WHITING PETROLEUM CORPORATION

Project: Weld County, CO
Site: S12-T10N-R58W
Well: Razor #12F-0103A
Wellbore: HZ
Design: Plan #3

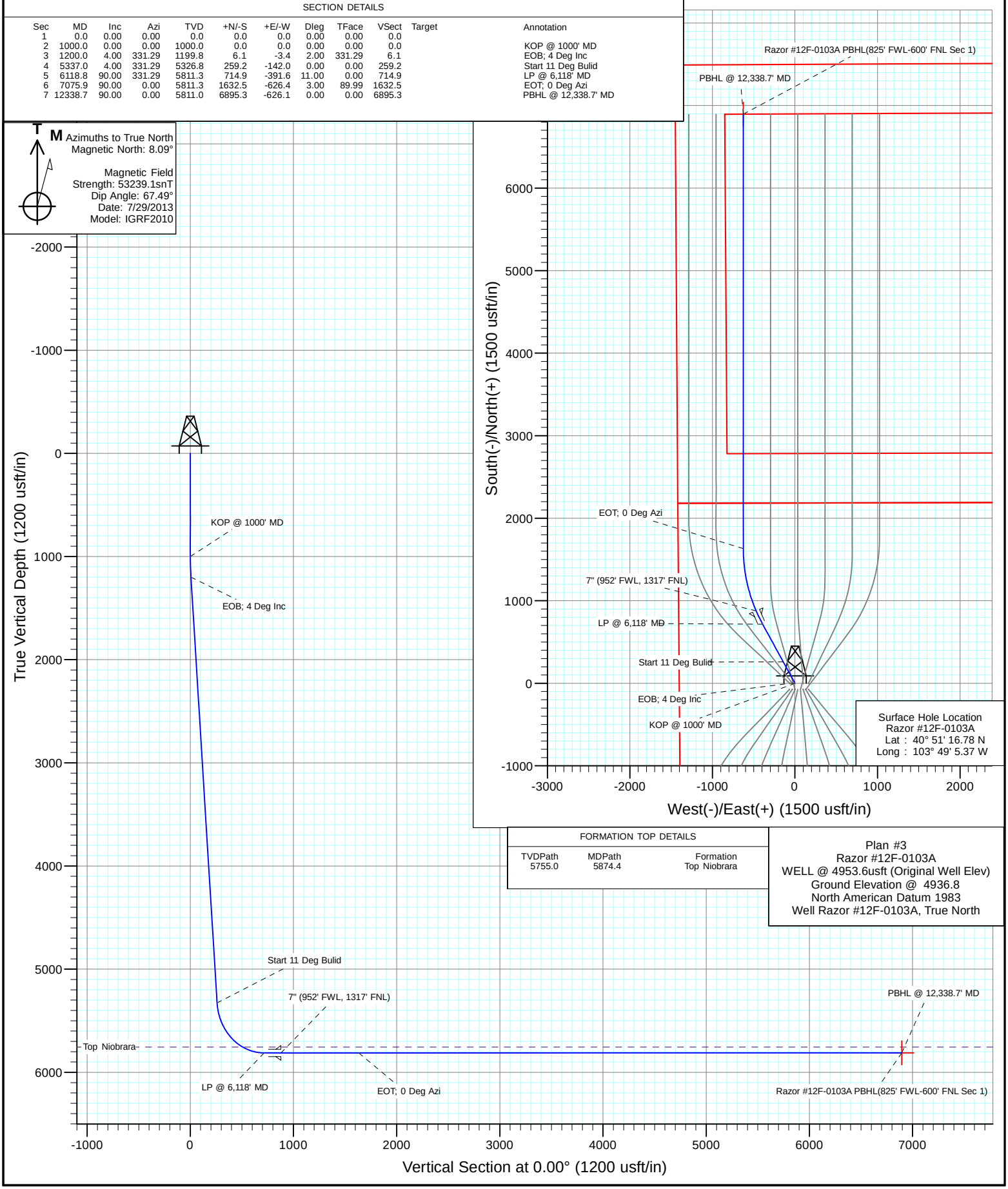
CATHEDRAL

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	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0		KOP @ 1000' MD
3	1200.0	4.00	331.29	1199.8	6.1	-3.4	2.00	331.29	6.1		EOB; 4 Deg Inc
4	5337.0	4.00	331.29	5326.8	259.2	-142.0	0.00	0.00	259.2		Start 11 Deg Bulid
5	6118.8	90.00	331.29	5811.3	714.9	-391.6	11.00	0.00	714.9		LP @ 6,118' MD
6	7075.9	90.00	0.00	5811.3	1632.5	-626.4	3.00	89.99	1632.5		EOT; 0 Deg Azi
7	12338.7	90.00	0.00	5811.0	6895.3	-626.1	0.00	0.00	6895.3		PBHL @ 12,338.7' 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	5874.4	Top Niobrara

Plan #3
Razor #12F-0103A
WELL @ 4953.6usft (Original Well Elev)
Ground Elevation @ 4936.8
North American Datum 1983
Well Razor #12F-0103A, True North

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #12F-0103A
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-0103A	**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-0103A				
Well Position	**+N/-S** 0.0 usft	**Northing:**	1,558,614.08 usft	**Latitude:**	40° 51' 16.78 N
	+E/-W 0.0 usft	**Easting:**	3,465,240.80 usft	**Longitude:**	103° 49' 5.37 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	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,200.0	4.00	331.29	1,199.8	6.1	-3.4	2.00	2.00	0.00	331.29	
5,337.0	4.00	331.29	5,326.8	259.2	-142.0	0.00	0.00	0.00	0.00	
6,118.8	90.00	331.29	5,811.3	714.9	-391.6	11.00	11.00	0.00	0.00	
7,075.9	90.00	0.00	5,811.3	1,632.5	-626.4	3.00	0.00	3.00	89.99	
12,338.7	90.00	0.00	5,811.0	6,895.3	-626.1	0.00	0.00	0.00	0.00	Razor #12F-0103A PI

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #12F-0103A
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-0103A	**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	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	KOP @ 1000' MD
1,100.0	2.00	331.29	1,100.0	1.5	-0.8	1.5	2.00	2.00	
1,200.0	4.00	331.29	1,199.8	6.1	-3.4	6.1	2.00	2.00	EOB; 4 Deg Inc
1,300.0	4.00	331.29	1,299.6	12.2	-6.7	12.2	0.00	0.00	
1,400.0	4.00	331.29	1,399.4	18.4	-10.1	18.4	0.00	0.00	
1,500.0	4.00	331.29	1,499.1	24.5	-13.4	24.5	0.00	0.00	
1,600.0	4.00	331.29	1,598.9	30.6	-16.8	30.6	0.00	0.00	
1,700.0	4.00	331.29	1,698.6	36.7	-20.1	36.7	0.00	0.00	
1,800.0	4.00	331.29	1,798.4	42.8	-23.5	42.8	0.00	0.00	
1,900.0	4.00	331.29	1,898.1	48.9	-26.8	48.9	0.00	0.00	
2,000.0	4.00	331.29	1,997.9	55.1	-30.2	55.1	0.00	0.00	
2,100.0	4.00	331.29	2,097.6	61.2	-33.5	61.2	0.00	0.00	
2,200.0	4.00	331.29	2,197.4	67.3	-36.9	67.3	0.00	0.00	
2,300.0	4.00	331.29	2,297.2	73.4	-40.2	73.4	0.00	0.00	
2,400.0	4.00	331.29	2,396.9	79.5	-43.6	79.5	0.00	0.00	
2,500.0	4.00	331.29	2,496.7	85.7	-46.9	85.7	0.00	0.00	
2,600.0	4.00	331.29	2,596.4	91.8	-50.3	91.8	0.00	0.00	
2,700.0	4.00	331.29	2,696.2	97.9	-53.6	97.9	0.00	0.00	
2,800.0	4.00	331.29	2,795.9	104.0	-57.0	104.0	0.00	0.00	
2,900.0	4.00	331.29	2,895.7	110.1	-60.3	110.1	0.00	0.00	
3,000.0	4.00	331.29	2,995.5	116.2	-63.7	116.2	0.00	0.00	
3,100.0	4.00	331.29	3,095.2	122.4	-67.0	122.4	0.00	0.00	
3,200.0	4.00	331.29	3,195.0	128.5	-70.4	128.5	0.00	0.00	
3,300.0	4.00	331.29	3,294.7	134.6	-73.7	134.6	0.00	0.00	
3,400.0	4.00	331.29	3,394.5	140.7	-77.1	140.7	0.00	0.00	
3,500.0	4.00	331.29	3,494.2	146.8	-80.4	146.8	0.00	0.00	
3,600.0	4.00	331.29	3,594.0	153.0	-83.8	153.0	0.00	0.00	
3,700.0	4.00	331.29	3,693.7	159.1	-87.1	159.1	0.00	0.00	
3,800.0	4.00	331.29	3,793.5	165.2	-90.5	165.2	0.00	0.00	
3,900.0	4.00	331.29	3,893.3	171.3	-93.8	171.3	0.00	0.00	
4,000.0	4.00	331.29	3,993.0	177.4	-97.2	177.4	0.00	0.00	
4,100.0	4.00	331.29	4,092.8	183.5	-100.5	183.5	0.00	0.00	
4,200.0	4.00	331.29	4,192.5	189.7	-103.9	189.7	0.00	0.00	
4,300.0	4.00	331.29	4,292.3	195.8	-107.2	195.8	0.00	0.00	
4,400.0	4.00	331.29	4,392.0	201.9	-110.6	201.9	0.00	0.00	
4,500.0	4.00	331.29	4,491.8	208.0	-113.9	208.0	0.00	0.00	
4,600.0	4.00	331.29	4,591.6	214.1	-117.3	214.1	0.00	0.00	
4,700.0	4.00	331.29	4,691.3	220.3	-120.6	220.3	0.00	0.00	
4,800.0	4.00	331.29	4,791.1	226.4	-124.0	226.4	0.00	0.00	
4,900.0	4.00	331.29	4,890.8	232.5	-127.3	232.5	0.00	0.00	
5,000.0	4.00	331.29	4,990.6	238.6	-130.7	238.6	0.00	0.00	
5,100.0	4.00	331.29	5,090.3	244.7	-134.0	244.7	0.00	0.00	

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #12F-0103A
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-0103A	**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	331.29	5,190.1	250.8	-137.4	250.8	0.00	0.00	
5,300.0	4.00	331.29	5,289.9	257.0	-140.7	257.0	0.00	0.00	
5,337.0	4.00	331.29	5,326.8	259.2	-142.0	259.2	0.00	0.00	Start 11 Deg Bulid
5,400.0	10.93	331.29	5,389.2	266.4	-145.9	266.4	11.00	11.00	
5,500.0	21.93	331.29	5,485.0	291.2	-159.5	291.2	11.00	11.00	
5,600.0	32.93	331.29	5,573.6	331.5	-181.6	331.5	11.00	11.00	
5,700.0	43.93	331.29	5,651.8	385.9	-211.4	385.9	11.00	11.00	
5,800.0	54.93	331.29	5,716.7	452.5	-247.8	452.5	11.00	11.00	
5,874.4	63.12	331.29	5,755.0	508.4	-278.4	508.4	11.00	11.00	Top Niobrara
5,900.0	65.93	331.29	5,766.0	528.6	-289.5	528.6	11.00	11.00	
6,000.0	76.93	331.29	5,797.8	611.6	-335.0	611.6	11.00	11.00	
6,100.0	87.93	331.29	5,811.0	698.4	-382.5	698.4	11.00	11.00	
6,118.8	90.00	331.29	5,811.3	714.9	-391.6	714.9	11.00	11.00	LP @ 6,118' MD
6,200.0	90.00	333.73	5,811.3	787.0	-429.1	787.0	3.00	0.00	
6,300.0	90.00	336.73	5,811.3	877.7	-471.0	877.7	3.00	0.00	7" (952' FWL, 1317' FNL)
6,400.0	90.00	339.73	5,811.3	970.6	-508.0	970.6	3.00	0.00	
6,500.0	90.00	342.73	5,811.3	1,065.3	-540.2	1,065.3	3.00	0.00	
6,600.0	90.00	345.73	5,811.3	1,161.5	-567.4	1,161.5	3.00	0.00	
6,700.0	90.00	348.73	5,811.3	1,259.0	-589.5	1,259.0	3.00	0.00	
6,800.0	90.00	351.73	5,811.3	1,357.5	-606.5	1,357.5	3.00	0.00	
6,900.0	90.00	354.73	5,811.3	1,456.8	-618.3	1,456.8	3.00	0.00	
7,000.0	90.00	357.73	5,811.3	1,556.6	-624.9	1,556.6	3.00	0.00	
7,075.9	90.00	0.00	5,811.3	1,632.5	-626.4	1,632.5	3.00	0.00	EOT; 0 Deg Azi
7,100.0	90.00	0.00	5,811.3	1,656.6	-626.4	1,656.6	0.00	0.00	
7,200.0	90.00	0.00	5,811.3	1,756.6	-626.4	1,756.6	0.00	0.00	
7,300.0	90.00	0.00	5,811.3	1,856.6	-626.4	1,856.6	0.00	0.00	
7,400.0	90.00	0.00	5,811.3	1,956.6	-626.4	1,956.6	0.00	0.00	
7,500.0	90.00	0.00	5,811.2	2,056.6	-626.4	2,056.6	0.00	0.00	
7,600.0	90.00	0.00	5,811.2	2,156.6	-626.4	2,156.6	0.00	0.00	
7,700.0	90.00	0.00	5,811.2	2,256.6	-626.3	2,256.6	0.00	0.00	
7,800.0	90.00	0.00	5,811.2	2,356.6	-626.3	2,356.6	0.00	0.00	
7,900.0	90.00	0.00	5,811.2	2,456.6	-626.3	2,456.6	0.00	0.00	
8,000.0	90.00	0.00	5,811.2	2,556.6	-626.3	2,556.6	0.00	0.00	
8,100.0	90.00	0.00	5,811.2	2,656.6	-626.3	2,656.6	0.00	0.00	
8,200.0	90.00	0.00	5,811.2	2,756.6	-626.3	2,756.6	0.00	0.00	
8,300.0	90.00	0.00	5,811.2	2,856.6	-626.3	2,856.6	0.00	0.00	
8,400.0	90.00	0.00	5,811.2	2,956.6	-626.3	2,956.6	0.00	0.00	
8,500.0	90.00	0.00	5,811.2	3,056.6	-626.3	3,056.6	0.00	0.00	
8,600.0	90.00	0.00	5,811.2	3,156.6	-626.3	3,156.6	0.00	0.00	
8,700.0	90.00	0.00	5,811.2	3,256.6	-626.3	3,256.6	0.00	0.00	
8,800.0	90.00	0.00	5,811.2	3,356.6	-626.3	3,356.6	0.00	0.00	
8,900.0	90.00	0.00	5,811.2	3,456.6	-626.3	3,456.6	0.00	0.00	
9,000.0	90.00	0.00	5,811.2	3,556.6	-626.3	3,556.6	0.00	0.00	
9,100.0	90.00	0.00	5,811.2	3,656.6	-626.3	3,656.6	0.00	0.00	
9,200.0	90.00	0.00	5,811.2	3,756.6	-626.3	3,756.6	0.00	0.00	
9,300.0	90.00	0.00	5,811.2	3,856.6	-626.3	3,856.6	0.00	0.00	
9,400.0	90.00	0.00	5,811.2	3,956.6	-626.3	3,956.6	0.00	0.00	
9,500.0	90.00	0.00	5,811.1	4,056.6	-626.3	4,056.6	0.00	0.00	
9,600.0	90.00	0.00	5,811.1	4,156.6	-626.3	4,156.6	0.00	0.00	
9,700.0	90.00	0.00	5,811.1	4,256.6	-626.2	4,256.6	0.00	0.00	
9,800.0	90.00	0.00	5,811.1	4,356.6	-626.2	4,356.6	0.00	0.00	
9,900.0	90.00	0.00	5,811.1	4,456.6	-626.2	4,456.6	0.00	0.00	

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #12F-0103A
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-0103A	**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	5,811.1	4,556.6	-626.2	4,556.6	0.00	0.00	
10,100.0	90.00	0.00	5,811.1	4,656.6	-626.2	4,656.6	0.00	0.00	
10,200.0	90.00	0.00	5,811.1	4,756.6	-626.2	4,756.6	0.00	0.00	
10,300.0	90.00	0.00	5,811.1	4,856.6	-626.2	4,856.6	0.00	0.00	
10,400.0	90.00	0.00	5,811.1	4,956.6	-626.2	4,956.6	0.00	0.00	
10,500.0	90.00	0.00	5,811.1	5,056.6	-626.2	5,056.6	0.00	0.00	
10,600.0	90.00	0.00	5,811.1	5,156.6	-626.2	5,156.6	0.00	0.00	
10,700.0	90.00	0.00	5,811.1	5,256.6	-626.2	5,256.6	0.00	0.00	
10,800.0	90.00	0.00	5,811.1	5,356.6	-626.2	5,356.6	0.00	0.00	
10,900.0	90.00	0.00	5,811.1	5,456.6	-626.2	5,456.6	0.00	0.00	
11,000.0	90.00	0.00	5,811.1	5,556.6	-626.2	5,556.6	0.00	0.00	
11,100.0	90.00	0.00	5,811.1	5,656.6	-626.2	5,656.6	0.00	0.00	
11,200.0	90.00	0.00	5,811.1	5,756.6	-626.2	5,756.6	0.00	0.00	
11,300.0	90.00	0.00	5,811.1	5,856.6	-626.2	5,856.6	0.00	0.00	
11,400.0	90.00	0.00	5,811.0	5,956.6	-626.2	5,956.6	0.00	0.00	
11,500.0	90.00	0.00	5,811.0	6,056.6	-626.2	6,056.6	0.00	0.00	
11,600.0	90.00	0.00	5,811.0	6,156.6	-626.1	6,156.6	0.00	0.00	
11,700.0	90.00	0.00	5,811.0	6,256.6	-626.1	6,256.6	0.00	0.00	
11,800.0	90.00	0.00	5,811.0	6,356.6	-626.1	6,356.6	0.00	0.00	
11,900.0	90.00	0.00	5,811.0	6,456.6	-626.1	6,456.6	0.00	0.00	
12,000.0	90.00	0.00	5,811.0	6,556.6	-626.1	6,556.6	0.00	0.00	
12,100.0	90.00	0.00	5,811.0	6,656.6	-626.1	6,656.6	0.00	0.00	
12,200.0	90.00	0.00	5,811.0	6,756.6	-626.1	6,756.6	0.00	0.00	
12,300.0	90.00	0.00	5,811.0	6,856.6	-626.1	6,856.6	0.00	0.00	
12,338.7	90.00	0.00	5,811.0	6,895.3	-626.1	6,895.3	0.00	0.00	PBHL @ 12,338.7' 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 #12F-0103A PBH - plan hits target center - Point	0.00	0.00	5,811.0	6,895.3	-626.1	1,565,496.24	3,464,484.03	40° 52' 24.91 N	103° 49' 13.52 W

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
6,300.0	5,811.3	7" (952' FWL, 1317' FNL)	0	0

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,874.4	5,755.0	Top Niobrara		0.00	

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #12F-0103A
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-0103A	**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
1,000.0	1,000.0	0.0	0.0	KOP @ 1000' MD
1,200.0	1,199.8	6.1	-3.4	EOB; 4 Deg Inc
5,337.0	5,326.8	259.2	-142.0	Start 11 Deg Bulid
6,118.8	5,811.3	714.9	-391.6	LP @ 6,118' MD
7,075.9	5,811.3	1,632.5	-626.4	EOT; 0 Deg Azi
12,338.7	5,811.0	6,895.3	-626.1	PBHL @ 12,338.7' MD

Whiting Petroleum Corporation

Weld County, CO
S12-T10N-R58W
Razor #12F-0103A
HZ
Plan #3

Anticollision Report

08 November, 2013

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0103A
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-0103A	**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	12,338.7	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	66.1	64.1	33.291	CC, ES
Razor #12F-0101A - HZ - Plan #3	12,338.7	12,596.5	659.9	396.9	2.509	SF
Razor #12F-0102B - HZ - Plan #3	500.0	500.0	33.0	31.1	16.645	CC, ES
Razor #12F-0102B - HZ - Plan #3	12,338.7	12,524.9	345.4	93.0	1.368	Level 3, SF
Razor #12F-0104B - HZ - Plan #2	2,783.0	2,787.4	55.3	42.9	4.474	CC
Razor #12F-0104B - HZ - Plan #2	3,900.0	3,904.2	58.1	40.5	3.308	ES
Razor #12F-0104B - HZ - Plan #2	12,338.7	12,391.4	344.7	90.2	1.354	Level 3, SF
Razor #12F-0105A - HZ - Plan #2	1,000.0	1,000.0	98.4	94.1	23.238	CC, ES
Razor #12F-0105A - HZ - Plan #2	12,338.7	12,207.3	659.9	396.2	2.502	SF
Razor #12F-0106B - HZ - Plan #2	1,083.7	1,086.7	91.7	87.1	19.818	CC
Razor #12F-0106B - HZ - Plan #2	1,100.0	1,103.0	91.8	87.1	19.515	ES
Razor #12F-0106B - HZ - Plan #2	5,300.0	5,297.2	292.7	267.3	11.505	SF
Razor #12F-0107A - HZ - Plan #2	1,000.0	1,000.0	164.4	160.2	38.851	CC, ES
Razor #12F-0107A - HZ - Plan #2	5,300.0	5,287.1	424.7	399.6	16.923	SF
Razor #12F-0108B - HZ - Plan #2	800.0	800.0	151.3	147.9	45.371	CC
Razor #12F-0108B - HZ - Plan #2	900.0	899.3	151.5	147.7	40.087	ES
Razor #12F-0108B - HZ - Plan #2	5,300.0	5,286.1	465.4	440.4	18.560	SF
Razor Federal #12F-1301A - HZ - Plan #3	1,000.0	1,000.0	99.9	95.6	23.594	CC, ES
Razor Federal #12F-1301A - HZ - Plan #3	1,200.0	1,192.7	109.1	104.1	21.588	SF
Razor Federal #12F-1302B - HZ - Plan #2	1,000.0	1,000.0	81.8	77.6	19.336	CC, ES
Razor Federal #12F-1302B - HZ - Plan #2	1,300.0	1,296.6	92.6	87.1	16.689	SF
Razor Federal #12F-1303A - HZ - Plan #3	500.0	500.0	74.9	72.9	37.717	CC, ES
Razor Federal #12F-1303A - HZ - Plan #3	1,100.0	1,093.8	108.9	104.4	23.970	SF
Razor Federal #12F-1304B - HZ - Plan #2	1,000.0	1,000.0	81.9	77.6	19.338	CC, ES
Razor Federal #12F-1304B - HZ - Plan #2	1,200.0	1,197.4	90.2	85.1	17.710	SF
Razor Federal #12F-1305A - HZ - Plan #3	900.0	900.0	99.9	96.1	26.397	CC, ES
Razor Federal #12F-1305A - HZ - Plan #3	1,100.0	1,094.1	107.1	102.5	23.299	SF
Razor Federal #12F-1306B - HZ - Plan #2	1,000.0	1,000.0	123.6	119.4	29.208	CC, ES
Razor Federal #12F-1306B - HZ - Plan #2	1,200.0	1,192.1	135.8	130.7	26.940	SF
Razor Federal #12F-1307A - HZ - Plan #3	400.0	400.0	151.2	149.7	98.489	CC, ES
Razor Federal #12F-1307A - HZ - Plan #3	5,200.0	5,149.5	745.8	722.7	32.286	SF
Razor Federal#12F-1308B - HZ - Plan #2	866.7	866.7	180.7	177.1	49.734	CC
Razor Federal#12F-1308B - HZ - Plan #2	900.0	900.0	180.7	176.9	47.764	ES
Razor Federal#12F-1308B - HZ - Plan #2	5,300.0	5,247.9	748.8	725.5	32.101	SF

