WHITING PETROLEUM CORPORATION

Project: Weld County, CO
Site: S12-T10N-R58W
Well: Razor #12F-0104B
Wellbore: HZ
Design: Plan #3

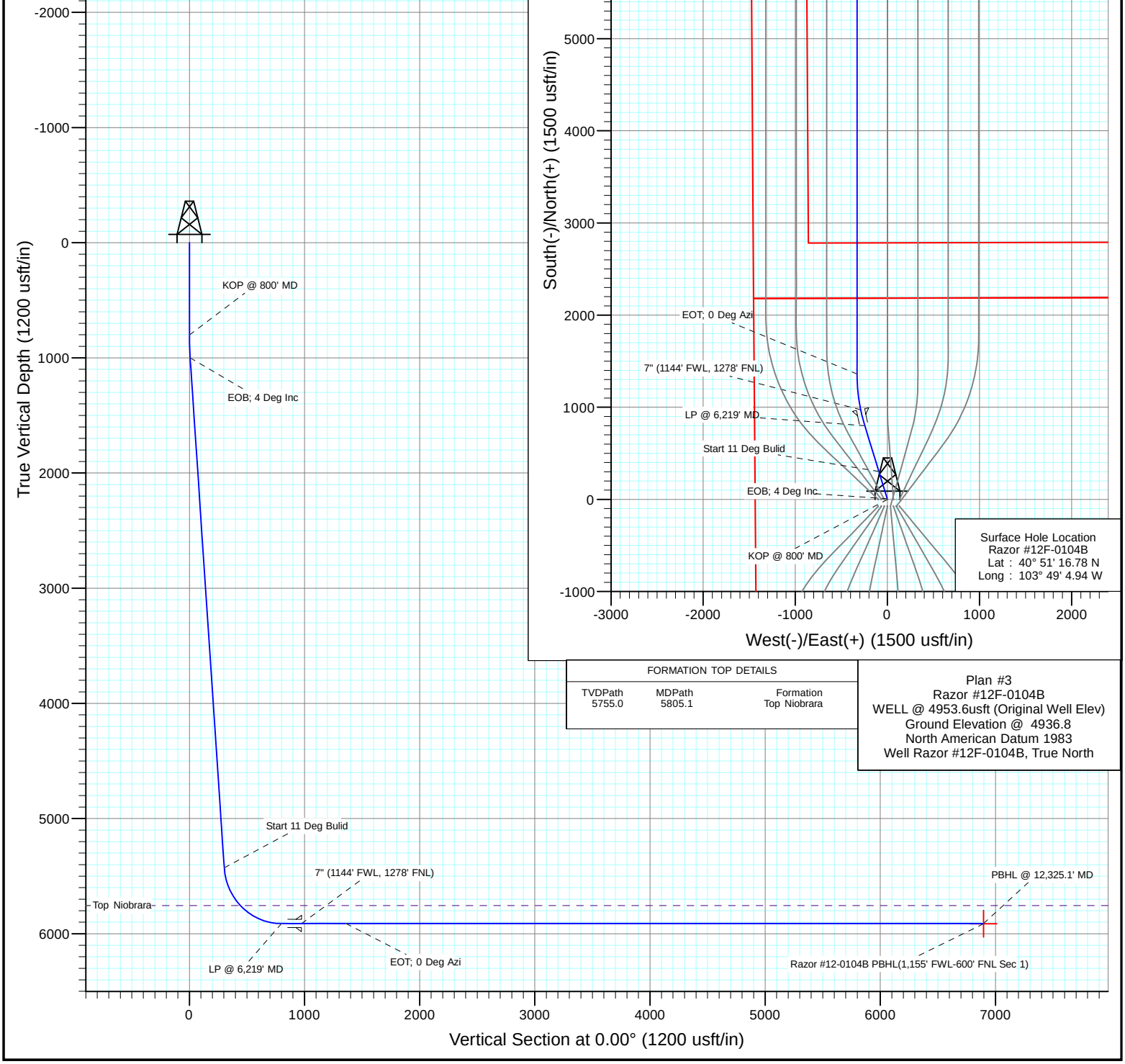
CATHEDRAL

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSect	Target	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		
2	800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.0		KOP @ 800' MD
3	1000.0	4.00	342.93	999.8	6.7	-2.0	2.00	342.93	6.7		EOB; 4 Deg Inc
4	5438.0	4.00	342.93	5427.0	302.6	-92.9	0.00	0.00	302.6		Start 11 Deg Bulid
5	6219.8	90.00	342.93	5911.6	799.3	-245.4	11.00	0.00	799.3		LP @ 6,219' MD
6	6788.8	90.00	0.00	5911.6	1359.9	-329.6	3.00	90.01	1359.9		EOT; 0 Deg Azi
7	12325.1	90.00	0.00	5912.0	6896.3	-329.6	0.00	0.00	6896.3		PBHL @ 12,325.1' MD

T
M
Azimuths to True North
Magnetic North: 8.09°

Magnetic Field
Strength: 53239.1snT
Dip Angle: 67.49°
Date: 7/29/2013
Model: IGRF2010



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5755.0	5805.1	Top Niobrara

Plan #3
Razor #12F-0104B
WELL @ 4953.6usft (Original Well Elev)
Ground Elevation @ 4936.8
North American Datum 1983
Well Razor #12F-0104B, True North

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #12F-0104B
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-0104B	**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-0104B

Well Position	**+N/-S**	0.0 usft	**Northing:**	1,558,614.72 usft	**Latitude:**	40° 51' 16.78 N
	+E/-W	0.0 usft	**Easting:**	3,465,273.84 usft	**Longitude:**	103° 49' 4.94 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	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	4.00	342.93	999.8	6.7	-2.0	2.00	2.00	0.00	342.93	
5,438.0	4.00	342.93	5,427.0	302.6	-92.9	0.00	0.00	0.00	0.00	
6,219.8	90.00	342.93	5,911.6	799.3	-245.4	11.00	11.00	0.00	0.00	
6,788.8	90.00	0.00	5,911.6	1,359.9	-329.6	3.00	0.00	3.00	90.01	
12,325.1	90.00	0.00	5,912.0	6,896.3	-329.6	0.00	0.00	0.00	0.00	Razor #12-0104B PBl

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #12F-0104B
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Project:	Weld County, CO	**MD Reference:**	WELL @ 4953.6usft (Original Well Elev)
Site:	S12-T10N-R58W	**North Reference:**	True
Well:	Razor #12F-0104B	**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	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	KOP @ 800' MD
900.0	2.00	342.93	900.0	1.7	-0.5	1.7	2.00	2.00	
1,000.0	4.00	342.93	999.8	6.7	-2.0	6.7	2.00	2.00	EOB; 4 Deg Inc
1,100.0	4.00	342.93	1,099.6	13.3	-4.1	13.3	0.00	0.00	
1,200.0	4.00	342.93	1,199.4	20.0	-6.1	20.0	0.00	0.00	
1,300.0	4.00	342.93	1,299.1	26.7	-8.2	26.7	0.00	0.00	
1,400.0	4.00	342.93	1,398.9	33.3	-10.2	33.3	0.00	0.00	
1,500.0	4.00	342.93	1,498.6	40.0	-12.3	40.0	0.00	0.00	
1,600.0	4.00	342.93	1,598.4	46.7	-14.3	46.7	0.00	0.00	
1,700.0	4.00	342.93	1,698.1	53.3	-16.4	53.3	0.00	0.00	
1,800.0	4.00	342.93	1,797.9	60.0	-18.4	60.0	0.00	0.00	
1,900.0	4.00	342.93	1,897.6	66.7	-20.5	66.7	0.00	0.00	
2,000.0	4.00	342.93	1,997.4	73.4	-22.5	73.4	0.00	0.00	
2,100.0	4.00	342.93	2,097.2	80.0	-24.6	80.0	0.00	0.00	
2,200.0	4.00	342.93	2,196.9	86.7	-26.6	86.7	0.00	0.00	
2,300.0	4.00	342.93	2,296.7	93.4	-28.7	93.4	0.00	0.00	
2,400.0	4.00	342.93	2,396.4	100.0	-30.7	100.0	0.00	0.00	
2,500.0	4.00	342.93	2,496.2	106.7	-32.8	106.7	0.00	0.00	
2,600.0	4.00	342.93	2,595.9	113.4	-34.8	113.4	0.00	0.00	
2,700.0	4.00	342.93	2,695.7	120.0	-36.9	120.0	0.00	0.00	
2,800.0	4.00	342.93	2,795.5	126.7	-38.9	126.7	0.00	0.00	
2,900.0	4.00	342.93	2,895.2	133.4	-41.0	133.4	0.00	0.00	
3,000.0	4.00	342.93	2,995.0	140.0	-43.0	140.0	0.00	0.00	
3,100.0	4.00	342.93	3,094.7	146.7	-45.0	146.7	0.00	0.00	
3,200.0	4.00	342.93	3,194.5	153.4	-47.1	153.4	0.00	0.00	
3,300.0	4.00	342.93	3,294.2	160.0	-49.1	160.0	0.00	0.00	
3,400.0	4.00	342.93	3,394.0	166.7	-51.2	166.7	0.00	0.00	
3,500.0	4.00	342.93	3,493.7	173.4	-53.2	173.4	0.00	0.00	
3,600.0	4.00	342.93	3,593.5	180.0	-55.3	180.0	0.00	0.00	
3,700.0	4.00	342.93	3,693.3	186.7	-57.3	186.7	0.00	0.00	
3,800.0	4.00	342.93	3,793.0	193.4	-59.4	193.4	0.00	0.00	
3,900.0	4.00	342.93	3,892.8	200.1	-61.4	200.1	0.00	0.00	
4,000.0	4.00	342.93	3,992.5	206.7	-63.5	206.7	0.00	0.00	
4,100.0	4.00	342.93	4,092.3	213.4	-65.5	213.4	0.00	0.00	
4,200.0	4.00	342.93	4,192.0	220.1	-67.6	220.1	0.00	0.00	
4,300.0	4.00	342.93	4,291.8	226.7	-69.6	226.7	0.00	0.00	
4,400.0	4.00	342.93	4,391.6	233.4	-71.7	233.4	0.00	0.00	
4,500.0	4.00	342.93	4,491.3	240.1	-73.7	240.1	0.00	0.00	
4,600.0	4.00	342.93	4,591.1	246.7	-75.8	246.7	0.00	0.00	
4,700.0	4.00	342.93	4,690.8	253.4	-77.8	253.4	0.00	0.00	
4,800.0	4.00	342.93	4,790.6	260.1	-79.9	260.1	0.00	0.00	
4,900.0	4.00	342.93	4,890.3	266.7	-81.9	266.7	0.00	0.00	
5,000.0	4.00	342.93	4,990.1	273.4	-84.0	273.4	0.00	0.00	
5,100.0	4.00	342.93	5,089.9	280.1	-86.0	280.1	0.00	0.00	

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Site:	S12-T10N-R58W	**North Reference:**	True
Well:	Razor #12F-0104B	**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	342.93	5,189.6	286.7	-88.0	286.7	0.00	0.00	
5,300.0	4.00	342.93	5,289.4	293.4	-90.1	293.4	0.00	0.00	
5,400.0	4.00	342.93	5,389.1	300.1	-92.1	300.1	0.00	0.00	
5,438.0	4.00	342.93	5,427.0	302.6	-92.9	302.6	0.00	0.00	Start 11 Deg Bulid
5,500.0	10.82	342.93	5,488.5	310.3	-95.3	310.3	11.00	11.00	
5,600.0	21.82	342.93	5,584.3	337.1	-103.5	337.1	11.00	11.00	
5,700.0	32.82	342.93	5,673.0	380.9	-117.0	380.9	11.00	11.00	
5,800.0	43.82	342.93	5,751.3	440.1	-135.1	440.1	11.00	11.00	
5,805.1	44.38	342.93	5,755.0	443.5	-136.2	443.5	11.00	11.00	Top Niobrara
5,900.0	54.82	342.93	5,816.4	512.4	-157.4	512.4	11.00	11.00	
6,000.0	65.82	342.93	5,865.9	595.4	-182.8	595.4	11.00	11.00	
6,100.0	76.82	342.93	5,897.8	685.8	-210.6	685.8	11.00	11.00	
6,200.0	87.82	342.93	5,911.2	780.4	-239.6	780.4	11.00	11.00	
6,219.8	90.00	342.93	5,911.6	799.3	-245.4	799.3	11.00	11.00	LP @ 6,219' MD
6,300.0	90.00	345.34	5,911.6	876.4	-267.4	876.4	3.00	0.00	
6,400.0	90.00	348.34	5,911.6	973.8	-290.1	973.8	3.00	0.00	7" (1144' FWL, 1278' FNL)
6,500.0	90.00	351.34	5,911.6	1,072.2	-307.8	1,072.2	3.00	0.00	
6,600.0	90.00	354.34	5,911.6	1,171.4	-320.3	1,171.4	3.00	0.00	
6,700.0	90.00	357.34	5,911.6	1,271.2	-327.5	1,271.2	3.00	0.00	
6,788.8	90.00	360.00	5,911.6	1,359.9	-329.6	1,359.9	3.00	0.00	EOT; 0 Deg Azi
6,800.0	90.00	0.00	5,911.6	1,371.1	-329.6	1,371.1	0.01	0.00	
6,900.0	90.00	0.00	5,911.6	1,471.1	-329.6	1,471.1	0.00	0.00	
7,000.0	90.00	0.00	5,911.6	1,571.1	-329.6	1,571.1	0.00	0.00	
7,100.0	90.00	0.00	5,911.6	1,671.1	-329.6	1,671.1	0.00	0.00	
7,200.0	90.00	0.00	5,911.6	1,771.1	-329.6	1,771.1	0.00	0.00	
7,300.0	90.00	0.00	5,911.6	1,871.1	-329.6	1,871.1	0.00	0.00	
7,400.0	90.00	0.00	5,911.6	1,971.1	-329.6	1,971.1	0.00	0.00	
7,500.0	90.00	0.00	5,911.6	2,071.1	-329.6	2,071.1	0.00	0.00	
7,600.0	90.00	0.00	5,911.6	2,171.1	-329.6	2,171.1	0.00	0.00	
7,700.0	90.00	0.00	5,911.7	2,271.1	-329.6	2,271.1	0.00	0.00	
7,800.0	90.00	0.00	5,911.7	2,371.1	-329.6	2,371.1	0.00	0.00	
7,900.0	90.00	0.00	5,911.7	2,471.1	-329.6	2,471.1	0.00	0.00	
8,000.0	90.00	0.00	5,911.7	2,571.1	-329.6	2,571.1	0.00	0.00	
8,100.0	90.00	0.00	5,911.7	2,671.1	-329.6	2,671.1	0.00	0.00	
8,200.0	90.00	0.00	5,911.7	2,771.1	-329.6	2,771.1	0.00	0.00	
8,300.0	90.00	0.00	5,911.7	2,871.1	-329.6	2,871.1	0.00	0.00	
8,400.0	90.00	0.00	5,911.7	2,971.1	-329.6	2,971.1	0.00	0.00	
8,500.0	90.00	0.00	5,911.7	3,071.1	-329.6	3,071.1	0.00	0.00	
8,600.0	90.00	0.00	5,911.7	3,171.1	-329.6	3,171.1	0.00	0.00	
8,700.0	90.00	0.00	5,911.7	3,271.1	-329.6	3,271.1	0.00	0.00	
8,800.0	90.00	0.00	5,911.7	3,371.1	-329.6	3,371.1	0.00	0.00	
8,900.0	90.00	0.00	5,911.7	3,471.1	-329.6	3,471.1	0.00	0.00	
9,000.0	90.00	0.00	5,911.8	3,571.1	-329.6	3,571.1	0.00	0.00	
9,100.0	90.00	0.00	5,911.8	3,671.1	-329.6	3,671.1	0.00	0.00	
9,200.0	90.00	0.00	5,911.8	3,771.1	-329.6	3,771.1	0.00	0.00	
9,300.0	90.00	0.00	5,911.8	3,871.1	-329.6	3,871.1	0.00	0.00	
9,400.0	90.00	0.00	5,911.8	3,971.1	-329.6	3,971.1	0.00	0.00	
9,500.0	90.00	0.00	5,911.8	4,071.1	-329.6	4,071.1	0.00	0.00	
9,600.0	90.00	0.00	5,911.8	4,171.1	-329.6	4,171.1	0.00	0.00	
9,700.0	90.00	0.00	5,911.8	4,271.1	-329.6	4,271.1	0.00	0.00	
9,800.0	90.00	0.00	5,911.8	4,371.1	-329.6	4,371.1	0.00	0.00	
9,900.0	90.00	0.00	5,911.8	4,471.1	-329.6	4,471.1	0.00	0.00	

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Site:	S12-T10N-R58W	**North Reference:**	True
Well:	Razor #12F-0104B	**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
10,000.0	90.00	0.00	5,911.8	4,571.1	-329.6	4,571.1	0.00	0.00	
10,100.0	90.00	0.00	5,911.8	4,671.1	-329.6	4,671.1	0.00	0.00	
10,200.0	90.00	0.00	5,911.8	4,771.1	-329.6	4,771.1	0.00	0.00	
10,300.0	90.00	0.00	5,911.8	4,871.1	-329.6	4,871.1	0.00	0.00	
10,400.0	90.00	0.00	5,911.9	4,971.1	-329.6	4,971.1	0.00	0.00	
10,500.0	90.00	0.00	5,911.9	5,071.1	-329.6	5,071.1	0.00	0.00	
10,600.0	90.00	0.00	5,911.9	5,171.1	-329.6	5,171.1	0.00	0.00	
10,700.0	90.00	0.00	5,911.9	5,271.1	-329.6	5,271.1	0.00	0.00	
10,800.0	90.00	0.00	5,911.9	5,371.1	-329.6	5,371.1	0.00	0.00	
10,900.0	90.00	0.00	5,911.9	5,471.1	-329.6	5,471.1	0.00	0.00	
11,000.0	90.00	0.00	5,911.9	5,571.1	-329.6	5,571.1	0.00	0.00	
11,100.0	90.00	0.00	5,911.9	5,671.1	-329.6	5,671.1	0.00	0.00	
11,200.0	90.00	0.00	5,911.9	5,771.1	-329.6	5,771.1	0.00	0.00	
11,300.0	90.00	0.00	5,911.9	5,871.1	-329.6	5,871.1	0.00	0.00	
11,400.0	90.00	0.00	5,911.9	5,971.1	-329.6	5,971.1	0.00	0.00	
11,500.0	90.00	0.00	5,911.9	6,071.1	-329.6	6,071.1	0.00	0.00	
11,600.0	90.00	0.00	5,911.9	6,171.1	-329.6	6,171.1	0.00	0.00	
11,700.0	90.00	0.00	5,912.0	6,271.1	-329.6	6,271.1	0.00	0.00	
11,800.0	90.00	0.00	5,912.0	6,371.1	-329.6	6,371.1	0.00	0.00	
11,900.0	90.00	0.00	5,912.0	6,471.1	-329.6	6,471.1	0.00	0.00	
12,000.0	90.00	0.00	5,912.0	6,571.1	-329.6	6,571.1	0.00	0.00	
12,100.0	90.00	0.00	5,912.0	6,671.1	-329.6	6,671.1	0.00	0.00	
12,200.0	90.00	0.00	5,912.0	6,771.1	-329.6	6,771.1	0.00	0.00	
12,300.0	90.00	0.00	5,912.0	6,871.1	-329.6	6,871.1	0.00	0.00	
12,325.1	90.00	0.00	5,912.0	6,896.2	-329.6	6,896.2	0.00	0.00	PBHL @ 12,325.1' 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 #12-0104B PBHL - plan hits target center - Point	0.00	0.00	5,912.0	6,896.3	-329.6	1,565,503.50	3,464,813.53	40° 52' 24.92 N	103° 49' 9.23 W

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
6,400.0	5,911.6	7" (1144' FWL, 1278' FNL)	0	0

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,805.1	5,755.0	Top Niobrara		0.00	

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #12F-0104B
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-0104B	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #3		

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
800.0	800.0	0.0	0.0	KOP @ 800' MD
1,000.0	999.8	6.7	-2.0	EOB; 4 Deg Inc
5,438.0	5,427.0	302.6	-92.9	Start 11 Deg Bulid
6,219.8	5,911.6	799.3	-245.4	LP @ 6,219' MD
6,788.8	5,911.6	1,359.9	-329.6	EOT; 0 Deg Azi
12,325.1	5,912.0	6,896.2	-329.6	PBHL @ 12,325.1' MD

