0	-111.46	147.4	-321.1	374.3	356.8	17.45	21.441	
3,800.0	3,792.8	3,783.7	3,776.0	9.2	9.3	-111.63	152.2	-326.2	381.2	363.3	17.95	21.237	
3,900.0	3,892.5	3,883.4	3,875.5	9.4	9.5	-111.79	157.0	-331.2	388.2	369.8	18.45	21.044	
4,000.0	3,992.3	3,983.2	3,975.0	9.7	9.8	-111.94	161.7	-336.3	395.2	376.3	18.95	20.861	
4,100.0	4,092.0	4,082.9	4,074.5	9.9	10.1	-112.09	166.5	-341.4	402.2	382.8	19.44	20.688	
4,200.0	4,191.8	4,182.7	4,174.0	10.2	10.3	-112.23	171.3	-346.4	409.2	389.3	19.94	20.523	
4,300.0	4,291.6	4,282.4	4,273.5	10.4	10.6	-112.37	176.0	-351.5	416.2	395.8	20.44	20.366	
4,400.0	4,391.3	4,382.2	4,373.0	10.7	10.8	-112.50	180.8	-356.6	423.2	402.3	20.93	20.217	
4,500.0	4,491.1	4,481.9	4,472.5	10.9	11.1	-112.63	185.6	-361.7	430.2	408.8	21.43	20.074	
4,600.0	4,590.8	4,581.7	4,572.0	11.2	11.3	-112.76	190.3	-366.7	437.2	415.3	21.93	19.938	
4,700.0	4,690.6	4,681.4	4,671.5	11.5	11.6	-112.88	195.1	-371.8	444.2	421.8	22.43	19.809	
4,800.0	4,790.3	4,781.2	4,771.0	11.7	11.9	-113.00	199.9	-376.9	451.2	428.3	22.92	19.685	
4,900.0	4,890.1	4,880.9	4,870.6	12.0	12.1	-113.11	204.6	-381.9	458.2	434.8	23.42	19.566	
5,000.0	4,989.9	4,980.7	4,970.1	12.2	12.4	-113.22	209.4	-387.0	465.3	441.3	23.92	19.452	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor #12F-0101A - HZ - Plan #3

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.0	5,089.6	5,080.4	5,069.6	12.5	12.6	-113.33	214.2	-392.1	472.3	447.9	24.42	19.343	
5,200.0	5,189.4	5,180.2	5,169.1	12.7	12.9	-113.43	218.9	-397.1	479.3	454.4	24.91	19.238	
5,300.0	5,289.1	5,279.9	5,268.6	13.0	13.1	-113.53	223.7	-402.2	486.3	460.9	25.41	19.137	
5,400.0	5,388.9	5,364.4	5,352.9	13.2	13.4	-113.55	228.2	-407.0	494.0	468.1	25.88	19.088	SF
5,500.0	5,488.2	5,426.7	5,414.0	13.5	13.6	-112.13	235.9	-415.1	509.1	482.8	26.28	19.375	
5,600.0	5,584.1	5,486.0	5,470.7	14.0	13.9	-109.26	247.8	-427.7	537.6	510.9	26.71	20.125	
5,700.0	5,672.9	5,550.0	5,529.3	14.5	14.2	-105.56	265.5	-446.6	578.5	551.2	27.37	21.139	
5,800.0	5,751.4	5,600.0	5,572.5	15.3	14.6	-100.68	282.6	-464.8	629.5	601.3	28.28	22.262	
5,900.0	5,816.6	5,635.2	5,601.4	16.3	14.8	-94.21	296.4	-479.4	688.4	658.9	29.45	23.379	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor #12F-0102B - HZ - Plan #3

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-131.4	131.4				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-131.4	131.4	131.2	0.19	702.680	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-131.4	131.4	130.8	0.64	206.437	
300.0	300.0	300.0	300.0	0.5	0.5	-90.00	0.0	-131.4	131.4	130.3	1.09	120.991	
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	0.0	-131.4	131.4	129.9	1.54	85.572	
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	0.0	-131.4	131.4	129.4	1.99	66.195	CC, ES
600.0	600.0	597.2	597.2	1.2	1.2	-89.44	1.3	-132.4	132.5	130.0	2.43	54.604	
700.0	700.0	694.2	694.1	1.4	1.4	-87.80	5.2	-135.4	135.7	132.8	2.87	47.309	
800.0	800.0	793.9	793.5	1.7	1.7	-100.41	10.7	-139.7	140.5	137.2	3.32	42.339	
900.0	899.8	893.7	893.1	1.9	1.9	-100.27	16.2	-143.9	146.1	142.3	3.77	38.709	
1,000.0	999.6	993.5	992.7	2.1	2.1	-100.89	21.7	-148.2	152.0	147.8	4.24	35.861	
1,100.0	1,099.4	1,093.3	1,092.2	2.4	2.4	-101.47	27.2	-152.5	157.9	153.2	4.71	33.524	
1,200.0	1,199.1	1,193.2	1,191.8	2.6	2.6	-102.00	32.7	-156.7	163.8	158.6	5.19	31.581	
1,300.0	1,298.9	1,293.0	1,291.4	2.8	2.9	-102.49	38.2	-161.0	169.8	164.1	5.67	29.946	
1,400.0	1,398.6	1,392.8	1,390.9	3.1	3.1	-102.95	43.7	-165.2	175.7	169.5	6.15	28.553	
1,500.0	1,498.4	1,492.6	1,490.5	3.3	3.4	-103.39	49.3	-169.5	181.7	175.0	6.64	27.355	
1,600.0	1,598.1	1,592.4	1,590.1	3.6	3.6	-103.79	54.8	-173.8	187.6	180.5	7.13	26.314	
1,700.0	1,697.9	1,692.2	1,689.6	3.8	3.9	-104.17	60.3	-178.0	193.6	186.0	7.62	25.402	
1,800.0	1,797.6	1,792.0	1,789.2	4.1	4.2	-104.52	65.8	-182.3	199.6	191.5	8.11	24.598	
1,900.0	1,897.4	1,891.9	1,888.8	4.3	4.4	-104.86	71.3	-186.5	205.6	196.9	8.61	23.883	
2,000.0	1,997.2	1,991.7	1,988.4	4.6	4.7	-105.18	76.8	-190.8	211.5	202.4	9.10	23.244	
2,100.0	2,096.9	2,091.5	2,087.9	4.8	4.9	-105.48	82.3	-195.1	217.5	208.0	9.60	22.670	
2,200.0	2,196.7	2,191.3	2,187.5	5.1	5.2	-105.76	87.8	-199.3	223.6	213.5	10.09	22.151	
2,300.0	2,296.4	2,291.1	2,287.1	5.3	5.4	-106.03	93.3	-203.6	229.6	219.0	10.59	21.679	
2,400.0	2,396.2	2,390.9	2,386.6	5.6	5.7	-106.28	98.8	-207.8	235.6	224.5	11.09	21.250	
2,500.0	2,495.9	2,490.7	2,486.2	5.8	5.9	-106.52	104.3	-212.1	241.6	230.0	11.58	20.857	
2,600.0	2,595.7	2,590.5	2,585.8	6.1	6.2	-106.75	109.8	-216.4	247.6	235.5	12.08	20.496	
2,700.0	2,695.5	2,690.4	2,685.4	6.4	6.5	-106.97	115.3	-220.6	253.7	241.1	12.58	20.163	
2,800.0	2,795.2	2,790.2	2,784.9	6.6	6.7	-107.18	120.9	-224.9	259.7	246.6	13.08	19.855	
2,900.0	2,895.0	2,890.0	2,884.5	6.9	7.0	-107.38	126.4	-229.1	265.7	252.1	13.58	19.570	
3,000.0	2,994.7	2,989.8	2,984.1	7.1	7.2	-107.57	131.9	-233.4	271.8	257.7	14.08	19.305	
3,100.0	3,094.5	3,089.6	3,083.6	7.4	7.5	-107.75	137.4	-237.7	277.8	263.2	14.58	19.058	
3,200.0	3,194.2	3,189.4	3,183.2	7.6	7.7	-107.93	142.9	-241.9	283.8	268.8	15.08	18.827	
3,300.0	3,294.0	3,289.2	3,282.8	7.9	8.0	-108.10	148.4	-246.2	289.9	274.3	15.58	18.612	
3,400.0	3,393.7	3,389.1	3,382.3	8.1	8.3	-108.26	153.9	-250.4	295.9	279.9	16.08	18.409	
3,500.0	3,493.5	3,488.9	3,481.9	8.4	8.5	-108.41	159.4	-254.7	302.0	285.4	16.58	18.219	
3,600.0	3,593.3	3,588.7	3,581.5	8.6	8.8	-108.56	164.9	-259.0	308.0	291.0	17.08	18.039	
3,700.0	3,693.0	3,688.5	3,681.1	8.9	9.0	-108.70	170.4	-263.2	314.1	296.5	17.58	17.870	
3,800.0	3,792.8	3,788.3	3,780.6	9.2	9.3	-108.84	175.9	-267.5	320.1	302.1	18.08	17.710	
3,900.0	3,892.5	3,888.1	3,880.2	9.4	9.5	-108.97	181.4	-271.7	326.2	307.6	18.58	17.559	
4,000.0	3,992.3	3,987.9	3,979.8	9.7	9.8	-109.10	186.9	-276.0	332.3	313.2	19.08	17.416	
4,100.0	4,092.0	4,087.8	4,079.3	9.9	10.1	-109.22	192.5	-280.3	338.3	318.7	19.58	17.280	
4,200.0	4,191.8	4,187.6	4,178.9	10.2	10.3	-109.34	198.0	-284.5	344.4	324.3	20.08	17.151	
4,300.0	4,291.6	4,287.4	4,278.5	10.4	10.6	-109.45	203.5	-288.8	350.4	329.9	20.58	17.028	
4,400.0	4,391.3	4,387.2	4,378.0	10.7	10.8	-109.56	209.0	-293.0	356.5	335.4	21.08	16.911	
4,500.0	4,491.1	4,487.0	4,477.6	10.9	11.1	-109.67	214.5	-297.3	362.6	341.0	21.58	16.800	
4,600.0	4,590.8	4,586.8	4,577.2	11.2	11.3	-109.77	220.0	-301.6	368.6	346.6	22.08	16.694	
4,700.0	4,690.6	4,686.6	4,676.8	11.5	11.6	-109.87	225.5	-305.8	374.7	352.1	22.58	16.592	
4,800.0	4,790.3	4,786.4	4,776.3	11.7	11.9	-109.97	231.0	-310.1	380.8	357.7	23.09	16.495	
4,900.0	4,890.1	4,886.3	4,875.9	12.0	12.1	-110.06	236.5	-314.3	386.9	363.3	23.59	16.401	
5,000.0	4,989.9	4,986.1	4,975.5	12.2	12.4	-110.15	242.0	-318.6	392.9	368.8	24.09	16.312	
5,100.0	5,089.6	5,085.9	5,075.0	12.5	12.6	-110.24	247.5	-322.9	399.0	374.4	24.59	16.227	

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 #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor #12F-0102B - HZ - Plan #3

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.4	5,185.7	5,174.6	12.7	12.9	-110.32	253.0	-327.1	405.1	380.0	25.09	16.144	
5,300.0	5,289.1	5,285.5	5,274.2	13.0	13.1	-110.41	258.5	-331.4	411.2	385.6	25.59	16.065	
5,400.0	5,388.9	5,385.3	5,373.8	13.2	13.4	-110.49	264.0	-335.6	417.2	391.1	26.09	15.990	SF
5,500.0	5,488.2	5,471.4	5,459.5	13.5	13.6	-110.17	269.6	-339.9	425.3	398.7	26.54	16.023	
5,600.0	5,584.1	5,539.9	5,526.6	14.0	13.9	-108.94	280.2	-348.1	445.2	418.2	27.01	16.482	
5,700.0	5,672.9	5,600.0	5,583.6	14.5	14.2	-106.64	295.2	-359.7	477.6	450.0	27.63	17.287	
5,800.0	5,751.4	5,666.5	5,643.6	15.3	14.6	-103.57	317.7	-377.2	520.9	492.4	28.55	18.244	
5,900.0	5,816.6	5,722.8	5,691.3	16.3	15.0	-99.22	341.4	-395.5	573.5	543.7	29.79	19.253	
6,000.0	5,866.2	5,774.0	5,731.7	17.4	15.4	-93.70	366.4	-414.8	633.3	602.0	31.28	20.243	
6,100.0	5,898.4	5,820.2	5,765.2	18.7	15.8	-87.11	391.4	-434.2	698.4	665.6	32.82	21.282	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor #12F-0103A - HZ - Plan #3

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.01	0.0	-98.4	98.4				
100.0	100.0	100.0	100.0	0.1	0.1	-90.01	0.0	-98.4	98.4	98.2	0.19	525.983	
200.0	200.0	200.0	200.0	0.3	0.3	-90.01	0.0	-98.4	98.4	97.7	0.64	154.526	
300.0	300.0	300.0	300.0	0.5	0.5	-90.01	0.0	-98.4	98.4	97.3	1.09	90.567	
400.0	400.0	400.0	400.0	0.8	0.8	-90.01	0.0	-98.4	98.4	96.8	1.54	64.054	
500.0	500.0	500.0	500.0	1.0	1.0	-90.01	0.0	-98.4	98.4	96.4	1.99	49.549	
600.0	600.0	600.0	600.0	1.2	1.2	-90.01	0.0	-98.4	98.4	95.9	2.43	40.401	
700.0	700.0	700.0	700.0	1.4	1.4	-90.01	0.0	-98.4	98.4	95.5	2.88	34.104	CC
800.0	800.0	800.0	800.0	1.7	1.7	-105.17	0.0	-98.4	98.8	95.5	3.33	29.650	ES
900.0	899.8	899.8	899.8	1.9	1.9	-108.03	0.0	-98.4	100.3	96.5	3.78	26.528	
1,000.0	999.6	999.6	999.6	2.1	2.1	-111.72	0.0	-98.4	102.7	98.4	4.23	24.247	
1,100.0	1,099.4	1,098.2	1,098.2	2.4	2.3	-114.33	1.5	-99.2	106.0	101.3	4.69	22.609	
1,200.0	1,199.1	1,197.0	1,196.8	2.6	2.6	-115.09	5.9	-101.6	110.5	105.4	5.14	21.481	
1,300.0	1,298.9	1,296.8	1,296.4	2.8	2.8	-114.93	12.0	-105.0	115.6	110.0	5.61	20.603	
1,400.0	1,398.6	1,396.7	1,396.0	3.1	3.0	-114.78	18.1	-108.3	120.7	114.6	6.08	19.841	
1,500.0	1,498.4	1,496.5	1,495.6	3.3	3.3	-114.64	24.2	-111.7	125.8	119.2	6.56	19.175	
1,600.0	1,598.1	1,596.4	1,595.3	3.6	3.5	-114.52	30.4	-115.0	130.9	123.8	7.04	18.588	
1,700.0	1,697.9	1,696.3	1,694.9	3.8	3.7	-114.40	36.5	-118.3	136.0	128.5	7.53	18.069	
1,800.0	1,797.6	1,796.1	1,794.5	4.1	4.0	-114.29	42.6	-121.7	141.1	133.1	8.01	17.606	
1,900.0	1,897.4	1,896.0	1,894.1	4.3	4.2	-114.19	48.7	-125.0	146.2	137.7	8.50	17.193	
2,000.0	1,997.2	1,995.9	1,993.8	4.6	4.5	-114.10	54.8	-128.4	151.3	142.3	8.99	16.821	
2,100.0	2,096.9	2,095.7	2,093.4	4.8	4.7	-114.01	60.9	-131.7	156.4	146.9	9.48	16.484	
2,200.0	2,196.7	2,195.6	2,193.0	5.1	5.0	-113.93	67.0	-135.1	161.4	151.5	9.98	16.179	
2,300.0	2,296.4	2,295.5	2,292.7	5.3	5.2	-113.85	73.1	-138.4	166.5	156.1	10.47	15.901	
2,400.0	2,396.2	2,395.4	2,392.3	5.6	5.5	-113.78	79.2	-141.8	171.6	160.7	10.97	15.647	
2,500.0	2,495.9	2,495.2	2,491.9	5.8	5.7	-113.71	85.3	-145.1	176.7	165.3	11.47	15.414	
2,600.0	2,595.7	2,595.1	2,591.5	6.1	6.0	-113.64	91.5	-148.5	181.8	169.9	11.96	15.199	
2,700.0	2,695.5	2,695.0	2,691.2	6.4	6.2	-113.58	97.6	-151.8	186.9	174.5	12.46	15.000	
2,800.0	2,795.2	2,794.8	2,790.8	6.6	6.5	-113.52	103.7	-155.2	192.0	179.1	12.96	14.816	
2,900.0	2,895.0	2,894.7	2,890.4	6.9	6.7	-113.47	109.8	-158.5	197.1	183.7	13.46	14.645	
3,000.0	2,994.7	2,994.6	2,990.0	7.1	7.0	-113.42	115.9	-161.8	202.2	188.3	13.96	14.486	
3,100.0	3,094.5	3,094.4	3,089.7	7.4	7.2	-113.37	122.0	-165.2	207.3	192.9	14.46	14.338	
3,200.0	3,194.2	3,194.3	3,189.3	7.6	7.5	-113.32	128.1	-168.5	212.4	197.5	14.96	14.199	
3,300.0	3,294.0	3,294.2	3,288.9	7.9	7.7	-113.28	134.2	-171.9	217.5	202.0	15.46	14.069	
3,400.0	3,393.7	3,394.1	3,388.5	8.1	8.0	-113.23	140.3	-175.2	222.6	206.6	15.96	13.946	
3,500.0	3,493.5	3,493.9	3,488.2	8.4	8.2	-113.19	146.4	-178.6	227.7	211.2	16.46	13.831	
3,600.0	3,593.3	3,593.8	3,587.8	8.6	8.5	-113.15	152.6	-181.9	232.8	215.8	16.96	13.723	
3,700.0	3,693.0	3,693.7	3,687.4	8.9	8.8	-113.11	158.7	-185.3	237.9	220.4	17.47	13.621	
3,800.0	3,792.8	3,793.5	3,787.1	9.2	9.0	-113.08	164.8	-188.6	243.0	225.0	17.97	13.524	
3,900.0	3,892.5	3,893.4	3,886.7	9.4	9.3	-113.04	170.9	-192.0	248.1	229.6	18.47	13.432	
4,000.0	3,992.3	3,993.3	3,986.3	9.7	9.5	-113.01	177.0	-195.3	253.2	234.2	18.97	13.345	
4,100.0	4,092.0	4,093.1	4,085.9	9.9	9.8	-112.98	183.1	-198.7	258.3	238.8	19.48	13.263	
4,200.0	4,191.8	4,193.0	4,185.6	10.2	10.0	-112.95	189.2	-202.0	263.4	243.4	19.98	13.184	
4,300.0	4,291.6	4,292.9	4,285.2	10.4	10.3	-112.92	195.3	-205.4	268.5	248.0	20.48	13.109	
4,400.0	4,391.3	4,392.8	4,384.8	10.7	10.5	-112.89	201.4	-208.7	273.6	252.6	20.98	13.038	
4,500.0	4,491.1	4,492.6	4,484.4	10.9	10.8	-112.86	207.5	-212.0	278.7	257.2	21.49	12.970	
4,600.0	4,590.8	4,592.5	4,584.1	11.2	11.1	-112.84	213.7	-215.4	283.8	261.8	21.99	12.905	
4,700.0	4,690.6	4,692.4	4,683.7	11.5	11.3	-112.81	219.8	-218.7	288.9	266.4	22.49	12.843	
4,800.0	4,790.3	4,792.2	4,783.3	11.7	11.6	-112.79	225.9	-222.1	294.0	271.0	23.00	12.784	
4,900.0	4,890.1	4,892.1	4,882.9	12.0	11.8	-112.76	232.0	-225.4	299.1	275.6	23.50	12.727	
5,000.0	4,989.9	4,992.0	4,982.6	12.2	12.1	-112.74	238.1	-228.8	304.2	280.2	24.00	12.672	
5,100.0	5,089.6	5,091.8	5,082.2	12.5	12.3	-112.72	244.2	-232.1	309.3	284.8	24.51	12.620	

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 #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor #12F-0103A - HZ - Plan #3

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.4	5,191.7	5,181.8	12.7	12.6	-112.70	250.3	-235.5	314.4	289.4	25.01	12.570	
5,300.0	5,289.1	5,291.6	5,281.5	13.0	12.8	-112.68	256.4	-238.8	319.5	294.0	25.51	12.521	
5,400.0	5,388.9	5,381.7	5,371.2	13.2	13.1	-112.34	263.6	-242.8	325.4	299.4	26.01	12.509	SF
5,500.0	5,488.2	5,461.6	5,448.8	13.5	13.4	-109.79	279.7	-251.6	337.7	311.2	26.53	12.729	
5,600.0	5,584.1	5,538.0	5,519.7	14.0	13.8	-106.12	304.7	-265.3	361.8	334.6	27.17	13.316	
5,700.0	5,672.9	5,610.3	5,582.2	14.5	14.2	-101.96	336.5	-282.7	396.6	368.5	28.03	14.148	
5,800.0	5,751.4	5,678.1	5,635.7	15.3	14.8	-97.36	372.9	-302.6	440.0	410.9	29.15	15.096	
5,900.0	5,816.6	5,741.8	5,680.7	16.3	15.3	-92.38	412.4	-324.2	490.2	459.7	30.49	16.080	
6,000.0	5,866.2	5,800.0	5,716.7	17.4	15.9	-87.04	452.4	-346.2	545.4	513.5	31.93	17.079	
6,100.0	5,898.4	5,858.2	5,747.4	18.7	16.6	-81.68	495.8	-369.9	603.8	570.4	33.40	18.077	
6,200.0	5,911.9	5,912.5	5,771.0	20.1	17.3	-76.32	538.6	-393.4	663.9	629.1	34.78	19.091	
6,300.0	5,912.3	5,967.7	5,789.5	21.5	18.1	-77.76	584.3	-418.4	724.4	687.4	37.00	19.578	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor #12F-0104B - HZ - Plan #3