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0103A
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-0103A	**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	-89.99	0.0	-66.1	66.1				
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	0.0	-66.1	66.1	65.9	0.19	353.395	
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-66.1	66.1	65.5	0.64	103.822	
300.0	300.0	300.0	300.0	0.5	0.5	-89.99	0.0	-66.1	66.1	65.0	1.09	60.849	
400.0	400.0	400.0	400.0	0.8	0.8	-89.99	0.0	-66.1	66.1	64.6	1.54	43.036	
500.0	500.0	500.0	500.0	1.0	1.0	-89.99	0.0	-66.1	66.1	64.1	1.99	33.291	CC, ES
600.0	600.0	598.3	598.3	1.2	1.2	-89.01	1.2	-67.3	67.3	64.9	2.43	27.742	
700.0	700.0	696.4	696.2	1.4	1.4	-86.28	4.6	-71.0	71.2	68.4	2.87	24.801	
800.0	800.0	796.1	795.7	1.7	1.7	-82.97	9.4	-76.0	76.7	73.4	3.32	23.112	
900.0	900.0	895.8	895.2	1.9	1.9	-80.10	14.2	-81.1	82.5	78.7	3.77	21.896	
1,000.0	1,000.0	995.6	994.7	2.1	2.1	-77.62	18.9	-86.2	88.4	84.2	4.22	20.972	
1,100.0	1,100.0	1,095.4	1,094.3	2.3	2.4	-47.44	23.7	-91.3	93.3	88.6	4.67	19.982	
1,200.0	1,199.8	1,195.4	1,194.0	2.6	2.6	-47.66	28.5	-96.3	95.8	90.7	5.12	18.726	
1,300.0	1,299.6	1,295.4	1,293.8	2.8	2.9	-48.67	33.3	-101.4	97.2	91.6	5.57	17.438	
1,400.0	1,399.4	1,395.4	1,393.5	3.0	3.1	-49.65	38.0	-106.5	98.6	92.6	6.04	16.337	
1,500.0	1,499.1	1,495.3	1,493.2	3.3	3.4	-50.60	42.8	-111.6	100.0	93.5	6.50	15.388	
1,600.0	1,598.9	1,595.3	1,593.0	3.5	3.7	-51.52	47.6	-116.7	101.5	94.5	6.97	14.561	
1,700.0	1,698.6	1,695.3	1,692.7	3.7	3.9	-52.42	52.4	-121.7	103.0	95.5	7.44	13.835	
1,800.0	1,798.4	1,795.3	1,792.4	4.0	4.2	-53.29	57.1	-126.8	104.5	96.6	7.92	13.195	
1,900.0	1,898.1	1,895.2	1,892.2	4.2	4.4	-54.13	61.9	-131.9	106.0	97.6	8.40	12.626	
2,000.0	1,997.9	1,995.2	1,991.9	4.5	4.7	-54.95	66.7	-137.0	107.6	98.7	8.88	12.118	
2,100.0	2,097.6	2,095.2	2,091.6	4.7	4.9	-55.75	71.5	-142.0	109.2	99.8	9.36	11.661	
2,200.0	2,197.4	2,195.2	2,191.4	5.0	5.2	-56.52	76.3	-147.1	110.8	100.9	9.85	11.249	
2,300.0	2,297.2	2,295.1	2,291.1	5.2	5.4	-57.28	81.0	-152.2	112.4	102.1	10.34	10.876	
2,400.0	2,396.9	2,395.1	2,390.8	5.5	5.7	-58.01	85.8	-157.3	114.1	103.2	10.83	10.536	
2,500.0	2,496.7	2,495.1	2,490.6	5.7	6.0	-58.72	90.6	-162.4	115.7	104.4	11.32	10.226	
2,600.0	2,596.4	2,595.1	2,590.3	6.0	6.2	-59.41	95.4	-167.4	117.4	105.6	11.81	9.941	
2,700.0	2,696.2	2,695.0	2,690.0	6.2	6.5	-60.08	100.2	-172.5	119.1	106.8	12.30	9.680	
2,800.0	2,795.9	2,795.0	2,789.8	6.5	6.7	-60.73	104.9	-177.6	120.8	108.0	12.80	9.439	
2,900.0	2,895.7	2,895.0	2,889.5	6.7	7.0	-61.36	109.7	-182.7	122.5	109.2	13.29	9.216	
3,000.0	2,995.5	2,995.0	2,989.2	7.0	7.2	-61.98	114.5	-187.8	124.3	110.5	13.79	9.010	
3,100.0	3,095.2	3,094.9	3,089.0	7.2	7.5	-62.57	119.3	-192.8	126.0	111.7	14.29	8.818	
3,200.0	3,195.0	3,194.9	3,188.7	7.5	7.8	-63.16	124.1	-197.9	127.8	113.0	14.79	8.640	
3,300.0	3,294.7	3,294.9	3,288.4	7.8	8.0	-63.72	128.8	-203.0	129.5	114.3	15.29	8.473	
3,400.0	3,394.5	3,394.9	3,388.1	8.0	8.3	-64.27	133.6	-208.1	131.3	115.6	15.79	8.318	
3,500.0	3,494.2	3,494.9	3,487.9	8.3	8.5	-64.81	138.4	-213.1	133.1	116.9	16.29	8.172	
3,600.0	3,594.0	3,594.8	3,587.6	8.5	8.8	-65.33	143.2	-218.2	135.0	118.2	16.80	8.035	
3,700.0	3,693.7	3,694.8	3,687.3	8.8	9.1	-65.84	148.0	-223.3	136.8	119.5	17.30	7.907	
3,800.0	3,793.5	3,794.8	3,787.1	9.0	9.3	-66.33	152.7	-228.4	138.6	120.8	17.80	7.786	
3,900.0	3,893.3	3,894.8	3,886.8	9.3	9.6	-66.81	157.5	-233.5	140.5	122.2	18.31	7.672	
4,000.0	3,993.0	3,994.7	3,986.5	9.5	9.8	-67.28	162.3	-238.5	142.3	123.5	18.82	7.564	
4,100.0	4,092.8	4,094.7	4,086.3	9.8	10.1	-67.74	167.1	-243.6	144.2	124.9	19.32	7.462	
4,200.0	4,192.5	4,194.7	4,186.0	10.1	10.3	-68.18	171.9	-248.7	146.1	126.2	19.83	7.366	
4,300.0	4,292.3	4,294.7	4,285.7	10.3	10.6	-68.62	176.6	-253.8	147.9	127.6	20.34	7.275	
4,400.0	4,392.0	4,394.6	4,385.5	10.6	10.9	-69.04	181.4	-258.9	149.8	129.0	20.84	7.188	
4,500.0	4,491.8	4,494.6	4,485.2	10.8	11.1	-69.45	186.2	-263.9	151.7	130.4	21.35	7.106	
4,600.0	4,591.6	4,594.6	4,584.9	11.1	11.4	-69.85	191.0	-269.0	153.6	131.8	21.86	7.028	
4,700.0	4,691.3	4,694.6	4,684.7	11.3	11.6	-70.25	195.8	-274.1	155.5	133.2	22.37	6.953	
4,800.0	4,791.1	4,794.5	4,784.4	11.6	11.9	-70.63	200.5	-279.2	157.5	134.6	22.88	6.882	
4,900.0	4,890.8	4,894.5	4,884.1	11.8	12.1	-71.00	205.3	-284.3	159.4	136.0	23.39	6.815	
5,000.0	4,990.6	4,994.5	4,983.9	12.1	12.4	-71.37	210.1	-289.3	161.3	137.4	23.90	6.750	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0103A
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-0103A	**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	5,090.3	5,094.5	5,083.6	12.4	12.7	-71.72	214.9	-294.4	163.3	138.9	24.41	6.688	
5,200.0	5,190.1	5,194.4	5,183.3	12.6	12.9	-72.07	219.6	-299.5	165.2	140.3	24.92	6.629	
5,300.0	5,289.9	5,294.4	5,283.1	12.9	13.2	-72.41	224.4	-304.6	167.2	141.7	25.43	6.573	
5,400.0	5,389.2	5,385.5	5,373.7	13.2	13.4	-72.98	230.3	-310.8	169.5	143.5	25.97	6.527	
5,500.0	5,485.0	5,469.7	5,455.3	13.6	13.8	-74.48	244.1	-325.4	175.0	148.4	26.69	6.559	
5,600.0	5,573.6	5,553.8	5,532.6	14.2	14.2	-76.68	266.7	-349.5	184.6	156.9	27.70	6.664	
5,700.0	5,651.8	5,638.0	5,603.6	14.9	14.8	-79.20	297.6	-382.3	198.3	169.2	29.08	6.819	
5,800.0	5,716.7	5,722.5	5,666.7	15.9	15.6	-81.68	336.0	-423.1	216.3	185.5	30.88	7.005	
5,900.0	5,766.0	5,807.5	5,720.2	17.1	16.5	-83.88	381.2	-471.2	238.4	205.3	33.08	7.205	
6,000.0	5,797.8	5,893.8	5,762.8	18.5	17.7	-85.63	432.6	-525.8	264.0	228.3	35.66	7.403	
6,100.0	5,811.0	5,982.0	5,792.9	20.1	19.0	-86.93	489.3	-586.1	292.4	253.8	38.55	7.584	
6,200.0	5,811.3	6,073.4	5,808.9	21.7	20.6	-89.55	550.9	-651.5	324.4	282.9	41.42	7.831	
6,300.0	5,811.3	6,176.8	5,811.0	23.2	22.4	-89.95	622.3	-726.1	361.1	316.7	44.32	8.147	
6,400.0	5,811.3	6,292.9	5,811.0	24.9	24.4	-89.95	706.8	-805.7	397.7	350.4	47.37	8.397	
6,500.0	5,811.3	6,412.2	5,811.0	26.5	26.6	-89.95	798.6	-882.0	433.6	383.1	50.44	8.595	
6,600.0	5,811.3	6,535.0	5,811.0	28.1	28.9	-89.96	897.7	-954.4	468.3	414.8	53.50	8.754	
6,700.0	5,811.3	6,661.3	5,811.0	29.8	31.3	-89.96	1,004.3	-1,022.0	501.9	445.4	56.51	8.882	
6,800.0	5,811.3	6,791.2	5,811.0	31.4	33.7	-89.96	1,118.4	-1,084.1	534.1	474.7	59.43	8.988	
6,900.0	5,811.3	6,924.9	5,811.0	33.1	36.1	-89.97	1,239.9	-1,139.7	564.7	502.5	62.24	9.074	
7,000.0	5,811.3	7,062.3	5,811.0	34.7	38.5	-89.97	1,368.6	-1,187.9	593.6	528.7	64.91	9.145	
7,100.0	5,811.3	7,203.6	5,811.0	36.2	41.0	-89.97	1,504.2	-1,227.6	620.3	552.4	67.83	9.144	
7,200.0	5,811.3	7,349.6	5,811.0	37.8	43.4	-89.97	1,647.0	-1,258.1	641.1	569.1	72.06	8.898	
7,300.0	5,811.3	7,499.7	5,811.0	39.5	45.7	-89.98	1,795.7	-1,277.9	654.4	578.0	76.37	8.569	
7,400.0	5,811.3	7,651.9	5,811.0	41.1	48.0	-89.98	1,947.7	-1,286.0	659.7	579.0	80.70	8.175	
7,500.0	5,811.2	7,760.9	5,811.0	42.8	49.6	-89.98	2,056.6	-1,286.2	659.8	575.6	84.24	7.833	
7,600.0	5,811.2	7,860.9	5,811.0	44.5	51.0	-89.98	2,156.6	-1,286.2	659.8	572.2	87.64	7.529	
7,700.0	5,811.2	7,960.9	5,811.0	46.2	52.5	-89.98	2,256.6	-1,286.2	659.8	568.8	91.07	7.246	
7,800.0	5,811.2	8,060.9	5,811.0	47.9	54.0	-89.98	2,356.6	-1,286.2	659.8	565.3	94.53	6.980	
7,900.0	5,811.2	8,160.9	5,811.0	49.6	55.5	-89.98	2,456.6	-1,286.2	659.8	561.8	98.02	6.732	
8,000.0	5,811.2	8,260.9	5,811.0	51.4	57.0	-89.98	2,556.6	-1,286.2	659.8	558.3	101.54	6.499	
8,100.0	5,811.2	8,360.9	5,811.0	53.1	58.6	-89.98	2,656.6	-1,286.2	659.8	554.8	105.07	6.280	
8,200.0	5,811.2	8,460.9	5,811.0	54.9	60.2	-89.98	2,756.6	-1,286.2	659.8	551.2	108.63	6.074	
8,300.0	5,811.2	8,560.9	5,811.0	56.7	61.8	-89.98	2,856.6	-1,286.2	659.8	547.6	112.21	5.880	
8,400.0	5,811.2	8,660.9	5,811.0	58.5	63.4	-89.98	2,956.6	-1,286.2	659.8	544.0	115.81	5.698	
8,500.0	5,811.2	8,760.9	5,811.0	60.3	65.0	-89.98	3,056.6	-1,286.1	659.8	540.4	119.42	5.526	
8,600.0	5,811.2	8,860.9	5,811.0	62.1	66.7	-89.98	3,156.6	-1,286.1	659.8	536.8	123.04	5.363	
8,700.0	5,811.2	8,960.9	5,811.0	63.9	68.3	-89.98	3,256.6	-1,286.1	659.8	533.2	126.68	5.209	
8,800.0	5,811.2	9,060.9	5,811.0	65.7	70.0	-89.98	3,356.6	-1,286.1	659.8	529.5	130.33	5.063	
8,900.0	5,811.2	9,160.9	5,811.0	67.5	71.7	-89.98	3,456.6	-1,286.1	659.9	525.9	133.99	4.925	
9,000.0	5,811.2	9,260.9	5,811.0	69.4	73.4	-89.98	3,556.6	-1,286.1	659.9	522.2	137.66	4.794	
9,100.0	5,811.2	9,360.9	5,811.0	71.2	75.1	-89.98	3,656.6	-1,286.1	659.9	518.5	141.33	4.669	
9,200.0	5,811.2	9,460.9	5,811.0	73.0	76.8	-89.98	3,756.6	-1,286.1	659.9	514.8	145.02	4.550	
9,300.0	5,811.2	9,560.9	5,811.0	74.9	78.6	-89.99	3,856.6	-1,286.1	659.9	511.1	148.72	4.437	
9,400.0	5,811.2	9,660.9	5,811.0	76.7	80.3	-89.99	3,956.6	-1,286.1	659.9	507.4	152.42	4.329	
9,500.0	5,811.1	9,760.9	5,811.0	78.6	82.0	-89.99	4,056.6	-1,286.1	659.9	503.7	156.13	4.226	
9,600.0	5,811.1	9,860.9	5,811.0	80.4	83.8	-89.99	4,156.6	-1,286.1	659.9	500.0	159.84	4.128	
9,700.0	5,811.1	9,960.9	5,811.0	82.3	85.6	-89.99	4,256.6	-1,286.1	659.9	496.3	163.57	4.034	
9,800.0	5,811.1	10,060.9	5,811.0	84.1	87.3	-89.99	4,356.6	-1,286.1	659.9	492.6	167.29	3.944	
9,900.0	5,811.1	10,160.9	5,811.0	86.0	89.1	-89.99	4,456.6	-1,286.1	659.9	488.8	171.03	3.858	
10,000.0	5,811.1	10,260.9	5,811.0	87.9	90.9	-89.99	4,556.6	-1,286.1	659.9	485.1	174.76	3.776	
10,100.0	5,811.1	10,360.9	5,811.0	89.7	92.7	-89.99	4,656.6	-1,286.1	659.9	481.4	178.50	3.697	
10,200.0	5,811.1	10,460.9	5,811.0	91.6	94.5	-89.99	4,756.6	-1,286.1	659.9	477.6	182.25	3.621	

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-0103A
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-0103A	**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
10,300.0	5,811.1	10,560.9	5,811.0	93.5	96.3	-89.99	4,856.6	-1,286.1	659.9	473.9	186.00	3.548	
10,400.0	5,811.1	10,660.9	5,811.0	95.3	98.1	-89.99	4,956.6	-1,286.1	659.9	470.1	189.75	3.478	
10,500.0	5,811.1	10,760.9	5,811.0	97.2	99.9	-89.99	5,056.6	-1,286.1	659.9	466.4	193.51	3.410	
10,600.0	5,811.1	10,860.9	5,811.0	99.1	101.7	-89.99	5,156.6	-1,286.1	659.9	462.6	197.27	3.345	
10,700.0	5,811.1	10,960.9	5,811.0	101.0	103.5	-89.99	5,256.6	-1,286.1	659.9	458.8	201.03	3.282	
10,800.0	5,811.1	11,060.9	5,811.0	102.9	105.3	-89.99	5,356.6	-1,286.1	659.9	455.1	204.80	3.222	
10,900.0	5,811.1	11,160.9	5,811.0	104.7	107.1	-89.99	5,456.6	-1,286.1	659.9	451.3	208.57	3.164	
11,000.0	5,811.1	11,260.9	5,811.0	106.6	109.0	-89.99	5,556.6	-1,286.1	659.9	447.5	212.34	3.108	
11,100.0	5,811.1	11,360.9	5,811.0	108.5	110.8	-89.99	5,656.6	-1,286.1	659.9	443.8	216.12	3.053	
11,200.0	5,811.1	11,460.9	5,811.0	110.4	112.6	-89.99	5,756.6	-1,286.1	659.9	440.0	219.89	3.001	
11,300.0	5,811.1	11,560.9	5,811.0	112.3	114.5	-89.99	5,856.6	-1,286.1	659.9	436.2	223.67	2.950	
11,400.0	5,811.0	11,660.9	5,811.0	114.2	116.3	-90.00	5,956.6	-1,286.1	659.9	432.4	227.45	2.901	
11,500.0	5,811.0	11,760.9	5,811.0	116.1	118.1	-90.00	6,056.6	-1,286.1	659.9	428.7	231.24	2.854	
11,600.0	5,811.0	11,860.9	5,811.0	117.9	120.0	-90.00	6,156.6	-1,286.0	659.9	424.9	235.02	2.808	
11,700.0	5,811.0	11,960.9	5,811.0	119.8	121.8	-90.00	6,256.6	-1,286.0	659.9	421.1	238.81	2.763	
11,800.0	5,811.0	12,060.9	5,811.0	121.7	123.7	-90.00	6,356.6	-1,286.0	659.9	417.3	242.60	2.720	
11,900.0	5,811.0	12,160.9	5,811.0	123.6	125.5	-90.00	6,456.6	-1,286.0	659.9	413.5	246.39	2.678	
12,000.0	5,811.0	12,260.9	5,811.0	125.5	127.4	-90.00	6,556.6	-1,286.0	659.9	409.7	250.18	2.638	
12,100.0	5,811.0	12,360.9	5,811.0	127.4	129.2	-90.00	6,656.6	-1,286.0	659.9	405.9	253.97	2.598	
12,200.0	5,811.0	12,460.9	5,811.0	129.3	131.1	-90.00	6,756.6	-1,286.0	659.9	402.1	257.77	2.560	
12,300.0	5,811.0	12,560.9	5,811.0	131.2	133.0	-90.00	6,856.6	-1,286.0	659.9	398.3	261.57	2.523	
12,319.1	5,811.0	12,579.9	5,811.0	131.6	133.3	-90.00	6,875.7	-1,286.0	659.9	397.6	262.29	2.516	
12,338.7	5,811.0	12,596.5	5,811.0	131.9	133.6	-90.00	6,892.3	-1,286.0	659.9	396.9	262.98	2.509	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0103A
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-0103A	**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	-89.97	0.0	-33.0	33.0				
100.0	100.0	100.0	100.0	0.1	0.1	-89.97	0.0	-33.0	33.0	32.9	0.19	176.697	
200.0	200.0	200.0	200.0	0.3	0.3	-89.97	0.0	-33.0	33.0	32.4	0.64	51.911	
300.0	300.0	300.0	300.0	0.5	0.5	-89.97	0.0	-33.0	33.0	32.0	1.09	30.425	
400.0	400.0	400.0	400.0	0.8	0.8	-89.97	0.0	-33.0	33.0	31.5	1.54	21.518	
500.0	500.0	500.0	500.0	1.0	1.0	-89.97	0.0	-33.0	33.0	31.1	1.99	16.645	CC, ES
600.0	600.0	599.3	599.2	1.2	1.2	-87.68	1.4	-34.1	34.1	31.7	2.43	14.041	
700.0	700.0	698.3	698.1	1.4	1.4	-81.68	5.4	-37.2	37.7	34.8	2.88	13.086	
800.0	800.0	798.0	797.6	1.7	1.7	-75.22	10.9	-41.5	43.0	39.7	3.33	12.908	
900.0	900.0	897.8	897.1	1.9	1.9	-70.22	16.5	-45.8	48.7	44.9	3.78	12.893	
1,000.0	1,000.0	997.5	996.6	2.1	2.2	-66.30	22.0	-50.0	54.7	50.5	4.23	12.945	
1,100.0	1,100.0	1,097.4	1,096.3	2.3	2.4	-35.34	27.5	-54.3	59.5	54.8	4.68	12.725	
1,200.0	1,199.8	1,197.4	1,196.0	2.6	2.7	-35.26	33.0	-58.5	61.5	56.4	5.12	12.003	
1,300.0	1,299.6	1,297.4	1,295.7	2.8	2.9	-36.13	38.5	-62.8	62.1	56.5	5.58	11.126	
1,400.0	1,399.4	1,397.4	1,395.5	3.0	3.2	-36.98	44.0	-67.1	62.6	56.6	6.04	10.377	
1,500.0	1,499.1	1,497.3	1,495.2	3.3	3.4	-37.82	49.5	-71.3	63.2	56.7	6.50	9.731	
1,600.0	1,598.9	1,597.3	1,595.0	3.5	3.7	-38.64	55.1	-75.6	63.9	56.9	6.96	9.169	
1,700.0	1,698.6	1,697.3	1,694.7	3.7	3.9	-39.44	60.6	-79.9	64.5	57.0	7.43	8.675	
1,800.0	1,798.4	1,797.3	1,794.5	4.0	4.2	-40.23	66.1	-84.1	65.1	57.2	7.90	8.240	
1,900.0	1,898.1	1,897.3	1,894.2	4.2	4.4	-41.01	71.6	-88.4	65.8	57.4	8.37	7.852	
2,000.0	1,997.9	1,997.3	1,994.0	4.5	4.7	-41.77	77.1	-92.7	66.4	57.6	8.85	7.506	
2,100.0	2,097.6	2,097.3	2,093.7	4.7	4.9	-42.51	82.6	-96.9	67.1	57.8	9.32	7.194	
2,200.0	2,197.4	2,197.3	2,193.5	5.0	5.2	-43.24	88.2	-101.2	67.8	58.0	9.80	6.913	
2,300.0	2,297.2	2,297.3	2,293.2	5.2	5.4	-43.96	93.7	-105.5	68.5	58.2	10.28	6.657	
2,400.0	2,396.9	2,397.3	2,393.0	5.5	5.7	-44.66	99.2	-109.7	69.2	58.4	10.76	6.425	
2,500.0	2,496.7	2,497.3	2,492.7	5.7	6.0	-45.35	104.7	-114.0	69.9	58.6	11.25	6.212	
2,600.0	2,596.4	2,597.3	2,592.5	6.0	6.2	-46.02	110.2	-118.3	70.6	58.9	11.73	6.017	
2,700.0	2,696.2	2,697.3	2,692.2	6.2	6.5	-46.68	115.7	-122.6	71.3	59.1	12.22	5.838	
2,800.0	2,795.9	2,797.3	2,792.0	6.5	6.7	-47.32	121.3	-126.8	72.1	59.4	12.70	5.672	
2,900.0	2,895.7	2,897.3	2,891.7	6.7	7.0	-47.96	126.8	-131.1	72.8	59.6	13.19	5.519	
3,000.0	2,995.5	2,997.3	2,991.5	7.0	7.2	-48.58	132.3	-135.4	73.6	59.9	13.68	5.376	
3,100.0	3,095.2	3,097.3	3,091.2	7.2	7.5	-49.18	137.8	-139.6	74.3	60.2	14.17	5.244	
3,200.0	3,195.0	3,197.2	3,191.0	7.5	7.8	-49.78	143.3	-143.9	75.1	60.4	14.67	5.121	
3,300.0	3,294.7	3,297.2	3,290.7	7.8	8.0	-50.36	148.9	-148.2	75.9	60.7	15.16	5.006	
3,400.0	3,394.5	3,397.2	3,390.5	8.0	8.3	-50.93	154.4	-152.4	76.7	61.0	15.65	4.898	
3,500.0	3,494.2	3,497.2	3,490.3	8.3	8.5	-51.49	159.9	-156.7	77.5	61.3	16.15	4.797	
3,600.0	3,594.0	3,597.2	3,590.0	8.5	8.8	-52.03	165.4	-161.0	78.3	61.6	16.65	4.703	
3,700.0	3,693.7	3,697.2	3,689.8	8.8	9.0	-52.57	170.9	-165.2	79.1	62.0	17.14	4.613	
3,800.0	3,793.5	3,797.2	3,789.5	9.0	9.3	-53.10	176.4	-169.5	79.9	62.3	17.64	4.530	
3,900.0	3,893.3	3,897.2	3,889.3	9.3	9.6	-53.61	182.0	-173.8	80.7	62.6	18.14	4.450	
4,000.0	3,993.0	3,997.2	3,989.0	9.5	9.8	-54.11	187.5	-178.0	81.6	62.9	18.64	4.376	
4,100.0	4,092.8	4,097.2	4,088.8	9.8	10.1	-54.61	193.0	-182.3	82.4	63.3	19.14	4.305	
4,200.0	4,192.5	4,197.2	4,188.5	10.1	10.3	-55.09	198.5	-186.6	83.3	63.6	19.64	4.238	
4,300.0	4,292.3	4,297.2	4,288.3	10.3	10.6	-55.56	204.0	-190.8	84.1	64.0	20.15	4.175	
4,400.0	4,392.0	4,397.2	4,388.0	10.6	10.9	-56.03	209.5	-195.1	85.0	64.3	20.65	4.114	
4,500.0	4,491.8	4,497.2	4,487.8	10.8	11.1	-56.48	215.1	-199.4	85.8	64.7	21.15	4.057	
4,600.0	4,591.6	4,597.2	4,587.5	11.1	11.4	-56.93	220.6	-203.6	86.7	65.0	21.66	4.003	
4,700.0	4,691.3	4,697.2	4,687.3	11.3	11.6	-57.37	226.1	-207.9	87.6	65.4	22.16	3.951	
4,800.0	4,791.1	4,797.1	4,787.0	11.6	11.9	-57.80	231.6	-212.2	88.4	65.8	22.67	3.901	
4,900.0	4,890.8	4,897.1	4,886.8	11.8	12.1	-58.22	237.1	-216.4	89.3	66.1	23.17	3.854	
5,000.0	4,990.6	4,997.1	4,986.5	12.1	12.4	-58.63	242.6	-220.7	90.2	66.5	23.68	3.809	
5,100.0	5,090.3	5,097.1	5,086.3	12.4	12.7	-59.03	248.2	-225.0	91.1	66.9	24.19	3.766	

