WHITING PETROLEUM CORPORATION

Project: Weld County, CO
Site: S10-T10N-R58W
Well: Razor #10F-1509A
Wellbore: HZ
Design: Plan #1

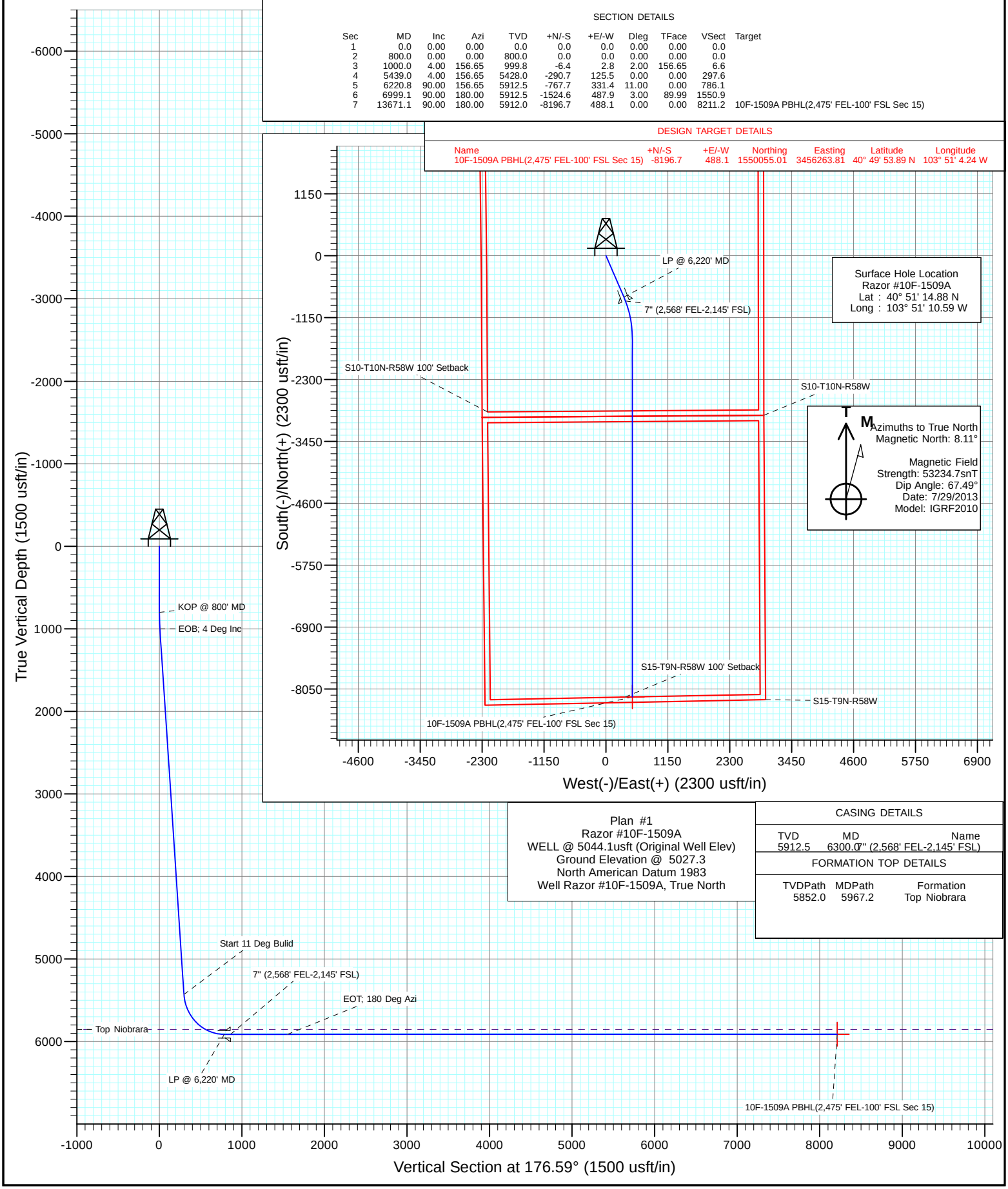
CATHEDRAL

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.0	
3	1000.0	4.00	156.65	999.8	-6.4	2.8	2.00	156.65	6.6	
4	5439.0	4.00	156.65	5428.0	-290.7	125.5	0.00	0.00	297.6	
5	6220.8	90.00	156.65	5912.5	-767.7	331.4	11.00	0.00	786.1	
6	6999.1	90.00	180.00	5912.5	-1524.6	487.9	3.00	89.99	1550.9	
7	13671.1	90.00	180.00	5912.0	-8196.7	488.1	0.00	0.00	8211.2	10F-1509A PBHL(2,475' FEL-100' FSL Sec 15)

DESIGN TARGET DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
10F-1509A PBHL(2,475' FEL-100' FSL Sec 15)	-8196.7	488.1	1550055.01	3456263.81	40° 49' 53.89 N	103° 51' 4.24 W



Plan #1
Razor #10F-1509A
WELL @ 5044.1usft (Original Well Elev)
Ground Elevation @ 5027.3
North American Datum 1983
Well Razor #10F-1509A, True North

CASING DETAILS

TVD	MD	Name
5912.5	6300.0	7" (2,568' FEL-2,145' FSL)

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5852.0	5967.2	Top Niobrara

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #10F-1509A
Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 5044.1usft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 5044.1usft (Original Well Elev)
Site:	S10-T10N-R58W	**North Reference:**	True
Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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 S10-T10N-R58W

Site Position:		**Northing:**	1,558,370.48 usft	**Latitude:**	40° 51' 15.74 N
From:	Lat/Long	**Easting:**	3,457,889.23 usft	**Longitude:**	103° 50' 41.08 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	1.07 °

Well Razor #10F-1509A

Well Position	**+N/-S**	0.0 usft	**Northing:**	1,558,241.20 usft	**Latitude:**	40° 51' 14.88 N
	+E/-W	0.0 usft	**Easting:**	3,455,623.53 usft	**Longitude:**	103° 51' 10.59 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	5,027.3 usft

Wellbore HZ

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/29/2013	8.11	67.49	53,235

Design Plan #1

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	176.59

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	4.00	156.65	999.8	-6.4	2.8	2.00	2.00	0.00	156.65	
5,439.0	4.00	156.65	5,428.0	-290.7	125.5	0.00	0.00	0.00	0.00	
6,220.8	90.00	156.65	5,912.5	-767.7	331.4	11.00	11.00	0.00	0.00	
6,999.1	90.00	180.00	5,912.5	-1,524.6	487.9	3.00	0.00	3.00	89.99	
13,671.1	90.00	180.00	5,912.0	-8,196.7	488.1	0.00	0.00	0.00	0.00	10F-1509A PBHL(2,4

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #10F-1509A
Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 5044.1usft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 5044.1usft (Original Well Elev)
Site:	S10-T10N-R58W	**North Reference:**	True
Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft	Build Rate (°/100u	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	KOP @ 800' MD
900.0	2.00	156.65	900.0	-1.6	0.7	1.6	2.00	2.00	
1,000.0	4.00	156.65	999.8	-6.4	2.8	6.6	2.00	2.00	EOB; 4 Deg Inc
1,100.0	4.00	156.65	1,099.6	-12.8	5.5	13.1	0.00	0.00	
1,200.0	4.00	156.65	1,199.4	-19.2	8.3	19.7	0.00	0.00	
1,300.0	4.00	156.65	1,299.1	-25.6	11.1	26.2	0.00	0.00	
1,400.0	4.00	156.65	1,398.9	-32.0	13.8	32.8	0.00	0.00	
1,500.0	4.00	156.65	1,498.6	-38.4	16.6	39.3	0.00	0.00	
1,600.0	4.00	156.65	1,598.4	-44.8	19.4	45.9	0.00	0.00	
1,700.0	4.00	156.65	1,698.1	-51.2	22.1	52.5	0.00	0.00	
1,800.0	4.00	156.65	1,797.9	-57.6	24.9	59.0	0.00	0.00	
1,900.0	4.00	156.65	1,897.6	-64.0	27.6	65.6	0.00	0.00	
2,000.0	4.00	156.65	1,997.4	-70.5	30.4	72.1	0.00	0.00	
2,100.0	4.00	156.65	2,097.2	-76.9	33.2	78.7	0.00	0.00	
2,200.0	4.00	156.65	2,196.9	-83.3	35.9	85.2	0.00	0.00	
2,300.0	4.00	156.65	2,296.7	-89.7	38.7	91.8	0.00	0.00	
2,400.0	4.00	156.65	2,396.4	-96.1	41.5	98.4	0.00	0.00	
2,500.0	4.00	156.65	2,496.2	-102.5	44.2	104.9	0.00	0.00	
2,600.0	4.00	156.65	2,595.9	-108.9	47.0	111.5	0.00	0.00	
2,700.0	4.00	156.65	2,695.7	-115.3	49.8	118.0	0.00	0.00	
2,800.0	4.00	156.65	2,795.5	-121.7	52.5	124.6	0.00	0.00	
2,900.0	4.00	156.65	2,895.2	-128.1	55.3	131.2	0.00	0.00	
3,000.0	4.00	156.65	2,995.0	-134.5	58.1	137.7	0.00	0.00	
3,100.0	4.00	156.65	3,094.7	-140.9	60.8	144.3	0.00	0.00	
3,200.0	4.00	156.65	3,194.5	-147.3	63.6	150.8	0.00	0.00	
3,300.0	4.00	156.65	3,294.2	-153.7	66.4	157.4	0.00	0.00	
3,400.0	4.00	156.65	3,394.0	-160.1	69.1	163.9	0.00	0.00	
3,500.0	4.00	156.65	3,493.7	-166.5	71.9	170.5	0.00	0.00	
3,600.0	4.00	156.65	3,593.5	-172.9	74.7	177.1	0.00	0.00	
3,700.0	4.00	156.65	3,693.3	-179.3	77.4	183.6	0.00	0.00	
3,800.0	4.00	156.65	3,793.0	-185.7	80.2	190.2	0.00	0.00	
3,900.0	4.00	156.65	3,892.8	-192.1	82.9	196.7	0.00	0.00	
4,000.0	4.00	156.65	3,992.5	-198.5	85.7	203.3	0.00	0.00	
4,100.0	4.00	156.65	4,092.3	-204.9	88.5	209.8	0.00	0.00	
4,200.0	4.00	156.65	4,192.0	-211.3	91.2	216.4	0.00	0.00	
4,300.0	4.00	156.65	4,291.8	-217.8	94.0	223.0	0.00	0.00	
4,400.0	4.00	156.65	4,391.6	-224.2	96.8	229.5	0.00	0.00	
4,500.0	4.00	156.65	4,491.3	-230.6	99.5	236.1	0.00	0.00	
4,600.0	4.00	156.65	4,591.1	-237.0	102.3	242.6	0.00	0.00	
4,700.0	4.00	156.65	4,690.8	-243.4	105.1	249.2	0.00	0.00	
4,800.0	4.00	156.65	4,790.6	-249.8	107.8	255.7	0.00	0.00	
4,900.0	4.00	156.65	4,890.3	-256.2	110.6	262.3	0.00	0.00	
5,000.0	4.00	156.65	4,990.1	-262.6	113.4	268.9	0.00	0.00	
5,100.0	4.00	156.65	5,089.9	-269.0	116.1	275.4	0.00	0.00	

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Project:	Weld County, CO	**MD Reference:**	WELL @ 5044.1usft (Original Well Elev)
Site:	S10-T10N-R58W	**North Reference:**	True
Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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	156.65	5,189.6	-275.4	118.9	282.0	0.00	0.00	
5,300.0	4.00	156.65	5,289.4	-281.8	121.7	288.5	0.00	0.00	
5,400.0	4.00	156.65	5,389.1	-288.2	124.4	295.1	0.00	0.00	
5,439.0	4.00	156.65	5,428.0	-290.7	125.5	297.6	0.00	0.00	Start 11 Deg Bulid
5,450.0	5.21	156.65	5,439.0	-291.5	125.8	298.5	11.00	11.00	
5,500.0	10.71	156.65	5,488.5	-297.9	128.6	305.0	11.00	11.00	
5,550.0	16.21	156.65	5,537.1	-308.5	133.2	315.9	11.00	11.00	
5,600.0	21.71	156.65	5,584.4	-323.5	139.6	331.2	11.00	11.00	
5,650.0	27.21	156.65	5,629.9	-342.5	147.8	350.6	11.00	11.00	
5,700.0	32.71	156.65	5,673.2	-365.4	157.7	374.1	11.00	11.00	
5,750.0	38.21	156.65	5,713.9	-392.0	169.2	401.4	11.00	11.00	
5,800.0	43.71	156.65	5,751.6	-422.1	182.2	432.2	11.00	11.00	
5,850.0	49.21	156.65	5,786.0	-455.3	196.6	466.2	11.00	11.00	
5,900.0	54.71	156.65	5,816.8	-491.5	212.2	503.2	11.00	11.00	
5,950.0	60.21	156.65	5,843.7	-530.2	228.9	542.8	11.00	11.00	
5,967.2	62.10	156.65	5,852.0	-544.0	234.8	557.0	11.00	11.00	Top Niobrara
6,000.0	65.71	156.65	5,866.4	-571.0	246.5	584.7	11.00	11.00	
6,050.0	71.21	156.65	5,884.8	-613.7	264.9	628.4	11.00	11.00	
6,100.0	76.71	156.65	5,898.6	-657.8	284.0	673.5	11.00	11.00	
6,150.0	82.21	156.65	5,907.7	-702.9	303.5	719.7	11.00	11.00	
6,200.0	87.71	156.65	5,912.1	-748.6	323.2	766.5	11.00	11.00	
6,220.8	90.00	156.65	5,912.5	-767.7	331.4	786.1	11.00	11.00	LP @ 6,220' MD
6,300.0	90.00	159.03	5,912.5	-841.1	361.3	861.1	3.00	0.00	7" (2,568' FEL-2,145' FSL)
6,400.0	90.00	162.03	5,912.5	-935.3	394.6	957.2	3.00	0.00	
6,500.0	90.00	165.03	5,912.5	-1,031.2	423.0	1,054.6	3.00	0.00	
6,600.0	90.00	168.03	5,912.5	-1,128.5	446.3	1,153.0	3.00	0.00	
6,700.0	90.00	171.03	5,912.5	-1,226.8	464.5	1,252.2	3.00	0.00	
6,800.0	90.00	174.03	5,912.5	-1,325.9	477.5	1,352.0	3.00	0.00	
6,900.0	90.00	177.03	5,912.5	-1,425.6	485.3	1,451.9	3.00	0.00	
6,999.1	90.00	180.00	5,912.5	-1,524.6	487.9	1,550.9	3.00	0.00	EOT; 180 Deg Azi
7,100.0	90.00	180.00	5,912.5	-1,625.6	487.9	1,651.7	0.00	0.00	
7,200.0	90.00	180.00	5,912.5	-1,725.6	487.9	1,751.5	0.00	0.00	
7,300.0	90.00	180.00	5,912.5	-1,825.6	487.9	1,851.3	0.00	0.00	
7,400.0	90.00	180.00	5,912.5	-1,925.6	487.9	1,951.2	0.00	0.00	
7,500.0	90.00	180.00	5,912.5	-2,025.6	487.9	2,051.0	0.00	0.00	
7,600.0	90.00	180.00	5,912.5	-2,125.6	487.9	2,150.8	0.00	0.00	
7,700.0	90.00	180.00	5,912.5	-2,225.6	487.9	2,250.6	0.00	0.00	
7,800.0	90.00	180.00	5,912.5	-2,325.6	487.9	2,350.5	0.00	0.00	
7,900.0	90.00	180.00	5,912.4	-2,425.6	487.9	2,450.3	0.00	0.00	
8,000.0	90.00	180.00	5,912.4	-2,525.6	487.9	2,550.1	0.00	0.00	
8,100.0	90.00	180.00	5,912.4	-2,625.6	487.9	2,649.9	0.00	0.00	
8,200.0	90.00	180.00	5,912.4	-2,725.6	487.9	2,749.8	0.00	0.00	
8,300.0	90.00	180.00	5,912.4	-2,825.6	487.9	2,849.6	0.00	0.00	
8,400.0	90.00	180.00	5,912.4	-2,925.6	487.9	2,949.4	0.00	0.00	
8,500.0	90.00	180.00	5,912.4	-3,025.6	487.9	3,049.2	0.00	0.00	
8,600.0	90.00	180.00	5,912.4	-3,125.6	487.9	3,149.0	0.00	0.00	
8,700.0	90.00	180.00	5,912.4	-3,225.6	487.9	3,248.9	0.00	0.00	
8,800.0	90.00	180.00	5,912.4	-3,325.6	487.9	3,348.7	0.00	0.00	
8,900.0	90.00	180.00	5,912.4	-3,425.6	487.9	3,448.5	0.00	0.00	
9,000.0	90.00	180.00	5,912.4	-3,525.6	487.9	3,548.3	0.00	0.00	
9,100.0	90.00	180.00	5,912.4	-3,625.6	487.9	3,648.2	0.00	0.00	
9,200.0	90.00	180.00	5,912.3	-3,725.6	487.9	3,748.0	0.00	0.00	

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Site:	S10-T10N-R58W	**North Reference:**	True
Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft	Build Rate (°/100u	Comments / Formations
9,300.0	90.00	180.00	5,912.3	-3,825.6	487.9	3,847.8	0.00	0.00	
9,400.0	90.00	180.00	5,912.3	-3,925.6	488.0	3,947.6	0.00	0.00	
9,500.0	90.00	180.00	5,912.3	-4,025.6	488.0	4,047.5	0.00	0.00	
9,600.0	90.00	180.00	5,912.3	-4,125.6	488.0	4,147.3	0.00	0.00	
9,700.0	90.00	180.00	5,912.3	-4,225.6	488.0	4,247.1	0.00	0.00	
9,800.0	90.00	180.00	5,912.3	-4,325.6	488.0	4,346.9	0.00	0.00	
9,900.0	90.00	180.00	5,912.3	-4,425.6	488.0	4,446.8	0.00	0.00	
10,000.0	90.00	180.00	5,912.3	-4,525.6	488.0	4,546.6	0.00	0.00	
10,100.0	90.00	180.00	5,912.3	-4,625.6	488.0	4,646.4	0.00	0.00	
10,200.0	90.00	180.00	5,912.3	-4,725.6	488.0	4,746.2	0.00	0.00	
10,300.0	90.00	180.00	5,912.3	-4,825.6	488.0	4,846.0	0.00	0.00	
10,400.0	90.00	180.00	5,912.3	-4,925.6	488.0	4,945.9	0.00	0.00	
10,500.0	90.00	180.00	5,912.2	-5,025.6	488.0	5,045.7	0.00	0.00	
10,600.0	90.00	180.00	5,912.2	-5,125.6	488.0	5,145.5	0.00	0.00	
10,700.0	90.00	180.00	5,912.2	-5,225.6	488.0	5,245.3	0.00	0.00	
10,800.0	90.00	180.00	5,912.2	-5,325.6	488.0	5,345.2	0.00	0.00	
10,900.0	90.00	180.00	5,912.2	-5,425.6	488.0	5,445.0	0.00	0.00	
11,000.0	90.00	180.00	5,912.2	-5,525.6	488.0	5,544.8	0.00	0.00	
11,100.0	90.00	180.00	5,912.2	-5,625.6	488.0	5,644.6	0.00	0.00	
11,200.0	90.00	180.00	5,912.2	-5,725.6	488.0	5,744.5	0.00	0.00	
11,300.0	90.00	180.00	5,912.2	-5,825.6	488.0	5,844.3	0.00	0.00	
11,400.0	90.00	180.00	5,912.2	-5,925.6	488.0	5,944.1	0.00	0.00	
11,500.0	90.00	180.00	5,912.2	-6,025.6	488.0	6,043.9	0.00	0.00	
11,600.0	90.00	180.00	5,912.2	-6,125.6	488.0	6,143.7	0.00	0.00	
11,700.0	90.00	180.00	5,912.2	-6,225.6	488.1	6,243.6	0.00	0.00	
11,800.0	90.00	180.00	5,912.1	-6,325.6	488.1	6,343.4	0.00	0.00	
11,900.0	90.00	180.00	5,912.1	-6,425.6	488.1	6,443.2	0.00	0.00	
12,000.0	90.00	180.00	5,912.1	-6,525.6	488.1	6,543.0	0.00	0.00	
12,100.0	90.00	180.00	5,912.1	-6,625.6	488.1	6,642.9	0.00	0.00	
12,200.0	90.00	180.00	5,912.1	-6,725.6	488.1	6,742.7	0.00	0.00	
12,300.0	90.00	180.00	5,912.1	-6,825.6	488.1	6,842.5	0.00	0.00	
12,400.0	90.00	180.00	5,912.1	-6,925.6	488.1	6,942.3	0.00	0.00	
12,500.0	90.00	180.00	5,912.1	-7,025.6	488.1	7,042.2	0.00	0.00	
12,600.0	90.00	180.00	5,912.1	-7,125.6	488.1	7,142.0	0.00	0.00	
12,700.0	90.00	180.00	5,912.1	-7,225.6	488.1	7,241.8	0.00	0.00	
12,800.0	90.00	180.00	5,912.1	-7,325.6	488.1	7,341.6	0.00	0.00	
12,900.0	90.00	180.00	5,912.1	-7,425.6	488.1	7,441.5	0.00	0.00	
13,000.0	90.00	180.00	5,912.1	-7,525.6	488.1	7,541.3	0.00	0.00	
13,100.0	90.00	180.00	5,912.0	-7,625.6	488.1	7,641.1	0.00	0.00	
13,200.0	90.00	180.00	5,912.0	-7,725.6	488.1	7,740.9	0.00	0.00	
13,300.0	90.00	180.00	5,912.0	-7,825.6	488.1	7,840.7	0.00	0.00	
13,400.0	90.00	180.00	5,912.0	-7,925.6	488.1	7,940.6	0.00	0.00	
13,500.0	90.00	180.00	5,912.0	-8,025.6	488.1	8,040.4	0.00	0.00	
13,600.0	90.00	180.00	5,912.0	-8,125.6	488.1	8,140.2	0.00	0.00	
13,671.1	90.00	180.00	5,912.0	-8,196.7	488.1	8,211.2	0.00	0.00	PBHL @ 13,671' MD