Whiting Petroleum Corporation

Weld County, CO
S12-T10N-R58W
Razor #12F-0104B
HZ
Plan #3

Anticollision Report

08 November, 2013

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0104B
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-0104B	**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	12,325.0	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	99.1	97.1	49.936	CC, ES
Razor #12F-0101A - HZ - Plan #3	5,400.0	5,380.3	261.6	235.4	9.979	SF
Razor #12F-0102B - HZ - Plan #3	500.0	500.0	66.1	64.1	33.291	CC, ES
Razor #12F-0102B - HZ - Plan #3	12,325.1	12,524.9	659.9	396.9	2.509	SF
Razor #12F-0103A - HZ - Plan #3	1,026.6	1,026.3	31.6	27.3	7.267	CC, ES
Razor #12F-0103A - HZ - Plan #3	12,325.1	12,338.7	344.7	91.2	1.360	Level 3, SF
Razor #12F-0105A - HZ - Plan #2	800.0	800.0	65.3	62.0	19.593	CC, ES
Razor #12F-0105A - HZ - Plan #2	12,325.1	12,208.3	345.4	91.5	1.361	Level 3, SF
Razor #12F-0106B - HZ - Plan #2	946.8	950.9	77.8	73.8	19.442	CC, ES
Razor #12F-0106B - HZ - Plan #2	12,325.1	12,386.2	659.9	395.9	2.499	SF
Razor #12F-0107A - HZ - Plan #2	800.0	800.0	131.4	128.1	39.417	CC, ES
Razor #12F-0107A - HZ - Plan #2	5,400.0	5,381.5	349.4	323.5	13.517	SF
Razor #12F-0108B - HZ - Plan #2	800.0	800.0	123.6	120.3	37.090	CC, ES
Razor #12F-0108B - HZ - Plan #2	5,400.0	5,390.9	399.8	374.0	15.461	SF
Razor Federal #12F-1301A - HZ - Plan #3	800.0	800.0	124.2	120.9	37.268	CC, ES
Razor Federal #12F-1301A - HZ - Plan #3	5,300.0	5,260.2	615.4	591.5	25.676	SF
Razor Federal #12F-1302B - HZ - Plan #2	800.0	800.0	99.9	96.6	29.962	CC, ES
Razor Federal #12F-1302B - HZ - Plan #2	1,300.0	1,295.2	118.6	113.0	21.292	SF
Razor Federal #12F-1303A - HZ - Plan #3	500.0	500.0	81.9	79.9	41.236	CC, ES
Razor Federal #12F-1303A - HZ - Plan #3	1,000.0	992.7	114.9	110.8	28.002	SF
Razor Federal #12F-1304B - HZ - Plan #2	800.0	800.0	74.9	71.6	22.470	CC, ES
Razor Federal #12F-1304B - HZ - Plan #2	1,100.0	1,099.6	88.3	83.7	18.876	SF
Razor Federal #12F-1305A - HZ - Plan #3	800.0	800.0	81.9	78.5	24.555	CC, ES
Razor Federal #12F-1305A - HZ - Plan #3	1,000.0	996.9	90.4	86.2	21.528	SF
Razor Federal #12F-1306B - HZ - Plan #2	800.0	800.0	99.4	96.1	29.814	CC, ES
Razor Federal #12F-1306B - HZ - Plan #2	1,100.0	1,096.0	113.9	109.2	24.513	SF
Razor Federal #12F-1307A - HZ - Plan #3	400.0	400.0	123.6	122.1	80.509	CC, ES
Razor Federal #12F-1307A - HZ - Plan #3	5,300.0	5,248.8	746.6	723.0	31.647	SF
Razor Federal#12F-1308B - HZ - Plan #2	800.0	800.0	151.3	147.9	45.374	CC, ES
Razor Federal#12F-1308B - HZ - Plan #2	5,400.0	5,348.3	739.4	715.6	30.975	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0104B
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-0104B	**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
0.0	0.0	0.0	0.0	0.0	0.0	-90.01	0.0	-99.1	99.1				
100.0	100.0	100.0	100.0	0.1	0.1	-90.01	0.0	-99.1	99.1	98.9	0.19	530.092	
200.0	200.0	200.0	200.0	0.3	0.3	-90.01	0.0	-99.1	99.1	98.5	0.64	155.733	
300.0	300.0	300.0	300.0	0.5	0.5	-90.01	0.0	-99.1	99.1	98.0	1.09	91.274	
400.0	400.0	400.0	400.0	0.8	0.8	-90.01	0.0	-99.1	99.1	97.6	1.54	64.555	
500.0	500.0	500.0	500.0	1.0	1.0	-90.01	0.0	-99.1	99.1	97.1	1.99	49.936	CC, ES
600.0	600.0	597.5	597.5	1.2	1.2	-89.36	1.1	-100.3	100.4	98.0	2.43	41.383	
700.0	700.0	694.8	694.6	1.4	1.4	-87.51	4.5	-104.0	104.2	101.3	2.87	36.331	
800.0	800.0	794.4	794.0	1.7	1.7	-85.13	9.3	-109.0	109.6	106.3	3.32	33.043	
900.0	900.0	894.2	893.6	1.9	1.9	-66.61	14.1	-114.1	114.4	110.7	3.76	30.399	
1,000.0	999.8	994.2	993.3	2.1	2.1	-66.85	18.8	-119.2	117.9	113.7	4.22	27.973	
1,100.0	1,099.6	1,094.1	1,093.0	2.3	2.4	-67.89	23.6	-124.2	120.8	116.1	4.68	25.820	
1,200.0	1,199.4	1,194.0	1,192.7	2.6	2.6	-68.88	28.4	-129.3	123.6	118.5	5.14	24.029	
1,300.0	1,299.1	1,294.0	1,292.4	2.8	2.9	-69.83	33.2	-134.4	126.5	120.9	5.62	22.522	
1,400.0	1,398.9	1,393.9	1,392.1	3.1	3.1	-70.74	37.9	-139.5	129.5	123.4	6.10	21.238	
1,500.0	1,498.6	1,493.9	1,491.8	3.3	3.4	-71.60	42.7	-144.5	132.5	125.9	6.58	20.135	
1,600.0	1,598.4	1,593.8	1,591.4	3.6	3.7	-72.43	47.5	-149.6	135.5	128.4	7.06	19.177	
1,700.0	1,698.1	1,693.7	1,691.1	3.8	3.9	-73.22	52.3	-154.7	138.5	130.9	7.55	18.340	
1,800.0	1,797.9	1,793.7	1,790.8	4.0	4.2	-73.98	57.1	-159.8	141.5	133.5	8.04	17.602	
1,900.0	1,897.6	1,893.6	1,890.5	4.3	4.4	-74.70	61.8	-164.8	144.6	136.1	8.53	16.947	
2,000.0	1,997.4	1,993.5	1,990.2	4.6	4.7	-75.40	66.6	-169.9	147.7	138.7	9.03	16.364	
2,100.0	2,097.2	2,093.5	2,089.9	4.8	4.9	-76.06	71.4	-175.0	150.9	141.3	9.52	15.840	
2,200.0	2,196.9	2,193.4	2,189.6	5.1	5.2	-76.70	76.2	-180.1	154.0	144.0	10.02	15.368	
2,300.0	2,296.7	2,293.3	2,289.3	5.3	5.4	-77.31	80.9	-185.2	157.2	146.6	10.52	14.941	
2,400.0	2,396.4	2,393.3	2,389.0	5.6	5.7	-77.90	85.7	-190.2	160.3	149.3	11.02	14.552	
2,500.0	2,496.2	2,493.2	2,488.7	5.8	6.0	-78.47	90.5	-195.3	163.5	152.0	11.52	14.197	
2,600.0	2,595.9	2,593.1	2,588.4	6.1	6.2	-79.01	95.3	-200.4	166.7	154.7	12.02	13.872	
2,700.0	2,695.7	2,693.1	2,688.1	6.3	6.5	-79.54	100.1	-205.5	170.0	157.4	12.52	13.573	
2,800.0	2,795.5	2,793.0	2,787.8	6.6	6.7	-80.04	104.8	-210.5	173.2	160.2	13.02	13.297	
2,900.0	2,895.2	2,893.0	2,887.5	6.8	7.0	-80.53	109.6	-215.6	176.4	162.9	13.53	13.043	
3,000.0	2,995.0	2,992.9	2,987.1	7.1	7.2	-81.00	114.4	-220.7	179.7	165.7	14.03	12.807	
3,100.0	3,094.7	3,092.8	3,086.8	7.3	7.5	-81.45	119.2	-225.8	183.0	168.4	14.54	12.587	
3,200.0	3,194.5	3,192.8	3,186.5	7.6	7.8	-81.88	123.9	-230.8	186.3	171.2	15.04	12.383	
3,300.0	3,294.2	3,292.7	3,286.2	7.8	8.0	-82.30	128.7	-235.9	189.6	174.0	15.55	12.192	
3,400.0	3,394.0	3,392.6	3,385.9	8.1	8.3	-82.71	133.5	-241.0	192.9	176.8	16.05	12.013	
3,500.0	3,493.7	3,492.6	3,485.6	8.4	8.5	-83.10	138.3	-246.1	196.2	179.6	16.56	11.846	
3,600.0	3,593.5	3,592.5	3,585.3	8.6	8.8	-83.48	143.0	-251.2	199.5	182.4	17.07	11.689	
3,700.0	3,693.3	3,692.4	3,685.0	8.9	9.0	-83.85	147.8	-256.2	202.8	185.3	17.57	11.541	
3,800.0	3,793.0	3,792.4	3,784.7	9.1	9.3	-84.20	152.6	-261.3	206.2	188.1	18.08	11.402	
3,900.0	3,892.8	3,892.3	3,884.4	9.4	9.6	-84.54	157.4	-266.4	209.5	190.9	18.59	11.270	
4,000.0	3,992.5	3,992.3	3,984.1	9.6	9.8	-84.88	162.2	-271.5	212.9	193.8	19.10	11.146	
4,100.0	4,092.3	4,092.2	4,083.8	9.9	10.1	-85.20	166.9	-276.5	216.2	196.6	19.61	11.029	
4,200.0	4,192.0	4,192.1	4,183.5	10.1	10.3	-85.51	171.7	-281.6	219.6	199.5	20.12	10.917	
4,300.0	4,291.8	4,292.1	4,283.2	10.4	10.6	-85.82	176.5	-286.7	223.0	202.4	20.62	10.811	
4,400.0	4,391.6	4,392.0	4,382.8	10.7	10.9	-86.11	181.3	-291.8	226.4	205.2	21.13	10.711	
4,500.0	4,491.3	4,491.9	4,482.5	10.9	11.1	-86.40	186.0	-296.8	229.7	208.1	21.64	10.616	
4,600.0	4,591.1	4,591.9	4,582.2	11.2	11.4	-86.67	190.8	-301.9	233.1	211.0	22.15	10.525	
4,700.0	4,690.8	4,691.8	4,681.9	11.4	11.6	-86.94	195.6	-307.0	236.5	213.9	22.66	10.438	
4,800.0	4,790.6	4,791.7	4,781.6	11.7	11.9	-87.20	200.4	-312.1	239.9	216.8	23.17	10.355	
4,900.0	4,890.3	4,891.7	4,881.3	11.9	12.1	-87.46	205.2	-317.1	243.3	219.7	23.68	10.276	
5,000.0	4,990.1	4,991.6	4,981.0	12.2	12.4	-87.70	209.9	-322.2	246.7	222.6	24.19	10.200	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0104B
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-0104B	**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	5,089.9	5,091.6	5,080.7	12.4	12.7	-87.94	214.7	-327.3	250.2	225.5	24.70	10.128	
5,200.0	5,189.6	5,191.5	5,180.4	12.7	12.9	-88.18	219.5	-332.4	253.6	228.4	25.21	10.059	
5,300.0	5,289.4	5,291.4	5,280.1	13.0	13.2	-88.41	224.3	-337.5	257.0	231.3	25.72	9.992	
5,400.0	5,389.1	5,380.3	5,368.6	13.2	13.4	-88.28	229.7	-343.2	261.6	235.4	26.21	9.979	SF
5,500.0	5,488.5	5,458.0	5,444.2	13.5	13.7	-85.97	241.6	-355.9	273.1	246.4	26.71	10.224	
5,600.0	5,584.3	5,533.6	5,514.6	13.9	14.1	-83.51	260.5	-375.9	291.5	264.0	27.40	10.636	
5,700.0	5,673.0	5,607.1	5,578.4	14.5	14.6	-81.52	285.3	-402.3	315.4	287.2	28.29	11.151	
5,800.0	5,751.3	5,678.3	5,634.9	15.3	15.2	-79.86	315.0	-433.9	344.2	314.8	29.39	11.710	
5,900.0	5,816.4	5,750.0	5,685.2	16.3	15.9	-78.48	349.9	-471.0	376.8	346.1	30.75	12.255	
6,000.0	5,865.9	5,815.1	5,724.4	17.4	16.6	-77.02	385.5	-508.8	412.7	380.4	32.32	12.767	
6,100.0	5,897.8	5,881.6	5,757.5	18.8	17.5	-75.68	425.0	-550.8	451.0	416.9	34.19	13.192	
6,200.0	5,911.2	5,950.0	5,783.6	20.3	18.5	-74.49	468.3	-596.8	491.2	454.8	36.36	13.507	
6,300.0	5,911.6	6,014.8	5,800.4	21.8	19.6	-76.28	511.1	-642.3	535.1	496.4	38.77	13.804	
6,400.0	5,911.6	6,083.2	5,809.7	23.2	20.7	-77.96	557.6	-691.7	587.2	546.2	40.99	14.325	
6,500.0	5,911.6	6,174.8	5,811.0	24.7	22.3	-78.90	620.9	-757.7	645.2	601.9	43.35	14.884	
6,600.0	5,911.6	6,299.0	5,811.0	26.2	24.5	-79.91	711.4	-842.8	703.5	657.4	46.03	15.283	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0104B
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-0104B	**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	-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	353.395	
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	CC, ES
600.0	600.0	598.6	598.5	1.2	1.2	-88.86	1.3	-67.1	67.2	64.7	2.43	27.646	
700.0	700.0	696.9	696.8	1.4	1.4	-85.64	5.4	-70.2	70.5	67.6	2.88	24.522	
800.0	800.0	796.6	796.2	1.7	1.7	-81.71	10.9	-74.5	75.4	72.0	3.33	22.662	
900.0	900.0	896.5	895.8	1.9	1.9	-62.21	16.4	-78.7	79.7	75.9	3.78	21.110	
1,000.0	999.8	996.4	995.5	2.1	2.2	-62.17	21.9	-83.0	82.5	78.3	4.23	19.504	
1,100.0	1,099.6	1,096.4	1,095.3	2.3	2.4	-63.21	27.4	-87.3	84.5	79.8	4.69	18.001	
1,200.0	1,199.4	1,196.4	1,195.0	2.6	2.6	-64.21	32.9	-91.5	86.5	81.3	5.16	16.752	
1,300.0	1,299.1	1,296.3	1,294.7	2.8	2.9	-65.17	38.4	-95.8	88.5	82.9	5.64	15.701	
1,400.0	1,398.9	1,396.3	1,394.4	3.1	3.2	-66.08	43.9	-100.1	90.6	84.4	6.12	14.806	
1,500.0	1,498.6	1,496.3	1,494.2	3.3	3.4	-66.95	49.5	-104.3	92.6	86.0	6.60	14.037	
1,600.0	1,598.4	1,596.2	1,593.9	3.6	3.7	-67.78	55.0	-108.6	94.7	87.7	7.09	13.370	
1,700.0	1,698.1	1,696.2	1,693.6	3.8	3.9	-68.57	60.5	-112.9	96.9	89.3	7.58	12.786	
1,800.0	1,797.9	1,796.2	1,793.3	4.0	4.2	-69.33	66.0	-117.1	99.0	90.9	8.07	12.272	
1,900.0	1,897.6	1,896.1	1,893.1	4.3	4.4	-70.06	71.5	-121.4	101.1	92.6	8.56	11.816	
2,000.0	1,997.4	1,996.1	1,992.8	4.6	4.7	-70.76	77.0	-125.7	103.3	94.3	9.06	11.409	
2,100.0	2,097.2	2,096.1	2,092.5	4.8	4.9	-71.43	82.6	-129.9	105.5	95.9	9.55	11.044	
2,200.0	2,196.9	2,196.0	2,192.2	5.1	5.2	-72.07	88.1	-134.2	107.7	97.6	10.05	10.715	
2,300.0	2,296.7	2,296.0	2,292.0	5.3	5.4	-72.69	93.6	-138.5	109.9	99.4	10.55	10.417	
2,400.0	2,396.4	2,396.0	2,391.7	5.6	5.7	-73.28	99.1	-142.7	112.1	101.1	11.05	10.146	
2,500.0	2,496.2	2,495.9	2,491.4	5.8	6.0	-73.85	104.6	-147.0	114.4	102.8	11.55	9.899	
2,600.0	2,595.9	2,595.9	2,591.1	6.1	6.2	-74.40	110.1	-151.3	116.6	104.5	12.06	9.672	
2,700.0	2,695.7	2,695.9	2,690.9	6.3	6.5	-74.92	115.6	-155.5	118.9	106.3	12.56	9.464	
2,800.0	2,795.5	2,795.9	2,790.6	6.6	6.7	-75.43	121.2	-159.8	121.1	108.1	13.06	9.272	
2,900.0	2,895.2	2,895.8	2,890.3	6.8	7.0	-75.92	126.7	-164.1	123.4	109.8	13.57	9.094	
3,000.0	2,995.0	2,995.8	2,990.0	7.1	7.2	-76.39	132.2	-168.3	125.7	111.6	14.07	8.930	
3,100.0	3,094.7	3,095.8	3,089.8	7.3	7.5	-76.84	137.7	-172.6	128.0	113.4	14.58	8.777	
3,200.0	3,194.5	3,195.7	3,189.5	7.6	7.8	-77.28	143.2	-176.9	130.3	115.2	15.09	8.634	
3,300.0	3,294.2	3,295.7	3,289.2	7.8	8.0	-77.70	148.7	-181.1	132.6	117.0	15.59	8.501	
3,400.0	3,394.0	3,395.7	3,388.9	8.1	8.3	-78.11	154.3	-185.4	134.9	118.8	16.10	8.377	
3,500.0	3,493.7	3,495.6	3,488.7	8.4	8.5	-78.51	159.8	-189.7	137.2	120.6	16.61	8.260	
3,600.0	3,593.5	3,595.6	3,588.4	8.6	8.8	-78.89	165.3	-193.9	139.5	122.4	17.12	8.150	
3,700.0	3,693.3	3,695.6	3,688.1	8.9	9.0	-79.26	170.8	-198.2	141.9	124.2	17.63	8.047	
3,800.0	3,793.0	3,795.5	3,787.8	9.1	9.3	-79.61	176.3	-202.5	144.2	126.1	18.14	7.950	
3,900.0	3,892.8	3,895.5	3,887.6	9.4	9.6	-79.96	181.8	-206.7	146.5	127.9	18.65	7.859	
4,000.0	3,992.5	3,995.5	3,987.3	9.6	9.8	-80.29	187.4	-211.0	148.9	129.7	19.16	7.772	
4,100.0	4,092.3	4,095.4	4,087.0	9.9	10.1	-80.62	192.9	-215.3	151.2	131.6	19.67	7.690	
4,200.0	4,192.0	4,195.4	4,186.7	10.1	10.3	-80.93	198.4	-219.5	153.6	133.4	20.18	7.613	
4,300.0	4,291.8	4,295.4	4,286.5	10.4	10.6	-81.23	203.9	-223.8	155.9	135.3	20.69	7.539	
4,400.0	4,391.6	4,395.4	4,386.2	10.7	10.8	-81.53	209.4	-228.1	158.3	137.1	21.20	7.469	
4,500.0	4,491.3	4,495.3	4,485.9	10.9	11.1	-81.82	214.9	-232.3	160.7	139.0	21.71	7.402	
4,600.0	4,591.1	4,595.3	4,585.6	11.2	11.4	-82.10	220.5	-236.6	163.1	140.8	22.22	7.339	
4,700.0	4,690.8	4,695.3	4,685.4	11.4	11.6	-82.37	226.0	-240.9	165.4	142.7	22.73	7.278	
4,800.0	4,790.6	4,795.2	4,785.1	11.7	11.9	-82.63	231.5	-245.1	167.8	144.6	23.24	7.221	
4,900.0	4,890.3	4,895.2	4,884.8	11.9	12.1	-82.88	237.0	-249.4	170.2	146.4	23.75	7.166	
5,000.0	4,990.1	4,995.2	4,984.5	12.2	12.4	-83.13	242.5	-253.7	172.6	148.3	24.26	7.113	
5,100.0	5,089.9	5,095.1	5,084.3	12.4	12.7	-83.37	248.0	-257.9	175.0	150.2	24.78	7.062	

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-0104B
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-0104B	**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

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	5,189.6	5,195.1	5,184.0	12.7	12.9	-83.61	253.6	-262.2	177.4	152.1	25.29	7.014	
5,300.0	5,289.4	5,295.1	5,283.7	13.0	13.2	-83.84	259.1	-266.5	179.8	154.0	25.80	6.968	
5,400.0	5,389.1	5,395.0	5,383.4	13.2	13.4	-84.06	264.6	-270.7	182.2	155.9	26.31	6.924	
5,500.0	5,488.5	5,487.4	5,475.4	13.5	13.7	-84.37	271.4	-276.0	185.4	158.5	26.86	6.902	
5,600.0	5,584.3	5,573.6	5,558.9	13.9	14.0	-85.11	288.0	-288.8	193.4	165.8	27.63	7.000	
5,700.0	5,673.0	5,659.5	5,637.6	14.5	14.5	-86.08	315.1	-309.8	206.8	178.1	28.68	7.212	
5,800.0	5,751.3	5,745.1	5,709.3	15.3	15.1	-87.05	351.9	-338.2	225.4	195.4	30.03	7.505	
5,900.0	5,816.4	5,830.4	5,772.3	16.3	15.9	-87.80	397.3	-373.4	248.8	217.0	31.73	7.840	
6,000.0	5,865.9	5,915.9	5,825.1	17.4	16.8	-88.21	450.4	-414.4	276.3	242.5	33.76	8.183	
6,100.0	5,897.8	6,002.1	5,866.6	18.8	17.9	-88.25	510.1	-460.6	307.2	271.0	36.13	8.502	
6,200.0	5,911.2	6,089.8	5,895.4	20.3	19.2	-87.97	575.5	-511.2	340.6	301.7	38.81	8.776	
6,300.0	5,911.6	6,180.1	5,910.2	21.8	20.7	-89.78	645.9	-565.6	377.0	335.6	41.45	9.096	
6,400.0	5,911.6	6,285.1	5,911.8	23.2	22.5	-90.04	729.5	-629.0	417.7	373.6	44.12	9.468	
6,500.0	5,911.6	6,403.8	5,911.8	24.7	24.4	-90.04	827.9	-695.3	458.1	411.2	46.91	9.766	
6,600.0	5,911.6	6,526.3	5,911.8	26.2	26.5	-90.03	933.6	-757.3	497.6	447.9	49.75	10.002	
6,700.0	5,911.6	6,653.0	5,911.8	27.8	28.7	-90.03	1,046.8	-814.1	535.9	483.3	52.58	10.191	
6,800.0	5,911.6	6,784.0	5,911.8	29.3	31.0	-90.03	1,167.5	-864.9	572.7	517.2	55.49	10.321	
6,900.0	5,911.6	6,920.9	5,911.8	31.0	33.4	-90.03	1,297.1	-908.9	604.9	545.5	59.42	10.180	
7,000.0	5,911.6	7,064.0	5,911.8	32.6	35.8	-90.02	1,435.6	-944.9	630.1	566.5	63.54	9.917	
7,100.0	5,911.6	7,211.9	5,911.8	34.3	38.3	-90.02	1,581.1	-971.1	647.8	580.0	67.79	9.556	
7,200.0	5,911.6	7,363.1	5,911.8	36.1	40.7	-90.02	1,731.5	-986.2	657.8	585.7	72.13	9.120	
7,300.0	5,911.6	7,502.8	5,911.9	37.8	42.9	-90.02	1,871.1	-989.6	660.1	583.8	76.26	8.656	
7,400.0	5,911.6	7,602.8	5,911.9	39.5	44.4	-90.02	1,971.1	-989.6	660.1	580.4	79.69	8.283	
7,500.0	5,911.6	7,702.8	5,911.9	41.3	45.9	-90.02	2,071.1	-989.6	660.0	576.9	83.16	7.937	
7,600.0	5,911.6	7,802.8	5,911.9	43.1	47.5	-90.02	2,171.1	-989.6	660.0	573.4	86.66	7.617	
7,700.0	5,911.7	7,902.8	5,911.9	44.9	49.1	-90.02	2,271.1	-989.6	660.0	569.9	90.19	7.319	
7,800.0	5,911.7	8,002.8	5,911.9	46.7	50.7	-90.02	2,371.1	-989.6	660.0	566.3	93.74	7.041	
7,900.0	5,911.7	8,102.8	5,911.9	48.5	52.3	-90.02	2,471.1	-989.6	660.0	562.7	97.31	6.783	
8,000.0	5,911.7	8,202.8	5,911.9	50.3	54.0	-90.02	2,571.1	-989.6	660.0	559.1	100.91	6.541	
8,100.0	5,911.7	8,302.8	5,911.9	52.2	55.7	-90.02	2,671.1	-989.6	660.0	555.5	104.52	6.315	
8,200.0	5,911.7	8,402.8	5,911.9	54.0	57.4	-90.02	2,771.1	-989.6	660.0	551.9	108.14	6.103	
8,300.0	5,911.7	8,502.8	5,911.9	55.8	59.1	-90.02	2,871.1	-989.6	660.0	548.2	111.79	5.904	
8,400.0	5,911.7	8,602.8	5,911.9	57.7	60.8	-90.02	2,971.1	-989.6	660.0	544.6	115.44	5.717	
8,500.0	5,911.7	8,702.8	5,911.9	59.5	62.5	-90.02	3,071.1	-989.6	660.0	540.9	119.11	5.541	
8,600.0	5,911.7	8,802.8	5,911.9	61.4	64.2	-90.01	3,171.1	-989.6	660.0	537.2	122.78	5.375	
8,700.0	5,911.7	8,902.8	5,911.9	63.2	66.0	-90.01	3,271.1	-989.6	660.0	533.5	126.47	5.219	
8,800.0	5,911.7	9,002.8	5,911.9	65.1	67.7	-90.01	3,371.1	-989.6	660.0	529.8	130.17	5.070	
8,900.0	5,911.7	9,102.8	5,911.9	67.0	69.5	-90.01	3,471.1	-989.6	660.0	526.1	133.87	4.930	
9,000.0	5,911.8	9,202.8	5,911.9	68.8	71.3	-90.01	3,571.1	-989.6	660.0	522.4	137.58	4.797	
9,100.0	5,911.8	9,302.8	5,911.9	70.7	73.0	-90.01	3,671.1	-989.6	660.0	518.7	141.30	4.671	
9,200.0	5,911.8	9,402.8	5,911.9	72.6	74.8	-90.01	3,771.1	-989.6	660.0	515.0	145.03	4.551	
9,300.0	5,911.8	9,502.8	5,911.9	74.5	76.6	-90.01	3,871.1	-989.6	660.0	511.2	148.76	4.437	
9,400.0	5,911.8	9,602.8	5,911.9	76.3	78.4	-90.01	3,971.1	-989.6	660.0	507.5	152.50	4.328	
9,500.0	5,911.8	9,702.8	5,911.9	78.2	80.2	-90.01	4,071.1	-989.6	660.0	503.8	156.24	4.224	
9,600.0	5,911.8	9,802.8	5,911.9	80.1	82.0	-90.01	4,171.1	-989.6	660.0	500.0	159.99	4.125	
9,700.0	5,911.8	9,902.8	5,911.9	82.0	83.9	-90.01	4,271.1	-989.6	660.0	496.2	163.74	4.031	
9,800.0	5,911.8	10,002.8	5,911.9	83.9	85.7	-90.01	4,371.1	-989.6	660.0	492.5	167.49	3.940	
9,900.0	5,911.8	10,102.8	5,911.9	85.8	87.5	-90.01	4,471.1	-989.6	660.0	488.7	171.25	3.854	
10,000.0	5,911.8	10,202.8	5,911.9	87.6	89.3	-90.01	4,571.1	-989.6	660.0	485.0	175.02	3.771	
10,100.0	5,911.8	10,302.8	5,911.9	89.5	91.2	-90.01	4,671.1	-989.6	660.0	481.2	178.78	3.691	
10,200.0	5,911.8	10,402.8	5,911.9	91.4	93.0	-90.01	4,771.1	-989.5	660.0	477.4	182.55	3.615	
10,300.0	5,911.8	10,502.8	5,911.9	93.3	94.8	-90.01	4,871.1	-989.5	660.0	473.6	186.32	3.542	