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-0103A
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-0103A	**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	5,190.1	5,197.1	5,186.0	12.6	12.9	-59.43	253.7	-229.2	92.0	67.3	24.69	3.725	
5,300.0	5,289.9	5,297.1	5,285.8	12.9	13.2	-59.82	259.2	-233.5	92.9	67.7	25.20	3.686	
5,400.0	5,389.2	5,397.0	5,385.4	13.2	13.4	-62.37	264.7	-237.8	92.0	66.2	25.78	3.567	
5,500.0	5,485.0	5,490.9	5,478.8	13.6	13.7	-73.82	271.9	-243.3	86.3	59.5	26.79	3.220	
5,545.7	5,526.6	5,532.9	5,519.9	13.8	13.9	-80.07	278.8	-248.7	85.5	58.0	27.45	3.114	
5,600.0	5,573.6	5,583.7	5,568.4	14.2	14.1	-87.68	290.7	-257.8	86.7	58.5	28.16	3.078	
5,700.0	5,651.8	5,679.9	5,655.3	14.9	14.6	-100.64	323.0	-282.9	95.3	65.9	29.39	3.243	
5,800.0	5,716.7	5,780.2	5,736.3	15.9	15.4	-110.48	369.6	-318.9	110.9	80.8	30.16	3.678	
5,900.0	5,766.0	5,884.9	5,807.2	17.1	16.5	-116.86	430.4	-365.9	131.1	100.3	30.82	4.254	
6,000.0	5,797.8	5,994.7	5,863.5	18.5	17.8	-120.39	504.7	-423.4	153.5	121.6	31.92	4.809	
6,100.0	5,811.0	6,109.8	5,900.1	20.1	19.5	-121.82	590.9	-490.1	176.2	142.4	33.85	5.206	
6,200.0	5,811.3	6,229.2	5,911.8	21.7	21.5	-121.36	684.6	-562.5	195.9	159.1	36.82	5.321	
6,300.0	5,811.3	6,337.4	5,911.8	23.2	23.3	-118.65	772.4	-625.9	212.7	172.2	40.47	5.254	
6,400.0	5,811.3	6,446.9	5,911.8	24.9	25.2	-116.39	864.6	-684.9	229.4	185.3	44.02	5.211	
6,500.0	5,811.3	6,557.7	5,911.8	26.5	27.1	-114.49	961.3	-739.0	245.9	198.4	47.47	5.179	
6,600.0	5,811.3	6,669.8	5,911.8	28.1	29.0	-112.87	1,062.1	-788.1	262.1	211.3	50.82	5.157	
6,700.0	5,811.3	6,783.3	5,911.8	29.8	31.0	-111.49	1,166.8	-831.6	277.8	223.8	54.02	5.143	
6,800.0	5,811.3	6,898.0	5,911.8	31.4	33.0	-110.30	1,275.2	-869.1	293.0	236.0	57.07	5.135	
6,900.0	5,811.3	7,014.0	5,911.8	33.1	35.0	-109.28	1,386.9	-900.5	307.6	247.7	59.94	5.132	
7,000.0	5,811.3	7,131.2	5,911.8	34.7	37.0	-108.40	1,501.4	-925.2	321.5	258.8	62.63	5.133	
7,100.0	5,811.3	7,249.6	5,911.8	36.2	38.9	-107.63	1,618.5	-942.9	334.3	268.9	65.46	5.107	
7,200.0	5,811.3	7,369.6	5,911.8	37.8	40.8	-107.09	1,738.0	-953.5	342.8	273.5	69.24	4.950	
7,300.0	5,811.3	7,488.2	5,911.8	39.5	42.6	-106.94	1,856.6	-956.6	345.2	272.3	72.87	4.737	
7,400.0	5,811.3	7,588.2	5,911.9	41.1	44.2	-106.94	1,956.6	-956.6	345.2	269.1	76.13	4.535	
7,500.0	5,811.2	7,688.2	5,911.9	42.8	45.7	-106.94	2,056.6	-956.6	345.2	265.8	79.42	4.347	
7,600.0	5,811.2	7,788.2	5,911.9	44.5	47.3	-106.94	2,156.6	-956.6	345.2	262.5	82.74	4.172	
7,700.0	5,811.2	7,888.2	5,911.9	46.2	48.9	-106.95	2,256.6	-956.6	345.2	259.1	86.10	4.010	
7,800.0	5,811.2	7,988.2	5,911.9	47.9	50.5	-106.95	2,356.6	-956.6	345.2	255.8	89.48	3.858	
7,900.0	5,811.2	8,088.2	5,911.9	49.6	52.1	-106.95	2,456.6	-956.6	345.2	252.3	92.89	3.717	
8,000.0	5,811.2	8,188.2	5,911.9	51.4	53.8	-106.95	2,556.6	-956.6	345.2	248.9	96.31	3.585	
8,100.0	5,811.2	8,288.2	5,911.9	53.1	55.4	-106.95	2,656.6	-956.6	345.2	245.5	99.76	3.461	
8,200.0	5,811.2	8,388.2	5,911.9	54.9	57.1	-106.95	2,756.6	-956.6	345.2	242.0	103.23	3.345	
8,300.0	5,811.2	8,488.2	5,911.9	56.7	58.8	-106.95	2,856.6	-956.6	345.3	238.5	106.71	3.236	
8,400.0	5,811.2	8,588.2	5,911.9	58.5	60.5	-106.95	2,956.6	-956.6	345.3	235.1	110.20	3.133	
8,500.0	5,811.2	8,688.2	5,911.9	60.3	62.2	-106.96	3,056.6	-956.6	345.3	231.6	113.71	3.036	
8,600.0	5,811.2	8,788.2	5,911.9	62.1	64.0	-106.96	3,156.6	-956.6	345.3	228.0	117.23	2.945	
8,700.0	5,811.2	8,888.2	5,911.9	63.9	65.7	-106.96	3,256.6	-956.6	345.3	224.5	120.76	2.859	
8,800.0	5,811.2	8,988.2	5,911.9	65.7	67.5	-106.96	3,356.6	-956.6	345.3	221.0	124.30	2.778	
8,900.0	5,811.2	9,088.2	5,911.9	67.5	69.2	-106.96	3,456.6	-956.5	345.3	217.4	127.85	2.701	
9,000.0	5,811.2	9,188.2	5,911.9	69.4	71.0	-106.96	3,556.6	-956.5	345.3	213.9	131.41	2.628	
9,100.0	5,811.2	9,288.2	5,911.9	71.2	72.8	-106.96	3,656.6	-956.5	345.3	210.3	134.98	2.558	
9,200.0	5,811.2	9,388.2	5,911.9	73.0	74.6	-106.96	3,756.6	-956.5	345.3	206.7	138.55	2.492	
9,300.0	5,811.2	9,488.2	5,911.9	74.9	76.4	-106.96	3,856.6	-956.5	345.3	203.2	142.13	2.429	
9,400.0	5,811.2	9,588.2	5,911.9	76.7	78.2	-106.97	3,956.6	-956.5	345.3	199.6	145.71	2.370	
9,500.0	5,811.1	9,688.2	5,911.9	78.6	80.0	-106.97	4,056.6	-956.5	345.3	196.0	149.30	2.313	
9,600.0	5,811.1	9,788.2	5,911.9	80.4	81.8	-106.97	4,156.6	-956.5	345.3	192.4	152.90	2.258	
9,700.0	5,811.1	9,888.2	5,911.9	82.3	83.6	-106.97	4,256.6	-956.5	345.3	188.8	156.50	2.206	
9,800.0	5,811.1	9,988.2	5,911.9	84.1	85.4	-106.97	4,356.6	-956.5	345.3	185.2	160.11	2.157	
9,900.0	5,811.1	10,088.2	5,911.9	86.0	87.2	-106.97	4,456.6	-956.5	345.3	181.6	163.72	2.109	
10,000.0	5,811.1	10,188.2	5,911.9	87.9	89.1	-106.97	4,556.6	-956.5	345.3	178.0	167.33	2.064	
10,100.0	5,811.1	10,288.2	5,911.9	89.7	90.9	-106.97	4,656.6	-956.5	345.3	174.4	170.95	2.020	
10,200.0	5,811.1	10,388.2	5,911.9	91.6	92.7	-106.98	4,756.6	-956.5	345.3	170.8	174.57	1.978	

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-0103A
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-0103A	**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
10,300.0	5,811.1	10,488.2	5,911.9	93.5	94.6	-106.98	4,856.6	-956.5	345.3	167.2	178.19	1.938	
10,400.0	5,811.1	10,588.2	5,911.9	95.3	96.4	-106.98	4,956.6	-956.5	345.3	163.5	181.82	1.899	
10,500.0	5,811.1	10,688.2	5,911.9	97.2	98.3	-106.98	5,056.6	-956.5	345.4	159.9	185.45	1.862	
10,600.0	5,811.1	10,788.2	5,911.9	99.1	100.1	-106.98	5,156.6	-956.5	345.4	156.3	189.08	1.827	
10,700.0	5,811.1	10,888.2	5,912.0	101.0	102.0	-106.98	5,256.6	-956.5	345.4	152.6	192.72	1.792	
10,800.0	5,811.1	10,988.2	5,912.0	102.9	103.8	-106.98	5,356.6	-956.5	345.4	149.0	196.35	1.759	
10,900.0	5,811.1	11,088.2	5,912.0	104.7	105.7	-106.98	5,456.6	-956.5	345.4	145.4	199.99	1.727	
11,000.0	5,811.1	11,188.2	5,912.0	106.6	107.5	-106.98	5,556.6	-956.5	345.4	141.7	203.64	1.696	
11,100.0	5,811.1	11,288.2	5,912.0	108.5	109.4	-106.99	5,656.6	-956.5	345.4	138.1	207.28	1.666	
11,200.0	5,811.1	11,388.2	5,912.0	110.4	111.3	-106.99	5,756.6	-956.5	345.4	134.5	210.92	1.637	
11,300.0	5,811.1	11,488.2	5,912.0	112.3	113.1	-106.99	5,856.6	-956.5	345.4	130.8	214.57	1.610	
11,400.0	5,811.0	11,588.2	5,912.0	114.2	115.0	-106.99	5,956.6	-956.5	345.4	127.2	218.22	1.583	
11,500.0	5,811.0	11,688.2	5,912.0	116.1	116.9	-106.99	6,056.6	-956.5	345.4	123.5	221.87	1.557	
11,600.0	5,811.0	11,788.2	5,912.0	117.9	118.7	-106.99	6,156.6	-956.5	345.4	119.9	225.53	1.532	
11,700.0	5,811.0	11,888.2	5,912.0	119.8	120.6	-106.99	6,256.6	-956.5	345.4	116.2	229.18	1.507	
11,800.0	5,811.0	11,988.2	5,912.0	121.7	122.5	-106.99	6,356.6	-956.5	345.4	112.6	232.84	1.484	Level 3
11,900.0	5,811.0	12,088.2	5,912.0	123.6	124.4	-107.00	6,456.6	-956.5	345.4	108.9	236.49	1.461	Level 3
12,000.0	5,811.0	12,188.2	5,912.0	125.5	126.2	-107.00	6,556.6	-956.5	345.4	105.3	240.15	1.438	Level 3
12,100.0	5,811.0	12,288.2	5,912.0	127.4	128.1	-107.00	6,656.6	-956.5	345.4	101.6	243.81	1.417	Level 3
12,200.0	5,811.0	12,388.2	5,912.0	129.3	130.0	-107.00	6,756.6	-956.5	345.4	98.0	247.47	1.396	Level 3
12,300.0	5,811.0	12,488.2	5,912.0	131.2	131.9	-107.00	6,856.6	-956.5	345.4	94.3	251.13	1.376	Level 3
12,319.4	5,811.0	12,507.6	5,912.0	131.6	132.2	-107.00	6,876.0	-956.5	345.4	93.6	251.82	1.372	Level 3
12,338.7	5,811.0	12,524.9	5,912.0	131.9	132.5	-107.00	6,893.3	-956.5	345.4	93.0	252.43	1.368	Level 3, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0103A
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-0103A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0104B - HZ - Plan #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	400.422	
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-74.9	0.0	74.9	74.2	0.64	117.638	
300.0	300.0	300.0	300.0	0.5	0.5	-180.00	-74.9	0.0	74.9	73.8	1.09	68.947	
400.0	400.0	400.0	400.0	0.8	0.8	-180.00	-74.9	0.0	74.9	73.3	1.54	48.763	
500.0	500.0	500.0	500.0	1.0	1.0	-180.00	-74.9	0.0	74.9	72.9	1.99	37.721	
600.0	600.0	600.0	600.0	1.2	1.2	-180.00	-74.9	0.0	74.9	72.4	2.43	30.756	
700.0	700.0	700.0	700.0	1.4	1.4	-180.00	-74.9	0.0	74.9	72.0	2.88	25.963	
800.0	800.0	800.0	800.0	1.7	1.7	-180.00	-74.9	0.0	74.9	71.5	3.33	22.462	
900.0	900.0	902.5	902.5	1.9	1.9	-179.61	-73.1	-0.5	73.2	69.4	3.79	19.308	
1,000.0	1,000.0	1,004.7	1,004.5	2.1	2.1	-178.33	-67.8	-2.0	68.0	63.8	4.25	16.019	
1,100.0	1,100.0	1,104.6	1,104.1	2.3	2.4	-148.59	-61.1	-3.9	62.9	58.2	4.70	13.386	
1,200.0	1,199.8	1,204.5	1,203.9	2.6	2.6	-149.11	-54.4	-5.7	60.7	55.6	5.14	11.806	
1,300.0	1,299.6	1,304.5	1,303.6	2.8	2.8	-150.48	-47.7	-7.6	60.1	54.5	5.60	10.734	
1,400.0	1,399.4	1,404.5	1,403.4	3.0	3.1	-151.89	-41.0	-9.5	59.5	53.4	6.05	9.826	
1,500.0	1,499.1	1,504.5	1,503.1	3.3	3.3	-153.32	-34.3	-11.4	58.9	52.4	6.51	9.049	
1,600.0	1,598.9	1,604.5	1,602.8	3.5	3.6	-154.78	-27.6	-13.3	58.4	51.4	6.97	8.379	
1,700.0	1,698.6	1,704.5	1,702.6	3.7	3.8	-156.26	-20.8	-15.2	57.9	50.5	7.43	7.797	
1,800.0	1,798.4	1,804.5	1,802.3	4.0	4.1	-157.77	-14.1	-17.0	57.5	49.6	7.88	7.288	
1,900.0	1,898.1	1,904.4	1,902.1	4.2	4.3	-159.30	-7.4	-18.9	57.0	48.7	8.34	6.840	
2,000.0	1,997.9	2,004.4	2,001.8	4.5	4.6	-160.86	-0.7	-20.8	56.7	47.9	8.80	6.443	
2,100.0	2,097.6	2,104.4	2,101.6	4.7	4.8	-162.43	6.0	-22.7	56.4	47.1	9.25	6.091	
2,200.0	2,197.4	2,204.4	2,201.3	5.0	5.1	-164.02	12.7	-24.6	56.1	46.4	9.71	5.776	
2,300.0	2,297.2	2,304.4	2,301.1	5.2	5.3	-165.62	19.4	-26.5	55.8	45.7	10.16	5.494	
2,400.0	2,396.9	2,404.4	2,400.8	5.5	5.6	-167.24	26.2	-28.3	55.6	45.0	10.62	5.240	
2,500.0	2,496.7	2,504.4	2,500.5	5.7	5.8	-168.86	32.9	-30.2	55.5	44.4	11.07	5.011	
2,600.0	2,596.4	2,604.4	2,600.3	6.0	6.1	-170.50	39.6	-32.1	55.4	43.9	11.53	4.804	
2,700.0	2,696.2	2,704.3	2,700.0	6.2	6.3	-172.13	46.3	-34.0	55.3	43.3	11.98	4.617	
2,783.0	2,779.0	2,787.4	2,782.8	6.4	6.5	-173.50	51.9	-35.6	55.3	42.9	12.36	4.474	CC
2,800.0	2,795.9	2,804.3	2,799.8	6.5	6.6	-173.77	53.0	-35.9	55.3	42.9	12.44	4.446	
2,900.0	2,895.7	2,904.3	2,899.5	6.7	6.8	-175.41	59.7	-37.8	55.3	42.4	12.90	4.291	
3,000.0	2,995.5	3,004.3	2,999.3	7.0	7.1	-177.05	66.5	-39.6	55.4	42.1	13.35	4.150	
3,100.0	3,095.2	3,104.3	3,099.0	7.2	7.3	-178.68	73.2	-41.5	55.5	41.7	13.81	4.020	
3,200.0	3,195.0	3,204.3	3,198.7	7.5	7.6	179.69	79.9	-43.4	55.7	41.4	14.27	3.902	
3,300.0	3,294.7	3,304.3	3,298.5	7.8	7.9	178.08	86.6	-45.3	55.9	41.2	14.74	3.794	
3,400.0	3,394.5	3,404.3	3,398.2	8.0	8.1	176.48	93.3	-47.2	56.2	41.0	15.20	3.695	
3,500.0	3,494.2	3,504.2	3,498.0	8.3	8.4	174.90	100.0	-49.1	56.5	40.8	15.67	3.604	
3,600.0	3,594.0	3,604.2	3,597.7	8.5	8.6	173.34	106.7	-51.0	56.8	40.7	16.14	3.520	
3,700.0	3,693.7	3,704.2	3,697.5	8.8	8.9	171.79	113.5	-52.8	57.2	40.6	16.61	3.443	
3,800.0	3,793.5	3,804.2	3,797.2	9.0	9.1	170.27	120.2	-54.7	57.6	40.5	17.08	3.373	
3,900.0	3,893.3	3,904.2	3,897.0	9.3	9.4	168.77	126.9	-56.6	58.1	40.5	17.56	3.308	ES
4,000.0	3,993.0	4,004.2	3,996.7	9.5	9.6	167.29	133.6	-58.5	58.6	40.5	18.04	3.247	
4,100.0	4,092.8	4,104.2	4,096.4	9.8	9.9	165.84	140.3	-60.4	59.1	40.6	18.52	3.192	
4,200.0	4,192.5	4,204.2	4,196.2	10.1	10.2	164.42	147.0	-62.3	59.7	40.7	19.00	3.141	
4,300.0	4,292.3	4,304.1	4,295.9	10.3	10.4	163.02	153.8	-64.1	60.3	40.8	19.49	3.094	
4,400.0	4,392.0	4,404.1	4,395.7	10.6	10.7	161.66	160.5	-66.0	61.0	41.0	19.98	3.051	
4,500.0	4,491.8	4,504.1	4,495.4	10.8	10.9	160.32	167.2	-67.9	61.6	41.2	20.47	3.010	
4,600.0	4,591.6	4,604.1	4,595.2	11.1	11.2	159.01	173.9	-69.8	62.3	41.4	20.97	2.974	
4,700.0	4,691.3	4,704.1	4,694.9	11.3	11.4	157.74	180.6	-71.7	63.1	41.6	21.46	2.940	
4,800.0	4,791.1	4,804.1	4,794.6	11.6	11.7	156.49	187.3	-73.6	63.9	41.9	21.96	2.908	
4,900.0	4,890.8	4,904.1	4,894.4	11.8	11.9	155.28	194.0	-75.4	64.7	42.2	22.46	2.879	
5,000.0	4,990.6	5,004.1	4,994.1	12.1	12.2	154.09	200.8	-77.3	65.5	42.5	22.97	2.852	