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #10F-1509A
Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 5044.1usft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 5044.1usft (Original Well Elev)
Site:	S10-T10N-R58W	**North Reference:**	True
Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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
10F-1509A PBHL(2,475' - plan hits target center - Point	0.00	0.00	5,912.0	-8,196.7	488.1	1,550,055.01	3,456,263.81	40° 49' 53.89 N	103° 51' 4.24 W

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
6,300.0	5,912.5	7" (2,568' FEL-2,145' FSL)	7	7-1/2

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,967.2	5,852.0	Top Niobrara		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
800.0	800.0	0.0	0.0	KOP @ 800' MD
1,000.0	999.8	-6.4	2.8	EOB; 4 Deg Inc
5,439.0	5,428.0	-290.7	125.5	Start 11 Deg Bulid
6,220.8	5,912.5	-767.7	331.4	LP @ 6,220' MD
6,999.1	5,912.5	-1,524.6	487.9	EOT; 180 Deg Azi
13,671.1	5,912.0	-8,196.7	488.1	PBHL @ 13,671' MD

Whiting Petroleum Corporation

Weld County, CO
S10-T10N-R58W
Razor #10F-1509A
HZ
Plan #1

Anticollision Report

19 August, 2013

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference Plan #1

Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	**Error Model:**	Systematic Ellipse
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,356.1ft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	2.00 **Sigma**		

Survey Tool Program **Date** 8/19/2013

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	13,671.1	Plan #1 (HZ)	ISCWSA MWD	MWD - ISCWSA

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
S10-T10N-R58W						
Razor #10F-0305A - HZ - Plan #1	500.0	500.0	151.3	149.3	76.198	CC, ES
Razor #10F-0305A - HZ - Plan #1	5,400.0	5,346.4	776.9	753.0	32.533	SF
Razor #10F-0306B - HZ - Plan #1	600.0	600.0	123.6	121.2	50.784	CC, ES
Razor #10F-0306B - HZ - Plan #1	5,400.0	5,348.4	749.2	725.4	31.432	SF
Razor #10F-0307A - HZ - Plan #1	700.0	700.0	99.4	96.5	34.458	CC, ES
Razor #10F-0307A - HZ - Plan #1	1,000.0	992.9	118.0	113.8	28.379	SF
Razor #10F-0308B - HZ - Plan #1	800.0	800.0	81.6	78.2	24.464	CC, ES
Razor #10F-0308B - HZ - Plan #1	900.0	897.5	84.8	81.0	22.584	SF
Razor #10F-0309A - HZ - Plan #1	800.0	800.0	74.9	71.6	22.464	CC, ES
Razor #10F-0309A - HZ - Plan #1	1,000.0	997.2	82.9	78.8	19.947	SF
Razor #10F-0310B - HZ - Plan #1	800.0	800.0	81.8	78.5	24.549	CC, ES
Razor #10F-0310B - HZ - Plan #1	1,100.0	1,096.5	93.5	89.0	20.456	SF
Razor #10F-0311A - HZ - Plan #1	800.0	800.0	99.9	96.5	29.954	CC, ES
Razor #10F-0311A - HZ - Plan #1	1,300.0	1,291.3	121.1	115.6	22.302	SF
Razor #10F-0312B - HZ - Plan #1	800.0	800.0	124.3	120.9	37.273	CC, ES
Razor #10F-0312B - HZ - Plan #1	5,400.0	5,364.0	580.5	555.8	23.528	SF
Razor #10F-1505A - HZ - Plan #1	800.0	800.0	131.4	128.1	39.417	CC, ES
Razor #10F-1505A - HZ - Plan #1	13,671.4	13,750.8	1,253.8	938.9	3.982	SF
Razor #10F-1506B - HZ - Plan #1	800.0	800.0	98.4	95.0	29.505	CC, ES
Razor #10F-1506B - HZ - Plan #1	13,671.4	13,743.3	929.5	616.0	2.965	SF
Razor #10F-1507A - HZ - Plan #1	800.0	800.0	66.1	62.8	19.824	CC, ES
Razor #10F-1507A - HZ - Plan #1	13,671.4	13,595.4	593.4	277.3	1.877	SF
Razor #10F-1508B - HZ - Plan #1	800.0	800.0	32.3	28.9	9.681	CC
Razor #10F-1508B - HZ - Plan #1	13,671.4	13,710.6	282.4	-15.0	0.950	Level 1, ES, SF
Razor #10F-1510B - HZ - Plan #1	700.0	700.0	33.0	30.2	11.457	CC, ES
Razor #10F-1510B - HZ - Plan #1	13,671.4	13,864.6	345.0	43.2	1.143	Level 2, SF
Razor #10F-1511A - HZ - Plan #1	600.0	600.0	66.1	63.7	27.144	CC, ES
Razor #10F-1511A - HZ - Plan #1	13,671.4	13,906.7	659.7	345.1	2.097	SF
Razor #10F-1512B - HZ - Plan #1	500.0	500.0	119.9	117.9	60.389	CC, ES
Razor #10F-1512B - HZ - Plan #1	13,671.4	14,155.5	995.5	682.2	3.177	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-0305A - HZ - Plan #1 — **Offset Site Error:** 0.0 ft

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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-60.31	74.9	-131.4	151.3				
100.0	100.0	100.0	100.0	0.1	0.1	-60.31	74.9	-131.4	151.3	151.1	0.19	808.873	
200.0	200.0	200.0	200.0	0.3	0.3	-60.31	74.9	-131.4	151.3	150.6	0.64	237.635	
300.0	300.0	300.0	300.0	0.5	0.5	-60.31	74.9	-131.4	151.3	150.2	1.09	139.276	
400.0	400.0	400.0	400.0	0.8	0.8	-60.31	74.9	-131.4	151.3	149.7	1.54	98.505	
500.0	500.0	500.0	500.0	1.0	1.0	-60.31	74.9	-131.4	151.3	149.3	1.99	76.198	CC, ES
600.0	600.0	595.5	595.5	1.2	1.2	-60.03	76.3	-132.2	152.7	150.3	2.42	63.008	
700.0	700.0	690.8	690.7	1.4	1.4	-59.21	80.3	-134.8	157.2	154.3	2.87	54.818	
800.0	800.0	790.1	789.8	1.7	1.7	-58.10	86.2	-138.4	163.4	160.1	3.32	49.232	
900.0	900.0	889.8	889.1	1.9	1.9	146.53	92.1	-142.1	171.1	167.4	3.74	45.756	
1,000.0	999.8	989.0	988.1	2.0	2.1	148.24	97.9	-145.8	181.9	177.8	4.15	43.885	
1,100.0	1,099.6	1,088.0	1,086.9	2.2	2.4	150.13	103.8	-149.4	194.3	189.8	4.56	42.648	
1,200.0	1,199.4	1,187.1	1,185.7	2.5	2.6	151.78	109.7	-153.1	207.0	202.0	4.98	41.579	
1,300.0	1,299.1	1,286.1	1,284.5	2.7	2.9	153.25	115.5	-156.7	219.8	214.3	5.41	40.656	
1,400.0	1,398.9	1,385.1	1,383.3	2.9	3.1	154.55	121.4	-160.4	232.7	226.8	5.84	39.857	
1,500.0	1,498.6	1,484.2	1,482.1	3.1	3.4	155.72	127.3	-164.0	245.7	239.4	6.27	39.160	
1,600.0	1,598.4	1,583.2	1,580.9	3.4	3.6	156.76	133.1	-167.7	258.8	252.1	6.71	38.553	
1,700.0	1,698.1	1,682.2	1,679.7	3.6	3.9	157.71	139.0	-171.4	271.9	264.8	7.15	38.018	
1,800.0	1,797.9	1,781.3	1,778.5	3.9	4.1	158.57	144.8	-175.0	285.2	277.6	7.60	37.545	
1,900.0	1,897.6	1,880.3	1,877.3	4.1	4.4	159.35	150.7	-178.7	298.5	290.5	8.04	37.124	
2,000.0	1,997.4	1,979.3	1,976.1	4.4	4.6	160.07	156.6	-182.3	311.8	303.4	8.49	36.748	
2,100.0	2,097.2	2,078.4	2,074.9	4.6	4.9	160.73	162.4	-186.0	325.2	316.3	8.93	36.410	
2,200.0	2,196.9	2,177.4	2,173.6	4.9	5.1	161.34	168.3	-189.6	338.7	329.3	9.38	36.105	
2,300.0	2,296.7	2,276.4	2,272.4	5.1	5.4	161.89	174.2	-193.3	352.1	342.3	9.83	35.828	
2,400.0	2,396.4	2,375.5	2,371.2	5.4	5.6	162.41	180.0	-196.9	365.6	355.4	10.28	35.576	
2,500.0	2,496.2	2,474.5	2,470.0	5.6	5.9	162.89	185.9	-200.6	379.2	368.4	10.73	35.346	
2,600.0	2,595.9	2,573.5	2,568.8	5.9	6.2	163.34	191.7	-204.3	392.7	381.5	11.18	35.134	
2,700.0	2,695.7	2,672.6	2,667.6	6.1	6.4	163.76	197.6	-207.9	406.3	394.7	11.63	34.940	
2,800.0	2,795.5	2,771.6	2,766.4	6.4	6.7	164.15	203.5	-211.6	419.9	407.8	12.08	34.760	
2,900.0	2,895.2	2,870.6	2,865.2	6.7	6.9	164.52	209.3	-215.2	433.5	421.0	12.53	34.594	
3,000.0	2,995.0	2,969.7	2,964.0	6.9	7.2	164.86	215.2	-218.9	447.1	434.2	12.98	34.440	
3,100.0	3,094.7	3,068.7	3,062.8	7.2	7.4	165.19	221.0	-222.5	460.8	447.3	13.44	34.297	
3,200.0	3,194.5	3,167.7	3,161.6	7.4	7.7	165.49	226.9	-226.2	474.4	460.5	13.89	34.163	
3,300.0	3,294.2	3,266.8	3,260.3	7.7	7.9	165.78	232.8	-229.8	488.1	473.8	14.34	34.038	
3,400.0	3,394.0	3,365.8	3,359.1	8.0	8.2	166.05	238.6	-233.5	501.8	487.0	14.79	33.921	
3,500.0	3,493.7	3,464.8	3,457.9	8.2	8.4	166.31	244.5	-237.2	515.5	500.2	15.25	33.811	
3,600.0	3,593.5	3,563.9	3,556.7	8.5	8.7	166.56	250.4	-240.8	529.2	513.5	15.70	33.707	
3,700.0	3,693.3	3,662.9	3,655.5	8.7	9.0	166.79	256.2	-244.5	542.9	526.7	16.15	33.610	
3,800.0	3,793.0	3,761.9	3,754.3	9.0	9.2	167.01	262.1	-248.1	556.6	540.0	16.61	33.518	
3,900.0	3,892.8	3,861.0	3,853.1	9.3	9.5	167.22	267.9	-251.8	570.3	553.3	17.06	33.431	
4,000.0	3,992.5	3,960.0	3,951.9	9.5	9.7	167.42	273.8	-255.4	584.1	566.6	17.51	33.349	
4,100.0	4,092.3	4,059.0	4,050.7	9.8	10.0	167.61	279.7	-259.1	597.8	579.8	17.97	33.271	
4,200.0	4,192.0	4,158.0	4,149.5	10.0	10.2	167.79	285.5	-262.7	611.6	593.1	18.42	33.197	
4,300.0	4,291.8	4,257.1	4,248.3	10.3	10.5	167.97	291.4	-266.4	625.3	606.4	18.88	33.126	
4,400.0	4,391.6	4,356.1	4,347.0	10.6	10.7	168.14	297.2	-270.1	639.1	619.7	19.33	33.059	
4,500.0	4,491.3	4,455.1	4,445.8	10.8	11.0	168.30	303.1	-273.7	652.8	633.0	19.79	32.995	
4,600.0	4,591.1	4,554.2	4,544.6	11.1	11.2	168.45	309.0	-277.4	666.6	646.4	20.24	32.935	
4,700.0	4,690.8	4,653.2	4,643.4	11.4	11.5	168.60	314.8	-281.0	680.4	659.7	20.69	32.876	
4,800.0	4,790.6	4,752.2	4,742.2	11.6	11.8	168.74	320.7	-284.7	694.1	673.0	21.15	32.821	
4,900.0	4,890.3	4,851.3	4,841.0	11.9	12.0	168.87	326.6	-288.3	707.9	686.3	21.60	32.768	
5,000.0	4,990.1	4,950.3	4,939.8	12.1	12.3	169.01	332.4	-292.0	721.7	699.6	22.06	32.717	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-0305A - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.0	5,089.9	5,049.3	5,038.6	12.4	12.5	169.13	338.3	-295.6	735.5	713.0	22.51	32.668	
5,200.0	5,189.6	5,148.4	5,137.4	12.7	12.8	169.25	344.1	-299.3	749.3	726.3	22.97	32.621	
5,300.0	5,289.4	5,247.4	5,236.2	12.9	13.0	169.37	350.0	-303.0	763.1	739.7	23.42	32.576	
5,400.0	5,389.1	5,346.4	5,335.0	13.2	13.3	169.48	355.9	-306.6	776.9	753.0	23.88	32.533	SF
5,500.0	5,488.5	5,439.0	5,427.3	13.5	13.5	169.38	361.3	-310.0	794.2	770.2	24.00	33.092	
5,600.0	5,584.4	5,477.4	5,465.4	13.9	13.6	168.68	364.8	-312.2	831.9	808.7	23.20	35.862	
5,700.0	5,673.2	5,500.0	5,487.8	14.6	13.7	167.12	368.0	-314.2	891.5	869.8	21.71	41.067	
5,800.0	5,751.6	5,530.1	5,517.1	15.4	13.8	164.25	373.4	-317.6	968.3	948.4	19.87	48.719	
5,900.0	5,816.8	5,550.0	5,536.4	16.5	13.9	157.82	377.8	-320.3	1,057.3	1,038.6	18.69	56.569	
6,000.0	5,866.5	5,550.0	5,536.4	17.7	13.9	136.09	377.8	-320.3	1,153.5	1,129.5	24.04	47.991	
6,100.0	5,898.6	5,550.0	5,536.4	19.2	13.9	61.33	377.8	-320.3	1,252.6	1,222.6	30.01	41.733	
6,200.0	5,912.1	5,550.0	5,536.4	20.7	13.9	24.01	377.8	-320.3	1,350.6	1,334.6	16.01	84.347	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-0306B - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-52.71	74.9	-98.4	123.6				
100.0	100.0	100.0	100.0	0.1	0.1	-52.71	74.9	-98.4	123.6	123.5	0.19	661.163	
200.0	200.0	200.0	200.0	0.3	0.3	-52.71	74.9	-98.4	123.6	123.0	0.64	194.240	
300.0	300.0	300.0	300.0	0.5	0.5	-52.71	74.9	-98.4	123.6	122.6	1.09	113.843	
400.0	400.0	400.0	400.0	0.8	0.8	-52.71	74.9	-98.4	123.6	122.1	1.54	80.516	
500.0	500.0	500.0	500.0	1.0	1.0	-52.71	74.9	-98.4	123.6	121.7	1.99	62.284	
600.0	600.0	600.0	600.0	1.2	1.2	-52.71	74.9	-98.4	123.6	121.2	2.43	50.784	CC, ES
700.0	700.0	696.4	696.4	1.4	1.4	-52.32	76.4	-99.0	125.1	122.2	2.88	43.486	
800.0	800.0	792.6	792.4	1.7	1.7	-51.22	80.9	-100.7	129.4	126.1	3.32	38.964	
900.0	900.0	891.9	891.5	1.9	1.9	153.84	87.4	-103.3	137.1	133.3	3.75	36.591	
1,000.0	999.8	991.2	990.5	2.0	2.1	155.91	93.8	-105.8	148.0	143.9	4.15	35.657	
1,100.0	1,099.6	1,090.2	1,089.3	2.2	2.4	158.00	100.2	-108.3	160.8	156.2	4.56	35.236	
1,200.0	1,199.4	1,189.2	1,188.1	2.5	2.6	159.79	106.7	-110.9	173.7	168.7	4.98	34.861	
1,300.0	1,299.1	1,288.2	1,286.9	2.7	2.8	161.33	113.1	-113.4	186.8	181.4	5.41	34.532	
1,400.0	1,398.9	1,387.3	1,385.7	2.9	3.1	162.66	119.5	-115.9	199.9	194.1	5.84	34.243	
1,500.0	1,498.6	1,486.3	1,484.5	3.1	3.3	163.84	126.0	-118.4	213.2	206.9	6.27	33.988	
1,600.0	1,598.4	1,585.3	1,583.3	3.4	3.6	164.87	132.4	-121.0	226.6	219.8	6.71	33.763	
1,700.0	1,698.1	1,684.4	1,682.0	3.6	3.8	165.79	138.8	-123.5	240.0	232.8	7.15	33.565	
1,800.0	1,797.9	1,783.4	1,780.8	3.9	4.1	166.61	145.2	-126.0	253.4	245.8	7.59	33.388	
1,900.0	1,897.6	1,882.4	1,879.6	4.1	4.3	167.35	151.7	-128.6	266.9	258.9	8.03	33.229	
2,000.0	1,997.4	1,981.4	1,978.4	4.4	4.6	168.02	158.1	-131.1	280.5	272.0	8.48	33.087	
2,100.0	2,097.2	2,080.5	2,077.2	4.6	4.8	168.62	164.5	-133.6	294.1	285.2	8.92	32.958	
2,200.0	2,196.9	2,179.5	2,176.0	4.9	5.1	169.18	171.0	-136.2	307.7	298.3	9.37	32.842	
2,300.0	2,296.7	2,278.5	2,274.8	5.1	5.3	169.68	177.4	-138.7	321.3	311.5	9.82	32.736	
2,400.0	2,396.4	2,377.5	2,373.5	5.4	5.6	170.15	183.8	-141.2	335.0	324.7	10.26	32.639	
2,500.0	2,496.2	2,476.6	2,472.3	5.6	5.8	170.57	190.2	-143.7	348.7	338.0	10.71	32.550	
2,600.0	2,595.9	2,575.6	2,571.1	5.9	6.1	170.97	196.7	-146.3	362.4	351.2	11.16	32.468	
2,700.0	2,695.7	2,674.6	2,669.9	6.1	6.4	171.34	203.1	-148.8	376.1	364.5	11.61	32.392	
2,800.0	2,795.5	2,773.7	2,768.7	6.4	6.6	171.68	209.5	-151.3	389.8	377.8	12.06	32.322	
2,900.0	2,895.2	2,872.7	2,867.5	6.7	6.9	172.00	215.9	-153.9	403.6	391.1	12.51	32.257	
3,000.0	2,995.0	2,971.7	2,966.3	6.9	7.1	172.29	222.4	-156.4	417.3	404.4	12.96	32.197	
3,100.0	3,094.7	3,070.7	3,065.0	7.2	7.4	172.57	228.8	-158.9	431.1	417.7	13.41	32.140	
3,200.0	3,194.5	3,169.8	3,163.8	7.4	7.6	172.83	235.2	-161.4	444.9	431.0	13.86	32.087	
3,300.0	3,294.2	3,268.8	3,262.6	7.7	7.9	173.08	241.7	-164.0	458.7	444.3	14.32	32.038	
3,400.0	3,394.0	3,367.8	3,361.4	8.0	8.1	173.31	248.1	-166.5	472.5	457.7	14.77	31.991	
3,500.0	3,493.7	3,466.8	3,460.2	8.2	8.4	173.52	254.5	-169.0	486.2	471.0	15.22	31.948	
3,600.0	3,593.5	3,565.9	3,559.0	8.5	8.6	173.73	260.9	-171.6	500.1	484.4	15.67	31.906	
3,700.0	3,693.3	3,664.9	3,657.8	8.7	8.9	173.92	267.4	-174.1	513.9	497.7	16.12	31.868	
3,800.0	3,793.0	3,763.9	3,756.5	9.0	9.1	174.11	273.8	-176.6	527.7	511.1	16.58	31.831	
3,900.0	3,892.8	3,862.9	3,855.3	9.3	9.4	174.28	280.2	-179.2	541.5	524.5	17.03	31.796	
4,000.0	3,992.5	3,962.0	3,954.1	9.5	9.7	174.45	286.7	-181.7	555.3	537.8	17.48	31.763	
4,100.0	4,092.3	4,061.0	4,052.9	9.8	9.9	174.61	293.1	-184.2	569.2	551.2	17.94	31.731	
4,200.0	4,192.0	4,160.0	4,151.7	10.0	10.2	174.76	299.5	-186.7	583.0	564.6	18.39	31.702	
4,300.0	4,291.8	4,259.1	4,250.5	10.3	10.4	174.90	305.9	-189.3	596.8	578.0	18.84	31.673	
4,400.0	4,391.6	4,358.1	4,349.3	10.6	10.7	175.04	312.4	-191.8	610.7	591.4	19.30	31.646	
4,500.0	4,491.3	4,457.1	4,448.0	10.8	10.9	175.17	318.8	-194.3	624.5	604.8	19.75	31.620	
4,600.0	4,591.1	4,556.1	4,546.8	11.1	11.2	175.30	325.2	-196.9	638.4	618.2	20.20	31.596	
4,700.0	4,690.8	4,655.2	4,645.6	11.4	11.4	175.42	331.7	-199.4	652.2	631.6	20.66	31.572	
4,800.0	4,790.6	4,754.2	4,744.4	11.6	11.7	175.53	338.1	-201.9	666.1	645.0	21.11	31.549	
4,900.0	4,890.3	4,853.2	4,843.2	11.9	11.9	175.64	344.5	-204.4	679.9	658.4	21.57	31.528	
5,000.0	4,990.1	4,952.2	4,942.0	12.1	12.2	175.75	350.9	-207.0	693.8	671.8	22.02	31.507	
5,100.0	5,089.9	5,051.3	5,040.8	12.4	12.4	175.85	357.4	-209.5	707.6	685.2	22.47	31.487	