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-65.3	65.3				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-65.3	65.3	65.1	0.19	349.286	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-65.3	65.3	64.7	0.64	102.615	
300.0	300.0	300.0	300.0	0.5	0.5	-90.00	0.0	-65.3	65.3	64.2	1.09	60.142	
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	0.0	-65.3	65.3	63.8	1.54	42.536	
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	0.0	-65.3	65.3	63.3	1.99	32.904	
600.0	600.0	600.0	600.0	1.2	1.2	-90.00	0.0	-65.3	65.3	62.9	2.43	26.828	
700.0	700.0	700.0	700.0	1.4	1.4	-90.00	0.0	-65.3	65.3	62.4	2.88	22.647	CC, ES
800.0	800.0	800.0	800.0	1.7	1.7	-105.65	0.0	-65.3	65.8	62.4	3.33	19.736	
900.0	899.8	899.3	899.3	1.9	1.9	-108.45	1.6	-65.8	67.7	64.0	3.78	17.924	
1,000.0	999.6	998.8	998.6	2.1	2.1	-109.69	6.6	-67.3	71.1	66.9	4.23	16.804	
1,100.0	1,099.4	1,098.7	1,098.3	2.4	2.3	-109.49	13.3	-69.4	74.9	70.2	4.70	15.942	
1,200.0	1,199.1	1,198.6	1,198.0	2.6	2.6	-109.30	19.9	-71.4	78.6	73.4	5.17	15.210	
1,300.0	1,298.9	1,298.6	1,297.7	2.8	2.8	-109.13	26.6	-73.5	82.4	76.7	5.65	14.585	
1,400.0	1,398.6	1,398.5	1,397.3	3.1	3.1	-108.98	33.2	-75.5	86.1	80.0	6.13	14.047	
1,500.0	1,498.4	1,498.4	1,497.0	3.3	3.3	-108.84	39.9	-77.6	89.9	83.2	6.62	13.580	
1,600.0	1,598.1	1,598.3	1,596.7	3.6	3.5	-108.71	46.6	-79.6	93.6	86.5	7.11	13.171	
1,700.0	1,697.9	1,698.3	1,696.4	3.8	3.8	-108.59	53.2	-81.7	97.4	89.8	7.60	12.811	
1,800.0	1,797.6	1,798.2	1,796.1	4.1	4.0	-108.48	59.9	-83.7	101.1	93.0	8.10	12.491	
1,900.0	1,897.4	1,898.1	1,895.8	4.3	4.3	-108.37	66.6	-85.8	104.9	96.3	8.59	12.207	
2,000.0	1,997.2	1,998.1	1,995.5	4.6	4.5	-108.28	73.2	-87.8	108.6	99.5	9.09	11.951	
2,100.0	2,096.9	2,098.0	2,095.2	4.8	4.8	-108.19	79.9	-89.8	112.4	102.8	9.59	11.721	
2,200.0	2,196.7	2,197.9	2,194.8	5.1	5.0	-108.10	86.6	-91.9	116.1	106.0	10.09	11.512	
2,300.0	2,296.4	2,297.8	2,294.5	5.3	5.3	-108.02	93.2	-93.9	119.9	109.3	10.59	11.322	
2,400.0	2,396.2	2,397.8	2,394.2	5.6	5.6	-107.95	99.9	-96.0	123.6	112.6	11.09	11.149	
2,500.0	2,495.9	2,497.7	2,493.9	5.8	5.8	-107.88	106.5	-98.0	127.4	115.8	11.59	10.990	
2,600.0	2,595.7	2,597.6	2,593.6	6.1	6.1	-107.82	113.2	-100.1	131.2	119.1	12.09	10.844	
2,700.0	2,695.5	2,697.6	2,693.3	6.4	6.3	-107.75	119.9	-102.1	134.9	122.3	12.60	10.709	
2,800.0	2,795.2	2,797.5	2,793.0	6.6	6.6	-107.70	126.5	-104.2	138.7	125.6	13.10	10.584	
2,900.0	2,895.0	2,897.4	2,892.6	6.9	6.8	-107.64	133.2	-106.2	142.4	128.8	13.61	10.468	
3,000.0	2,994.7	2,997.4	2,992.3	7.1	7.1	-107.59	139.9	-108.3	146.2	132.1	14.11	10.360	
3,100.0	3,094.5	3,097.3	3,092.0	7.4	7.3	-107.54	146.5	-110.3	149.9	135.3	14.61	10.259	
3,200.0	3,194.2	3,197.2	3,191.7	7.6	7.6	-107.49	153.2	-112.4	153.7	138.6	15.12	10.165	
3,300.0	3,294.0	3,297.1	3,291.4	7.9	7.8	-107.44	159.9	-114.4	157.4	141.8	15.62	10.077	
3,400.0	3,393.7	3,397.1	3,391.1	8.1	8.1	-107.40	166.5	-116.4	161.2	145.1	16.13	9.994	
3,500.0	3,493.5	3,497.0	3,490.8	8.4	8.3	-107.36	173.2	-118.5	165.0	148.3	16.64	9.916	
3,600.0	3,593.3	3,596.9	3,590.4	8.6	8.6	-107.32	179.8	-120.5	168.7	151.6	17.14	9.843	
3,700.0	3,693.0	3,696.9	3,690.1	8.9	8.9	-107.28	186.5	-122.6	172.5	154.8	17.65	9.773	
3,800.0	3,792.8	3,796.8	3,789.8	9.2	9.1	-107.25	193.2	-124.6	176.2	158.1	18.15	9.708	
3,900.0	3,892.5	3,896.7	3,889.5	9.4	9.4	-107.21	199.8	-126.7	180.0	161.3	18.66	9.646	
4,000.0	3,992.3	3,996.6	3,989.2	9.7	9.6	-107.18	206.5	-128.7	183.7	164.6	19.17	9.587	
4,100.0	4,092.0	4,096.6	4,088.9	9.9	9.9	-107.15	213.2	-130.8	187.5	167.8	19.67	9.531	
4,200.0	4,191.8	4,196.5	4,188.6	10.2	10.1	-107.12	219.8	-132.8	191.3	171.1	20.18	9.478	
4,300.0	4,291.6	4,296.4	4,288.2	10.4	10.4	-107.09	226.5	-134.9	195.0	174.3	20.69	9.427	
4,400.0	4,391.3	4,396.4	4,387.9	10.7	10.6	-107.06	233.2	-136.9	198.8	177.6	21.19	9.379	
4,500.0	4,491.1	4,496.3	4,487.6	10.9	10.9	-107.03	239.8	-139.0	202.5	180.8	21.70	9.333	
4,600.0	4,590.8	4,596.2	4,587.3	11.2	11.2	-107.01	246.5	-141.0	206.3	184.1	22.21	9.289	
4,700.0	4,690.6	4,696.2	4,687.0	11.5	11.4	-106.98	253.1	-143.0	210.0	187.3	22.71	9.247	
4,800.0	4,790.3	4,796.1	4,786.7	11.7	11.7	-106.96	259.8	-145.1	213.8	190.6	23.22	9.207	
4,900.0	4,890.1	4,896.0	4,886.4	12.0	11.9	-106.93	266.5	-147.1	217.6	193.8	23.73	9.169	
5,000.0	4,989.9	4,995.9	4,986.0	12.2	12.2	-106.91	273.1	-149.2	221.3	197.1	24.24	9.132	
5,100.0	5,089.6	5,095.9	5,085.7	12.5	12.4	-106.89	279.8	-151.2	225.1	200.3	24.74	9.096	

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 #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor #12F-0104B - HZ - Plan #3

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.4	5,195.8	5,185.4	12.7	12.7	-106.87	286.5	-153.3	228.8	203.6	25.25	9.062	
5,300.0	5,289.1	5,295.7	5,285.1	13.0	13.0	-106.85	293.1	-155.3	232.6	206.8	25.76	9.030	
5,400.0	5,388.9	5,395.7	5,384.8	13.2	13.2	-106.83	299.8	-157.4	236.3	210.1	26.27	8.998	
5,500.0	5,488.2	5,489.6	5,478.3	13.5	13.5	-106.52	308.5	-160.0	241.8	215.1	26.78	9.031	
5,600.0	5,584.1	5,578.3	5,564.0	14.0	13.8	-105.51	329.8	-166.6	256.1	228.7	27.44	9.333	
5,700.0	5,672.9	5,665.3	5,643.2	14.5	14.3	-103.87	363.8	-177.0	279.4	251.0	28.34	9.856	
5,800.0	5,751.4	5,750.0	5,713.7	15.3	14.9	-101.63	408.7	-190.8	310.6	281.1	29.54	10.516	
5,900.0	5,816.6	5,832.5	5,774.0	16.3	15.6	-98.87	462.2	-207.3	348.7	317.6	31.07	11.220	
6,000.0	5,866.2	5,913.0	5,823.8	17.4	16.4	-95.66	522.7	-225.8	392.1	359.2	32.92	11.912	
6,100.0	5,898.4	5,992.4	5,862.7	18.7	17.3	-92.13	588.8	-246.1	439.6	404.6	35.01	12.557	
6,200.0	5,911.9	6,071.7	5,890.6	20.1	18.4	-88.46	659.6	-267.9	489.7	452.4	37.27	13.139	
6,300.0	5,912.3	6,154.2	5,907.4	21.5	19.6	-89.41	736.8	-291.6	539.7	499.9	39.81	13.558	
6,400.0	5,912.3	6,252.6	5,911.6	22.9	21.1	-89.92	830.8	-320.1	585.5	542.8	42.64	13.731	
6,500.0	5,912.3	6,388.8	5,911.6	24.3	23.0	-89.93	962.9	-353.2	621.9	575.8	46.07	13.500	
6,600.0	5,912.3	6,534.0	5,911.6	25.8	25.2	-89.93	1,105.9	-377.9	646.3	596.5	49.82	12.973	
6,700.0	5,912.3	6,684.9	5,911.6	27.3	27.5	-89.94	1,256.0	-392.1	658.0	604.2	53.79	12.234	
6,800.0	5,912.3	6,820.7	5,911.6	28.9	29.7	-89.94	1,391.8	-394.9	659.9	602.3	57.60	11.456	
6,900.0	5,912.3	6,920.7	5,911.6	30.6	31.3	-89.94	1,491.8	-394.9	659.9	598.9	60.95	10.827	
7,000.0	5,912.3	7,020.7	5,911.6	32.3	33.0	-89.94	1,591.8	-394.9	659.9	595.5	64.35	10.255	
7,100.0	5,912.3	7,120.7	5,911.6	34.0	34.7	-89.94	1,691.8	-394.9	659.9	592.1	67.79	9.733	
7,200.0	5,912.3	7,220.7	5,911.6	35.7	36.4	-89.94	1,791.8	-394.9	659.9	588.6	71.28	9.257	
7,300.0	5,912.3	7,320.7	5,911.6	37.4	38.2	-89.94	1,891.8	-394.9	659.9	585.1	74.80	8.821	
7,400.0	5,912.3	7,420.7	5,911.6	39.2	39.9	-89.94	1,991.8	-394.9	659.9	581.5	78.36	8.421	
7,500.0	5,912.3	7,520.7	5,911.6	41.0	41.7	-89.95	2,091.8	-394.9	659.9	577.9	81.94	8.053	
7,600.0	5,912.3	7,620.7	5,911.6	42.8	43.5	-89.95	2,191.8	-394.9	659.9	574.3	85.54	7.714	
7,700.0	5,912.2	7,720.7	5,911.7	44.6	45.3	-89.95	2,291.8	-394.9	659.9	570.7	89.16	7.401	
7,800.0	5,912.2	7,820.7	5,911.7	46.4	47.1	-89.95	2,391.8	-394.9	659.9	567.1	92.80	7.111	
7,900.0	5,912.2	7,920.7	5,911.7	48.2	48.9	-89.95	2,491.8	-394.9	659.9	563.4	96.46	6.841	
8,000.0	5,912.2	8,020.7	5,911.7	50.0	50.7	-89.95	2,591.8	-394.9	659.9	559.8	100.13	6.590	
8,100.0	5,912.2	8,120.7	5,911.7	51.8	52.5	-89.95	2,691.8	-394.9	659.9	556.1	103.81	6.357	
8,200.0	5,912.2	8,220.7	5,911.7	53.7	54.4	-89.95	2,791.8	-394.9	659.9	552.4	107.50	6.138	
8,300.0	5,912.2	8,320.7	5,911.7	55.5	56.2	-89.96	2,891.8	-394.9	659.9	548.7	111.21	5.934	
8,400.0	5,912.2	8,420.7	5,911.7	57.4	58.1	-89.96	2,991.8	-394.9	659.9	545.0	114.92	5.742	
8,500.0	5,912.2	8,520.7	5,911.7	59.2	59.9	-89.96	3,091.8	-394.9	659.9	541.2	118.64	5.562	
8,600.0	5,912.2	8,620.7	5,911.7	61.1	61.8	-89.96	3,191.8	-394.9	659.9	537.5	122.37	5.393	
8,700.0	5,912.2	8,720.7	5,911.7	63.0	63.6	-89.96	3,291.8	-394.9	659.9	533.8	126.11	5.233	
8,800.0	5,912.2	8,820.7	5,911.7	64.8	65.5	-89.96	3,391.8	-394.9	659.9	530.0	129.85	5.082	
8,900.0	5,912.2	8,920.7	5,911.7	66.7	67.4	-89.96	3,491.8	-394.9	659.9	526.3	133.60	4.939	
9,000.0	5,912.2	9,020.7	5,911.8	68.6	69.2	-89.96	3,591.8	-394.9	659.9	522.5	137.35	4.804	
9,100.0	5,912.2	9,120.7	5,911.8	70.4	71.1	-89.96	3,691.8	-394.9	659.9	518.8	141.11	4.677	
9,200.0	5,912.2	9,220.7	5,911.8	72.3	73.0	-89.97	3,791.8	-394.9	659.9	515.0	144.87	4.555	
9,300.0	5,912.2	9,320.7	5,911.8	74.2	74.8	-89.97	3,891.8	-394.9	659.9	511.3	148.64	4.440	
9,400.0	5,912.2	9,420.7	5,911.8	76.1	76.7	-89.97	3,991.8	-394.9	659.9	507.5	152.41	4.330	
9,500.0	5,912.2	9,520.7	5,911.8	78.0	78.6	-89.97	4,091.8	-394.9	659.9	503.7	156.18	4.225	
9,600.0	5,912.1	9,620.7	5,911.8	79.8	80.5	-89.97	4,191.8	-394.9	659.9	499.9	159.96	4.125	
9,700.0	5,912.1	9,720.7	5,911.8	81.7	82.4	-89.97	4,291.8	-394.9	659.9	496.2	163.74	4.030	
9,800.0	5,912.1	9,820.7	5,911.8	83.6	84.3	-89.97	4,391.8	-394.9	659.9	492.4	167.52	3.939	
9,900.0	5,912.1	9,920.7	5,911.8	85.5	86.1	-89.97	4,491.8	-394.9	659.9	488.6	171.31	3.852	
10,000.0	5,912.1	10,020.7	5,911.8	87.4	88.0	-89.97	4,591.8	-394.9	659.9	484.8	175.10	3.769	
10,100.0	5,912.1	10,120.7	5,911.8	89.3	89.9	-89.98	4,691.8	-394.9	659.9	481.0	178.89	3.689	
10,200.0	5,912.1	10,220.7	5,911.8	91.2	91.8	-89.98	4,791.8	-394.9	659.9	477.2	182.68	3.612	
10,300.0	5,912.1	10,320.7	5,911.8	93.1	93.7	-89.98	4,891.8	-394.9	659.9	473.4	186.47	3.539	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor #12F-0104B - HZ - Plan #3

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
10,400.0	5,912.1	10,420.7	5,911.9	95.0	95.6	-89.98	4,991.8	-394.9	659.9	469.6	190.27	3.468	
10,500.0	5,912.1	10,520.7	5,911.9	96.9	97.5	-89.98	5,091.8	-394.9	659.9	465.8	194.07	3.400	
10,600.0	5,912.1	10,620.7	5,911.9	98.8	99.4	-89.98	5,191.8	-394.9	659.9	462.0	197.87	3.335	
10,700.0	5,912.1	10,720.7	5,911.9	100.7	101.3	-89.98	5,291.8	-394.9	659.9	458.2	201.67	3.272	
10,800.0	5,912.1	10,820.7	5,911.9	102.6	103.2	-89.98	5,391.8	-394.9	659.9	454.4	205.48	3.212	
10,900.0	5,912.1	10,920.7	5,911.9	104.5	105.1	-89.98	5,491.8	-394.9	659.9	450.6	209.28	3.153	
11,000.0	5,912.1	11,020.7	5,911.9	106.4	107.0	-89.99	5,591.8	-394.9	659.9	446.8	213.09	3.097	
11,100.0	5,912.1	11,120.7	5,911.9	108.3	108.9	-89.99	5,691.8	-394.9	659.9	443.0	216.90	3.042	
11,200.0	5,912.1	11,220.7	5,911.9	110.2	110.8	-89.99	5,791.8	-394.9	659.9	439.2	220.71	2.990	
11,300.0	5,912.1	11,320.7	5,911.9	112.1	112.7	-89.99	5,891.8	-394.9	659.9	435.4	224.52	2.939	
11,400.0	5,912.0	11,420.7	5,911.9	114.0	114.6	-89.99	5,991.8	-394.9	659.9	431.6	228.33	2.890	
11,500.0	5,912.0	11,520.7	5,911.9	115.9	116.5	-89.99	6,091.8	-394.9	659.9	427.8	232.14	2.843	
11,600.0	5,912.0	11,620.7	5,911.9	117.8	118.4	-89.99	6,191.8	-394.9	659.9	424.0	235.95	2.797	
11,700.0	5,912.0	11,720.7	5,912.0	119.7	120.3	-89.99	6,291.8	-394.9	659.9	420.1	239.77	2.752	
11,800.0	5,912.0	11,820.7	5,912.0	121.6	122.2	-89.99	6,391.8	-394.9	659.9	416.3	243.58	2.709	
11,900.0	5,912.0	11,920.7	5,912.0	123.5	124.1	-90.00	6,491.8	-394.9	659.9	412.5	247.40	2.667	
12,000.0	5,912.0	12,020.7	5,912.0	125.4	126.0	-90.00	6,591.8	-394.9	659.9	408.7	251.22	2.627	
12,100.0	5,912.0	12,120.7	5,912.0	127.3	127.9	-90.00	6,691.8	-394.9	659.9	404.9	255.03	2.588	
12,200.0	5,912.0	12,220.7	5,912.0	129.2	129.8	-90.00	6,791.8	-394.9	659.9	401.1	258.85	2.549	
12,300.0	5,912.0	12,320.7	5,912.0	130.8	131.8	-90.00	6,891.8	-394.9	659.9	397.6	262.33	2.516	
12,300.0	5,912.0	12,320.7	5,912.0	130.8	131.8	-90.00	6,891.8	-394.9	659.9	397.6	262.33	2.516	
12,307.5	5,912.0	12,325.1	5,912.0	130.9	131.8	-90.00	6,896.3	-394.9	659.9	397.4	262.53	2.514	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor #12F-0105A - HZ - Plan #3