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-0103A
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-0103A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0104B - HZ - Plan #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	5,090.3	5,104.0	5,093.9	12.4	12.5	152.94	207.5	-79.2	66.4	42.9	23.47	2.828	
5,200.0	5,190.1	5,204.0	5,193.6	12.6	12.7	151.81	214.2	-81.1	67.3	43.3	23.98	2.805	
5,300.0	5,289.9	5,304.0	5,293.4	12.9	13.0	150.72	220.9	-83.0	68.2	43.7	24.49	2.784	
5,400.0	5,389.2	5,403.8	5,393.0	13.2	13.2	150.97	227.6	-84.9	72.4	47.6	24.81	2.920	
5,500.0	5,485.0	5,511.4	5,499.7	13.6	13.5	154.46	239.8	-88.3	89.0	64.6	24.43	3.644	
5,600.0	5,573.6	5,627.1	5,609.2	14.2	14.1	154.07	274.9	-98.1	106.9	83.2	23.71	4.509	
5,700.0	5,651.8	5,746.2	5,710.7	14.9	14.9	150.68	334.5	-114.8	124.2	101.1	23.11	5.377	
5,800.0	5,716.7	5,867.7	5,797.0	15.9	15.9	145.28	416.4	-137.8	140.9	117.4	23.42	6.014	
5,900.0	5,766.0	5,990.4	5,861.9	17.1	17.3	138.54	516.4	-165.9	156.9	131.5	25.41	6.176	
6,000.0	5,797.8	6,113.0	5,900.7	18.5	19.0	130.99	628.1	-197.2	172.7	143.5	29.22	5.912	
6,100.0	5,811.0	6,230.7	5,911.6	20.1	20.7	123.29	740.7	-228.7	188.6	154.5	34.11	5.528	
6,200.0	5,811.3	6,319.8	5,911.6	21.7	22.0	119.38	827.1	-250.3	208.8	170.8	38.04	5.490	
6,300.0	5,811.3	6,408.1	5,911.6	23.2	23.3	116.52	913.7	-267.7	229.5	187.8	41.67	5.508	
6,400.0	5,811.3	6,500.0	5,911.6	24.9	24.6	114.09	1,004.5	-281.5	250.1	204.8	45.25	5.526	
6,500.0	5,811.3	6,582.2	5,911.6	26.5	25.9	112.26	1,086.3	-290.1	270.3	221.8	48.52	5.571	
6,600.0	5,811.3	6,668.1	5,911.6	28.1	27.2	110.64	1,172.0	-295.4	290.1	238.4	51.74	5.607	
6,700.0	5,811.3	6,755.1	5,911.6	29.8	28.6	109.26	1,259.0	-296.8	309.4	254.5	54.86	5.640	
6,800.0	5,811.3	6,853.6	5,911.6	31.4	30.2	108.12	1,357.5	-296.8	325.5	267.5	58.05	5.607	
6,900.0	5,811.3	6,952.9	5,911.6	33.1	31.8	107.40	1,456.8	-296.8	336.8	275.7	61.07	5.514	
7,000.0	5,811.3	7,052.7	5,911.6	34.7	33.5	107.02	1,556.6	-296.8	343.1	279.2	63.90	5.368	
7,100.0	5,811.3	7,152.7	5,911.6	36.2	35.2	106.93	1,656.6	-296.8	344.5	277.8	66.71	5.165	
7,200.0	5,811.3	7,252.7	5,911.6	37.8	37.0	106.94	1,756.6	-296.8	344.5	274.5	70.01	4.921	
7,300.0	5,811.3	7,352.7	5,911.6	39.5	38.7	106.94	1,856.6	-296.8	344.5	271.2	73.35	4.697	
7,400.0	5,811.3	7,452.7	5,911.6	41.1	40.5	106.94	1,956.6	-296.8	344.5	267.8	76.73	4.490	
7,500.0	5,811.2	7,552.7	5,911.6	42.8	42.3	106.94	2,056.6	-296.8	344.5	264.4	80.13	4.299	
7,600.0	5,811.2	7,652.7	5,911.7	44.5	44.1	106.94	2,156.6	-296.8	344.5	261.0	83.56	4.123	
7,700.0	5,811.2	7,752.7	5,911.7	46.2	45.9	106.95	2,256.6	-296.8	344.5	257.5	87.01	3.959	
7,800.0	5,811.2	7,852.7	5,911.7	47.9	47.7	106.95	2,356.6	-296.8	344.5	254.0	90.49	3.808	
7,900.0	5,811.2	7,952.7	5,911.7	49.6	49.5	106.95	2,456.6	-296.8	344.5	250.6	93.97	3.666	
8,000.0	5,811.2	8,052.7	5,911.7	51.4	51.3	106.95	2,556.6	-296.8	344.5	247.1	97.48	3.535	
8,100.0	5,811.2	8,152.7	5,911.7	53.1	53.2	106.95	2,656.6	-296.8	344.5	243.5	101.00	3.411	
8,200.0	5,811.2	8,252.7	5,911.7	54.9	55.0	106.96	2,756.6	-296.7	344.5	240.0	104.53	3.296	
8,300.0	5,811.2	8,352.7	5,911.7	56.7	56.9	106.96	2,856.6	-296.7	344.6	236.5	108.07	3.188	
8,400.0	5,811.2	8,452.7	5,911.7	58.5	58.7	106.96	2,956.6	-296.7	344.6	232.9	111.62	3.087	
8,500.0	5,811.2	8,552.7	5,911.7	60.3	60.6	106.96	3,056.6	-296.7	344.6	229.4	115.18	2.991	
8,600.0	5,811.2	8,652.7	5,911.7	62.1	62.4	106.96	3,156.6	-296.7	344.6	225.8	118.75	2.902	
8,700.0	5,811.2	8,752.7	5,911.7	63.9	64.3	106.97	3,256.6	-296.7	344.6	222.2	122.33	2.817	
8,800.0	5,811.2	8,852.7	5,911.7	65.7	66.2	106.97	3,356.6	-296.7	344.6	218.7	125.91	2.737	
8,900.0	5,811.2	8,952.7	5,911.7	67.5	68.0	106.97	3,456.6	-296.7	344.6	215.1	129.50	2.661	
9,000.0	5,811.2	9,052.7	5,911.8	69.4	69.9	106.97	3,556.6	-296.7	344.6	211.5	133.10	2.589	
9,100.0	5,811.2	9,152.7	5,911.8	71.2	71.8	106.97	3,656.6	-296.7	344.6	207.9	136.70	2.521	
9,200.0	5,811.2	9,252.7	5,911.8	73.0	73.6	106.98	3,756.6	-296.7	344.6	204.3	140.31	2.456	
9,300.0	5,811.2	9,352.7	5,911.8	74.9	75.5	106.98	3,856.6	-296.7	344.6	200.7	143.92	2.394	
9,400.0	5,811.2	9,452.7	5,911.8	76.7	77.4	106.98	3,956.6	-296.7	344.6	197.1	147.53	2.336	
9,500.0	5,811.1	9,552.7	5,911.8	78.6	79.3	106.98	4,056.6	-296.7	344.6	193.4	151.15	2.280	
9,600.0	5,811.1	9,652.7	5,911.8	80.4	81.2	106.98	4,156.6	-296.7	344.6	189.8	154.78	2.226	
9,700.0	5,811.1	9,752.7	5,911.8	82.3	83.1	106.99	4,256.6	-296.7	344.6	186.2	158.40	2.175	
9,800.0	5,811.1	9,852.7	5,911.8	84.1	85.0	106.99	4,356.6	-296.7	344.6	182.6	162.03	2.127	
9,900.0	5,811.1	9,952.7	5,911.8	86.0	86.8	106.99	4,456.6	-296.7	344.6	178.9	165.67	2.080	
10,000.0	5,811.1	10,052.7	5,911.8	87.9	88.7	106.99	4,556.6	-296.7	344.6	175.3	169.30	2.035	
10,100.0	5,811.1	10,152.7	5,911.8	89.7	90.6	106.99	4,656.6	-296.7	344.6	171.7	172.94	1.993	
10,200.0	5,811.1	10,252.7	5,911.8	91.6	92.5	107.00	4,756.6	-296.6	344.6	168.0	176.58	1.952	

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-0103A
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-0103A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design S12-T10N-R58W - Razor #12F-0104B - HZ - Plan #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	5,811.1	10,352.7	5,911.8	93.5	94.4	107.00	4,856.6	-296.6	344.6	164.4	180.23	1.912	
10,400.0	5,811.1	10,452.7	5,911.9	95.3	96.3	107.00	4,956.6	-296.6	344.6	160.8	183.87	1.874	
10,500.0	5,811.1	10,552.7	5,911.9	97.2	98.2	107.00	5,056.6	-296.6	344.6	157.1	187.52	1.838	
10,600.0	5,811.1	10,652.7	5,911.9	99.1	100.1	107.00	5,156.6	-296.6	344.6	153.5	191.17	1.803	
10,700.0	5,811.1	10,752.7	5,911.9	101.0	102.0	107.01	5,256.6	-296.6	344.6	149.8	194.82	1.769	
10,800.0	5,811.1	10,852.7	5,911.9	102.9	103.9	107.01	5,356.6	-296.6	344.6	146.2	198.47	1.737	
10,900.0	5,811.1	10,952.7	5,911.9	104.7	105.8	107.01	5,456.6	-296.6	344.6	142.5	202.12	1.705	
11,000.0	5,811.1	11,052.7	5,911.9	106.6	107.7	107.01	5,556.6	-296.6	344.7	138.9	205.78	1.675	
11,100.0	5,811.1	11,152.7	5,911.9	108.5	109.6	107.01	5,656.6	-296.6	344.7	135.2	209.44	1.646	
11,200.0	5,811.1	11,252.7	5,911.9	110.4	111.5	107.02	5,756.6	-296.6	344.7	131.6	213.10	1.617	
11,300.0	5,811.1	11,352.7	5,911.9	112.3	113.4	107.02	5,856.6	-296.6	344.7	127.9	216.76	1.590	
11,400.0	5,811.0	11,452.7	5,911.9	114.2	115.3	107.02	5,956.6	-296.6	344.7	124.3	220.42	1.564	
11,500.0	5,811.0	11,552.7	5,911.9	116.1	117.2	107.02	6,056.6	-296.6	344.7	120.6	224.08	1.538	
11,600.0	5,811.0	11,652.7	5,911.9	117.9	119.1	107.02	6,156.6	-296.6	344.7	116.9	227.74	1.513	
11,700.0	5,811.0	11,752.7	5,912.0	119.8	121.0	107.03	6,256.6	-296.6	344.7	113.3	231.41	1.489	Level 3
11,800.0	5,811.0	11,852.7	5,912.0	121.7	122.9	107.03	6,356.6	-296.6	344.7	109.6	235.07	1.466	Level 3
11,900.0	5,811.0	11,952.7	5,912.0	123.6	124.9	107.03	6,456.6	-296.6	344.7	105.9	238.74	1.444	Level 3
12,000.0	5,811.0	12,052.7	5,912.0	125.5	126.8	107.03	6,556.6	-296.6	344.7	102.3	242.40	1.422	Level 3
12,100.0	5,811.0	12,152.7	5,912.0	127.4	128.7	107.03	6,656.6	-296.6	344.7	98.6	246.07	1.401	Level 3
12,200.0	5,811.0	12,252.7	5,912.0	129.3	130.6	107.04	6,756.6	-296.5	344.7	95.0	249.74	1.380	Level 3
12,300.0	5,811.0	12,352.7	5,912.0	131.2	132.3	107.04	6,856.6	-296.5	344.7	91.5	253.23	1.361	Level 3
12,338.7	5,811.0	12,391.4	5,912.0	131.9	132.9	107.04	6,895.3	-296.5	344.7	90.2	254.52	1.354	Level 3, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0103A
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-0103A	**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	89.99	0.0	98.4	98.4				
100.0	100.0	100.0	100.0	0.1	0.1	89.99	0.0	98.4	98.4	98.2	0.19	525.982	
200.0	200.0	200.0	200.0	0.3	0.3	89.99	0.0	98.4	98.4	97.7	0.64	154.526	
300.0	300.0	300.0	300.0	0.5	0.5	89.99	0.0	98.4	98.4	97.3	1.09	90.567	
400.0	400.0	400.0	400.0	0.8	0.8	89.99	0.0	98.4	98.4	96.8	1.54	64.054	
500.0	500.0	500.0	500.0	1.0	1.0	89.99	0.0	98.4	98.4	96.4	1.99	49.549	
600.0	600.0	600.0	600.0	1.2	1.2	89.99	0.0	98.4	98.4	95.9	2.43	40.401	
700.0	700.0	700.0	700.0	1.4	1.4	89.99	0.0	98.4	98.4	95.5	2.88	34.104	
800.0	800.0	800.0	800.0	1.7	1.7	89.99	0.0	98.4	98.4	95.0	3.33	29.505	
900.0	900.0	900.0	900.0	1.9	1.9	89.99	0.0	98.4	98.4	94.6	3.78	25.999	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	89.99	0.0	98.4	98.4	94.1	4.23	23.238	CC, ES
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	119.57	0.0	98.4	99.2	94.5	4.68	21.201	
1,200.0	1,199.8	1,200.3	1,200.3	2.6	2.6	121.12	1.8	98.2	101.7	96.6	5.12	19.844	
1,300.0	1,299.6	1,300.7	1,300.5	2.8	2.8	121.54	7.0	97.8	104.7	99.1	5.57	18.784	
1,400.0	1,399.4	1,400.6	1,400.2	3.0	3.0	121.01	14.0	97.3	107.5	101.4	6.03	17.825	
1,500.0	1,499.1	1,500.6	1,499.9	3.3	3.3	120.52	20.9	96.8	110.3	103.8	6.49	16.983	
1,600.0	1,598.9	1,600.5	1,599.6	3.5	3.5	120.05	27.9	96.3	113.1	106.1	6.96	16.240	
1,700.0	1,698.6	1,700.5	1,699.3	3.7	3.7	119.60	34.8	95.8	115.9	108.5	7.44	15.582	
1,800.0	1,798.4	1,800.4	1,799.1	4.0	4.0	119.17	41.8	95.3	118.7	110.8	7.92	14.996	
1,900.0	1,898.1	1,900.4	1,898.8	4.2	4.2	118.77	48.7	94.8	121.6	113.2	8.40	14.471	
2,000.0	1,997.9	2,000.4	1,998.5	4.5	4.5	118.38	55.7	94.3	124.4	115.5	8.89	14.000	
2,100.0	2,097.6	2,100.3	2,098.2	4.7	4.7	118.01	62.6	93.7	127.3	117.9	9.38	13.574	
2,200.0	2,197.4	2,200.3	2,197.9	5.0	4.9	117.65	69.6	93.2	130.1	120.2	9.87	13.188	
2,300.0	2,297.2	2,300.2	2,297.6	5.2	5.2	117.31	76.6	92.7	133.0	122.6	10.36	12.837	
2,400.0	2,396.9	2,400.2	2,397.3	5.5	5.4	116.99	83.5	92.2	135.8	125.0	10.85	12.516	
2,500.0	2,496.7	2,500.1	2,497.0	5.7	5.7	116.68	90.5	91.7	138.7	127.3	11.35	12.222	
2,600.0	2,596.4	2,600.1	2,596.8	6.0	5.9	116.38	97.4	91.2	141.6	129.7	11.84	11.951	
2,700.0	2,696.2	2,700.0	2,696.5	6.2	6.2	116.09	104.4	90.7	144.4	132.1	12.34	11.701	
2,800.0	2,795.9	2,800.0	2,796.2	6.5	6.4	115.82	111.3	90.1	147.3	134.5	12.84	11.471	
2,900.0	2,895.7	2,900.0	2,895.9	6.7	6.7	115.55	118.3	89.6	150.2	136.8	13.34	11.257	
3,000.0	2,995.5	2,999.9	2,995.6	7.0	6.9	115.29	125.2	89.1	153.1	139.2	13.84	11.058	
3,100.0	3,095.2	3,099.9	3,095.3	7.2	7.2	115.05	132.2	88.6	155.9	141.6	14.34	10.872	
3,200.0	3,195.0	3,199.8	3,195.0	7.5	7.4	114.81	139.1	88.1	158.8	144.0	14.85	10.699	
3,300.0	3,294.7	3,299.8	3,294.8	7.8	7.7	114.58	146.1	87.6	161.7	146.4	15.35	10.537	
3,400.0	3,394.5	3,399.7	3,394.5	8.0	7.9	114.36	153.0	87.1	164.6	148.8	15.85	10.384	
3,500.0	3,494.2	3,499.7	3,494.2	8.3	8.2	114.15	160.0	86.6	167.5	151.1	16.35	10.242	
3,600.0	3,594.0	3,599.7	3,593.9	8.5	8.5	113.94	167.0	86.0	170.4	153.5	16.86	10.107	
3,700.0	3,693.7	3,699.6	3,693.6	8.8	8.7	113.74	173.9	85.5	173.3	155.9	17.36	9.980	
3,800.0	3,793.5	3,799.6	3,793.3	9.0	9.0	113.55	180.9	85.0	176.2	158.3	17.87	9.860	
3,900.0	3,893.3	3,899.5	3,893.0	9.3	9.2	113.37	187.8	84.5	179.1	160.7	18.37	9.747	
4,000.0	3,993.0	3,999.5	3,992.7	9.5	9.5	113.19	194.8	84.0	182.0	163.1	18.88	9.640	
4,100.0	4,092.8	4,099.4	4,092.5	9.8	9.7	113.01	201.7	83.5	184.9	165.5	19.39	9.538	
4,200.0	4,192.5	4,199.4	4,192.2	10.1	10.0	112.84	208.7	83.0	187.8	167.9	19.89	9.442	
4,300.0	4,292.3	4,299.3	4,291.9	10.3	10.2	112.68	215.6	82.5	190.7	170.3	20.40	9.350	
4,400.0	4,392.0	4,399.3	4,391.6	10.6	10.5	112.52	222.6	81.9	193.6	172.7	20.91	9.262	
4,500.0	4,491.8	4,499.3	4,491.3	10.8	10.7	112.37	229.5	81.4	196.5	175.1	21.41	9.179	
4,600.0	4,591.6	4,599.2	4,591.0	11.1	11.0	112.22	236.5	80.9	199.5	177.5	21.92	9.099	
4,700.0	4,691.3	4,699.2	4,690.7	11.3	11.2	112.07	243.4	80.4	202.4	179.9	22.43	9.024	
4,800.0	4,791.1	4,799.1	4,790.4	11.6	11.5	111.93	250.4	79.9	205.3	182.3	22.93	8.951	
4,900.0	4,890.8	4,899.1	4,890.2	11.8	11.8	111.79	257.4	79.4	208.2	184.8	23.44	8.881	
5,000.0	4,990.6	4,999.0	4,989.9	12.1	12.0	111.66	264.3	78.9	211.1	187.2	23.95	8.815	
5,100.0	5,090.3	5,099.0	5,089.6	12.4	12.3	111.53	271.3	78.3	214.0	189.6	24.46	8.751	

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-0103A
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-0103A	**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	5,190.1	5,199.0	5,189.3	12.6	12.5	111.40	278.2	77.8	217.0	192.0	24.97	8.690	
5,300.0	5,289.9	5,298.9	5,289.0	12.9	12.8	111.28	285.2	77.3	219.9	194.4	25.47	8.631	
5,400.0	5,389.2	5,397.3	5,386.8	13.2	13.1	110.77	295.6	76.6	224.4	198.4	26.00	8.630	
5,500.0	5,485.0	5,494.0	5,479.6	13.6	13.5	109.28	322.2	74.6	236.2	209.5	26.69	8.848	
5,600.0	5,573.6	5,589.2	5,564.6	14.2	14.0	106.99	364.7	71.5	255.4	227.7	27.66	9.230	
5,700.0	5,651.8	5,682.6	5,639.0	14.9	14.7	104.11	420.7	67.3	281.1	252.1	29.01	9.693	
5,800.0	5,716.7	5,774.1	5,701.2	15.9	15.5	100.83	487.5	62.4	312.6	281.8	30.77	10.158	
5,900.0	5,766.0	5,864.0	5,749.9	17.1	16.4	97.29	562.7	56.8	348.4	315.5	32.93	10.582	
6,000.0	5,797.8	5,953.1	5,784.7	18.5	17.5	93.66	644.4	50.8	387.4	352.0	35.39	10.947	
6,100.0	5,811.0	6,042.2	5,805.1	20.1	18.7	90.07	730.8	44.4	428.2	390.2	38.06	11.251	
6,200.0	5,811.3	6,130.3	5,810.5	21.7	20.0	89.90	818.4	38.0	468.1	427.2	40.89	11.448	
6,300.0	5,811.3	6,200.0	5,810.5	23.2	21.0	89.91	888.0	34.6	505.7	462.2	43.47	11.631	
6,400.0	5,811.3	6,282.6	5,810.5	24.9	22.1	89.92	970.6	33.7	541.8	495.5	46.24	11.716	
6,500.0	5,811.3	6,377.3	5,810.6	26.5	23.6	89.92	1,065.3	33.7	573.9	524.6	49.33	11.634	
6,600.0	5,811.3	6,473.5	5,810.6	28.1	25.1	89.93	1,161.5	33.7	601.1	548.6	52.49	11.452	
6,700.0	5,811.3	6,571.0	5,810.6	29.8	26.8	89.93	1,259.0	33.7	623.2	567.6	55.66	11.198	
6,800.0	5,811.3	6,669.5	5,810.6	31.4	28.4	89.94	1,357.5	33.7	640.2	581.4	58.80	10.888	
6,900.0	5,811.3	6,768.8	5,810.6	33.1	30.1	89.94	1,456.8	33.7	652.0	590.1	61.88	10.537	
7,000.0	5,811.3	6,868.6	5,810.6	34.7	31.9	89.94	1,556.6	33.7	658.6	593.7	64.86	10.154	
7,100.0	5,811.3	6,968.6	5,810.6	36.2	33.6	89.94	1,656.6	33.7	660.1	592.2	67.87	9.726	
7,200.0	5,811.3	7,068.6	5,810.6	37.8	35.4	89.94	1,756.6	33.7	660.1	588.8	71.33	9.255	
7,300.0	5,811.3	7,168.6	5,810.6	39.5	37.2	89.94	1,856.6	33.7	660.1	585.3	74.82	8.823	
7,400.0	5,811.3	7,268.6	5,810.6	41.1	39.0	89.95	1,956.6	33.7	660.1	581.8	78.34	8.426	
7,500.0	5,811.2	7,368.6	5,810.6	42.8	40.8	89.95	2,056.6	33.7	660.1	578.2	81.89	8.061	
7,600.0	5,811.2	7,468.6	5,810.6	44.5	42.6	89.95	2,156.6	33.7	660.1	574.6	85.47	7.723	
7,700.0	5,811.2	7,568.6	5,810.6	46.2	44.5	89.95	2,256.6	33.7	660.1	571.0	89.07	7.411	
7,800.0	5,811.2	7,668.6	5,810.7	47.9	46.3	89.95	2,356.6	33.7	660.1	567.4	92.69	7.122	
7,900.0	5,811.2	7,768.6	5,810.7	49.6	48.2	89.95	2,456.6	33.7	660.1	563.8	96.32	6.853	
8,000.0	5,811.2	7,868.6	5,810.7	51.4	50.0	89.95	2,556.6	33.7	660.1	560.1	99.97	6.602	
8,100.0	5,811.2	7,968.6	5,810.7	53.1	51.9	89.95	2,656.6	33.7	660.1	556.4	103.64	6.369	
8,200.0	5,811.2	8,068.6	5,810.7	54.9	53.7	89.95	2,756.6	33.7	660.1	552.7	107.32	6.151	
8,300.0	5,811.2	8,168.6	5,810.7	56.7	55.6	89.96	2,856.6	33.7	660.1	549.1	111.01	5.946	
8,400.0	5,811.2	8,268.6	5,810.7	58.5	57.5	89.96	2,956.6	33.7	660.1	545.3	114.71	5.754	
8,500.0	5,811.2	8,368.6	5,810.7	60.3	59.3	89.96	3,056.6	33.7	660.1	541.6	118.42	5.574	
8,600.0	5,811.2	8,468.6	5,810.7	62.1	61.2	89.96	3,156.6	33.7	660.0	537.9	122.13	5.404	
8,700.0	5,811.2	8,568.6	5,810.7	63.9	63.1	89.96	3,256.6	33.7	660.0	534.2	125.86	5.244	
8,800.0	5,811.2	8,668.6	5,810.7	65.7	65.0	89.96	3,356.6	33.7	660.0	530.5	129.59	5.093	
8,900.0	5,811.2	8,768.6	5,810.7	67.5	66.9	89.96	3,456.6	33.8	660.0	526.7	133.33	4.951	
9,000.0	5,811.2	8,868.6	5,810.7	69.4	68.7	89.96	3,556.6	33.8	660.0	523.0	137.07	4.815	
9,100.0	5,811.2	8,968.6	5,810.8	71.2	70.6	89.96	3,656.6	33.8	660.0	519.2	140.82	4.687	
9,200.0	5,811.2	9,068.6	5,810.8	73.0	72.5	89.97	3,756.6	33.8	660.0	515.5	144.57	4.565	
9,300.0	5,811.2	9,168.6	5,810.8	74.9	74.4	89.97	3,856.6	33.8	660.0	511.7	148.33	4.450	
9,400.0	5,811.2	9,268.6	5,810.8	76.7	76.3	89.97	3,956.6	33.8	660.0	507.9	152.09	4.340	
9,500.0	5,811.1	9,368.6	5,810.8	78.6	78.2	89.97	4,056.6	33.8	660.0	504.2	155.86	4.235	
9,600.0	5,811.1	9,468.6	5,810.8	80.4	80.1	89.97	4,156.6	33.8	660.0	500.4	159.63	4.135	
9,700.0	5,811.1	9,568.6	5,810.8	82.3	82.0	89.97	4,256.6	33.8	660.0	496.6	163.40	4.039	
9,800.0	5,811.1	9,668.6	5,810.8	84.1	83.9	89.97	4,356.6	33.8	660.0	492.8	167.18	3.948	
9,900.0	5,811.1	9,768.6	5,810.8	86.0	85.8	89.97	4,456.6	33.8	660.0	489.0	170.96	3.861	
10,000.0	5,811.1	9,868.6	5,810.8	87.9	87.7	89.97	4,556.6	33.8	660.0	485.3	174.74	3.777	
10,100.0	5,811.1	9,968.6	5,810.8	89.7	89.6	89.98	4,656.6	33.8	660.0	481.5	178.53	3.697	
10,200.0	5,811.1	10,068.6	5,810.8	91.6	91.5	89.98	4,756.6	33.8	660.0	477.7	182.32	3.620	
10,300.0	5,811.1	10,168.6	5,810.8	93.5	93.4	89.98	4,856.6	33.8	660.0	473.9	186.11	3.546	