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 #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-0306B - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.6	5,150.3	5,139.5	12.7	12.7	175.95	363.8	-212.0	721.5	698.6	22.93	31.468	
5,300.0	5,289.4	5,249.3	5,238.3	12.9	13.0	176.04	370.2	-214.6	735.4	712.0	23.38	31.450	
5,400.0	5,389.1	5,348.4	5,337.1	13.2	13.2	176.13	376.6	-217.1	749.2	725.4	23.84	31.432	SF
5,500.0	5,488.5	5,446.7	5,435.3	13.5	13.5	176.15	383.0	-219.6	766.6	742.7	23.96	31.998	
5,600.0	5,584.4	5,540.0	5,528.3	13.9	13.7	176.06	389.1	-222.0	801.0	777.8	23.20	34.520	
5,700.0	5,673.2	5,572.6	5,560.7	14.6	13.8	175.66	392.1	-223.2	855.3	833.8	21.57	39.661	
5,800.0	5,751.6	5,600.0	5,587.8	15.4	13.9	174.84	396.2	-224.8	928.4	909.2	19.27	48.192	
5,900.0	5,816.8	5,600.0	5,587.8	16.5	13.9	172.67	396.2	-224.8	1,015.5	999.0	16.55	61.363	
6,000.0	5,866.5	5,624.5	5,611.8	17.7	14.0	166.94	400.9	-226.6	1,110.6	1,095.9	14.63	75.886	
6,100.0	5,898.6	5,627.4	5,614.6	19.2	14.0	82.68	401.5	-226.9	1,209.9	1,176.2	33.75	35.853	
6,200.0	5,912.1	5,624.5	5,611.8	20.7	14.0	11.16	400.9	-226.6	1,309.2	1,298.7	10.44	125.400	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-0307A - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-41.09	74.9	-65.3	99.4				
100.0	100.0	100.0	100.0	0.1	0.1	-41.09	74.9	-65.3	99.4	99.2	0.19	531.453	
200.0	200.0	200.0	200.0	0.3	0.3	-41.09	74.9	-65.3	99.4	98.7	0.64	156.133	
300.0	300.0	300.0	300.0	0.5	0.5	-41.09	74.9	-65.3	99.4	98.3	1.09	91.509	
400.0	400.0	400.0	400.0	0.8	0.8	-41.09	74.9	-65.3	99.4	97.8	1.54	64.720	
500.0	500.0	500.0	500.0	1.0	1.0	-41.09	74.9	-65.3	99.4	97.4	1.99	50.064	
600.0	600.0	600.0	600.0	1.2	1.2	-41.09	74.9	-65.3	99.4	97.0	2.43	40.821	
700.0	700.0	700.0	700.0	1.4	1.4	-41.09	74.9	-65.3	99.4	96.5	2.88	34.458	CC, ES
800.0	800.0	797.1	797.1	1.7	1.7	-40.59	76.5	-65.6	100.8	97.5	3.33	30.293	
900.0	900.0	893.9	893.7	1.9	1.9	164.39	81.4	-66.3	106.8	103.1	3.75	28.498	
1,000.0	999.8	992.9	992.6	2.0	2.1	166.72	88.2	-67.4	118.0	113.8	4.16	28.379	SF
1,100.0	1,099.6	1,092.0	1,091.4	2.2	2.3	168.85	95.0	-68.4	131.0	126.5	4.57	28.680	
1,200.0	1,199.4	1,191.0	1,190.2	2.5	2.6	170.58	101.9	-69.4	144.2	139.2	4.99	28.914	
1,300.0	1,299.1	1,290.1	1,289.0	2.7	2.8	172.03	108.7	-70.5	157.5	152.1	5.41	29.097	
1,400.0	1,398.9	1,389.1	1,387.8	2.9	3.1	173.25	115.5	-71.5	170.8	165.0	5.84	29.245	
1,500.0	1,498.6	1,488.2	1,486.6	3.1	3.3	174.30	122.4	-72.6	184.3	178.0	6.27	29.364	
1,600.0	1,598.4	1,587.2	1,585.4	3.4	3.6	175.20	129.2	-73.6	197.7	191.0	6.71	29.462	
1,700.0	1,698.1	1,686.2	1,684.2	3.6	3.8	175.99	136.0	-74.7	211.3	204.1	7.15	29.545	
1,800.0	1,797.9	1,785.3	1,783.0	3.9	4.0	176.68	142.8	-75.7	224.8	217.2	7.59	29.614	
1,900.0	1,897.6	1,884.3	1,881.8	4.1	4.3	177.29	149.7	-76.8	238.4	230.4	8.03	29.673	
2,000.0	1,997.4	1,983.4	1,980.6	4.4	4.5	177.84	156.5	-77.8	252.0	243.5	8.48	29.723	
2,100.0	2,097.2	2,082.4	2,079.4	4.6	4.8	178.33	163.3	-78.9	265.6	256.7	8.92	29.767	
2,200.0	2,196.9	2,181.5	2,178.2	4.9	5.0	178.78	170.2	-79.9	279.3	269.9	9.37	29.805	
2,300.0	2,296.7	2,280.5	2,277.0	5.1	5.3	179.18	177.0	-80.9	292.9	283.1	9.82	29.838	
2,400.0	2,396.4	2,379.5	2,375.8	5.4	5.5	179.54	183.8	-82.0	306.6	296.3	10.27	29.868	
2,500.0	2,496.2	2,478.6	2,474.6	5.6	5.8	179.88	190.7	-83.0	320.3	309.6	10.71	29.894	
2,600.0	2,595.9	2,577.6	2,573.4	5.9	6.0	-179.81	197.5	-84.1	334.0	322.8	11.16	29.917	
2,700.0	2,695.7	2,676.7	2,672.2	6.1	6.3	-179.53	204.3	-85.1	347.7	336.1	11.61	29.937	
2,800.0	2,795.5	2,775.7	2,771.0	6.4	6.6	-179.27	211.1	-86.2	361.4	349.3	12.06	29.956	
2,900.0	2,895.2	2,874.8	2,869.8	6.7	6.8	-179.02	218.0	-87.2	375.1	362.6	12.52	29.973	
3,000.0	2,995.0	2,973.8	2,968.6	6.9	7.1	-178.80	224.8	-88.3	388.8	375.9	12.97	29.988	
3,100.0	3,094.7	3,072.8	3,067.4	7.2	7.3	-178.59	231.6	-89.3	402.6	389.2	13.42	30.001	
3,200.0	3,194.5	3,171.9	3,166.2	7.4	7.6	-178.39	238.5	-90.3	416.3	402.4	13.87	30.014	
3,300.0	3,294.2	3,270.9	3,265.0	7.7	7.8	-178.21	245.3	-91.4	430.0	415.7	14.32	30.025	
3,400.0	3,394.0	3,370.0	3,363.8	8.0	8.1	-178.04	252.1	-92.4	443.8	429.0	14.78	30.036	
3,500.0	3,493.7	3,469.0	3,462.6	8.2	8.3	-177.87	258.9	-93.5	457.5	442.3	15.23	30.045	
3,600.0	3,593.5	3,568.1	3,561.4	8.5	8.6	-177.72	265.8	-94.5	471.3	455.6	15.68	30.054	
3,700.0	3,693.3	3,667.1	3,660.2	8.7	8.8	-177.58	272.6	-95.6	485.0	468.9	16.13	30.062	
3,800.0	3,793.0	3,766.1	3,759.0	9.0	9.1	-177.44	279.4	-96.6	498.8	482.2	16.59	30.070	
3,900.0	3,892.8	3,865.2	3,857.8	9.3	9.3	-177.31	286.3	-97.7	512.5	495.5	17.04	30.077	
4,000.0	3,992.5	3,964.2	3,956.6	9.5	9.6	-177.19	293.1	-98.7	526.3	508.8	17.49	30.084	
4,100.0	4,092.3	4,063.3	4,055.4	9.8	9.8	-177.08	299.9	-99.8	540.1	522.1	17.95	30.090	
4,200.0	4,192.0	4,162.3	4,154.2	10.0	10.1	-176.97	306.8	-100.8	553.8	535.4	18.40	30.095	
4,300.0	4,291.8	4,261.4	4,253.0	10.3	10.3	-176.86	313.6	-101.8	567.6	548.7	18.86	30.101	
4,400.0	4,391.6	4,360.4	4,351.8	10.6	10.6	-176.76	320.4	-102.9	581.4	562.1	19.31	30.106	
4,500.0	4,491.3	4,459.4	4,450.6	10.8	10.9	-176.67	327.2	-103.9	595.1	575.4	19.77	30.110	
4,600.0	4,591.1	4,558.5	4,549.4	11.1	11.1	-176.58	334.1	-105.0	608.9	588.7	20.22	30.115	
4,700.0	4,690.8	4,657.5	4,648.2	11.4	11.4	-176.49	340.9	-106.0	622.7	602.0	20.67	30.119	
4,800.0	4,790.6	4,756.6	4,747.0	11.6	11.6	-176.41	347.7	-107.1	636.5	615.3	21.13	30.123	
4,900.0	4,890.3	4,855.6	4,845.8	11.9	11.9	-176.33	354.6	-108.1	650.2	628.7	21.58	30.126	
5,000.0	4,990.1	4,954.6	4,944.6	12.1	12.1	-176.25	361.4	-109.2	664.0	642.0	22.04	30.130	
5,100.0	5,089.9	5,053.7	5,043.4	12.4	12.4	-176.18	368.2	-110.2	677.8	655.3	22.49	30.133	

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 #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-0307A - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.6	5,152.7	5,142.2	12.7	12.6	-176.11	375.0	-111.2	691.6	668.6	22.95	30.136	
5,300.0	5,289.4	5,251.8	5,241.0	12.9	12.9	-176.04	381.9	-112.3	705.4	681.9	23.40	30.139	
5,400.0	5,389.1	5,350.8	5,339.8	13.2	13.1	-175.97	388.7	-113.3	719.1	695.3	23.86	30.142	
5,500.0	5,488.5	5,443.3	5,432.1	13.5	13.4	-175.84	395.1	-114.3	736.5	712.5	23.97	30.726	
5,600.0	5,584.4	5,481.3	5,469.8	13.9	13.5	-175.49	399.4	-115.0	774.9	751.8	23.11	33.530	
5,700.0	5,673.2	5,500.0	5,488.2	14.6	13.5	-174.77	402.5	-115.4	835.7	814.3	21.46	38.951	
5,800.0	5,751.6	5,550.0	5,536.9	15.4	13.7	-173.45	414.0	-117.2	913.7	894.4	19.23	47.505	
5,900.0	5,816.8	5,550.0	5,536.9	16.5	13.7	-170.20	414.0	-117.2	1,003.4	986.7	16.64	60.293	
6,000.0	5,866.5	5,550.0	5,536.9	17.7	13.7	-156.66	414.0	-117.2	1,100.5	1,083.6	16.96	64.877	
6,100.0	5,898.6	5,550.0	5,536.9	19.2	13.7	-32.31	414.0	-117.2	1,200.2	1,180.5	19.71	60.880	
6,200.0	5,912.1	5,550.0	5,536.9	20.7	13.7	-9.85	414.0	-117.2	1,298.7	1,288.6	10.09	128.769	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-0308B - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-23.31	74.9	-32.3	81.6				
100.0	100.0	100.0	100.0	0.1	0.1	-23.31	74.9	-32.3	81.6	81.4	0.19	436.112	
200.0	200.0	200.0	200.0	0.3	0.3	-23.31	74.9	-32.3	81.6	80.9	0.64	128.123	
300.0	300.0	300.0	300.0	0.5	0.5	-23.31	74.9	-32.3	81.6	80.5	1.09	75.092	
400.0	400.0	400.0	400.0	0.8	0.8	-23.31	74.9	-32.3	81.6	80.0	1.54	53.110	
500.0	500.0	500.0	500.0	1.0	1.0	-23.31	74.9	-32.3	81.6	79.6	1.99	41.083	
600.0	600.0	600.0	600.0	1.2	1.2	-23.31	74.9	-32.3	81.6	79.1	2.43	33.498	
700.0	700.0	700.0	700.0	1.4	1.4	-23.31	74.9	-32.3	81.6	78.7	2.88	28.277	
800.0	800.0	800.0	800.0	1.7	1.7	-23.31	74.9	-32.3	81.6	78.2	3.33	24.464	CC, ES
900.0	900.0	897.5	897.5	1.9	1.9	-179.37	76.5	-32.0	84.8	81.0	3.75	22.584	SF
1,000.0	999.8	994.4	994.3	2.0	2.1	-177.83	81.4	-31.3	94.4	90.2	4.16	22.699	
1,100.0	1,099.6	1,093.4	1,093.0	2.2	2.3	-176.13	88.2	-30.3	107.4	102.8	4.57	23.495	
1,200.0	1,199.4	1,192.5	1,191.8	2.5	2.6	-174.79	95.1	-29.2	120.5	115.5	4.99	24.153	
1,300.0	1,299.1	1,291.6	1,290.7	2.7	2.8	-173.72	101.9	-28.2	133.7	128.3	5.42	24.688	
1,400.0	1,398.9	1,390.7	1,389.6	2.9	3.0	-172.84	108.7	-27.2	146.9	141.1	5.85	25.129	
1,500.0	1,498.6	1,489.8	1,488.4	3.1	3.3	-172.10	115.6	-26.1	160.2	153.9	6.28	25.497	
1,600.0	1,598.4	1,588.9	1,587.3	3.4	3.5	-171.48	122.4	-25.1	173.4	166.7	6.72	25.807	
1,700.0	1,698.1	1,688.0	1,686.1	3.6	3.8	-170.94	129.3	-24.1	186.7	179.5	7.16	26.071	
1,800.0	1,797.9	1,787.1	1,785.0	3.9	4.0	-170.48	136.1	-23.0	200.0	192.4	7.60	26.299	
1,900.0	1,897.6	1,886.2	1,883.9	4.1	4.3	-170.07	142.9	-22.0	213.3	205.2	8.05	26.496	
2,000.0	1,997.4	1,985.3	1,982.7	4.4	4.5	-169.72	149.8	-21.0	226.6	218.1	8.50	26.669	
2,100.0	2,097.2	2,084.4	2,081.6	4.6	4.8	-169.40	156.6	-19.9	239.9	231.0	8.95	26.822	
2,200.0	2,196.9	2,183.5	2,180.4	4.9	5.0	-169.11	163.4	-18.9	253.3	243.9	9.39	26.957	
2,300.0	2,296.7	2,282.6	2,279.3	5.1	5.3	-168.86	170.3	-17.9	266.6	256.7	9.85	27.077	
2,400.0	2,396.4	2,381.7	2,378.1	5.4	5.5	-168.62	177.1	-16.9	279.9	269.6	10.30	27.185	
2,500.0	2,496.2	2,480.8	2,477.0	5.6	5.8	-168.41	183.9	-15.8	293.3	282.5	10.75	27.283	
2,600.0	2,595.9	2,579.9	2,575.9	5.9	6.0	-168.22	190.8	-14.8	306.6	295.4	11.20	27.371	
2,700.0	2,695.7	2,679.0	2,674.7	6.1	6.3	-168.04	197.6	-13.8	320.0	308.3	11.66	27.451	
2,800.0	2,795.5	2,778.1	2,773.6	6.4	6.5	-167.88	204.4	-12.7	333.3	321.2	12.11	27.524	
2,900.0	2,895.2	2,877.2	2,872.4	6.7	6.8	-167.73	211.3	-11.7	346.7	334.1	12.56	27.591	
3,000.0	2,995.0	2,976.3	2,971.3	6.9	7.0	-167.59	218.1	-10.7	360.0	347.0	13.02	27.653	
3,100.0	3,094.7	3,075.4	3,070.2	7.2	7.3	-167.46	224.9	-9.6	373.4	359.9	13.47	27.710	
3,200.0	3,194.5	3,174.5	3,169.0	7.4	7.5	-167.34	231.8	-8.6	386.7	372.8	13.93	27.763	
3,300.0	3,294.2	3,273.6	3,267.9	7.7	7.8	-167.23	238.6	-7.6	400.1	385.7	14.39	27.811	
3,400.0	3,394.0	3,372.7	3,366.7	8.0	8.0	-167.13	245.5	-6.5	413.5	398.6	14.84	27.857	
3,500.0	3,493.7	3,471.8	3,465.6	8.2	8.3	-167.03	252.3	-5.5	426.8	411.5	15.30	27.899	
3,600.0	3,593.5	3,570.9	3,564.5	8.5	8.5	-166.94	259.1	-4.5	440.2	424.4	15.76	27.938	
3,700.0	3,693.3	3,670.0	3,663.3	8.7	8.8	-166.85	266.0	-3.4	453.6	437.3	16.21	27.975	
3,800.0	3,793.0	3,769.1	3,762.2	9.0	9.0	-166.77	272.8	-2.4	466.9	450.3	16.67	28.010	
3,900.0	3,892.8	3,868.2	3,861.0	9.3	9.3	-166.69	279.6	-1.4	480.3	463.2	17.13	28.042	
4,000.0	3,992.5	3,967.3	3,959.9	9.5	9.5	-166.62	286.5	-0.4	493.7	476.1	17.58	28.073	
4,100.0	4,092.3	4,066.4	4,058.8	9.8	9.8	-166.55	293.3	0.7	507.0	489.0	18.04	28.102	
4,200.0	4,192.0	4,165.5	4,157.6	10.0	10.0	-166.48	300.1	1.7	520.4	501.9	18.50	28.129	
4,300.0	4,291.8	4,264.6	4,256.5	10.3	10.3	-166.42	307.0	2.7	533.8	514.8	18.96	28.155	
4,400.0	4,391.6	4,363.7	4,355.3	10.6	10.5	-166.36	313.8	3.8	547.1	527.7	19.42	28.179	
4,500.0	4,491.3	4,462.8	4,454.2	10.8	10.8	-166.31	320.6	4.8	560.5	540.6	19.87	28.202	
4,600.0	4,591.1	4,561.9	4,553.0	11.1	11.0	-166.25	327.5	5.8	573.9	553.6	20.33	28.224	
4,700.0	4,690.8	4,661.0	4,651.9	11.4	11.3	-166.20	334.3	6.9	587.3	566.5	20.79	28.245	
4,800.0	4,790.6	4,760.1	4,750.8	11.6	11.6	-166.15	341.2	7.9	600.6	579.4	21.25	28.265	
4,900.0	4,890.3	4,859.2	4,849.6	11.9	11.8	-166.11	348.0	8.9	614.0	592.3	21.71	28.284	
5,000.0	4,990.1	4,958.3	4,948.5	12.1	12.1	-166.06	354.8	10.0	627.4	605.2	22.17	28.302	
5,100.0	5,089.9	5,057.4	5,047.3	12.4	12.3	-166.02	361.7	11.0	640.8	618.1	22.63	28.320	