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-0104B
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-0104B	**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
10,400.0	5,911.9	10,602.8	5,911.9	95.2	96.7	-90.01	4,971.1	-989.5	660.0	469.9	190.10	3.472	
10,500.0	5,911.9	10,702.8	5,911.9	97.1	98.5	-90.01	5,071.1	-989.5	660.0	466.1	193.88	3.404	
10,600.0	5,911.9	10,802.8	5,911.9	99.0	100.4	-90.01	5,171.1	-989.5	660.0	462.3	197.66	3.339	
10,700.0	5,911.9	10,902.8	5,912.0	100.9	102.2	-90.01	5,271.1	-989.5	660.0	458.5	201.44	3.276	
10,800.0	5,911.9	11,002.8	5,912.0	102.8	104.1	-90.01	5,371.1	-989.5	660.0	454.7	205.23	3.216	
10,900.0	5,911.9	11,102.8	5,912.0	104.7	105.9	-90.01	5,471.1	-989.5	660.0	450.9	209.02	3.157	
11,000.0	5,911.9	11,202.8	5,912.0	106.6	107.8	-90.01	5,571.1	-989.5	660.0	447.1	212.81	3.101	
11,100.0	5,911.9	11,302.8	5,912.0	108.5	109.7	-90.00	5,671.1	-989.5	659.9	443.4	216.60	3.047	
11,200.0	5,911.9	11,402.8	5,912.0	110.4	111.5	-90.00	5,771.1	-989.5	659.9	439.6	220.39	2.994	
11,300.0	5,911.9	11,502.8	5,912.0	112.3	113.4	-90.00	5,871.1	-989.5	659.9	435.8	224.18	2.944	
11,400.0	5,911.9	11,602.8	5,912.0	114.2	115.3	-90.00	5,971.1	-989.5	659.9	432.0	227.98	2.895	
11,500.0	5,911.9	11,702.8	5,912.0	116.1	117.1	-90.00	6,071.1	-989.5	659.9	428.2	231.78	2.847	
11,600.0	5,911.9	11,802.8	5,912.0	118.0	119.0	-90.00	6,171.1	-989.5	659.9	424.4	235.58	2.801	
11,700.0	5,912.0	11,902.8	5,912.0	119.9	120.9	-90.00	6,271.1	-989.5	659.9	420.6	239.38	2.757	
11,800.0	5,912.0	12,002.8	5,912.0	121.8	122.7	-90.00	6,371.1	-989.5	659.9	416.7	243.18	2.714	
11,900.0	5,912.0	12,102.8	5,912.0	123.7	124.6	-90.00	6,471.1	-989.5	659.9	412.9	246.99	2.672	
12,000.0	5,912.0	12,202.8	5,912.0	125.6	126.5	-90.00	6,571.1	-989.5	659.9	409.1	250.79	2.631	
12,100.0	5,912.0	12,302.8	5,912.0	127.5	128.4	-90.00	6,671.1	-989.5	659.9	405.3	254.60	2.592	
12,200.0	5,912.0	12,402.8	5,912.0	129.5	130.3	-90.00	6,771.1	-989.5	659.9	401.5	258.40	2.554	
12,300.0	5,912.0	12,502.8	5,912.0	131.4	132.1	-90.00	6,871.1	-989.5	659.9	397.7	262.20	2.517	
12,320.7	5,912.0	12,523.5	5,912.0	131.8	132.5	-90.00	6,891.8	-989.5	659.9	397.0	262.92	2.510	
12,325.1	5,912.0	12,524.9	5,912.0	131.8	132.5	-90.00	6,893.2	-989.5	659.9	396.9	263.03	2.509	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0104B
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-0104B	**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	-90.03	0.0	-33.0	33.0				
100.0	100.0	100.0	100.0	0.1	0.1	-90.03	0.0	-33.0	33.0	32.9	0.19	176.697	
200.0	200.0	200.0	200.0	0.3	0.3	-90.03	0.0	-33.0	33.0	32.4	0.64	51.911	
300.0	300.0	300.0	300.0	0.5	0.5	-90.03	0.0	-33.0	33.0	32.0	1.09	30.425	
400.0	400.0	400.0	400.0	0.8	0.8	-90.03	0.0	-33.0	33.0	31.5	1.54	21.518	
500.0	500.0	500.0	500.0	1.0	1.0	-90.03	0.0	-33.0	33.0	31.1	1.99	16.645	
600.0	600.0	600.0	600.0	1.2	1.2	-90.03	0.0	-33.0	33.0	30.6	2.43	13.572	
700.0	700.0	700.0	700.0	1.4	1.4	-90.03	0.0	-33.0	33.0	30.2	2.88	11.457	
800.0	800.0	800.0	800.0	1.7	1.7	-90.03	0.0	-33.0	33.0	29.7	3.33	9.912	
900.0	900.0	900.0	900.0	1.9	1.9	-75.91	0.0	-33.0	32.6	28.8	3.78	8.613	
1,000.0	999.8	999.8	999.8	2.1	2.1	-85.12	0.0	-33.0	31.7	27.5	4.23	7.493	
1,026.6	1,026.4	1,026.3	1,026.3	2.2	2.2	-88.25	0.1	-33.1	31.6	27.3	4.35	7.267	CC, ES
1,100.0	1,099.6	1,099.5	1,099.5	2.3	2.3	-94.59	1.5	-33.9	32.0	27.4	4.68	6.840	
1,200.0	1,199.4	1,199.4	1,199.2	2.6	2.6	-97.66	6.1	-36.4	33.3	28.1	5.14	6.474	
1,300.0	1,299.1	1,299.3	1,298.9	2.8	2.8	-97.58	12.2	-39.7	34.7	29.1	5.61	6.187	
1,400.0	1,398.9	1,399.3	1,398.7	3.1	3.0	-97.51	18.3	-43.1	36.1	30.0	6.08	5.937	
1,500.0	1,498.6	1,499.3	1,498.4	3.3	3.3	-97.45	24.4	-46.4	37.5	31.0	6.56	5.718	
1,600.0	1,598.4	1,599.3	1,598.2	3.6	3.5	-97.39	30.5	-49.8	38.9	31.9	7.05	5.524	
1,700.0	1,698.1	1,699.3	1,697.9	3.8	3.7	-97.33	36.6	-53.1	40.4	32.8	7.54	5.354	
1,800.0	1,797.9	1,799.3	1,797.7	4.0	4.0	-97.28	42.8	-56.5	41.8	33.7	8.03	5.201	
1,900.0	1,897.6	1,899.3	1,897.4	4.3	4.2	-97.23	48.9	-59.8	43.2	34.7	8.53	5.065	
2,000.0	1,997.4	1,999.3	1,997.2	4.6	4.5	-97.19	55.0	-63.2	44.6	35.6	9.02	4.943	
2,100.0	2,097.2	2,099.3	2,096.9	4.8	4.7	-97.15	61.1	-66.5	46.0	36.5	9.52	4.833	
2,200.0	2,196.9	2,199.3	2,196.7	5.1	5.0	-97.11	67.2	-69.9	47.4	37.4	10.02	4.733	
2,300.0	2,296.7	2,299.2	2,296.4	5.3	5.2	-97.07	73.4	-73.2	48.8	38.3	10.52	4.641	
2,400.0	2,396.4	2,399.2	2,396.1	5.6	5.5	-97.03	79.5	-76.6	50.3	39.2	11.03	4.558	
2,500.0	2,496.2	2,499.2	2,495.9	5.8	5.7	-97.00	85.6	-79.9	51.7	40.1	11.53	4.481	
2,600.0	2,595.9	2,599.2	2,595.6	6.1	6.0	-96.97	91.7	-83.3	53.1	41.1	12.04	4.411	
2,700.0	2,695.7	2,699.2	2,695.4	6.3	6.2	-96.94	97.8	-86.6	54.5	42.0	12.54	4.346	
2,800.0	2,795.5	2,799.2	2,795.1	6.6	6.5	-96.91	103.9	-90.0	55.9	42.9	13.05	4.286	
2,900.0	2,895.2	2,899.2	2,894.9	6.8	6.7	-96.88	110.1	-93.3	57.3	43.8	13.55	4.230	
3,000.0	2,995.0	2,999.2	2,994.6	7.1	7.0	-96.86	116.2	-96.7	58.7	44.7	14.06	4.178	
3,100.0	3,094.7	3,099.2	3,094.4	7.3	7.2	-96.83	122.3	-100.0	60.2	45.6	14.57	4.130	
3,200.0	3,194.5	3,199.2	3,194.1	7.6	7.5	-96.81	128.4	-103.4	61.6	46.5	15.08	4.084	
3,300.0	3,294.2	3,299.1	3,293.9	7.8	7.8	-96.78	134.5	-106.7	63.0	47.4	15.59	4.042	
3,400.0	3,394.0	3,399.1	3,393.6	8.1	8.0	-96.76	140.6	-110.1	64.4	48.3	16.09	4.002	
3,500.0	3,493.7	3,499.1	3,493.4	8.4	8.3	-96.74	146.8	-113.4	65.8	49.2	16.60	3.964	
3,600.0	3,593.5	3,599.1	3,593.1	8.6	8.5	-96.72	152.9	-116.8	67.2	50.1	17.11	3.929	
3,700.0	3,693.3	3,699.1	3,692.9	8.9	8.8	-96.70	159.0	-120.1	68.7	51.0	17.62	3.896	
3,800.0	3,793.0	3,799.1	3,792.6	9.1	9.0	-96.69	165.1	-123.5	70.1	51.9	18.13	3.864	
3,900.0	3,892.8	3,899.1	3,892.3	9.4	9.3	-96.67	171.2	-126.8	71.5	52.8	18.64	3.834	
4,000.0	3,992.5	3,999.1	3,992.1	9.6	9.5	-96.65	177.4	-130.2	72.9	53.7	19.15	3.806	
4,100.0	4,092.3	4,099.1	4,091.8	9.9	9.8	-96.64	183.5	-133.5	74.3	54.6	19.66	3.779	
4,200.0	4,192.0	4,199.1	4,191.6	10.1	10.0	-96.62	189.6	-136.9	75.7	55.5	20.17	3.753	
4,300.0	4,291.8	4,299.0	4,291.3	10.4	10.3	-96.61	195.7	-140.2	77.1	56.5	20.69	3.729	
4,400.0	4,391.6	4,399.0	4,391.1	10.7	10.6	-96.59	201.8	-143.6	78.6	57.4	21.20	3.706	
4,500.0	4,491.3	4,499.0	4,490.8	10.9	10.8	-96.58	207.9	-146.9	80.0	58.3	21.71	3.684	
4,600.0	4,591.1	4,599.0	4,590.6	11.2	11.1	-96.56	214.1	-150.3	81.4	59.2	22.22	3.663	
4,700.0	4,690.8	4,699.0	4,690.3	11.4	11.3	-96.55	220.2	-153.6	82.8	60.1	22.73	3.643	
4,800.0	4,790.6	4,799.0	4,790.1	11.7	11.6	-96.54	226.3	-157.0	84.2	61.0	23.24	3.623	
4,900.0	4,890.3	4,899.0	4,889.8	11.9	11.8	-96.53	232.4	-160.3	85.6	61.9	23.75	3.605	
5,000.0	4,990.1	4,999.0	4,989.6	12.2	12.1	-96.51	238.5	-163.7	87.0	62.8	24.27	3.587	

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-0104B
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-0104B	**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
5,100.0	5,089.9	5,099.0	5,089.3	12.4	12.4	-96.50	244.6	-167.0	88.5	63.7	24.78	3.570	
5,200.0	5,189.6	5,199.0	5,189.0	12.7	12.6	-96.49	250.8	-170.4	89.9	64.6	25.29	3.554	
5,300.0	5,289.4	5,298.9	5,288.8	13.0	12.9	-96.48	256.9	-173.7	91.3	65.5	25.80	3.538	
5,400.0	5,389.1	5,397.7	5,386.9	13.2	13.1	-94.31	266.0	-178.7	93.1	66.8	26.33	3.536	
5,500.0	5,488.5	5,492.5	5,478.0	13.5	13.5	-84.51	288.7	-191.2	98.9	72.0	26.89	3.677	
5,600.0	5,584.3	5,584.1	5,560.1	13.9	14.1	-75.91	324.1	-210.6	110.5	83.0	27.53	4.014	
5,700.0	5,673.0	5,673.0	5,631.9	14.5	14.7	-69.86	369.9	-235.7	126.1	97.9	28.21	4.470	
5,800.0	5,751.3	5,759.6	5,692.3	15.3	15.5	-65.97	424.3	-265.4	143.9	115.0	28.96	4.969	
5,900.0	5,816.4	5,844.4	5,740.7	16.3	16.4	-63.68	485.2	-298.8	162.8	132.8	29.95	5.435	
6,000.0	5,865.9	5,927.8	5,776.7	17.4	17.5	-62.53	551.1	-334.9	181.8	150.4	31.35	5.799	
6,100.0	5,897.8	6,010.3	5,800.0	18.8	18.7	-62.22	620.5	-372.9	200.4	167.2	33.29	6.022	
6,200.0	5,911.2	6,092.4	5,810.6	20.3	20.0	-62.53	691.8	-412.0	218.3	182.5	35.79	6.100	
6,300.0	5,911.6	6,193.3	5,811.3	21.8	21.6	-64.44	780.9	-459.1	236.5	197.5	39.08	6.053	
6,400.0	5,911.6	6,304.3	5,811.3	23.2	23.3	-66.42	881.7	-505.7	255.0	212.6	42.38	6.016	
6,500.0	5,911.6	6,416.7	5,811.3	24.7	25.1	-68.09	986.3	-546.8	273.1	227.4	45.66	5.981	
6,600.0	5,911.6	6,530.6	5,811.3	26.2	27.0	-69.50	1,094.6	-582.1	290.8	241.9	48.87	5.950	
6,700.0	5,911.6	6,646.0	5,811.3	27.8	28.9	-70.71	1,206.2	-611.3	307.9	255.9	51.98	5.923	
6,800.0	5,911.6	6,762.9	5,811.3	29.3	30.8	-71.76	1,320.8	-633.8	324.3	269.2	55.07	5.888	
6,900.0	5,911.6	6,881.6	5,811.3	31.0	32.8	-72.59	1,438.5	-649.6	336.9	278.1	58.80	5.730	
7,000.0	5,911.6	7,001.8	5,811.3	32.6	34.7	-73.01	1,558.4	-658.0	343.6	281.1	62.49	5.499	
7,100.0	5,911.6	7,114.6	5,811.3	34.3	36.5	-73.08	1,671.1	-659.4	344.8	278.8	65.99	5.224	
7,200.0	5,911.6	7,214.6	5,811.3	36.1	38.1	-73.08	1,771.1	-659.4	344.8	275.5	69.29	4.976	
7,300.0	5,911.6	7,314.6	5,811.3	37.8	39.7	-73.08	1,871.1	-659.4	344.8	272.1	72.62	4.747	
7,400.0	5,911.6	7,414.6	5,811.3	39.5	41.3	-73.07	1,971.1	-659.4	344.8	268.8	75.99	4.537	
7,500.0	5,911.6	7,514.6	5,811.2	41.3	43.0	-73.07	2,071.1	-659.4	344.8	265.4	79.39	4.343	
7,600.0	5,911.6	7,614.6	5,811.2	43.1	44.7	-73.07	2,171.1	-659.4	344.8	261.9	82.81	4.163	
7,700.0	5,911.7	7,714.6	5,811.2	44.9	46.4	-73.07	2,271.1	-659.4	344.8	258.5	86.26	3.997	
7,800.0	5,911.7	7,814.6	5,811.2	46.7	48.1	-73.06	2,371.1	-659.4	344.8	255.0	89.72	3.842	
7,900.0	5,911.7	7,914.6	5,811.2	48.5	49.9	-73.06	2,471.1	-659.4	344.8	251.5	93.21	3.699	
8,000.0	5,911.7	8,014.6	5,811.2	50.3	51.6	-73.06	2,571.1	-659.4	344.8	248.0	96.71	3.565	
8,100.0	5,911.7	8,114.6	5,811.2	52.2	53.4	-73.06	2,671.1	-659.4	344.7	244.5	100.22	3.440	
8,200.0	5,911.7	8,214.6	5,811.2	54.0	55.2	-73.06	2,771.1	-659.4	344.7	241.0	103.75	3.323	
8,300.0	5,911.7	8,314.6	5,811.2	55.8	56.9	-73.05	2,871.1	-659.4	344.7	237.5	107.29	3.213	
8,400.0	5,911.7	8,414.6	5,811.2	57.7	58.7	-73.05	2,971.1	-659.4	344.7	233.9	110.84	3.110	
8,500.0	5,911.7	8,514.6	5,811.2	59.5	60.5	-73.05	3,071.1	-659.3	344.7	230.3	114.40	3.014	
8,600.0	5,911.7	8,614.6	5,811.2	61.4	62.3	-73.05	3,171.1	-659.3	344.7	226.8	117.96	2.922	
8,700.0	5,911.7	8,714.6	5,811.2	63.2	64.1	-73.04	3,271.1	-659.3	344.7	223.2	121.54	2.836	
8,800.0	5,911.7	8,814.6	5,811.2	65.1	66.0	-73.04	3,371.1	-659.3	344.7	219.6	125.12	2.755	
8,900.0	5,911.7	8,914.6	5,811.2	67.0	67.8	-73.04	3,471.1	-659.3	344.7	216.0	128.71	2.678	
9,000.0	5,911.8	9,014.6	5,811.2	68.8	69.6	-73.04	3,571.1	-659.3	344.7	212.4	132.30	2.606	
9,100.0	5,911.8	9,114.6	5,811.2	70.7	71.5	-73.03	3,671.1	-659.3	344.7	208.8	135.90	2.537	
9,200.0	5,911.8	9,214.6	5,811.2	72.6	73.3	-73.03	3,771.1	-659.3	344.7	205.2	139.51	2.471	
9,300.0	5,911.8	9,314.6	5,811.2	74.5	75.1	-73.03	3,871.1	-659.3	344.7	201.6	143.12	2.409	
9,400.0	5,911.8	9,414.6	5,811.2	76.3	77.0	-73.03	3,971.1	-659.3	344.7	198.0	146.73	2.349	
9,500.0	5,911.8	9,514.6	5,811.1	78.2	78.8	-73.03	4,071.1	-659.3	344.7	194.4	150.35	2.293	
9,600.0	5,911.8	9,614.6	5,811.1	80.1	80.7	-73.02	4,171.1	-659.3	344.7	190.8	153.97	2.239	
9,700.0	5,911.8	9,714.6	5,811.1	82.0	82.5	-73.02	4,271.1	-659.3	344.7	187.1	157.60	2.187	
9,800.0	5,911.8	9,814.6	5,811.1	83.9	84.4	-73.02	4,371.1	-659.3	344.7	183.5	161.23	2.138	
9,900.0	5,911.8	9,914.6	5,811.1	85.8	86.3	-73.02	4,471.1	-659.3	344.7	179.9	164.86	2.091	
10,000.0	5,911.8	10,014.6	5,811.1	87.6	88.1	-73.01	4,571.1	-659.3	344.7	176.2	168.49	2.046	
10,100.0	5,911.8	10,114.6	5,811.1	89.5	90.0	-73.01	4,671.1	-659.3	344.7	172.6	172.13	2.003	
10,200.0	5,911.8	10,214.6	5,811.1	91.4	91.9	-73.01	4,771.1	-659.3	344.7	169.0	175.77	1.961	

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-0104B
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-0104B	**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
10,300.0	5,911.8	10,314.6	5,811.1	93.3	93.7	-73.01	4,871.1	-659.3	344.7	165.3	179.41	1.921	
10,400.0	5,911.9	10,414.6	5,811.1	95.2	95.6	-73.01	4,971.1	-659.2	344.7	161.7	183.06	1.883	
10,500.0	5,911.9	10,514.6	5,811.1	97.1	97.5	-73.00	5,071.1	-659.2	344.7	158.0	186.70	1.846	
10,600.0	5,911.9	10,614.6	5,811.1	99.0	99.4	-73.00	5,171.1	-659.2	344.7	154.4	190.35	1.811	
10,700.0	5,911.9	10,714.6	5,811.1	100.9	101.2	-73.00	5,271.1	-659.2	344.7	150.7	194.00	1.777	
10,800.0	5,911.9	10,814.6	5,811.1	102.8	103.1	-73.00	5,371.1	-659.2	344.7	147.1	197.65	1.744	
10,900.0	5,911.9	10,914.6	5,811.1	104.7	105.0	-72.99	5,471.1	-659.2	344.7	143.4	201.31	1.712	
11,000.0	5,911.9	11,014.6	5,811.1	106.6	106.9	-72.99	5,571.1	-659.2	344.7	139.8	204.96	1.682	
11,100.0	5,911.9	11,114.6	5,811.1	108.5	108.8	-72.99	5,671.1	-659.2	344.7	136.1	208.62	1.652	
11,200.0	5,911.9	11,214.6	5,811.1	110.4	110.7	-72.99	5,771.1	-659.2	344.7	132.4	212.28	1.624	
11,300.0	5,911.9	11,314.6	5,811.1	112.3	112.6	-72.99	5,871.1	-659.2	344.7	128.8	215.93	1.596	
11,400.0	5,911.9	11,414.6	5,811.0	114.2	114.4	-72.98	5,971.1	-659.2	344.7	125.1	219.60	1.570	
11,500.0	5,911.9	11,514.6	5,811.0	116.1	116.3	-72.98	6,071.1	-659.2	344.7	121.5	223.26	1.544	
11,600.0	5,911.9	11,614.6	5,811.0	118.0	118.2	-72.98	6,171.1	-659.2	344.7	117.8	226.92	1.519	
11,700.0	5,912.0	11,714.6	5,811.0	119.9	120.1	-72.98	6,271.1	-659.2	344.7	114.1	230.58	1.495	Level 3
11,800.0	5,912.0	11,814.6	5,811.0	121.8	122.0	-72.97	6,371.1	-659.2	344.7	110.5	234.25	1.472	Level 3
11,900.0	5,912.0	11,914.6	5,811.0	123.7	123.9	-72.97	6,471.1	-659.2	344.7	106.8	237.91	1.449	Level 3
12,000.0	5,912.0	12,014.6	5,811.0	125.6	125.8	-72.97	6,571.1	-659.2	344.7	103.1	241.58	1.427	Level 3
12,100.0	5,912.0	12,114.6	5,811.0	127.5	127.7	-72.97	6,671.1	-659.2	344.7	99.5	245.24	1.406	Level 3
12,200.0	5,912.0	12,214.6	5,811.0	129.5	129.6	-72.96	6,771.1	-659.2	344.7	95.8	248.91	1.385	Level 3
12,300.0	5,912.0	12,314.6	5,811.0	131.4	131.5	-72.96	6,871.1	-659.1	344.7	92.1	252.58	1.365	Level 3
12,321.5	5,912.0	12,336.0	5,811.0	131.8	131.9	-72.96	6,892.6	-659.1	344.7	91.3	253.37	1.360	Level 3
12,325.1	5,912.0	12,338.7	5,811.0	131.8	131.9	-72.96	6,895.3	-659.1	344.7	91.2	253.49	1.360	Level 3, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0104B
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-0104B	**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 #2