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-0103A
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-0103A	**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	5,811.1	10,268.6	5,810.9	95.3	95.3	89.98	4,956.6	33.8	660.0	470.1	189.90	3.475	
10,500.0	5,811.1	10,368.6	5,810.9	97.2	97.2	89.98	5,056.6	33.8	660.0	466.3	193.69	3.407	
10,600.0	5,811.1	10,468.6	5,810.9	99.1	99.1	89.98	5,156.6	33.8	660.0	462.5	197.49	3.342	
10,700.0	5,811.1	10,568.6	5,810.9	101.0	101.0	89.98	5,256.6	33.8	660.0	458.7	201.29	3.279	
10,800.0	5,811.1	10,668.6	5,810.9	102.9	102.9	89.98	5,356.6	33.8	660.0	454.9	205.09	3.218	
10,900.0	5,811.1	10,768.6	5,810.9	104.7	104.8	89.98	5,456.6	33.8	660.0	451.1	208.89	3.159	
11,000.0	5,811.1	10,868.6	5,810.9	106.6	106.7	89.99	5,556.6	33.8	660.0	447.3	212.69	3.103	
11,100.0	5,811.1	10,968.6	5,810.9	108.5	108.6	89.99	5,656.6	33.8	660.0	443.5	216.49	3.048	
11,200.0	5,811.1	11,068.6	5,810.9	110.4	110.5	89.99	5,756.6	33.8	660.0	439.7	220.30	2.996	
11,300.0	5,811.1	11,168.6	5,810.9	112.3	112.4	89.99	5,856.6	33.8	660.0	435.8	224.11	2.945	
11,400.0	5,811.0	11,268.6	5,810.9	114.2	114.4	89.99	5,956.6	33.8	659.9	432.0	227.91	2.896	
11,500.0	5,811.0	11,368.6	5,810.9	116.1	116.3	89.99	6,056.6	33.8	659.9	428.2	231.72	2.848	
11,600.0	5,811.0	11,468.6	5,810.9	117.9	118.2	89.99	6,156.6	33.8	659.9	424.4	235.53	2.802	
11,700.0	5,811.0	11,568.6	5,811.0	119.8	120.1	89.99	6,256.6	33.8	659.9	420.6	239.35	2.757	
11,800.0	5,811.0	11,668.6	5,811.0	121.7	122.0	89.99	6,356.6	33.8	659.9	416.8	243.16	2.714	
11,900.0	5,811.0	11,768.6	5,811.0	123.6	123.9	90.00	6,456.6	33.8	659.9	413.0	246.97	2.672	
12,000.0	5,811.0	11,868.6	5,811.0	125.5	125.8	90.00	6,556.6	33.8	659.9	409.1	250.79	2.631	
12,100.0	5,811.0	11,968.6	5,811.0	127.4	127.7	90.00	6,656.6	33.8	659.9	405.3	254.60	2.592	
12,200.0	5,811.0	12,068.6	5,811.0	129.3	129.6	90.00	6,756.6	33.8	659.9	401.5	258.42	2.554	
12,300.0	5,811.0	12,168.6	5,811.0	131.2	131.6	90.00	6,856.6	33.8	659.9	397.7	262.23	2.517	
12,338.7	5,811.0	12,207.3	5,811.0	131.9	132.3	90.00	6,895.3	33.8	659.9	396.2	263.71	2.502	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0103A
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-0103A	**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	138.57	-74.9	66.1	99.9				
100.0	100.0	100.0	100.0	0.1	0.1	138.57	-74.9	66.1	99.9	99.7	0.19	534.097	
200.0	200.0	200.0	200.0	0.3	0.3	138.57	-74.9	66.1	99.9	99.2	0.64	156.910	
300.0	300.0	300.0	300.0	0.5	0.5	138.57	-74.9	66.1	99.9	98.8	1.09	91.964	
400.0	400.0	400.0	400.0	0.8	0.8	138.57	-74.9	66.1	99.9	98.3	1.54	65.042	
500.0	500.0	500.0	500.0	1.0	1.0	138.57	-74.9	66.1	99.9	97.9	1.99	50.314	
600.0	600.0	600.0	600.0	1.2	1.2	138.57	-74.9	66.1	99.9	97.4	2.43	41.024	
700.0	700.0	700.0	700.0	1.4	1.4	138.57	-74.9	66.1	99.9	97.0	2.88	34.630	
800.0	800.0	801.9	801.9	1.7	1.7	137.69	-73.1	66.6	98.9	95.6	3.34	29.631	
900.0	900.0	903.5	903.3	1.9	1.9	134.96	-67.9	68.0	96.2	92.4	3.80	25.342	
1,000.0	1,000.0	1,003.2	1,002.8	2.1	2.1	131.22	-61.2	69.9	93.0	88.7	4.25	21.874	
1,083.7	1,083.6	1,086.7	1,086.1	2.3	2.3	156.92	-55.6	71.5	91.7	87.1	4.63	19.818	CC
1,100.0	1,100.0	1,103.0	1,102.4	2.3	2.4	156.39	-54.5	71.8	91.8	87.1	4.70	19.515	ES
1,200.0	1,199.8	1,202.9	1,202.0	2.6	2.6	153.71	-47.8	73.6	94.0	88.9	5.16	18.232	
1,300.0	1,299.6	1,302.8	1,301.6	2.8	2.8	151.67	-41.1	75.5	98.0	92.4	5.62	17.437	
1,400.0	1,399.4	1,402.6	1,401.3	3.0	3.1	149.79	-34.4	77.4	102.1	96.1	6.09	16.770	
1,500.0	1,499.1	1,502.5	1,500.9	3.3	3.3	148.06	-27.7	79.3	106.4	99.8	6.56	16.204	
1,600.0	1,598.9	1,602.4	1,600.5	3.5	3.6	146.46	-21.0	81.1	110.7	103.6	7.04	15.718	
1,700.0	1,698.6	1,702.2	1,700.1	3.7	3.8	144.98	-14.3	83.0	115.0	107.5	7.52	15.299	
1,800.0	1,798.4	1,802.1	1,799.7	4.0	4.1	143.61	-7.6	84.9	119.5	111.5	8.00	14.933	
1,900.0	1,898.1	1,902.0	1,899.4	4.2	4.3	142.34	-0.8	86.8	124.0	115.5	8.49	14.613	
2,000.0	1,997.9	2,001.8	1,999.0	4.5	4.6	141.16	5.9	88.6	128.6	119.6	8.97	14.330	
2,100.0	2,097.6	2,101.7	2,098.6	4.7	4.8	140.06	12.6	90.5	133.2	123.7	9.46	14.079	
2,200.0	2,197.4	2,201.5	2,198.2	5.0	5.1	139.04	19.3	92.4	137.9	127.9	9.95	13.855	
2,300.0	2,297.2	2,301.4	2,297.8	5.2	5.3	138.08	26.0	94.3	142.6	132.1	10.44	13.654	
2,400.0	2,396.9	2,401.3	2,397.4	5.5	5.6	137.19	32.7	96.1	147.3	136.4	10.94	13.473	
2,500.0	2,496.7	2,501.1	2,497.1	5.7	5.8	136.35	39.4	98.0	152.1	140.7	11.43	13.310	
2,600.0	2,596.4	2,601.0	2,596.7	6.0	6.1	135.56	46.1	99.9	156.9	145.0	11.92	13.161	
2,700.0	2,696.2	2,700.8	2,696.3	6.2	6.4	134.82	52.8	101.7	161.8	149.3	12.42	13.026	
2,800.0	2,795.9	2,800.7	2,795.9	6.5	6.6	134.12	59.5	103.6	166.6	153.7	12.92	12.902	
2,900.0	2,895.7	2,900.6	2,895.5	6.7	6.9	133.46	66.2	105.5	171.5	158.1	13.41	12.788	
3,000.0	2,995.5	3,000.4	2,995.2	7.0	7.1	132.84	73.0	107.4	176.4	162.5	13.91	12.684	
3,100.0	3,095.2	3,100.3	3,094.8	7.2	7.4	132.25	79.7	109.2	181.4	166.9	14.41	12.587	
3,200.0	3,195.0	3,200.2	3,194.4	7.5	7.6	131.69	86.4	111.1	186.3	171.4	14.91	12.498	
3,300.0	3,294.7	3,300.0	3,294.0	7.8	7.9	131.17	93.1	113.0	191.3	175.9	15.41	12.415	
3,400.0	3,394.5	3,399.9	3,393.6	8.0	8.1	130.67	99.8	114.9	196.2	180.3	15.91	12.338	
3,500.0	3,494.2	3,499.7	3,493.2	8.3	8.4	130.19	106.5	116.7	201.2	184.8	16.41	12.266	
3,600.0	3,594.0	3,599.6	3,592.9	8.5	8.6	129.74	113.2	118.6	206.2	189.3	16.91	12.200	
3,700.0	3,693.7	3,699.5	3,692.5	8.8	8.9	129.30	119.9	120.5	211.3	193.9	17.41	12.137	
3,800.0	3,793.5	3,799.3	3,792.1	9.0	9.2	128.89	126.6	122.4	216.3	198.4	17.91	12.078	
3,900.0	3,893.3	3,899.2	3,891.7	9.3	9.4	128.50	133.3	124.2	221.3	202.9	18.41	12.023	
4,000.0	3,993.0	3,999.0	3,991.3	9.5	9.7	128.12	140.0	126.1	226.4	207.5	18.91	11.972	
4,100.0	4,092.8	4,098.9	4,091.0	9.8	9.9	127.76	146.8	128.0	231.5	212.0	19.41	11.923	
4,200.0	4,192.5	4,198.8	4,190.6	10.1	10.2	127.42	153.5	129.8	236.5	216.6	19.91	11.877	
4,300.0	4,292.3	4,298.6	4,290.2	10.3	10.4	127.09	160.2	131.7	241.6	221.2	20.42	11.834	
4,400.0	4,392.0	4,398.5	4,389.8	10.6	10.7	126.77	166.9	133.6	246.7	225.8	20.92	11.793	
4,500.0	4,491.8	4,498.4	4,489.4	10.8	10.9	126.47	173.6	135.5	251.8	230.4	21.42	11.754	
4,600.0	4,591.6	4,598.2	4,589.0	11.1	11.2	126.18	180.3	137.3	256.9	234.9	21.92	11.717	
4,700.0	4,691.3	4,698.1	4,688.7	11.3	11.4	125.90	187.0	139.2	262.0	239.6	22.43	11.682	
4,800.0	4,791.1	4,797.9	4,788.3	11.6	11.7	125.63	193.7	141.1	267.1	244.2	22.93	11.649	
4,900.0	4,890.8	4,897.8	4,887.9	11.8	12.0	125.37	200.4	143.0	272.2	248.8	23.43	11.617	
5,000.0	4,990.6	4,997.7	4,987.5	12.1	12.2	125.12	207.1	144.8	277.3	253.4	23.93	11.587	

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-0103A
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-0103A	**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	5,090.3	5,097.5	5,087.1	12.4	12.5	124.88	213.9	146.7	282.5	258.0	24.44	11.558	
5,200.0	5,190.1	5,197.4	5,186.8	12.6	12.7	124.65	220.6	148.6	287.6	262.6	24.94	11.531	
5,300.0	5,289.9	5,297.2	5,286.4	12.9	13.0	124.43	227.3	150.5	292.7	267.3	25.44	11.505	SF
5,400.0	5,389.2	5,396.9	5,385.8	13.2	13.2	124.32	234.0	152.3	300.0	274.1	25.87	11.599	
5,500.0	5,485.0	5,490.2	5,478.6	13.6	13.5	125.07	242.6	154.7	318.0	291.9	26.09	12.191	
5,600.0	5,573.6	5,578.6	5,564.1	14.2	13.9	124.30	263.9	160.7	349.0	322.7	26.32	13.258	
5,700.0	5,651.8	5,664.3	5,642.2	14.9	14.3	121.81	297.5	170.1	391.7	364.8	26.85	14.588	
5,800.0	5,716.7	5,746.1	5,710.5	15.9	14.9	117.71	340.7	182.1	444.3	416.3	27.97	15.884	
5,900.0	5,766.0	5,823.8	5,768.2	17.1	15.5	112.15	390.8	196.1	504.8	475.0	29.85	16.910	
6,000.0	5,797.8	5,898.1	5,815.5	18.5	16.2	105.32	445.9	211.5	571.3	539.0	32.37	17.651	
6,100.0	5,811.0	5,970.2	5,853.2	20.1	17.0	97.58	505.1	228.0	641.8	606.7	35.14	18.265	
6,200.0	5,811.3	6,046.2	5,883.3	21.7	18.0	98.02	572.2	246.8	712.8	675.4	37.38	19.069	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0103A
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-0103A	**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	89.99	0.0	164.4	164.4				
100.0	100.0	100.0	100.0	0.1	0.1	89.99	0.0	164.4	164.4	163.3	0.19	879.377	
200.0	200.0	200.0	200.0	0.3	0.3	89.99	0.0	164.4	164.4	163.8	0.64	258.348	
300.0	300.0	300.0	300.0	0.5	0.5	89.99	0.0	164.4	164.4	163.4	1.09	151.416	
400.0	400.0	400.0	400.0	0.8	0.8	89.99	0.0	164.4	164.4	162.9	1.54	107.091	
500.0	500.0	500.0	500.0	1.0	1.0	89.99	0.0	164.4	164.4	162.5	1.99	82.840	
600.0	600.0	600.0	600.0	1.2	1.2	89.99	0.0	164.4	164.4	162.0	2.43	67.545	
700.0	700.0	700.0	700.0	1.4	1.4	89.99	0.0	164.4	164.4	161.6	2.88	57.017	
800.0	800.0	800.0	800.0	1.7	1.7	89.99	0.0	164.4	164.4	161.1	3.33	49.329	
900.0	900.0	900.0	900.0	1.9	1.9	89.99	0.0	164.4	164.4	160.7	3.78	43.467	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	89.99	0.0	164.4	164.4	160.2	4.23	38.851	CC, ES
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	119.22	0.0	164.4	165.3	160.6	4.68	35.322	
1,200.0	1,199.8	1,199.8	1,199.8	2.6	2.6	120.73	0.0	164.4	167.9	162.8	5.12	32.768	
1,300.0	1,299.6	1,297.4	1,297.4	2.8	2.8	122.17	1.5	165.2	172.2	166.6	5.57	30.937	
1,400.0	1,399.4	1,395.1	1,394.9	3.0	3.0	122.54	6.0	167.3	177.8	171.8	6.01	29.581	
1,500.0	1,499.1	1,494.8	1,494.4	3.3	3.2	122.35	12.3	170.3	184.1	177.7	6.47	28.472	
1,600.0	1,598.9	1,594.6	1,593.9	3.5	3.5	122.18	18.6	173.3	190.5	183.5	6.93	27.487	
1,700.0	1,698.6	1,694.4	1,693.5	3.7	3.7	122.01	24.9	176.2	196.8	189.4	7.40	26.607	
1,800.0	1,798.4	1,794.2	1,793.0	4.0	3.9	121.85	31.2	179.2	203.1	195.2	7.87	25.817	
1,900.0	1,898.1	1,894.0	1,892.6	4.2	4.2	121.71	37.5	182.2	209.4	201.1	8.34	25.106	
2,000.0	1,997.9	1,993.8	1,992.1	4.5	4.4	121.57	43.7	185.2	215.7	206.9	8.82	24.464	
2,100.0	2,097.6	2,093.6	2,091.7	4.7	4.6	121.44	50.0	188.2	222.1	212.8	9.30	23.882	
2,200.0	2,197.4	2,193.4	2,191.3	5.0	4.9	121.31	56.3	191.2	228.4	218.6	9.78	23.351	
2,300.0	2,297.2	2,293.1	2,290.8	5.2	5.1	121.20	62.6	194.2	234.7	224.4	10.26	22.867	
2,400.0	2,396.9	2,392.9	2,390.4	5.5	5.4	121.09	68.9	197.2	241.0	230.3	10.75	22.423	
2,500.0	2,496.7	2,492.7	2,489.9	5.7	5.6	120.98	75.2	200.1	247.4	236.1	11.24	22.014	
2,600.0	2,596.4	2,592.5	2,589.5	6.0	5.9	120.88	81.5	203.1	253.7	242.0	11.72	21.638	
2,700.0	2,696.2	2,692.3	2,689.0	6.2	6.1	120.79	87.8	206.1	260.0	247.8	12.21	21.290	
2,800.0	2,795.9	2,792.1	2,788.6	6.5	6.4	120.70	94.0	209.1	266.4	253.6	12.70	20.967	
2,900.0	2,895.7	2,891.9	2,888.1	6.7	6.6	120.61	100.3	212.1	272.7	259.5	13.19	20.666	
3,000.0	2,995.5	2,991.7	2,987.7	7.0	6.9	120.53	106.6	215.1	279.0	265.3	13.69	20.387	
3,100.0	3,095.2	3,091.5	3,087.3	7.2	7.1	120.45	112.9	218.1	285.3	271.2	14.18	20.125	
3,200.0	3,195.0	3,191.3	3,186.8	7.5	7.4	120.38	119.2	221.0	291.7	277.0	14.67	19.881	
3,300.0	3,294.7	3,291.1	3,286.4	7.8	7.6	120.30	125.5	224.0	298.0	282.8	15.16	19.652	
3,400.0	3,394.5	3,390.9	3,385.9	8.0	7.9	120.24	131.8	227.0	304.3	288.7	15.66	19.436	
3,500.0	3,494.2	3,490.7	3,485.5	8.3	8.1	120.17	138.1	230.0	310.7	294.5	16.15	19.233	
3,600.0	3,594.0	3,590.5	3,585.0	8.5	8.4	120.11	144.4	233.0	317.0	300.4	16.65	19.042	
3,700.0	3,693.7	3,690.3	3,684.6	8.8	8.6	120.05	150.6	236.0	323.3	306.2	17.14	18.862	
3,800.0	3,793.5	3,790.1	3,784.1	9.0	8.9	119.99	156.9	239.0	329.7	312.0	17.64	18.691	
3,900.0	3,893.3	3,889.9	3,883.7	9.3	9.1	119.93	163.2	241.9	336.0	317.9	18.13	18.529	
4,000.0	3,993.0	3,989.7	3,983.3	9.5	9.4	119.88	169.5	244.9	342.3	323.7	18.63	18.376	
4,100.0	4,092.8	4,089.5	4,082.8	9.8	9.6	119.82	175.8	247.9	348.7	329.5	19.13	18.231	
4,200.0	4,192.5	4,189.3	4,182.4	10.1	9.9	119.77	182.1	250.9	355.0	335.4	19.62	18.092	
4,300.0	4,292.3	4,289.1	4,281.9	10.3	10.1	119.72	188.4	253.9	361.3	341.2	20.12	17.960	
4,400.0	4,392.0	4,388.9	4,381.5	10.6	10.4	119.68	194.7	256.9	367.7	347.1	20.62	17.835	
4,500.0	4,491.8	4,488.7	4,481.0	10.8	10.7	119.63	201.0	259.9	374.0	352.9	21.11	17.715	
4,600.0	4,591.6	4,588.5	4,580.6	11.1	10.9	119.59	207.2	262.8	380.3	358.7	21.61	17.600	
4,700.0	4,691.3	4,688.3	4,680.1	11.3	11.2	119.55	213.5	265.8	386.7	364.6	22.11	17.491	
4,800.0	4,791.1	4,788.1	4,779.7	11.6	11.4	119.50	219.8	268.8	393.0	370.4	22.61	17.386	
4,900.0	4,890.8	4,887.9	4,879.3	11.8	11.7	119.46	226.1	271.8	399.4	376.3	23.10	17.286	
5,000.0	4,990.6	4,987.7	4,978.8	12.1	11.9	119.43	232.4	274.8	405.7	382.1	23.60	17.190	
5,100.0	5,090.3	5,087.5	5,078.4	12.4	12.2	119.39	238.7	277.8	412.0	387.9	24.10	17.097	

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-0103A
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-0103A	**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	5,190.1	5,187.3	5,177.9	12.6	12.4	119.35	245.0	280.8	418.4	393.8	24.60	17.009	
5,300.0	5,289.9	5,287.1	5,277.5	12.9	12.7	119.32	251.3	283.7	424.7	399.6	25.10	16.923	SF
5,400.0	5,389.2	5,373.7	5,363.7	13.2	12.9	118.82	257.9	286.9	433.7	408.1	25.52	16.996	
5,500.0	5,485.0	5,450.0	5,438.2	13.6	13.2	117.18	272.7	293.9	456.2	430.3	25.90	17.610	
5,600.0	5,573.6	5,513.9	5,498.2	14.2	13.5	114.27	292.5	303.3	492.3	465.8	26.42	18.635	
5,700.0	5,651.8	5,577.1	5,554.5	14.9	13.8	110.12	318.4	315.6	540.2	512.9	27.28	19.801	
5,800.0	5,716.7	5,634.7	5,602.4	15.9	14.2	104.60	347.3	329.3	597.7	569.1	28.62	20.884	
5,900.0	5,766.0	5,686.6	5,642.3	17.1	14.6	97.70	377.2	343.5	662.6	632.2	30.38	21.811	
6,000.0	5,797.8	5,732.9	5,674.9	18.5	15.0	89.57	406.8	357.6	732.6	700.4	32.22	22.740	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0103A
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-0103A	**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	119.68	-74.9	131.4	151.3				
100.0	100.0	100.0	100.0	0.1	0.1	119.68	-74.9	131.4	151.3	151.1	0.19	808.826	
200.0	200.0	200.0	200.0	0.3	0.3	119.68	-74.9	131.4	151.3	150.6	0.64	237.622	
300.0	300.0	300.0	300.0	0.5	0.5	119.68	-74.9	131.4	151.3	150.2	1.09	139.268	
400.0	400.0	400.0	400.0	0.8	0.8	119.68	-74.9	131.4	151.3	149.7	1.54	98.499	
500.0	500.0	500.0	500.0	1.0	1.0	119.68	-74.9	131.4	151.3	149.3	1.99	76.194	
600.0	600.0	600.0	600.0	1.2	1.2	119.68	-74.9	131.4	151.3	148.8	2.43	62.126	
700.0	700.0	700.0	700.0	1.4	1.4	119.68	-74.9	131.4	151.3	148.4	2.88	52.443	
800.0	800.0	800.0	800.0	1.7	1.7	119.68	-74.9	131.4	151.3	147.9	3.33	45.371 CC	
900.0	900.0	899.3	899.3	1.9	1.9	119.04	-73.5	132.4	151.5	147.7	3.78	40.087 ES	
1,000.0	1,000.0	998.3	998.2	2.1	2.1	117.12	-69.4	135.5	152.3	148.1	4.22	36.053	
1,100.0	1,100.0	1,098.1	1,097.7	2.3	2.3	143.63	-63.9	139.7	155.1	150.4	4.67	33.193	
1,200.0	1,199.8	1,197.9	1,197.2	2.6	2.6	142.24	-58.3	143.9	160.8	155.7	5.12	31.391	
1,300.0	1,299.6	1,297.6	1,296.7	2.8	2.8	141.38	-52.8	148.1	168.0	162.4	5.58	30.102	
1,400.0	1,399.4	1,397.3	1,396.2	3.0	3.0	140.59	-47.2	152.3	175.2	169.1	6.04	28.986	
1,500.0	1,499.1	1,497.0	1,495.6	3.3	3.3	139.87	-41.7	156.5	182.4	175.9	6.51	28.016	
1,600.0	1,598.9	1,596.7	1,595.1	3.5	3.5	139.20	-36.2	160.7	189.7	182.7	6.98	27.165	
1,700.0	1,698.6	1,696.4	1,694.6	3.7	3.8	138.58	-30.6	164.9	197.0	189.5	7.46	26.414	
1,800.0	1,798.4	1,796.1	1,794.0	4.0	4.0	138.00	-25.1	169.1	204.3	196.3	7.93	25.748	
1,900.0	1,898.1	1,895.8	1,893.5	4.2	4.3	137.47	-19.5	173.3	211.6	203.2	8.41	25.153	
2,000.0	1,997.9	1,995.6	1,993.0	4.5	4.5	136.97	-14.0	177.5	218.9	210.0	8.89	24.620	
2,100.0	2,097.6	2,095.3	2,092.4	4.7	4.8	136.50	-8.4	181.7	226.3	216.9	9.37	24.139	
2,200.0	2,197.4	2,195.0	2,191.9	5.0	5.0	136.06	-2.9	185.9	233.7	223.8	9.86	23.703	
2,300.0	2,297.2	2,294.7	2,291.4	5.2	5.3	135.65	2.7	190.1	241.0	230.7	10.34	23.307	
2,400.0	2,396.9	2,394.4	2,390.8	5.5	5.5	135.26	8.2	194.3	248.4	237.6	10.83	22.945	
2,500.0	2,496.7	2,494.1	2,490.3	5.7	5.8	134.90	13.8	198.5	255.8	244.5	11.31	22.614	
2,600.0	2,596.4	2,593.8	2,589.8	6.0	6.0	134.55	19.3	202.7	263.3	251.5	11.80	22.309	
2,700.0	2,696.2	2,693.5	2,689.3	6.2	6.3	134.23	24.8	206.9	270.7	258.4	12.29	22.028	
2,800.0	2,795.9	2,793.3	2,788.7	6.5	6.5	133.92	30.4	211.1	278.1	265.3	12.78	21.767	
2,900.0	2,895.7	2,893.0	2,888.2	6.7	6.8	133.63	35.9	215.3	285.6	272.3	13.27	21.526	
3,000.0	2,995.5	2,992.7	2,987.7	7.0	7.0	133.35	41.5	219.5	293.0	279.2	13.75	21.302	
3,100.0	3,095.2	3,092.4	3,087.1	7.2	7.3	133.09	47.0	223.7	300.5	286.2	14.24	21.093	
3,200.0	3,195.0	3,192.1	3,186.6	7.5	7.6	132.84	52.6	227.9	307.9	293.2	14.73	20.897	
3,300.0	3,294.7	3,291.8	3,286.1	7.8	7.8	132.60	58.1	232.1	315.4	300.2	15.22	20.715	
3,400.0	3,394.5	3,391.5	3,385.5	8.0	8.1	132.37	63.7	236.3	322.8	307.1	15.72	20.543	
3,500.0	3,494.2	3,491.2	3,485.0	8.3	8.3	132.15	69.2	240.5	330.3	314.1	16.21	20.382	
3,600.0	3,594.0	3,591.0	3,584.5	8.5	8.6	131.95	74.8	244.7	337.8	321.1	16.70	20.230	
3,700.0	3,693.7	3,690.7	3,684.0	8.8	8.8	131.75	80.3	248.9	345.3	328.1	17.19	20.087	
3,800.0	3,793.5	3,790.4	3,783.4	9.0	9.1	131.56	85.8	253.1	352.8	335.1	17.68	19.951	
3,900.0	3,893.3	3,890.1	3,882.9	9.3	9.3	131.38	91.4	257.3	360.3	342.1	18.17	19.823	
4,000.0	3,993.0	3,989.8	3,982.4	9.5	9.6	131.20	96.9	261.5	367.8	349.1	18.67	19.702	
4,100.0	4,092.8	4,089.5	4,081.8	9.8	9.9	131.03	102.5	265.7	375.3	356.1	19.16	19.587	
4,200.0	4,192.5	4,189.2	4,181.3	10.1	10.1	130.87	108.0	269.9	382.8	363.1	19.65	19.478	
4,300.0	4,292.3	4,288.9	4,280.8	10.3	10.4	130.72	113.6	274.1	390.3	370.1	20.14	19.374	
4,400.0	4,392.0	4,388.7	4,380.2	10.6	10.6	130.57	119.1	278.3	397.8	377.1	20.64	19.275	
4,500.0	4,491.8	4,488.4	4,479.7	10.8	10.9	130.42	124.7	282.5	405.3	384.2	21.13	19.181	
4,600.0	4,591.6	4,588.1	4,579.2	11.1	11.1	130.29	130.2	286.7	412.8	391.2	21.62	19.091	
4,700.0	4,691.3	4,687.8	4,678.7	11.3	11.4	130.15	135.8	290.9	420.3	398.2	22.12	19.005	
4,800.0	4,791.1	4,787.5	4,778.1	11.6	11.6	130.02	141.3	295.1	427.8	405.2	22.61	18.922	
4,900.0	4,890.8	4,887.2	4,877.6	11.8	11.9	129.90	146.8	299.3	435.3	412.2	23.10	18.844	
5,000.0	4,990.6	4,986.9	4,977.1	12.1	12.1	129.78	152.4	303.5	442.9	419.3	23.60	18.768	
5,100.0	5,090.3	5,086.6	5,076.5	12.4	12.4	129.66	157.9	307.7	450.4	426.3	24.09	18.696	