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 #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-0308B - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.6	5,156.5	5,146.2	12.7	12.6	-165.98	368.5	12.0	654.1	631.0	23.08	28.336	
5,300.0	5,289.4	5,255.6	5,245.1	12.9	12.8	-165.94	375.3	13.1	667.5	644.0	23.54	28.352	
5,400.0	5,389.1	5,354.7	5,343.9	13.2	13.1	-165.90	382.2	14.1	680.9	656.9	24.00	28.367	
5,500.0	5,488.5	5,453.2	5,442.2	13.5	13.3	-165.62	389.0	15.1	697.7	673.5	24.15	28.889	
5,600.0	5,584.4	5,543.1	5,531.9	13.9	13.6	-164.99	395.2	16.0	731.1	707.6	23.48	31.136	
5,700.0	5,673.2	5,578.4	5,567.0	14.6	13.7	-163.36	399.0	16.6	784.5	762.4	22.06	35.560	
5,800.0	5,751.6	5,600.0	5,588.3	15.4	13.7	-160.00	402.5	17.2	856.6	836.3	20.34	42.118	
5,900.0	5,816.8	5,625.0	5,612.7	16.5	13.8	-153.35	407.6	17.9	942.2	922.8	19.42	48.513	
6,000.0	5,866.5	5,650.0	5,636.9	17.7	13.9	-137.77	413.9	18.9	1,036.6	1,013.9	22.70	45.668	
6,100.0	5,898.6	5,650.0	5,636.9	19.2	13.9	-88.62	413.9	18.9	1,134.6	1,101.8	32.77	34.626	
6,200.0	5,912.1	5,650.0	5,636.9	20.7	13.9	-38.55	413.9	18.9	1,232.8	1,210.2	22.63	54.466	
6,300.0	5,912.6	5,630.5	5,618.1	22.3	13.8	-23.33	408.9	18.1	1,329.3	1,312.7	16.52	80.486	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-0309A - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	0.00	74.9	0.0	74.9				
100.0	100.0	100.0	100.0	0.1	0.1	0.00	74.9	0.0	74.9	74.7	0.19	400.466	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	74.9	0.0	74.9	74.3	0.64	117.651	
300.0	300.0	300.0	300.0	0.5	0.5	0.00	74.9	0.0	74.9	73.8	1.09	68.954	
400.0	400.0	400.0	400.0	0.8	0.8	0.00	74.9	0.0	74.9	73.4	1.54	48.769	
500.0	500.0	500.0	500.0	1.0	1.0	0.00	74.9	0.0	74.9	72.9	1.99	37.725	
600.0	600.0	600.0	600.0	1.2	1.2	0.00	74.9	0.0	74.9	72.5	2.43	30.760	
700.0	700.0	700.0	700.0	1.4	1.4	0.00	74.9	0.0	74.9	72.0	2.88	25.965	
800.0	800.0	800.0	800.0	1.7	1.7	0.00	74.9	0.0	74.9	71.6	3.33	22.464	CC, ES
900.0	900.0	900.0	900.0	1.9	1.9	-157.16	74.9	0.0	76.5	72.7	3.76	20.361	
1,000.0	999.8	997.2	997.2	2.0	2.1	-158.08	76.4	0.6	82.9	78.8	4.16	19.947	SF
1,100.0	1,099.6	1,093.8	1,093.7	2.2	2.3	-158.52	81.1	2.2	94.1	89.5	4.57	20.595	
1,200.0	1,199.4	1,192.8	1,192.4	2.5	2.6	-158.50	87.5	4.6	107.0	102.0	4.99	21.442	
1,300.0	1,299.1	1,292.0	1,291.3	2.7	2.8	-158.47	94.0	7.0	120.0	114.6	5.42	22.144	
1,400.0	1,398.9	1,391.1	1,390.3	2.9	3.0	-158.46	100.5	9.3	132.9	127.1	5.85	22.722	
1,500.0	1,498.6	1,490.3	1,489.2	3.1	3.3	-158.44	107.0	11.7	145.9	139.6	6.29	23.202	
1,600.0	1,598.4	1,589.4	1,588.1	3.4	3.5	-158.43	113.5	14.0	158.8	152.1	6.73	23.607	
1,700.0	1,698.1	1,688.6	1,687.0	3.6	3.7	-158.42	120.0	16.4	171.7	164.6	7.17	23.951	
1,800.0	1,797.9	1,787.8	1,785.9	3.9	4.0	-158.41	126.5	18.8	184.7	177.1	7.62	24.248	
1,900.0	1,897.6	1,886.9	1,884.8	4.1	4.2	-158.41	133.0	21.1	197.6	189.6	8.06	24.505	
2,000.0	1,997.4	1,986.1	1,983.8	4.4	4.5	-158.40	139.5	23.5	210.6	202.0	8.51	24.729	
2,100.0	2,097.2	2,085.2	2,082.7	4.6	4.7	-158.39	146.1	25.8	223.5	214.5	8.97	24.927	
2,200.0	2,196.9	2,184.4	2,181.6	4.9	5.0	-158.39	152.6	28.2	236.4	227.0	9.42	25.102	
2,300.0	2,296.7	2,283.6	2,280.5	5.1	5.2	-158.39	159.1	30.6	249.4	239.5	9.87	25.259	
2,400.0	2,396.4	2,382.7	2,379.4	5.4	5.5	-158.38	165.6	32.9	262.3	252.0	10.33	25.399	
2,500.0	2,496.2	2,481.9	2,478.4	5.6	5.7	-158.38	172.1	35.3	275.3	264.5	10.78	25.525	
2,600.0	2,595.9	2,581.0	2,577.3	5.9	6.0	-158.37	178.6	37.6	288.2	277.0	11.24	25.640	
2,700.0	2,695.7	2,680.2	2,676.2	6.1	6.2	-158.37	185.1	40.0	301.1	289.4	11.70	25.744	
2,800.0	2,795.5	2,779.4	2,775.1	6.4	6.5	-158.37	191.6	42.4	314.1	301.9	12.16	25.839	
2,900.0	2,895.2	2,878.5	2,874.0	6.7	6.7	-158.37	198.1	44.7	327.0	314.4	12.61	25.926	
3,000.0	2,995.0	2,977.7	2,972.9	6.9	7.0	-158.36	204.6	47.1	340.0	326.9	13.07	26.006	
3,100.0	3,094.7	3,076.8	3,071.9	7.2	7.2	-158.36	211.1	49.4	352.9	339.4	13.53	26.080	
3,200.0	3,194.5	3,176.0	3,170.8	7.4	7.5	-158.36	217.6	51.8	365.8	351.8	13.99	26.148	
3,300.0	3,294.2	3,275.2	3,269.7	7.7	7.7	-158.36	224.1	54.2	378.8	364.3	14.45	26.211	
3,400.0	3,394.0	3,374.3	3,368.6	8.0	8.0	-158.35	230.6	56.5	391.7	376.8	14.91	26.270	
3,500.0	3,493.7	3,473.5	3,467.5	8.2	8.2	-158.35	237.1	58.9	404.7	389.3	15.37	26.325	
3,600.0	3,593.5	3,572.6	3,566.4	8.5	8.5	-158.35	243.6	61.2	417.6	401.8	15.83	26.376	
3,700.0	3,693.3	3,671.8	3,665.4	8.7	8.7	-158.35	250.1	63.6	430.5	414.2	16.29	26.424	
3,800.0	3,793.0	3,771.0	3,764.3	9.0	9.0	-158.35	256.6	66.0	443.5	426.7	16.75	26.469	
3,900.0	3,892.8	3,870.1	3,863.2	9.3	9.2	-158.35	263.1	68.3	456.4	439.2	17.22	26.511	
4,000.0	3,992.5	3,969.3	3,962.1	9.5	9.5	-158.35	269.6	70.7	469.4	451.7	17.68	26.551	
4,100.0	4,092.3	4,068.4	4,061.0	9.8	9.7	-158.34	276.1	73.0	482.3	464.2	18.14	26.588	
4,200.0	4,192.0	4,167.6	4,160.0	10.0	10.0	-158.34	282.6	75.4	495.2	476.6	18.60	26.624	
4,300.0	4,291.8	4,266.7	4,258.9	10.3	10.2	-158.34	289.1	77.8	508.2	489.1	19.06	26.657	
4,400.0	4,391.6	4,365.9	4,357.8	10.6	10.5	-158.34	295.6	80.1	521.1	501.6	19.53	26.689	
4,500.0	4,491.3	4,465.1	4,456.7	10.8	10.7	-158.34	302.1	82.5	534.1	514.1	19.99	26.719	
4,600.0	4,591.1	4,564.2	4,555.6	11.1	11.0	-158.34	308.6	84.8	547.0	526.5	20.45	26.748	
4,700.0	4,690.8	4,663.4	4,654.5	11.4	11.3	-158.34	315.1	87.2	559.9	539.0	20.91	26.775	
4,800.0	4,790.6	4,762.5	4,753.5	11.6	11.5	-158.34	321.6	89.6	572.9	551.5	21.38	26.801	
4,900.0	4,890.3	4,861.7	4,852.4	11.9	11.8	-158.34	328.1	91.9	585.8	564.0	21.84	26.825	
5,000.0	4,990.1	4,960.9	4,951.3	12.1	12.0	-158.34	334.6	94.3	598.8	576.5	22.30	26.849	
5,100.0	5,089.9	5,060.0	5,050.2	12.4	12.3	-158.34	341.1	96.6	611.7	588.9	22.76	26.872	

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 #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-0309A - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.6	5,159.2	5,149.1	12.7	12.5	-158.34	347.6	99.0	624.6	601.4	23.23	26.893	
5,300.0	5,289.4	5,258.3	5,248.0	12.9	12.8	-158.33	354.1	101.4	637.6	613.9	23.69	26.914	
5,400.0	5,389.1	5,357.5	5,347.0	13.2	13.0	-158.33	360.6	103.7	650.5	626.4	24.15	26.933	
5,500.0	5,488.5	5,446.3	5,435.5	13.5	13.3	-157.94	366.5	105.8	666.9	642.5	24.31	27.429	
5,600.0	5,584.4	5,500.0	5,488.7	13.9	13.4	-156.55	373.4	108.4	704.1	680.4	23.72	29.682	
5,700.0	5,673.2	5,523.0	5,511.2	14.6	13.5	-153.48	377.9	110.0	762.2	739.6	22.66	33.645	
5,800.0	5,751.6	5,550.0	5,537.3	15.4	13.6	-147.89	384.4	112.4	837.4	815.6	21.84	38.344	
5,900.0	5,816.8	5,567.8	5,554.3	16.5	13.7	-136.74	389.4	114.2	924.4	901.4	22.98	40.221	
6,000.0	5,866.5	5,577.8	5,563.7	17.7	13.7	-112.70	392.4	115.3	1,018.4	989.8	28.63	35.570	
6,100.0	5,898.6	5,580.4	5,566.2	19.2	13.7	-71.75	393.2	115.6	1,115.2	1,084.1	31.11	35.844	
6,200.0	5,912.1	5,576.6	5,562.6	20.7	13.7	-40.65	392.1	115.1	1,211.1	1,187.8	23.29	51.994	
6,300.0	5,912.6	5,569.0	5,555.5	22.3	13.7	-30.45	389.8	114.3	1,305.2	1,285.4	19.77	66.013	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-0310B - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	23.81	74.9	33.0	81.8				
100.0	100.0	100.0	100.0	0.1	0.1	23.81	74.9	33.0	81.8	81.7	0.19	437.639	
200.0	200.0	200.0	200.0	0.3	0.3	23.81	74.9	33.0	81.8	81.2	0.64	128.572	
300.0	300.0	300.0	300.0	0.5	0.5	23.81	74.9	33.0	81.8	80.8	1.09	75.355	
400.0	400.0	400.0	400.0	0.8	0.8	23.81	74.9	33.0	81.8	80.3	1.54	53.296	
500.0	500.0	500.0	500.0	1.0	1.0	23.81	74.9	33.0	81.8	79.9	1.99	41.227	
600.0	600.0	600.0	600.0	1.2	1.2	23.81	74.9	33.0	81.8	79.4	2.43	33.615	
700.0	700.0	700.0	700.0	1.4	1.4	23.81	74.9	33.0	81.8	79.0	2.88	28.376	
800.0	800.0	800.0	800.0	1.7	1.7	23.81	74.9	33.0	81.8	78.5	3.33	24.549	CC, ES
900.0	900.0	900.0	900.0	1.9	1.9	-133.70	74.9	33.0	83.0	79.3	3.76	22.103	
1,000.0	999.8	999.8	999.8	2.0	2.1	-136.15	74.9	33.0	86.7	82.6	4.16	20.840	
1,100.0	1,099.6	1,096.5	1,096.5	2.2	2.3	-138.84	76.3	33.9	93.5	89.0	4.57	20.456	SF
1,200.0	1,199.4	1,192.8	1,192.6	2.5	2.5	-140.69	80.4	36.4	103.8	98.8	4.99	20.779	
1,300.0	1,299.1	1,291.7	1,291.3	2.7	2.8	-141.97	86.4	39.9	115.9	110.5	5.42	21.366	
1,400.0	1,398.9	1,391.0	1,390.3	2.9	3.0	-143.02	92.3	43.4	128.1	122.2	5.86	21.866	
1,500.0	1,498.6	1,490.2	1,489.3	3.1	3.2	-143.89	98.2	47.0	140.3	134.0	6.30	22.285	
1,600.0	1,598.4	1,589.4	1,588.3	3.4	3.5	-144.61	104.2	50.5	152.6	145.8	6.74	22.639	
1,700.0	1,698.1	1,688.6	1,687.3	3.6	3.7	-145.23	110.1	54.1	164.9	157.7	7.19	22.942	
1,800.0	1,797.9	1,787.9	1,786.3	3.9	4.0	-145.76	116.1	57.6	177.2	169.5	7.64	23.203	
1,900.0	1,897.6	1,887.1	1,885.3	4.1	4.2	-146.22	122.0	61.2	189.5	181.4	8.09	23.430	
2,000.0	1,997.4	1,986.3	1,984.3	4.4	4.4	-146.63	128.0	64.7	201.8	193.3	8.54	23.628	
2,100.0	2,097.2	2,085.6	2,083.2	4.6	4.7	-146.99	133.9	68.3	214.1	205.1	9.00	23.804	
2,200.0	2,196.9	2,184.8	2,182.2	4.9	4.9	-147.31	139.9	71.8	226.5	217.0	9.45	23.959	
2,300.0	2,296.7	2,284.0	2,281.2	5.1	5.2	-147.60	145.8	75.4	238.8	228.9	9.91	24.098	
2,400.0	2,396.4	2,383.3	2,380.2	5.4	5.4	-147.86	151.7	78.9	251.1	240.8	10.37	24.222	
2,500.0	2,496.2	2,482.5	2,479.2	5.6	5.7	-148.09	157.7	82.5	263.5	252.7	10.83	24.335	
2,600.0	2,595.9	2,581.7	2,578.2	5.9	5.9	-148.30	163.6	86.0	275.9	264.6	11.29	24.436	
2,700.0	2,695.7	2,680.9	2,677.2	6.1	6.2	-148.50	169.6	89.6	288.2	276.5	11.75	24.529	
2,800.0	2,795.5	2,780.2	2,776.2	6.4	6.4	-148.68	175.5	93.1	300.6	288.4	12.21	24.613	
2,900.0	2,895.2	2,879.4	2,875.1	6.7	6.7	-148.84	181.5	96.7	312.9	300.3	12.67	24.691	
3,000.0	2,995.0	2,978.6	2,974.1	6.9	6.9	-149.00	187.4	100.2	325.3	312.2	13.14	24.762	
3,100.0	3,094.7	3,077.9	3,073.1	7.2	7.2	-149.14	193.3	103.8	337.7	324.1	13.60	24.827	
3,200.0	3,194.5	3,177.1	3,172.1	7.4	7.4	-149.27	199.3	107.3	350.1	336.0	14.07	24.888	
3,300.0	3,294.2	3,276.3	3,271.1	7.7	7.7	-149.39	205.2	110.8	362.4	347.9	14.53	24.944	
3,400.0	3,394.0	3,375.5	3,370.1	8.0	7.9	-149.51	211.2	114.4	374.8	359.8	14.99	24.996	
3,500.0	3,493.7	3,474.8	3,469.1	8.2	8.2	-149.61	217.1	117.9	387.2	371.7	15.46	25.045	
3,600.0	3,593.5	3,574.0	3,568.0	8.5	8.4	-149.71	223.1	121.5	399.6	383.6	15.92	25.091	
3,700.0	3,693.3	3,673.2	3,667.0	8.7	8.7	-149.81	229.0	125.0	411.9	395.5	16.39	25.133	
3,800.0	3,793.0	3,772.5	3,766.0	9.0	8.9	-149.90	235.0	128.6	424.3	407.5	16.86	25.173	
3,900.0	3,892.8	3,871.7	3,865.0	9.3	9.2	-149.98	240.9	132.1	436.7	419.4	17.32	25.210	
4,000.0	3,992.5	3,970.9	3,964.0	9.5	9.4	-150.06	246.8	135.7	449.1	431.3	17.79	25.246	
4,100.0	4,092.3	4,070.1	4,063.0	9.8	9.7	-150.14	252.8	139.2	461.5	443.2	18.25	25.279	
4,200.0	4,192.0	4,169.4	4,162.0	10.0	9.9	-150.21	258.7	142.8	473.8	455.1	18.72	25.310	
4,300.0	4,291.8	4,268.6	4,261.0	10.3	10.2	-150.27	264.7	146.3	486.2	467.0	19.19	25.340	
4,400.0	4,391.6	4,367.8	4,359.9	10.6	10.5	-150.34	270.6	149.9	498.6	479.0	19.66	25.368	
4,500.0	4,491.3	4,467.1	4,458.9	10.8	10.7	-150.40	276.6	153.4	511.0	490.9	20.12	25.395	
4,600.0	4,591.1	4,566.3	4,557.9	11.1	11.0	-150.46	282.5	157.0	523.4	502.8	20.59	25.420	
4,700.0	4,690.8	4,665.5	4,656.9	11.4	11.2	-150.51	288.4	160.5	535.8	514.7	21.06	25.444	
4,800.0	4,790.6	4,764.7	4,755.9	11.6	11.5	-150.57	294.4	164.1	548.2	526.6	21.52	25.467	
4,900.0	4,890.3	4,864.0	4,854.9	11.9	11.7	-150.62	300.3	167.6	560.5	538.6	21.99	25.489	
5,000.0	4,990.1	4,963.2	4,953.9	12.1	12.0	-150.66	306.3	171.2	572.9	550.5	22.46	25.510	
5,100.0	5,089.9	5,062.4	5,052.9	12.4	12.2	-150.71	312.2	174.7	585.3	562.4	22.93	25.530	