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.03	0.0	-32.3	32.3				
100.0	100.0	100.0	100.0	0.1	0.1	-90.03	0.0	-32.3	32.3	32.1	0.19	172.588	
200.0	200.0	200.0	200.0	0.3	0.3	-90.03	0.0	-32.3	32.3	31.6	0.64	50.704	
300.0	300.0	300.0	300.0	0.5	0.5	-90.03	0.0	-32.3	32.3	31.2	1.09	29.717	
400.0	400.0	400.0	400.0	0.8	0.8	-90.03	0.0	-32.3	32.3	30.7	1.54	21.018	
500.0	500.0	500.0	500.0	1.0	1.0	-90.03	0.0	-32.3	32.3	30.3	1.99	16.258	
600.0	600.0	600.0	600.0	1.2	1.2	-90.03	0.0	-32.3	32.3	29.8	2.43	13.256	
700.0	700.0	700.0	700.0	1.4	1.4	-90.03	0.0	-32.3	32.3	29.4	2.88	11.190	CC, ES
800.0	800.0	800.0	800.0	1.7	1.7	-107.18	0.0	-32.3	32.7	29.4	3.33	9.827	
900.0	899.8	899.8	899.8	1.9	1.9	-115.43	0.0	-32.3	34.7	30.9	3.78	9.166	
1,000.0	999.6	999.6	999.6	2.1	2.1	-124.91	0.0	-32.3	38.2	33.9	4.23	9.019	
1,100.0	1,099.4	1,099.4	1,099.4	2.4	2.3	-132.62	0.0	-32.3	42.6	37.9	4.69	9.080	
1,200.0	1,199.1	1,200.0	1,199.9	2.6	2.6	-137.05	1.7	-32.3	46.7	41.5	5.14	9.073	
1,300.0	1,298.9	1,300.8	1,300.6	2.8	2.8	-137.34	7.0	-32.5	49.1	43.5	5.60	8.764	
1,400.0	1,398.6	1,400.8	1,400.4	3.1	3.0	-135.92	14.0	-32.8	50.7	44.6	6.07	8.350	
1,500.0	1,498.4	1,500.8	1,500.1	3.3	3.3	-134.58	20.9	-33.1	52.2	45.7	6.54	7.992	
1,600.0	1,598.1	1,600.7	1,599.8	3.6	3.5	-133.32	27.9	-33.3	53.9	46.8	7.01	7.682	
1,700.0	1,697.9	1,700.7	1,699.6	3.8	3.7	-132.14	34.9	-33.6	55.5	48.0	7.49	7.409	
1,800.0	1,797.6	1,800.7	1,799.3	4.1	4.0	-131.03	41.9	-33.9	57.2	49.2	7.97	7.170	
1,900.0	1,897.4	1,900.7	1,899.0	4.3	4.2	-129.98	48.8	-34.2	58.8	50.4	8.46	6.957	
2,000.0	1,997.2	2,000.7	1,998.8	4.6	4.5	-128.99	55.8	-34.4	60.5	51.6	8.94	6.768	
2,100.0	2,096.9	2,100.6	2,098.5	4.8	4.7	-128.05	62.8	-34.7	62.2	52.8	9.43	6.598	
2,200.0	2,196.7	2,200.6	2,198.3	5.1	4.9	-127.16	69.7	-35.0	64.0	54.1	9.93	6.445	
2,300.0	2,296.4	2,300.6	2,298.0	5.3	5.2	-126.32	76.7	-35.2	65.7	55.3	10.42	6.307	
2,400.0	2,396.2	2,400.6	2,397.7	5.6	5.4	-125.53	83.7	-35.5	67.5	56.6	10.92	6.182	
2,500.0	2,495.9	2,500.6	2,497.5	5.8	5.7	-124.77	90.6	-35.8	69.3	57.8	11.41	6.068	
2,600.0	2,595.7	2,600.5	2,597.2	6.1	5.9	-124.05	97.6	-36.0	71.0	59.1	11.91	5.964	
2,700.0	2,695.5	2,700.5	2,696.9	6.4	6.2	-123.37	104.6	-36.3	72.8	60.4	12.41	5.868	
2,800.0	2,795.2	2,800.5	2,796.7	6.6	6.4	-122.72	111.5	-36.6	74.6	61.7	12.91	5.780	
2,900.0	2,895.0	2,900.5	2,896.4	6.9	6.7	-122.10	118.5	-36.8	76.5	63.0	13.42	5.699	
3,000.0	2,994.7	3,000.5	2,996.1	7.1	6.9	-121.51	125.5	-37.1	78.3	64.4	13.92	5.624	
3,100.0	3,094.5	3,100.4	3,095.9	7.4	7.2	-120.95	132.5	-37.4	80.1	65.7	14.42	5.555	
3,200.0	3,194.2	3,200.4	3,195.6	7.6	7.4	-120.41	139.4	-37.6	81.9	67.0	14.93	5.490	
3,300.0	3,294.0	3,300.4	3,295.4	7.9	7.7	-119.89	146.4	-37.9	83.8	68.4	15.43	5.430	
3,400.0	3,393.7	3,400.4	3,395.1	8.1	7.9	-119.40	153.4	-38.2	85.6	69.7	15.94	5.374	
3,500.0	3,493.5	3,500.4	3,494.8	8.4	8.2	-118.93	160.3	-38.4	87.5	71.1	16.44	5.322	
3,600.0	3,593.3	3,600.3	3,594.6	8.6	8.5	-118.48	167.3	-38.7	89.4	72.4	16.95	5.273	
3,700.0	3,693.0	3,700.3	3,694.3	8.9	8.7	-118.05	174.3	-39.0	91.2	73.8	17.45	5.226	
3,800.0	3,792.8	3,800.3	3,794.0	9.2	9.0	-117.63	181.2	-39.2	93.1	75.1	17.96	5.183	
3,900.0	3,892.5	3,900.3	3,893.8	9.4	9.2	-117.23	188.2	-39.5	95.0	76.5	18.47	5.142	
4,000.0	3,992.3	4,000.3	3,993.5	9.7	9.5	-116.85	195.2	-39.8	96.9	77.9	18.98	5.104	
4,100.0	4,092.0	4,100.2	4,093.3	9.9	9.7	-116.48	202.1	-40.0	98.7	79.3	19.49	5.068	
4,200.0	4,191.8	4,200.2	4,193.0	10.2	10.0	-116.12	209.1	-40.3	100.6	80.6	19.99	5.033	
4,300.0	4,291.6	4,300.2	4,292.7	10.4	10.2	-115.78	216.1	-40.6	102.5	82.0	20.50	5.001	
4,400.0	4,391.3	4,400.2	4,392.5	10.7	10.5	-115.45	223.1	-40.8	104.4	83.4	21.01	4.970	
4,500.0	4,491.1	4,500.2	4,492.2	10.9	10.7	-115.13	230.0	-41.1	106.3	84.8	21.52	4.941	
4,600.0	4,590.8	4,600.1	4,591.9	11.2	11.0	-114.82	237.0	-41.4	108.2	86.2	22.03	4.913	
4,700.0	4,690.6	4,700.1	4,691.7	11.5	11.2	-114.53	244.0	-41.6	110.1	87.6	22.54	4.887	
4,800.0	4,790.3	4,800.1	4,791.4	11.7	11.5	-114.24	250.9	-41.9	112.0	89.0	23.05	4.861	
4,900.0	4,890.1	4,900.1	4,891.1	12.0	11.8	-113.96	257.9	-42.2	114.0	90.4	23.56	4.837	
5,000.0	4,989.9	5,000.1	4,990.9	12.2	12.0	-113.70	264.9	-42.5	115.9	91.8	24.07	4.814	
5,100.0	5,089.6	5,100.0	5,090.6	12.5	12.3	-113.44	271.8	-42.7	117.8	93.2	24.58	4.793	

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 #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor #12F-0105A - HZ - Plan #3

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.4	5,200.0	5,190.4	12.7	12.5	-113.19	278.8	-43.0	119.7	94.6	25.09	4.772	
5,300.0	5,289.1	5,300.0	5,290.1	13.0	12.8	-112.94	285.8	-43.3	121.6	96.0	25.60	4.752	
5,400.0	5,388.9	5,401.4	5,390.8	13.2	13.1	-110.81	296.9	-43.7	123.2	97.0	26.17	4.707	
5,500.0	5,488.2	5,500.0	5,485.1	13.5	13.5	-102.01	325.1	-44.8	126.1	99.2	26.93	4.683	
5,600.0	5,584.1	5,593.8	5,568.5	14.0	14.0	-93.07	367.9	-46.4	136.8	108.9	27.87	4.908	
5,700.0	5,672.9	5,684.4	5,640.4	14.5	14.7	-85.58	422.7	-48.5	154.3	125.3	28.98	5.324	
5,800.0	5,751.4	5,771.7	5,699.7	15.3	15.4	-79.82	486.6	-51.0	176.6	146.4	30.18	5.850	
5,900.0	5,816.6	5,856.5	5,746.3	16.3	16.3	-75.57	557.2	-53.7	201.9	170.4	31.49	6.409	
6,000.0	5,866.2	5,939.1	5,780.2	17.4	17.3	-72.50	632.4	-56.6	228.8	195.8	32.99	6.935	
6,100.0	5,898.4	6,020.3	5,801.4	18.7	18.4	-70.30	710.7	-59.6	256.2	221.4	34.74	7.374	
6,200.0	5,911.9	6,100.0	5,810.2	20.1	19.5	-68.79	789.7	-62.6	283.2	246.4	36.78	7.700	
6,300.0	5,912.3	6,205.0	5,810.5	21.5	21.0	-70.23	894.6	-64.7	306.6	266.7	39.87	7.690	
6,400.0	5,912.3	6,303.3	5,810.6	22.9	22.5	-71.46	993.0	-64.7	323.5	280.6	42.92	7.538	
6,500.0	5,912.3	6,402.5	5,810.6	24.3	24.1	-72.27	1,092.2	-64.7	335.6	289.7	45.98	7.300	
6,600.0	5,912.3	6,502.2	5,810.6	25.8	25.7	-72.72	1,191.9	-64.7	342.8	293.8	49.00	6.996	
6,700.0	5,912.3	6,602.2	5,810.6	27.3	27.4	-72.85	1,291.9	-64.7	345.0	293.0	51.97	6.638	
6,800.0	5,912.3	6,702.2	5,810.6	28.9	29.1	-72.85	1,391.9	-64.7	345.0	289.8	55.19	6.251	
6,900.0	5,912.3	6,802.2	5,810.6	30.6	30.8	-72.85	1,491.9	-64.7	345.0	286.5	58.46	5.901	
7,000.0	5,912.3	6,902.2	5,810.6	32.3	32.6	-72.86	1,591.9	-64.7	345.0	283.2	61.78	5.584	
7,100.0	5,912.3	7,002.2	5,810.6	34.0	34.4	-72.86	1,691.9	-64.7	345.0	279.8	65.14	5.296	
7,200.0	5,912.3	7,102.2	5,810.6	35.7	36.2	-72.86	1,791.9	-64.7	345.0	276.4	68.53	5.034	
7,300.0	5,912.3	7,202.2	5,810.6	37.4	38.0	-72.86	1,891.9	-64.7	345.0	273.0	71.96	4.794	
7,400.0	5,912.3	7,302.2	5,810.6	39.2	39.8	-72.86	1,991.9	-64.7	345.0	269.6	75.41	4.575	
7,500.0	5,912.3	7,402.2	5,810.6	41.0	41.6	-72.87	2,091.9	-64.7	345.0	266.1	78.88	4.373	
7,600.0	5,912.3	7,502.2	5,810.6	42.8	43.4	-72.87	2,191.9	-64.7	345.0	262.6	82.38	4.188	
7,700.0	5,912.2	7,602.2	5,810.7	44.6	45.3	-72.87	2,291.9	-64.7	345.0	259.1	85.89	4.016	
7,800.0	5,912.2	7,702.2	5,810.7	46.4	47.1	-72.87	2,391.9	-64.7	344.9	255.5	89.41	3.858	
7,900.0	5,912.2	7,802.2	5,810.7	48.2	48.9	-72.87	2,491.9	-64.7	344.9	252.0	92.95	3.711	
8,000.0	5,912.2	7,902.2	5,810.7	50.0	50.8	-72.88	2,591.9	-64.7	344.9	248.4	96.50	3.574	
8,100.0	5,912.2	8,002.2	5,810.7	51.8	52.7	-72.88	2,691.9	-64.7	344.9	244.9	100.07	3.447	
8,200.0	5,912.2	8,102.2	5,810.7	53.7	54.5	-72.88	2,791.9	-64.6	344.9	241.3	103.64	3.328	
8,300.0	5,912.2	8,202.2	5,810.7	55.5	56.4	-72.88	2,891.9	-64.6	344.9	237.7	107.22	3.217	
8,400.0	5,912.2	8,302.2	5,810.7	57.4	58.3	-72.88	2,991.9	-64.6	344.9	234.1	110.81	3.113	
8,500.0	5,912.2	8,402.2	5,810.7	59.2	60.1	-72.89	3,091.9	-64.6	344.9	230.5	114.40	3.015	
8,600.0	5,912.2	8,502.2	5,810.7	61.1	62.0	-72.89	3,191.9	-64.6	344.9	226.9	118.00	2.923	
8,700.0	5,912.2	8,602.2	5,810.7	63.0	63.9	-72.89	3,291.9	-64.6	344.9	223.3	121.61	2.836	
8,800.0	5,912.2	8,702.2	5,810.7	64.8	65.8	-72.89	3,391.9	-64.6	344.9	219.7	125.22	2.754	
8,900.0	5,912.2	8,802.2	5,810.7	66.7	67.7	-72.89	3,491.9	-64.6	344.9	216.0	128.84	2.677	
9,000.0	5,912.2	8,902.2	5,810.8	68.6	69.6	-72.90	3,591.9	-64.6	344.9	212.4	132.46	2.604	
9,100.0	5,912.2	9,002.2	5,810.8	70.4	71.4	-72.90	3,691.9	-64.6	344.9	208.8	136.09	2.534	
9,200.0	5,912.2	9,102.2	5,810.8	72.3	73.3	-72.90	3,791.9	-64.6	344.9	205.1	139.72	2.468	
9,300.0	5,912.2	9,202.2	5,810.8	74.2	75.2	-72.90	3,891.9	-64.6	344.9	201.5	143.36	2.406	
9,400.0	5,912.2	9,302.2	5,810.8	76.1	77.1	-72.90	3,991.9	-64.6	344.9	197.9	146.99	2.346	
9,500.0	5,912.2	9,402.2	5,810.8	78.0	79.0	-72.91	4,091.9	-64.6	344.9	194.2	150.63	2.289	
9,600.0	5,912.1	9,502.2	5,810.8	79.8	80.9	-72.91	4,191.9	-64.6	344.8	190.6	154.28	2.235	
9,700.0	5,912.1	9,602.2	5,810.8	81.7	82.8	-72.91	4,291.9	-64.6	344.8	186.9	157.92	2.184	
9,800.0	5,912.1	9,702.2	5,810.8	83.6	84.7	-72.91	4,391.9	-64.6	344.8	183.3	161.57	2.134	
9,900.0	5,912.1	9,802.2	5,810.8	85.5	86.6	-72.91	4,491.9	-64.6	344.8	179.6	165.22	2.087	
10,000.0	5,912.1	9,902.2	5,810.8	87.4	88.5	-72.92	4,591.9	-64.6	344.8	176.0	168.88	2.042	
10,100.0	5,912.1	10,002.2	5,810.8	89.3	90.4	-72.92	4,691.9	-64.6	344.8	172.3	172.53	1.999	
10,200.0	5,912.1	10,102.2	5,810.8	91.2	92.3	-72.92	4,791.9	-64.6	344.8	168.6	176.19	1.957	
10,300.0	5,912.1	10,202.2	5,810.8	93.1	94.2	-72.92	4,891.9	-64.6	344.8	165.0	179.85	1.917	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor #12F-0105A - HZ - Plan #3

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
10,400.0	5,912.1	10,302.2	5,810.9	95.0	96.1	-72.92	4,991.9	-64.6	344.8	161.3	183.51	1.879	
10,500.0	5,912.1	10,402.2	5,810.9	96.9	98.0	-72.93	5,091.9	-64.6	344.8	157.6	187.17	1.842	
10,600.0	5,912.1	10,502.2	5,810.9	98.8	99.9	-72.93	5,191.9	-64.6	344.8	154.0	190.83	1.807	
10,700.0	5,912.1	10,602.2	5,810.9	100.7	101.8	-72.93	5,291.9	-64.6	344.8	150.3	194.50	1.773	
10,800.0	5,912.1	10,702.2	5,810.9	102.6	103.7	-72.93	5,391.9	-64.6	344.8	146.6	198.17	1.740	
10,900.0	5,912.1	10,802.2	5,810.9	104.5	105.6	-72.93	5,491.9	-64.6	344.8	142.9	201.83	1.708	
11,000.0	5,912.1	10,902.2	5,810.9	106.4	107.6	-72.94	5,591.9	-64.6	344.8	139.3	205.50	1.678	
11,100.0	5,912.1	11,002.2	5,810.9	108.3	109.5	-72.94	5,691.9	-64.6	344.8	135.6	209.17	1.648	
11,200.0	5,912.1	11,102.2	5,810.9	110.2	111.4	-72.94	5,791.9	-64.6	344.8	131.9	212.84	1.620	
11,300.0	5,912.1	11,202.2	5,810.9	112.1	113.3	-72.94	5,891.9	-64.6	344.8	128.2	216.52	1.592	
11,400.0	5,912.0	11,302.2	5,810.9	114.0	115.2	-72.94	5,991.9	-64.6	344.8	124.6	220.19	1.566	
11,500.0	5,912.0	11,402.2	5,810.9	115.9	117.1	-72.95	6,091.9	-64.6	344.7	120.9	223.87	1.540	
11,600.0	5,912.0	11,502.2	5,810.9	117.8	119.0	-72.95	6,191.9	-64.6	344.7	117.2	227.54	1.515	
11,700.0	5,912.0	11,602.2	5,811.0	119.7	120.9	-72.95	6,291.9	-64.5	344.7	113.5	231.22	1.491	Level 3
11,800.0	5,912.0	11,702.2	5,811.0	121.6	122.8	-72.95	6,391.9	-64.5	344.7	109.8	234.89	1.468	Level 3
11,900.0	5,912.0	11,802.2	5,811.0	123.5	124.7	-72.95	6,491.9	-64.5	344.7	106.2	238.57	1.445	Level 3
12,000.0	5,912.0	11,902.2	5,811.0	125.4	126.7	-72.96	6,591.9	-64.5	344.7	102.5	242.25	1.423	Level 3
12,100.0	5,912.0	12,002.2	5,811.0	127.3	128.6	-72.96	6,691.9	-64.5	344.7	98.8	245.93	1.402	Level 3
12,200.0	5,912.0	12,102.2	5,811.0	129.2	130.5	-72.96	6,791.9	-64.5	344.7	95.1	249.61	1.381	Level 3
12,300.0	5,912.0	12,202.2	5,811.0	130.8	132.4	-72.96	6,891.9	-64.5	344.7	91.7	252.95	1.363	Level 3
12,306.1	5,912.0	12,208.3	5,811.0	130.9	132.5	-72.96	6,897.9	-64.5	344.7	91.5	253.15	1.362	Level 3
12,307.5	5,912.0	12,208.6	5,811.0	130.9	132.5	-72.96	6,898.3	-64.5	344.7	91.5	253.18	1.361	Level 3, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor #12F-0107A - HZ - Plan #2