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-0103A
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-0103A	**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	5,190.1	5,186.4	5,176.0	12.6	12.7	129.55	163.5	311.9	457.9	433.3	24.58	18.626	
5,300.0	5,289.9	5,286.1	5,275.5	12.9	12.9	129.44	169.0	316.1	465.4	440.4	25.08	18.560	SF
5,400.0	5,389.2	5,385.5	5,374.6	13.2	13.2	129.08	174.6	320.3	475.4	449.9	25.45	18.678	
5,500.0	5,485.0	5,469.5	5,458.3	13.6	13.4	128.60	180.0	324.4	497.2	471.6	25.54	19.469	
5,600.0	5,573.6	5,534.6	5,522.2	14.2	13.6	126.54	189.9	331.9	535.1	509.6	25.56	20.936	
5,700.0	5,651.8	5,600.0	5,584.3	14.9	13.9	122.85	206.2	344.2	587.9	562.0	25.90	22.694	
5,800.0	5,716.7	5,650.0	5,629.7	15.9	14.2	116.72	222.8	356.8	652.6	625.6	26.99	24.179	
5,900.0	5,766.0	5,689.3	5,663.9	17.1	14.4	107.70	238.2	368.5	726.4	697.4	29.06	24.994	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0103A
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-0103A	**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	-138.57	-74.9	-66.1	99.9				
100.0	100.0	100.0	100.0	0.1	0.1	-138.57	-74.9	-66.1	99.9	99.7	0.19	534.029	
200.0	200.0	200.0	200.0	0.3	0.3	-138.57	-74.9	-66.1	99.9	99.2	0.64	156.894	
300.0	300.0	300.0	300.0	0.5	0.5	-138.57	-74.9	-66.1	99.9	98.8	1.09	91.954	
400.0	400.0	400.0	400.0	0.8	0.8	-138.57	-74.9	-66.1	99.9	98.3	1.54	65.035	
500.0	500.0	500.0	500.0	1.0	1.0	-138.57	-74.9	-66.1	99.9	97.9	1.99	50.308	
600.0	600.0	600.0	600.0	1.2	1.2	-138.57	-74.9	-66.1	99.9	97.4	2.43	41.019	
700.0	700.0	700.0	700.0	1.4	1.4	-138.57	-74.9	-66.1	99.9	97.0	2.88	34.626	
800.0	800.0	800.0	800.0	1.7	1.7	-138.57	-74.9	-66.1	99.9	96.5	3.33	29.957	
900.0	900.0	900.0	900.0	1.9	1.9	-138.57	-74.9	-66.1	99.9	96.1	3.78	26.397	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-138.57	-74.9	-66.1	99.9	95.6	4.23	23.594	CC, ES
1,100.0	1,100.0	1,096.6	1,096.5	2.3	2.3	-110.66	-76.0	-67.2	102.2	97.5	4.65	21.967	
1,200.0	1,199.8	1,192.7	1,192.5	2.6	2.5	-112.86	-79.5	-70.6	109.1	104.1	5.06	21.588	SF
1,300.0	1,299.6	1,291.8	1,291.4	2.8	2.7	-115.61	-84.5	-75.4	118.9	113.4	5.47	21.721	
1,400.0	1,399.4	1,391.1	1,390.5	3.0	2.9	-117.94	-89.5	-80.2	128.9	123.0	5.90	21.852	
1,500.0	1,499.1	1,490.5	1,489.6	3.3	3.1	-119.93	-94.5	-85.0	139.2	132.8	6.33	21.968	
1,600.0	1,598.9	1,589.9	1,588.8	3.5	3.3	-121.65	-99.4	-89.9	149.5	142.7	6.77	22.070	
1,700.0	1,698.6	1,689.2	1,687.9	3.7	3.6	-123.15	-104.4	-94.7	160.0	152.8	7.22	22.160	
1,800.0	1,798.4	1,788.6	1,787.0	4.0	3.8	-124.46	-109.4	-99.5	170.5	162.9	7.67	22.240	
1,900.0	1,898.1	1,888.0	1,886.1	4.2	4.0	-125.62	-114.4	-104.3	181.2	173.1	8.12	22.311	
2,000.0	1,997.9	1,987.4	1,985.3	4.5	4.3	-126.65	-119.4	-109.1	191.9	183.3	8.58	22.374	
2,100.0	2,097.6	2,086.7	2,084.4	4.7	4.5	-127.57	-124.3	-114.0	202.6	193.6	9.03	22.431	
2,200.0	2,197.4	2,186.1	2,183.5	5.0	4.7	-128.40	-129.3	-118.8	213.5	204.0	9.49	22.483	
2,300.0	2,297.2	2,285.5	2,282.7	5.2	5.0	-129.15	-134.3	-123.6	224.3	214.3	9.96	22.529	
2,400.0	2,396.9	2,384.8	2,381.8	5.5	5.2	-129.83	-139.3	-128.4	235.2	224.8	10.42	22.571	
2,500.0	2,496.7	2,484.2	2,480.9	5.7	5.5	-130.45	-144.3	-133.2	246.1	235.2	10.88	22.610	
2,600.0	2,596.4	2,583.6	2,580.0	6.0	5.7	-131.01	-149.2	-138.1	257.0	245.7	11.35	22.644	
2,700.0	2,696.2	2,682.9	2,679.2	6.2	6.0	-131.53	-154.2	-142.9	268.0	256.2	11.82	22.677	
2,800.0	2,795.9	2,782.3	2,778.3	6.5	6.2	-132.01	-159.2	-147.7	279.0	266.7	12.29	22.706	
2,900.0	2,895.7	2,881.7	2,877.4	6.7	6.5	-132.46	-164.2	-152.5	290.0	277.2	12.76	22.733	
3,000.0	2,995.5	2,981.0	2,976.5	7.0	6.8	-132.87	-169.2	-157.3	301.0	287.8	13.23	22.758	
3,100.0	3,095.2	3,080.4	3,075.7	7.2	7.0	-133.25	-174.1	-162.2	312.0	298.3	13.70	22.781	
3,200.0	3,195.0	3,179.8	3,174.8	7.5	7.3	-133.60	-179.1	-167.0	323.1	308.9	14.17	22.803	
3,300.0	3,294.7	3,279.2	3,273.9	7.8	7.5	-133.94	-184.1	-171.8	334.1	319.5	14.64	22.823	
3,400.0	3,394.5	3,378.5	3,373.1	8.0	7.8	-134.25	-189.1	-176.6	345.2	330.1	15.11	22.842	
3,500.0	3,494.2	3,477.9	3,472.2	8.3	8.0	-134.54	-194.1	-181.4	356.2	340.7	15.58	22.859	
3,600.0	3,594.0	3,577.3	3,571.3	8.5	8.3	-134.81	-199.1	-186.3	367.3	351.3	16.06	22.875	
3,700.0	3,693.7	3,676.6	3,670.4	8.8	8.5	-135.07	-204.0	-191.1	378.4	361.9	16.53	22.891	
3,800.0	3,793.5	3,776.0	3,769.6	9.0	8.8	-135.31	-209.0	-195.9	389.5	372.5	17.01	22.905	
3,900.0	3,893.3	3,875.4	3,868.7	9.3	9.1	-135.54	-214.0	-200.7	400.6	383.1	17.48	22.919	
4,000.0	3,993.0	3,974.7	3,967.8	9.5	9.3	-135.76	-219.0	-205.5	411.7	393.8	17.95	22.931	
4,100.0	4,092.8	4,074.1	4,066.9	9.8	9.6	-135.97	-224.0	-210.4	422.8	404.4	18.43	22.944	
4,200.0	4,192.5	4,173.5	4,166.1	10.1	9.8	-136.16	-228.9	-215.2	434.0	415.1	18.90	22.955	
4,300.0	4,292.3	4,272.8	4,265.2	10.3	10.1	-136.35	-233.9	-220.0	445.1	425.7	19.38	22.966	
4,400.0	4,392.0	4,372.2	4,364.3	10.6	10.4	-136.52	-238.9	-224.8	456.2	436.4	19.86	22.976	
4,500.0	4,491.8	4,471.6	4,463.5	10.8	10.6	-136.69	-243.9	-229.6	467.3	447.0	20.33	22.986	
4,600.0	4,591.6	4,571.0	4,562.6	11.1	10.9	-136.85	-248.9	-234.5	478.5	457.7	20.81	22.995	
4,700.0	4,691.3	4,670.3	4,661.7	11.3	11.1	-137.00	-253.8	-239.3	489.6	468.3	21.28	23.004	
4,800.0	4,791.1	4,769.7	4,760.8	11.6	11.4	-137.15	-258.8	-244.1	500.8	479.0	21.76	23.012	
4,900.0	4,890.8	4,869.1	4,860.0	11.8	11.7	-137.29	-263.8	-248.9	511.9	489.7	22.24	23.020	
5,000.0	4,990.6	4,968.4	4,959.1	12.1	11.9	-137.42	-268.8	-253.7	523.1	500.3	22.71	23.028	
5,100.0	5,090.3	5,067.8	5,058.2	12.4	12.2	-137.55	-273.8	-258.6	534.2	511.0	23.19	23.035	

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-0103A
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-0103A	**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	5,190.1	5,167.2	5,157.3	12.6	12.4	-137.68	-278.8	-263.4	545.4	521.7	23.67	23.042	
5,300.0	5,289.9	5,266.5	5,256.5	12.9	12.7	-137.79	-283.7	-268.2	556.5	532.4	24.15	23.049	
5,400.0	5,389.2	5,350.0	5,339.7	13.2	12.9	-137.27	-288.0	-272.4	570.8	546.4	24.40	23.390	
5,500.0	5,485.0	5,400.0	5,389.2	13.6	13.1	-135.23	-293.1	-277.3	603.7	579.5	24.26	24.886	
5,600.0	5,573.6	5,450.0	5,437.8	14.2	13.3	-131.55	-301.6	-285.5	655.8	631.7	24.11	27.206	
5,700.0	5,651.8	5,474.0	5,460.6	14.9	13.4	-124.60	-306.9	-290.6	723.1	698.6	24.53	29.481	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0103A
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-0103A	**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	-156.19	-74.9	-33.0	81.8				
100.0	100.0	100.0	100.0	0.1	0.1	-156.19	-74.9	-33.0	81.8	81.7	0.19	437.656	
200.0	200.0	200.0	200.0	0.3	0.3	-156.19	-74.9	-33.0	81.8	81.2	0.64	128.577	
300.0	300.0	300.0	300.0	0.5	0.5	-156.19	-74.9	-33.0	81.8	80.8	1.09	75.358	
400.0	400.0	400.0	400.0	0.8	0.8	-156.19	-74.9	-33.0	81.8	80.3	1.54	53.298	
500.0	500.0	500.0	500.0	1.0	1.0	-156.19	-74.9	-33.0	81.8	79.9	1.99	41.229	
600.0	600.0	600.0	600.0	1.2	1.2	-156.19	-74.9	-33.0	81.8	79.4	2.43	33.616	
700.0	700.0	700.0	700.0	1.4	1.4	-156.19	-74.9	-33.0	81.8	79.0	2.88	28.377	
800.0	800.0	800.0	800.0	1.7	1.7	-156.19	-74.9	-33.0	81.8	78.5	3.33	24.550	
900.0	900.0	900.0	900.0	1.9	1.9	-156.19	-74.9	-33.0	81.8	78.1	3.78	21.633	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-156.19	-74.9	-33.0	81.8	77.6	4.23	19.336	CC, ES
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	-128.42	-74.9	-33.0	82.9	78.2	4.68	17.715	
1,200.0	1,199.8	1,199.8	1,199.8	2.6	2.6	-131.09	-74.9	-33.0	86.3	81.1	5.13	16.825	
1,300.0	1,299.6	1,296.6	1,296.6	2.8	2.8	-133.99	-76.2	-34.0	92.6	87.1	5.55	16.689	SF
1,400.0	1,399.4	1,393.0	1,392.9	3.0	2.9	-135.88	-80.2	-36.8	102.3	96.4	5.96	17.176	
1,500.0	1,499.1	1,492.1	1,491.7	3.3	3.1	-137.14	-85.9	-40.7	113.9	107.5	6.38	17.867	
1,600.0	1,598.9	1,591.4	1,590.7	3.5	3.3	-138.17	-91.5	-44.7	125.5	118.8	6.80	18.469	
1,700.0	1,698.6	1,690.7	1,689.8	3.7	3.5	-139.02	-97.2	-48.7	137.2	130.0	7.23	18.989	
1,800.0	1,798.4	1,790.0	1,788.9	4.0	3.7	-139.74	-102.9	-52.6	148.9	141.3	7.66	19.440	
1,900.0	1,898.1	1,889.3	1,887.9	4.2	4.0	-140.35	-108.6	-56.6	160.6	152.5	8.10	19.835	
2,000.0	1,997.9	1,988.6	1,987.0	4.5	4.2	-140.88	-114.2	-60.6	172.4	163.8	8.54	20.181	
2,100.0	2,097.6	2,087.9	2,086.0	4.7	4.4	-141.35	-119.9	-64.5	184.1	175.1	8.99	20.487	
2,200.0	2,197.4	2,187.2	2,185.1	5.0	4.6	-141.75	-125.6	-68.5	195.9	186.4	9.44	20.759	
2,300.0	2,297.2	2,286.5	2,284.1	5.2	4.9	-142.11	-131.3	-72.5	207.6	197.7	9.89	21.002	
2,400.0	2,396.9	2,385.8	2,383.2	5.5	5.1	-142.44	-137.0	-76.4	219.4	209.1	10.34	21.220	
2,500.0	2,496.7	2,485.1	2,482.2	5.7	5.4	-142.73	-142.6	-80.4	231.2	220.4	10.79	21.417	
2,600.0	2,596.4	2,584.3	2,581.3	6.0	5.6	-142.99	-148.3	-84.4	243.0	231.7	11.25	21.594	
2,700.0	2,696.2	2,683.6	2,680.4	6.2	5.9	-143.23	-154.0	-88.3	254.8	243.0	11.71	21.756	
2,800.0	2,795.9	2,782.9	2,779.4	6.5	6.1	-143.44	-159.7	-92.3	266.5	254.4	12.17	21.903	
2,900.0	2,895.7	2,882.2	2,878.5	6.7	6.3	-143.64	-165.3	-96.3	278.3	265.7	12.63	22.038	
3,000.0	2,995.5	2,981.5	2,977.5	7.0	6.6	-143.82	-171.0	-100.2	290.1	277.1	13.09	22.162	
3,100.0	3,095.2	3,080.8	3,076.6	7.2	6.8	-143.99	-176.7	-104.2	301.9	288.4	13.55	22.276	
3,200.0	3,195.0	3,180.1	3,175.6	7.5	7.1	-144.14	-182.4	-108.2	313.7	299.7	14.02	22.381	
3,300.0	3,294.7	3,279.4	3,274.7	7.8	7.3	-144.29	-188.1	-112.1	325.6	311.1	14.48	22.478	
3,400.0	3,394.5	3,378.7	3,373.7	8.0	7.6	-144.42	-193.7	-116.1	337.4	322.4	14.95	22.569	
3,500.0	3,494.2	3,478.0	3,472.8	8.3	7.9	-144.55	-199.4	-120.1	349.2	333.8	15.41	22.653	
3,600.0	3,594.0	3,577.3	3,571.9	8.5	8.1	-144.66	-205.1	-124.0	361.0	345.1	15.88	22.732	
3,700.0	3,693.7	3,676.6	3,670.9	8.8	8.4	-144.77	-210.8	-128.0	372.8	356.4	16.35	22.805	
3,800.0	3,793.5	3,775.9	3,770.0	9.0	8.6	-144.88	-216.4	-132.0	384.6	367.8	16.81	22.874	
3,900.0	3,893.3	3,875.2	3,869.0	9.3	8.9	-144.97	-222.1	-136.0	396.4	379.1	17.28	22.938	
4,000.0	3,993.0	3,974.5	3,968.1	9.5	9.1	-145.06	-227.8	-139.9	408.2	390.5	17.75	22.999	
4,100.0	4,092.8	4,073.8	4,067.1	9.8	9.4	-145.15	-233.5	-143.9	420.1	401.8	18.22	23.056	
4,200.0	4,192.5	4,173.1	4,166.2	10.1	9.6	-145.23	-239.2	-147.9	431.9	413.2	18.69	23.109	
4,300.0	4,292.3	4,272.4	4,265.2	10.3	9.9	-145.31	-244.8	-151.8	443.7	424.5	19.16	23.160	
4,400.0	4,392.0	4,371.7	4,364.3	10.6	10.2	-145.38	-250.5	-155.8	455.5	435.9	19.63	23.208	
4,500.0	4,491.8	4,471.0	4,463.4	10.8	10.4	-145.45	-256.2	-159.8	467.3	447.2	20.10	23.254	
4,600.0	4,591.6	4,570.3	4,562.4	11.1	10.7	-145.51	-261.9	-163.7	479.1	458.6	20.57	23.297	
4,700.0	4,691.3	4,669.6	4,661.5	11.3	10.9	-145.58	-267.5	-167.7	491.0	469.9	21.04	23.338	
4,800.0	4,791.1	4,768.9	4,760.5	11.6	11.2	-145.64	-273.2	-171.7	502.8	481.3	21.51	23.377	
4,900.0	4,890.8	4,868.2	4,859.6	11.8	11.4	-145.69	-278.9	-175.6	514.6	492.6	21.98	23.414	
5,000.0	4,990.6	4,967.5	4,958.6	12.1	11.7	-145.75	-284.6	-179.6	526.4	504.0	22.45	23.449	
5,100.0	5,090.3	5,066.8	5,057.7	12.4	12.0	-145.80	-290.2	-183.6	538.3	515.3	22.92	23.483	