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.01	0.0	65.3	65.3				
100.0	100.0	100.0	100.0	0.1	0.1	90.01	0.0	65.3	65.3	65.1	0.19	349.285	
200.0	200.0	200.0	200.0	0.3	0.3	90.01	0.0	65.3	65.3	64.7	0.64	102.615	
300.0	300.0	300.0	300.0	0.5	0.5	90.01	0.0	65.3	65.3	64.2	1.09	60.142	
400.0	400.0	400.0	400.0	0.8	0.8	90.01	0.0	65.3	65.3	63.8	1.54	42.536	
500.0	500.0	500.0	500.0	1.0	1.0	90.01	0.0	65.3	65.3	63.3	1.99	32.904	
600.0	600.0	600.0	600.0	1.2	1.2	90.01	0.0	65.3	65.3	62.9	2.43	26.828	
700.0	700.0	700.0	700.0	1.4	1.4	90.01	0.0	65.3	65.3	62.4	2.88	22.647	
800.0	800.0	800.0	800.0	1.7	1.7	90.01	0.0	65.3	65.3	62.0	3.33	19.593	CC, ES
900.0	900.0	900.0	900.0	1.9	1.9	108.52	0.0	65.3	65.9	62.1	3.78	17.413	
1,000.0	999.8	999.8	999.8	2.1	2.1	112.68	0.0	65.3	67.7	63.5	4.23	16.006	
1,100.0	1,099.6	1,099.6	1,099.6	2.3	2.3	117.90	0.0	65.3	70.7	66.0	4.68	15.100	
1,200.0	1,199.4	1,200.2	1,200.2	2.6	2.6	121.41	1.7	65.2	73.6	68.5	5.14	14.336	
1,300.0	1,299.1	1,301.0	1,300.9	2.8	2.8	122.16	7.0	64.8	75.6	70.0	5.60	13.512	
1,400.0	1,398.9	1,401.0	1,400.6	3.1	3.0	121.65	14.0	64.3	77.0	71.0	6.06	12.710	
1,500.0	1,498.6	1,501.0	1,500.3	3.3	3.3	121.16	20.9	63.8	78.4	71.9	6.53	12.011	
1,600.0	1,598.4	1,601.0	1,600.1	3.6	3.5	120.70	27.9	63.3	79.9	72.8	7.01	11.399	
1,700.0	1,698.1	1,701.0	1,699.8	3.8	3.7	120.24	34.8	62.7	81.3	73.8	7.49	10.859	
1,800.0	1,797.9	1,801.0	1,799.6	4.0	4.0	119.81	41.8	62.2	82.7	74.7	7.97	10.380	
1,900.0	1,897.6	1,900.9	1,899.3	4.3	4.2	119.38	48.8	61.7	84.1	75.7	8.45	9.954	
2,000.0	1,997.4	2,000.9	1,999.1	4.6	4.5	118.98	55.7	61.2	85.6	76.6	8.94	9.571	
2,100.0	2,097.2	2,100.9	2,098.8	4.8	4.7	118.58	62.7	60.7	87.0	77.6	9.43	9.226	
2,200.0	2,196.9	2,200.9	2,198.6	5.1	4.9	118.20	69.6	60.2	88.5	78.6	9.92	8.915	
2,300.0	2,296.7	2,300.9	2,298.3	5.3	5.2	117.83	76.6	59.7	89.9	79.5	10.42	8.631	
2,400.0	2,396.4	2,400.9	2,398.0	5.6	5.4	117.47	83.5	59.2	91.4	80.5	10.91	8.373	
2,500.0	2,496.2	2,500.9	2,497.8	5.8	5.7	117.13	90.5	58.6	92.8	81.4	11.41	8.136	
2,600.0	2,595.9	2,600.9	2,597.5	6.1	5.9	116.79	97.4	58.1	94.3	82.4	11.91	7.918	
2,700.0	2,695.7	2,700.8	2,697.3	6.3	6.2	116.47	104.4	57.6	95.8	83.4	12.41	7.718	
2,800.0	2,795.5	2,800.8	2,797.0	6.6	6.4	116.15	111.4	57.1	97.2	84.3	12.91	7.533	
2,900.0	2,895.2	2,900.8	2,896.8	6.8	6.7	115.84	118.3	56.6	98.7	85.3	13.41	7.361	
3,000.0	2,995.0	3,000.8	2,996.5	7.1	6.9	115.55	125.3	56.1	100.2	86.3	13.91	7.201	
3,100.0	3,094.7	3,100.8	3,096.2	7.3	7.2	115.26	132.2	55.6	101.7	87.2	14.41	7.053	
3,200.0	3,194.5	3,200.8	3,196.0	7.6	7.4	114.98	139.2	55.0	103.1	88.2	14.92	6.914	
3,300.0	3,294.2	3,300.8	3,295.7	7.8	7.7	114.71	146.1	54.5	104.6	89.2	15.42	6.784	
3,400.0	3,394.0	3,400.8	3,395.5	8.1	8.0	114.44	153.1	54.0	106.1	90.2	15.92	6.663	
3,500.0	3,493.7	3,500.7	3,495.2	8.4	8.2	114.18	160.1	53.5	107.6	91.2	16.43	6.548	
3,600.0	3,593.5	3,600.7	3,595.0	8.6	8.5	113.93	167.0	53.0	109.1	92.1	16.93	6.441	
3,700.0	3,693.3	3,700.7	3,694.7	8.9	8.7	113.69	174.0	52.5	110.6	93.1	17.44	6.340	
3,800.0	3,793.0	3,800.7	3,794.5	9.1	9.0	113.45	180.9	52.0	112.1	94.1	17.95	6.244	
3,900.0	3,892.8	3,900.7	3,894.2	9.4	9.2	113.22	187.9	51.5	113.5	95.1	18.45	6.154	
4,000.0	3,992.5	4,000.7	3,993.9	9.6	9.5	113.00	194.8	50.9	115.0	96.1	18.96	6.068	
4,100.0	4,092.3	4,100.7	4,093.7	9.9	9.7	112.78	201.8	50.4	116.5	97.1	19.47	5.987	
4,200.0	4,192.0	4,200.7	4,193.4	10.1	10.0	112.57	208.7	49.9	118.0	98.1	19.97	5.910	
4,300.0	4,291.8	4,300.7	4,293.2	10.4	10.2	112.36	215.7	49.4	119.5	99.1	20.48	5.837	
4,400.0	4,391.6	4,400.6	4,392.9	10.7	10.5	112.15	222.7	48.9	121.0	100.1	20.99	5.767	
4,500.0	4,491.3	4,500.6	4,492.7	10.9	10.7	111.96	229.6	48.4	122.5	101.0	21.50	5.700	
4,600.0	4,591.1	4,600.6	4,592.4	11.2	11.0	111.76	236.6	47.9	124.0	102.0	22.01	5.637	
4,700.0	4,690.8	4,700.6	4,692.2	11.4	11.3	111.57	243.5	47.3	125.6	103.0	22.51	5.577	
4,800.0	4,790.6	4,800.6	4,791.9	11.7	11.5	111.39	250.5	46.8	127.1	104.0	23.02	5.519	
4,900.0	4,890.3	4,900.6	4,891.6	11.9	11.8	111.21	257.4	46.3	128.6	105.0	23.53	5.464	
5,000.0	4,990.1	5,000.6	4,991.4	12.2	12.0	111.03	264.4	45.8	130.1	106.0	24.04	5.411	
5,100.0	5,089.9	5,100.6	5,091.1	12.4	12.3	110.86	271.3	45.3	131.6	107.0	24.55	5.360	

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-0104B
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-0104B	**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 #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	5,189.6	5,200.5	5,190.9	12.7	12.5	110.70	278.3	44.8	133.1	108.0	25.06	5.311	
5,300.0	5,289.4	5,300.5	5,290.6	13.0	12.8	110.53	285.3	44.3	134.6	109.0	25.57	5.265	
5,400.0	5,389.1	5,402.4	5,391.8	13.2	13.1	108.60	296.5	43.4	135.7	109.5	26.14	5.189	
5,500.0	5,488.5	5,501.6	5,486.6	13.5	13.5	100.57	325.0	41.3	137.4	110.5	26.93	5.103	
5,600.0	5,584.3	5,596.6	5,570.8	13.9	14.0	92.21	368.6	38.1	145.7	117.8	27.91	5.220	
5,700.0	5,673.0	5,688.2	5,643.2	14.5	14.7	84.94	424.4	34.0	159.9	130.8	29.07	5.501	
5,800.0	5,751.3	5,776.7	5,702.8	15.3	15.5	79.13	489.6	29.2	178.3	148.0	30.32	5.882	
5,900.0	5,816.4	5,862.8	5,749.4	16.3	16.4	74.72	561.6	23.9	199.4	167.7	31.66	6.299	
6,000.0	5,865.9	5,950.0	5,783.7	17.4	17.5	71.49	641.4	18.0	221.8	188.6	33.19	6.682	
6,100.0	5,897.8	6,029.7	5,803.1	18.8	18.5	69.23	718.5	12.3	244.4	209.4	34.94	6.995	
6,200.0	5,911.2	6,111.6	5,810.5	20.3	19.7	67.74	799.7	6.3	266.5	229.4	37.04	7.194	
6,300.0	5,911.6	6,200.0	5,810.5	21.8	21.0	68.99	888.0	1.6	287.5	247.6	39.91	7.205	
6,400.0	5,911.6	6,285.8	5,810.6	23.2	22.1	70.47	973.8	0.7	307.9	265.1	42.74	7.204	
6,500.0	5,911.6	6,384.3	5,810.6	24.7	23.7	71.67	1,072.2	0.7	324.6	278.7	45.86	7.078	
6,600.0	5,911.6	6,483.5	5,810.6	26.2	25.3	72.45	1,171.4	0.7	336.5	287.5	48.94	6.875	
6,700.0	5,911.6	6,583.2	5,810.6	27.8	27.0	72.88	1,271.2	0.7	343.4	291.4	51.94	6.611	
6,800.0	5,911.6	6,683.2	5,810.6	29.3	28.7	72.99	1,371.1	0.7	345.4	290.5	54.86	6.295	
6,900.0	5,911.6	6,783.2	5,810.6	31.0	30.4	72.99	1,471.1	0.7	345.4	287.2	58.13	5.941	
7,000.0	5,911.6	6,883.2	5,810.6	32.6	32.1	72.99	1,571.1	0.7	345.4	283.9	61.45	5.620	
7,100.0	5,911.6	6,983.2	5,810.6	34.3	33.9	72.99	1,671.1	0.7	345.4	280.6	64.80	5.329	
7,200.0	5,911.6	7,083.2	5,810.6	36.1	35.7	72.99	1,771.1	0.7	345.4	277.2	68.20	5.064	
7,300.0	5,911.6	7,183.2	5,810.6	37.8	37.5	72.99	1,871.1	0.7	345.4	273.7	71.62	4.822	
7,400.0	5,911.6	7,283.2	5,810.6	39.5	39.3	72.99	1,971.1	0.7	345.4	270.3	75.07	4.601	
7,500.0	5,911.6	7,383.2	5,810.6	41.3	41.1	73.00	2,071.1	0.7	345.4	266.8	78.54	4.397	
7,600.0	5,911.6	7,483.2	5,810.6	43.1	42.9	73.00	2,171.1	0.7	345.4	263.3	82.04	4.210	
7,700.0	5,911.7	7,583.2	5,810.6	44.9	44.7	73.00	2,271.1	0.7	345.4	259.8	85.55	4.037	
7,800.0	5,911.7	7,683.2	5,810.7	46.7	46.6	73.00	2,371.1	0.7	345.4	256.3	89.07	3.877	
7,900.0	5,911.7	7,783.2	5,810.7	48.5	48.4	73.00	2,471.1	0.7	345.4	252.8	92.61	3.729	
8,000.0	5,911.7	7,883.2	5,810.7	50.3	50.3	73.00	2,571.1	0.7	345.4	249.2	96.16	3.592	
8,100.0	5,911.7	7,983.2	5,810.7	52.2	52.1	73.00	2,671.1	0.7	345.4	245.7	99.73	3.463	
8,200.0	5,911.7	8,083.2	5,810.7	54.0	54.0	73.00	2,771.1	0.7	345.4	242.1	103.30	3.343	
8,300.0	5,911.7	8,183.2	5,810.7	55.8	55.9	73.00	2,871.1	0.7	345.4	238.5	106.88	3.231	
8,400.0	5,911.7	8,283.2	5,810.7	57.7	57.7	73.00	2,971.1	0.7	345.4	234.9	110.47	3.126	
8,500.0	5,911.7	8,383.2	5,810.7	59.5	59.6	73.00	3,071.1	0.7	345.4	231.3	114.07	3.028	
8,600.0	5,911.7	8,483.2	5,810.7	61.4	61.5	73.00	3,171.1	0.7	345.4	227.7	117.67	2.935	
8,700.0	5,911.7	8,583.2	5,810.7	63.2	63.4	73.00	3,271.1	0.7	345.4	224.1	121.28	2.848	
8,800.0	5,911.7	8,683.2	5,810.7	65.1	65.2	73.00	3,371.1	0.7	345.4	220.5	124.89	2.766	
8,900.0	5,911.7	8,783.2	5,810.7	67.0	67.1	73.00	3,471.1	0.7	345.4	216.9	128.51	2.688	
9,000.0	5,911.8	8,883.2	5,810.7	68.8	69.0	73.00	3,571.1	0.7	345.4	213.3	132.13	2.614	
9,100.0	5,911.8	8,983.2	5,810.8	70.7	70.9	73.00	3,671.1	0.7	345.4	209.6	135.76	2.544	
9,200.0	5,911.8	9,083.2	5,810.8	72.6	72.8	73.00	3,771.1	0.7	345.4	206.0	139.39	2.478	
9,300.0	5,911.8	9,183.2	5,810.8	74.5	74.7	73.00	3,871.1	0.7	345.4	202.4	143.03	2.415	
9,400.0	5,911.8	9,283.2	5,810.8	76.3	76.6	73.00	3,971.1	0.7	345.4	198.7	146.67	2.355	
9,500.0	5,911.8	9,383.2	5,810.8	78.2	78.5	73.00	4,071.1	0.7	345.4	195.1	150.31	2.298	
9,600.0	5,911.8	9,483.2	5,810.8	80.1	80.4	73.00	4,171.1	0.7	345.4	191.4	153.95	2.244	
9,700.0	5,911.8	9,583.2	5,810.8	82.0	82.3	73.00	4,271.1	0.7	345.4	187.8	157.60	2.192	
9,800.0	5,911.8	9,683.2	5,810.8	83.9	84.2	73.00	4,371.1	0.7	345.4	184.2	161.25	2.142	
9,900.0	5,911.8	9,783.2	5,810.8	85.8	86.1	73.00	4,471.1	0.7	345.4	180.5	164.90	2.095	
10,000.0	5,911.8	9,883.2	5,810.8	87.6	88.0	73.00	4,571.1	0.7	345.4	176.9	168.55	2.049	
10,100.0	5,911.8	9,983.2	5,810.8	89.5	89.9	73.00	4,671.1	0.7	345.4	173.2	172.21	2.006	
10,200.0	5,911.8	10,083.2	5,810.8	91.4	91.8	73.00	4,771.1	0.7	345.4	169.5	175.87	1.964	
10,300.0	5,911.8	10,183.2	5,810.8	93.3	93.7	73.00	4,871.1	0.7	345.4	165.9	179.53	1.924	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0104B
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-0104B	**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 #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
10,400.0	5,911.9	10,283.2	5,810.9	95.2	95.6	73.00	4,971.1	0.7	345.4	162.2	183.19	1.886	
10,500.0	5,911.9	10,383.2	5,810.9	97.1	97.5	73.00	5,071.1	0.7	345.4	158.6	186.85	1.849	
10,600.0	5,911.9	10,483.2	5,810.9	99.0	99.4	73.00	5,171.1	0.7	345.4	154.9	190.52	1.813	
10,700.0	5,911.9	10,583.2	5,810.9	100.9	101.3	73.00	5,271.1	0.7	345.4	151.2	194.18	1.779	
10,800.0	5,911.9	10,683.2	5,810.9	102.8	103.2	73.00	5,371.1	0.7	345.4	147.6	197.85	1.746	
10,900.0	5,911.9	10,783.2	5,810.9	104.7	105.1	73.00	5,471.1	0.7	345.4	143.9	201.52	1.714	
11,000.0	5,911.9	10,883.2	5,810.9	106.6	107.0	73.00	5,571.1	0.7	345.4	140.2	205.19	1.683	
11,100.0	5,911.9	10,983.2	5,810.9	108.5	108.9	73.00	5,671.1	0.7	345.4	136.6	208.86	1.654	
11,200.0	5,911.9	11,083.2	5,810.9	110.4	110.8	73.00	5,771.1	0.7	345.4	132.9	212.53	1.625	
11,300.0	5,911.9	11,183.2	5,810.9	112.3	112.7	73.00	5,871.1	0.8	345.4	129.2	216.20	1.598	
11,400.0	5,911.9	11,283.2	5,810.9	114.2	114.6	73.00	5,971.1	0.8	345.4	125.5	219.88	1.571	
11,500.0	5,911.9	11,383.2	5,810.9	116.1	116.5	73.00	6,071.1	0.8	345.4	121.9	223.55	1.545	
11,600.0	5,911.9	11,483.2	5,810.9	118.0	118.5	73.00	6,171.1	0.8	345.4	118.2	227.23	1.520	
11,700.0	5,912.0	11,583.2	5,811.0	119.9	120.4	73.00	6,271.1	0.8	345.4	114.5	230.90	1.496	Level 3
11,800.0	5,912.0	11,683.2	5,811.0	121.8	122.3	73.00	6,371.1	0.8	345.4	110.9	234.58	1.473	Level 3
11,900.0	5,912.0	11,783.2	5,811.0	123.7	124.2	73.00	6,471.1	0.8	345.4	107.2	238.26	1.450	Level 3
12,000.0	5,912.0	11,883.2	5,811.0	125.6	126.1	73.00	6,571.1	0.8	345.4	103.5	241.93	1.428	Level 3
12,100.0	5,912.0	11,983.2	5,811.0	127.5	128.0	73.00	6,671.1	0.8	345.4	99.8	245.61	1.406	Level 3
12,200.0	5,912.0	12,083.2	5,811.0	129.5	129.9	73.00	6,771.1	0.8	345.4	96.1	249.29	1.386	Level 3
12,300.0	5,912.0	12,183.2	5,811.0	131.4	131.8	73.00	6,871.1	0.8	345.4	92.5	252.97	1.365	Level 3
12,325.1	5,912.0	12,208.3	5,811.0	131.8	132.3	73.00	6,896.3	0.8	345.4	91.5	253.90	1.361	Level 3, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0104B
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-0104B	**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-0106B - 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	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	437.810	
200.0	200.0	200.0	200.0	0.3	0.3	156.20	-74.9	33.0	81.9	81.2	0.64	128.622	
300.0	300.0	300.0	300.0	0.5	0.5	156.20	-74.9	33.0	81.9	80.8	1.09	75.385	
400.0	400.0	400.0	400.0	0.8	0.8	156.20	-74.9	33.0	81.9	80.3	1.54	53.317	
500.0	500.0	500.0	500.0	1.0	1.0	156.20	-74.9	33.0	81.9	79.9	1.99	41.243	
600.0	600.0	600.0	600.0	1.2	1.2	156.20	-74.9	33.0	81.9	79.4	2.43	33.628	
700.0	700.0	700.0	700.0	1.4	1.4	156.20	-74.9	33.0	81.9	79.0	2.88	28.387	
800.0	800.0	802.2	802.2	1.7	1.7	155.37	-73.2	33.5	80.5	77.2	3.34	24.107	
900.0	900.0	904.2	904.0	1.9	1.9	170.04	-67.9	35.0	78.2	74.4	3.79	20.626	
946.8	946.8	950.9	950.7	2.0	2.0	168.67	-64.8	35.9	77.8	73.8	4.00	19.442	CC, ES
1,000.0	999.8	1,004.1	1,003.7	2.1	2.1	167.25	-61.2	36.9	78.3	74.1	4.24	18.474	
1,100.0	1,099.6	1,104.0	1,103.4	2.3	2.4	164.80	-54.5	38.7	80.3	75.6	4.70	17.099	
1,200.0	1,199.4	1,203.9	1,203.0	2.6	2.6	162.48	-47.8	40.6	82.4	77.3	5.16	15.980	
1,300.0	1,299.1	1,303.9	1,302.7	2.8	2.8	160.27	-41.1	42.5	84.7	79.0	5.62	15.056	
1,400.0	1,398.9	1,403.8	1,402.4	3.1	3.1	158.18	-34.3	44.4	87.0	80.9	6.09	14.284	
1,500.0	1,498.6	1,503.7	1,502.1	3.3	3.3	156.21	-27.6	46.2	89.5	82.9	6.57	13.632	
1,600.0	1,598.4	1,603.6	1,601.8	3.6	3.6	154.34	-20.9	48.1	92.1	85.0	7.04	13.075	
1,700.0	1,698.1	1,703.6	1,701.4	3.8	3.8	152.58	-14.2	50.0	94.8	87.2	7.52	12.596	
1,800.0	1,797.9	1,803.5	1,801.1	4.0	4.1	150.91	-7.5	51.9	97.5	89.5	8.01	12.180	
1,900.0	1,897.6	1,903.4	1,900.8	4.3	4.3	149.34	-0.8	53.7	100.3	91.9	8.49	11.818	
2,000.0	1,997.4	2,003.3	2,000.5	4.6	4.6	147.85	5.9	55.6	103.2	94.3	8.98	11.499	
2,100.0	2,097.2	2,103.2	2,100.2	4.8	4.8	146.45	12.7	57.5	106.2	96.7	9.47	11.218	
2,200.0	2,196.9	2,203.2	2,199.8	5.1	5.1	145.12	19.4	59.4	109.2	99.3	9.96	10.969	
2,300.0	2,296.7	2,303.1	2,299.5	5.3	5.3	143.87	26.1	61.2	112.3	101.9	10.45	10.746	
2,400.0	2,396.4	2,403.0	2,399.2	5.6	5.6	142.68	32.8	63.1	115.5	104.5	10.95	10.547	
2,500.0	2,496.2	2,502.9	2,498.9	5.8	5.9	141.56	39.5	65.0	118.6	107.2	11.44	10.367	
2,600.0	2,595.9	2,602.9	2,598.6	6.1	6.1	140.50	46.2	66.9	121.9	109.9	11.94	10.205	
2,700.0	2,695.7	2,702.8	2,698.2	6.3	6.4	139.49	52.9	68.7	125.1	112.7	12.44	10.059	
2,800.0	2,795.5	2,802.7	2,797.9	6.6	6.6	138.53	59.6	70.6	128.4	115.5	12.94	9.925	
2,900.0	2,895.2	2,902.6	2,897.6	6.8	6.9	137.62	66.4	72.5	131.8	118.3	13.44	9.804	
3,000.0	2,995.0	3,002.6	2,997.3	7.1	7.1	136.75	73.1	74.4	135.1	121.2	13.94	9.693	
3,100.0	3,094.7	3,102.5	3,096.9	7.3	7.4	135.93	79.8	76.2	138.5	124.1	14.44	9.591	
3,200.0	3,194.5	3,202.4	3,196.6	7.6	7.6	135.15	86.5	78.1	142.0	127.0	14.95	9.497	
3,300.0	3,294.2	3,302.3	3,296.3	7.8	7.9	134.40	93.2	80.0	145.4	130.0	15.45	9.411	
3,400.0	3,394.0	3,402.2	3,396.0	8.1	8.1	133.69	99.9	81.9	148.9	132.9	15.95	9.332	
3,500.0	3,493.7	3,502.2	3,495.7	8.4	8.4	133.01	106.6	83.7	152.4	135.9	16.46	9.258	
3,600.0	3,593.5	3,602.1	3,595.3	8.6	8.6	132.37	113.4	85.6	155.9	138.9	16.96	9.190	
3,700.0	3,693.3	3,702.0	3,695.0	8.9	8.9	131.75	120.1	87.5	159.4	142.0	17.47	9.126	
3,800.0	3,793.0	3,801.9	3,794.7	9.1	9.2	131.15	126.8	89.4	163.0	145.0	17.97	9.067	
3,900.0	3,892.8	3,901.9	3,894.4	9.4	9.4	130.59	133.5	91.2	166.5	148.1	18.48	9.012	
4,000.0	3,992.5	4,001.8	3,994.1	9.6	9.7	130.04	140.2	93.1	170.1	151.1	18.99	8.960	
4,100.0	4,092.3	4,101.7	4,093.7	9.9	9.9	129.52	146.9	95.0	173.7	154.2	19.49	8.912	
4,200.0	4,192.0	4,201.6	4,193.4	10.1	10.2	129.02	153.6	96.9	177.3	157.3	20.00	8.867	
4,300.0	4,291.8	4,301.6	4,293.1	10.4	10.4	128.54	160.4	98.7	181.0	160.5	20.51	8.825	
4,400.0	4,391.6	4,401.5	4,392.8	10.7	10.7	128.08	167.1	100.6	184.6	163.6	21.01	8.785	
4,500.0	4,491.3	4,501.4	4,492.5	10.9	10.9	127.64	173.8	102.5	188.3	166.7	21.52	8.747	
4,600.0	4,591.1	4,601.3	4,592.1	11.2	11.2	127.21	180.5	104.4	191.9	169.9	22.03	8.712	
4,700.0	4,690.8	4,701.2	4,691.8	11.4	11.5	126.80	187.2	106.2	195.6	173.0	22.54	8.679	
4,800.0	4,790.6	4,801.2	4,791.5	11.7	11.7	126.41	193.9	108.1	199.3	176.2	23.04	8.647	
4,900.0	4,890.3	4,901.1	4,891.2	11.9	12.0	126.03	200.6	110.0	203.0	179.4	23.55	8.617	
5,000.0	4,990.1	5,001.0	4,990.9	12.2	12.2	125.66	207.3	111.9	206.6	182.6	24.06	8.589	