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	66.1	66.1				
100.0	100.0	100.0	100.0	0.1	0.1	90.00	0.0	66.1	66.1	65.9	0.19	353.394	
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	66.1	66.1	65.5	0.64	103.822	
300.0	300.0	300.0	300.0	0.5	0.5	90.00	0.0	66.1	66.1	65.0	1.09	60.849	
400.0	400.0	400.0	400.0	0.8	0.8	90.00	0.0	66.1	66.1	64.6	1.54	43.036	
500.0	500.0	500.0	500.0	1.0	1.0	90.00	0.0	66.1	66.1	64.1	1.99	33.291	
600.0	600.0	600.0	600.0	1.2	1.2	90.00	0.0	66.1	66.1	63.7	2.43	27.144	
700.0	700.0	700.0	700.0	1.4	1.4	90.00	0.0	66.1	66.1	63.2	2.88	22.913	
800.0	800.0	800.0	800.0	1.7	1.7	77.29	0.0	66.1	65.7	62.3	3.33	19.709	
900.0	899.8	899.8	899.8	1.9	1.9	81.83	0.0	66.1	64.7	60.9	3.78	17.117	
1,000.0	999.6	999.6	999.6	2.1	2.1	88.00	0.0	66.1	64.1	59.9	4.24	15.131	
1,032.2	1,031.7	1,031.7	1,031.7	2.2	2.2	90.00	0.0	66.1	64.1	59.7	4.39	14.610	CC
1,100.0	1,099.4	1,099.4	1,099.4	2.4	2.3	94.21	0.0	66.1	64.2	59.5	4.70	13.676	ES
1,200.0	1,199.1	1,199.1	1,199.1	2.6	2.6	100.33	0.0	66.1	65.1	60.0	5.16	12.620	
1,300.0	1,298.9	1,299.0	1,299.0	2.8	2.8	104.76	1.5	66.8	66.6	61.0	5.62	11.842	
1,400.0	1,398.6	1,399.2	1,399.0	3.1	3.0	106.07	6.3	69.1	68.1	62.0	6.09	11.178	
1,500.0	1,498.4	1,499.2	1,498.8	3.3	3.2	105.87	12.6	72.0	69.4	62.9	6.56	10.578	
1,600.0	1,598.1	1,599.2	1,598.5	3.6	3.5	105.67	18.9	75.0	70.8	63.7	7.04	10.051	
1,700.0	1,697.9	1,699.2	1,698.3	3.8	3.7	105.48	25.2	78.0	72.1	64.6	7.52	9.586	
1,800.0	1,797.6	1,799.1	1,798.0	4.1	3.9	105.30	31.5	81.0	73.4	65.4	8.01	9.172	
1,900.0	1,897.4	1,899.1	1,897.8	4.3	4.2	105.12	37.8	84.0	74.8	66.3	8.50	8.802	
2,000.0	1,997.2	1,999.1	1,997.5	4.6	4.4	104.95	44.1	87.0	76.1	67.1	8.99	8.471	
2,100.0	2,096.9	2,099.1	2,097.3	4.8	4.7	104.79	50.4	90.0	77.5	68.0	9.48	8.171	
2,200.0	2,196.7	2,199.1	2,197.0	5.1	4.9	104.63	56.7	93.0	78.8	68.8	9.98	7.900	
2,300.0	2,296.4	2,299.1	2,296.7	5.3	5.1	104.48	63.0	96.0	80.2	69.7	10.47	7.654	
2,400.0	2,396.2	2,399.1	2,396.5	5.6	5.4	104.33	69.3	99.0	81.5	70.5	10.97	7.429	
2,500.0	2,495.9	2,499.1	2,496.2	5.8	5.6	104.19	75.6	102.0	82.9	71.4	11.47	7.223	
2,600.0	2,595.7	2,599.1	2,596.0	6.1	5.9	104.05	81.9	105.0	84.2	72.2	11.97	7.033	
2,700.0	2,695.5	2,699.1	2,695.7	6.4	6.1	103.92	88.2	107.9	85.6	73.1	12.48	6.858	
2,800.0	2,795.2	2,799.1	2,795.5	6.6	6.4	103.79	94.5	110.9	86.9	73.9	12.98	6.697	
2,900.0	2,895.0	2,899.0	2,895.2	6.9	6.6	103.66	100.8	113.9	88.3	74.8	13.48	6.547	
3,000.0	2,994.7	2,999.0	2,995.0	7.1	6.9	103.54	107.1	116.9	89.6	75.6	13.99	6.407	
3,100.0	3,094.5	3,099.0	3,094.7	7.4	7.1	103.42	113.4	119.9	91.0	76.5	14.49	6.277	
3,200.0	3,194.2	3,199.0	3,194.5	7.6	7.4	103.30	119.7	122.9	92.3	77.3	14.99	6.156	
3,300.0	3,294.0	3,299.0	3,294.2	7.9	7.6	103.19	126.0	125.9	93.7	78.2	15.50	6.042	
3,400.0	3,393.7	3,399.0	3,394.0	8.1	7.9	103.08	132.3	128.9	95.0	79.0	16.01	5.936	
3,500.0	3,493.5	3,499.0	3,493.7	8.4	8.1	102.98	138.6	131.9	96.4	79.8	16.51	5.835	
3,600.0	3,593.3	3,599.0	3,593.5	8.6	8.4	102.87	144.9	134.9	97.7	80.7	17.02	5.741	
3,700.0	3,693.0	3,699.0	3,693.2	8.9	8.7	102.77	151.2	137.9	99.1	81.5	17.53	5.652	
3,800.0	3,792.8	3,799.0	3,793.0	9.2	8.9	102.68	157.5	140.9	100.4	82.4	18.03	5.568	
3,900.0	3,892.5	3,899.0	3,892.7	9.4	9.2	102.58	163.8	143.9	101.8	83.2	18.54	5.488	
4,000.0	3,992.3	3,998.9	3,992.5	9.7	9.4	102.49	170.1	146.8	103.1	84.1	19.05	5.413	
4,100.0	4,092.0	4,098.9	4,092.2	9.9	9.7	102.40	176.4	149.8	104.5	84.9	19.56	5.342	
4,200.0	4,191.8	4,198.9	4,191.9	10.2	9.9	102.31	182.7	152.8	105.8	85.8	20.07	5.274	
4,300.0	4,291.6	4,298.9	4,291.7	10.4	10.2	102.23	189.0	155.8	107.2	86.6	20.58	5.209	
4,400.0	4,391.3	4,398.9	4,391.4	10.7	10.4	102.14	195.3	158.8	108.5	87.4	21.08	5.148	
4,500.0	4,491.1	4,498.9	4,491.2	10.9	10.7	102.06	201.6	161.8	109.9	88.3	21.59	5.089	
4,600.0	4,590.8	4,598.9	4,590.9	11.2	10.9	101.98	207.9	164.8	111.2	89.1	22.10	5.033	
4,700.0	4,690.6	4,698.9	4,690.7	11.5	11.2	101.91	214.2	167.8	112.6	90.0	22.61	4.979	
4,800.0	4,790.3	4,798.9	4,790.4	11.7	11.4	101.83	220.5	170.8	113.9	90.8	23.12	4.928	
4,900.0	4,890.1	4,898.9	4,890.2	12.0	11.7	101.76	226.8	173.8	115.3	91.7	23.63	4.879	
5,000.0	4,989.9	4,998.9	4,989.9	12.2	12.0	101.69	233.1	176.8	116.7	92.5	24.14	4.832	

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 #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor #12F-0107A - HZ - Plan #2

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.0	5,089.6	5,098.8	5,089.7	12.5	12.2	101.62	239.4	179.8	118.0	93.4	24.65	4.787	
5,200.0	5,189.4	5,198.8	5,189.4	12.7	12.5	101.55	245.7	182.7	119.4	94.2	25.16	4.744	
5,300.0	5,289.1	5,298.8	5,289.2	13.0	12.7	101.48	252.0	185.7	120.7	95.1	25.67	4.703	
5,400.0	5,388.9	5,398.6	5,388.3	13.2	13.0	99.65	261.6	190.3	122.1	95.9	26.21	4.659	
5,500.0	5,488.2	5,494.8	5,480.5	13.5	13.4	91.52	285.8	201.8	125.9	99.0	26.88	4.684	
5,600.0	5,584.1	5,587.5	5,563.3	14.0	13.9	83.58	323.2	219.6	135.5	107.8	27.70	4.890	
5,700.0	5,672.9	5,677.3	5,635.3	14.5	14.5	77.22	371.5	242.5	149.6	121.0	28.62	5.227	
5,800.0	5,751.4	5,764.6	5,695.6	15.3	15.3	72.49	428.5	269.6	166.6	137.0	29.60	5.630	
5,900.0	5,816.6	5,850.0	5,743.4	16.3	16.2	69.19	492.3	299.8	185.3	154.6	30.71	6.034	
6,000.0	5,866.2	5,933.8	5,778.6	17.4	17.2	67.03	560.9	332.4	204.5	172.4	32.09	6.374	
6,100.0	5,898.4	6,016.5	5,801.0	18.7	18.3	65.76	632.8	366.6	223.6	189.8	33.83	6.609	
6,200.0	5,911.9	6,100.0	5,810.5	20.1	19.5	65.23	707.6	402.1	241.9	205.9	36.03	6.715	
6,300.0	5,912.3	6,203.5	5,810.8	21.5	21.0	66.59	801.9	444.7	259.6	220.6	38.98	6.660	
6,400.0	5,912.3	6,316.4	5,810.8	22.9	22.6	68.16	907.2	485.4	277.0	235.0	41.99	6.597	
6,500.0	5,912.3	6,430.8	5,810.8	24.3	24.2	69.49	1,016.1	520.2	293.9	248.9	45.00	6.530	
6,600.0	5,912.3	6,546.5	5,810.8	25.8	26.0	70.64	1,128.2	548.8	310.2	262.2	48.00	6.462	
6,700.0	5,912.3	6,663.6	5,810.8	27.3	27.7	71.63	1,243.3	570.7	325.8	274.8	51.00	6.388	
6,800.0	5,912.3	6,782.5	5,810.8	28.9	29.6	72.44	1,361.2	585.7	337.8	283.2	54.55	6.192	
6,900.0	5,912.3	6,902.8	5,810.8	30.6	31.4	72.82	1,481.2	593.3	343.9	285.7	58.11	5.918	
7,000.0	5,912.3	7,013.4	5,810.8	32.3	33.2	72.87	1,591.8	594.3	344.6	283.1	61.49	5.605	
7,100.0	5,912.3	7,113.4	5,810.8	34.0	34.7	72.88	1,691.8	594.3	344.6	279.9	64.73	5.324	
7,200.0	5,912.3	7,213.4	5,810.8	35.7	36.3	72.88	1,791.8	594.3	344.6	276.6	68.02	5.067	
7,300.0	5,912.3	7,313.4	5,810.8	37.4	38.0	72.88	1,891.8	594.4	344.6	273.3	71.34	4.831	
7,400.0	5,912.3	7,413.4	5,810.8	39.2	39.7	72.88	1,991.8	594.4	344.6	269.9	74.70	4.613	
7,500.0	5,912.3	7,513.4	5,810.8	41.0	41.3	72.88	2,091.8	594.4	344.6	266.5	78.10	4.413	
7,600.0	5,912.3	7,613.4	5,810.8	42.8	43.0	72.88	2,191.8	594.4	344.6	263.1	81.52	4.228	
7,700.0	5,912.2	7,713.4	5,810.8	44.6	44.8	72.89	2,291.8	594.4	344.6	259.7	84.96	4.057	
7,800.0	5,912.2	7,813.4	5,810.8	46.4	46.5	72.89	2,391.8	594.4	344.6	256.2	88.42	3.898	
7,900.0	5,912.2	7,913.4	5,810.8	48.2	48.3	72.89	2,491.8	594.4	344.7	252.7	91.90	3.750	
8,000.0	5,912.2	8,013.4	5,810.8	50.0	50.0	72.89	2,591.8	594.4	344.7	249.2	95.40	3.613	
8,100.0	5,912.2	8,113.4	5,810.8	51.8	51.8	72.89	2,691.8	594.4	344.7	245.7	98.92	3.484	
8,200.0	5,912.2	8,213.4	5,810.8	53.7	53.6	72.89	2,791.8	594.4	344.7	242.2	102.44	3.364	
8,300.0	5,912.2	8,313.4	5,810.9	55.5	55.4	72.90	2,891.8	594.4	344.7	238.7	105.98	3.252	
8,400.0	5,912.2	8,413.4	5,810.9	57.4	57.2	72.90	2,991.8	594.4	344.7	235.1	109.53	3.147	
8,500.0	5,912.2	8,513.4	5,810.9	59.2	59.0	72.90	3,091.8	594.4	344.7	231.6	113.09	3.048	
8,600.0	5,912.2	8,613.4	5,810.9	61.1	60.8	72.90	3,191.8	594.4	344.7	228.0	116.66	2.954	
8,700.0	5,912.2	8,713.4	5,810.9	63.0	62.6	72.90	3,291.8	594.4	344.7	224.4	120.23	2.867	
8,800.0	5,912.2	8,813.4	5,810.9	64.8	64.5	72.90	3,391.8	594.4	344.7	220.8	123.82	2.784	
8,900.0	5,912.2	8,913.4	5,810.9	66.7	66.3	72.91	3,491.8	594.4	344.7	217.3	127.40	2.705	
9,000.0	5,912.2	9,013.4	5,810.9	68.6	68.1	72.91	3,591.8	594.4	344.7	213.7	131.00	2.631	
9,100.0	5,912.2	9,113.4	5,810.9	70.4	70.0	72.91	3,691.8	594.4	344.7	210.1	134.60	2.561	
9,200.0	5,912.2	9,213.4	5,810.9	72.3	71.8	72.91	3,791.8	594.5	344.7	206.5	138.21	2.494	
9,300.0	5,912.2	9,313.4	5,810.9	74.2	73.7	72.91	3,891.8	594.5	344.7	202.8	141.82	2.430	
9,400.0	5,912.2	9,413.4	5,810.9	76.1	75.5	72.91	3,991.8	594.5	344.7	199.2	145.44	2.370	
9,500.0	5,912.2	9,513.4	5,810.9	78.0	77.4	72.92	4,091.8	594.5	344.7	195.6	149.06	2.312	
9,600.0	5,912.1	9,613.4	5,810.9	79.8	79.3	72.92	4,191.8	594.5	344.7	192.0	152.68	2.257	
9,700.0	5,912.1	9,713.4	5,810.9	81.7	81.1	72.92	4,291.8	594.5	344.7	188.4	156.31	2.205	
9,800.0	5,912.1	9,813.4	5,810.9	83.6	83.0	72.92	4,391.8	594.5	344.7	184.7	159.94	2.155	
9,900.0	5,912.1	9,913.4	5,810.9	85.5	84.9	72.92	4,491.8	594.5	344.7	181.1	163.58	2.107	
10,000.0	5,912.1	10,013.4	5,810.9	87.4	86.7	72.92	4,591.8	594.5	344.7	177.5	167.22	2.061	
10,100.0	5,912.1	10,113.4	5,810.9	89.3	88.6	72.93	4,691.8	594.5	344.7	173.8	170.86	2.017	
10,200.0	5,912.1	10,213.4	5,810.9	91.2	90.5	72.93	4,791.8	594.5	344.7	170.2	174.50	1.975	

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 #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor #12F-0107A - 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
10,300.0	5,912.1	10,313.4	5,810.9	93.1	92.4	72.93	4,891.8	594.5	344.7	166.5	178.14	1.935	
10,400.0	5,912.1	10,413.4	5,810.9	95.0	94.2	72.93	4,991.8	594.5	344.7	162.9	181.79	1.896	
10,500.0	5,912.1	10,513.4	5,810.9	96.9	96.1	72.93	5,091.8	594.5	344.7	159.2	185.44	1.859	
10,600.0	5,912.1	10,613.4	5,810.9	98.8	98.0	72.93	5,191.8	594.5	344.7	155.6	189.09	1.823	
10,700.0	5,912.1	10,713.4	5,810.9	100.7	99.9	72.94	5,291.8	594.5	344.7	151.9	192.75	1.788	
10,800.0	5,912.1	10,813.4	5,810.9	102.6	101.8	72.94	5,391.8	594.5	344.7	148.3	196.40	1.755	
10,900.0	5,912.1	10,913.4	5,810.9	104.5	103.7	72.94	5,491.8	594.5	344.7	144.6	200.06	1.723	
11,000.0	5,912.1	11,013.4	5,811.0	106.4	105.5	72.94	5,591.8	594.5	344.7	141.0	203.72	1.692	
11,100.0	5,912.1	11,113.4	5,811.0	108.3	107.4	72.94	5,691.8	594.6	344.7	137.3	207.38	1.662	
11,200.0	5,912.1	11,213.4	5,811.0	110.2	109.3	72.94	5,791.8	594.6	344.7	133.6	211.04	1.633	
11,300.0	5,912.1	11,313.4	5,811.0	112.1	111.2	72.95	5,891.8	594.6	344.7	130.0	214.71	1.605	
11,400.0	5,912.0	11,413.4	5,811.0	114.0	113.1	72.95	5,991.8	594.6	344.7	126.3	218.37	1.578	
11,500.0	5,912.0	11,513.4	5,811.0	115.9	115.0	72.95	6,091.8	594.6	344.7	122.7	222.04	1.552	
11,600.0	5,912.0	11,613.4	5,811.0	117.8	116.9	72.95	6,191.8	594.6	344.7	119.0	225.71	1.527	
11,700.0	5,912.0	11,713.4	5,811.0	119.7	118.8	72.95	6,291.8	594.6	344.7	115.3	229.37	1.503	
11,800.0	5,912.0	11,813.4	5,811.0	121.6	120.7	72.95	6,391.8	594.6	344.7	111.7	233.04	1.479	Level 3
11,900.0	5,912.0	11,913.4	5,811.0	123.5	122.6	72.96	6,491.8	594.6	344.7	108.0	236.71	1.456	Level 3
12,000.0	5,912.0	12,013.4	5,811.0	125.4	124.5	72.96	6,591.8	594.6	344.7	104.3	240.39	1.434	Level 3
12,100.0	5,912.0	12,113.4	5,811.0	127.3	126.4	72.96	6,691.8	594.6	344.7	100.6	244.06	1.412	Level 3
12,200.0	5,912.0	12,213.4	5,811.0	129.2	128.3	72.96	6,791.8	594.6	344.7	97.0	247.73	1.391	Level 3
12,300.0	5,912.0	12,313.4	5,811.0	130.8	130.2	72.96	6,891.8	594.6	344.7	93.6	251.07	1.373	Level 3
12,307.5	5,912.0	12,320.9	5,811.0	130.9	130.3	72.96	6,899.3	594.6	344.7	93.4	251.32	1.372	Level 3, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor #12F-0108B - HZ - Plan #3

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	156.20	-74.9	33.0	81.9				
100.0	100.0	100.0	100.0	0.1	0.1	156.20	-74.9	33.0	81.9	81.7	0.19	437.887	
200.0	200.0	200.0	200.0	0.3	0.3	156.20	-74.9	33.0	81.9	81.3	0.64	128.645	
300.0	300.0	300.0	300.0	0.5	0.5	156.20	-74.9	33.0	81.9	80.8	1.09	75.398	
400.0	400.0	400.0	400.0	0.8	0.8	156.20	-74.9	33.0	81.9	80.4	1.54	53.326	
500.0	500.0	500.0	500.0	1.0	1.0	156.20	-74.9	33.0	81.9	79.9	1.99	41.250	
600.0	600.0	600.0	600.0	1.2	1.2	156.20	-74.9	33.0	81.9	79.5	2.43	33.634	
700.0	700.0	700.0	700.0	1.4	1.4	156.20	-74.9	33.0	81.9	79.0	2.88	28.392	CC, ES
800.0	800.0	800.0	800.0	1.7	1.7	142.73	-74.9	33.0	83.3	79.9	3.33	24.978	
900.0	899.8	901.4	901.4	1.9	1.9	143.79	-73.5	34.1	86.6	82.8	3.78	22.883	
1,000.0	999.6	1,002.9	1,002.8	2.1	2.1	143.51	-69.2	37.4	89.5	85.2	4.24	21.125	
1,100.0	1,099.4	1,102.9	1,102.5	2.4	2.3	142.35	-63.6	41.6	91.6	86.9	4.69	19.504	
1,200.0	1,199.1	1,202.9	1,202.2	2.6	2.6	141.24	-58.1	45.8	93.7	88.5	5.16	18.152	
1,300.0	1,298.9	1,302.8	1,301.9	2.8	2.8	140.17	-52.5	50.0	95.8	90.2	5.63	17.013	
1,400.0	1,398.6	1,402.8	1,401.6	3.1	3.1	139.16	-47.0	54.2	98.0	91.9	6.11	16.044	
1,500.0	1,498.4	1,502.7	1,501.4	3.3	3.3	138.19	-41.4	58.4	100.2	93.6	6.59	15.210	
1,600.0	1,598.1	1,602.7	1,601.1	3.6	3.5	137.26	-35.8	62.6	102.4	95.4	7.07	14.487	
1,700.0	1,697.9	1,702.7	1,700.8	3.8	3.8	136.37	-30.3	66.8	104.7	97.2	7.56	13.855	
1,800.0	1,797.6	1,802.6	1,800.5	4.1	4.0	135.52	-24.7	71.1	107.0	98.9	8.05	13.298	
1,900.0	1,897.4	1,902.6	1,900.2	4.3	4.3	134.71	-19.2	75.3	109.3	100.8	8.54	12.804	
2,000.0	1,997.2	2,002.6	2,000.0	4.6	4.5	133.93	-13.6	79.5	111.6	102.6	9.03	12.363	
2,100.0	2,096.9	2,102.5	2,099.7	4.8	4.8	133.18	-8.0	83.7	114.0	104.5	9.52	11.968	
2,200.0	2,196.7	2,202.5	2,199.4	5.1	5.0	132.46	-2.5	87.9	116.4	106.3	10.02	11.612	
2,300.0	2,296.4	2,302.4	2,299.1	5.3	5.3	131.77	3.1	92.1	118.7	108.2	10.52	11.290	
2,400.0	2,396.2	2,402.4	2,398.8	5.6	5.6	131.11	8.6	96.3	121.1	110.1	11.02	10.997	
2,500.0	2,495.9	2,502.4	2,498.5	5.8	5.8	130.47	14.2	100.5	123.6	112.0	11.52	10.730	
2,600.0	2,595.7	2,602.3	2,598.3	6.1	6.1	129.86	19.8	104.7	126.0	114.0	12.02	10.486	
2,700.0	2,695.5	2,702.3	2,698.0	6.4	6.3	129.27	25.3	108.9	128.4	115.9	12.52	10.261	
2,800.0	2,795.2	2,802.2	2,797.7	6.6	6.6	128.70	30.9	113.1	130.9	117.9	13.02	10.054	
2,900.0	2,895.0	2,902.2	2,897.4	6.9	6.8	128.16	36.4	117.4	133.4	119.9	13.52	9.863	
3,000.0	2,994.7	3,002.2	2,997.1	7.1	7.1	127.63	42.0	121.6	135.9	121.8	14.03	9.686	
3,100.0	3,094.5	3,102.1	3,096.9	7.4	7.3	127.12	47.5	125.8	138.4	123.8	14.53	9.521	
3,200.0	3,194.2	3,202.1	3,196.6	7.6	7.6	126.64	53.1	130.0	140.9	125.8	15.04	9.368	
3,300.0	3,294.0	3,302.1	3,296.3	7.9	7.8	126.16	58.7	134.2	143.4	127.8	15.54	9.225	
3,400.0	3,393.7	3,402.0	3,396.0	8.1	8.1	125.71	64.2	138.4	145.9	129.8	16.05	9.092	
3,500.0	3,493.5	3,502.0	3,495.7	8.4	8.3	125.27	69.8	142.6	148.4	131.9	16.55	8.967	
3,600.0	3,593.3	3,601.9	3,595.4	8.6	8.6	124.84	75.3	146.8	151.0	133.9	17.06	8.850	
3,700.0	3,693.0	3,701.9	3,695.2	8.9	8.9	124.43	80.9	151.0	153.5	136.0	17.57	8.739	
3,800.0	3,792.8	3,801.9	3,794.9	9.2	9.1	124.03	86.5	155.2	156.1	138.0	18.07	8.635	
3,900.0	3,892.5	3,901.8	3,894.6	9.4	9.4	123.65	92.0	159.4	158.6	140.1	18.58	8.537	
4,000.0	3,992.3	4,001.8	3,994.3	9.7	9.6	123.28	97.6	163.7	161.2	142.1	19.09	8.445	
4,100.0	4,092.0	4,101.7	4,094.0	9.9	9.9	122.92	103.1	167.9	163.8	144.2	19.60	8.358	
4,200.0	4,191.8	4,201.7	4,193.7	10.2	10.1	122.57	108.7	172.1	166.4	146.3	20.11	8.275	
4,300.0	4,291.6	4,301.7	4,293.5	10.4	10.4	122.23	114.3	176.3	169.0	148.4	20.62	8.196	
4,400.0	4,391.3	4,401.6	4,393.2	10.7	10.6	121.90	119.8	180.5	171.6	150.4	21.12	8.122	
4,500.0	4,491.1	4,501.6	4,492.9	10.9	10.9	121.58	125.4	184.7	174.2	152.5	21.63	8.051	
4,600.0	4,590.8	4,601.6	4,592.6	11.2	11.2	121.27	130.9	188.9	176.8	154.6	22.14	7.983	
4,700.0	4,690.6	4,701.5	4,692.3	11.5	11.4	120.97	136.5	193.1	179.4	156.7	22.65	7.919	
4,800.0	4,790.3	4,801.5	4,792.1	11.7	11.7	120.68	142.1	197.3	182.0	158.8	23.16	7.858	
4,900.0	4,890.1	4,901.4	4,891.8	12.0	11.9	120.39	147.6	201.5	184.6	161.0	23.67	7.799	
5,000.0	4,989.9	5,001.4	4,991.5	12.2	12.2	120.12	153.2	205.7	187.3	163.1	24.18	7.743	
5,100.0	5,089.6	5,101.4	5,091.2	12.5	12.4	119.85	158.7	210.0	189.9	165.2	24.69	7.690	