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-0103A
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-0103A	**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	5,190.1	5,166.1	5,156.7	12.6	12.2	-145.85	-295.9	-187.5	550.1	526.7	23.39	23.515	
5,300.0	5,289.9	5,265.4	5,255.8	12.9	12.5	-145.90	-301.6	-191.5	561.9	538.0	23.86	23.546	
5,400.0	5,389.2	5,364.1	5,354.3	13.2	12.7	-145.49	-307.3	-195.5	576.8	552.7	24.11	23.925	
5,500.0	5,485.0	5,450.0	5,440.0	13.6	13.0	-144.60	-312.3	-199.0	606.4	582.6	23.82	25.459	
5,600.0	5,573.6	5,500.0	5,489.4	14.2	13.1	-142.02	-318.0	-203.0	655.3	632.1	23.21	28.228	
5,700.0	5,651.8	5,524.3	5,513.2	14.9	13.2	-136.47	-322.2	-205.9	721.6	698.7	22.96	31.423	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0103A
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-0103A	**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	-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	400.377	
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-74.9	0.0	74.9	74.2	0.64	117.628	
300.0	300.0	300.0	300.0	0.5	0.5	-180.00	-74.9	0.0	74.9	73.8	1.09	68.940	
400.0	400.0	400.0	400.0	0.8	0.8	-180.00	-74.9	0.0	74.9	73.3	1.54	48.759	
500.0	500.0	500.0	500.0	1.0	1.0	-180.00	-74.9	0.0	74.9	72.9	1.99	37.717	CC, ES
600.0	600.0	597.6	597.6	1.2	1.2	-179.49	-76.4	-0.7	76.4	74.0	2.41	31.780	
700.0	700.0	695.0	694.9	1.4	1.4	-178.10	-80.9	-2.7	81.1	78.3	2.82	28.815	
800.0	800.0	794.6	794.3	1.7	1.6	-176.39	-87.3	-5.5	87.7	84.4	3.24	27.060	
900.0	900.0	894.4	893.8	1.9	1.8	-174.92	-93.7	-8.3	94.2	90.6	3.67	25.699	
1,000.0	1,000.0	994.2	993.3	2.1	2.0	-173.64	-100.0	-11.1	100.9	96.8	4.10	24.598	
1,100.0	1,100.0	1,093.8	1,092.7	2.3	2.3	-144.26	-106.4	-14.0	108.9	104.4	4.54	23.970	SF
1,200.0	1,199.8	1,193.2	1,191.9	2.6	2.5	-144.63	-112.7	-16.8	119.8	114.9	4.98	24.044	
1,300.0	1,299.6	1,292.4	1,290.8	2.8	2.8	-145.48	-119.0	-19.6	132.2	126.8	5.43	24.348	
1,400.0	1,399.4	1,391.7	1,389.8	3.0	3.0	-146.18	-125.4	-22.4	144.6	138.7	5.88	24.593	
1,500.0	1,499.1	1,490.9	1,488.8	3.3	3.3	-146.77	-131.7	-25.2	156.9	150.6	6.33	24.792	
1,600.0	1,598.9	1,590.1	1,587.8	3.5	3.5	-147.28	-138.0	-28.0	169.3	162.6	6.79	24.958	
1,700.0	1,698.6	1,689.3	1,686.7	3.7	3.8	-147.71	-144.3	-30.8	181.8	174.5	7.24	25.097	
1,800.0	1,798.4	1,788.5	1,785.7	4.0	4.0	-148.09	-150.7	-33.6	194.2	186.5	7.70	25.215	
1,900.0	1,898.1	1,887.7	1,884.7	4.2	4.3	-148.43	-157.0	-36.4	206.6	198.4	8.16	25.317	
2,000.0	1,997.9	1,987.0	1,983.7	4.5	4.5	-148.72	-163.3	-39.2	219.0	210.4	8.62	25.405	
2,100.0	2,097.6	2,086.2	2,082.6	4.7	4.8	-148.99	-169.7	-42.0	231.5	222.4	9.08	25.482	
2,200.0	2,197.4	2,185.4	2,181.6	5.0	5.1	-149.23	-176.0	-44.8	243.9	234.4	9.55	25.550	
2,300.0	2,297.2	2,284.6	2,280.6	5.2	5.3	-149.44	-182.3	-47.6	256.4	246.4	10.01	25.610	
2,400.0	2,396.9	2,383.8	2,379.6	5.5	5.6	-149.64	-188.6	-50.4	268.8	258.3	10.48	25.663	
2,500.0	2,496.7	2,483.0	2,478.5	5.7	5.8	-149.81	-195.0	-53.2	281.3	270.3	10.94	25.711	
2,600.0	2,596.4	2,582.3	2,577.5	6.0	6.1	-149.98	-201.3	-56.0	293.7	282.3	11.41	25.755	
2,700.0	2,696.2	2,681.5	2,676.5	6.2	6.4	-150.12	-207.6	-58.8	306.2	294.3	11.87	25.794	
2,800.0	2,795.9	2,780.7	2,775.5	6.5	6.6	-150.26	-214.0	-61.6	318.7	306.3	12.34	25.830	
2,900.0	2,895.7	2,879.9	2,874.4	6.7	6.9	-150.39	-220.3	-64.4	331.1	318.3	12.80	25.862	
3,000.0	2,995.5	2,979.1	2,973.4	7.0	7.1	-150.51	-226.6	-67.2	343.6	330.3	13.27	25.892	
3,100.0	3,095.2	3,078.4	3,072.4	7.2	7.4	-150.62	-232.9	-70.0	356.0	342.3	13.74	25.919	
3,200.0	3,195.0	3,177.6	3,171.4	7.5	7.7	-150.72	-239.3	-72.8	368.5	354.3	14.20	25.945	
3,300.0	3,294.7	3,276.8	3,270.4	7.8	7.9	-150.81	-245.6	-75.7	381.0	366.3	14.67	25.968	
3,400.0	3,394.5	3,376.0	3,369.3	8.0	8.2	-150.90	-251.9	-78.5	393.4	378.3	15.14	25.990	
3,500.0	3,494.2	3,475.2	3,468.3	8.3	8.4	-150.99	-258.2	-81.3	405.9	390.3	15.61	26.010	
3,600.0	3,594.0	3,574.4	3,567.3	8.5	8.7	-151.07	-264.6	-84.1	418.4	402.3	16.07	26.028	
3,700.0	3,693.7	3,673.7	3,666.3	8.8	9.0	-151.14	-270.9	-86.9	430.8	414.3	16.54	26.046	
3,800.0	3,793.5	3,772.9	3,765.2	9.0	9.2	-151.21	-277.2	-89.7	443.3	426.3	17.01	26.062	
3,900.0	3,893.3	3,872.1	3,864.2	9.3	9.5	-151.28	-283.6	-92.5	455.8	438.3	17.48	26.078	
4,000.0	3,993.0	3,971.3	3,963.2	9.5	9.8	-151.34	-289.9	-95.3	468.3	450.3	17.95	26.092	
4,100.0	4,092.8	4,070.5	4,062.2	9.8	10.0	-151.40	-296.2	-98.1	480.7	462.3	18.41	26.106	
4,200.0	4,192.5	4,169.8	4,161.1	10.1	10.3	-151.46	-302.5	-100.9	493.2	474.3	18.88	26.118	
4,300.0	4,292.3	4,269.0	4,260.1	10.3	10.5	-151.51	-308.9	-103.7	505.7	486.3	19.35	26.131	
4,400.0	4,392.0	4,368.2	4,359.1	10.6	10.8	-151.56	-315.2	-106.5	518.2	498.3	19.82	26.142	
4,500.0	4,491.8	4,467.4	4,458.1	10.8	11.1	-151.61	-321.5	-109.3	530.6	510.3	20.29	26.153	
4,600.0	4,591.6	4,566.6	4,557.0	11.1	11.3	-151.66	-327.8	-112.1	543.1	522.3	20.76	26.163	
4,700.0	4,691.3	4,665.8	4,656.0	11.3	11.6	-151.70	-334.2	-114.9	555.6	534.4	21.23	26.173	
4,800.0	4,791.1	4,765.1	4,755.0	11.6	11.8	-151.75	-340.5	-117.7	568.1	546.4	21.70	26.182	
4,900.0	4,890.8	4,864.3	4,854.0	11.8	12.1	-151.79	-346.8	-120.5	580.5	558.4	22.17	26.191	
5,000.0	4,990.6	4,963.5	4,952.9	12.1	12.4	-151.83	-353.2	-123.3	593.0	570.4	22.63	26.199	
5,100.0	5,090.3	5,062.7	5,051.9	12.4	12.6	-151.86	-359.5	-126.1	605.5	582.4	23.10	26.207	

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-0103A
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-0103A	**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	5,190.1	5,161.9	5,150.9	12.6	12.9	-151.90	-365.8	-128.9	618.0	594.4	23.57	26.215	
5,300.0	5,289.9	5,261.1	5,249.9	12.9	13.2	-151.93	-372.1	-131.7	630.4	606.4	24.04	26.222	
5,400.0	5,389.2	5,350.0	5,338.5	13.2	13.4	-151.47	-377.9	-134.3	646.4	622.2	24.21	26.697	
5,500.0	5,485.0	5,400.0	5,388.0	13.6	13.6	-149.77	-384.3	-137.1	682.8	659.1	23.71	28.797	
5,600.0	5,573.6	5,427.7	5,415.1	14.2	13.7	-146.16	-389.8	-139.6	739.7	716.8	22.90	32.303	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0103A
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-0103A	**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	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	437.714	
200.0	200.0	200.0	200.0	0.3	0.3	156.19	-74.9	33.0	81.9	81.2	0.64	128.594	
300.0	300.0	300.0	300.0	0.5	0.5	156.19	-74.9	33.0	81.9	80.8	1.09	75.368	
400.0	400.0	400.0	400.0	0.8	0.8	156.19	-74.9	33.0	81.9	80.3	1.54	53.305	
500.0	500.0	500.0	500.0	1.0	1.0	156.19	-74.9	33.0	81.9	79.9	1.99	41.234	
600.0	600.0	600.0	600.0	1.2	1.2	156.19	-74.9	33.0	81.9	79.4	2.43	33.621	
700.0	700.0	700.0	700.0	1.4	1.4	156.19	-74.9	33.0	81.9	79.0	2.88	28.381	
800.0	800.0	800.0	800.0	1.7	1.7	156.19	-74.9	33.0	81.9	78.5	3.33	24.554	
900.0	900.0	900.0	900.0	1.9	1.9	156.19	-74.9	33.0	81.9	78.1	3.78	21.636	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	156.19	-74.9	33.0	81.9	77.6	4.23	19.338	CC, ES
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	-175.20	-74.9	33.0	83.6	78.9	4.68	17.862	
1,200.0	1,199.8	1,197.4	1,197.3	2.6	2.5	-174.84	-76.5	32.7	90.2	85.1	5.09	17.710	SF
1,300.0	1,299.6	1,294.1	1,293.9	2.8	2.7	-173.55	-81.3	31.7	101.3	95.8	5.49	18.446	
1,400.0	1,399.4	1,393.1	1,392.7	3.0	2.9	-171.97	-88.1	30.2	114.0	108.1	5.90	19.323	
1,500.0	1,499.1	1,492.2	1,491.6	3.3	3.1	-170.70	-94.8	28.8	126.8	120.4	6.31	20.080	
1,600.0	1,598.9	1,591.3	1,590.5	3.5	3.3	-169.66	-101.6	27.3	139.6	132.9	6.73	20.732	
1,700.0	1,698.6	1,690.5	1,689.4	3.7	3.5	-168.80	-108.3	25.9	152.5	145.3	7.16	21.295	
1,800.0	1,798.4	1,789.6	1,788.3	4.0	3.7	-168.08	-115.1	24.4	165.3	157.8	7.59	21.785	
1,900.0	1,898.1	1,888.8	1,887.2	4.2	3.9	-167.45	-121.9	23.0	178.3	170.2	8.02	22.215	
2,000.0	1,997.9	1,987.9	1,986.1	4.5	4.2	-166.92	-128.6	21.5	191.2	182.7	8.46	22.594	
2,100.0	2,097.6	2,087.1	2,085.0	4.7	4.4	-166.45	-135.4	20.1	204.1	195.2	8.90	22.930	
2,200.0	2,197.4	2,186.2	2,183.9	5.0	4.6	-166.03	-142.2	18.6	217.1	207.8	9.35	23.229	
2,300.0	2,297.2	2,285.4	2,282.8	5.2	4.9	-165.67	-148.9	17.2	230.1	220.3	9.79	23.498	
2,400.0	2,396.9	2,384.5	2,381.7	5.5	5.1	-165.34	-155.7	15.7	243.1	232.8	10.24	23.739	
2,500.0	2,496.7	2,483.6	2,480.6	5.7	5.4	-165.04	-162.4	14.3	256.0	245.4	10.69	23.958	
2,600.0	2,596.4	2,582.8	2,579.5	6.0	5.6	-164.78	-169.2	12.8	269.0	257.9	11.14	24.157	
2,700.0	2,696.2	2,681.9	2,678.4	6.2	5.9	-164.54	-176.0	11.4	282.0	270.4	11.59	24.338	
2,800.0	2,795.9	2,781.1	2,777.3	6.5	6.1	-164.32	-182.7	9.9	295.0	283.0	12.04	24.503	
2,900.0	2,895.7	2,880.2	2,876.2	6.7	6.4	-164.11	-189.5	8.5	308.0	295.5	12.49	24.655	
3,000.0	2,995.5	2,979.4	2,975.1	7.0	6.6	-163.93	-196.3	7.0	321.0	308.1	12.95	24.795	
3,100.0	3,095.2	3,078.5	3,074.0	7.2	6.9	-163.76	-203.0	5.6	334.1	320.7	13.40	24.924	
3,200.0	3,195.0	3,177.7	3,172.9	7.5	7.1	-163.60	-209.8	4.1	347.1	333.2	13.86	25.044	
3,300.0	3,294.7	3,276.8	3,271.8	7.8	7.4	-163.45	-216.5	2.7	360.1	345.8	14.31	25.155	
3,400.0	3,394.5	3,376.0	3,370.7	8.0	7.6	-163.32	-223.3	1.2	373.1	358.3	14.77	25.259	
3,500.0	3,494.2	3,475.1	3,469.6	8.3	7.9	-163.19	-230.1	-0.2	386.1	370.9	15.23	25.355	
3,600.0	3,594.0	3,574.2	3,568.5	8.5	8.1	-163.07	-236.8	-1.7	399.2	383.5	15.69	25.445	
3,700.0	3,693.7	3,673.4	3,667.4	8.8	8.4	-162.96	-243.6	-3.1	412.2	396.0	16.14	25.530	
3,800.0	3,793.5	3,772.5	3,766.4	9.0	8.6	-162.86	-250.4	-4.6	425.2	408.6	16.60	25.609	
3,900.0	3,893.3	3,871.7	3,865.3	9.3	8.9	-162.76	-257.1	-6.0	438.2	421.2	17.06	25.684	
4,000.0	3,993.0	3,970.8	3,964.2	9.5	9.1	-162.66	-263.9	-7.5	451.3	433.7	17.52	25.754	
4,100.0	4,092.8	4,070.0	4,063.1	9.8	9.4	-162.58	-270.6	-8.9	464.3	446.3	17.98	25.820	
4,200.0	4,192.5	4,169.1	4,162.0	10.1	9.7	-162.49	-277.4	-10.4	477.3	458.9	18.44	25.883	
4,300.0	4,292.3	4,268.3	4,260.9	10.3	9.9	-162.42	-284.2	-11.8	490.3	471.4	18.90	25.942	
4,400.0	4,392.0	4,367.4	4,359.8	10.6	10.2	-162.34	-290.9	-13.3	503.4	484.0	19.36	25.998	
4,500.0	4,491.8	4,466.6	4,458.7	10.8	10.4	-162.27	-297.7	-14.7	516.4	496.6	19.82	26.051	
4,600.0	4,591.6	4,565.7	4,557.6	11.1	10.7	-162.20	-304.5	-16.2	529.4	509.2	20.28	26.102	
4,700.0	4,691.3	4,664.8	4,656.5	11.3	10.9	-162.14	-311.2	-17.6	542.5	521.7	20.74	26.150	
4,800.0	4,791.1	4,764.0	4,755.4	11.6	11.2	-162.08	-318.0	-19.1	555.5	534.3	21.21	26.196	
4,900.0	4,890.8	4,863.1	4,854.3	11.8	11.5	-162.02	-324.7	-20.5	568.6	546.9	21.67	26.240	
5,000.0	4,990.6	4,962.3	4,953.2	12.1	11.7	-161.97	-331.5	-22.0	581.6	559.5	22.13	26.281	
5,100.0	5,090.3	5,061.4	5,052.1	12.4	12.0	-161.91	-338.3	-23.4	594.6	572.0	22.59	26.321	

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-0103A
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-0103A	**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	5,190.1	5,160.6	5,151.0	12.6	12.2	-161.86	-345.0	-24.9	607.7	584.6	23.05	26.359	
5,300.0	5,289.9	5,259.7	5,249.9	12.9	12.5	-161.81	-351.8	-26.3	620.7	597.2	23.52	26.396	
5,400.0	5,389.2	5,358.2	5,348.2	13.2	12.8	-161.46	-358.5	-27.8	637.3	613.6	23.68	26.918	
5,500.0	5,485.0	5,444.5	5,434.3	13.6	13.0	-160.70	-364.4	-29.0	670.4	647.3	23.07	29.055	
5,600.0	5,573.6	5,482.2	5,471.7	14.2	13.1	-158.68	-368.8	-30.0	723.7	701.9	21.82	33.162	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0103A
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-0103A	**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	138.57	-74.9	66.1	99.9				
100.0	100.0	100.0	100.0	0.1	0.1	138.57	-74.9	66.1	99.9	99.7	0.19	534.029	
200.0	200.0	200.0	200.0	0.3	0.3	138.57	-74.9	66.1	99.9	99.2	0.64	156.894	
300.0	300.0	300.0	300.0	0.5	0.5	138.57	-74.9	66.1	99.9	98.8	1.09	91.954	
400.0	400.0	400.0	400.0	0.8	0.8	138.57	-74.9	66.1	99.9	98.3	1.54	65.035	
500.0	500.0	500.0	500.0	1.0	1.0	138.57	-74.9	66.1	99.9	97.9	1.99	50.308	
600.0	600.0	600.0	600.0	1.2	1.2	138.57	-74.9	66.1	99.9	97.4	2.43	41.019	
700.0	700.0	700.0	700.0	1.4	1.4	138.57	-74.9	66.1	99.9	97.0	2.88	34.626	
800.0	800.0	800.0	800.0	1.7	1.7	138.57	-74.9	66.1	99.9	96.5	3.33	29.957	
900.0	900.0	900.0	900.0	1.9	1.9	138.57	-74.9	66.1	99.9	96.1	3.78	26.397	CC, ES
1,000.0	1,000.0	997.2	997.2	2.1	2.1	139.12	-76.5	66.2	101.2	97.0	4.20	24.106	
1,100.0	1,100.0	1,094.1	1,093.9	2.3	2.3	169.54	-81.4	66.7	107.1	102.5	4.60	23.299	SF
1,200.0	1,199.8	1,193.2	1,192.8	2.6	2.4	171.84	-88.3	67.3	118.1	113.1	5.01	23.600	
1,300.0	1,299.6	1,292.3	1,291.6	2.8	2.6	173.87	-95.2	68.0	131.1	125.6	5.42	24.184	
1,400.0	1,399.4	1,391.3	1,390.5	3.0	2.9	175.53	-102.1	68.6	144.1	138.3	5.84	24.679	
1,500.0	1,499.1	1,490.4	1,489.3	3.3	3.1	176.92	-108.9	69.2	157.2	151.0	6.26	25.101	
1,600.0	1,598.9	1,589.5	1,588.1	3.5	3.3	178.09	-115.8	69.8	170.5	163.8	6.69	25.463	
1,700.0	1,698.6	1,688.5	1,686.9	3.7	3.5	179.10	-122.7	70.5	183.7	176.6	7.13	25.776	
1,800.0	1,798.4	1,787.6	1,785.8	4.0	3.8	179.96	-129.6	71.1	197.1	189.5	7.56	26.048	
1,900.0	1,898.1	1,886.7	1,884.6	4.2	4.0	-179.28	-136.5	71.7	210.4	202.4	8.00	26.289	
2,000.0	1,997.9	1,985.7	1,983.4	4.5	4.2	-178.61	-143.3	72.4	223.8	215.4	8.45	26.501	
2,100.0	2,097.6	2,084.8	2,082.2	4.7	4.5	-178.02	-150.2	73.0	237.2	228.3	8.89	26.689	
2,200.0	2,197.4	2,183.9	2,181.1	5.0	4.7	-177.49	-157.1	73.6	250.7	241.3	9.33	26.857	
2,300.0	2,297.2	2,282.9	2,279.9	5.2	5.0	-177.01	-164.0	74.3	264.1	254.4	9.78	27.009	
2,400.0	2,396.9	2,382.0	2,378.7	5.5	5.2	-176.59	-170.9	74.9	277.6	267.4	10.23	27.145	
2,500.0	2,496.7	2,481.1	2,477.5	5.7	5.5	-176.20	-177.8	75.5	291.1	280.4	10.68	27.269	
2,600.0	2,596.4	2,580.1	2,576.4	6.0	5.7	-175.84	-184.6	76.2	304.6	293.5	11.13	27.381	
2,700.0	2,696.2	2,679.2	2,675.2	6.2	6.0	-175.52	-191.5	76.8	318.1	306.6	11.58	27.484	
2,800.0	2,795.9	2,778.3	2,774.0	6.5	6.2	-175.22	-198.4	77.4	331.7	319.6	12.03	27.579	
2,900.0	2,895.7	2,877.3	2,872.8	6.7	6.5	-174.94	-205.3	78.1	345.2	332.7	12.48	27.665	
3,000.0	2,995.5	2,976.4	2,971.7	7.0	6.7	-174.69	-212.2	78.7	358.7	345.8	12.93	27.745	
3,100.0	3,095.2	3,075.5	3,070.5	7.2	7.0	-174.45	-219.0	79.3	372.3	358.9	13.38	27.819	
3,200.0	3,195.0	3,174.5	3,169.3	7.5	7.3	-174.24	-225.9	80.0	385.8	372.0	13.84	27.888	
3,300.0	3,294.7	3,273.6	3,268.1	7.8	7.5	-174.03	-232.8	80.6	399.4	385.1	14.29	27.952	
3,400.0	3,394.5	3,372.7	3,367.0	8.0	7.8	-173.84	-239.7	81.2	412.9	398.2	14.74	28.011	
3,500.0	3,494.2	3,471.7	3,465.8	8.3	8.0	-173.66	-246.6	81.9	426.5	411.3	15.20	28.067	
3,600.0	3,594.0	3,570.8	3,564.6	8.5	8.3	-173.49	-253.5	82.5	440.1	424.4	15.65	28.119	
3,700.0	3,693.7	3,669.9	3,663.4	8.8	8.5	-173.34	-260.3	83.1	453.7	437.6	16.11	28.168	
3,800.0	3,793.5	3,768.9	3,762.3	9.0	8.8	-173.19	-267.2	83.8	467.2	450.7	16.56	28.213	
3,900.0	3,893.3	3,868.0	3,861.1	9.3	9.1	-173.05	-274.1	84.4	480.8	463.8	17.02	28.257	
4,000.0	3,993.0	3,967.1	3,959.9	9.5	9.3	-172.92	-281.0	85.0	494.4	476.9	17.47	28.297	
4,100.0	4,092.8	4,066.1	4,058.7	9.8	9.6	-172.79	-287.9	85.7	508.0	490.1	17.93	28.336	
4,200.0	4,192.5	4,165.2	4,157.6	10.1	9.8	-172.67	-294.7	86.3	521.6	503.2	18.38	28.372	
4,300.0	4,292.3	4,264.3	4,256.4	10.3	10.1	-172.56	-301.6	86.9	535.2	516.3	18.84	28.406	
4,400.0	4,392.0	4,363.3	4,355.2	10.6	10.3	-172.45	-308.5	87.6	548.8	529.5	19.30	28.439	
4,500.0	4,491.8	4,462.4	4,454.0	10.8	10.6	-172.35	-315.4	88.2	562.3	542.6	19.75	28.470	
4,600.0	4,591.6	4,561.5	4,552.9	11.1	10.9	-172.25	-322.3	88.8	575.9	555.7	20.21	28.500	
4,700.0	4,691.3	4,660.5	4,651.7	11.3	11.1	-172.16	-329.2	89.5	589.5	568.9	20.67	28.528	
4,800.0	4,791.1	4,759.6	4,750.5	11.6	11.4	-172.07	-336.0	90.1	603.1	582.0	21.12	28.554	
4,900.0	4,890.8	4,858.7	4,849.4	11.8	11.6	-171.99	-342.9	90.7	616.7	595.2	21.58	28.580	
5,000.0	4,990.6	4,957.7	4,948.2	12.1	11.9	-171.91	-349.8	91.3	630.3	608.3	22.04	28.604	
5,100.0	5,090.3	5,056.8	5,047.0	12.4	12.2	-171.83	-356.7	92.0	643.9	621.4	22.49	28.627	