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-0104B
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-0104B	**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-0106B - 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	5,089.9	5,100.9	5,090.5	12.4	12.5	125.30	214.1	113.7	210.4	185.8	24.57	8.562	
5,200.0	5,189.6	5,200.9	5,190.2	12.7	12.7	124.96	220.8	115.6	214.1	189.0	25.08	8.537	
5,300.0	5,289.4	5,300.8	5,289.9	13.0	13.0	124.63	227.5	117.5	217.8	192.2	25.58	8.513	
5,400.0	5,389.1	5,400.7	5,389.6	13.2	13.2	124.31	234.2	119.3	221.5	195.4	26.09	8.490	
5,500.0	5,488.5	5,501.2	5,489.4	13.5	13.5	123.45	244.5	122.2	227.2	200.6	26.58	8.549	
5,600.0	5,584.3	5,600.5	5,584.5	13.9	14.0	120.93	271.3	129.7	242.3	215.2	27.12	8.934	
5,700.0	5,673.0	5,696.7	5,670.1	14.5	14.5	117.12	313.4	141.5	267.1	239.2	27.92	9.568	
5,800.0	5,751.3	5,789.2	5,743.5	15.3	15.2	112.45	367.5	156.6	300.7	271.5	29.14	10.318	
5,900.0	5,816.4	5,877.9	5,803.5	16.3	16.0	107.21	430.3	174.1	341.7	310.9	30.87	11.070	
6,000.0	5,865.9	5,963.4	5,850.0	17.4	17.0	101.66	499.2	193.3	388.6	355.6	33.02	11.767	
6,100.0	5,897.8	6,046.6	5,883.4	18.8	18.0	95.99	572.5	213.8	439.5	404.0	35.44	12.402	
6,200.0	5,911.2	6,128.8	5,904.2	20.3	19.1	90.43	649.1	235.2	492.7	454.7	37.93	12.988	
6,300.0	5,911.6	6,213.1	5,912.3	21.8	20.3	90.09	729.8	257.7	545.2	504.6	40.56	13.441	
6,400.0	5,911.6	6,336.7	5,912.3	23.2	22.0	90.08	849.7	287.6	590.9	547.2	43.70	13.520	
6,500.0	5,911.6	6,474.4	5,912.3	24.7	23.9	90.07	985.3	311.6	625.5	578.3	47.20	13.251	
6,600.0	5,911.6	6,620.6	5,912.3	26.2	26.1	90.07	1,130.7	326.4	647.9	596.9	51.02	12.699	
6,700.0	5,911.6	6,761.1	5,912.3	27.8	28.3	90.06	1,271.1	330.2	657.7	602.8	54.87	11.985	
6,800.0	5,911.6	6,861.1	5,912.3	29.3	29.9	90.06	1,371.1	330.2	659.7	601.6	58.12	11.352	
6,900.0	5,911.6	6,961.1	5,912.3	31.0	31.5	90.06	1,471.1	330.2	659.7	598.3	61.46	10.735	
7,000.0	5,911.6	7,061.1	5,912.3	32.6	33.2	90.06	1,571.1	330.2	659.7	594.9	64.85	10.173	
7,100.0	5,911.6	7,161.1	5,912.3	34.3	34.9	90.06	1,671.1	330.2	659.7	591.4	68.30	9.660	
7,200.0	5,911.6	7,261.1	5,912.3	36.1	36.6	90.06	1,771.1	330.2	659.7	588.0	71.78	9.191	
7,300.0	5,911.6	7,361.1	5,912.3	37.8	38.4	90.06	1,871.1	330.2	659.8	584.5	75.30	8.761	
7,400.0	5,911.6	7,461.1	5,912.3	39.5	40.1	90.06	1,971.1	330.2	659.8	580.9	78.85	8.367	
7,500.0	5,911.6	7,561.1	5,912.3	41.3	41.9	90.05	2,071.1	330.2	659.8	577.3	82.43	8.004	
7,600.0	5,911.6	7,661.1	5,912.3	43.1	43.7	90.05	2,171.1	330.2	659.8	573.7	86.03	7.669	
7,700.0	5,911.7	7,761.1	5,912.2	44.9	45.5	90.05	2,271.1	330.2	659.8	570.1	89.65	7.360	
7,800.0	5,911.7	7,861.1	5,912.2	46.7	47.3	90.05	2,371.1	330.2	659.8	566.5	93.28	7.073	
7,900.0	5,911.7	7,961.1	5,912.2	48.5	49.1	90.05	2,471.1	330.2	659.8	562.8	96.94	6.806	
8,000.0	5,911.7	8,061.1	5,912.2	50.3	50.9	90.05	2,571.1	330.2	659.8	559.2	100.60	6.558	
8,100.0	5,911.7	8,161.1	5,912.2	52.2	52.8	90.05	2,671.1	330.2	659.8	555.5	104.28	6.327	
8,200.0	5,911.7	8,261.1	5,912.2	54.0	54.6	90.05	2,771.1	330.2	659.8	551.8	107.98	6.110	
8,300.0	5,911.7	8,361.1	5,912.2	55.8	56.4	90.04	2,871.1	330.2	659.8	548.1	111.68	5.908	
8,400.0	5,911.7	8,461.1	5,912.2	57.7	58.3	90.04	2,971.1	330.2	659.8	544.4	115.39	5.718	
8,500.0	5,911.7	8,561.1	5,912.2	59.5	60.1	90.04	3,071.1	330.2	659.8	540.7	119.11	5.539	
8,600.0	5,911.7	8,661.1	5,912.2	61.4	62.0	90.04	3,171.1	330.2	659.8	537.0	122.83	5.371	
8,700.0	5,911.7	8,761.1	5,912.2	63.2	63.8	90.04	3,271.1	330.2	659.8	533.2	126.57	5.213	
8,800.0	5,911.7	8,861.1	5,912.2	65.1	65.7	90.04	3,371.1	330.2	659.8	529.5	130.31	5.063	
8,900.0	5,911.7	8,961.1	5,912.2	67.0	67.6	90.04	3,471.1	330.2	659.8	525.7	134.06	4.922	
9,000.0	5,911.8	9,061.1	5,912.2	68.8	69.4	90.04	3,571.1	330.2	659.8	522.0	137.81	4.788	
9,100.0	5,911.8	9,161.1	5,912.2	70.7	71.3	90.04	3,671.1	330.2	659.8	518.2	141.56	4.661	
9,200.0	5,911.8	9,261.1	5,912.2	72.6	73.2	90.03	3,771.1	330.2	659.8	514.5	145.32	4.540	
9,300.0	5,911.8	9,361.1	5,912.2	74.5	75.1	90.03	3,871.1	330.2	659.8	510.7	149.09	4.426	
9,400.0	5,911.8	9,461.1	5,912.2	76.3	76.9	90.03	3,971.1	330.2	659.8	507.0	152.86	4.317	
9,500.0	5,911.8	9,561.1	5,912.2	78.2	78.8	90.03	4,071.1	330.2	659.8	503.2	156.63	4.213	
9,600.0	5,911.8	9,661.1	5,912.1	80.1	80.7	90.03	4,171.1	330.2	659.8	499.4	160.41	4.113	
9,700.0	5,911.8	9,761.1	5,912.1	82.0	82.6	90.03	4,271.1	330.3	659.8	495.6	164.19	4.019	
9,800.0	5,911.8	9,861.1	5,912.1	83.9	84.5	90.03	4,371.1	330.3	659.8	491.9	167.97	3.928	
9,900.0	5,911.8	9,961.1	5,912.1	85.8	86.4	90.03	4,471.1	330.3	659.8	488.1	171.75	3.842	
10,000.0	5,911.8	10,061.1	5,912.1	87.6	88.3	90.03	4,571.1	330.3	659.8	484.3	175.54	3.759	
10,100.0	5,911.8	10,161.1	5,912.1	89.5	90.2	90.02	4,671.1	330.3	659.8	480.5	179.33	3.679	
10,200.0	5,911.8	10,261.1	5,912.1	91.4	92.0	90.02	4,771.1	330.3	659.8	476.7	183.12	3.603	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0104B
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-0104B	**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-0106B - 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	5,911.8	10,361.1	5,912.1	93.3	93.9	90.02	4,871.1	330.3	659.8	472.9	186.92	3.530	
10,400.0	5,911.9	10,461.1	5,912.1	95.2	95.8	90.02	4,971.1	330.3	659.9	469.1	190.71	3.460	
10,500.0	5,911.9	10,561.1	5,912.1	97.1	97.7	90.02	5,071.1	330.3	659.9	465.3	194.51	3.392	
10,600.0	5,911.9	10,661.1	5,912.1	99.0	99.6	90.02	5,171.1	330.3	659.9	461.5	198.31	3.327	
10,700.0	5,911.9	10,761.1	5,912.1	100.9	101.5	90.02	5,271.1	330.3	659.9	457.7	202.11	3.265	
10,800.0	5,911.9	10,861.1	5,912.1	102.8	103.4	90.02	5,371.1	330.3	659.9	454.0	205.91	3.205	
10,900.0	5,911.9	10,961.1	5,912.1	104.7	105.3	90.02	5,471.1	330.3	659.9	450.1	209.72	3.146	
11,000.0	5,911.9	11,061.1	5,912.1	106.6	107.2	90.01	5,571.1	330.3	659.9	446.3	213.52	3.090	
11,100.0	5,911.9	11,161.1	5,912.1	108.5	109.1	90.01	5,671.1	330.3	659.9	442.5	217.33	3.036	
11,200.0	5,911.9	11,261.1	5,912.1	110.4	111.0	90.01	5,771.1	330.3	659.9	438.7	221.14	2.984	
11,300.0	5,911.9	11,361.1	5,912.1	112.3	112.9	90.01	5,871.1	330.3	659.9	434.9	224.95	2.933	
11,400.0	5,911.9	11,461.1	5,912.0	114.2	114.8	90.01	5,971.1	330.3	659.9	431.1	228.76	2.885	
11,500.0	5,911.9	11,561.1	5,912.0	116.1	116.7	90.01	6,071.1	330.3	659.9	427.3	232.57	2.837	
11,600.0	5,911.9	11,661.1	5,912.0	118.0	118.6	90.01	6,171.1	330.3	659.9	423.5	236.38	2.792	
11,700.0	5,912.0	11,761.1	5,912.0	119.9	120.5	90.01	6,271.1	330.3	659.9	419.7	240.20	2.747	
11,800.0	5,912.0	11,861.1	5,912.0	121.8	122.4	90.01	6,371.1	330.3	659.9	415.9	244.01	2.704	
11,900.0	5,912.0	11,961.1	5,912.0	123.7	124.4	90.00	6,471.1	330.3	659.9	412.1	247.83	2.663	
12,000.0	5,912.0	12,061.1	5,912.0	125.6	126.3	90.00	6,571.1	330.3	659.9	408.3	251.65	2.622	
12,100.0	5,912.0	12,161.1	5,912.0	127.5	128.2	90.00	6,671.1	330.3	659.9	404.4	255.46	2.583	
12,200.0	5,912.0	12,261.1	5,912.0	129.5	130.1	90.00	6,771.1	330.3	659.9	400.6	259.28	2.545	
12,300.0	5,912.0	12,361.1	5,912.0	131.4	132.0	90.00	6,871.1	330.3	659.9	396.8	263.10	2.508	
12,325.1	5,912.0	12,386.2	5,912.0	131.8	132.5	90.00	6,896.2	330.3	659.9	395.9	264.06	2.499	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0104B
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-0104B	**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	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	
600.0	600.0	600.0	600.0	1.2	1.2	90.00	0.0	131.4	131.4	129.0	2.43	53.973	
700.0	700.0	700.0	700.0	1.4	1.4	90.00	0.0	131.4	131.4	128.5	2.88	45.560	
800.0	800.0	800.0	800.0	1.7	1.7	90.00	0.0	131.4	131.4	128.1	3.33	39.417	CC, ES
900.0	900.0	900.0	900.0	1.9	1.9	107.78	0.0	131.4	131.9	128.1	3.78	34.885	
1,000.0	999.8	999.8	999.8	2.1	2.1	109.89	0.0	131.4	133.6	129.4	4.23	31.591	
1,100.0	1,099.6	1,099.6	1,099.6	2.3	2.3	112.64	0.0	131.4	136.2	131.5	4.68	29.080	
1,200.0	1,199.4	1,199.4	1,199.4	2.6	2.6	115.29	0.0	131.4	139.0	133.9	5.14	27.051	
1,300.0	1,299.1	1,297.8	1,297.8	2.8	2.8	117.15	1.5	132.1	142.6	137.0	5.59	25.491	
1,400.0	1,398.9	1,396.5	1,396.3	3.1	3.0	117.63	6.1	134.3	147.1	141.1	6.05	24.320	
1,500.0	1,498.6	1,496.3	1,495.9	3.3	3.2	117.42	12.4	137.3	152.1	145.6	6.51	23.355	
1,600.0	1,598.4	1,596.1	1,595.5	3.6	3.5	117.22	18.7	140.3	157.1	150.2	6.98	22.502	
1,700.0	1,698.1	1,696.0	1,695.1	3.8	3.7	117.03	25.0	143.3	162.2	154.7	7.46	21.744	
1,800.0	1,797.9	1,795.9	1,794.8	4.0	3.9	116.86	31.3	146.2	167.2	159.3	7.94	21.066	
1,900.0	1,897.6	1,895.8	1,894.4	4.3	4.2	116.69	37.5	149.2	172.2	163.8	8.42	20.458	
2,000.0	1,997.4	1,995.6	1,994.0	4.6	4.4	116.53	43.8	152.2	177.3	168.3	8.90	19.910	
2,100.0	2,097.2	2,095.5	2,093.7	4.8	4.7	116.39	50.1	155.2	182.3	172.9	9.39	19.414	
2,200.0	2,196.9	2,195.4	2,193.3	5.1	4.9	116.25	56.4	158.2	187.3	177.4	9.88	18.963	
2,300.0	2,296.7	2,295.3	2,292.9	5.3	5.1	116.11	62.7	161.2	192.3	182.0	10.37	18.552	
2,400.0	2,396.4	2,395.1	2,392.5	5.6	5.4	115.99	69.0	164.2	197.4	186.5	10.86	18.176	
2,500.0	2,496.2	2,495.0	2,492.2	5.8	5.6	115.87	75.3	167.2	202.4	191.1	11.35	17.831	
2,600.0	2,595.9	2,594.9	2,591.8	6.1	5.9	115.75	81.6	170.1	207.4	195.6	11.85	17.512	
2,700.0	2,695.7	2,694.7	2,691.4	6.3	6.1	115.65	87.9	173.1	212.5	200.1	12.34	17.218	
2,800.0	2,795.5	2,794.6	2,791.1	6.6	6.4	115.54	94.2	176.1	217.5	204.7	12.84	16.946	
2,900.0	2,895.2	2,894.5	2,890.7	6.8	6.6	115.44	100.5	179.1	222.6	209.2	13.33	16.693	
3,000.0	2,995.0	2,994.4	2,990.3	7.1	6.9	115.35	106.8	182.1	227.6	213.8	13.83	16.457	
3,100.0	3,094.7	3,094.2	3,089.9	7.3	7.1	115.26	113.1	185.1	232.6	218.3	14.33	16.237	
3,200.0	3,194.5	3,194.1	3,189.6	7.6	7.4	115.17	119.4	188.1	237.7	222.8	14.83	16.032	
3,300.0	3,294.2	3,294.0	3,289.2	7.8	7.6	115.09	125.7	191.1	242.7	227.4	15.32	15.839	
3,400.0	3,394.0	3,393.9	3,388.8	8.1	7.9	115.01	131.9	194.1	247.8	231.9	15.82	15.658	
3,500.0	3,493.7	3,493.7	3,488.5	8.4	8.1	114.93	138.2	197.0	252.8	236.5	16.32	15.488	
3,600.0	3,593.5	3,593.6	3,588.1	8.6	8.4	114.86	144.5	200.0	257.8	241.0	16.82	15.327	
3,700.0	3,693.3	3,693.5	3,687.7	8.9	8.6	114.79	150.8	203.0	262.9	245.6	17.32	15.176	
3,800.0	3,793.0	3,793.3	3,787.3	9.1	8.9	114.72	157.1	206.0	267.9	250.1	17.82	15.033	
3,900.0	3,892.8	3,893.2	3,887.0	9.4	9.1	114.66	163.4	209.0	273.0	254.6	18.32	14.897	
4,000.0	3,992.5	3,993.1	3,986.6	9.6	9.4	114.59	169.7	212.0	278.0	259.2	18.82	14.768	
4,100.0	4,092.3	4,093.0	4,086.2	9.9	9.7	114.53	176.0	215.0	283.0	263.7	19.33	14.646	
4,200.0	4,192.0	4,192.8	4,185.9	10.1	9.9	114.47	182.3	218.0	288.1	268.3	19.83	14.530	
4,300.0	4,291.8	4,292.7	4,285.5	10.4	10.2	114.42	188.6	220.9	293.1	272.8	20.33	14.420	
4,400.0	4,391.6	4,392.6	4,385.1	10.7	10.4	114.36	194.9	223.9	298.2	277.3	20.83	14.315	
4,500.0	4,491.3	4,492.4	4,484.8	10.9	10.7	114.31	201.2	226.9	303.2	281.9	21.33	14.214	
4,600.0	4,591.1	4,592.3	4,584.4	11.2	10.9	114.26	207.5	229.9	308.3	286.4	21.83	14.118	
4,700.0	4,690.8	4,692.2	4,684.0	11.4	11.2	114.21	213.8	232.9	313.3	291.0	22.34	14.027	
4,800.0	4,790.6	4,792.1	4,783.6	11.7	11.4	114.16	220.1	235.9	318.4	295.5	22.84	13.939	
4,900.0	4,890.3	4,891.9	4,883.3	11.9	11.7	114.11	226.3	238.9	323.4	300.1	23.34	13.855	
5,000.0	4,990.1	4,991.8	4,982.9	12.2	11.9	114.07	232.6	241.9	328.4	304.6	23.84	13.775	
5,100.0	5,089.9	5,091.7	5,082.5	12.4	12.2	114.03	238.9	244.9	333.5	309.1	24.35	13.698	

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-0104B
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-0104B	**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
5,200.0	5,189.6	5,191.6	5,182.2	12.7	12.4	113.98	245.2	247.8	338.5	313.7	24.85	13.623	
5,300.0	5,289.4	5,291.4	5,281.8	13.0	12.7	113.94	251.5	250.8	343.6	318.2	25.35	13.552	
5,400.0	5,389.1	5,381.5	5,371.4	13.2	12.9	113.60	259.0	254.4	349.4	323.5	25.85	13.517	SF
5,500.0	5,488.5	5,461.5	5,449.2	13.5	13.2	111.12	275.7	262.3	361.4	335.0	26.37	13.703	
5,600.0	5,584.3	5,538.1	5,520.1	13.9	13.6	107.49	301.6	274.6	385.2	358.2	27.01	14.259	
5,700.0	5,673.0	5,610.6	5,582.7	14.5	14.1	103.29	334.6	290.3	419.7	391.8	27.87	15.057	
5,800.0	5,751.3	5,678.7	5,636.4	15.3	14.6	98.59	372.4	308.2	463.0	434.0	29.01	15.958	
5,900.0	5,816.4	5,742.6	5,681.4	16.3	15.1	93.46	413.3	327.7	513.1	482.7	30.40	16.880	
6,000.0	5,865.9	5,800.0	5,716.8	17.4	15.7	87.91	454.1	347.0	568.3	536.3	31.91	17.810	
6,100.0	5,897.8	5,859.9	5,748.2	18.8	16.3	82.42	500.1	368.9	626.6	593.1	33.46	18.727	
6,200.0	5,911.2	5,914.7	5,771.7	20.3	17.0	76.92	544.8	390.1	686.7	651.8	34.90	19.676	
6,300.0	5,911.6	5,970.7	5,790.1	21.8	17.7	78.30	592.5	412.8	746.9	709.8	37.14	20.113	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0104B
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-0104B	**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 #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	127.30	-74.9	98.4	123.6				
100.0	100.0	100.0	100.0	0.1	0.1	127.30	-74.9	98.4	123.6	123.5	0.19	661.197	
200.0	200.0	200.0	200.0	0.3	0.3	127.30	-74.9	98.4	123.6	123.0	0.64	194.250	
300.0	300.0	300.0	300.0	0.5	0.5	127.30	-74.9	98.4	123.6	122.6	1.09	113.849	
400.0	400.0	400.0	400.0	0.8	0.8	127.30	-74.9	98.4	123.6	122.1	1.54	80.521	
500.0	500.0	500.0	500.0	1.0	1.0	127.30	-74.9	98.4	123.6	121.7	1.99	62.287	
600.0	600.0	600.0	600.0	1.2	1.2	127.30	-74.9	98.4	123.6	121.2	2.43	50.786	
700.0	700.0	700.0	700.0	1.4	1.4	127.30	-74.9	98.4	123.6	120.8	2.88	42.871	
800.0	800.0	800.0	800.0	1.7	1.7	127.30	-74.9	98.4	123.6	120.3	3.33	37.090	CC, ES
900.0	900.0	900.0	900.0	1.9	1.9	144.02	-73.5	99.4	125.1	121.3	3.78	33.093	
1,000.0	999.8	999.8	999.7	2.1	2.1	143.01	-69.4	102.6	129.3	125.1	4.22	30.627	
1,100.0	1,099.6	1,099.6	1,099.2	2.3	2.3	141.83	-63.8	106.8	135.1	130.4	4.68	28.888	
1,200.0	1,199.4	1,199.4	1,198.8	2.6	2.6	140.75	-58.3	111.0	140.9	135.7	5.14	27.423	
1,300.0	1,299.1	1,299.2	1,298.3	2.8	2.8	139.75	-52.7	115.2	146.7	141.1	5.60	26.179	
1,400.0	1,398.9	1,399.0	1,397.9	3.1	3.1	138.83	-47.2	119.4	152.6	146.5	6.08	25.113	
1,500.0	1,498.6	1,498.8	1,497.4	3.3	3.3	137.98	-41.6	123.6	158.5	152.0	6.55	24.191	
1,600.0	1,598.4	1,598.6	1,597.0	3.6	3.5	137.19	-36.1	127.8	164.5	157.4	7.03	23.388	
1,700.0	1,698.1	1,698.4	1,696.5	3.8	3.8	136.45	-30.5	132.0	170.4	162.9	7.51	22.683	
1,800.0	1,797.9	1,798.2	1,796.1	4.0	4.0	135.77	-25.0	136.2	176.4	168.4	8.00	22.061	
1,900.0	1,897.6	1,898.0	1,895.7	4.3	4.3	135.13	-19.4	140.4	182.5	174.0	8.48	21.507	
2,000.0	1,997.4	1,997.8	1,995.2	4.6	4.5	134.53	-13.9	144.6	188.5	179.5	8.97	21.012	
2,100.0	2,097.2	2,097.6	2,094.8	4.8	4.8	133.97	-8.3	148.8	194.6	185.1	9.46	20.568	
2,200.0	2,196.9	2,197.4	2,194.3	5.1	5.0	133.44	-2.8	153.0	200.7	190.7	9.95	20.166	
2,300.0	2,296.7	2,297.2	2,293.9	5.3	5.3	132.94	2.8	157.2	206.8	196.3	10.44	19.802	
2,400.0	2,396.4	2,397.0	2,393.4	5.6	5.5	132.47	8.3	161.4	212.9	202.0	10.93	19.470	
2,500.0	2,496.2	2,496.8	2,493.0	5.8	5.8	132.03	13.9	165.6	219.0	207.6	11.43	19.167	
2,600.0	2,595.9	2,596.6	2,592.5	6.1	6.0	131.61	19.4	169.8	225.2	213.2	11.92	18.888	
2,700.0	2,695.7	2,696.4	2,692.1	6.3	6.3	131.22	25.0	174.0	231.3	218.9	12.42	18.632	
2,800.0	2,795.5	2,796.2	2,791.7	6.6	6.6	130.84	30.5	178.2	237.5	224.6	12.91	18.396	
2,900.0	2,895.2	2,896.0	2,891.2	6.8	6.8	130.49	36.1	182.4	243.7	230.3	13.41	18.177	
3,000.0	2,995.0	2,995.8	2,990.8	7.1	7.1	130.15	41.6	186.6	249.8	235.9	13.90	17.973	
3,100.0	3,094.7	3,095.6	3,090.3	7.3	7.3	129.83	47.2	190.8	256.0	241.6	14.40	17.784	
3,200.0	3,194.5	3,195.4	3,189.9	7.6	7.6	129.52	52.7	195.0	262.2	247.3	14.89	17.608	
3,300.0	3,294.2	3,295.2	3,289.4	7.8	7.8	129.23	58.3	199.2	268.4	253.1	15.39	17.443	
3,400.0	3,394.0	3,395.0	3,389.0	8.1	8.1	128.95	63.8	203.4	274.7	258.8	15.89	17.288	
3,500.0	3,493.7	3,494.8	3,488.5	8.4	8.3	128.68	69.4	207.6	280.9	264.5	16.38	17.143	
3,600.0	3,593.5	3,594.6	3,588.1	8.6	8.6	128.42	74.9	211.8	287.1	270.2	16.88	17.007	
3,700.0	3,693.3	3,694.4	3,687.6	8.9	8.8	128.18	80.5	216.0	293.3	275.9	17.38	16.878	
3,800.0	3,793.0	3,794.2	3,787.2	9.1	9.1	127.94	86.0	220.2	299.6	281.7	17.88	16.757	
3,900.0	3,892.8	3,894.0	3,886.8	9.4	9.4	127.72	91.6	224.4	305.8	287.4	18.38	16.642	
4,000.0	3,992.5	3,993.8	3,986.3	9.6	9.6	127.50	97.1	228.6	312.0	293.2	18.87	16.534	
4,100.0	4,092.3	4,093.6	4,085.9	9.9	9.9	127.30	102.7	232.8	318.3	298.9	19.37	16.431	
4,200.0	4,192.0	4,193.4	4,185.4	10.1	10.1	127.10	108.2	237.0	324.6	304.7	19.87	16.334	
4,300.0	4,291.8	4,293.2	4,285.0	10.4	10.4	126.90	113.8	241.2	330.8	310.4	20.37	16.241	
4,400.0	4,391.6	4,393.0	4,384.5	10.7	10.6	126.72	119.3	245.4	337.1	316.2	20.87	16.153	
4,500.0	4,491.3	4,492.8	4,484.1	10.9	10.9	126.54	124.9	249.6	343.3	322.0	21.37	16.069	
4,600.0	4,591.1	4,592.6	4,583.6	11.2	11.1	126.37	130.4	253.8	349.6	327.7	21.87	15.989	
4,700.0	4,690.8	4,692.4	4,683.2	11.4	11.4	126.20	136.0	258.0	355.9	333.5	22.36	15.912	
4,800.0	4,790.6	4,792.1	4,782.7	11.7	11.6	126.04	141.5	262.2	362.1	339.3	22.86	15.839	
4,900.0	4,890.3	4,891.9	4,882.3	11.9	11.9	125.89	147.1	266.5	368.4	345.1	23.36	15.769	
5,000.0	4,990.1	4,991.7	4,981.9	12.2	12.2	125.74	152.6	270.7	374.7	350.8	23.86	15.703	
5,100.0	5,089.9	5,091.5	5,081.4	12.4	12.4	125.59	158.2	274.9	381.0	356.6	24.36	15.638	