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 #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor #12F-0108B - HZ - Plan #3

Survey Program: 0-ISCWSA MWD

Offset Site Error: 0.0 usft

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.4	5,201.3	5,190.9	12.7	12.7	119.59	164.3	214.2	192.5	167.3	25.20	7.639	
5,300.0	5,289.1	5,301.3	5,290.6	13.0	13.0	119.34	169.9	218.4	195.2	169.4	25.71	7.590	
5,400.0	5,388.9	5,401.2	5,390.4	13.2	13.2	119.09	175.4	222.6	197.8	171.6	26.22	7.543	
5,500.0	5,488.2	5,503.8	5,492.2	13.5	13.5	118.31	184.4	229.4	201.7	175.0	26.75	7.542	
5,600.0	5,584.1	5,606.8	5,590.6	14.0	14.0	116.04	208.2	247.4	212.3	184.9	27.42	7.742	
5,700.0	5,672.9	5,707.8	5,679.6	14.5	14.6	112.65	246.2	276.1	229.7	201.3	28.39	8.092	
5,800.0	5,751.4	5,806.5	5,756.0	15.3	15.4	108.56	295.7	313.7	253.6	223.8	29.79	8.512	
5,900.0	5,816.6	5,902.7	5,818.0	16.3	16.3	104.09	354.2	357.9	282.9	251.3	31.67	8.934	
6,000.0	5,866.2	5,996.7	5,864.5	17.4	17.4	99.51	419.2	407.2	316.7	282.8	33.96	9.327	
6,100.0	5,898.4	6,089.1	5,895.3	18.7	18.7	94.99	488.6	459.7	353.6	317.0	36.53	9.680	
6,200.0	5,911.9	6,180.9	5,910.1	20.1	20.0	90.68	560.7	514.3	392.1	352.9	39.24	9.993	
6,300.0	5,912.3	6,287.5	5,911.6	21.5	21.7	89.89	646.4	577.7	431.7	389.8	41.88	10.306	
6,400.0	5,912.3	6,408.1	5,911.6	22.9	23.5	89.90	747.2	643.8	470.7	426.2	44.48	10.582	
6,500.0	5,912.3	6,532.5	5,911.6	24.3	25.4	89.91	855.3	705.3	508.7	461.5	47.16	10.787	
6,600.0	5,912.3	6,661.0	5,911.6	25.8	27.4	89.92	971.0	761.3	545.3	495.5	49.86	10.937	
6,700.0	5,912.3	6,793.8	5,911.6	27.3	29.5	89.92	1,094.1	810.8	580.5	527.9	52.62	11.031	
6,800.0	5,912.3	6,932.2	5,911.6	28.9	31.7	89.93	1,225.8	853.2	611.2	554.8	56.35	10.845	
6,900.0	5,912.3	7,076.5	5,911.6	30.6	33.9	89.93	1,366.1	887.1	634.7	574.4	60.28	10.529	
7,000.0	5,912.3	7,225.3	5,911.6	32.3	36.2	89.94	1,512.9	910.9	650.7	586.3	64.36	10.110	
7,100.0	5,912.3	7,377.0	5,911.6	34.0	38.5	89.94	1,664.1	923.3	658.9	590.3	68.55	9.611	
7,200.0	5,912.3	7,504.8	5,911.6	35.7	40.4	89.94	1,791.8	925.0	660.0	587.6	72.38	9.118	
7,300.0	5,912.3	7,604.8	5,911.6	37.4	41.9	89.94	1,891.8	925.0	660.0	584.2	75.74	8.713	
7,400.0	5,912.3	7,704.8	5,911.6	39.2	43.4	89.94	1,991.8	925.0	660.0	580.8	79.15	8.338	
7,500.0	5,912.3	7,804.8	5,911.6	41.0	44.9	89.95	2,091.8	925.0	660.0	577.4	82.59	7.991	
7,600.0	5,912.3	7,904.8	5,911.6	42.8	46.5	89.95	2,191.8	925.0	660.0	573.9	86.07	7.668	
7,700.0	5,912.2	8,004.8	5,911.7	44.6	48.1	89.95	2,291.8	925.0	660.0	570.4	89.58	7.368	
7,800.0	5,912.2	8,104.8	5,911.7	46.4	49.7	89.95	2,391.8	925.0	660.0	566.9	93.11	7.088	
7,900.0	5,912.2	8,204.8	5,911.7	48.2	51.3	89.95	2,491.8	925.0	660.0	563.3	96.67	6.827	
8,000.0	5,912.2	8,304.8	5,911.7	50.0	53.0	89.95	2,591.8	925.0	660.0	559.7	100.25	6.583	
8,100.0	5,912.2	8,404.8	5,911.7	51.8	54.6	89.95	2,691.8	925.0	660.0	556.1	103.84	6.355	
8,200.0	5,912.2	8,504.8	5,911.7	53.7	56.3	89.95	2,791.8	925.0	660.0	552.5	107.46	6.142	
8,300.0	5,912.2	8,604.8	5,911.7	55.5	58.0	89.95	2,891.8	925.0	660.0	548.9	111.09	5.941	
8,400.0	5,912.2	8,704.8	5,911.7	57.4	59.7	89.96	2,991.8	925.0	660.0	545.2	114.73	5.752	
8,500.0	5,912.2	8,804.8	5,911.7	59.2	61.5	89.96	3,091.8	925.0	660.0	541.6	118.38	5.575	
8,600.0	5,912.2	8,904.8	5,911.7	61.1	63.2	89.96	3,191.8	925.0	660.0	537.9	122.05	5.407	
8,700.0	5,912.2	9,004.8	5,911.7	63.0	65.0	89.96	3,291.8	925.0	660.0	534.2	125.73	5.249	
8,800.0	5,912.2	9,104.8	5,911.7	64.8	66.7	89.96	3,391.8	925.0	660.0	530.5	129.42	5.099	
8,900.0	5,912.2	9,204.8	5,911.7	66.7	68.5	89.96	3,491.8	925.0	660.0	526.8	133.11	4.958	
9,000.0	5,912.2	9,304.8	5,911.8	68.6	70.3	89.96	3,591.8	925.0	660.0	523.1	136.82	4.824	
9,100.0	5,912.2	9,404.8	5,911.8	70.4	72.0	89.96	3,691.8	925.0	660.0	519.4	140.53	4.696	
9,200.0	5,912.2	9,504.8	5,911.8	72.3	73.8	89.97	3,791.8	925.0	660.0	515.7	144.25	4.575	
9,300.0	5,912.2	9,604.8	5,911.8	74.2	75.6	89.97	3,891.8	925.0	660.0	512.0	147.97	4.460	
9,400.0	5,912.2	9,704.8	5,911.8	76.1	77.4	89.97	3,991.8	925.0	659.9	508.2	151.70	4.350	
9,500.0	5,912.2	9,804.8	5,911.8	78.0	79.2	89.97	4,091.8	925.0	659.9	504.5	155.44	4.246	
9,600.0	5,912.1	9,904.8	5,911.8	79.8	81.0	89.97	4,191.8	925.0	659.9	500.8	159.18	4.146	
9,700.0	5,912.1	10,004.8	5,911.8	81.7	82.9	89.97	4,291.8	925.0	659.9	497.0	162.93	4.051	
9,800.0	5,912.1	10,104.8	5,911.8	83.6	84.7	89.97	4,391.8	925.0	659.9	493.3	166.68	3.959	
9,900.0	5,912.1	10,204.8	5,911.8	85.5	86.5	89.97	4,491.8	925.0	659.9	489.5	170.43	3.872	
10,000.0	5,912.1	10,304.8	5,911.8	87.4	88.3	89.97	4,591.8	925.0	659.9	485.8	174.19	3.789	
10,100.0	5,912.1	10,404.8	5,911.8	89.3	90.2	89.98	4,691.8	925.0	659.9	482.0	177.95	3.709	
10,200.0	5,912.1	10,504.8	5,911.8	91.2	92.0	89.98	4,791.8	925.0	659.9	478.2	181.72	3.632	
10,300.0	5,912.1	10,604.8	5,911.8	93.1	93.9	89.98	4,891.8	925.0	659.9	474.5	185.49	3.558	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor #12F-0108B - HZ - Plan #3

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
10,400.0	5,912.1	10,704.8	5,911.9	95.0	95.7	89.98	4,991.8	925.0	659.9	470.7	189.26	3.487	
10,500.0	5,912.1	10,804.8	5,911.9	96.9	97.5	89.98	5,091.8	925.0	659.9	466.9	193.03	3.419	
10,600.0	5,912.1	10,904.8	5,911.9	98.8	99.4	89.98	5,191.8	925.0	659.9	463.1	196.81	3.353	
10,700.0	5,912.1	11,004.8	5,911.9	100.7	101.3	89.98	5,291.8	925.0	659.9	459.3	200.59	3.290	
10,800.0	5,912.1	11,104.8	5,911.9	102.6	103.1	89.98	5,391.8	925.0	659.9	455.6	204.37	3.229	
10,900.0	5,912.1	11,204.8	5,911.9	104.5	105.0	89.98	5,491.8	925.0	659.9	451.8	208.16	3.170	
11,000.0	5,912.1	11,304.8	5,911.9	106.4	106.8	89.99	5,591.8	925.0	659.9	448.0	211.94	3.114	
11,100.0	5,912.1	11,404.8	5,911.9	108.3	108.7	89.99	5,691.8	925.0	659.9	444.2	215.73	3.059	
11,200.0	5,912.1	11,504.8	5,911.9	110.2	110.6	89.99	5,791.8	925.0	659.9	440.4	219.52	3.006	
11,300.0	5,912.1	11,604.8	5,911.9	112.1	112.4	89.99	5,891.8	925.0	659.9	436.6	223.31	2.955	
11,400.0	5,912.0	11,704.8	5,911.9	114.0	114.3	89.99	5,991.8	925.0	659.9	432.8	227.11	2.906	
11,500.0	5,912.0	11,804.8	5,911.9	115.9	116.2	89.99	6,091.8	925.0	659.9	429.0	230.90	2.858	
11,600.0	5,912.0	11,904.8	5,911.9	117.8	118.0	89.99	6,191.8	925.0	659.9	425.2	234.70	2.812	
11,700.0	5,912.0	12,004.8	5,912.0	119.7	119.9	89.99	6,291.8	925.0	659.9	421.4	238.50	2.767	
11,800.0	5,912.0	12,104.8	5,912.0	121.6	121.8	89.99	6,391.8	925.0	659.9	417.6	242.30	2.724	
11,900.0	5,912.0	12,204.8	5,912.0	123.5	123.7	90.00	6,491.8	925.0	659.9	413.8	246.10	2.682	
12,000.0	5,912.0	12,304.8	5,912.0	125.4	125.5	90.00	6,591.8	925.0	659.9	410.0	249.90	2.641	
12,100.0	5,912.0	12,404.8	5,912.0	127.3	127.4	90.00	6,691.8	925.0	659.9	406.2	253.71	2.601	
12,200.0	5,912.0	12,504.8	5,912.0	129.2	129.3	90.00	6,791.8	925.0	659.9	402.4	257.51	2.563	
12,300.0	5,912.0	12,604.8	5,912.0	130.8	131.2	90.00	6,891.8	925.0	659.9	399.0	260.96	2.529	
12,307.5	5,912.0	12,612.2	5,912.0	130.9	131.3	90.00	6,899.3	925.0	659.9	398.7	261.19	2.527	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor Federal #12F-1301A - HZ - Plan #3

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-114.49	-74.9	-164.4	180.7				
100.0	100.0	100.0	100.0	0.1	0.1	-114.49	-74.9	-164.4	180.7	180.5	0.19	966.270	
200.0	200.0	200.0	200.0	0.3	0.3	-114.49	-74.9	-164.4	180.7	180.1	0.64	283.884	
300.0	300.0	300.0	300.0	0.5	0.5	-114.49	-74.9	-164.4	180.7	179.6	1.09	166.381	
400.0	400.0	400.0	400.0	0.8	0.8	-114.49	-74.9	-164.4	180.7	179.2	1.54	117.674	
500.0	500.0	500.0	500.0	1.0	1.0	-114.49	-74.9	-164.4	180.7	178.7	1.99	91.027	
600.0	600.0	600.0	600.0	1.2	1.2	-114.49	-74.9	-164.4	180.7	178.3	2.43	74.220	
700.0	700.0	700.0	700.0	1.4	1.4	-114.49	-74.9	-164.4	180.7	177.8	2.88	62.652	CC, ES
800.0	800.0	800.0	800.0	1.7	1.7	-129.09	-74.9	-164.4	181.8	178.5	3.33	54.546	
900.0	899.8	899.8	899.8	1.9	1.9	-130.29	-74.9	-164.4	185.1	181.4	3.78	48.961	
1,000.0	999.6	999.6	999.6	2.1	2.1	-131.90	-74.9	-164.4	189.7	185.5	4.23	44.824	
1,100.0	1,099.4	1,093.2	1,093.2	2.4	2.3	-133.46	-76.0	-165.5	196.0	191.4	4.65	42.130	
1,200.0	1,199.1	1,186.3	1,186.2	2.6	2.5	-135.15	-79.2	-168.7	205.6	200.5	5.06	40.625	
1,300.0	1,298.9	1,284.4	1,284.1	2.8	2.7	-136.89	-84.1	-173.4	217.3	211.9	5.48	39.648	
1,400.0	1,398.6	1,383.5	1,382.9	3.1	2.9	-138.47	-89.1	-178.2	229.3	223.4	5.91	38.824	
1,500.0	1,498.4	1,482.6	1,481.8	3.3	3.1	-139.90	-94.1	-183.0	241.4	235.1	6.34	38.106	
1,600.0	1,598.1	1,581.7	1,580.6	3.6	3.3	-141.18	-99.0	-187.8	253.7	246.9	6.77	37.477	
1,700.0	1,697.9	1,680.8	1,679.5	3.8	3.5	-142.35	-104.0	-192.6	266.1	258.9	7.21	36.922	
1,800.0	1,797.6	1,779.9	1,778.3	4.1	3.8	-143.42	-109.0	-197.4	278.5	270.9	7.65	36.432	
1,900.0	1,897.4	1,879.0	1,877.2	4.3	4.0	-144.39	-113.9	-202.2	291.1	283.0	8.09	35.996	
2,000.0	1,997.2	1,978.1	1,976.0	4.6	4.2	-145.29	-118.9	-207.0	303.7	295.2	8.53	35.607	
2,100.0	2,096.9	2,077.2	2,074.9	4.8	4.5	-146.11	-123.9	-211.9	316.4	307.5	8.98	35.258	
2,200.0	2,196.7	2,176.3	2,173.7	5.1	4.7	-146.87	-128.8	-216.7	329.2	319.8	9.42	34.943	
2,300.0	2,296.4	2,275.4	2,272.6	5.3	5.0	-147.57	-133.8	-221.5	342.0	332.2	9.87	34.658	
2,400.0	2,396.2	2,374.5	2,371.4	5.6	5.2	-148.22	-138.8	-226.3	354.9	344.6	10.32	34.399	
2,500.0	2,495.9	2,473.5	2,470.3	5.8	5.5	-148.82	-143.7	-231.1	367.8	357.0	10.77	34.163	
2,600.0	2,595.7	2,572.6	2,569.1	6.1	5.7	-149.39	-148.7	-235.9	380.7	369.5	11.22	33.947	
2,700.0	2,695.5	2,671.7	2,668.0	6.4	6.0	-149.92	-153.7	-240.7	393.7	382.0	11.67	33.749	
2,800.0	2,795.2	2,770.8	2,766.8	6.6	6.2	-150.41	-158.6	-245.5	406.7	394.6	12.12	33.566	
2,900.0	2,895.0	2,869.9	2,865.7	6.9	6.5	-150.87	-163.6	-250.3	419.8	407.2	12.57	33.397	
3,000.0	2,994.7	2,969.0	2,964.5	7.1	6.7	-151.31	-168.6	-255.1	432.8	419.8	13.02	33.241	
3,100.0	3,094.5	3,068.1	3,063.4	7.4	7.0	-151.72	-173.6	-259.9	445.9	432.4	13.47	33.095	
3,200.0	3,194.2	3,167.2	3,162.2	7.6	7.2	-152.10	-178.5	-264.7	459.0	445.1	13.93	32.960	
3,300.0	3,294.0	3,266.3	3,261.1	7.9	7.5	-152.47	-183.5	-269.5	472.1	457.7	14.38	32.834	
3,400.0	3,393.7	3,365.4	3,359.9	8.1	7.7	-152.82	-188.5	-274.3	485.3	470.4	14.83	32.716	
3,500.0	3,493.5	3,464.5	3,458.8	8.4	8.0	-153.14	-193.4	-279.2	498.4	483.1	15.29	32.605	
3,600.0	3,593.3	3,563.5	3,557.6	8.6	8.3	-153.45	-198.4	-284.0	511.6	495.9	15.74	32.501	
3,700.0	3,693.0	3,662.6	3,656.5	8.9	8.5	-153.75	-203.4	-288.8	524.8	508.6	16.20	32.403	
3,800.0	3,792.8	3,761.7	3,755.3	9.2	8.8	-154.03	-208.3	-293.6	538.0	521.3	16.65	32.311	
3,900.0	3,892.5	3,860.8	3,854.2	9.4	9.0	-154.29	-213.3	-298.4	551.2	534.1	17.11	32.224	
4,000.0	3,992.3	3,959.9	3,953.0	9.7	9.3	-154.55	-218.3	-303.2	564.4	546.9	17.56	32.142	
4,100.0	4,092.0	4,059.0	4,051.9	9.9	9.5	-154.79	-223.2	-308.0	577.7	559.6	18.02	32.064	
4,200.0	4,191.8	4,158.1	4,150.7	10.2	9.8	-155.02	-228.2	-312.8	590.9	572.4	18.47	31.990	
4,300.0	4,291.6	4,257.2	4,249.6	10.4	10.1	-155.24	-233.2	-317.6	604.2	585.2	18.93	31.920	
4,400.0	4,391.3	4,356.3	4,348.4	10.7	10.3	-155.46	-238.1	-322.4	617.4	598.0	19.38	31.854	
4,500.0	4,491.1	4,455.4	4,447.3	10.9	10.6	-155.66	-243.1	-327.2	630.7	610.8	19.84	31.790	
4,600.0	4,590.8	4,554.5	4,546.1	11.2	10.8	-155.85	-248.1	-332.0	644.0	623.7	20.30	31.730	
4,700.0	4,690.6	4,653.6	4,645.0	11.5	11.1	-156.04	-253.0	-336.8	657.2	636.5	20.75	31.672	
4,800.0	4,790.3	4,752.6	4,743.8	11.7	11.3	-156.22	-258.0	-341.6	670.5	649.3	21.21	31.617	
4,900.0	4,890.1	4,851.7	4,842.7	12.0	11.6	-156.39	-263.0	-346.4	683.8	662.2	21.66	31.565	
5,000.0	4,989.9	4,950.8	4,941.5	12.2	11.9	-156.56	-267.9	-351.3	697.1	675.0	22.12	31.514	
5,100.0	5,089.6	5,049.9	5,040.4	12.5	12.1	-156.72	-272.9	-356.1	710.4	687.9	22.58	31.466	

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

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor Federal #12F-1301A - HZ - Plan #3