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 #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-0310B - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.6	5,161.7	5,151.8	12.7	12.5	-150.76	318.2	178.2	597.7	574.3	23.39	25.549	
5,300.0	5,289.4	5,260.9	5,250.8	12.9	12.7	-150.80	324.1	181.8	610.1	586.2	23.86	25.567	
5,400.0	5,389.1	5,360.1	5,349.8	13.2	13.0	-150.84	330.1	185.3	622.5	598.2	24.33	25.585	
5,500.0	5,488.5	5,458.8	5,448.3	13.5	13.2	-150.45	336.0	188.9	638.0	613.4	24.55	25.983	
5,600.0	5,584.4	5,545.7	5,534.9	13.9	13.5	-149.52	341.2	192.0	668.5	644.4	24.16	27.674	
5,700.0	5,673.2	5,584.5	5,573.5	14.6	13.6	-146.86	345.2	194.4	718.5	695.1	23.36	30.756	
5,800.0	5,751.6	5,615.5	5,603.9	15.4	13.7	-141.77	350.1	197.3	786.4	763.5	22.86	34.396	
5,900.0	5,816.8	5,650.0	5,637.3	16.5	13.8	-133.13	357.5	201.7	867.8	843.9	23.83	36.420	
6,000.0	5,866.5	5,650.0	5,637.3	17.7	13.8	-114.53	357.5	201.7	957.4	929.2	28.19	33.966	
6,100.0	5,898.6	5,650.0	5,637.3	19.2	13.8	-84.32	357.5	201.7	1,051.6	1,019.4	32.15	32.706	
6,200.0	5,912.1	5,650.0	5,637.3	20.7	13.8	-54.62	357.5	201.7	1,146.2	1,117.9	28.27	40.539	
6,300.0	5,912.6	5,650.0	5,637.3	22.3	13.8	-45.49	357.5	201.7	1,240.0	1,213.7	26.29	47.168	
6,400.0	5,912.6	5,650.0	5,637.3	23.7	13.8	-38.05	357.5	201.7	1,335.8	1,311.5	24.25	55.080	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-0311A - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	41.44	74.9	66.1	99.9				
100.0	100.0	100.0	100.0	0.1	0.1	41.44	74.9	66.1	99.9	99.7	0.19	533.990	
200.0	200.0	200.0	200.0	0.3	0.3	41.44	74.9	66.1	99.9	99.2	0.64	156.878	
300.0	300.0	300.0	300.0	0.5	0.5	41.44	74.9	66.1	99.9	98.8	1.09	91.945	
400.0	400.0	400.0	400.0	0.8	0.8	41.44	74.9	66.1	99.9	98.3	1.54	65.029	
500.0	500.0	500.0	500.0	1.0	1.0	41.44	74.9	66.1	99.9	97.9	1.99	50.303	
600.0	600.0	600.0	600.0	1.2	1.2	41.44	74.9	66.1	99.9	97.4	2.43	41.015	
700.0	700.0	700.0	700.0	1.4	1.4	41.44	74.9	66.1	99.9	97.0	2.88	34.623	
800.0	800.0	800.0	800.0	1.7	1.7	41.44	74.9	66.1	99.9	96.5	3.33	29.954	CC, ES
900.0	900.0	900.0	900.0	1.9	1.9	-116.10	74.9	66.1	100.6	96.9	3.76	26.784	
1,000.0	999.8	999.8	999.8	2.0	2.1	-118.67	74.9	66.1	103.0	98.9	4.16	24.751	
1,100.0	1,099.6	1,099.6	1,099.6	2.2	2.3	-121.95	74.9	66.1	106.6	102.0	4.58	23.253	
1,200.0	1,199.4	1,195.7	1,195.7	2.5	2.6	-124.78	76.1	67.1	112.0	107.0	5.00	22.401	
1,300.0	1,299.1	1,291.3	1,291.2	2.7	2.8	-127.04	79.7	70.2	121.1	115.6	5.43	22.302	SF
1,400.0	1,398.9	1,390.3	1,389.9	2.9	3.0	-128.86	84.9	74.7	132.2	126.3	5.87	22.526	
1,500.0	1,498.6	1,489.6	1,488.9	3.1	3.2	-130.40	90.2	79.2	143.4	137.1	6.31	22.729	
1,600.0	1,598.4	1,588.9	1,588.0	3.4	3.4	-131.72	95.4	83.8	154.7	148.0	6.75	22.905	
1,700.0	1,698.1	1,688.2	1,687.1	3.6	3.7	-132.86	100.7	88.3	166.1	158.9	7.20	23.057	
1,800.0	1,797.9	1,787.5	1,786.1	3.9	3.9	-133.85	106.0	92.8	177.5	169.9	7.66	23.190	
1,900.0	1,897.6	1,886.8	1,885.2	4.1	4.2	-134.72	111.2	97.3	189.0	180.9	8.11	23.306	
2,000.0	1,997.4	1,986.1	1,984.2	4.4	4.4	-135.49	116.5	101.8	200.5	192.0	8.57	23.408	
2,100.0	2,097.2	2,085.4	2,083.3	4.6	4.6	-136.18	121.7	106.3	212.1	203.1	9.02	23.499	
2,200.0	2,196.9	2,184.7	2,182.3	4.9	4.9	-136.80	127.0	110.8	223.7	214.2	9.48	23.580	
2,300.0	2,296.7	2,284.0	2,281.4	5.1	5.1	-137.35	132.2	115.3	235.3	225.3	9.95	23.653	
2,400.0	2,396.4	2,383.3	2,380.5	5.4	5.4	-137.86	137.5	119.8	246.9	236.5	10.41	23.718	
2,500.0	2,496.2	2,482.6	2,479.5	5.6	5.6	-138.32	142.8	124.4	258.5	247.6	10.87	23.777	
2,600.0	2,595.9	2,581.9	2,578.6	5.9	5.9	-138.73	148.0	128.9	270.2	258.8	11.34	23.831	
2,700.0	2,695.7	2,681.2	2,677.6	6.1	6.1	-139.12	153.3	133.4	281.8	270.0	11.80	23.880	
2,800.0	2,795.5	2,780.5	2,776.7	6.4	6.4	-139.47	158.5	137.9	293.5	281.3	12.27	23.925	
2,900.0	2,895.2	2,879.8	2,875.8	6.7	6.6	-139.80	163.8	142.4	305.2	292.5	12.74	23.966	
3,000.0	2,995.0	2,979.1	2,974.8	6.9	6.9	-140.10	169.0	146.9	316.9	303.7	13.20	24.004	
3,100.0	3,094.7	3,078.4	3,073.9	7.2	7.1	-140.38	174.3	151.4	328.6	314.9	13.67	24.038	
3,200.0	3,194.5	3,177.7	3,172.9	7.4	7.4	-140.64	179.5	155.9	340.3	326.2	14.14	24.071	
3,300.0	3,294.2	3,277.0	3,272.0	7.7	7.6	-140.89	184.8	160.5	352.0	337.4	14.61	24.101	
3,400.0	3,394.0	3,376.3	3,371.0	8.0	7.9	-141.12	190.1	165.0	363.8	348.7	15.08	24.128	
3,500.0	3,493.7	3,475.6	3,470.1	8.2	8.1	-141.33	195.3	169.5	375.5	360.0	15.55	24.154	
3,600.0	3,593.5	3,574.9	3,569.2	8.5	8.4	-141.53	200.6	174.0	387.2	371.2	16.02	24.178	
3,700.0	3,693.3	3,674.2	3,668.2	8.7	8.6	-141.72	205.8	178.5	399.0	382.5	16.49	24.201	
3,800.0	3,793.0	3,773.5	3,767.3	9.0	8.9	-141.90	211.1	183.0	410.7	393.8	16.96	24.222	
3,900.0	3,892.8	3,872.8	3,866.3	9.3	9.1	-142.07	216.3	187.5	422.5	405.0	17.43	24.242	
4,000.0	3,992.5	3,972.1	3,965.4	9.5	9.4	-142.23	221.6	192.0	434.2	416.3	17.90	24.261	
4,100.0	4,092.3	4,071.4	4,064.5	9.8	9.6	-142.38	226.9	196.5	446.0	427.6	18.37	24.279	
4,200.0	4,192.0	4,170.7	4,163.5	10.0	9.9	-142.52	232.1	201.1	457.7	438.9	18.84	24.295	
4,300.0	4,291.8	4,270.0	4,262.6	10.3	10.2	-142.66	237.4	205.6	469.5	450.2	19.31	24.311	
4,400.0	4,391.6	4,369.3	4,361.6	10.6	10.4	-142.79	242.6	210.1	481.3	461.5	19.78	24.326	
4,500.0	4,491.3	4,468.6	4,460.7	10.8	10.7	-142.91	247.9	214.6	493.0	472.8	20.26	24.340	
4,600.0	4,591.1	4,567.9	4,559.7	11.1	10.9	-143.03	253.1	219.1	504.8	484.1	20.73	24.354	
4,700.0	4,690.8	4,667.2	4,658.8	11.4	11.2	-143.14	258.4	223.6	516.6	495.4	21.20	24.366	
4,800.0	4,790.6	4,766.5	4,757.9	11.6	11.4	-143.25	263.6	228.1	528.3	506.7	21.67	24.378	
4,900.0	4,890.3	4,865.8	4,856.9	11.9	11.7	-143.35	268.9	232.6	540.1	518.0	22.14	24.390	
5,000.0	4,990.1	4,965.1	4,956.0	12.1	11.9	-143.45	274.2	237.1	551.9	529.3	22.62	24.401	
5,100.0	5,089.9	5,064.4	5,055.0	12.4	12.2	-143.54	279.4	241.7	563.7	540.6	23.09	24.412	

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 #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-0311A - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.6	5,163.7	5,154.1	12.7	12.4	-143.63	284.7	246.2	575.4	551.9	23.56	24.422	
5,300.0	5,289.4	5,263.0	5,253.2	12.9	12.7	-143.72	289.9	250.7	587.2	563.2	24.04	24.431	
5,400.0	5,389.1	5,362.3	5,352.2	13.2	12.9	-143.80	295.2	255.2	599.0	574.5	24.51	24.440	
5,500.0	5,488.5	5,450.0	5,439.7	13.5	13.2	-143.33	299.9	259.3	613.9	589.1	24.75	24.799	
5,600.0	5,584.4	5,500.0	5,489.2	13.9	13.3	-141.42	305.3	263.8	647.9	623.4	24.49	26.450	
5,700.0	5,673.2	5,533.4	5,521.8	14.6	13.5	-137.50	310.8	268.6	701.7	677.6	24.14	29.070	
5,800.0	5,751.6	5,564.2	5,551.3	15.4	13.6	-130.81	317.3	274.2	771.5	747.1	24.40	31.616	
5,900.0	5,816.8	5,600.0	5,585.0	16.5	13.7	-120.48	326.5	282.1	853.1	826.9	26.17	32.604	
6,000.0	5,866.5	5,600.0	5,585.0	17.7	13.7	-101.17	326.5	282.1	941.3	911.5	29.86	31.526	
6,100.0	5,898.6	5,600.0	5,585.0	19.2	13.7	-75.94	326.5	282.1	1,033.1	1,001.8	31.25	33.055	
6,200.0	5,912.1	5,600.0	5,585.0	20.7	13.7	-53.56	326.5	282.1	1,124.6	1,096.9	27.72	40.566	
6,300.0	5,912.6	5,600.0	5,585.0	22.3	13.7	-46.40	326.5	282.1	1,215.3	1,188.8	26.45	45.945	
6,400.0	5,912.6	5,600.0	5,585.0	23.7	13.7	-40.76	326.5	282.1	1,308.5	1,283.3	25.28	51.765	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-0312B - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	52.92	74.9	99.1	124.3				
100.0	100.0	100.0	100.0	0.1	0.1	52.92	74.9	99.1	124.3	124.1	0.19	664.462	
200.0	200.0	200.0	200.0	0.3	0.3	52.92	74.9	99.1	124.3	123.6	0.64	195.209	
300.0	300.0	300.0	300.0	0.5	0.5	52.92	74.9	99.1	124.3	123.2	1.09	114.411	
400.0	400.0	400.0	400.0	0.8	0.8	52.92	74.9	99.1	124.3	122.7	1.54	80.918	
500.0	500.0	500.0	500.0	1.0	1.0	52.92	74.9	99.1	124.3	122.3	1.99	62.594	
600.0	600.0	600.0	600.0	1.2	1.2	52.92	74.9	99.1	124.3	121.8	2.43	51.037	
700.0	700.0	700.0	700.0	1.4	1.4	52.92	74.9	99.1	124.3	121.4	2.88	43.082	
800.0	800.0	800.0	800.0	1.7	1.7	52.92	74.9	99.1	124.3	120.9	3.33	37.273	CC, ES
900.0	900.0	900.0	900.0	1.9	1.9	-104.50	74.9	99.1	124.7	120.9	3.76	33.194	
1,000.0	999.8	999.8	999.8	2.0	2.1	-106.77	74.9	99.1	126.1	121.9	4.16	30.294	
1,100.0	1,099.6	1,099.6	1,099.6	2.2	2.3	-109.75	74.9	99.1	128.3	123.7	4.58	27.987	
1,200.0	1,199.4	1,199.4	1,199.4	2.5	2.6	-112.62	74.9	99.1	130.8	125.8	5.02	26.079	
1,300.0	1,299.1	1,294.7	1,294.7	2.7	2.8	-115.16	75.9	100.3	135.3	129.8	5.44	24.854	
1,400.0	1,398.9	1,389.7	1,389.5	2.9	3.0	-117.31	79.0	103.9	143.3	137.4	5.87	24.389	
1,500.0	1,498.6	1,488.5	1,488.2	3.1	3.2	-119.15	83.5	109.1	153.4	147.1	6.32	24.278	
1,600.0	1,598.4	1,587.9	1,587.3	3.4	3.4	-120.76	88.0	114.4	163.7	156.9	6.77	24.194	
1,700.0	1,698.1	1,687.3	1,686.4	3.6	3.7	-122.19	92.5	119.7	174.1	166.9	7.22	24.124	
1,800.0	1,797.9	1,786.6	1,785.5	3.9	3.9	-123.45	97.0	124.9	184.6	176.9	7.67	24.064	
1,900.0	1,897.6	1,886.0	1,884.7	4.1	4.1	-124.58	101.5	130.2	195.2	187.0	8.13	24.012	
2,000.0	1,997.4	1,985.4	1,983.8	4.4	4.4	-125.60	106.0	135.5	205.8	197.2	8.59	23.967	
2,100.0	2,097.2	2,084.8	2,082.9	4.6	4.6	-126.51	110.5	140.7	216.5	207.4	9.05	23.927	
2,200.0	2,196.9	2,184.1	2,182.1	4.9	4.9	-127.33	115.0	146.0	227.2	217.7	9.51	23.892	
2,300.0	2,296.7	2,283.5	2,281.2	5.1	5.1	-128.09	119.5	151.3	238.0	228.1	9.98	23.861	
2,400.0	2,396.4	2,382.9	2,380.3	5.4	5.3	-128.77	124.0	156.6	248.9	238.4	10.44	23.834	
2,500.0	2,496.2	2,482.2	2,479.4	5.6	5.6	-129.40	128.5	161.8	259.7	248.8	10.91	23.809	
2,600.0	2,595.9	2,581.6	2,578.6	5.9	5.8	-129.98	133.0	167.1	270.6	259.2	11.38	23.786	
2,700.0	2,695.7	2,681.0	2,677.7	6.1	6.1	-130.51	137.5	172.4	281.5	269.7	11.85	23.766	
2,800.0	2,795.5	2,780.3	2,776.8	6.4	6.3	-131.01	142.0	177.6	292.5	280.1	12.32	23.747	
2,900.0	2,895.2	2,879.7	2,876.0	6.7	6.6	-131.47	146.5	182.9	303.4	290.6	12.79	23.730	
3,000.0	2,995.0	2,979.1	2,975.1	6.9	6.8	-131.89	151.0	188.2	314.4	301.1	13.26	23.714	
3,100.0	3,094.7	3,078.5	3,074.2	7.2	7.1	-132.29	155.5	193.4	325.4	311.7	13.73	23.700	
3,200.0	3,194.5	3,177.8	3,173.3	7.4	7.3	-132.66	160.0	198.7	336.4	322.2	14.20	23.686	
3,300.0	3,294.2	3,277.2	3,272.5	7.7	7.6	-133.01	164.5	204.0	347.4	332.7	14.67	23.674	
3,400.0	3,394.0	3,376.6	3,371.6	8.0	7.8	-133.34	169.0	209.2	358.4	343.3	15.15	23.662	
3,500.0	3,493.7	3,475.9	3,470.7	8.2	8.1	-133.64	173.5	214.5	369.5	353.9	15.62	23.651	
3,600.0	3,593.5	3,575.3	3,569.8	8.5	8.3	-133.93	178.0	219.8	380.5	364.4	16.10	23.641	
3,700.0	3,693.3	3,674.7	3,669.0	8.7	8.6	-134.21	182.5	225.1	391.6	375.0	16.57	23.631	
3,800.0	3,793.0	3,774.0	3,768.1	9.0	8.8	-134.46	187.1	230.3	402.7	385.6	17.05	23.622	
3,900.0	3,892.8	3,873.4	3,867.2	9.3	9.1	-134.71	191.6	235.6	413.7	396.2	17.52	23.614	
4,000.0	3,992.5	3,972.8	3,966.4	9.5	9.3	-134.94	196.1	240.9	424.8	406.8	18.00	23.606	
4,100.0	4,092.3	4,072.2	4,065.5	9.8	9.6	-135.16	200.6	246.1	435.9	417.4	18.47	23.599	
4,200.0	4,192.0	4,171.5	4,164.6	10.0	9.8	-135.37	205.1	251.4	447.0	428.0	18.95	23.591	
4,300.0	4,291.8	4,270.9	4,263.7	10.3	10.1	-135.57	209.6	256.7	458.1	438.7	19.42	23.585	
4,400.0	4,391.6	4,370.3	4,362.9	10.6	10.4	-135.76	214.1	261.9	469.2	449.3	19.90	23.578	
4,500.0	4,491.3	4,469.6	4,462.0	10.8	10.6	-135.94	218.6	267.2	480.3	459.9	20.38	23.572	
4,600.0	4,591.1	4,569.0	4,561.1	11.1	10.9	-136.11	223.1	272.5	491.4	470.6	20.85	23.566	
4,700.0	4,690.8	4,668.4	4,660.2	11.4	11.1	-136.27	227.6	277.7	502.5	481.2	21.33	23.561	
4,800.0	4,790.6	4,767.7	4,759.4	11.6	11.4	-136.43	232.1	283.0	513.7	491.9	21.81	23.556	
4,900.0	4,890.3	4,867.1	4,858.5	11.9	11.6	-136.58	236.6	288.3	524.8	502.5	22.28	23.550	
5,000.0	4,990.1	4,966.5	4,957.6	12.1	11.9	-136.73	241.1	293.6	535.9	513.2	22.76	23.546	
5,100.0	5,089.9	5,065.9	5,056.8	12.4	12.1	-136.87	245.6	298.8	547.1	523.8	23.24	23.541	

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 #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-0312B - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.6	5,165.2	5,155.9	12.7	12.4	-137.00	250.1	304.1	558.2	534.5	23.72	23.537	
5,300.0	5,289.4	5,264.6	5,255.0	12.9	12.6	-137.13	254.6	309.4	569.3	545.1	24.19	23.532	
5,400.0	5,389.1	5,364.0	5,354.1	13.2	12.9	-137.25	259.1	314.6	580.5	555.8	24.67	23.528	SF
5,500.0	5,488.5	5,462.9	5,452.8	13.5	13.1	-136.89	263.6	319.9	594.2	569.2	24.98	23.785	
5,600.0	5,584.4	5,550.0	5,539.7	13.9	13.4	-136.08	267.6	324.6	620.9	596.0	24.91	24.930	
5,700.0	5,673.2	5,600.0	5,589.2	14.6	13.5	-133.50	272.1	329.8	665.6	640.9	24.68	26.968	
5,800.0	5,751.6	5,625.9	5,614.5	15.4	13.6	-127.99	275.6	334.0	727.1	702.1	24.94	29.154	
5,900.0	5,816.8	5,650.0	5,637.8	16.5	13.7	-119.01	279.7	338.7	801.7	775.2	26.46	30.293	
6,000.0	5,866.5	5,670.1	5,657.0	17.7	13.8	-105.19	283.6	343.2	885.2	855.7	29.43	30.077	
6,100.0	5,898.6	5,679.4	5,665.8	19.2	13.9	-85.60	285.5	345.5	973.6	941.7	31.91	30.510	
6,200.0	5,912.1	5,680.6	5,667.0	20.7	13.9	-64.29	285.8	345.8	1,063.3	1,032.7	30.67	34.674	
6,300.0	5,912.6	5,676.6	5,663.1	22.3	13.8	-57.24	284.9	344.8	1,153.4	1,123.2	30.17	38.228	
6,400.0	5,912.6	5,671.9	5,658.7	23.7	13.8	-52.24	283.9	343.7	1,246.5	1,216.7	29.79	41.840	
6,500.0	5,912.6	5,666.9	5,654.0	25.2	13.8	-45.35	282.9	342.5	1,341.7	1,313.4	28.34	47.341	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-1505A - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	0.0	-131.4	131.4				
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	0.0	-131.4	131.4	131.2	0.19	702.688	
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-131.4	131.4	130.8	0.64	206.439	
300.0	300.0	300.0	300.0	0.5	0.5	-89.99	0.0	-131.4	131.4	130.3	1.09	120.993	
400.0	400.0	400.0	400.0	0.8	0.8	-89.99	0.0	-131.4	131.4	129.9	1.54	85.573	
500.0	500.0	500.0	500.0	1.0	1.0	-89.99	0.0	-131.4	131.4	129.4	1.99	66.195	
600.0	600.0	600.0	600.0	1.2	1.2	-89.99	0.0	-131.4	131.4	129.0	2.43	53.973	
700.0	700.0	700.0	700.0	1.4	1.4	-89.99	0.0	-131.4	131.4	128.5	2.88	45.561	
800.0	800.0	800.0	800.0	1.7	1.7	-89.99	0.0	-131.4	131.4	128.1	3.33	39.417	CC, ES
900.0	900.0	900.0	900.0	1.9	1.9	114.04	0.0	-131.4	132.1	128.4	3.76	35.175	
1,000.0	999.8	999.8	999.8	2.0	2.1	116.04	0.0	-131.4	134.3	130.2	4.16	32.288	
1,100.0	1,099.6	1,099.6	1,099.6	2.2	2.3	118.65	0.0	-131.4	137.5	133.0	4.58	30.037	
1,200.0	1,199.4	1,199.4	1,199.4	2.5	2.6	121.13	0.0	-131.4	141.0	136.0	5.01	28.158	
1,300.0	1,299.1	1,297.5	1,297.5	2.7	2.8	122.83	-1.4	-132.2	145.3	139.9	5.42	26.834	
1,400.0	1,398.9	1,395.6	1,395.5	2.9	2.9	123.22	-5.8	-134.7	150.8	145.0	5.81	25.956	
1,500.0	1,498.6	1,495.4	1,495.0	3.1	3.1	122.95	-11.9	-138.0	156.9	150.7	6.22	25.213	
1,600.0	1,598.4	1,595.2	1,594.5	3.4	3.3	122.69	-18.0	-141.4	163.1	156.4	6.65	24.512	
1,700.0	1,698.1	1,695.0	1,694.1	3.6	3.5	122.46	-24.1	-144.8	169.2	162.1	7.09	23.856	
1,800.0	1,797.9	1,794.8	1,793.7	3.9	3.7	122.24	-30.1	-148.2	175.3	167.8	7.54	23.247	
1,900.0	1,897.6	1,894.6	1,893.3	4.1	4.0	122.03	-36.2	-151.6	181.4	173.4	8.00	22.683	
2,000.0	1,997.4	1,994.4	1,992.8	4.4	4.2	121.84	-42.3	-155.0	187.6	179.1	8.46	22.162	
2,100.0	2,097.2	2,094.2	2,092.4	4.6	4.4	121.66	-48.4	-158.4	193.7	184.8	8.93	21.681	
2,200.0	2,196.9	2,194.0	2,192.0	4.9	4.7	121.49	-54.5	-161.7	199.8	190.4	9.41	21.238	
2,300.0	2,296.7	2,293.9	2,291.5	5.1	4.9	121.33	-60.6	-165.1	206.0	196.1	9.89	20.828	
2,400.0	2,396.4	2,393.7	2,391.1	5.4	5.1	121.18	-66.6	-168.5	212.1	201.7	10.37	20.449	
2,500.0	2,496.2	2,493.5	2,490.7	5.6	5.4	121.04	-72.7	-171.9	218.2	207.4	10.86	20.098	
2,600.0	2,595.9	2,593.3	2,590.2	5.9	5.6	120.91	-78.8	-175.3	224.4	213.0	11.35	19.773	
2,700.0	2,695.7	2,693.1	2,689.8	6.1	5.9	120.78	-84.9	-178.7	230.5	218.7	11.84	19.470	
2,800.0	2,795.5	2,792.9	2,789.4	6.4	6.1	120.66	-91.0	-182.1	236.7	224.3	12.33	19.189	
2,900.0	2,895.2	2,892.7	2,888.9	6.7	6.4	120.55	-97.1	-185.4	242.8	230.0	12.83	18.926	
3,000.0	2,995.0	2,992.5	2,988.5	6.9	6.6	120.44	-103.1	-188.8	249.0	235.6	13.33	18.681	
3,100.0	3,094.7	3,092.3	3,088.1	7.2	6.9	120.33	-109.2	-192.2	255.1	241.3	13.83	18.451	
3,200.0	3,194.5	3,192.1	3,187.6	7.4	7.1	120.24	-115.3	-195.6	261.2	246.9	14.33	18.236	
3,300.0	3,294.2	3,292.0	3,287.2	7.7	7.4	120.14	-121.4	-199.0	267.4	252.6	14.83	18.034	
3,400.0	3,394.0	3,391.8	3,386.8	8.0	7.6	120.05	-127.5	-202.4	273.5	258.2	15.33	17.843	
3,500.0	3,493.7	3,491.6	3,486.3	8.2	7.9	119.97	-133.6	-205.8	279.7	263.9	15.83	17.664	
3,600.0	3,593.5	3,591.4	3,585.9	8.5	8.1	119.89	-139.6	-209.1	285.8	269.5	16.34	17.495	
3,700.0	3,693.3	3,691.2	3,685.5	8.7	8.4	119.81	-145.7	-212.5	292.0	275.1	16.84	17.336	
3,800.0	3,793.0	3,791.0	3,785.0	9.0	8.6	119.73	-151.8	-215.9	298.1	280.8	17.35	17.185	
3,900.0	3,892.8	3,890.8	3,884.6	9.3	8.9	119.66	-157.9	-219.3	304.3	286.4	17.86	17.041	
4,000.0	3,992.5	3,990.6	3,984.2	9.5	9.1	119.59	-164.0	-222.7	310.4	292.1	18.36	16.906	
4,100.0	4,092.3	4,090.4	4,083.7	9.8	9.4	119.52	-170.1	-226.1	316.6	297.7	18.87	16.777	
4,200.0	4,192.0	4,190.2	4,183.3	10.0	9.7	119.46	-176.1	-229.5	322.7	303.4	19.38	16.654	
4,300.0	4,291.8	4,290.1	4,282.9	10.3	9.9	119.40	-182.2	-232.8	328.9	309.0	19.89	16.537	
4,400.0	4,391.6	4,389.9	4,382.4	10.6	10.2	119.34	-188.3	-236.2	335.0	314.7	20.40	16.426	
4,500.0	4,491.3	4,489.7	4,482.0	10.8	10.4	119.28	-194.4	-239.6	341.2	320.3	20.91	16.320	
4,600.0	4,591.1	4,589.5	4,581.6	11.1	10.7	119.23	-200.5	-243.0	347.4	325.9	21.42	16.219	
4,700.0	4,690.8	4,689.3	4,681.1	11.4	11.0	119.17	-206.6	-246.4	353.5	331.6	21.93	16.122	
4,800.0	4,790.6	4,789.1	4,780.7	11.6	11.2	119.12	-212.6	-249.8	359.7	337.2	22.44	16.029	
4,900.0	4,890.3	4,888.9	4,880.3	11.9	11.5	119.07	-218.7	-253.2	365.8	342.9	22.95	15.940	
5,000.0	4,990.1	4,988.7	4,979.8	12.1	11.7	119.02	-224.8	-256.5	372.0	348.5	23.46	15.855	
5,100.0	5,089.9	5,088.5	5,079.4	12.4	12.0	118.98	-230.9	-259.9	378.1	354.2	23.97	15.774	