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-0104B
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-0104B	**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 #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	5,189.6	5,191.3	5,181.0	12.7	12.7	125.46	163.7	279.1	387.3	362.4	24.86	15.577	
5,300.0	5,289.4	5,291.1	5,280.5	13.0	12.9	125.32	169.3	283.3	393.5	368.2	25.36	15.518	
5,400.0	5,389.1	5,390.9	5,380.1	13.2	13.2	125.19	174.8	287.5	399.8	374.0	25.86	15.461	SF
5,500.0	5,488.5	5,479.9	5,468.7	13.5	13.4	124.58	181.1	292.2	408.9	382.7	26.26	15.570	
5,600.0	5,584.3	5,557.0	5,543.8	13.9	13.7	122.64	194.8	302.6	432.2	405.6	26.56	16.270	
5,700.0	5,673.0	5,629.8	5,611.6	14.5	14.1	119.36	215.7	318.4	469.6	442.7	26.98	17.408	
5,800.0	5,751.3	5,700.0	5,673.0	15.3	14.5	114.76	242.7	338.9	519.4	491.6	27.76	18.708	
5,900.0	5,816.4	5,757.9	5,719.8	16.3	14.9	108.57	269.9	359.4	579.0	549.9	29.09	19.906	
6,000.0	5,865.9	5,812.8	5,760.4	17.4	15.4	100.96	299.2	381.6	646.1	615.1	30.94	20.884	
6,100.0	5,897.8	5,861.9	5,793.4	18.8	15.9	92.05	328.3	403.6	718.3	685.4	32.92	21.822	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0104B
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-0104B	**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	-127.07	-74.9	-99.1	124.2				
100.0	100.0	100.0	100.0	0.1	0.1	-127.07	-74.9	-99.1	124.2	124.1	0.19	664.363	
200.0	200.0	200.0	200.0	0.3	0.3	-127.07	-74.9	-99.1	124.2	123.6	0.64	195.186	
300.0	300.0	300.0	300.0	0.5	0.5	-127.07	-74.9	-99.1	124.2	123.2	1.09	114.396	
400.0	400.0	400.0	400.0	0.8	0.8	-127.07	-74.9	-99.1	124.2	122.7	1.54	80.908	
500.0	500.0	500.0	500.0	1.0	1.0	-127.07	-74.9	-99.1	124.2	122.3	1.99	62.586	
600.0	600.0	600.0	600.0	1.2	1.2	-127.07	-74.9	-99.1	124.2	121.8	2.43	51.030	
700.0	700.0	700.0	700.0	1.4	1.4	-127.07	-74.9	-99.1	124.2	121.4	2.88	43.077	
800.0	800.0	800.0	800.0	1.7	1.7	-127.07	-74.9	-99.1	124.2	120.9	3.33	37.268	CC, ES
900.0	900.0	900.0	900.0	1.9	1.9	-110.74	-74.9	-99.1	124.8	121.1	3.78	33.009	
1,000.0	999.8	999.8	999.8	2.1	2.1	-112.92	-74.9	-99.1	126.8	122.6	4.23	29.962	
1,100.0	1,099.6	1,095.2	1,095.2	2.3	2.3	-115.67	-76.0	-100.2	131.3	126.7	4.66	28.213	
1,200.0	1,199.4	1,190.2	1,190.1	2.6	2.5	-118.24	-79.4	-103.5	139.5	134.4	5.07	27.521	
1,300.0	1,299.1	1,289.0	1,288.6	2.8	2.7	-120.59	-84.4	-108.3	149.9	144.4	5.49	27.277	
1,400.0	1,398.9	1,388.3	1,387.7	3.1	2.9	-122.65	-89.3	-113.1	160.5	154.6	5.92	27.090	
1,500.0	1,498.6	1,487.6	1,486.7	3.3	3.1	-124.45	-94.3	-117.9	171.3	165.0	6.36	26.933	
1,600.0	1,598.4	1,586.9	1,585.8	3.6	3.3	-126.04	-99.3	-122.8	182.3	175.5	6.80	26.799	
1,700.0	1,698.1	1,686.1	1,684.8	3.8	3.5	-127.45	-104.3	-127.6	193.4	186.1	7.25	26.685	
1,800.0	1,797.9	1,785.4	1,783.8	4.0	3.8	-128.70	-109.3	-132.4	204.5	196.8	7.69	26.586	
1,900.0	1,897.6	1,884.7	1,882.9	4.3	4.0	-129.82	-114.2	-137.2	215.8	207.7	8.14	26.499	
2,000.0	1,997.4	1,984.0	1,981.9	4.6	4.3	-130.83	-119.2	-142.0	227.2	218.6	8.60	26.424	
2,100.0	2,097.2	2,083.3	2,080.9	4.8	4.5	-131.75	-124.2	-146.8	238.6	229.5	9.05	26.357	
2,200.0	2,196.9	2,182.5	2,180.0	5.1	4.7	-132.58	-129.2	-151.6	250.0	240.5	9.51	26.298	
2,300.0	2,296.7	2,281.8	2,279.0	5.3	5.0	-133.34	-134.1	-156.5	261.5	251.6	9.96	26.245	
2,400.0	2,396.4	2,381.1	2,378.1	5.6	5.2	-134.03	-139.1	-161.3	273.1	262.7	10.42	26.198	
2,500.0	2,496.2	2,480.4	2,477.1	5.8	5.5	-134.67	-144.1	-166.1	284.7	273.8	10.88	26.155	
2,600.0	2,595.9	2,579.6	2,576.1	6.1	5.7	-135.26	-149.1	-170.9	296.3	284.9	11.34	26.116	
2,700.0	2,695.7	2,678.9	2,675.2	6.3	6.0	-135.80	-154.0	-175.7	307.9	296.1	11.81	26.081	
2,800.0	2,795.5	2,778.2	2,774.2	6.6	6.2	-136.31	-159.0	-180.5	319.6	307.3	12.27	26.048	
2,900.0	2,895.2	2,877.5	2,873.2	6.8	6.5	-136.78	-164.0	-185.4	331.3	318.6	12.73	26.019	
3,000.0	2,995.0	2,976.8	2,972.3	7.1	6.7	-137.21	-169.0	-190.2	343.0	329.8	13.20	25.991	
3,100.0	3,094.7	3,076.0	3,071.3	7.3	7.0	-137.62	-173.9	-195.0	354.8	341.1	13.66	25.966	
3,200.0	3,194.5	3,175.3	3,170.3	7.6	7.3	-138.00	-178.9	-199.8	366.5	352.4	14.13	25.943	
3,300.0	3,294.2	3,274.6	3,269.4	7.8	7.5	-138.36	-183.9	-204.6	378.3	363.7	14.59	25.921	
3,400.0	3,394.0	3,373.9	3,368.4	8.1	7.8	-138.70	-188.9	-209.4	390.1	375.0	15.06	25.901	
3,500.0	3,493.7	3,473.2	3,467.5	8.4	8.0	-139.01	-193.9	-214.3	401.8	386.3	15.53	25.882	
3,600.0	3,593.5	3,572.4	3,566.5	8.6	8.3	-139.31	-198.8	-219.1	413.6	397.7	15.99	25.864	
3,700.0	3,693.3	3,671.7	3,665.5	8.9	8.5	-139.59	-203.8	-223.9	425.5	409.0	16.46	25.847	
3,800.0	3,793.0	3,771.0	3,764.6	9.1	8.8	-139.86	-208.8	-228.7	437.3	420.4	16.93	25.832	
3,900.0	3,892.8	3,870.3	3,863.6	9.4	9.0	-140.11	-213.8	-233.5	449.1	431.7	17.40	25.817	
4,000.0	3,992.5	3,969.5	3,962.6	9.6	9.3	-140.35	-218.7	-238.3	461.0	443.1	17.86	25.803	
4,100.0	4,092.3	4,068.8	4,061.7	9.9	9.6	-140.58	-223.7	-243.1	472.8	454.5	18.33	25.790	
4,200.0	4,192.0	4,168.1	4,160.7	10.1	9.8	-140.80	-228.7	-248.0	484.7	465.9	18.80	25.778	
4,300.0	4,291.8	4,267.4	4,259.7	10.4	10.1	-141.00	-233.7	-252.8	496.5	477.3	19.27	25.766	
4,400.0	4,391.6	4,366.7	4,358.8	10.7	10.3	-141.20	-238.6	-257.6	508.4	488.7	19.74	25.755	
4,500.0	4,491.3	4,465.9	4,457.8	10.9	10.6	-141.39	-243.6	-262.4	520.3	500.1	20.21	25.744	
4,600.0	4,591.1	4,565.2	4,556.9	11.2	10.9	-141.57	-248.6	-267.2	532.1	511.5	20.68	25.734	
4,700.0	4,690.8	4,664.5	4,655.9	11.4	11.1	-141.74	-253.6	-272.0	544.0	522.9	21.15	25.725	
4,800.0	4,790.6	4,763.8	4,754.9	11.7	11.4	-141.90	-258.6	-276.9	555.9	534.3	21.62	25.716	
4,900.0	4,890.3	4,863.1	4,854.0	11.9	11.6	-142.06	-263.5	-281.7	567.8	545.7	22.09	25.707	
5,000.0	4,990.1	4,962.3	4,953.0	12.2	11.9	-142.21	-268.5	-286.5	579.7	557.2	22.56	25.699	
5,100.0	5,089.9	5,061.6	5,052.0	12.4	12.2	-142.36	-273.5	-291.3	591.6	568.6	23.03	25.691	

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-0104B
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-0104B	**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	5,189.6	5,160.9	5,151.1	12.7	12.4	-142.50	-278.5	-296.1	603.5	580.0	23.50	25.683	
5,300.0	5,289.4	5,260.2	5,250.1	13.0	12.7	-142.63	-283.4	-300.9	615.4	591.5	23.97	25.676	SF
5,400.0	5,389.1	5,350.0	5,339.7	13.2	12.9	-142.74	-288.1	-305.4	627.6	603.1	24.42	25.700	
5,500.0	5,488.5	5,400.0	5,389.2	13.5	13.1	-141.77	-293.2	-310.4	648.3	623.7	24.59	26.366	
5,600.0	5,584.3	5,435.7	5,423.9	13.9	13.2	-138.91	-298.9	-315.9	689.4	665.0	24.35	28.314	
5,700.0	5,673.0	5,470.6	5,457.4	14.5	13.4	-133.96	-306.1	-322.9	748.9	724.8	24.14	31.021	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0104B
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-0104B	**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	-138.58	-74.9	-66.1	99.9				
100.0	100.0	100.0	100.0	0.1	0.1	-138.58	-74.9	-66.1	99.9	99.7	0.19	534.129	
200.0	200.0	200.0	200.0	0.3	0.3	-138.58	-74.9	-66.1	99.9	99.2	0.64	156.919	
300.0	300.0	300.0	300.0	0.5	0.5	-138.58	-74.9	-66.1	99.9	98.8	1.09	91.969	
400.0	400.0	400.0	400.0	0.8	0.8	-138.58	-74.9	-66.1	99.9	98.3	1.54	65.046	
500.0	500.0	500.0	500.0	1.0	1.0	-138.58	-74.9	-66.1	99.9	97.9	1.99	50.317	
600.0	600.0	600.0	600.0	1.2	1.2	-138.58	-74.9	-66.1	99.9	97.5	2.43	41.026	
700.0	700.0	700.0	700.0	1.4	1.4	-138.58	-74.9	-66.1	99.9	97.0	2.88	34.632	
800.0	800.0	800.0	800.0	1.7	1.7	-138.58	-74.9	-66.1	99.9	96.6	3.33	29.962	CC, ES
900.0	900.0	900.0	900.0	1.9	1.9	-122.34	-74.9	-66.1	100.8	97.0	3.78	26.651	
1,000.0	999.8	999.8	999.8	2.1	2.1	-124.73	-74.9	-66.1	103.7	99.5	4.23	24.504	
1,100.0	1,099.6	1,099.6	1,099.6	2.3	2.3	-127.77	-74.9	-66.1	107.8	103.1	4.69	23.014	
1,200.0	1,199.4	1,199.4	1,199.4	2.6	2.6	-130.58	-74.9	-66.1	112.3	107.1	5.14	21.830	
1,300.0	1,299.1	1,295.2	1,295.2	2.8	2.8	-133.01	-76.2	-67.0	118.6	113.0	5.57	21.292	SF
1,400.0	1,398.9	1,390.5	1,390.4	3.1	2.9	-135.00	-80.1	-69.7	128.4	122.4	5.98	21.469	
1,500.0	1,498.6	1,489.3	1,489.0	3.3	3.1	-136.66	-85.7	-73.7	140.2	133.8	6.40	21.916	
1,600.0	1,598.4	1,588.5	1,587.9	3.6	3.3	-138.05	-91.4	-77.6	152.2	145.4	6.82	22.316	
1,700.0	1,698.1	1,687.8	1,686.9	3.8	3.5	-139.25	-97.1	-81.6	164.3	157.1	7.25	22.664	
1,800.0	1,797.9	1,787.0	1,785.9	4.0	3.7	-140.28	-102.7	-85.5	176.5	168.8	7.68	22.968	
1,900.0	1,897.6	1,886.2	1,884.8	4.3	4.0	-141.17	-108.4	-89.5	188.7	180.5	8.12	23.234	
2,000.0	1,997.4	1,985.4	1,983.8	4.6	4.2	-141.96	-114.1	-93.5	200.9	192.3	8.56	23.469	
2,100.0	2,097.2	2,084.6	2,082.8	4.8	4.4	-142.66	-119.8	-97.4	213.1	204.1	9.00	23.678	
2,200.0	2,196.9	2,183.8	2,181.8	5.1	4.6	-143.28	-125.4	-101.4	225.4	216.0	9.45	23.863	
2,300.0	2,296.7	2,283.0	2,280.7	5.3	4.9	-143.84	-131.1	-105.4	237.7	227.9	9.89	24.030	
2,400.0	2,396.4	2,382.3	2,379.7	5.6	5.1	-144.34	-136.8	-109.3	250.1	239.7	10.34	24.179	
2,500.0	2,496.2	2,481.5	2,478.7	5.8	5.4	-144.80	-142.5	-113.3	262.4	251.6	10.79	24.314	
2,600.0	2,595.9	2,580.7	2,577.6	6.1	5.6	-145.21	-148.1	-117.3	274.8	263.5	11.25	24.436	
2,700.0	2,695.7	2,679.9	2,676.6	6.3	5.8	-145.59	-153.8	-121.2	287.2	275.5	11.70	24.547	
2,800.0	2,795.5	2,779.1	2,775.6	6.6	6.1	-145.94	-159.5	-125.2	299.6	287.4	12.15	24.648	
2,900.0	2,895.2	2,878.3	2,874.6	6.8	6.3	-146.26	-165.1	-129.2	312.0	299.3	12.61	24.741	
3,000.0	2,995.0	2,977.5	2,973.5	7.1	6.6	-146.55	-170.8	-133.1	324.4	311.3	13.07	24.826	
3,100.0	3,094.7	3,076.8	3,072.5	7.3	6.8	-146.83	-176.5	-137.1	336.8	323.3	13.52	24.904	
3,200.0	3,194.5	3,176.0	3,171.5	7.6	7.1	-147.08	-182.2	-141.1	349.2	335.2	13.98	24.977	
3,300.0	3,294.2	3,275.2	3,270.5	7.8	7.3	-147.32	-187.8	-145.0	361.6	347.2	14.44	25.044	
3,400.0	3,394.0	3,374.4	3,369.4	8.1	7.6	-147.54	-193.5	-149.0	374.1	359.2	14.90	25.106	
3,500.0	3,493.7	3,473.6	3,468.4	8.4	7.8	-147.74	-199.2	-152.9	386.5	371.1	15.36	25.164	
3,600.0	3,593.5	3,572.8	3,567.4	8.6	8.1	-147.94	-204.9	-156.9	398.9	383.1	15.82	25.218	
3,700.0	3,693.3	3,672.0	3,666.3	8.9	8.3	-148.12	-210.5	-160.9	411.4	395.1	16.28	25.268	
3,800.0	3,793.0	3,771.3	3,765.3	9.1	8.6	-148.29	-216.2	-164.8	423.8	407.1	16.74	25.315	
3,900.0	3,892.8	3,870.5	3,864.3	9.4	8.9	-148.45	-221.9	-168.8	436.3	419.1	17.20	25.360	
4,000.0	3,992.5	3,969.7	3,963.3	9.6	9.1	-148.61	-227.5	-172.8	448.8	431.1	17.67	25.401	
4,100.0	4,092.3	4,068.9	4,062.2	9.9	9.4	-148.75	-233.2	-176.7	461.2	443.1	18.13	25.440	
4,200.0	4,192.0	4,168.1	4,161.2	10.1	9.6	-148.89	-238.9	-180.7	473.7	455.1	18.59	25.477	
4,300.0	4,291.8	4,267.3	4,260.2	10.4	9.9	-149.02	-244.6	-184.7	486.2	467.1	19.06	25.512	
4,400.0	4,391.6	4,366.5	4,359.2	10.7	10.1	-149.14	-250.2	-188.6	498.6	479.1	19.52	25.545	
4,500.0	4,491.3	4,465.8	4,458.1	10.9	10.4	-149.26	-255.9	-192.6	511.1	491.1	19.98	25.576	
4,600.0	4,591.1	4,565.0	4,557.1	11.2	10.7	-149.37	-261.6	-196.6	523.6	503.1	20.45	25.606	
4,700.0	4,690.8	4,664.2	4,656.1	11.4	10.9	-149.47	-267.2	-200.5	536.0	515.1	20.91	25.634	
4,800.0	4,790.6	4,763.4	4,755.0	11.7	11.2	-149.58	-272.9	-204.5	548.5	527.1	21.38	25.660	
4,900.0	4,890.3	4,862.6	4,854.0	11.9	11.4	-149.67	-278.6	-208.5	561.0	539.2	21.84	25.686	
5,000.0	4,990.1	4,961.8	4,953.0	12.2	11.7	-149.77	-284.3	-212.4	573.5	551.2	22.31	25.710	
5,100.0	5,089.9	5,061.0	5,052.0	12.4	11.9	-149.86	-289.9	-216.4	586.0	563.2	22.77	25.733	