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.4	5,149.0	5,139.2	12.7	12.4	-156.87	-277.9	-360.9	723.8	700.7	23.03	31.420	
5,300.0	5,289.1	5,248.1	5,238.1	13.0	12.6	-157.02	-282.8	-365.7	737.1	713.6	23.49	31.376	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor Federal #12F-1302B - 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	-119.68	-74.9	-131.4	151.3				
100.0	100.0	100.0	100.0	0.1	0.1	-119.68	-74.9	-131.4	151.3	151.1	0.19	808.805	
200.0	200.0	200.0	200.0	0.3	0.3	-119.68	-74.9	-131.4	151.3	150.6	0.64	237.615	
300.0	300.0	300.0	300.0	0.5	0.5	-119.68	-74.9	-131.4	151.3	150.2	1.09	139.265	
400.0	400.0	400.0	400.0	0.8	0.8	-119.68	-74.9	-131.4	151.3	149.7	1.54	98.496	
500.0	500.0	500.0	500.0	1.0	1.0	-119.68	-74.9	-131.4	151.3	149.3	1.99	76.192	
600.0	600.0	600.0	600.0	1.2	1.2	-119.68	-74.9	-131.4	151.3	148.8	2.43	62.124	
700.0	700.0	700.0	700.0	1.4	1.4	-119.68	-74.9	-131.4	151.3	148.4	2.88	52.441	CC, ES
800.0	800.0	800.0	800.0	1.7	1.7	-134.33	-74.9	-131.4	152.5	149.1	3.33	45.743	
900.0	899.8	899.8	899.8	1.9	1.9	-135.65	-74.9	-131.4	156.2	152.4	3.78	41.297	
1,000.0	999.6	999.6	999.6	2.1	2.1	-137.38	-74.9	-131.4	161.2	157.0	4.23	38.096	
1,100.0	1,099.4	1,099.4	1,099.4	2.4	2.3	-139.00	-74.9	-131.4	166.4	161.8	4.69	35.521	
1,200.0	1,199.1	1,199.1	1,199.1	2.6	2.6	-140.53	-74.9	-131.4	171.8	166.6	5.14	33.414	
1,300.0	1,298.9	1,293.3	1,293.3	2.8	2.8	-142.03	-76.1	-132.3	178.8	173.2	5.56	32.143	
1,400.0	1,398.6	1,386.9	1,386.7	3.1	2.9	-143.66	-79.9	-134.9	189.0	183.0	5.97	31.682	
1,500.0	1,498.4	1,485.1	1,484.7	3.3	3.1	-145.35	-85.5	-138.8	201.4	195.0	6.38	31.562	
1,600.0	1,598.1	1,584.2	1,583.5	3.6	3.3	-146.85	-91.1	-142.8	214.0	207.2	6.80	31.470	
1,700.0	1,697.9	1,683.2	1,682.4	3.8	3.5	-148.19	-96.8	-146.7	226.7	219.5	7.22	31.388	
1,800.0	1,797.6	1,782.3	1,781.2	4.1	3.7	-149.38	-102.5	-150.7	239.5	231.8	7.65	31.313	
1,900.0	1,897.4	1,881.3	1,880.0	4.3	3.9	-150.46	-108.1	-154.6	252.4	244.3	8.08	31.244	
2,000.0	1,997.2	1,980.4	1,978.8	4.6	4.2	-151.42	-113.8	-158.6	265.4	256.9	8.51	31.181	
2,100.0	2,096.9	2,079.4	2,077.6	4.8	4.4	-152.30	-119.5	-162.6	278.4	269.5	8.95	31.124	
2,200.0	2,196.7	2,178.5	2,176.4	5.1	4.6	-153.10	-125.1	-166.5	291.5	282.2	9.38	31.071	
2,300.0	2,296.4	2,277.6	2,275.3	5.3	4.9	-153.83	-130.8	-170.5	304.7	294.9	9.82	31.023	
2,400.0	2,396.2	2,376.6	2,374.1	5.6	5.1	-154.50	-136.5	-174.4	317.9	307.7	10.26	30.979	
2,500.0	2,495.9	2,475.7	2,472.9	5.8	5.3	-155.12	-142.1	-178.4	331.2	320.5	10.70	30.938	
2,600.0	2,595.7	2,574.7	2,571.7	6.1	5.6	-155.69	-147.8	-182.3	344.4	333.3	11.15	30.900	
2,700.0	2,695.5	2,673.8	2,670.5	6.4	5.8	-156.21	-153.4	-186.3	357.7	346.2	11.59	30.865	
2,800.0	2,795.2	2,772.9	2,769.3	6.6	6.1	-156.70	-159.1	-190.3	371.1	359.1	12.04	30.832	
2,900.0	2,895.0	2,871.9	2,868.2	6.9	6.3	-157.16	-164.8	-194.2	384.5	372.0	12.48	30.801	
3,000.0	2,994.7	2,971.0	2,967.0	7.1	6.6	-157.58	-170.4	-198.2	397.8	384.9	12.93	30.773	
3,100.0	3,094.5	3,070.0	3,065.8	7.4	6.8	-157.98	-176.1	-202.1	411.2	397.9	13.38	30.746	
3,200.0	3,194.2	3,169.1	3,164.6	7.6	7.1	-158.35	-181.8	-206.1	424.7	410.8	13.82	30.721	
3,300.0	3,294.0	3,268.1	3,263.4	7.9	7.3	-158.70	-187.4	-210.1	438.1	423.8	14.27	30.697	
3,400.0	3,393.7	3,367.2	3,362.2	8.1	7.6	-159.03	-193.1	-214.0	451.6	436.8	14.72	30.675	
3,500.0	3,493.5	3,466.3	3,461.1	8.4	7.8	-159.34	-198.8	-218.0	465.0	449.9	15.17	30.654	
3,600.0	3,593.3	3,565.3	3,559.9	8.6	8.1	-159.63	-204.4	-221.9	478.5	462.9	15.62	30.634	
3,700.0	3,693.0	3,664.4	3,658.7	8.9	8.3	-159.90	-210.1	-225.9	492.0	475.9	16.07	30.615	
3,800.0	3,792.8	3,763.4	3,757.5	9.2	8.6	-160.17	-215.7	-229.8	505.5	489.0	16.52	30.597	
3,900.0	3,892.5	3,862.5	3,856.3	9.4	8.8	-160.41	-221.4	-233.8	519.0	502.1	16.97	30.580	
4,000.0	3,992.3	3,961.6	3,955.2	9.7	9.1	-160.65	-227.1	-237.8	532.5	515.1	17.42	30.564	
4,100.0	4,092.0	4,060.6	4,054.0	9.9	9.3	-160.87	-232.7	-241.7	546.1	528.2	17.88	30.549	
4,200.0	4,191.8	4,159.7	4,152.8	10.2	9.6	-161.08	-238.4	-245.7	559.6	541.3	18.33	30.534	
4,300.0	4,291.6	4,258.7	4,251.6	10.4	9.9	-161.29	-244.1	-249.6	573.2	554.4	18.78	30.520	
4,400.0	4,391.3	4,357.8	4,350.4	10.7	10.1	-161.48	-249.7	-253.6	586.7	567.5	19.23	30.507	
4,500.0	4,491.1	4,456.8	4,449.2	10.9	10.4	-161.66	-255.4	-257.6	600.3	580.6	19.69	30.494	
4,600.0	4,590.8	4,555.9	4,548.1	11.2	10.6	-161.84	-261.1	-261.5	613.8	593.7	20.14	30.482	
4,700.0	4,690.6	4,655.0	4,646.9	11.5	10.9	-162.01	-266.7	-265.5	627.4	606.8	20.59	30.470	
4,800.0	4,790.3	4,754.0	4,745.7	11.7	11.1	-162.17	-272.4	-269.4	641.0	619.9	21.04	30.459	
4,900.0	4,890.1	4,853.1	4,844.5	12.0	11.4	-162.33	-278.0	-273.4	654.6	633.1	21.50	30.448	
5,000.0	4,989.9	4,952.1	4,943.3	12.2	11.7	-162.47	-283.7	-277.4	668.2	646.2	21.95	30.437	
5,100.0	5,089.6	5,051.2	5,042.1	12.5	11.9	-162.62	-289.4	-281.3	681.7	659.3	22.41	30.427	

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 #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor Federal #12F-1302B - 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
5,200.0	5,189.4	5,150.3	5,141.0	12.7	12.2	-162.75	-295.0	-285.3	695.3	672.5	22.86	30.418	
5,300.0	5,289.1	5,249.3	5,239.8	13.0	12.4	-162.89	-300.7	-289.2	708.9	685.6	23.31	30.408	
5,400.0	5,388.9	5,348.4	5,338.6	13.2	12.7	-163.01	-306.4	-293.2	722.5	698.8	23.77	30.399	SF
5,500.0	5,488.2	5,441.6	5,431.6	13.5	12.9	-162.81	-311.7	-296.9	739.5	715.6	23.92	30.913	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor Federal #12F-1303A - HZ - Plan #3

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-127.29	-74.9	-98.4	123.6				
100.0	100.0	100.0	100.0	0.1	0.1	-127.29	-74.9	-98.4	123.6	123.4	0.19	661.089	
200.0	200.0	200.0	200.0	0.3	0.3	-127.29	-74.9	-98.4	123.6	123.0	0.64	194.224	
300.0	300.0	300.0	300.0	0.5	0.5	-127.29	-74.9	-98.4	123.6	122.5	1.09	113.832	
400.0	400.0	400.0	400.0	0.8	0.8	-127.29	-74.9	-98.4	123.6	122.1	1.54	80.509	
500.0	500.0	500.0	500.0	1.0	1.0	-127.29	-74.9	-98.4	123.6	121.6	1.99	62.278	CC, ES
600.0	600.0	596.3	596.3	1.2	1.2	-127.64	-76.4	-99.0	125.1	122.7	2.40	52.076	
700.0	700.0	692.4	692.3	1.4	1.4	-128.67	-80.8	-101.0	129.6	126.7	2.81	46.093	
800.0	800.0	791.7	791.3	1.7	1.6	-144.54	-87.1	-103.8	137.2	134.0	3.24	42.361	
900.0	899.8	891.0	890.4	1.9	1.8	-146.77	-93.5	-106.6	147.9	144.2	3.67	40.280	
1,000.0	999.6	990.0	989.1	2.1	2.0	-149.12	-99.8	-109.4	160.2	156.1	4.10	39.047	
1,100.0	1,099.4	1,089.0	1,087.9	2.4	2.3	-151.13	-106.1	-112.2	172.8	168.3	4.54	38.054	
1,200.0	1,199.1	1,188.1	1,186.7	2.6	2.5	-152.87	-112.4	-115.0	185.6	180.6	4.98	37.246	
1,300.0	1,298.9	1,287.1	1,285.5	2.8	2.8	-154.39	-118.7	-117.8	198.5	193.1	5.43	36.580	
1,400.0	1,398.6	1,386.1	1,384.3	3.1	3.0	-155.72	-125.0	-120.6	211.5	205.7	5.87	36.024	
1,500.0	1,498.4	1,485.2	1,483.1	3.3	3.3	-156.89	-131.3	-123.4	224.7	218.4	6.32	35.552	
1,600.0	1,598.1	1,584.2	1,581.9	3.6	3.5	-157.94	-137.7	-126.2	237.9	231.1	6.77	35.152	
1,700.0	1,697.9	1,683.3	1,680.7	3.8	3.8	-158.87	-144.0	-129.0	251.2	244.0	7.22	34.806	
1,800.0	1,797.6	1,782.3	1,779.5	4.1	4.0	-159.71	-150.3	-131.8	264.5	256.9	7.67	34.506	
1,900.0	1,897.4	1,881.3	1,878.3	4.3	4.3	-160.47	-156.6	-134.6	277.9	269.8	8.12	34.242	
2,000.0	1,997.2	1,980.4	1,977.1	4.6	4.5	-161.16	-162.9	-137.4	291.4	282.8	8.57	34.009	
2,100.0	2,096.9	2,079.4	2,075.9	4.8	4.8	-161.79	-169.2	-140.2	304.9	295.9	9.02	33.802	
2,200.0	2,196.7	2,178.4	2,174.7	5.1	5.0	-162.36	-175.6	-143.0	318.4	308.9	9.47	33.617	
2,300.0	2,296.4	2,277.5	2,273.4	5.3	5.3	-162.89	-181.9	-145.8	331.9	322.0	9.92	33.451	
2,400.0	2,396.2	2,376.5	2,372.2	5.6	5.6	-163.38	-188.2	-148.6	345.5	335.1	10.38	33.300	
2,500.0	2,495.9	2,475.5	2,471.0	5.8	5.8	-163.83	-194.5	-151.4	359.1	348.3	10.83	33.164	
2,600.0	2,595.7	2,574.6	2,569.8	6.1	6.1	-164.25	-200.8	-154.2	372.7	361.4	11.28	33.039	
2,700.0	2,695.5	2,673.6	2,668.6	6.4	6.3	-164.64	-207.1	-157.0	386.3	374.6	11.73	32.925	
2,800.0	2,795.2	2,772.6	2,767.4	6.6	6.6	-165.00	-213.5	-159.8	400.0	387.8	12.19	32.820	
2,900.0	2,895.0	2,871.7	2,866.2	6.9	6.9	-165.34	-219.8	-162.6	413.7	401.0	12.64	32.724	
3,000.0	2,994.7	2,970.7	2,965.0	7.1	7.1	-165.65	-226.1	-165.4	427.3	414.2	13.09	32.634	
3,100.0	3,094.5	3,069.7	3,063.8	7.4	7.4	-165.95	-232.4	-168.2	441.0	427.5	13.55	32.552	
3,200.0	3,194.2	3,168.8	3,162.6	7.6	7.6	-166.23	-238.7	-171.0	454.7	440.7	14.00	32.475	
3,300.0	3,294.0	3,267.8	3,261.4	7.9	7.9	-166.49	-245.0	-173.8	468.4	454.0	14.46	32.403	
3,400.0	3,393.7	3,366.8	3,360.2	8.1	8.2	-166.74	-251.3	-176.6	482.1	467.2	14.91	32.336	
3,500.0	3,493.5	3,465.9	3,459.0	8.4	8.4	-166.97	-257.7	-179.4	495.9	480.5	15.36	32.274	
3,600.0	3,593.3	3,564.9	3,557.8	8.6	8.7	-167.19	-264.0	-182.2	509.6	493.8	15.82	32.215	
3,700.0	3,693.0	3,663.9	3,656.5	8.9	8.9	-167.40	-270.3	-185.0	523.3	507.1	16.27	32.160	
3,800.0	3,792.8	3,763.0	3,755.3	9.2	9.2	-167.60	-276.6	-187.8	537.1	520.4	16.73	32.107	
3,900.0	3,892.5	3,862.0	3,854.1	9.4	9.5	-167.79	-282.9	-190.6	550.8	533.7	17.18	32.058	
4,000.0	3,992.3	3,961.0	3,952.9	9.7	9.7	-167.97	-289.2	-193.4	564.6	547.0	17.64	32.012	
4,100.0	4,092.0	4,060.1	4,051.7	9.9	10.0	-168.14	-295.6	-196.1	578.4	560.3	18.09	31.968	
4,200.0	4,191.8	4,159.1	4,150.5	10.2	10.2	-168.31	-301.9	-198.9	592.1	573.6	18.55	31.927	
4,300.0	4,291.6	4,258.1	4,249.3	10.4	10.5	-168.46	-308.2	-201.7	605.9	586.9	19.00	31.887	
4,400.0	4,391.3	4,357.2	4,348.1	10.7	10.8	-168.61	-314.5	-204.5	619.7	600.2	19.46	31.850	
4,500.0	4,491.1	4,456.2	4,446.9	10.9	11.0	-168.75	-320.8	-207.3	633.5	613.6	19.91	31.814	
4,600.0	4,590.8	4,555.2	4,545.7	11.2	11.3	-168.89	-327.1	-210.1	647.3	626.9	20.37	31.780	
4,700.0	4,690.6	4,654.3	4,644.5	11.5	11.6	-169.02	-333.5	-212.9	661.0	640.2	20.82	31.748	
4,800.0	4,790.3	4,753.3	4,743.3	11.7	11.8	-169.15	-339.8	-215.7	674.8	653.6	21.28	31.717	
4,900.0	4,890.1	4,852.3	4,842.1	12.0	12.1	-169.27	-346.1	-218.5	688.6	666.9	21.73	31.687	
5,000.0	4,989.9	4,951.4	4,940.8	12.2	12.3	-169.38	-352.4	-221.3	702.4	680.2	22.19	31.659	
5,100.0	5,089.6	5,050.4	5,039.6	12.5	12.6	-169.49	-358.7	-224.1	716.2	693.6	22.64	31.632	

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 #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor Federal #12F-1303A - HZ - Plan #3

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.4	5,149.4	5,138.4	12.7	12.9	-169.60	-365.0	-226.9	730.0	706.9	23.10	31.606	
5,300.0	5,289.1	5,248.5	5,237.2	13.0	13.1	-169.70	-371.4	-229.7	743.8	720.3	23.55	31.581	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor Federal #12F-1304B - 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	-138.91	-74.9	-65.3	99.4				
100.0	100.0	100.0	100.0	0.1	0.1	-138.91	-74.9	-65.3	99.4	99.2	0.19	531.466	
200.0	200.0	200.0	200.0	0.3	0.3	-138.91	-74.9	-65.3	99.4	98.8	0.64	156.137	
300.0	300.0	300.0	300.0	0.5	0.5	-138.91	-74.9	-65.3	99.4	98.3	1.09	91.511	
400.0	400.0	400.0	400.0	0.8	0.8	-138.91	-74.9	-65.3	99.4	97.9	1.54	64.722	
500.0	500.0	500.0	500.0	1.0	1.0	-138.91	-74.9	-65.3	99.4	97.4	1.99	50.066	
600.0	600.0	600.0	600.0	1.2	1.2	-138.91	-74.9	-65.3	99.4	97.0	2.43	40.822	
700.0	700.0	700.0	700.0	1.4	1.4	-138.91	-74.9	-65.3	99.4	96.5	2.88	34.459	CC, ES
800.0	800.0	800.0	800.0	1.7	1.7	-153.54	-74.9	-65.3	100.9	97.6	3.33	30.280	
900.0	899.8	899.8	899.8	1.9	1.9	-154.76	-74.9	-65.3	105.7	101.9	3.78	27.934	
1,000.0	999.6	999.6	999.6	2.1	2.1	-156.28	-74.9	-65.3	112.0	107.8	4.23	26.472	
1,100.0	1,099.4	1,099.4	1,099.4	2.4	2.3	-157.64	-74.9	-65.3	118.4	113.8	4.68	25.296	
1,200.0	1,199.1	1,195.3	1,195.2	2.6	2.5	-159.10	-76.5	-65.7	126.4	121.3	5.10	24.791	SF
1,300.0	1,298.9	1,290.5	1,290.3	2.8	2.7	-160.87	-81.1	-66.6	137.6	132.1	5.50	25.015	
1,400.0	1,398.6	1,389.1	1,388.7	3.1	2.9	-162.68	-87.8	-68.1	150.7	144.8	5.91	25.502	
1,500.0	1,498.4	1,488.1	1,487.5	3.3	3.1	-164.21	-94.6	-69.5	164.0	157.7	6.32	25.934	
1,600.0	1,598.1	1,587.1	1,586.3	3.6	3.3	-165.51	-101.3	-71.0	177.4	170.6	6.74	26.308	
1,700.0	1,697.9	1,686.2	1,685.1	3.8	3.5	-166.63	-108.1	-72.4	190.8	183.7	7.17	26.632	
1,800.0	1,797.6	1,785.2	1,783.8	4.1	3.7	-167.60	-114.8	-73.9	204.3	196.8	7.59	26.915	
1,900.0	1,897.4	1,884.2	1,882.6	4.3	3.9	-168.45	-121.6	-75.3	217.9	209.9	8.02	27.164	
2,000.0	1,997.2	1,983.2	1,981.4	4.6	4.2	-169.20	-128.3	-76.8	231.5	223.1	8.46	27.382	
2,100.0	2,096.9	2,082.3	2,080.2	4.8	4.4	-169.87	-135.1	-78.2	245.2	236.3	8.89	27.577	
2,200.0	2,196.7	2,181.3	2,179.0	5.1	4.6	-170.47	-141.8	-79.7	258.8	249.5	9.33	27.751	
2,300.0	2,296.4	2,280.3	2,277.8	5.3	4.9	-171.00	-148.6	-81.1	272.5	262.8	9.77	27.907	
2,400.0	2,396.2	2,379.3	2,376.6	5.6	5.1	-171.49	-155.4	-82.6	286.2	276.0	10.21	28.047	
2,500.0	2,495.9	2,478.4	2,475.3	5.8	5.4	-171.93	-162.1	-84.0	300.0	289.3	10.65	28.174	
2,600.0	2,595.7	2,577.4	2,574.1	6.1	5.6	-172.33	-168.9	-85.5	313.7	302.6	11.09	28.289	
2,700.0	2,695.5	2,676.4	2,672.9	6.4	5.8	-172.70	-175.6	-86.9	327.5	316.0	11.53	28.395	
2,800.0	2,795.2	2,775.5	2,771.7	6.6	6.1	-173.04	-182.4	-88.4	341.3	329.3	11.98	28.491	
2,900.0	2,895.0	2,874.5	2,870.5	6.9	6.3	-173.35	-189.1	-89.8	355.0	342.6	12.42	28.579	
3,000.0	2,994.7	2,973.5	2,969.3	7.1	6.6	-173.64	-195.9	-91.3	368.8	356.0	12.87	28.660	
3,100.0	3,094.5	3,072.5	3,068.1	7.4	6.8	-173.91	-202.6	-92.7	382.7	369.3	13.32	28.735	
3,200.0	3,194.2	3,171.6	3,166.8	7.6	7.1	-174.16	-209.4	-94.1	396.5	382.7	13.76	28.805	
3,300.0	3,294.0	3,270.6	3,265.6	7.9	7.3	-174.39	-216.1	-95.6	410.3	396.1	14.21	28.869	
3,400.0	3,393.7	3,369.6	3,364.4	8.1	7.6	-174.61	-222.9	-97.0	424.1	409.4	14.66	28.929	
3,500.0	3,493.5	3,468.6	3,463.2	8.4	7.9	-174.82	-229.6	-98.5	437.9	422.8	15.11	28.985	
3,600.0	3,593.3	3,567.7	3,562.0	8.6	8.1	-175.01	-236.4	-99.9	451.8	436.2	15.56	29.038	
3,700.0	3,693.0	3,666.7	3,660.8	8.9	8.4	-175.19	-243.2	-101.4	465.6	449.6	16.01	29.087	
3,800.0	3,792.8	3,765.7	3,759.6	9.2	8.6	-175.36	-249.9	-102.8	479.5	463.0	16.46	29.133	
3,900.0	3,892.5	3,864.8	3,858.3	9.4	8.9	-175.52	-256.7	-104.3	493.3	476.4	16.91	29.176	
4,000.0	3,992.3	3,963.8	3,957.1	9.7	9.1	-175.67	-263.4	-105.7	507.2	489.8	17.36	29.216	
4,100.0	4,092.0	4,062.8	4,055.9	9.9	9.4	-175.81	-270.2	-107.2	521.0	503.2	17.81	29.255	
4,200.0	4,191.8	4,161.8	4,154.7	10.2	9.6	-175.95	-276.9	-108.6	534.9	516.6	18.26	29.291	
4,300.0	4,291.6	4,260.9	4,253.5	10.4	9.9	-176.08	-283.7	-110.1	548.7	530.0	18.71	29.325	
4,400.0	4,391.3	4,359.9	4,352.3	10.7	10.2	-176.20	-290.4	-111.5	562.6	543.4	19.16	29.357	
4,500.0	4,491.1	4,458.9	4,451.1	10.9	10.4	-176.32	-297.2	-113.0	576.5	556.9	19.62	29.388	
4,600.0	4,590.8	4,557.9	4,549.8	11.2	10.7	-176.43	-303.9	-114.4	590.3	570.3	20.07	29.417	
4,700.0	4,690.6	4,657.0	4,648.6	11.5	10.9	-176.53	-310.7	-115.9	604.2	583.7	20.52	29.445	
4,800.0	4,790.3	4,756.0	4,747.4	11.7	11.2	-176.64	-317.5	-117.3	618.1	597.1	20.97	29.471	
4,900.0	4,890.1	4,855.0	4,846.2	12.0	11.4	-176.73	-324.2	-118.8	632.0	610.5	21.43	29.497	
5,000.0	4,989.9	4,954.0	4,945.0	12.2	11.7	-176.83	-331.0	-120.2	645.8	624.0	21.88	29.521	
5,100.0	5,089.6	5,053.1	5,043.8	12.5	12.0	-176.92	-337.7	-121.7	659.7	637.4	22.33	29.544	