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 #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-1505A - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.6	5,188.3	5,179.0	12.7	12.3	118.93	-237.0	-263.3	384.3	359.8	24.48	15.695	
5,300.0	5,289.4	5,288.2	5,278.5	12.9	12.5	118.89	-243.1	-266.7	390.4	365.4	25.00	15.620	
5,400.0	5,389.1	5,388.0	5,378.1	13.2	12.8	118.85	-249.1	-270.1	396.6	371.1	25.51	15.547	
5,500.0	5,488.5	5,475.7	5,465.4	13.5	13.0	118.36	-255.7	-273.8	405.2	379.2	25.96	15.610	
5,600.0	5,584.4	5,550.0	5,538.0	13.9	13.3	116.72	-269.6	-281.5	427.1	400.7	26.40	16.178	
5,700.0	5,673.2	5,620.3	5,603.9	14.6	13.7	113.91	-290.9	-293.3	462.4	435.4	27.02	17.115	
5,800.0	5,751.6	5,685.9	5,661.9	15.4	14.1	109.88	-317.6	-308.2	509.4	481.4	27.99	18.198	
5,900.0	5,816.8	5,750.0	5,714.4	16.5	14.5	104.70	-349.6	-326.0	565.9	536.4	29.56	19.147	
6,000.0	5,866.5	5,800.0	5,752.0	17.7	15.0	97.91	-378.4	-342.0	629.7	598.2	31.55	19.962	
6,100.0	5,898.6	5,850.0	5,786.3	19.2	15.4	90.19	-410.1	-359.7	698.8	665.1	33.68	20.747	
6,200.0	5,912.1	5,894.0	5,813.5	20.7	15.9	81.67	-440.4	-376.5	771.0	735.5	35.50	21.717	
6,300.0	5,912.6	5,937.5	5,837.4	22.3	16.4	82.53	-472.1	-394.2	844.1	806.4	37.78	22.346	
6,400.0	5,912.6	5,988.8	5,861.6	23.7	17.0	85.45	-511.6	-416.2	916.3	876.1	40.15	22.820	
6,500.0	5,912.6	6,050.0	5,884.4	25.2	17.8	87.75	-561.2	-443.8	986.4	943.8	42.60	23.156	
6,600.0	5,912.6	6,117.2	5,901.7	26.8	18.8	89.21	-617.9	-475.4	1,053.7	1,008.5	45.13	23.346	
6,700.0	5,912.5	6,192.9	5,910.9	28.4	19.9	89.89	-683.5	-511.8	1,117.3	1,069.5	47.81	23.369	
6,800.0	5,912.5	6,359.9	5,911.5	29.9	22.3	89.94	-831.9	-588.5	1,174.9	1,123.3	51.59	22.774	
6,900.0	5,912.5	6,601.3	5,911.5	31.5	25.8	89.95	-1,056.7	-675.9	1,218.4	1,161.8	56.57	21.539	
7,000.0	5,912.5	6,873.4	5,911.6	33.1	29.9	89.95	-1,321.0	-739.6	1,244.3	1,181.9	62.40	19.940	
7,100.0	5,912.5	7,161.4	5,911.6	34.7	34.3	89.96	-1,607.6	-765.3	1,253.3	1,184.7	68.60	18.270	
7,200.0	5,912.5	7,279.4	5,911.6	36.4	36.2	89.96	-1,725.5	-765.5	1,253.4	1,181.1	72.27	17.344	
7,300.0	5,912.5	7,379.4	5,911.6	38.0	37.8	89.96	-1,825.5	-765.5	1,253.4	1,177.7	75.70	16.558	
7,400.0	5,912.5	7,479.4	5,911.6	39.8	39.4	89.96	-1,925.5	-765.5	1,253.4	1,174.2	79.17	15.832	
7,500.0	5,912.5	7,579.4	5,911.6	41.5	41.0	89.96	-2,025.5	-765.5	1,253.4	1,170.7	82.67	15.161	
7,600.0	5,912.5	7,679.4	5,911.6	43.2	42.7	89.96	-2,125.5	-765.5	1,253.4	1,167.2	86.21	14.540	
7,700.0	5,912.5	7,779.4	5,911.6	45.0	44.4	89.96	-2,225.5	-765.6	1,253.4	1,163.7	89.77	13.963	
7,800.0	5,912.5	7,879.4	5,911.6	46.8	46.1	89.96	-2,325.5	-765.6	1,253.4	1,160.1	93.35	13.427	
7,900.0	5,912.5	7,979.4	5,911.6	48.6	47.8	89.96	-2,425.5	-765.6	1,253.4	1,156.5	96.96	12.928	
8,000.0	5,912.5	8,079.4	5,911.6	50.4	49.5	89.96	-2,525.5	-765.6	1,253.5	1,152.9	100.58	12.462	
8,100.0	5,912.4	8,179.4	5,911.6	52.2	51.3	89.96	-2,625.5	-765.6	1,253.5	1,149.2	104.22	12.027	
8,200.0	5,912.4	8,279.4	5,911.6	54.0	53.1	89.96	-2,725.5	-765.6	1,253.5	1,145.6	107.88	11.619	
8,300.0	5,912.4	8,379.4	5,911.7	55.8	54.8	89.96	-2,825.5	-765.6	1,253.5	1,141.9	111.54	11.238	
8,400.0	5,912.4	8,479.4	5,911.7	57.6	56.6	89.97	-2,925.5	-765.6	1,253.5	1,138.3	115.22	10.879	
8,500.0	5,912.4	8,579.4	5,911.7	59.5	58.4	89.97	-3,025.5	-765.6	1,253.5	1,134.6	118.91	10.541	
8,600.0	5,912.4	8,679.4	5,911.7	61.3	60.2	89.97	-3,125.5	-765.6	1,253.5	1,130.9	122.61	10.223	
8,700.0	5,912.4	8,779.4	5,911.7	63.1	62.0	89.97	-3,225.5	-765.6	1,253.5	1,127.2	126.32	9.923	
8,800.0	5,912.4	8,879.4	5,911.7	65.0	63.8	89.97	-3,325.5	-765.6	1,253.5	1,123.5	130.04	9.640	
8,900.0	5,912.4	8,979.4	5,911.7	66.8	65.6	89.97	-3,425.5	-765.6	1,253.5	1,119.7	133.76	9.371	
9,000.0	5,912.4	9,079.4	5,911.7	68.7	67.5	89.97	-3,525.5	-765.6	1,253.5	1,116.0	137.49	9.117	
9,100.0	5,912.4	9,179.4	5,911.7	70.6	69.3	89.97	-3,625.5	-765.6	1,253.5	1,112.3	141.23	8.876	
9,200.0	5,912.4	9,279.4	5,911.7	72.4	71.1	89.97	-3,725.5	-765.6	1,253.5	1,108.6	144.97	8.647	
9,300.0	5,912.4	9,379.4	5,911.7	74.3	73.0	89.97	-3,825.5	-765.6	1,253.5	1,104.8	148.72	8.429	
9,400.0	5,912.3	9,479.4	5,911.7	76.1	74.8	89.97	-3,925.5	-765.6	1,253.5	1,101.1	152.47	8.222	
9,500.0	5,912.3	9,579.4	5,911.7	78.0	76.7	89.97	-4,025.5	-765.6	1,253.5	1,097.3	156.23	8.024	
9,600.0	5,912.3	9,679.4	5,911.7	79.9	78.5	89.97	-4,125.5	-765.6	1,253.5	1,093.6	159.99	7.835	
9,700.0	5,912.3	9,779.4	5,911.7	81.8	80.4	89.97	-4,225.5	-765.6	1,253.5	1,089.8	163.75	7.655	
9,800.0	5,912.3	9,879.4	5,911.8	83.6	82.2	89.97	-4,325.5	-765.6	1,253.6	1,086.0	167.52	7.483	
9,900.0	5,912.3	9,979.4	5,911.8	85.5	84.1	89.98	-4,425.5	-765.6	1,253.6	1,082.3	171.29	7.318	
10,000.0	5,912.3	10,079.4	5,911.8	87.4	86.0	89.98	-4,525.5	-765.6	1,253.6	1,078.5	175.07	7.160	
10,100.0	5,912.3	10,179.4	5,911.8	89.3	87.8	89.98	-4,625.5	-765.6	1,253.6	1,074.7	178.85	7.009	
10,200.0	5,912.3	10,279.4	5,911.8	91.2	89.7	89.98	-4,725.5	-765.6	1,253.6	1,071.0	182.63	6.864	
10,300.0	5,912.3	10,379.4	5,911.8	93.1	91.6	89.98	-4,825.5	-765.6	1,253.6	1,067.2	186.41	6.725	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-1505A - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
10,400.0	5,912.3	10,479.4	5,911.8	94.9	93.4	89.98	-4,925.5	-765.6	1,253.6	1,063.4	190.20	6.591	
10,500.0	5,912.3	10,579.4	5,911.8	96.8	95.3	89.98	-5,025.5	-765.6	1,253.6	1,059.6	193.98	6.462	
10,600.0	5,912.3	10,679.4	5,911.8	98.7	97.2	89.98	-5,125.5	-765.6	1,253.6	1,055.8	197.77	6.339	
10,700.0	5,912.2	10,779.4	5,911.8	100.6	99.1	89.98	-5,225.5	-765.6	1,253.6	1,052.0	201.57	6.219	
10,800.0	5,912.2	10,879.4	5,911.8	102.5	100.9	89.98	-5,325.5	-765.6	1,253.6	1,048.3	205.36	6.104	
10,900.0	5,912.2	10,979.4	5,911.8	104.4	102.8	89.98	-5,425.5	-765.6	1,253.6	1,044.5	209.16	5.994	
11,000.0	5,912.2	11,079.4	5,911.8	106.3	104.7	89.98	-5,525.5	-765.6	1,253.6	1,040.7	212.96	5.887	
11,100.0	5,912.2	11,179.4	5,911.8	108.2	106.6	89.98	-5,625.5	-765.6	1,253.6	1,036.9	216.75	5.784	
11,200.0	5,912.2	11,279.4	5,911.8	110.1	108.5	89.98	-5,725.5	-765.6	1,253.6	1,033.1	220.56	5.684	
11,300.0	5,912.2	11,379.4	5,911.9	112.0	110.4	89.98	-5,825.5	-765.6	1,253.6	1,029.3	224.36	5.588	
11,400.0	5,912.2	11,479.4	5,911.9	113.9	112.3	89.98	-5,925.5	-765.6	1,253.6	1,025.5	228.16	5.495	
11,500.0	5,912.2	11,579.4	5,911.9	115.8	114.2	89.99	-6,025.5	-765.6	1,253.7	1,021.7	231.97	5.404	
11,600.0	5,912.2	11,679.4	5,911.9	117.7	116.0	89.99	-6,125.5	-765.6	1,253.7	1,017.9	235.77	5.317	
11,700.0	5,912.2	11,779.4	5,911.9	119.6	117.9	89.99	-6,225.5	-765.6	1,253.7	1,014.1	239.58	5.233	
11,800.0	5,912.2	11,879.4	5,911.9	121.5	119.8	89.99	-6,325.5	-765.6	1,253.7	1,010.3	243.39	5.151	
11,900.0	5,912.1	11,979.4	5,911.9	123.4	121.7	89.99	-6,425.5	-765.6	1,253.7	1,006.5	247.20	5.071	
12,000.0	5,912.1	12,079.4	5,911.9	125.3	123.6	89.99	-6,525.5	-765.6	1,253.7	1,002.7	251.01	4.995	
12,100.0	5,912.1	12,179.4	5,911.9	127.2	125.5	89.99	-6,625.5	-765.6	1,253.7	998.9	254.82	4.920	
12,200.0	5,912.1	12,279.4	5,911.9	129.1	127.4	89.99	-6,725.5	-765.6	1,253.7	995.1	258.64	4.847	
12,300.0	5,912.1	12,379.4	5,911.9	131.0	129.3	89.99	-6,825.5	-765.6	1,253.7	991.2	262.45	4.777	
12,400.0	5,912.1	12,479.4	5,911.9	132.9	131.2	89.99	-6,925.5	-765.6	1,253.7	987.4	266.26	4.708	
12,500.0	5,912.1	12,579.4	5,911.9	134.8	133.1	89.99	-7,025.5	-765.6	1,253.7	983.6	270.08	4.642	
12,600.0	5,912.1	12,679.4	5,911.9	136.7	135.0	89.99	-7,125.5	-765.6	1,253.7	979.8	273.90	4.577	
12,700.0	5,912.1	12,779.4	5,911.9	138.6	136.9	89.99	-7,225.5	-765.6	1,253.7	976.0	277.71	4.514	
12,800.0	5,912.1	12,879.4	5,912.0	140.5	138.8	89.99	-7,325.5	-765.6	1,253.7	972.2	281.53	4.453	
12,900.0	5,912.1	12,979.4	5,912.0	142.4	140.7	89.99	-7,425.5	-765.6	1,253.7	968.4	285.35	4.394	
13,000.0	5,912.1	13,079.4	5,912.0	144.3	142.6	90.00	-7,525.5	-765.6	1,253.7	964.6	289.17	4.336	
13,100.0	5,912.1	13,179.4	5,912.0	146.3	144.5	90.00	-7,625.5	-765.6	1,253.7	960.8	292.99	4.279	
13,200.0	5,912.0	13,279.4	5,912.0	148.2	146.4	90.00	-7,725.5	-765.6	1,253.7	956.9	296.81	4.224	
13,300.0	5,912.0	13,379.4	5,912.0	150.1	148.3	90.00	-7,825.5	-765.6	1,253.8	953.1	300.63	4.170	
13,400.0	5,912.0	13,479.4	5,912.0	152.0	150.2	90.00	-7,925.5	-765.6	1,253.8	949.3	304.45	4.118	
13,500.0	5,912.0	13,579.4	5,912.0	153.9	152.1	90.00	-8,025.5	-765.6	1,253.8	945.5	308.27	4.067	
13,600.0	5,912.0	13,679.4	5,912.0	155.8	154.0	90.00	-8,125.5	-765.6	1,253.8	941.7	312.10	4.017	
13,671.4	5,912.0	13,750.8	5,912.0	157.2	155.4	90.00	-8,197.0	-765.6	1,253.8	938.9	314.83	3.982	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-1506B - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	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	525.988	
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-98.4	98.4	97.7	0.64	154.528	
300.0	300.0	300.0	300.0	0.5	0.5	-89.99	0.0	-98.4	98.4	97.3	1.09	90.568	
400.0	400.0	400.0	400.0	0.8	0.8	-89.99	0.0	-98.4	98.4	96.8	1.54	64.055	
500.0	500.0	500.0	500.0	1.0	1.0	-89.99	0.0	-98.4	98.4	96.4	1.99	49.550	
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	CC, ES
900.0	900.0	900.0	900.0	1.9	1.9	114.28	0.0	-98.4	99.1	95.3	3.76	26.378	
1,000.0	999.8	999.8	999.8	2.0	2.1	116.93	0.0	-98.4	101.3	97.2	4.16	24.357	
1,100.0	1,099.6	1,099.6	1,099.6	2.2	2.3	120.33	0.0	-98.4	104.7	100.1	4.58	22.864	
1,200.0	1,199.4	1,198.8	1,198.8	2.5	2.5	122.60	-1.6	-98.9	108.6	103.6	4.98	21.819	
1,300.0	1,299.1	1,298.2	1,298.0	2.7	2.7	122.98	-6.5	-100.4	113.1	107.8	5.37	21.080	
1,400.0	1,398.9	1,398.1	1,397.7	2.9	2.9	122.46	-13.2	-102.5	117.9	112.1	5.78	20.412	
1,500.0	1,498.6	1,497.9	1,497.3	3.1	3.1	121.99	-19.8	-104.6	122.7	116.5	6.20	19.781	
1,600.0	1,598.4	1,597.8	1,596.9	3.4	3.3	121.55	-26.4	-106.8	127.5	120.8	6.64	19.193	
1,700.0	1,698.1	1,697.7	1,696.6	3.6	3.5	121.14	-33.1	-108.9	132.2	125.2	7.09	18.649	
1,800.0	1,797.9	1,797.6	1,796.2	3.9	3.7	120.76	-39.7	-111.0	137.0	129.5	7.55	18.149	
1,900.0	1,897.6	1,897.5	1,895.8	4.1	4.0	120.41	-46.4	-113.1	141.8	133.8	8.02	17.690	
2,000.0	1,997.4	1,997.3	1,995.5	4.4	4.2	120.08	-53.0	-115.2	146.6	138.2	8.49	17.269	
2,100.0	2,097.2	2,097.2	2,095.1	4.6	4.4	119.77	-59.6	-117.3	151.5	142.5	8.97	16.883	
2,200.0	2,196.9	2,197.1	2,194.8	4.9	4.7	119.48	-66.3	-119.4	156.3	146.8	9.46	16.528	
2,300.0	2,296.7	2,297.0	2,294.4	5.1	4.9	119.21	-72.9	-121.5	161.1	151.2	9.94	16.202	
2,400.0	2,396.4	2,396.9	2,394.0	5.4	5.2	118.95	-79.6	-123.6	165.9	155.5	10.43	15.901	
2,500.0	2,496.2	2,496.8	2,493.7	5.6	5.4	118.71	-86.2	-125.7	170.7	159.8	10.93	15.624	
2,600.0	2,595.9	2,596.6	2,593.3	5.9	5.7	118.48	-92.8	-127.8	175.6	164.2	11.43	15.368	
2,700.0	2,695.7	2,696.5	2,692.9	6.1	5.9	118.26	-99.5	-129.9	180.4	168.5	11.92	15.130	
2,800.0	2,795.5	2,796.4	2,792.6	6.4	6.2	118.06	-106.1	-132.0	185.2	172.8	12.42	14.909	
2,900.0	2,895.2	2,896.3	2,892.2	6.7	6.4	117.86	-112.8	-134.1	190.1	177.2	12.93	14.704	
3,000.0	2,995.0	2,996.2	2,991.9	6.9	6.7	117.67	-119.4	-136.2	194.9	181.5	13.43	14.512	
3,100.0	3,094.7	3,096.0	3,091.5	7.2	6.9	117.50	-126.1	-138.4	199.8	185.8	13.94	14.333	
3,200.0	3,194.5	3,195.9	3,191.1	7.4	7.2	117.33	-132.7	-140.5	204.6	190.2	14.44	14.166	
3,300.0	3,294.2	3,295.8	3,290.8	7.7	7.4	117.17	-139.3	-142.6	209.4	194.5	14.95	14.009	
3,400.0	3,394.0	3,395.7	3,390.4	8.0	7.7	117.02	-146.0	-144.7	214.3	198.8	15.46	13.861	
3,500.0	3,493.7	3,495.6	3,490.1	8.2	7.9	116.87	-152.6	-146.8	219.1	203.2	15.97	13.722	
3,600.0	3,593.5	3,595.4	3,589.7	8.5	8.2	116.73	-159.3	-148.9	224.0	207.5	16.48	13.592	
3,700.0	3,693.3	3,695.3	3,689.3	8.7	8.4	116.60	-165.9	-151.0	228.8	211.8	16.99	13.468	
3,800.0	3,793.0	3,795.2	3,789.0	9.0	8.7	116.47	-172.5	-153.1	233.7	216.2	17.50	13.351	
3,900.0	3,892.8	3,895.1	3,888.6	9.3	9.0	116.34	-179.2	-155.2	238.5	220.5	18.02	13.241	
4,000.0	3,992.5	3,995.0	3,988.2	9.5	9.2	116.23	-185.8	-157.3	243.4	224.9	18.53	13.136	
4,100.0	4,092.3	4,094.8	4,087.9	9.8	9.5	116.11	-192.5	-159.4	248.3	229.2	19.04	13.037	
4,200.0	4,192.0	4,194.7	4,187.5	10.0	9.7	116.00	-199.1	-161.5	253.1	233.5	19.56	12.943	
4,300.0	4,291.8	4,294.6	4,287.2	10.3	10.0	115.90	-205.7	-163.6	258.0	237.9	20.07	12.853	
4,400.0	4,391.6	4,394.5	4,386.8	10.6	10.3	115.80	-212.4	-165.7	262.8	242.2	20.58	12.767	
4,500.0	4,491.3	4,494.4	4,486.4	10.8	10.5	115.70	-219.0	-167.9	267.7	246.6	21.10	12.686	
4,600.0	4,591.1	4,594.3	4,586.1	11.1	10.8	115.60	-225.7	-170.0	272.5	250.9	21.62	12.608	
4,700.0	4,690.8	4,694.1	4,685.7	11.4	11.0	115.51	-232.3	-172.1	277.4	255.3	22.13	12.534	
4,800.0	4,790.6	4,794.0	4,785.3	11.6	11.3	115.43	-239.0	-174.2	282.3	259.6	22.65	12.463	
4,900.0	4,890.3	4,893.9	4,885.0	11.9	11.6	115.34	-245.6	-176.3	287.1	264.0	23.16	12.395	
5,000.0	4,990.1	4,993.8	4,984.6	12.1	11.8	115.26	-252.2	-178.4	292.0	268.3	23.68	12.330	
5,100.0	5,089.9	5,093.7	5,084.3	12.4	12.1	115.18	-258.9	-180.5	296.8	272.6	24.20	12.267	