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-0103A
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-0103A	**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	5,190.1	5,155.9	5,145.8	12.6	12.4	-171.76	-363.6	92.6	657.5	634.6	22.95	28.650	
5,300.0	5,289.9	5,254.9	5,244.7	12.9	12.7	-171.68	-370.4	93.2	671.1	647.7	23.41	28.671	
5,400.0	5,389.2	5,344.2	5,333.7	13.2	12.9	-171.45	-376.7	93.8	688.6	665.0	23.51	29.285	
5,500.0	5,485.0	5,383.9	5,373.1	13.6	13.0	-170.76	-381.5	94.3	727.6	704.9	22.70	32.053	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0103A
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-0103A	**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	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	661.108	
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	113.833	
400.0	400.0	400.0	400.0	0.8	0.8	127.29	-74.9	98.4	123.6	122.1	1.54	80.510	
500.0	500.0	500.0	500.0	1.0	1.0	127.29	-74.9	98.4	123.6	121.6	1.99	62.278	
600.0	600.0	600.0	600.0	1.2	1.2	127.29	-74.9	98.4	123.6	121.2	2.43	50.779	
700.0	700.0	700.0	700.0	1.4	1.4	127.29	-74.9	98.4	123.6	120.7	2.88	42.865	
800.0	800.0	800.0	800.0	1.7	1.7	127.29	-74.9	98.4	123.6	120.3	3.33	37.085	
900.0	900.0	900.0	900.0	1.9	1.9	127.29	-74.9	98.4	123.6	119.8	3.78	32.678	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	127.29	-74.9	98.4	123.6	119.4	4.23	29.208	CC, ES
1,100.0	1,100.0	1,096.4	1,096.4	2.3	2.3	156.69	-76.4	98.9	126.6	122.0	4.65	27.259	
1,200.0	1,199.8	1,192.1	1,192.0	2.6	2.5	158.56	-81.0	100.5	135.8	130.7	5.04	26.940	SF
1,300.0	1,299.6	1,290.9	1,290.5	2.8	2.7	160.91	-87.5	102.8	148.4	142.9	5.45	27.241	
1,400.0	1,399.4	1,389.9	1,389.3	3.0	2.9	162.89	-94.0	105.1	161.2	155.3	5.86	27.513	
1,500.0	1,499.1	1,488.9	1,488.1	3.3	3.1	164.58	-100.5	107.4	174.1	167.9	6.28	27.746	
1,600.0	1,598.9	1,588.0	1,586.9	3.5	3.3	166.04	-107.0	109.7	187.2	180.5	6.70	27.947	
1,700.0	1,698.6	1,687.0	1,685.6	3.7	3.5	167.30	-113.5	112.0	200.5	193.3	7.13	28.123	
1,800.0	1,798.4	1,786.0	1,784.4	4.0	3.7	168.41	-120.0	114.3	213.7	206.2	7.56	28.276	
1,900.0	1,898.1	1,885.1	1,883.2	4.2	4.0	169.39	-126.6	116.6	227.1	219.1	7.99	28.411	
2,000.0	1,997.9	1,984.1	1,982.0	4.5	4.2	170.26	-133.1	118.8	240.5	232.1	8.43	28.532	
2,100.0	2,097.6	2,083.1	2,080.8	4.7	4.4	171.04	-139.6	121.1	254.0	245.1	8.87	28.640	
2,200.0	2,197.4	2,182.2	2,179.6	5.0	4.7	171.74	-146.1	123.4	267.5	258.2	9.31	28.736	
2,300.0	2,297.2	2,281.2	2,278.4	5.2	4.9	172.37	-152.6	125.7	281.0	271.3	9.75	28.824	
2,400.0	2,396.9	2,380.2	2,377.2	5.5	5.2	172.95	-159.1	128.0	294.6	284.4	10.19	28.902	
2,500.0	2,496.7	2,479.3	2,476.0	5.7	5.4	173.47	-165.6	130.3	308.2	297.6	10.64	28.974	
2,600.0	2,596.4	2,578.3	2,574.8	6.0	5.7	173.95	-172.2	132.6	321.8	310.8	11.08	29.040	
2,700.0	2,696.2	2,677.3	2,673.6	6.2	5.9	174.39	-178.7	134.9	335.5	324.0	11.53	29.099	
2,800.0	2,795.9	2,776.4	2,772.4	6.5	6.2	174.80	-185.2	137.2	349.1	337.2	11.98	29.154	
2,900.0	2,895.7	2,875.4	2,871.1	6.7	6.4	175.17	-191.7	139.5	362.8	350.4	12.42	29.205	
3,000.0	2,995.5	2,974.4	2,969.9	7.0	6.7	175.52	-198.2	141.8	376.5	363.6	12.87	29.252	
3,100.0	3,095.2	3,073.5	3,068.7	7.2	6.9	175.84	-204.7	144.1	390.2	376.9	13.32	29.295	
3,200.0	3,195.0	3,172.5	3,167.5	7.5	7.2	176.14	-211.3	146.4	403.9	390.2	13.77	29.336	
3,300.0	3,294.7	3,271.5	3,266.3	7.8	7.4	176.43	-217.8	148.7	417.7	403.4	14.22	29.373	
3,400.0	3,394.5	3,370.6	3,365.1	8.0	7.7	176.69	-224.3	151.0	431.4	416.7	14.67	29.408	
3,500.0	3,494.2	3,469.6	3,463.9	8.3	8.0	176.94	-230.8	153.3	445.1	430.0	15.12	29.441	
3,600.0	3,594.0	3,568.6	3,562.7	8.5	8.2	177.17	-237.3	155.6	458.9	443.3	15.57	29.471	
3,700.0	3,693.7	3,667.7	3,661.5	8.8	8.5	177.39	-243.8	157.9	472.6	456.6	16.02	29.500	
3,800.0	3,793.5	3,766.7	3,760.3	9.0	8.7	177.60	-250.4	160.2	486.4	469.9	16.47	29.527	
3,900.0	3,893.3	3,865.7	3,859.1	9.3	9.0	177.79	-256.9	162.4	500.2	483.3	16.93	29.552	
4,000.0	3,993.0	3,964.8	3,957.9	9.5	9.2	177.98	-263.4	164.7	514.0	496.6	17.38	29.576	
4,100.0	4,092.8	4,063.8	4,056.7	9.8	9.5	178.15	-269.9	167.0	527.7	509.9	17.83	29.599	
4,200.0	4,192.5	4,162.8	4,155.4	10.1	9.7	178.32	-276.4	169.3	541.5	523.2	18.28	29.620	
4,300.0	4,292.3	4,261.9	4,254.2	10.3	10.0	178.48	-282.9	171.6	555.3	536.6	18.73	29.641	
4,400.0	4,392.0	4,360.9	4,353.0	10.6	10.3	178.63	-289.5	173.9	569.1	549.9	19.19	29.660	
4,500.0	4,491.8	4,459.9	4,451.8	10.8	10.5	178.77	-296.0	176.2	582.9	563.3	19.64	29.678	
4,600.0	4,591.6	4,559.0	4,550.6	11.1	10.8	178.91	-302.5	178.5	596.7	576.6	20.09	29.696	
4,700.0	4,691.3	4,658.0	4,649.4	11.3	11.0	179.04	-309.0	180.8	610.5	590.0	20.55	29.712	
4,800.0	4,791.1	4,757.0	4,748.2	11.6	11.3	179.16	-315.5	183.1	624.3	603.3	21.00	29.728	
4,900.0	4,890.8	4,856.1	4,847.0	11.8	11.6	179.28	-322.0	185.4	638.1	616.7	21.45	29.743	
5,000.0	4,990.6	4,955.1	4,945.8	12.1	11.8	179.40	-328.5	187.7	651.9	630.0	21.91	29.757	
5,100.0	5,090.3	5,054.1	5,044.6	12.4	12.1	179.51	-335.1	190.0	665.8	643.4	22.36	29.771	

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-0103A
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-0103A	**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	5,190.1	5,153.2	5,143.4	12.6	12.3	179.61	-341.6	192.3	679.6	656.8	22.82	29.784	
5,300.0	5,289.9	5,252.2	5,242.2	12.9	12.6	179.71	-348.1	194.6	693.4	670.1	23.27	29.797	
5,400.0	5,389.2	5,350.5	5,340.3	13.2	12.9	179.81	-354.6	196.9	711.0	687.6	23.39	30.399	
5,500.0	5,485.0	5,438.0	5,427.5	13.6	13.1	179.89	-360.3	198.9	745.8	723.1	22.63	32.947	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0103A
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-0103A	**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	119.67	-74.9	131.4	151.2				
100.0	100.0	100.0	100.0	0.1	0.1	119.67	-74.9	131.4	151.2	151.1	0.19	808.735	
200.0	200.0	200.0	200.0	0.3	0.3	119.67	-74.9	131.4	151.2	150.6	0.64	237.601	
300.0	300.0	300.0	300.0	0.5	0.5	119.67	-74.9	131.4	151.2	150.2	1.09	139.255	
400.0	400.0	400.0	400.0	0.8	0.8	119.67	-74.9	131.4	151.2	149.7	1.54	98.489	CC, ES
500.0	500.0	495.6	495.6	1.0	1.0	119.98	-76.3	132.2	152.7	150.7	1.95	78.175	
600.0	600.0	591.0	590.9	1.2	1.1	120.86	-80.4	134.6	157.0	154.7	2.37	66.378	
700.0	700.0	690.3	690.0	1.4	1.4	122.05	-86.4	138.0	163.1	160.3	2.79	58.400	
800.0	800.0	790.1	789.5	1.7	1.6	123.16	-92.4	141.5	169.3	166.1	3.22	52.514	
900.0	900.0	889.8	889.0	1.9	1.8	124.20	-98.5	144.9	175.6	171.9	3.66	47.958	
1,000.0	1,000.0	989.6	988.5	2.1	2.1	125.16	-104.5	148.4	181.9	177.8	4.10	44.343	
1,100.0	1,100.0	1,089.2	1,087.9	2.3	2.3	154.92	-110.5	151.8	189.8	185.2	4.56	41.580	
1,200.0	1,199.8	1,188.5	1,186.9	2.6	2.6	156.27	-116.5	155.3	200.9	195.9	5.01	40.144	
1,300.0	1,299.6	1,287.5	1,285.7	2.8	2.8	157.74	-122.5	158.7	213.8	208.4	5.45	39.249	
1,400.0	1,399.4	1,386.5	1,384.4	3.0	3.1	159.04	-128.5	162.1	226.8	220.9	5.89	38.494	
1,500.0	1,499.1	1,485.5	1,483.2	3.3	3.3	160.19	-134.5	165.6	239.9	233.6	6.34	37.851	
1,600.0	1,598.9	1,584.6	1,582.0	3.5	3.6	161.23	-140.5	169.0	253.1	246.3	6.79	37.299	
1,700.0	1,698.6	1,683.6	1,680.8	3.7	3.9	162.17	-146.5	172.4	266.4	259.2	7.23	36.821	
1,800.0	1,798.4	1,782.6	1,779.6	4.0	4.1	163.01	-152.5	175.9	279.7	272.0	7.68	36.402	
1,900.0	1,898.1	1,881.7	1,878.4	4.2	4.4	163.78	-158.5	179.3	293.1	285.0	8.13	36.034	
2,000.0	1,997.9	1,980.7	1,977.2	4.5	4.6	164.49	-164.5	182.7	306.5	298.0	8.58	35.708	
2,100.0	2,097.6	2,079.7	2,075.9	4.7	4.9	165.13	-170.5	186.2	320.0	311.0	9.04	35.417	
2,200.0	2,197.4	2,178.7	2,174.7	5.0	5.1	165.72	-176.5	189.6	333.5	324.0	9.49	35.156	
2,300.0	2,297.2	2,277.8	2,273.5	5.2	5.4	166.26	-182.5	193.0	347.1	337.1	9.94	34.921	
2,400.0	2,396.9	2,376.8	2,372.3	5.5	5.7	166.77	-188.5	196.5	360.6	350.2	10.39	34.708	
2,500.0	2,496.7	2,475.8	2,471.1	5.7	5.9	167.24	-194.5	199.9	374.2	363.4	10.84	34.515	
2,600.0	2,596.4	2,574.8	2,569.9	6.0	6.2	167.67	-200.5	203.3	387.8	376.6	11.30	34.338	
2,700.0	2,696.2	2,673.9	2,668.7	6.2	6.4	168.08	-206.5	206.8	401.5	389.7	11.75	34.176	
2,800.0	2,795.9	2,772.9	2,767.4	6.5	6.7	168.46	-212.5	210.2	415.1	402.9	12.20	34.027	
2,900.0	2,895.7	2,871.9	2,866.2	6.7	7.0	168.81	-218.5	213.6	428.8	416.2	12.65	33.889	
3,000.0	2,995.5	2,971.0	2,965.0	7.0	7.2	169.14	-224.4	217.1	442.5	429.4	13.11	33.762	
3,100.0	3,095.2	3,070.0	3,063.8	7.2	7.5	169.46	-230.4	220.5	456.2	442.6	13.56	33.644	
3,200.0	3,195.0	3,169.0	3,162.6	7.5	7.7	169.75	-236.4	223.9	469.9	455.9	14.01	33.534	
3,300.0	3,294.7	3,268.0	3,261.4	7.8	8.0	170.03	-242.4	227.4	483.7	469.2	14.47	33.431	
3,400.0	3,394.5	3,367.1	3,360.2	8.0	8.3	170.29	-248.4	230.8	497.4	482.5	14.92	33.335	
3,500.0	3,494.2	3,466.1	3,458.9	8.3	8.5	170.54	-254.4	234.2	511.1	495.8	15.37	33.246	
3,600.0	3,594.0	3,565.1	3,557.7	8.5	8.8	170.77	-260.4	237.7	524.9	509.1	15.83	33.161	
3,700.0	3,693.7	3,664.1	3,656.5	8.8	9.1	171.00	-266.4	241.1	538.7	522.4	16.28	33.082	
3,800.0	3,793.5	3,763.2	3,755.3	9.0	9.3	171.21	-272.4	244.5	552.4	535.7	16.74	33.007	
3,900.0	3,893.3	3,862.2	3,854.1	9.3	9.6	171.41	-278.4	248.0	566.2	549.0	17.19	32.937	
4,000.0	3,993.0	3,961.2	3,952.9	9.5	9.8	171.60	-284.4	251.4	580.0	562.3	17.64	32.870	
4,100.0	4,092.8	4,060.2	4,051.7	9.8	10.1	171.79	-290.4	254.8	593.8	575.7	18.10	32.807	
4,200.0	4,192.5	4,159.3	4,150.4	10.1	10.4	171.96	-296.4	258.3	607.6	589.0	18.55	32.748	
4,300.0	4,292.3	4,258.3	4,249.2	10.3	10.6	172.13	-302.4	261.7	621.4	602.4	19.01	32.691	
4,400.0	4,392.0	4,357.3	4,348.0	10.6	10.9	172.29	-308.4	265.1	635.2	615.7	19.46	32.637	
4,500.0	4,491.8	4,456.4	4,446.8	10.8	11.1	172.44	-314.4	268.6	649.0	629.1	19.92	32.586	
4,600.0	4,591.6	4,555.4	4,545.6	11.1	11.4	172.59	-320.4	272.0	662.8	642.5	20.37	32.537	
4,700.0	4,691.3	4,654.4	4,644.4	11.3	11.7	172.73	-326.4	275.4	676.6	655.8	20.83	32.490	
4,800.0	4,791.1	4,753.4	4,743.2	11.6	11.9	172.87	-332.3	278.9	690.5	669.2	21.28	32.446	
4,900.0	4,890.8	4,852.5	4,841.9	11.8	12.2	173.00	-338.3	282.3	704.3	682.6	21.74	32.403	
5,000.0	4,990.6	4,951.5	4,940.7	12.1	12.5	173.12	-344.3	285.7	718.1	695.9	22.19	32.362	
5,100.0	5,090.3	5,050.5	5,039.5	12.4	12.7	173.24	-350.3	289.2	732.0	709.3	22.65	32.323	

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-0103A
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-0103A	**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	5,190.1	5,149.5	5,138.3	12.6	13.0	173.36	-356.3	292.6	745.8	722.7	23.10	32.286 SF	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0103A
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-0103A	**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	114.49	-74.9	164.4	180.7				
100.0	100.0	100.0	100.0	0.1	0.1	114.49	-74.9	164.4	180.7	180.5	0.19	966.305	
200.0	200.0	200.0	200.0	0.3	0.3	114.49	-74.9	164.4	180.7	180.1	0.64	283.887	
300.0	300.0	300.0	300.0	0.5	0.5	114.49	-74.9	164.4	180.7	179.6	1.09	166.384	
400.0	400.0	400.0	400.0	0.8	0.8	114.49	-74.9	164.4	180.7	179.2	1.54	117.677	
500.0	500.0	500.0	500.0	1.0	1.0	114.49	-74.9	164.4	180.7	178.7	1.99	91.029	
600.0	600.0	600.0	600.0	1.2	1.2	114.49	-74.9	164.4	180.7	178.3	2.43	74.222	
700.0	700.0	700.0	700.0	1.4	1.4	114.49	-74.9	164.4	180.7	177.8	2.88	62.653	
800.0	800.0	800.0	800.0	1.7	1.7	114.49	-74.9	164.4	180.7	177.4	3.33	54.205	
866.7	866.7	866.7	866.7	1.8	1.8	114.49	-74.9	164.4	180.7	177.1	3.63	49.734	CC
900.0	900.0	900.0	900.0	1.9	1.9	114.49	-74.9	164.4	180.7	176.9	3.78	47.764	ES
1,000.0	1,000.0	994.6	994.6	2.1	2.1	114.70	-76.1	165.5	182.2	178.0	4.20	43.403	
1,100.0	1,100.0	1,088.8	1,088.7	2.3	2.3	144.25	-79.7	168.4	188.1	183.5	4.60	40.919	
1,200.0	1,199.8	1,187.4	1,187.1	2.6	2.5	145.83	-84.9	172.8	198.7	193.7	5.01	39.686	
1,300.0	1,299.6	1,286.5	1,285.8	2.8	2.7	147.63	-90.2	177.3	211.0	205.6	5.42	38.916	
1,400.0	1,399.4	1,385.5	1,384.6	3.0	2.9	149.22	-95.5	181.7	223.5	217.7	5.84	38.241	
1,500.0	1,499.1	1,484.5	1,483.4	3.3	3.1	150.65	-100.8	186.1	236.1	229.9	6.27	37.649	
1,600.0	1,598.9	1,583.6	1,582.2	3.5	3.3	151.93	-106.1	190.6	248.9	242.2	6.70	37.128	
1,700.0	1,698.6	1,682.6	1,681.0	3.7	3.6	153.09	-111.4	195.0	261.8	254.6	7.14	36.669	
1,800.0	1,798.4	1,781.6	1,779.8	4.0	3.8	154.14	-116.7	199.4	274.7	267.2	7.58	36.262	
1,900.0	1,898.1	1,880.7	1,878.6	4.2	4.0	155.09	-122.0	203.8	287.8	279.8	8.02	35.901	
2,000.0	1,997.9	1,979.7	1,977.4	4.5	4.3	155.97	-127.4	208.3	300.9	292.4	8.46	35.579	
2,100.0	2,097.6	2,078.8	2,076.2	4.7	4.5	156.76	-132.7	212.7	314.1	305.2	8.90	35.290	
2,200.0	2,197.4	2,177.8	2,175.0	5.0	4.8	157.50	-138.0	217.1	327.3	318.0	9.34	35.030	
2,300.0	2,297.2	2,276.8	2,273.8	5.2	5.0	158.17	-143.3	221.6	340.6	330.8	9.79	34.795	
2,400.0	2,396.9	2,375.9	2,372.6	5.5	5.3	158.80	-148.6	226.0	353.9	343.7	10.24	34.581	
2,500.0	2,496.7	2,474.9	2,471.4	5.7	5.5	159.38	-153.9	230.4	367.3	356.6	10.68	34.386	
2,600.0	2,596.4	2,573.9	2,570.2	6.0	5.8	159.92	-159.2	234.8	380.7	369.6	11.13	34.208	
2,700.0	2,696.2	2,673.0	2,669.0	6.2	6.0	160.42	-164.5	239.3	394.2	382.6	11.58	34.045	
2,800.0	2,795.9	2,772.0	2,767.8	6.5	6.3	160.89	-169.8	243.7	407.6	395.6	12.03	33.895	
2,900.0	2,895.7	2,871.0	2,866.6	6.7	6.5	161.33	-175.1	248.1	421.1	408.6	12.47	33.756	
3,000.0	2,995.5	2,970.1	2,965.4	7.0	6.8	161.75	-180.4	252.6	434.6	421.7	12.92	33.627	
3,100.0	3,095.2	3,069.1	3,064.2	7.2	7.0	162.14	-185.7	257.0	448.1	434.8	13.37	33.508	
3,200.0	3,195.0	3,168.1	3,162.9	7.5	7.3	162.50	-191.0	261.4	461.7	447.9	13.82	33.397	
3,300.0	3,294.7	3,267.2	3,261.7	7.8	7.6	162.84	-196.3	265.9	475.3	461.0	14.28	33.293	
3,400.0	3,394.5	3,366.2	3,360.5	8.0	7.8	163.17	-201.6	270.3	488.8	474.1	14.73	33.196	
3,500.0	3,494.2	3,465.3	3,459.3	8.3	8.1	163.48	-206.9	274.7	502.4	487.3	15.18	33.106	
3,600.0	3,594.0	3,564.3	3,558.1	8.5	8.3	163.77	-212.2	279.1	516.1	500.4	15.63	33.020	
3,700.0	3,693.7	3,663.3	3,656.9	8.8	8.6	164.04	-217.5	283.6	529.7	513.6	16.08	32.940	
3,800.0	3,793.5	3,762.4	3,755.7	9.0	8.8	164.31	-222.8	288.0	543.3	526.8	16.53	32.865	
3,900.0	3,893.3	3,861.4	3,854.5	9.3	9.1	164.56	-228.1	292.4	557.0	540.0	16.98	32.794	
4,000.0	3,993.0	3,960.4	3,953.3	9.5	9.4	164.79	-233.4	296.9	570.6	553.2	17.44	32.727	
4,100.0	4,092.8	4,059.5	4,052.1	9.8	9.6	165.02	-238.7	301.3	584.3	566.4	17.89	32.663	
4,200.0	4,192.5	4,158.5	4,150.9	10.1	9.9	165.24	-244.0	305.7	598.0	579.6	18.34	32.603	
4,300.0	4,292.3	4,257.5	4,249.7	10.3	10.1	165.44	-249.3	310.2	611.6	592.8	18.79	32.545	
4,400.0	4,392.0	4,356.6	4,348.5	10.6	10.4	165.64	-254.6	314.6	625.3	606.1	19.25	32.491	
4,500.0	4,491.8	4,455.6	4,447.3	10.8	10.6	165.83	-259.9	319.0	639.0	619.3	19.70	32.439	
4,600.0	4,591.6	4,554.7	4,546.1	11.1	10.9	166.01	-265.2	323.4	652.7	632.6	20.15	32.390	
4,700.0	4,691.3	4,653.7	4,644.9	11.3	11.2	166.19	-270.5	327.9	666.4	645.8	20.61	32.343	
4,800.0	4,791.1	4,752.7	4,743.7	11.6	11.4	166.35	-275.8	332.3	680.2	659.1	21.06	32.298	
4,900.0	4,890.8	4,851.8	4,842.5	11.8	11.7	166.51	-281.1	336.7	693.9	672.4	21.51	32.255	
5,000.0	4,990.6	4,950.8	4,941.3	12.1	11.9	166.67	-286.4	341.2	707.6	685.6	21.97	32.214	

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-0103A
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-0103A	**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

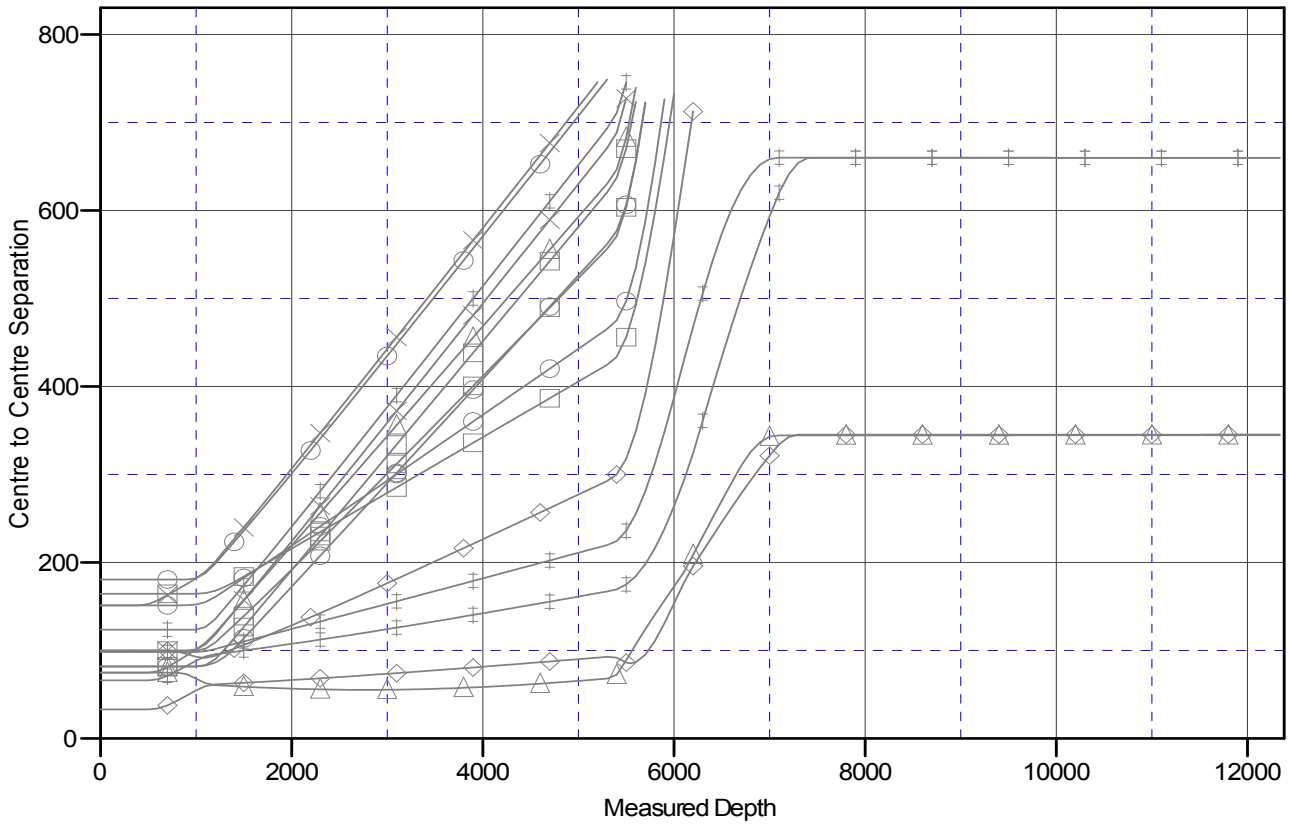
Survey Program: 0-ISCWSA MWD

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
5,100.0	5,090.3	5,049.8	5,040.0	12.4	12.2	166.81	-291.7	345.6	721.3	698.9	22.42	32.175	
5,200.0	5,190.1	5,148.9	5,138.8	12.6	12.5	166.96	-297.0	350.0	735.1	712.2	22.87	32.137	
5,300.0	5,289.9	5,247.9	5,237.6	12.9	12.7	167.09	-302.3	354.4	748.8	725.5	23.33	32.101	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #12F-0103A
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-0103A	**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-0103A
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.09°



LEGEND

- Razor #12F-0102B, HZ, Plan #3 V0
- Razor #12F-0104B, HZ, Plan #2 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-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
- Razor #12F-0101A, HZ, Plan #3 V0
- Razor Federal #12F-1302B, HZ, Plan #2 V0