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 #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor Federal #12F-1304B - 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
5,200.0	5,189.4	5,152.1	5,142.6	12.7	12.2	-177.00	-344.5	-123.1	673.6	650.8	22.78	29.565	
5,300.0	5,289.1	5,251.1	5,241.3	13.0	12.5	-177.08	-351.2	-124.6	687.5	664.3	23.24	29.586	
5,400.0	5,388.9	5,350.2	5,340.1	13.2	12.7	-177.16	-358.0	-126.0	701.4	677.7	23.69	29.606	
5,500.0	5,488.2	5,442.4	5,432.2	13.5	13.0	-177.18	-364.3	-127.4	718.8	695.0	23.81	30.189	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor Federal #12F-1305A - HZ - Plan #3

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-156.69	-74.9	-32.3	81.6				
100.0	100.0	100.0	100.0	0.1	0.1	-156.69	-74.9	-32.3	81.6	81.4	0.19	436.087	
200.0	200.0	200.0	200.0	0.3	0.3	-156.69	-74.9	-32.3	81.6	80.9	0.64	128.120	
300.0	300.0	300.0	300.0	0.5	0.5	-156.69	-74.9	-32.3	81.6	80.5	1.09	75.089	
400.0	400.0	400.0	400.0	0.8	0.8	-156.69	-74.9	-32.3	81.6	80.0	1.54	53.108	
500.0	500.0	500.0	500.0	1.0	1.0	-156.69	-74.9	-32.3	81.6	79.6	1.99	41.081	
600.0	600.0	600.0	600.0	1.2	1.2	-156.69	-74.9	-32.3	81.6	79.1	2.43	33.496	
700.0	700.0	700.0	700.0	1.4	1.4	-156.69	-74.9	-32.3	81.6	78.7	2.88	28.275	CC, ES
800.0	800.0	800.0	800.0	1.7	1.7	-171.06	-74.9	-32.3	83.3	79.9	3.33	24.976	
900.0	899.8	899.8	899.8	1.9	1.9	-171.57	-74.9	-32.3	88.4	84.7	3.78	23.380	
1,000.0	999.6	996.7	996.7	2.1	2.1	-172.61	-76.5	-32.1	96.9	92.7	4.20	23.057	SF
1,100.0	1,099.4	1,092.9	1,092.7	2.4	2.3	-174.24	-81.4	-31.7	108.3	103.7	4.60	23.527	
1,200.0	1,199.1	1,191.7	1,191.3	2.6	2.4	-175.96	-88.2	-31.1	121.6	116.6	5.02	24.239	
1,300.0	1,298.9	1,290.8	1,290.1	2.8	2.6	-177.35	-95.1	-30.4	135.0	129.5	5.43	24.843	
1,400.0	1,398.6	1,389.8	1,388.9	3.1	2.9	-178.49	-102.0	-29.8	148.4	142.5	5.85	25.346	
1,500.0	1,498.4	1,488.9	1,487.8	3.3	3.1	-179.44	-108.9	-29.2	161.9	155.6	6.28	25.769	
1,600.0	1,598.1	1,587.9	1,586.6	3.6	3.3	179.76	-115.7	-28.5	175.4	168.7	6.71	26.127	
1,700.0	1,697.9	1,687.0	1,685.4	3.8	3.5	179.08	-122.6	-27.9	188.9	181.8	7.15	26.435	
1,800.0	1,797.6	1,786.0	1,784.2	4.1	3.8	178.48	-129.5	-27.3	202.5	194.9	7.58	26.699	
1,900.0	1,897.4	1,885.1	1,883.0	4.3	4.0	177.96	-136.4	-26.6	216.1	208.1	8.02	26.931	
2,000.0	1,997.2	1,984.1	1,981.8	4.6	4.2	177.50	-143.3	-26.0	229.7	221.2	8.47	27.133	
2,100.0	2,096.9	2,083.2	2,080.6	4.8	4.5	177.09	-150.1	-25.4	243.3	234.4	8.91	27.312	
2,200.0	2,196.7	2,182.2	2,179.4	5.1	4.7	176.73	-157.0	-24.7	256.9	247.6	9.35	27.471	
2,300.0	2,296.4	2,281.3	2,278.3	5.3	5.0	176.40	-163.9	-24.1	270.6	260.8	9.80	27.613	
2,400.0	2,396.2	2,380.4	2,377.1	5.6	5.2	176.11	-170.8	-23.5	284.2	274.0	10.25	27.741	
2,500.0	2,495.9	2,479.4	2,475.9	5.8	5.5	175.84	-177.7	-22.8	297.9	287.2	10.69	27.856	
2,600.0	2,595.7	2,578.5	2,574.7	6.1	5.7	175.59	-184.5	-22.2	311.5	300.4	11.14	27.960	
2,700.0	2,695.5	2,677.5	2,673.5	6.4	6.0	175.37	-191.4	-21.6	325.2	313.6	11.59	28.055	
2,800.0	2,795.2	2,776.6	2,772.3	6.6	6.2	175.16	-198.3	-20.9	338.9	326.8	12.04	28.141	
2,900.0	2,895.0	2,875.6	2,871.1	6.9	6.5	174.97	-205.2	-20.3	352.5	340.0	12.49	28.221	
3,000.0	2,994.7	2,974.7	2,970.0	7.1	6.7	174.79	-212.1	-19.7	366.2	353.3	12.94	28.294	
3,100.0	3,094.5	3,073.7	3,068.8	7.4	7.0	174.63	-218.9	-19.0	379.9	366.5	13.39	28.361	
3,200.0	3,194.2	3,172.8	3,167.6	7.6	7.3	174.48	-225.8	-18.4	393.6	379.7	13.85	28.423	
3,300.0	3,294.0	3,271.8	3,266.4	7.9	7.5	174.34	-232.7	-17.8	407.2	392.9	14.30	28.481	
3,400.0	3,393.7	3,370.9	3,365.2	8.1	7.8	174.20	-239.6	-17.1	420.9	406.2	14.75	28.535	
3,500.0	3,493.5	3,470.0	3,464.0	8.4	8.0	174.08	-246.5	-16.5	434.6	419.4	15.20	28.585	
3,600.0	3,593.3	3,569.0	3,562.8	8.6	8.3	173.96	-253.3	-15.9	448.3	432.7	15.66	28.632	
3,700.0	3,693.0	3,668.1	3,661.6	8.9	8.5	173.85	-260.2	-15.2	462.0	445.9	16.11	28.676	
3,800.0	3,792.8	3,767.1	3,760.5	9.2	8.8	173.75	-267.1	-14.6	475.7	459.1	16.57	28.717	
3,900.0	3,892.5	3,866.2	3,859.3	9.4	9.1	173.65	-274.0	-14.0	489.4	472.4	17.02	28.755	
4,000.0	3,992.3	3,965.2	3,958.1	9.7	9.3	173.56	-280.9	-13.3	503.1	485.6	17.47	28.792	
4,100.0	4,092.0	4,064.3	4,056.9	9.9	9.6	173.47	-287.8	-12.7	516.8	498.9	17.93	28.826	
4,200.0	4,191.8	4,163.3	4,155.7	10.2	9.8	173.39	-294.6	-12.1	530.5	512.1	18.38	28.858	
4,300.0	4,291.6	4,262.4	4,254.5	10.4	10.1	173.31	-301.5	-11.5	544.2	525.3	18.84	28.889	
4,400.0	4,391.3	4,361.4	4,353.3	10.7	10.3	173.23	-308.4	-10.8	557.9	538.6	19.29	28.918	
4,500.0	4,491.1	4,460.5	4,452.2	10.9	10.6	173.16	-315.3	-10.2	571.6	551.8	19.75	28.945	
4,600.0	4,590.8	4,559.6	4,551.0	11.2	10.9	173.09	-322.2	-9.6	585.3	565.1	20.20	28.972	
4,700.0	4,690.6	4,658.6	4,649.8	11.5	11.1	173.03	-329.0	-8.9	599.0	578.3	20.66	28.996	
4,800.0	4,790.3	4,757.7	4,748.6	11.7	11.4	172.97	-335.9	-8.3	612.7	591.6	21.11	29.020	
4,900.0	4,890.1	4,856.7	4,847.4	12.0	11.6	172.91	-342.8	-7.7	626.4	604.8	21.57	29.043	
5,000.0	4,989.9	4,955.8	4,946.2	12.2	11.9	172.85	-349.7	-7.0	640.1	618.1	22.02	29.064	
5,100.0	5,089.6	5,054.8	5,045.0	12.5	12.2	172.80	-356.6	-6.4	653.8	631.3	22.48	29.085	

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 #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor Federal #12F-1305A - HZ - Plan #3

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.4	5,153.9	5,143.8	12.7	12.4	172.74	-363.4	-5.8	667.5	644.6	22.94	29.104	
5,300.0	5,289.1	5,252.9	5,242.7	13.0	12.7	172.69	-370.3	-5.1	681.2	657.8	23.39	29.123	
5,400.0	5,388.9	5,343.5	5,333.0	13.2	12.9	172.65	-376.7	-4.5	695.0	671.2	23.83	29.168	
5,500.0	5,488.2	5,385.4	5,374.6	13.5	13.1	172.37	-381.7	-4.1	717.3	693.4	23.85	30.079	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor Federal #12F-1306B - 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	-180.00	-74.9	0.0	74.9				
100.0	100.0	100.0	100.0	0.1	0.1	-180.00	-74.9	0.0	74.9	74.7	0.19	400.611	
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-74.9	0.0	74.9	74.3	0.64	117.694	
300.0	300.0	300.0	300.0	0.5	0.5	-180.00	-74.9	0.0	74.9	73.8	1.09	68.980	
400.0	400.0	400.0	400.0	0.8	0.8	-180.00	-74.9	0.0	74.9	73.4	1.54	48.787	
500.0	500.0	500.0	500.0	1.0	1.0	-180.00	-74.9	0.0	74.9	72.9	1.99	37.739	
600.0	600.0	600.0	600.0	1.2	1.2	-180.00	-74.9	0.0	74.9	72.5	2.43	30.771	
700.0	700.0	700.0	700.0	1.4	1.4	-180.00	-74.9	0.0	74.9	72.0	2.88	25.975	CC, ES
800.0	800.0	800.0	800.0	1.7	1.7	166.12	-74.9	0.0	76.6	73.3	3.33	22.977	
900.0	899.8	899.8	899.8	1.9	1.9	166.98	-74.9	0.0	81.7	77.9	3.78	21.593	
1,000.0	999.6	999.6	999.6	2.1	2.1	168.00	-74.9	0.0	88.5	84.3	4.23	20.913	
1,100.0	1,099.4	1,096.3	1,096.3	2.4	2.3	168.48	-76.4	0.5	96.9	92.2	4.65	20.828	SF
1,200.0	1,199.1	1,192.5	1,192.4	2.6	2.5	168.22	-81.0	2.1	108.4	103.3	5.06	21.433	
1,300.0	1,298.9	1,291.3	1,291.0	2.8	2.7	167.67	-87.5	4.4	121.7	116.2	5.47	22.238	
1,400.0	1,398.6	1,390.4	1,389.8	3.1	2.9	167.22	-94.0	6.7	134.9	129.1	5.89	22.918	
1,500.0	1,498.4	1,489.6	1,488.7	3.3	3.1	166.86	-100.6	9.0	148.2	141.9	6.31	23.489	
1,600.0	1,598.1	1,588.7	1,587.6	3.6	3.3	166.56	-107.1	11.3	161.5	154.8	6.74	23.971	
1,700.0	1,697.9	1,687.8	1,686.4	3.8	3.5	166.30	-113.6	13.6	174.8	167.7	7.17	24.381	
1,800.0	1,797.6	1,786.9	1,785.3	4.1	3.7	166.08	-120.1	15.9	188.2	180.5	7.61	24.734	
1,900.0	1,897.4	1,886.0	1,884.2	4.3	4.0	165.88	-126.6	18.2	201.5	193.4	8.05	25.040	
2,000.0	1,997.2	1,985.1	1,983.0	4.6	4.2	165.71	-133.2	20.5	214.8	206.3	8.49	25.308	
2,100.0	2,096.9	2,084.2	2,081.9	4.8	4.5	165.57	-139.7	22.8	228.1	219.2	8.93	25.543	
2,200.0	2,196.7	2,183.3	2,180.8	5.1	4.7	165.43	-146.2	25.1	241.4	232.0	9.37	25.752	
2,300.0	2,296.4	2,282.4	2,279.6	5.3	4.9	165.31	-152.7	27.4	254.7	244.9	9.82	25.937	
2,400.0	2,396.2	2,381.5	2,378.5	5.6	5.2	165.21	-159.2	29.7	268.0	257.8	10.27	26.103	
2,500.0	2,495.9	2,480.6	2,477.4	5.8	5.4	165.11	-165.8	32.0	281.4	270.6	10.72	26.252	
2,600.0	2,595.7	2,579.7	2,576.2	6.1	5.7	165.02	-172.3	34.3	294.7	283.5	11.17	26.388	
2,700.0	2,695.5	2,678.9	2,675.1	6.4	5.9	164.94	-178.8	36.6	308.0	296.4	11.62	26.510	
2,800.0	2,795.2	2,778.0	2,774.0	6.6	6.2	164.87	-185.3	38.9	321.3	309.2	12.07	26.622	
2,900.0	2,895.0	2,877.1	2,872.8	6.9	6.4	164.80	-191.8	41.2	334.6	322.1	12.52	26.724	
3,000.0	2,994.7	2,976.2	2,971.7	7.1	6.7	164.74	-198.4	43.5	348.0	335.0	12.98	26.818	
3,100.0	3,094.5	3,075.3	3,070.6	7.4	6.9	164.68	-204.9	45.8	361.3	347.9	13.43	26.904	
3,200.0	3,194.2	3,174.4	3,169.4	7.6	7.2	164.63	-211.4	48.1	374.6	360.7	13.88	26.983	
3,300.0	3,294.0	3,273.5	3,268.3	7.9	7.4	164.58	-217.9	50.4	387.9	373.6	14.34	27.057	
3,400.0	3,393.7	3,372.6	3,367.2	8.1	7.7	164.53	-224.4	52.7	401.2	386.5	14.79	27.126	
3,500.0	3,493.5	3,471.7	3,466.0	8.4	8.0	164.49	-231.0	55.0	414.6	399.3	15.25	27.189	
3,600.0	3,593.3	3,570.8	3,564.9	8.6	8.2	164.45	-237.5	57.3	427.9	412.2	15.70	27.249	
3,700.0	3,693.0	3,669.9	3,663.8	8.9	8.5	164.41	-244.0	59.5	441.2	425.1	16.16	27.304	
3,800.0	3,792.8	3,769.0	3,762.6	9.2	8.7	164.37	-250.5	61.8	454.5	437.9	16.62	27.356	
3,900.0	3,892.5	3,868.2	3,861.5	9.4	9.0	164.34	-257.1	64.1	467.9	450.8	17.07	27.405	
4,000.0	3,992.3	3,967.3	3,960.4	9.7	9.2	164.30	-263.6	66.4	481.2	463.7	17.53	27.451	
4,100.0	4,092.0	4,066.4	4,059.2	9.9	9.5	164.27	-270.1	68.7	494.5	476.5	17.99	27.494	
4,200.0	4,191.8	4,165.5	4,158.1	10.2	9.8	164.24	-276.6	71.0	507.8	489.4	18.44	27.535	
4,300.0	4,291.6	4,264.6	4,257.0	10.4	10.0	164.22	-283.1	73.3	521.2	502.3	18.90	27.573	
4,400.0	4,391.3	4,363.7	4,355.8	10.7	10.3	164.19	-289.7	75.6	534.5	515.1	19.36	27.610	
4,500.0	4,491.1	4,462.8	4,454.7	10.9	10.5	164.17	-296.2	77.9	547.8	528.0	19.82	27.644	
4,600.0	4,590.8	4,561.9	4,553.6	11.2	10.8	164.14	-302.7	80.2	561.1	540.9	20.27	27.677	
4,700.0	4,690.6	4,661.0	4,652.4	11.5	11.0	164.12	-309.2	82.5	574.5	553.7	20.73	27.708	
4,800.0	4,790.3	4,760.1	4,751.3	11.7	11.3	164.10	-315.7	84.8	587.8	566.6	21.19	27.738	
4,900.0	4,890.1	4,859.2	4,850.2	12.0	11.6	164.08	-322.3	87.1	601.1	579.5	21.65	27.766	
5,000.0	4,989.9	4,958.3	4,949.0	12.2	11.8	164.06	-328.8	89.4	614.4	592.3	22.11	27.793	
5,100.0	5,089.6	5,057.4	5,047.9	12.5	12.1	164.04	-335.3	91.7	627.8	605.2	22.57	27.818	

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 #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor Federal #12F-1306B - 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
5,200.0	5,189.4	5,156.6	5,146.8	12.7	12.3	164.02	-341.8	94.0	641.1	618.1	23.03	27.843	
5,300.0	5,289.1	5,255.7	5,245.6	13.0	12.6	164.00	-348.3	96.3	654.4	630.9	23.48	27.866	
5,400.0	5,388.9	5,354.8	5,344.5	13.2	12.9	163.99	-354.9	98.6	667.7	643.8	23.94	27.888	
5,500.0	5,488.2	5,444.8	5,434.3	13.5	13.1	163.67	-360.8	100.7	684.5	660.4	24.08	28.422	
5,600.0	5,584.1	5,485.2	5,474.4	14.0	13.2	162.51	-365.5	102.3	722.3	698.9	23.37	30.912	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor Federal #12F-1307A - HZ - Plan #3