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 #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-1506B - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.6	5,193.5	5,183.9	12.7	12.3	115.10	-265.5	-182.6	301.7	277.0	24.71	12.207	
5,300.0	5,289.4	5,293.4	5,283.5	12.9	12.6	115.03	-272.2	-184.7	306.6	281.3	25.23	12.150	
5,400.0	5,389.1	5,393.3	5,383.2	13.2	12.9	114.96	-278.8	-186.8	311.4	285.7	25.75	12.094	
5,500.0	5,488.5	5,493.0	5,482.6	13.5	13.1	115.02	-285.4	-188.9	317.8	291.6	26.24	12.113	
5,600.0	5,584.4	5,583.9	5,573.1	13.9	13.4	116.17	-293.3	-191.4	332.6	305.9	26.67	12.473	
5,700.0	5,673.2	5,667.8	5,654.6	14.6	13.7	116.14	-312.0	-197.4	359.5	332.4	27.19	13.223	
5,800.0	5,751.6	5,750.0	5,730.3	15.4	14.2	114.70	-342.2	-206.9	397.8	369.8	28.00	14.209	
5,900.0	5,816.8	5,829.5	5,798.0	16.5	14.7	111.86	-381.8	-219.5	445.8	416.4	29.40	15.163	
6,000.0	5,866.5	5,906.2	5,856.6	17.7	15.3	107.71	-429.0	-234.5	501.6	470.2	31.42	15.966	
6,100.0	5,898.6	5,980.7	5,905.9	19.2	16.1	102.43	-482.1	-251.3	563.4	529.4	33.98	16.579	
6,200.0	5,912.1	6,054.0	5,946.2	20.7	16.9	96.31	-540.4	-269.8	629.4	592.6	36.83	17.091	
6,300.0	5,912.6	6,131.9	5,979.2	22.3	17.9	97.22	-607.6	-291.1	696.1	656.8	39.35	17.693	
6,400.0	5,912.6	6,223.1	6,003.9	23.7	19.1	98.63	-691.2	-317.6	758.5	716.5	41.98	18.066	
6,500.0	5,912.6	6,326.1	6,013.0	25.2	20.6	98.37	-788.8	-348.6	815.0	769.9	45.09	18.075	
6,600.0	5,912.6	6,481.8	6,013.0	26.8	22.7	97.36	-939.1	-389.2	862.5	813.6	48.90	17.639	
6,700.0	5,912.5	6,654.4	6,013.0	28.4	25.2	96.70	-1,108.9	-419.7	897.6	844.5	53.05	16.921	
6,800.0	5,912.5	6,839.8	6,013.0	29.9	27.9	96.34	-1,293.5	-435.2	918.8	861.3	57.51	15.976	
6,900.0	5,912.5	6,971.9	6,013.0	31.5	30.0	96.23	-1,425.7	-436.4	927.1	865.9	61.24	15.140	
7,000.0	5,912.5	7,071.9	6,013.0	33.1	31.6	96.21	-1,525.6	-436.4	929.7	865.2	64.44	14.427	
7,100.0	5,912.5	7,171.9	6,013.0	34.7	33.3	96.21	-1,625.6	-436.4	929.7	861.9	67.81	13.711	
7,200.0	5,912.5	7,271.9	6,013.0	36.4	35.0	96.21	-1,725.6	-436.4	929.7	858.4	71.25	13.048	
7,300.0	5,912.5	7,371.9	6,013.0	38.0	36.7	96.21	-1,825.6	-436.4	929.7	854.9	74.74	12.439	
7,400.0	5,912.5	7,471.9	6,013.0	39.8	38.4	96.21	-1,925.6	-436.4	929.7	851.4	78.25	11.880	
7,500.0	5,912.5	7,571.9	6,013.0	41.5	40.2	96.21	-2,025.6	-436.3	929.7	847.9	81.80	11.365	
7,600.0	5,912.5	7,671.9	6,013.0	43.2	42.0	96.21	-2,125.6	-436.3	929.7	844.3	85.37	10.890	
7,700.0	5,912.5	7,771.9	6,013.0	45.0	43.8	96.21	-2,225.6	-436.3	929.7	840.7	88.96	10.450	
7,800.0	5,912.5	7,871.9	6,013.0	46.8	45.5	96.21	-2,325.6	-436.3	929.7	837.1	92.57	10.043	
7,900.0	5,912.5	7,971.9	6,013.0	48.6	47.4	96.21	-2,425.6	-436.3	929.7	833.5	96.20	9.664	
8,000.0	5,912.5	8,071.9	6,013.0	50.4	49.2	96.21	-2,525.6	-436.3	929.7	829.8	99.84	9.311	
8,100.0	5,912.4	8,171.9	6,013.0	52.2	51.0	96.21	-2,625.6	-436.3	929.7	826.2	103.50	8.983	
8,200.0	5,912.4	8,271.9	6,013.0	54.0	52.8	96.21	-2,725.6	-436.3	929.7	822.5	107.16	8.675	
8,300.0	5,912.4	8,371.9	6,013.0	55.8	54.7	96.21	-2,825.6	-436.3	929.7	818.8	110.84	8.387	
8,400.0	5,912.4	8,471.9	6,013.0	57.6	56.5	96.21	-2,925.6	-436.3	929.6	815.1	114.53	8.117	
8,500.0	5,912.4	8,571.9	6,013.0	59.5	58.3	96.21	-3,025.6	-436.3	929.6	811.4	118.23	7.863	
8,600.0	5,912.4	8,671.9	6,013.0	61.3	60.2	96.21	-3,125.6	-436.3	929.6	807.7	121.93	7.624	
8,700.0	5,912.4	8,771.9	6,013.0	63.1	62.1	96.21	-3,225.6	-436.3	929.6	804.0	125.65	7.399	
8,800.0	5,912.4	8,871.9	6,013.0	65.0	63.9	96.22	-3,325.6	-436.2	929.6	800.3	129.36	7.186	
8,900.0	5,912.4	8,971.9	6,013.0	66.8	65.8	96.22	-3,425.6	-436.2	929.6	796.5	133.09	6.985	
9,000.0	5,912.4	9,071.9	6,013.0	68.7	67.6	96.22	-3,525.6	-436.2	929.6	792.8	136.82	6.795	
9,100.0	5,912.4	9,171.9	6,013.0	70.6	69.5	96.22	-3,625.6	-436.2	929.6	789.1	140.56	6.614	
9,200.0	5,912.4	9,271.9	6,013.0	72.4	71.4	96.22	-3,725.6	-436.2	929.6	785.3	144.30	6.442	
9,300.0	5,912.4	9,371.9	6,013.0	74.3	73.3	96.22	-3,825.6	-436.2	929.6	781.6	148.04	6.280	
9,400.0	5,912.3	9,471.9	6,013.0	76.1	75.1	96.22	-3,925.6	-436.2	929.6	777.8	151.79	6.124	
9,500.0	5,912.3	9,571.9	6,013.0	78.0	77.0	96.22	-4,025.6	-436.2	929.6	774.1	155.54	5.977	
9,600.0	5,912.3	9,671.9	6,013.0	79.9	78.9	96.22	-4,125.6	-436.2	929.6	770.3	159.30	5.836	
9,700.0	5,912.3	9,771.9	6,013.0	81.8	80.8	96.22	-4,225.6	-436.2	929.6	766.6	163.06	5.701	
9,800.0	5,912.3	9,871.9	6,013.0	83.6	82.7	96.22	-4,325.6	-436.2	929.6	762.8	166.82	5.573	
9,900.0	5,912.3	9,971.9	6,013.0	85.5	84.6	96.22	-4,425.6	-436.2	929.6	759.0	170.58	5.450	
10,000.0	5,912.3	10,071.9	6,013.0	87.4	86.4	96.22	-4,525.6	-436.2	929.6	755.3	174.35	5.332	
10,100.0	5,912.3	10,171.9	6,013.0	89.3	88.3	96.22	-4,625.6	-436.1	929.6	751.5	178.12	5.219	
10,200.0	5,912.3	10,271.9	6,013.0	91.2	90.2	96.22	-4,725.6	-436.1	929.6	747.7	181.89	5.111	
10,300.0	5,912.3	10,371.9	6,013.0	93.1	92.1	96.22	-4,825.6	-436.1	929.6	743.9	185.67	5.007	

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 #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-1506B - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
10,400.0	5,912.3	10,471.9	6,013.0	94.9	94.0	96.22	-4,925.6	-436.1	929.6	740.1	189.44	4.907	
10,500.0	5,912.3	10,571.9	6,013.0	96.8	95.9	96.22	-5,025.6	-436.1	929.6	736.4	193.22	4.811	
10,600.0	5,912.3	10,671.9	6,013.0	98.7	97.8	96.22	-5,125.6	-436.1	929.6	732.6	197.00	4.719	
10,700.0	5,912.2	10,771.9	6,013.0	100.6	99.7	96.22	-5,225.6	-436.1	929.6	728.8	200.78	4.630	
10,800.0	5,912.2	10,871.9	6,013.0	102.5	101.6	96.22	-5,325.6	-436.1	929.6	725.0	204.57	4.544	
10,900.0	5,912.2	10,971.9	6,013.0	104.4	103.5	96.23	-5,425.6	-436.1	929.6	721.2	208.35	4.462	
11,000.0	5,912.2	11,071.9	6,013.0	106.3	105.4	96.23	-5,525.6	-436.1	929.6	717.4	212.14	4.382	
11,100.0	5,912.2	11,171.9	6,013.0	108.2	107.3	96.23	-5,625.6	-436.1	929.6	713.6	215.93	4.305	
11,200.0	5,912.2	11,271.9	6,013.0	110.1	109.2	96.23	-5,725.6	-436.1	929.6	709.9	219.72	4.231	
11,300.0	5,912.2	11,371.9	6,013.0	112.0	111.1	96.23	-5,825.6	-436.0	929.6	706.1	223.51	4.159	
11,400.0	5,912.2	11,471.9	6,013.0	113.9	113.0	96.23	-5,925.6	-436.0	929.6	702.3	227.30	4.090	
11,500.0	5,912.2	11,571.9	6,013.0	115.8	114.9	96.23	-6,025.6	-436.0	929.6	698.5	231.09	4.023	
11,600.0	5,912.2	11,671.9	6,013.0	117.7	116.8	96.23	-6,125.6	-436.0	929.6	694.7	234.88	3.958	
11,700.0	5,912.2	11,771.9	6,013.0	119.6	118.7	96.23	-6,225.6	-436.0	929.6	690.9	238.68	3.895	
11,800.0	5,912.2	11,871.9	6,013.0	121.5	120.6	96.23	-6,325.6	-436.0	929.6	687.1	242.47	3.834	
11,900.0	5,912.1	11,971.9	6,013.0	123.4	122.5	96.23	-6,425.6	-436.0	929.6	683.3	246.27	3.775	
12,000.0	5,912.1	12,071.9	6,013.0	125.3	124.4	96.23	-6,525.6	-436.0	929.5	679.5	250.06	3.717	
12,100.0	5,912.1	12,171.9	6,013.0	127.2	126.3	96.23	-6,625.6	-436.0	929.5	675.7	253.86	3.662	
12,200.0	5,912.1	12,271.9	6,013.0	129.1	128.2	96.23	-6,725.6	-436.0	929.5	671.9	257.66	3.608	
12,300.0	5,912.1	12,371.9	6,013.0	131.0	130.1	96.23	-6,825.6	-436.0	929.5	668.1	261.46	3.555	
12,400.0	5,912.1	12,471.9	6,013.0	132.9	132.1	96.23	-6,925.6	-436.0	929.5	664.3	265.26	3.504	
12,500.0	5,912.1	12,571.9	6,013.0	134.8	134.0	96.23	-7,025.6	-436.0	929.5	660.5	269.06	3.455	
12,600.0	5,912.1	12,671.9	6,013.0	136.7	135.9	96.23	-7,125.6	-435.9	929.5	656.7	272.86	3.407	
12,700.0	5,912.1	12,771.9	6,013.0	138.6	137.8	96.23	-7,225.6	-435.9	929.5	652.9	276.66	3.360	
12,800.0	5,912.1	12,871.9	6,013.0	140.5	139.7	96.23	-7,325.6	-435.9	929.5	649.1	280.47	3.314	
12,900.0	5,912.1	12,971.9	6,013.0	142.4	141.6	96.23	-7,425.6	-435.9	929.5	645.3	284.27	3.270	
13,000.0	5,912.1	13,071.9	6,013.0	144.3	143.5	96.23	-7,525.6	-435.9	929.5	641.4	288.07	3.227	
13,100.0	5,912.1	13,171.9	6,013.0	146.3	145.4	96.24	-7,625.6	-435.9	929.5	637.6	291.88	3.185	
13,200.0	5,912.0	13,271.9	6,013.0	148.2	147.3	96.24	-7,725.6	-435.9	929.5	633.8	295.68	3.144	
13,300.0	5,912.0	13,371.9	6,013.0	150.1	149.2	96.24	-7,825.6	-435.9	929.5	630.0	299.49	3.104	
13,400.0	5,912.0	13,471.9	6,013.0	152.0	151.1	96.24	-7,925.6	-435.9	929.5	626.2	303.29	3.065	
13,500.0	5,912.0	13,571.9	6,013.0	153.9	153.1	96.24	-8,025.6	-435.9	929.5	622.4	307.10	3.027	
13,600.0	5,912.0	13,671.9	6,013.0	155.8	155.0	96.24	-8,125.6	-435.9	929.5	618.6	310.91	2.990	
13,671.4	5,912.0	13,743.3	6,013.0	157.2	156.2	96.24	-8,197.1	-435.9	929.5	616.0	313.47	2.965	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-1507A - HZ - Plan #1 — **Offset Site Error:** 0.0 ft

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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	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	353.398	
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-66.1	66.1	65.5	0.64	103.823	
300.0	300.0	300.0	300.0	0.5	0.5	-89.99	0.0	-66.1	66.1	65.0	1.09	60.850	
400.0	400.0	400.0	400.0	0.8	0.8	-89.99	0.0	-66.1	66.1	64.6	1.54	43.037	
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	
600.0	600.0	600.0	600.0	1.2	1.2	-89.99	0.0	-66.1	66.1	63.7	2.43	27.144	
700.0	700.0	700.0	700.0	1.4	1.4	-89.99	0.0	-66.1	66.1	63.2	2.88	22.914	
800.0	800.0	800.0	800.0	1.7	1.7	-89.99	0.0	-66.1	66.1	62.8	3.33	19.824	CC, ES
900.0	900.0	900.0	900.0	1.9	1.9	114.72	0.0	-66.1	66.8	63.0	3.76	17.786	
1,000.0	999.8	999.8	999.8	2.0	2.1	118.62	0.0	-66.1	69.2	65.0	4.16	16.623	
1,100.0	1,099.6	1,099.9	1,099.9	2.2	2.3	122.09	-1.7	-66.2	72.5	68.0	4.55	15.947	
1,200.0	1,199.4	1,200.1	1,200.0	2.5	2.5	122.63	-7.0	-66.4	75.7	70.8	4.93	15.355	
1,300.0	1,299.1	1,300.1	1,299.7	2.7	2.7	121.86	-13.9	-66.7	78.6	73.3	5.33	14.746	
1,400.0	1,398.9	1,400.0	1,399.4	2.9	2.9	121.15	-20.9	-67.0	81.6	75.9	5.76	14.177	
1,500.0	1,498.6	1,500.0	1,499.1	3.1	3.1	120.49	-27.9	-67.3	84.6	78.4	6.20	13.654	
1,600.0	1,598.4	1,599.9	1,598.8	3.4	3.3	119.87	-34.8	-67.6	87.6	80.9	6.65	13.177	
1,700.0	1,698.1	1,699.9	1,698.5	3.6	3.5	119.29	-41.8	-68.0	90.6	83.5	7.11	12.743	
1,800.0	1,797.9	1,799.8	1,798.2	3.9	3.8	118.75	-48.8	-68.3	93.6	86.0	7.58	12.350	
1,900.0	1,897.6	1,899.8	1,897.9	4.1	4.0	118.25	-55.7	-68.6	96.6	88.5	8.05	11.992	
2,000.0	1,997.4	1,999.7	1,997.6	4.4	4.2	117.77	-62.7	-68.9	99.6	91.1	8.54	11.668	
2,100.0	2,097.2	2,099.7	2,097.3	4.6	4.5	117.32	-69.7	-69.2	102.6	93.6	9.02	11.373	
2,200.0	2,196.9	2,199.6	2,197.0	4.9	4.7	116.90	-76.6	-69.5	105.7	96.1	9.52	11.103	
2,300.0	2,296.7	2,299.6	2,296.8	5.1	5.0	116.50	-83.6	-69.8	108.7	98.7	10.01	10.857	
2,400.0	2,396.4	2,399.5	2,396.5	5.4	5.2	116.13	-90.5	-70.1	111.7	101.2	10.51	10.632	
2,500.0	2,496.2	2,499.5	2,496.2	5.6	5.5	115.77	-97.5	-70.4	114.8	103.8	11.01	10.424	
2,600.0	2,595.9	2,599.5	2,595.9	5.9	5.7	115.43	-104.5	-70.8	117.8	106.3	11.52	10.234	
2,700.0	2,695.7	2,699.4	2,695.6	6.1	6.0	115.11	-111.4	-71.1	120.9	108.9	12.02	10.057	
2,800.0	2,795.5	2,799.4	2,795.3	6.4	6.2	114.81	-118.4	-71.4	124.0	111.4	12.53	9.894	
2,900.0	2,895.2	2,899.3	2,895.0	6.7	6.5	114.52	-125.4	-71.7	127.0	114.0	13.04	9.743	
3,000.0	2,995.0	2,999.3	2,994.7	6.9	6.7	114.24	-132.3	-72.0	130.1	116.5	13.55	9.602	
3,100.0	3,094.7	3,099.2	3,094.4	7.2	7.0	113.98	-139.3	-72.3	133.2	119.1	14.06	9.471	
3,200.0	3,194.5	3,199.2	3,194.1	7.4	7.2	113.72	-146.3	-72.6	136.2	121.7	14.57	9.348	
3,300.0	3,294.2	3,299.1	3,293.8	7.7	7.5	113.48	-153.2	-72.9	139.3	124.2	15.09	9.233	
3,400.0	3,394.0	3,399.1	3,393.5	8.0	7.7	113.25	-160.2	-73.3	142.4	126.8	15.60	9.126	
3,500.0	3,493.7	3,499.0	3,493.2	8.2	8.0	113.03	-167.2	-73.6	145.5	129.3	16.12	9.025	
3,600.0	3,593.5	3,599.0	3,593.0	8.5	8.3	112.82	-174.1	-73.9	148.5	131.9	16.63	8.930	
3,700.0	3,693.3	3,698.9	3,692.7	8.7	8.5	112.62	-181.1	-74.2	151.6	134.5	17.15	8.840	
3,800.0	3,793.0	3,798.9	3,792.4	9.0	8.8	112.42	-188.1	-74.5	154.7	137.0	17.67	8.756	
3,900.0	3,892.8	3,898.8	3,892.1	9.3	9.0	112.23	-195.0	-74.8	157.8	139.6	18.19	8.676	
4,000.0	3,992.5	3,998.8	3,991.8	9.5	9.3	112.05	-202.0	-75.1	160.9	142.2	18.70	8.601	
4,100.0	4,092.3	4,098.7	4,091.5	9.8	9.6	111.88	-209.0	-75.4	164.0	144.7	19.22	8.529	
4,200.0	4,192.0	4,198.7	4,191.2	10.0	9.8	111.71	-215.9	-75.7	167.0	147.3	19.74	8.461	
4,300.0	4,291.8	4,298.6	4,290.9	10.3	10.1	111.55	-222.9	-76.1	170.1	149.9	20.26	8.397	
4,400.0	4,391.6	4,398.6	4,390.6	10.6	10.3	111.40	-229.9	-76.4	173.2	152.4	20.78	8.335	
4,500.0	4,491.3	4,498.5	4,490.3	10.8	10.6	111.25	-236.8	-76.7	176.3	155.0	21.30	8.277	
4,600.0	4,591.1	4,598.5	4,590.0	11.1	10.9	111.10	-243.8	-77.0	179.4	157.6	21.82	8.221	
4,700.0	4,690.8	4,698.4	4,689.7	11.4	11.1	110.96	-250.7	-77.3	182.5	160.2	22.35	8.168	
4,800.0	4,790.6	4,798.4	4,789.4	11.6	11.4	110.83	-257.7	-77.6	185.6	162.7	22.87	8.117	
4,900.0	4,890.3	4,898.3	4,889.2	11.9	11.6	110.70	-264.7	-77.9	188.7	165.3	23.39	8.068	
5,000.0	4,990.1	4,998.3	4,988.9	12.1	11.9	110.57	-271.6	-78.2	191.8	167.9	23.91	8.022	
5,100.0	5,089.9	5,098.2	5,088.6	12.4	12.2	110.45	-278.6	-78.5	194.9	170.5	24.43	7.977	