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-0104B
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-0104B	**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	5,189.6	5,160.3	5,150.9	12.7	12.2	-149.94	-295.6	-220.3	598.4	575.2	23.24	25.755	
5,300.0	5,289.4	5,259.5	5,249.9	13.0	12.5	-150.02	-301.3	-224.3	610.9	587.2	23.70	25.776	
5,400.0	5,389.1	5,358.7	5,348.9	13.2	12.7	-150.10	-307.0	-228.3	623.4	599.2	24.17	25.796	
5,500.0	5,488.5	5,450.0	5,440.0	13.5	13.0	-149.68	-312.3	-232.0	639.2	614.9	24.37	26.226	
5,600.0	5,584.3	5,500.0	5,489.4	13.9	13.1	-147.98	-318.0	-236.0	675.1	651.1	23.95	28.188	
5,700.0	5,673.0	5,526.3	5,515.2	14.5	13.2	-144.26	-322.6	-239.2	731.3	708.0	23.26	31.433	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0104B
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-0104B	**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	-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	
500.0	500.0	500.0	500.0	1.0	1.0	-156.19	-74.9	-33.0	81.9	79.9	1.99	41.236	CC, ES
600.0	600.0	597.2	597.2	1.2	1.2	-156.19	-76.4	-33.7	83.6	81.2	2.40	34.757	
700.0	700.0	694.1	694.0	1.4	1.4	-156.19	-80.9	-35.7	88.6	85.8	2.81	31.501	
800.0	800.0	793.7	793.3	1.7	1.6	-156.18	-87.2	-38.5	95.6	92.4	3.24	29.533	
900.0	900.0	893.4	892.7	1.9	1.8	-139.63	-93.6	-41.3	103.9	100.2	3.67	28.323	
1,000.0	999.8	992.7	991.8	2.1	2.0	-141.14	-99.9	-44.1	114.9	110.8	4.10	28.002	SF
1,100.0	1,099.6	1,091.8	1,090.7	2.3	2.3	-142.98	-106.3	-46.9	127.4	122.8	4.54	28.049	
1,200.0	1,199.4	1,191.0	1,189.6	2.6	2.5	-144.50	-112.6	-49.7	139.9	134.9	4.98	28.080	
1,300.0	1,299.1	1,290.1	1,288.5	2.8	2.8	-145.76	-118.9	-52.5	152.6	147.1	5.43	28.100	
1,400.0	1,398.9	1,389.3	1,387.4	3.1	3.0	-146.83	-125.2	-55.4	165.3	159.4	5.88	28.113	
1,500.0	1,498.6	1,488.4	1,486.3	3.3	3.3	-147.75	-131.6	-58.2	178.0	171.7	6.33	28.122	
1,600.0	1,598.4	1,587.6	1,585.2	3.6	3.5	-148.55	-137.9	-61.0	190.8	184.0	6.78	28.128	
1,700.0	1,698.1	1,686.7	1,684.2	3.8	3.8	-149.24	-144.2	-63.8	203.6	196.4	7.24	28.132	
1,800.0	1,797.9	1,785.9	1,783.1	4.0	4.0	-149.86	-150.5	-66.6	216.5	208.8	7.69	28.135	
1,900.0	1,897.6	1,885.0	1,882.0	4.3	4.3	-150.40	-156.8	-69.4	229.4	221.2	8.15	28.136	
2,000.0	1,997.4	1,984.2	1,980.9	4.6	4.5	-150.89	-163.2	-72.2	242.2	233.6	8.61	28.137	
2,100.0	2,097.2	2,083.3	2,079.8	4.8	4.8	-151.32	-169.5	-75.0	255.1	246.1	9.07	28.138	
2,200.0	2,196.9	2,182.4	2,178.7	5.1	5.1	-151.72	-175.8	-77.8	268.1	258.5	9.53	28.137	
2,300.0	2,296.7	2,281.6	2,277.6	5.3	5.3	-152.08	-182.1	-80.6	281.0	271.0	9.99	28.137	
2,400.0	2,396.4	2,380.7	2,376.5	5.6	5.6	-152.40	-188.5	-83.4	293.9	283.5	10.45	28.136	
2,500.0	2,496.2	2,479.9	2,475.4	5.8	5.8	-152.70	-194.8	-86.2	306.9	296.0	10.91	28.136	
2,600.0	2,595.9	2,579.0	2,574.3	6.1	6.1	-152.98	-201.1	-89.0	319.8	308.5	11.37	28.135	
2,700.0	2,695.7	2,678.2	2,673.2	6.3	6.3	-153.23	-207.4	-91.8	332.8	321.0	11.83	28.134	
2,800.0	2,795.5	2,777.3	2,772.1	6.6	6.6	-153.47	-213.8	-94.6	345.8	333.5	12.29	28.132	
2,900.0	2,895.2	2,876.5	2,871.0	6.8	6.9	-153.68	-220.1	-97.4	358.7	346.0	12.75	28.131	
3,000.0	2,995.0	2,975.6	2,969.9	7.1	7.1	-153.89	-226.4	-100.2	371.7	358.5	13.21	28.130	
3,100.0	3,094.7	3,074.8	3,068.8	7.3	7.4	-154.08	-232.7	-103.0	384.7	371.0	13.68	28.129	
3,200.0	3,194.5	3,173.9	3,167.7	7.6	7.7	-154.25	-239.0	-105.8	397.7	383.5	14.14	28.128	
3,300.0	3,294.2	3,273.1	3,266.6	7.8	7.9	-154.42	-245.4	-108.6	410.7	396.1	14.60	28.127	
3,400.0	3,394.0	3,372.2	3,365.5	8.1	8.2	-154.57	-251.7	-111.4	423.7	408.6	15.06	28.126	
3,500.0	3,493.7	3,471.3	3,464.4	8.4	8.4	-154.72	-258.0	-114.2	436.7	421.1	15.53	28.125	
3,600.0	3,593.5	3,570.5	3,563.3	8.6	8.7	-154.86	-264.3	-117.0	449.7	433.7	15.99	28.124	
3,700.0	3,693.3	3,669.6	3,662.2	8.9	9.0	-154.99	-270.7	-119.8	462.7	446.2	16.45	28.123	
3,800.0	3,793.0	3,768.8	3,761.1	9.1	9.2	-155.11	-277.0	-122.6	475.7	458.8	16.91	28.121	
3,900.0	3,892.8	3,867.9	3,860.0	9.4	9.5	-155.23	-283.3	-125.4	488.7	471.3	17.38	28.120	
4,000.0	3,992.5	3,967.1	3,959.0	9.6	9.7	-155.34	-289.6	-128.2	501.7	483.8	17.84	28.119	
4,100.0	4,092.3	4,066.2	4,057.9	9.9	10.0	-155.44	-296.0	-131.0	514.7	496.4	18.30	28.119	
4,200.0	4,192.0	4,165.4	4,156.8	10.1	10.3	-155.54	-302.3	-133.8	527.7	508.9	18.77	28.118	
4,300.0	4,291.8	4,264.5	4,255.7	10.4	10.5	-155.63	-308.6	-136.6	540.7	521.5	19.23	28.117	
4,400.0	4,391.6	4,363.7	4,354.6	10.7	10.8	-155.72	-314.9	-139.4	553.7	534.0	19.69	28.116	
4,500.0	4,491.3	4,462.8	4,453.5	10.9	11.0	-155.81	-321.2	-142.2	566.7	546.6	20.16	28.115	
4,600.0	4,591.1	4,562.0	4,552.4	11.2	11.3	-155.89	-327.6	-145.0	579.8	559.1	20.62	28.114	
4,700.0	4,690.8	4,661.1	4,651.3	11.4	11.6	-155.97	-333.9	-147.8	592.8	571.7	21.09	28.113	
4,800.0	4,790.6	4,760.2	4,750.2	11.7	11.8	-156.05	-340.2	-150.6	605.8	584.2	21.55	28.112	
4,900.0	4,890.3	4,859.4	4,849.1	11.9	12.1	-156.12	-346.5	-153.4	618.8	596.8	22.01	28.112	
5,000.0	4,990.1	4,958.5	4,948.0	12.2	12.4	-156.19	-352.9	-156.2	631.8	609.3	22.48	28.111	
5,100.0	5,089.9	5,057.7	5,046.9	12.4	12.6	-156.25	-359.2	-159.0	644.8	621.9	22.94	28.110	

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-0104B
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-0104B	**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	5,189.6	5,156.8	5,145.8	12.7	12.9	-156.32	-365.5	-161.8	657.9	634.5	23.40	28.109	
5,300.0	5,289.4	5,256.0	5,244.7	13.0	13.1	-156.38	-371.8	-164.6	670.9	647.0	23.87	28.109	
5,400.0	5,389.1	5,345.6	5,334.1	13.2	13.4	-156.43	-377.6	-167.2	684.0	659.7	24.31	28.138	
5,500.0	5,488.5	5,400.0	5,388.0	13.5	13.6	-155.75	-384.4	-170.2	705.8	681.4	24.40	28.932	
5,600.0	5,584.3	5,427.0	5,414.4	13.9	13.7	-153.61	-389.6	-172.5	749.5	725.7	23.78	31.515	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0104B
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-0104B	**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	-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	400.569	
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-74.9	0.0	74.9	74.3	0.64	117.682	
300.0	300.0	300.0	300.0	0.5	0.5	-180.00	-74.9	0.0	74.9	73.8	1.09	68.972	
400.0	400.0	400.0	400.0	0.8	0.8	-180.00	-74.9	0.0	74.9	73.4	1.54	48.781	
500.0	500.0	500.0	500.0	1.0	1.0	-180.00	-74.9	0.0	74.9	72.9	1.99	37.735	
600.0	600.0	600.0	600.0	1.2	1.2	-180.00	-74.9	0.0	74.9	72.5	2.43	30.768	
700.0	700.0	700.0	700.0	1.4	1.4	-180.00	-74.9	0.0	74.9	72.0	2.88	25.972	
800.0	800.0	800.0	800.0	1.7	1.7	-180.00	-74.9	0.0	74.9	71.6	3.33	22.470	CC, ES
900.0	900.0	900.0	900.0	1.9	1.9	-163.30	-74.9	0.0	76.6	72.8	3.78	20.242	
1,000.0	999.8	999.8	999.8	2.1	2.1	-164.33	-74.9	0.0	81.6	77.4	4.23	19.287	
1,100.0	1,099.6	1,099.6	1,099.6	2.3	2.3	-165.55	-74.9	0.0	88.3	83.7	4.68	18.876	SF
1,200.0	1,199.4	1,196.2	1,196.2	2.6	2.5	-166.31	-76.5	-0.3	96.7	91.6	5.10	18.969	
1,300.0	1,299.1	1,292.3	1,292.1	2.8	2.7	-166.47	-81.2	-1.4	108.3	102.8	5.50	19.693	
1,400.0	1,398.9	1,391.1	1,390.7	3.1	2.9	-166.35	-87.9	-2.8	121.8	115.9	5.91	20.602	
1,500.0	1,498.6	1,490.2	1,489.5	3.3	3.1	-166.25	-94.7	-4.2	135.3	128.9	6.33	21.382	
1,600.0	1,598.4	1,589.2	1,588.4	3.6	3.3	-166.17	-101.5	-5.7	148.7	142.0	6.75	22.048	
1,700.0	1,698.1	1,688.3	1,687.2	3.8	3.5	-166.11	-108.2	-7.1	162.2	155.0	7.17	22.621	
1,800.0	1,797.9	1,787.4	1,786.1	4.0	3.7	-166.05	-115.0	-8.6	175.7	168.1	7.60	23.117	
1,900.0	1,897.6	1,886.5	1,884.9	4.3	3.9	-166.00	-121.7	-10.0	189.1	181.1	8.03	23.549	
2,000.0	1,997.4	1,985.6	1,983.8	4.6	4.2	-165.96	-128.5	-11.5	202.6	194.1	8.47	23.928	
2,100.0	2,097.2	2,084.7	2,082.6	4.8	4.4	-165.93	-135.3	-12.9	216.1	207.2	8.91	24.264	
2,200.0	2,196.9	2,183.8	2,181.5	5.1	4.6	-165.89	-142.0	-14.4	229.6	220.2	9.35	24.562	
2,300.0	2,296.7	2,282.9	2,280.3	5.3	4.9	-165.86	-148.8	-15.8	243.0	233.2	9.79	24.829	
2,400.0	2,396.4	2,381.9	2,379.2	5.6	5.1	-165.84	-155.5	-17.3	256.5	246.3	10.23	25.069	
2,500.0	2,496.2	2,481.0	2,478.0	5.8	5.4	-165.82	-162.3	-18.7	270.0	259.3	10.68	25.285	
2,600.0	2,595.9	2,580.1	2,576.8	6.1	5.6	-165.80	-169.0	-20.2	283.4	272.3	11.12	25.480	
2,700.0	2,695.7	2,679.2	2,675.7	6.3	5.9	-165.78	-175.8	-21.6	296.9	285.3	11.57	25.659	
2,800.0	2,795.5	2,778.3	2,774.5	6.6	6.1	-165.76	-182.6	-23.1	310.4	298.4	12.02	25.821	
2,900.0	2,895.2	2,877.4	2,873.4	6.8	6.3	-165.74	-189.3	-24.5	323.8	311.4	12.47	25.971	
3,000.0	2,995.0	2,976.5	2,972.2	7.1	6.6	-165.73	-196.1	-26.0	337.3	324.4	12.92	26.108	
3,100.0	3,094.7	3,075.6	3,071.1	7.3	6.8	-165.72	-202.8	-27.4	350.8	337.4	13.37	26.234	
3,200.0	3,194.5	3,174.7	3,169.9	7.6	7.1	-165.70	-209.6	-28.9	364.3	350.4	13.82	26.351	
3,300.0	3,294.2	3,273.7	3,268.8	7.8	7.4	-165.69	-216.4	-30.3	377.7	363.5	14.28	26.460	
3,400.0	3,394.0	3,372.8	3,367.6	8.1	7.6	-165.68	-223.1	-31.8	391.2	376.5	14.73	26.561	
3,500.0	3,493.7	3,471.9	3,466.5	8.4	7.9	-165.67	-229.9	-33.2	404.7	389.5	15.18	26.655	
3,600.0	3,593.5	3,571.0	3,565.3	8.6	8.1	-165.66	-236.6	-34.7	418.1	402.5	15.64	26.742	
3,700.0	3,693.3	3,670.1	3,664.2	8.9	8.4	-165.65	-243.4	-36.1	431.6	415.5	16.09	26.825	
3,800.0	3,793.0	3,769.2	3,763.0	9.1	8.6	-165.65	-250.1	-37.6	445.1	428.5	16.54	26.902	
3,900.0	3,892.8	3,868.3	3,861.9	9.4	8.9	-165.64	-256.9	-39.0	458.6	441.6	17.00	26.974	
4,000.0	3,992.5	3,967.4	3,960.7	9.6	9.1	-165.63	-263.7	-40.5	472.0	454.6	17.45	27.042	
4,100.0	4,092.3	4,066.5	4,059.6	9.9	9.4	-165.62	-270.4	-41.9	485.5	467.6	17.91	27.107	
4,200.0	4,192.0	4,165.5	4,158.4	10.1	9.6	-165.62	-277.2	-43.4	499.0	480.6	18.37	27.167	
4,300.0	4,291.8	4,264.6	4,257.2	10.4	9.9	-165.61	-283.9	-44.8	512.4	493.6	18.82	27.225	
4,400.0	4,391.6	4,363.7	4,356.1	10.7	10.2	-165.60	-290.7	-46.3	525.9	506.6	19.28	27.279	
4,500.0	4,491.3	4,462.8	4,454.9	10.9	10.4	-165.60	-297.5	-47.7	539.4	519.6	19.74	27.330	
4,600.0	4,591.1	4,561.9	4,553.8	11.2	10.7	-165.59	-304.2	-49.2	552.8	532.7	20.19	27.379	
4,700.0	4,690.8	4,661.0	4,652.6	11.4	10.9	-165.59	-311.0	-50.6	566.3	545.7	20.65	27.426	
4,800.0	4,790.6	4,760.1	4,751.5	11.7	11.2	-165.58	-317.7	-52.1	579.8	558.7	21.11	27.470	
4,900.0	4,890.3	4,859.2	4,850.3	11.9	11.5	-165.58	-324.5	-53.5	593.3	571.7	21.56	27.512	
5,000.0	4,990.1	4,958.3	4,949.2	12.2	11.7	-165.57	-331.2	-55.0	606.7	584.7	22.02	27.553	
5,100.0	5,089.9	5,057.3	5,048.0	12.4	12.0	-165.57	-338.0	-56.4	620.2	597.7	22.48	27.591	

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-0104B
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-0104B	**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	5,189.6	5,156.4	5,146.9	12.7	12.2	-165.57	-344.8	-57.9	633.7	610.7	22.94	27.628	
5,300.0	5,289.4	5,255.5	5,245.7	13.0	12.5	-165.56	-351.5	-59.3	647.1	623.7	23.39	27.663	
5,400.0	5,389.1	5,354.6	5,344.6	13.2	12.7	-165.56	-358.3	-60.8	660.6	636.8	23.85	27.697	
5,500.0	5,488.5	5,444.7	5,434.4	13.5	13.0	-165.28	-364.5	-62.1	677.7	653.7	23.98	28.258	
5,600.0	5,584.3	5,484.9	5,474.3	13.9	13.1	-164.22	-369.2	-63.1	715.9	692.7	23.24	30.805	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0104B
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-0104B	**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	156.19	-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	
500.0	500.0	500.0	500.0	1.0	1.0	156.19	-74.9	33.0	81.9	79.9	1.99	41.236	
600.0	600.0	600.0	600.0	1.2	1.2	156.19	-74.9	33.0	81.9	79.4	2.43	33.622	
700.0	700.0	700.0	700.0	1.4	1.4	156.19	-74.9	33.0	81.9	79.0	2.88	28.382	
800.0	800.0	800.0	800.0	1.7	1.7	156.19	-74.9	33.0	81.9	78.5	3.33	24.555	CC, ES
900.0	900.0	900.0	900.0	1.9	1.9	173.40	-74.9	33.0	83.6	79.8	3.78	22.097	
1,000.0	999.8	996.9	996.9	2.1	2.1	174.09	-76.5	33.2	90.4	86.2	4.20	21.528	SF
1,100.0	1,099.6	1,093.1	1,093.0	2.3	2.3	175.31	-81.4	33.6	102.2	97.6	4.60	22.207	
1,200.0	1,199.4	1,191.9	1,191.5	2.6	2.4	176.57	-88.2	34.3	115.8	110.8	5.01	23.108	
1,300.0	1,299.1	1,291.0	1,290.3	2.8	2.6	177.57	-95.1	34.9	129.5	124.1	5.43	23.867	
1,400.0	1,398.9	1,390.0	1,389.1	3.1	2.9	178.37	-102.0	35.5	143.2	137.3	5.84	24.498	
1,500.0	1,498.6	1,489.0	1,487.9	3.3	3.1	179.04	-108.9	36.2	156.9	150.7	6.27	25.028	
1,600.0	1,598.4	1,588.1	1,586.7	3.6	3.3	179.59	-115.7	36.8	170.7	164.0	6.70	25.477	
1,700.0	1,698.1	1,687.1	1,685.5	3.8	3.5	-179.93	-122.6	37.4	184.4	177.3	7.13	25.861	
1,800.0	1,797.9	1,786.2	1,784.3	4.0	3.8	-179.52	-129.5	38.1	198.2	190.7	7.57	26.192	
1,900.0	1,897.6	1,885.2	1,883.1	4.3	4.0	-179.17	-136.4	38.7	212.0	204.0	8.01	26.481	
2,000.0	1,997.4	1,984.2	1,981.9	4.6	4.2	-178.86	-143.3	39.3	225.8	217.4	8.45	26.734	
2,100.0	2,097.2	2,083.3	2,080.7	4.8	4.5	-178.58	-150.1	40.0	239.6	230.7	8.89	26.958	
2,200.0	2,196.9	2,182.3	2,179.5	5.1	4.7	-178.34	-157.0	40.6	253.4	244.1	9.33	27.156	
2,300.0	2,296.7	2,281.3	2,278.3	5.3	5.0	-178.12	-163.9	41.2	267.2	257.4	9.78	27.334	
2,400.0	2,396.4	2,380.4	2,377.1	5.6	5.2	-177.92	-170.8	41.9	281.0	270.8	10.22	27.493	
2,500.0	2,496.2	2,479.4	2,475.9	5.8	5.5	-177.74	-177.7	42.5	294.8	284.2	10.67	27.637	
2,600.0	2,595.9	2,578.5	2,574.7	6.1	5.7	-177.57	-184.5	43.1	308.7	297.5	11.12	27.767	
2,700.0	2,695.7	2,677.5	2,673.5	6.3	6.0	-177.42	-191.4	43.8	322.5	310.9	11.56	27.885	
2,800.0	2,795.5	2,776.5	2,772.3	6.6	6.2	-177.28	-198.3	44.4	336.3	324.3	12.01	27.994	
2,900.0	2,895.2	2,875.6	2,871.1	6.8	6.5	-177.16	-205.2	45.0	350.1	337.7	12.46	28.093	
3,000.0	2,995.0	2,974.6	2,969.9	7.1	6.7	-177.04	-212.1	45.6	364.0	351.0	12.91	28.184	
3,100.0	3,094.7	3,073.6	3,068.7	7.3	7.0	-176.93	-218.9	46.3	377.8	364.4	13.36	28.269	
3,200.0	3,194.5	3,172.7	3,167.5	7.6	7.3	-176.83	-225.8	46.9	391.6	377.8	13.81	28.347	
3,300.0	3,294.2	3,271.7	3,266.3	7.8	7.5	-176.74	-232.7	47.5	405.4	391.2	14.27	28.419	
3,400.0	3,394.0	3,370.7	3,365.1	8.1	7.8	-176.65	-239.6	48.2	419.3	404.5	14.72	28.486	
3,500.0	3,493.7	3,469.8	3,463.9	8.4	8.0	-176.57	-246.5	48.8	433.1	417.9	15.17	28.549	
3,600.0	3,593.5	3,568.8	3,562.6	8.6	8.3	-176.49	-253.3	49.4	446.9	431.3	15.62	28.608	
3,700.0	3,693.3	3,667.9	3,661.4	8.9	8.5	-176.42	-260.2	50.1	460.8	444.7	16.08	28.663	
3,800.0	3,793.0	3,766.9	3,760.2	9.1	8.8	-176.35	-267.1	50.7	474.6	458.1	16.53	28.714	
3,900.0	3,892.8	3,865.9	3,859.0	9.4	9.1	-176.28	-274.0	51.3	488.4	471.4	16.98	28.763	
4,000.0	3,992.5	3,965.0	3,957.8	9.6	9.3	-176.22	-280.9	52.0	502.3	484.8	17.43	28.808	
4,100.0	4,092.3	4,064.0	4,056.6	9.9	9.6	-176.17	-287.7	52.6	516.1	498.2	17.89	28.851	
4,200.0	4,192.0	4,163.0	4,155.4	10.1	9.8	-176.11	-294.6	53.2	529.9	511.6	18.34	28.892	
4,300.0	4,291.8	4,262.1	4,254.2	10.4	10.1	-176.06	-301.5	53.9	543.8	525.0	18.80	28.930	
4,400.0	4,391.6	4,361.1	4,353.0	10.7	10.3	-176.01	-308.4	54.5	557.6	538.3	19.25	28.967	
4,500.0	4,491.3	4,460.2	4,451.8	10.9	10.6	-175.96	-315.3	55.1	571.4	551.7	19.70	29.001	
4,600.0	4,591.1	4,559.2	4,550.6	11.2	10.9	-175.92	-322.1	55.8	585.3	565.1	20.16	29.034	
4,700.0	4,690.8	4,658.2	4,649.4	11.4	11.1	-175.88	-329.0	56.4	599.1	578.5	20.61	29.065	
4,800.0	4,790.6	4,757.3	4,748.2	11.7	11.4	-175.84	-335.9	57.0	612.9	591.9	21.07	29.095	
4,900.0	4,890.3	4,856.3	4,847.0	11.9	11.6	-175.80	-342.8	57.7	626.8	605.3	21.52	29.123	
5,000.0	4,990.1	4,955.3	4,945.8	12.2	11.9	-175.76	-349.6	58.3	640.6	618.6	21.98	29.150	
5,100.0	5,089.9	5,054.4	5,044.6	12.4	12.2	-175.72	-356.5	58.9	654.5	632.0	22.43	29.176	