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	156.19	-74.9	33.0	81.9				
100.0	100.0	100.0	100.0	0.1	0.1	156.19	-74.9	33.0	81.9	81.7	0.19	437.729	
200.0	200.0	200.0	200.0	0.3	0.3	156.19	-74.9	33.0	81.9	81.2	0.64	128.602	
300.0	300.0	300.0	300.0	0.5	0.5	156.19	-74.9	33.0	81.9	80.8	1.09	75.372	
400.0	400.0	400.0	400.0	0.8	0.8	156.19	-74.9	33.0	81.9	80.3	1.54	53.308	CC, ES
500.0	500.0	497.2	497.2	1.0	1.0	156.07	-76.3	33.9	83.5	81.6	1.96	42.710	
600.0	600.0	594.2	594.0	1.2	1.2	155.75	-80.6	36.3	88.6	86.2	2.37	37.364	
700.0	700.0	693.7	693.4	1.4	1.4	155.34	-86.6	39.8	95.5	92.7	2.80	34.125	
800.0	800.0	793.4	792.8	1.7	1.6	141.31	-92.7	43.2	103.8	100.6	3.24	32.083	
900.0	899.8	892.7	891.9	1.9	1.8	142.48	-98.7	46.7	114.9	111.2	3.68	31.249	
1,000.0	999.6	991.9	990.8	2.1	2.1	144.03	-104.7	50.1	127.4	123.3	4.12	30.941	
1,100.0	1,099.4	1,091.1	1,089.7	2.4	2.3	145.30	-110.7	53.5	140.0	135.4	4.56	30.674	
1,200.0	1,199.1	1,190.2	1,188.6	2.6	2.6	146.36	-116.7	57.0	152.6	147.6	5.01	30.444	
1,300.0	1,298.9	1,289.4	1,287.6	2.8	2.8	147.26	-122.7	60.4	165.3	159.8	5.46	30.245	
1,400.0	1,398.6	1,388.6	1,386.5	3.1	3.1	148.03	-128.7	63.8	178.0	172.0	5.92	30.071	
1,500.0	1,498.4	1,487.7	1,485.4	3.3	3.3	148.70	-134.7	67.3	190.7	184.3	6.37	29.919	
1,600.0	1,598.1	1,586.9	1,584.3	3.6	3.6	149.29	-140.7	70.7	203.4	196.6	6.83	29.785	
1,700.0	1,697.9	1,686.0	1,683.2	3.8	3.9	149.80	-146.7	74.2	216.2	208.9	7.29	29.666	
1,800.0	1,797.6	1,785.2	1,782.2	4.1	4.1	150.26	-152.7	77.6	229.0	221.3	7.75	29.560	
1,900.0	1,897.4	1,884.4	1,881.1	4.3	4.4	150.67	-158.7	81.0	241.8	233.6	8.21	29.465	
2,000.0	1,997.2	1,983.5	1,980.0	4.6	4.6	151.04	-164.7	84.5	254.6	245.9	8.67	29.380	
2,100.0	2,096.9	2,082.7	2,078.9	4.8	4.9	151.37	-170.7	87.9	267.4	258.3	9.13	29.302	
2,200.0	2,196.7	2,181.9	2,177.9	5.1	5.2	151.67	-176.7	91.4	280.3	270.7	9.59	29.232	
2,300.0	2,296.4	2,281.0	2,276.8	5.3	5.4	151.95	-182.7	94.8	293.1	283.1	10.05	29.167	
2,400.0	2,396.2	2,380.2	2,375.7	5.6	5.7	152.20	-188.7	98.2	305.9	295.4	10.51	29.108	
2,500.0	2,495.9	2,479.4	2,474.6	5.8	5.9	152.44	-194.7	101.7	318.8	307.8	10.97	29.054	
2,600.0	2,595.7	2,578.5	2,573.5	6.1	6.2	152.65	-200.7	105.1	331.6	320.2	11.43	29.004	
2,700.0	2,695.5	2,677.7	2,672.5	6.4	6.5	152.85	-206.7	108.5	344.5	332.6	11.90	28.958	
2,800.0	2,795.2	2,776.8	2,771.4	6.6	6.7	153.03	-212.7	112.0	357.4	345.0	12.36	28.915	
2,900.0	2,895.0	2,876.0	2,870.3	6.9	7.0	153.20	-218.7	115.4	370.2	357.4	12.82	28.875	
3,000.0	2,994.7	2,975.2	2,969.2	7.1	7.2	153.36	-224.7	118.9	383.1	369.8	13.28	28.838	
3,100.0	3,094.5	3,074.3	3,068.1	7.4	7.5	153.51	-230.7	122.3	396.0	382.2	13.75	28.803	
3,200.0	3,194.2	3,173.5	3,167.1	7.6	7.8	153.65	-236.7	125.7	408.8	394.6	14.21	28.770	
3,300.0	3,294.0	3,272.7	3,266.0	7.9	8.0	153.79	-242.7	129.2	421.7	407.0	14.67	28.739	
3,400.0	3,393.7	3,371.8	3,364.9	8.1	8.3	153.91	-248.7	132.6	434.6	419.4	15.14	28.711	
3,500.0	3,493.5	3,471.0	3,463.8	8.4	8.5	154.03	-254.7	136.0	447.5	431.9	15.60	28.683	
3,600.0	3,593.3	3,570.2	3,562.8	8.6	8.8	154.14	-260.7	139.5	460.3	444.3	16.06	28.658	
3,700.0	3,693.0	3,669.3	3,661.7	8.9	9.1	154.24	-266.7	142.9	473.2	456.7	16.53	28.634	
3,800.0	3,792.8	3,768.5	3,760.6	9.2	9.3	154.34	-272.7	146.4	486.1	469.1	16.99	28.611	
3,900.0	3,892.5	3,867.6	3,859.5	9.4	9.6	154.43	-278.7	149.8	499.0	481.5	17.45	28.589	
4,000.0	3,992.3	3,966.8	3,958.4	9.7	9.9	154.52	-284.7	153.2	511.9	494.0	17.92	28.568	
4,100.0	4,092.0	4,066.0	4,057.4	9.9	10.1	154.61	-290.8	156.7	524.8	506.4	18.38	28.549	
4,200.0	4,191.8	4,165.1	4,156.3	10.2	10.4	154.69	-296.8	160.1	537.6	518.8	18.84	28.530	
4,300.0	4,291.6	4,264.3	4,255.2	10.4	10.6	154.76	-302.8	163.5	550.5	531.2	19.31	28.512	
4,400.0	4,391.3	4,363.5	4,354.1	10.7	10.9	154.84	-308.8	167.0	563.4	543.7	19.77	28.495	
4,500.0	4,491.1	4,462.6	4,453.1	10.9	11.2	154.91	-314.8	170.4	576.3	556.1	20.24	28.479	
4,600.0	4,590.8	4,561.8	4,552.0	11.2	11.4	154.97	-320.8	173.9	589.2	568.5	20.70	28.463	
4,700.0	4,690.6	4,660.9	4,650.9	11.5	11.7	155.04	-326.8	177.3	602.1	580.9	21.16	28.449	
4,800.0	4,790.3	4,760.1	4,749.8	11.7	11.9	155.10	-332.8	180.7	615.0	593.4	21.63	28.434	
4,900.0	4,890.1	4,859.3	4,848.7	12.0	12.2	155.16	-338.8	184.2	627.9	605.8	22.09	28.421	
5,000.0	4,989.9	4,958.4	4,947.7	12.2	12.5	155.21	-344.8	187.6	640.8	618.2	22.56	28.408	
5,100.0	5,089.6	5,057.6	5,046.6	12.5	12.7	155.27	-350.8	191.0	653.7	630.7	23.02	28.395	

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 #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor Federal #12F-1307A - HZ - Plan #3

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.4	5,156.8	5,145.5	12.7	13.0	155.32	-356.8	194.5	666.6	643.1	23.48	28.383	
5,300.0	5,289.1	5,255.9	5,244.4	13.0	13.3	155.37	-362.8	197.9	679.5	655.5	23.95	28.372	SF
5,400.0	5,388.9	5,345.6	5,333.9	13.2	13.5	155.41	-368.3	201.1	692.5	668.1	24.39	28.390	
5,500.0	5,488.2	5,400.0	5,387.7	13.5	13.7	154.71	-374.7	204.7	714.0	689.5	24.49	29.157	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor Federal#12F-1308B - 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	138.59	-74.9	66.1	99.9				
100.0	100.0	100.0	100.0	0.1	0.1	138.59	-74.9	66.1	99.9	99.7	0.19	534.239	
200.0	200.0	200.0	200.0	0.3	0.3	138.59	-74.9	66.1	99.9	99.3	0.64	156.952	
300.0	300.0	300.0	300.0	0.5	0.5	138.59	-74.9	66.1	99.9	98.8	1.09	91.988	
400.0	400.0	400.0	400.0	0.8	0.8	138.59	-74.9	66.1	99.9	98.4	1.54	65.060	
500.0	500.0	500.0	500.0	1.0	1.0	138.59	-74.9	66.1	99.9	97.9	1.99	50.327	
600.0	600.0	600.0	600.0	1.2	1.2	138.59	-74.9	66.1	99.9	97.5	2.43	41.035	
700.0	700.0	700.0	700.0	1.4	1.4	138.59	-74.9	66.1	99.9	97.0	2.88	34.639	CC, ES
800.0	800.0	800.0	800.0	1.7	1.7	125.20	-74.9	66.1	100.9	97.6	3.33	30.272	
900.0	899.8	899.8	899.8	1.9	1.9	127.50	-74.9	66.1	104.0	100.2	3.78	27.495	
1,000.0	999.6	995.9	995.9	2.1	2.1	130.26	-76.2	67.1	110.1	105.9	4.21	26.167	
1,100.0	1,099.4	1,091.6	1,091.4	2.4	2.3	132.53	-79.8	70.2	119.7	115.1	4.62	25.907	SF
1,200.0	1,199.1	1,190.4	1,190.0	2.6	2.5	134.41	-85.1	74.6	131.4	126.3	5.04	26.046	
1,300.0	1,298.9	1,289.7	1,289.0	2.8	2.7	135.98	-90.4	79.0	143.2	137.7	5.47	26.173	
1,400.0	1,398.6	1,388.9	1,388.0	3.1	2.9	137.31	-95.7	83.5	155.1	149.2	5.90	26.272	
1,500.0	1,498.4	1,488.1	1,487.0	3.3	3.1	138.46	-101.1	87.9	167.1	160.7	6.34	26.348	
1,600.0	1,598.1	1,587.3	1,586.0	3.6	3.3	139.45	-106.4	92.4	179.1	172.4	6.78	26.407	
1,700.0	1,697.9	1,686.6	1,685.0	3.8	3.6	140.31	-111.7	96.8	191.2	184.0	7.23	26.453	
1,800.0	1,797.6	1,785.8	1,784.0	4.1	3.8	141.07	-117.0	101.2	203.3	195.7	7.68	26.490	
1,900.0	1,897.4	1,885.0	1,883.0	4.3	4.0	141.75	-122.3	105.7	215.5	207.4	8.13	26.519	
2,000.0	1,997.2	1,984.3	1,981.9	4.6	4.3	142.35	-127.6	110.1	227.7	219.1	8.58	26.542	
2,100.0	2,096.9	2,083.5	2,080.9	4.8	4.5	142.90	-132.9	114.5	239.9	230.9	9.03	26.561	
2,200.0	2,196.7	2,182.7	2,179.9	5.1	4.8	143.39	-138.2	119.0	252.1	242.6	9.49	26.575	
2,300.0	2,296.4	2,281.9	2,278.9	5.3	5.0	143.83	-143.5	123.4	264.4	254.4	9.94	26.587	
2,400.0	2,396.2	2,381.2	2,377.9	5.6	5.3	144.24	-148.9	127.9	276.6	266.2	10.40	26.597	
2,500.0	2,495.9	2,480.4	2,476.9	5.8	5.5	144.61	-154.2	132.3	288.9	278.0	10.86	26.604	
2,600.0	2,595.7	2,579.6	2,575.9	6.1	5.8	144.95	-159.5	136.7	301.2	289.9	11.32	26.610	
2,700.0	2,695.5	2,678.8	2,674.8	6.4	6.0	145.26	-164.8	141.2	313.5	301.7	11.78	26.614	
2,800.0	2,795.2	2,778.1	2,773.8	6.6	6.3	145.55	-170.1	145.6	325.8	313.5	12.24	26.618	
2,900.0	2,895.0	2,877.3	2,872.8	6.9	6.5	145.82	-175.4	150.1	338.1	325.4	12.70	26.621	
3,000.0	2,994.7	2,976.5	2,971.8	7.1	6.8	146.07	-180.7	154.5	350.4	337.2	13.16	26.622	
3,100.0	3,094.5	3,075.8	3,070.8	7.4	7.1	146.30	-186.0	158.9	362.7	349.1	13.62	26.624	
3,200.0	3,194.2	3,175.0	3,169.8	7.6	7.3	146.52	-191.4	163.4	375.0	360.9	14.09	26.624	
3,300.0	3,294.0	3,274.2	3,268.8	7.9	7.6	146.73	-196.7	167.8	387.4	372.8	14.55	26.625	
3,400.0	3,393.7	3,373.4	3,367.7	8.1	7.8	146.92	-202.0	172.2	399.7	384.7	15.01	26.625	
3,500.0	3,493.5	3,472.7	3,466.7	8.4	8.1	147.10	-207.3	176.7	412.0	396.5	15.48	26.624	
3,600.0	3,593.3	3,571.9	3,565.7	8.6	8.3	147.27	-212.6	181.1	424.4	408.4	15.94	26.624	
3,700.0	3,693.0	3,671.1	3,664.7	8.9	8.6	147.43	-217.9	185.6	436.7	420.3	16.40	26.623	
3,800.0	3,792.8	3,770.4	3,763.7	9.2	8.9	147.58	-223.2	190.0	449.1	432.2	16.87	26.622	
3,900.0	3,892.5	3,869.6	3,862.7	9.4	9.1	147.72	-228.5	194.4	461.4	444.1	17.33	26.621	
4,000.0	3,992.3	3,968.8	3,961.7	9.7	9.4	147.86	-233.8	198.9	473.8	456.0	17.80	26.620	
4,100.0	4,092.0	4,068.0	4,060.6	9.9	9.6	147.99	-239.2	203.3	486.1	467.9	18.26	26.619	
4,200.0	4,191.8	4,167.3	4,159.6	10.2	9.9	148.11	-244.5	207.8	498.5	479.8	18.73	26.618	
4,300.0	4,291.6	4,266.5	4,258.6	10.4	10.2	148.22	-249.8	212.2	510.8	491.6	19.19	26.616	
4,400.0	4,391.3	4,365.7	4,357.6	10.7	10.4	148.33	-255.1	216.6	523.2	503.5	19.66	26.615	
4,500.0	4,491.1	4,465.0	4,456.6	10.9	10.7	148.44	-260.4	221.1	535.6	515.4	20.12	26.613	
4,600.0	4,590.8	4,564.2	4,555.6	11.2	10.9	148.54	-265.7	225.5	547.9	527.3	20.59	26.612	
4,700.0	4,690.6	4,663.4	4,654.6	11.5	11.2	148.64	-271.0	229.9	560.3	539.2	21.06	26.610	
4,800.0	4,790.3	4,762.6	4,753.6	11.7	11.4	148.73	-276.3	234.4	572.7	551.2	21.52	26.609	
4,900.0	4,890.1	4,861.9	4,852.5	12.0	11.7	148.82	-281.7	238.8	585.0	563.1	21.99	26.607	
5,000.0	4,989.9	4,961.1	4,951.5	12.2	12.0	148.90	-287.0	243.3	597.4	575.0	22.45	26.606	
5,100.0	5,089.6	5,060.3	5,050.5	12.5	12.2	148.99	-292.3	247.7	609.8	586.9	22.92	26.604	

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 #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 S12-T10N-R58W - Razor Federal#12F-1308B - HZ - Plan #2

Offset Site Error: 0.0 usft

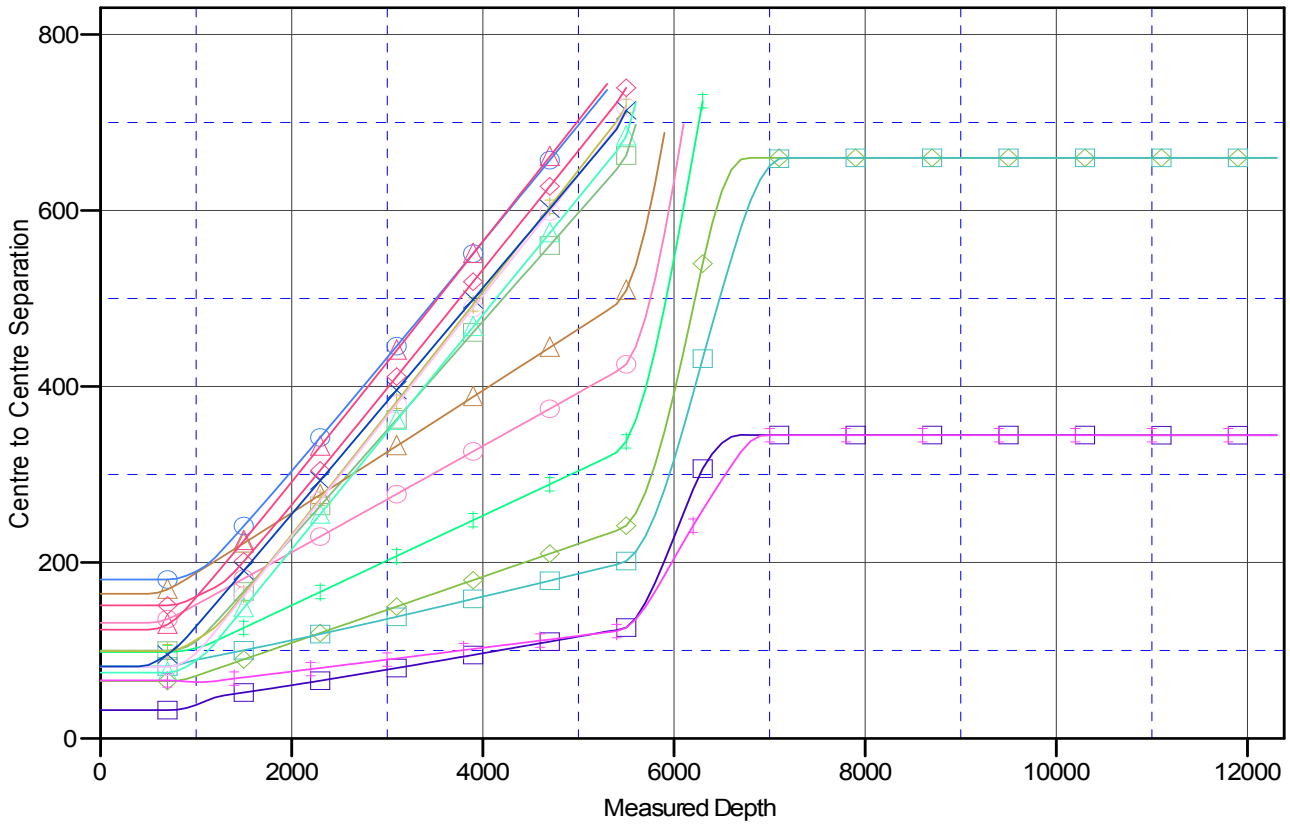
Survey Program: 0-ISCWSA MWD

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
5,200.0	5,189.4	5,159.5	5,149.5	12.7	12.5	149.06	-297.6	252.1	622.2	598.8	23.39	26.603	
5,300.0	5,289.1	5,258.8	5,248.5	13.0	12.7	149.14	-302.9	256.6	634.5	610.7	23.85	26.601	
5,400.0	5,388.9	5,358.0	5,347.5	13.2	13.0	149.21	-308.2	261.0	646.9	622.6	24.32	26.600	
5,500.0	5,488.2	5,446.6	5,435.9	13.5	13.2	148.77	-313.0	265.0	662.5	637.9	24.52	27.012	
5,600.0	5,584.1	5,500.0	5,488.7	14.0	13.4	147.06	-318.6	269.7	697.8	673.7	24.12	28.934	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0106B
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Reference Site:	S12-T10N-R58W	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #12F-0106B	**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 @ 4953.6usft (Original Well Ele
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.00 W °
Coordinates are relative to: Razor #12F-0106B
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.09°



LEGEND

- Razor Federal#12F-1308B, HZ, Plan #2 V0
- Razor #12F-0101A, HZ, Plan #3 V0
- Razor #12F-0102B, HZ, Plan #3 V0
- Razor #12F-0103A, HZ, Plan #3 V0
- Razor #12F-0104B, HZ, Plan #3 V0
- Razor #12F-0105A, HZ, Plan #3 V0
- Razor #12F-0107A, HZ, Plan #2 V0
- Razor #12F-0108B, HZ, Plan #3 V0
- Razor Federal #12F-1301A, HZ, Plan #3 V0
- Razor Federal #12F-1302B, HZ, Plan #2 V0
- Razor Federal #12F-1303A, HZ, Plan #3 V0
- Razor Federal #12F-1304B, HZ, Plan #2 V0
- Razor Federal #12F-1305A, HZ, Plan #3 V0
- Razor Federal #12F-1306B, HZ, Plan #2 V0
- Razor Federal #12F-1307A, HZ, Plan #3 V0