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-0104B
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-0104B	**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	5,189.6	5,153.4	5,143.4	12.7	12.4	-175.69	-363.4	59.6	668.3	645.4	22.89	29.201	
5,300.0	5,289.4	5,252.5	5,242.2	13.0	12.7	-175.66	-370.3	60.2	682.1	658.8	23.34	29.224	
5,400.0	5,389.1	5,343.2	5,332.7	13.2	12.9	-175.63	-376.6	60.8	696.1	672.3	23.78	29.273	
5,500.0	5,488.5	5,384.7	5,373.9	13.5	13.1	-175.46	-381.6	61.2	718.6	694.8	23.78	30.214	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0104B
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-0104B	**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	138.92	-74.9	65.3	99.4				
100.0	100.0	100.0	100.0	0.1	0.1	138.92	-74.9	65.3	99.4	99.2	0.19	531.498	
200.0	200.0	200.0	200.0	0.3	0.3	138.92	-74.9	65.3	99.4	98.8	0.64	156.147	
300.0	300.0	300.0	300.0	0.5	0.5	138.92	-74.9	65.3	99.4	98.3	1.09	91.516	
400.0	400.0	400.0	400.0	0.8	0.8	138.92	-74.9	65.3	99.4	97.9	1.54	64.726	
500.0	500.0	500.0	500.0	1.0	1.0	138.92	-74.9	65.3	99.4	97.4	1.99	50.069	
600.0	600.0	600.0	600.0	1.2	1.2	138.92	-74.9	65.3	99.4	97.0	2.43	40.824	
700.0	700.0	700.0	700.0	1.4	1.4	138.92	-74.9	65.3	99.4	96.5	2.88	34.461	
800.0	800.0	800.0	800.0	1.7	1.7	138.92	-74.9	65.3	99.4	96.1	3.33	29.814	CC, ES
900.0	900.0	900.0	900.0	1.9	1.9	156.38	-74.9	65.3	101.0	97.2	3.78	26.699	
1,000.0	999.8	999.8	999.8	2.1	2.1	157.47	-74.9	65.3	105.8	101.6	4.23	25.018	
1,100.0	1,099.6	1,096.0	1,096.0	2.3	2.3	159.05	-76.4	65.9	113.9	109.2	4.64	24.513	SF
1,200.0	1,199.4	1,191.5	1,191.3	2.6	2.5	160.85	-81.0	67.4	125.2	120.1	5.05	24.810	
1,300.0	1,299.1	1,290.2	1,289.8	2.8	2.7	162.62	-87.4	69.7	138.5	133.0	5.46	25.381	
1,400.0	1,398.9	1,389.2	1,388.6	3.1	2.9	164.09	-93.9	72.0	151.9	146.0	5.87	25.878	
1,500.0	1,498.6	1,488.2	1,487.3	3.3	3.1	165.31	-100.5	74.3	165.4	159.1	6.29	26.299	
1,600.0	1,598.4	1,587.2	1,586.1	3.6	3.3	166.35	-107.0	76.6	179.0	172.3	6.71	26.658	
1,700.0	1,698.1	1,686.3	1,684.9	3.8	3.5	167.25	-113.5	78.9	192.6	185.4	7.14	26.967	
1,800.0	1,797.9	1,785.3	1,783.7	4.0	3.7	168.02	-120.0	81.2	206.2	198.7	7.57	27.235	
1,900.0	1,897.6	1,884.3	1,882.5	4.3	4.0	168.70	-126.5	83.5	219.9	211.9	8.01	27.467	
2,000.0	1,997.4	1,983.3	1,981.3	4.6	4.2	169.30	-133.0	85.8	233.6	225.2	8.44	27.673	
2,100.0	2,097.2	2,082.4	2,080.1	4.8	4.4	169.84	-139.6	88.1	247.4	238.5	8.88	27.854	
2,200.0	2,196.9	2,181.4	2,178.8	5.1	4.7	170.31	-146.1	90.4	261.1	251.8	9.32	28.015	
2,300.0	2,296.7	2,280.4	2,277.6	5.3	4.9	170.74	-152.6	92.7	274.9	265.1	9.76	28.159	
2,400.0	2,396.4	2,379.5	2,376.4	5.6	5.2	171.13	-159.1	95.0	288.7	278.5	10.21	28.288	
2,500.0	2,496.2	2,478.5	2,475.2	5.8	5.4	171.49	-165.6	97.3	302.5	291.8	10.65	28.405	
2,600.0	2,595.9	2,577.5	2,574.0	6.1	5.7	171.81	-172.1	99.6	316.3	305.2	11.09	28.511	
2,700.0	2,695.7	2,676.5	2,672.8	6.3	5.9	172.10	-178.6	101.8	330.1	318.6	11.54	28.607	
2,800.0	2,795.5	2,775.6	2,771.6	6.6	6.2	172.37	-185.2	104.1	343.9	332.0	11.99	28.695	
2,900.0	2,895.2	2,874.6	2,870.3	6.8	6.4	172.62	-191.7	106.4	357.8	345.3	12.43	28.776	
3,000.0	2,995.0	2,973.6	2,969.1	7.1	6.7	172.86	-198.2	108.7	371.6	358.7	12.88	28.850	
3,100.0	3,094.7	3,072.6	3,067.9	7.3	6.9	173.07	-204.7	111.0	385.5	372.1	13.33	28.918	
3,200.0	3,194.5	3,171.7	3,166.7	7.6	7.2	173.27	-211.2	113.3	399.3	385.5	13.78	28.981	
3,300.0	3,294.2	3,270.7	3,265.5	7.8	7.4	173.46	-217.7	115.6	413.2	398.9	14.23	29.040	
3,400.0	3,394.0	3,369.7	3,364.3	8.1	7.7	173.63	-224.3	117.9	427.0	412.3	14.68	29.094	
3,500.0	3,493.7	3,468.8	3,463.1	8.4	7.9	173.80	-230.8	120.2	440.9	425.7	15.13	29.145	
3,600.0	3,593.5	3,567.8	3,561.8	8.6	8.2	173.95	-237.3	122.5	454.7	439.2	15.58	29.192	
3,700.0	3,693.3	3,666.8	3,660.6	8.9	8.5	174.10	-243.8	124.8	468.6	452.6	16.03	29.237	
3,800.0	3,793.0	3,765.8	3,759.4	9.1	8.7	174.23	-250.3	127.1	482.5	466.0	16.48	29.278	
3,900.0	3,892.8	3,864.9	3,858.2	9.4	9.0	174.36	-256.8	129.4	496.3	479.4	16.93	29.317	
4,000.0	3,992.5	3,963.9	3,957.0	9.6	9.2	174.48	-263.4	131.7	510.2	492.8	17.38	29.354	
4,100.0	4,092.3	4,062.9	4,055.8	9.9	9.5	174.60	-269.9	134.0	524.1	506.3	17.83	29.388	
4,200.0	4,192.0	4,161.9	4,154.6	10.1	9.7	174.71	-276.4	136.3	538.0	519.7	18.29	29.421	
4,300.0	4,291.8	4,261.0	4,253.4	10.4	10.0	174.81	-282.9	138.6	551.8	533.1	18.74	29.452	
4,400.0	4,391.6	4,360.0	4,352.1	10.7	10.3	174.91	-289.4	140.9	565.7	546.5	19.19	29.481	
4,500.0	4,491.3	4,459.0	4,450.9	10.9	10.5	175.01	-295.9	143.1	579.6	560.0	19.64	29.509	
4,600.0	4,591.1	4,558.1	4,549.7	11.2	10.8	175.09	-302.4	145.4	593.5	573.4	20.09	29.535	
4,700.0	4,690.8	4,657.1	4,648.5	11.4	11.0	175.18	-309.0	147.7	607.4	586.8	20.55	29.560	
4,800.0	4,790.6	4,756.1	4,747.3	11.7	11.3	175.26	-315.5	150.0	621.3	600.3	21.00	29.584	
4,900.0	4,890.3	4,855.1	4,846.1	11.9	11.6	175.34	-322.0	152.3	635.2	613.7	21.45	29.607	
5,000.0	4,990.1	4,954.2	4,944.9	12.2	11.8	175.41	-328.5	154.6	649.0	627.1	21.91	29.628	
5,100.0	5,089.9	5,053.2	5,043.6	12.4	12.1	175.49	-335.0	156.9	662.9	640.6	22.36	29.649	

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-0104B
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-0104B	**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	5,189.6	5,152.2	5,142.4	12.7	12.3	175.56	-341.5	159.2	676.8	654.0	22.81	29.668	
5,300.0	5,289.4	5,251.2	5,241.2	13.0	12.6	175.62	-348.1	161.5	690.7	667.5	23.27	29.687	
5,400.0	5,389.1	5,350.3	5,340.0	13.2	12.9	175.68	-354.6	163.8	704.6	680.9	23.72	29.705	
5,500.0	5,488.5	5,442.5	5,432.0	13.5	13.1	175.66	-360.7	165.9	722.2	698.3	23.83	30.306	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0104B
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-0104B	**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	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	CC, ES
500.0	500.0	496.1	496.1	1.0	1.0	127.57	-76.3	99.2	125.2	123.2	1.95	64.060	
600.0	600.0	592.1	591.9	1.2	1.2	128.39	-80.5	101.6	129.8	127.5	2.37	54.841	
700.0	700.0	691.5	691.1	1.4	1.4	129.48	-86.5	105.0	136.3	133.5	2.80	48.768	
800.0	800.0	791.2	790.6	1.7	1.6	130.47	-92.5	108.5	142.9	139.6	3.23	44.283	
900.0	900.0	890.9	890.0	1.9	1.8	148.70	-98.6	111.9	150.9	147.3	3.67	41.110	
1,000.0	999.8	990.1	989.0	2.1	2.1	150.33	-104.6	115.4	162.1	158.0	4.11	39.408	
1,100.0	1,099.6	1,089.1	1,087.8	2.3	2.3	152.12	-110.6	118.8	174.9	170.3	4.55	38.413	
1,200.0	1,199.4	1,188.2	1,186.6	2.6	2.6	153.67	-116.6	122.2	187.9	182.9	5.00	37.597	
1,300.0	1,299.1	1,287.2	1,285.4	2.8	2.8	155.01	-122.5	125.7	200.9	195.5	5.44	36.920	
1,400.0	1,398.9	1,386.3	1,384.2	3.1	3.1	156.19	-128.5	129.1	214.1	208.2	5.89	36.351	
1,500.0	1,498.6	1,485.3	1,483.0	3.3	3.3	157.23	-134.5	132.5	227.3	221.0	6.34	35.868	
1,600.0	1,598.4	1,584.3	1,581.8	3.6	3.6	158.16	-140.5	136.0	240.6	233.9	6.79	35.454	
1,700.0	1,698.1	1,683.4	1,680.6	3.8	3.9	158.99	-146.5	139.4	254.0	246.8	7.24	35.096	
1,800.0	1,797.9	1,782.4	1,779.4	4.0	4.1	159.74	-152.5	142.8	267.4	259.7	7.69	34.782	
1,900.0	1,897.6	1,881.5	1,878.2	4.3	4.4	160.42	-158.5	146.3	280.9	272.7	8.14	34.506	
2,000.0	1,997.4	1,980.5	1,977.0	4.6	4.6	161.03	-164.5	149.7	294.4	285.8	8.59	34.261	
2,100.0	2,097.2	2,079.5	2,075.8	4.8	4.9	161.59	-170.5	153.1	307.9	298.8	9.04	34.043	
2,200.0	2,196.9	2,178.6	2,174.6	5.1	5.1	162.11	-176.5	156.6	321.4	311.9	9.50	33.847	
2,300.0	2,296.7	2,277.6	2,273.4	5.3	5.4	162.58	-182.5	160.0	335.0	325.1	9.95	33.671	
2,400.0	2,396.4	2,376.7	2,372.2	5.6	5.7	163.01	-188.5	163.4	348.6	338.2	10.40	33.510	
2,500.0	2,496.2	2,475.7	2,471.0	5.8	5.9	163.42	-194.5	166.9	362.2	351.4	10.86	33.365	
2,600.0	2,595.9	2,574.7	2,569.8	6.1	6.2	163.79	-200.5	170.3	375.8	364.5	11.31	33.231	
2,700.0	2,695.7	2,673.8	2,668.6	6.3	6.4	164.14	-206.5	173.7	389.5	377.7	11.76	33.109	
2,800.0	2,795.5	2,772.8	2,767.4	6.6	6.7	164.46	-212.5	177.2	403.1	390.9	12.22	32.997	
2,900.0	2,895.2	2,871.8	2,866.2	6.8	7.0	164.76	-218.5	180.6	416.8	404.1	12.67	32.893	
3,000.0	2,995.0	2,970.9	2,964.9	7.1	7.2	165.05	-224.5	184.0	430.5	417.3	13.13	32.797	
3,100.0	3,094.7	3,069.9	3,063.7	7.3	7.5	165.31	-230.5	187.5	444.2	430.6	13.58	32.707	
3,200.0	3,194.5	3,169.0	3,162.5	7.6	7.7	165.56	-236.5	190.9	457.8	443.8	14.03	32.624	
3,300.0	3,294.2	3,268.0	3,261.3	7.8	8.0	165.80	-242.4	194.3	471.5	457.1	14.49	32.546	
3,400.0	3,394.0	3,367.0	3,360.1	8.1	8.3	166.02	-248.4	197.8	485.3	470.3	14.94	32.474	
3,500.0	3,493.7	3,466.1	3,458.9	8.4	8.5	166.23	-254.4	201.2	499.0	483.6	15.40	32.406	
3,600.0	3,593.5	3,565.1	3,557.7	8.6	8.8	166.43	-260.4	204.6	512.7	496.8	15.85	32.342	
3,700.0	3,693.3	3,664.2	3,656.5	8.9	9.1	166.62	-266.4	208.1	526.4	510.1	16.31	32.282	
3,800.0	3,793.0	3,763.2	3,755.3	9.1	9.3	166.80	-272.4	211.5	540.2	523.4	16.76	32.225	
3,900.0	3,892.8	3,862.2	3,854.1	9.4	9.6	166.97	-278.4	214.9	553.9	536.7	17.22	32.171	
4,000.0	3,992.5	3,961.3	3,952.9	9.6	9.8	167.13	-284.4	218.4	567.6	550.0	17.67	32.121	
4,100.0	4,092.3	4,060.3	4,051.7	9.9	10.1	167.28	-290.4	221.8	581.4	563.3	18.13	32.073	
4,200.0	4,192.0	4,159.4	4,150.5	10.1	10.4	167.43	-296.4	225.2	595.1	576.6	18.58	32.027	
4,300.0	4,291.8	4,258.4	4,249.3	10.4	10.6	167.57	-302.4	228.7	608.9	589.9	19.04	31.984	
4,400.0	4,391.6	4,357.4	4,348.1	10.7	10.9	167.70	-308.4	232.1	622.6	603.2	19.49	31.943	
4,500.0	4,491.3	4,456.5	4,446.9	10.9	11.1	167.83	-314.4	235.5	636.4	616.5	19.95	31.904	
4,600.0	4,591.1	4,555.5	4,545.7	11.2	11.4	167.96	-320.4	239.0	650.2	629.8	20.40	31.866	
4,700.0	4,690.8	4,654.5	4,644.5	11.4	11.7	168.07	-326.4	242.4	663.9	643.1	20.86	31.831	
4,800.0	4,790.6	4,753.6	4,743.3	11.7	11.9	168.19	-332.4	245.8	677.7	656.4	21.31	31.797	
4,900.0	4,890.3	4,852.6	4,842.1	11.9	12.2	168.29	-338.4	249.3	691.5	669.7	21.77	31.764	
5,000.0	4,990.1	4,951.7	4,940.9	12.2	12.5	168.40	-344.4	252.7	705.3	683.0	22.22	31.733	
5,100.0	5,089.9	5,050.7	5,039.7	12.4	12.7	168.50	-350.4	256.1	719.0	696.4	22.68	31.703	

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-0104B
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-0104B	**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	5,189.6	5,149.7	5,138.5	12.7	13.0	168.60	-356.4	259.6	732.8	709.7	23.14	31.675	
5,300.0	5,289.4	5,248.8	5,237.3	13.0	13.2	168.69	-362.3	263.0	746.6	723.0	23.59	31.647	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0104B
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-0104B	**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	119.69	-74.9	131.4	151.3				
100.0	100.0	100.0	100.0	0.1	0.1	119.69	-74.9	131.4	151.3	151.1	0.19	808.878	
200.0	200.0	200.0	200.0	0.3	0.3	119.69	-74.9	131.4	151.3	150.6	0.64	237.637	
300.0	300.0	300.0	300.0	0.5	0.5	119.69	-74.9	131.4	151.3	150.2	1.09	139.277	
400.0	400.0	400.0	400.0	0.8	0.8	119.69	-74.9	131.4	151.3	149.7	1.54	98.505	
500.0	500.0	500.0	500.0	1.0	1.0	119.69	-74.9	131.4	151.3	149.3	1.99	76.199	
600.0	600.0	600.0	600.0	1.2	1.2	119.69	-74.9	131.4	151.3	148.8	2.43	62.130	
700.0	700.0	700.0	700.0	1.4	1.4	119.69	-74.9	131.4	151.3	148.4	2.88	52.446	
800.0	800.0	800.0	800.0	1.7	1.7	119.69	-74.9	131.4	151.3	147.9	3.33	45.374	CC, ES
900.0	900.0	900.0	900.0	1.9	1.9	137.19	-74.9	131.4	152.5	148.8	3.78	40.333	
1,000.0	999.8	994.9	994.9	2.1	2.1	138.54	-76.1	132.4	158.0	153.8	4.20	37.649	
1,100.0	1,099.6	1,089.1	1,089.0	2.3	2.3	140.54	-79.7	135.4	168.0	163.4	4.60	36.529	
1,200.0	1,199.4	1,187.5	1,187.2	2.6	2.5	142.57	-85.0	139.8	180.2	175.2	5.02	35.917	
1,300.0	1,299.1	1,286.6	1,286.0	2.8	2.7	144.34	-90.3	144.2	192.6	187.1	5.44	35.414	
1,400.0	1,398.9	1,385.7	1,384.8	3.1	2.9	145.90	-95.6	148.7	205.1	199.2	5.86	34.977	
1,500.0	1,498.6	1,484.7	1,483.6	3.3	3.1	147.29	-100.9	153.1	217.8	211.5	6.29	34.595	
1,600.0	1,598.4	1,583.8	1,582.5	3.6	3.3	148.52	-106.2	157.5	230.5	223.8	6.73	34.261	
1,700.0	1,698.1	1,682.9	1,681.3	3.8	3.6	149.62	-111.5	162.0	243.4	236.3	7.17	33.966	
1,800.0	1,797.9	1,781.9	1,780.1	4.0	3.8	150.61	-116.8	166.4	256.4	248.8	7.61	33.705	
1,900.0	1,897.6	1,881.0	1,878.9	4.3	4.0	151.50	-122.1	170.8	269.4	261.4	8.05	33.474	
2,000.0	1,997.4	1,980.1	1,977.8	4.6	4.3	152.31	-127.4	175.2	282.5	274.0	8.49	33.267	
2,100.0	2,097.2	2,079.1	2,076.6	4.8	4.5	153.05	-132.7	179.7	295.6	286.7	8.94	33.081	
2,200.0	2,196.9	2,178.2	2,175.4	5.1	4.8	153.73	-138.0	184.1	308.8	299.4	9.38	32.914	
2,300.0	2,296.7	2,277.3	2,274.2	5.3	5.0	154.35	-143.3	188.5	322.0	312.2	9.83	32.762	
2,400.0	2,396.4	2,376.3	2,373.1	5.6	5.3	154.92	-148.6	193.0	335.3	325.0	10.28	32.625	
2,500.0	2,496.2	2,475.4	2,471.9	5.8	5.5	155.45	-153.9	197.4	348.5	337.8	10.72	32.499	
2,600.0	2,595.9	2,574.5	2,570.7	6.1	5.8	155.94	-159.2	201.8	361.8	350.7	11.17	32.384	
2,700.0	2,695.7	2,673.5	2,669.5	6.3	6.0	156.40	-164.5	206.3	375.2	363.6	11.62	32.278	
2,800.0	2,795.5	2,772.6	2,768.4	6.6	6.3	156.82	-169.8	210.7	388.5	376.5	12.07	32.180	
2,900.0	2,895.2	2,871.7	2,867.2	6.8	6.5	157.22	-175.1	215.1	401.9	389.4	12.52	32.090	
3,000.0	2,995.0	2,970.7	2,966.0	7.1	6.8	157.59	-180.4	219.6	415.3	402.3	12.98	32.006	
3,100.0	3,094.7	3,069.8	3,064.8	7.3	7.0	157.93	-185.7	224.0	428.7	415.3	13.43	31.928	
3,200.0	3,194.5	3,168.8	3,163.6	7.6	7.3	158.26	-191.0	228.4	442.1	428.2	13.88	31.855	
3,300.0	3,294.2	3,267.9	3,262.5	7.8	7.6	158.57	-196.3	232.8	455.6	441.2	14.33	31.788	
3,400.0	3,394.0	3,367.0	3,361.3	8.1	7.8	158.86	-201.6	237.3	469.0	454.2	14.78	31.724	
3,500.0	3,493.7	3,466.0	3,460.1	8.4	8.1	159.13	-206.9	241.7	482.5	467.2	15.24	31.665	
3,600.0	3,593.5	3,565.1	3,558.9	8.6	8.3	159.39	-212.2	246.1	495.9	480.2	15.69	31.609	
3,700.0	3,693.3	3,664.2	3,657.8	8.9	8.6	159.63	-217.5	250.6	509.4	493.3	16.14	31.556	
3,800.0	3,793.0	3,763.2	3,756.6	9.1	8.8	159.86	-222.8	255.0	522.9	506.3	16.60	31.506	
3,900.0	3,892.8	3,862.3	3,855.4	9.4	9.1	160.09	-228.1	259.4	536.4	519.3	17.05	31.459	
4,000.0	3,992.5	3,961.4	3,954.2	9.6	9.4	160.29	-233.4	263.9	549.9	532.4	17.50	31.415	
4,100.0	4,092.3	4,060.4	4,053.1	9.9	9.6	160.49	-238.8	268.3	563.4	545.4	17.96	31.373	
4,200.0	4,192.0	4,159.5	4,151.9	10.1	9.9	160.68	-244.1	272.7	576.9	558.5	18.41	31.333	
4,300.0	4,291.8	4,258.6	4,250.7	10.4	10.1	160.87	-249.4	277.2	590.4	571.6	18.87	31.295	
4,400.0	4,391.6	4,357.6	4,349.5	10.7	10.4	161.04	-254.7	281.6	603.9	584.6	19.32	31.259	
4,500.0	4,491.3	4,456.7	4,448.4	10.9	10.6	161.21	-260.0	286.0	617.5	597.7	19.78	31.224	
4,600.0	4,591.1	4,555.8	4,547.2	11.2	10.9	161.36	-265.3	290.4	631.0	610.8	20.23	31.191	
4,700.0	4,690.8	4,654.8	4,646.0	11.4	11.2	161.52	-270.6	294.9	644.6	623.9	20.69	31.160	
4,800.0	4,790.6	4,753.9	4,744.8	11.7	11.4	161.66	-275.9	299.3	658.1	637.0	21.14	31.130	
4,900.0	4,890.3	4,852.9	4,843.6	11.9	11.7	161.80	-281.2	303.7	671.6	650.1	21.60	31.102	
5,000.0	4,990.1	4,952.0	4,942.5	12.2	11.9	161.94	-286.5	308.2	685.2	663.1	22.05	31.074	
5,100.0	5,089.9	5,051.1	5,041.3	12.4	12.2	162.07	-291.8	312.6	698.8	676.2	22.51	31.048	

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-0104B
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-0104B	**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

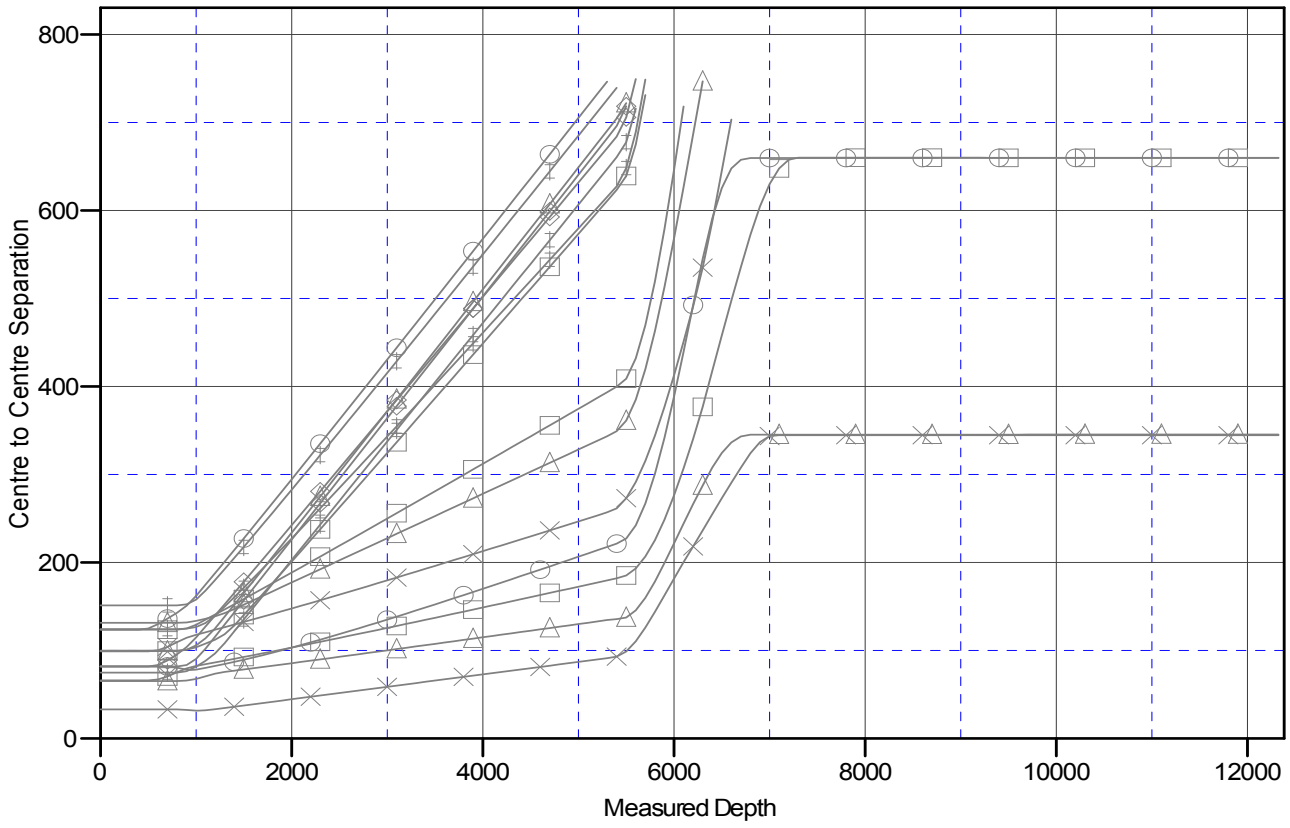
Offset Well Error: 0.0 usft

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	5,189.6	5,150.1	5,140.1	12.7	12.5	162.19	-297.1	317.0	712.3	689.4	22.96	31.023	
5,300.0	5,289.4	5,249.2	5,238.9	13.0	12.7	162.31	-302.4	321.5	725.9	702.5	23.42	30.998	
5,400.0	5,389.1	5,348.3	5,337.8	13.2	13.0	162.42	-307.7	325.9	739.4	715.6	23.87	30.975	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0104B
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-0104B	**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-0104B
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.09°



LEGEND

- Razor #12F-0101A, HZ, Plan #3 V0
- Razor #12F-0102B, HZ, Plan #3 V0
- Razor #12F-0103A, HZ, Plan #3 V0
- Razor #12F-0105A, HZ, Plan #2 V0
- Razor #12F-0106B, HZ, Plan #2 V0
- Razor #12F-0107A, HZ, Plan #2 V0
- Razor #12F-0108B, HZ, Plan #2 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
- Razor Federal#12F-1308B, HZ, Plan #2 V0