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 #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-1507A - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.6	5,198.2	5,188.3	12.7	12.4	110.33	-285.6	-78.9	198.0	173.1	24.96	7.935	
5,300.0	5,289.4	5,298.1	5,288.0	12.9	12.7	110.22	-292.5	-79.2	201.1	175.6	25.48	7.894	
5,400.0	5,389.1	5,398.1	5,387.7	13.2	13.0	110.10	-299.5	-79.5	204.2	178.2	26.00	7.854	
5,500.0	5,488.5	5,495.6	5,484.7	13.5	13.2	109.66	-309.5	-79.9	208.9	182.3	26.55	7.869	
5,600.0	5,584.4	5,590.8	5,576.2	13.9	13.7	108.28	-335.0	-81.1	221.2	193.9	27.29	8.102	
5,700.0	5,673.2	5,684.5	5,660.3	14.6	14.2	106.15	-375.9	-82.9	241.2	212.9	28.34	8.511	
5,800.0	5,751.6	5,776.2	5,734.3	15.4	14.9	103.45	-429.9	-85.3	268.2	238.4	29.78	9.006	
5,900.0	5,816.8	5,866.1	5,796.5	16.5	15.8	100.34	-494.5	-88.2	301.1	269.4	31.69	9.499	
6,000.0	5,866.5	5,954.3	5,845.8	17.7	16.8	96.95	-567.5	-91.5	338.6	304.6	34.02	9.954	
6,100.0	5,898.6	6,041.6	5,881.9	19.2	17.9	93.42	-646.8	-95.0	379.5	342.8	36.67	10.350	
6,200.0	5,912.1	6,129.1	5,904.2	20.7	19.1	89.90	-731.2	-98.8	422.4	382.9	39.53	10.686	
6,300.0	5,912.6	6,218.8	5,912.0	22.3	20.4	89.93	-820.3	-102.8	464.5	422.0	42.58	10.909	
6,400.0	5,912.6	6,333.8	5,912.1	23.7	22.0	89.94	-935.3	-104.7	499.4	453.5	45.87	10.887	
6,500.0	5,912.6	6,429.7	5,912.0	25.2	23.5	89.94	-1,031.2	-104.7	527.7	478.7	49.03	10.763	
6,600.0	5,912.6	6,526.9	5,912.0	26.8	25.1	89.95	-1,128.4	-104.7	551.0	498.7	52.30	10.537	
6,700.0	5,912.5	6,625.2	5,912.0	28.4	26.7	89.95	-1,226.7	-104.7	569.2	513.7	55.56	10.245	
6,800.0	5,912.5	6,724.3	5,912.0	29.9	28.4	89.95	-1,325.9	-104.8	582.2	523.5	58.77	9.907	
6,900.0	5,912.5	6,824.0	5,912.0	31.5	30.1	89.95	-1,425.6	-104.8	590.0	528.1	61.90	9.533	
7,000.0	5,912.5	6,924.0	5,912.0	33.1	31.9	89.95	-1,525.5	-104.8	592.6	527.7	64.91	9.130	
7,100.0	5,912.5	7,024.0	5,912.0	34.7	33.6	89.95	-1,625.5	-104.8	592.6	524.3	68.35	8.671	
7,200.0	5,912.5	7,124.0	5,912.0	36.4	35.4	89.95	-1,725.5	-104.8	592.6	520.8	71.87	8.247	
7,300.0	5,912.5	7,224.0	5,912.0	38.0	37.2	89.96	-1,825.5	-104.8	592.7	517.2	75.42	7.859	
7,400.0	5,912.5	7,324.0	5,912.0	39.8	39.0	89.96	-1,925.5	-104.8	592.7	513.7	78.99	7.503	
7,500.0	5,912.5	7,424.0	5,912.0	41.5	40.9	89.96	-2,025.5	-104.8	592.7	510.1	82.59	7.176	
7,600.0	5,912.5	7,524.0	5,912.0	43.2	42.7	89.96	-2,125.5	-104.8	592.7	506.5	86.22	6.875	
7,700.0	5,912.5	7,624.0	5,912.0	45.0	44.5	89.96	-2,225.5	-104.8	592.7	502.9	89.86	6.596	
7,800.0	5,912.5	7,724.0	5,912.0	46.8	46.4	89.96	-2,325.5	-104.8	592.7	499.2	93.51	6.338	
7,900.0	5,912.5	7,824.0	5,912.0	48.6	48.2	89.96	-2,425.5	-104.8	592.7	495.5	97.19	6.099	
8,000.0	5,912.5	7,924.0	5,912.0	50.4	50.1	89.96	-2,525.5	-104.9	592.7	491.9	100.87	5.876	
8,100.0	5,912.4	8,024.0	5,912.0	52.2	51.9	89.96	-2,625.5	-104.9	592.8	488.2	104.57	5.669	
8,200.0	5,912.4	8,124.0	5,912.0	54.0	53.8	89.96	-2,725.5	-104.9	592.8	484.5	108.28	5.475	
8,300.0	5,912.4	8,224.0	5,912.0	55.8	55.7	89.96	-2,825.5	-104.9	592.8	480.8	111.99	5.293	
8,400.0	5,912.4	8,324.0	5,912.0	57.6	57.5	89.96	-2,925.5	-104.9	592.8	477.1	115.72	5.123	
8,500.0	5,912.4	8,424.0	5,912.0	59.5	59.4	89.96	-3,025.5	-104.9	592.8	473.4	119.45	4.963	
8,600.0	5,912.4	8,524.0	5,912.0	61.3	61.3	89.96	-3,125.5	-104.9	592.8	469.6	123.19	4.812	
8,700.0	5,912.4	8,624.0	5,912.0	63.1	63.2	89.97	-3,225.5	-104.9	592.8	465.9	126.93	4.670	
8,800.0	5,912.4	8,724.0	5,912.0	65.0	65.1	89.97	-3,325.5	-104.9	592.8	462.2	130.69	4.536	
8,900.0	5,912.4	8,824.0	5,912.0	66.8	66.9	89.97	-3,425.5	-104.9	592.9	458.4	134.44	4.410	
9,000.0	5,912.4	8,924.0	5,912.0	68.7	68.8	89.97	-3,525.5	-104.9	592.9	454.7	138.20	4.290	
9,100.0	5,912.4	9,024.0	5,912.0	70.6	70.7	89.97	-3,625.5	-104.9	592.9	450.9	141.97	4.176	
9,200.0	5,912.4	9,124.0	5,912.0	72.4	72.6	89.97	-3,725.5	-104.9	592.9	447.2	145.74	4.068	
9,300.0	5,912.4	9,224.0	5,912.0	74.3	74.5	89.97	-3,825.5	-105.0	592.9	443.4	149.51	3.966	
9,400.0	5,912.3	9,324.0	5,912.0	76.1	76.4	89.97	-3,925.5	-105.0	592.9	439.6	153.29	3.868	
9,500.0	5,912.3	9,424.0	5,912.0	78.0	78.3	89.97	-4,025.5	-105.0	592.9	435.9	157.07	3.775	
9,600.0	5,912.3	9,524.0	5,912.0	79.9	80.2	89.97	-4,125.5	-105.0	592.9	432.1	160.85	3.686	
9,700.0	5,912.3	9,624.0	5,912.0	81.8	82.1	89.97	-4,225.5	-105.0	593.0	428.3	164.64	3.602	
9,800.0	5,912.3	9,724.0	5,912.0	83.6	84.0	89.97	-4,325.5	-105.0	593.0	424.5	168.43	3.521	
9,900.0	5,912.3	9,824.0	5,912.0	85.5	85.9	89.97	-4,425.5	-105.0	593.0	420.8	172.22	3.443	
10,000.0	5,912.3	9,924.0	5,912.0	87.4	87.8	89.97	-4,525.5	-105.0	593.0	417.0	176.01	3.369	
10,100.0	5,912.3	10,024.0	5,912.0	89.3	89.7	89.98	-4,625.5	-105.0	593.0	413.2	179.81	3.298	
10,200.0	5,912.3	10,124.0	5,912.0	91.2	91.6	89.98	-4,725.5	-105.0	593.0	409.4	183.61	3.230	
10,300.0	5,912.3	10,224.0	5,912.0	93.1	93.5	89.98	-4,825.5	-105.0	593.0	405.6	187.41	3.164	

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 #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-1507A - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
10,400.0	5,912.3	10,324.0	5,912.0	94.9	95.4	89.98	-4,925.5	-105.0	593.0	401.8	191.21	3.102	
10,500.0	5,912.3	10,424.0	5,912.0	96.8	97.3	89.98	-5,025.5	-105.1	593.1	398.0	195.01	3.041	
10,600.0	5,912.3	10,524.0	5,912.0	98.7	99.2	89.98	-5,125.5	-105.1	593.1	394.3	198.82	2.983	
10,700.0	5,912.2	10,624.0	5,912.0	100.6	101.1	89.98	-5,225.5	-105.1	593.1	390.5	202.62	2.927	
10,800.0	5,912.2	10,724.0	5,912.0	102.5	103.0	89.98	-5,325.5	-105.1	593.1	386.7	206.43	2.873	
10,900.0	5,912.2	10,824.0	5,912.0	104.4	104.9	89.98	-5,425.5	-105.1	593.1	382.9	210.24	2.821	
11,000.0	5,912.2	10,924.0	5,912.0	106.3	106.8	89.98	-5,525.5	-105.1	593.1	379.1	214.05	2.771	
11,100.0	5,912.2	11,024.0	5,912.0	108.2	108.7	89.98	-5,625.5	-105.1	593.1	375.3	217.86	2.723	
11,200.0	5,912.2	11,124.0	5,912.0	110.1	110.6	89.98	-5,725.5	-105.1	593.1	371.5	221.67	2.676	
11,300.0	5,912.2	11,224.0	5,912.0	112.0	112.6	89.98	-5,825.5	-105.1	593.2	367.7	225.48	2.631	
11,400.0	5,912.2	11,324.0	5,912.0	113.9	114.5	89.98	-5,925.5	-105.1	593.2	363.9	229.30	2.587	
11,500.0	5,912.2	11,424.0	5,912.0	115.8	116.4	89.98	-6,025.5	-105.1	593.2	360.1	233.11	2.545	
11,600.0	5,912.2	11,524.0	5,912.0	117.7	118.3	89.99	-6,125.5	-105.1	593.2	356.3	236.93	2.504	
11,700.0	5,912.2	11,624.0	5,912.0	119.6	120.2	89.99	-6,225.5	-105.2	593.2	352.5	240.75	2.464	
11,800.0	5,912.2	11,724.0	5,912.0	121.5	122.1	89.99	-6,325.5	-105.2	593.2	348.7	244.57	2.426	
11,900.0	5,912.1	11,824.0	5,912.0	123.4	124.0	89.99	-6,425.5	-105.2	593.2	344.8	248.38	2.388	
12,000.0	5,912.1	11,924.0	5,912.0	125.3	125.9	89.99	-6,525.5	-105.2	593.2	341.0	252.20	2.352	
12,100.0	5,912.1	12,024.0	5,912.0	127.2	127.8	89.99	-6,625.5	-105.2	593.3	337.2	256.02	2.317	
12,200.0	5,912.1	12,124.0	5,912.0	129.1	129.7	89.99	-6,725.5	-105.2	593.3	333.4	259.84	2.283	
12,300.0	5,912.1	12,224.0	5,912.0	131.0	131.7	89.99	-6,825.5	-105.2	593.3	329.6	263.67	2.250	
12,400.0	5,912.1	12,324.0	5,912.0	132.9	133.6	89.99	-6,925.5	-105.2	593.3	325.8	267.49	2.218	
12,500.0	5,912.1	12,424.0	5,912.0	134.8	135.5	89.99	-7,025.5	-105.2	593.3	322.0	271.31	2.187	
12,600.0	5,912.1	12,524.0	5,912.0	136.7	137.4	89.99	-7,125.5	-105.2	593.3	318.2	275.13	2.156	
12,700.0	5,912.1	12,624.0	5,912.0	138.6	139.3	89.99	-7,225.5	-105.2	593.3	314.4	278.96	2.127	
12,800.0	5,912.1	12,724.0	5,912.0	140.5	141.2	89.99	-7,325.5	-105.2	593.3	310.6	282.78	2.098	
12,900.0	5,912.1	12,824.0	5,912.0	142.4	143.1	89.99	-7,425.5	-105.3	593.4	306.7	286.61	2.070	
13,000.0	5,912.1	12,924.0	5,912.0	144.3	145.1	90.00	-7,525.5	-105.3	593.4	302.9	290.43	2.043	
13,100.0	5,912.1	13,024.0	5,912.0	146.3	147.0	90.00	-7,625.5	-105.3	593.4	299.1	294.26	2.017	
13,200.0	5,912.0	13,124.0	5,912.0	148.2	148.9	90.00	-7,725.5	-105.3	593.4	295.3	298.09	1.991	
13,300.0	5,912.0	13,224.0	5,912.0	150.1	150.8	90.00	-7,825.5	-105.3	593.4	291.5	301.91	1.965	
13,400.0	5,912.0	13,324.0	5,912.0	152.0	152.7	90.00	-7,925.5	-105.3	593.4	287.7	305.74	1.941	
13,500.0	5,912.0	13,424.0	5,912.0	153.9	154.6	90.00	-8,025.5	-105.3	593.4	283.9	309.57	1.917	
13,600.0	5,912.0	13,524.0	5,912.0	155.8	156.5	90.00	-8,125.5	-105.3	593.4	280.0	313.40	1.894	
13,671.4	5,912.0	13,595.4	5,912.0	157.2	157.9	90.00	-8,196.9	-105.3	593.4	277.3	316.13	1.877	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-1508B - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	0.0	-32.3	32.3				
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	0.0	-32.3	32.3	32.1	0.19	172.590	
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-32.3	32.3	31.6	0.64	50.704	
300.0	300.0	300.0	300.0	0.5	0.5	-89.99	0.0	-32.3	32.3	31.2	1.09	29.717	
400.0	400.0	400.0	400.0	0.8	0.8	-89.99	0.0	-32.3	32.3	30.7	1.54	21.018	
500.0	500.0	500.0	500.0	1.0	1.0	-89.99	0.0	-32.3	32.3	30.3	1.99	16.258	
600.0	600.0	600.0	600.0	1.2	1.2	-89.99	0.0	-32.3	32.3	29.8	2.43	13.257	
700.0	700.0	700.0	700.0	1.4	1.4	-89.99	0.0	-32.3	32.3	29.4	2.88	11.190	
800.0	800.0	800.0	800.0	1.7	1.7	-89.99	0.0	-32.3	32.3	28.9	3.33	9.681	CC
900.0	900.0	900.0	900.0	1.9	1.9	116.13	0.0	-32.3	33.0	29.3	3.76	8.788	
1,000.0	999.8	1,000.3	1,000.3	2.0	2.1	121.08	-1.7	-31.9	34.9	30.8	4.13	8.457	
1,100.0	1,099.6	1,100.8	1,100.6	2.2	2.3	122.80	-6.8	-30.6	36.6	32.1	4.50	8.133	
1,200.0	1,199.4	1,200.8	1,200.4	2.5	2.5	121.98	-13.6	-28.9	37.6	32.7	4.90	7.682	
1,300.0	1,299.1	1,300.8	1,300.1	2.7	2.7	121.20	-20.4	-27.2	38.7	33.3	5.32	7.270	
1,400.0	1,398.9	1,400.8	1,399.9	2.9	2.9	120.46	-27.1	-25.6	39.7	33.9	5.75	6.900	
1,500.0	1,498.6	1,500.7	1,499.6	3.1	3.1	119.76	-33.9	-23.9	40.7	34.5	6.20	6.567	
1,600.0	1,598.4	1,600.7	1,599.4	3.4	3.3	119.09	-40.7	-22.2	41.8	35.1	6.66	6.271	
1,700.0	1,698.1	1,700.7	1,699.1	3.6	3.6	118.45	-47.4	-20.5	42.8	35.7	7.13	6.005	
1,800.0	1,797.9	1,800.7	1,798.9	3.9	3.8	117.85	-54.2	-18.9	43.9	36.3	7.61	5.767	
1,900.0	1,897.6	1,900.7	1,898.6	4.1	4.0	117.27	-61.0	-17.2	44.9	36.9	8.09	5.554	
2,000.0	1,997.4	2,000.7	1,998.4	4.4	4.3	116.73	-67.8	-15.5	46.0	37.4	8.58	5.362	
2,100.0	2,097.2	2,100.7	2,098.1	4.6	4.5	116.20	-74.5	-13.8	47.1	38.0	9.07	5.188	
2,200.0	2,196.9	2,200.7	2,197.9	4.9	4.8	115.70	-81.3	-12.2	48.1	38.6	9.57	5.031	
2,300.0	2,296.7	2,300.7	2,297.6	5.1	5.0	115.22	-88.1	-10.5	49.2	39.2	10.07	4.888	
2,400.0	2,396.4	2,400.7	2,397.4	5.4	5.3	114.76	-94.8	-8.8	50.3	39.7	10.57	4.757	
2,500.0	2,496.2	2,500.7	2,497.1	5.6	5.5	114.32	-101.6	-7.1	51.4	40.3	11.08	4.638	
2,600.0	2,595.9	2,600.7	2,596.9	5.9	5.8	113.90	-108.4	-5.5	52.5	40.9	11.59	4.528	
2,700.0	2,695.7	2,700.7	2,696.6	6.1	6.0	113.50	-115.2	-3.8	53.6	41.5	12.10	4.427	
2,800.0	2,795.5	2,800.7	2,796.4	6.4	6.3	113.11	-121.9	-2.1	54.6	42.0	12.61	4.334	
2,900.0	2,895.2	2,900.7	2,896.1	6.7	6.6	112.74	-128.7	-0.4	55.7	42.6	13.12	4.248	
3,000.0	2,995.0	3,000.6	2,995.9	6.9	6.8	112.38	-135.5	1.3	56.8	43.2	13.63	4.168	
3,100.0	3,094.7	3,100.6	3,095.6	7.2	7.1	112.03	-142.2	2.9	57.9	43.8	14.15	4.094	
3,200.0	3,194.5	3,200.6	3,195.4	7.4	7.3	111.70	-149.0	4.6	59.0	44.4	14.67	4.024	
3,300.0	3,294.2	3,300.6	3,295.1	7.7	7.6	111.38	-155.8	6.3	60.1	44.9	15.18	3.960	
3,400.0	3,394.0	3,400.6	3,394.9	8.0	7.8	111.07	-162.5	8.0	61.2	45.5	15.70	3.899	
3,500.0	3,493.7	3,500.6	3,494.6	8.2	8.1	110.78	-169.3	9.6	62.3	46.1	16.22	3.843	
3,600.0	3,593.5	3,600.6	3,594.4	8.5	8.4	110.49	-176.1	11.3	63.4	46.7	16.74	3.789	
3,700.0	3,693.3	3,700.6	3,694.1	8.7	8.6	110.21	-182.9	13.0	64.5	47.3	17.26	3.739	
3,800.0	3,793.0	3,800.6	3,793.9	9.0	8.9	109.94	-189.6	14.7	65.6	47.9	17.78	3.692	
3,900.0	3,892.8	3,900.6	3,893.6	9.3	9.1	109.68	-196.4	16.3	66.8	48.5	18.30	3.647	
4,000.0	3,992.5	4,000.6	3,993.4	9.5	9.4	109.43	-203.2	18.0	67.9	49.0	18.82	3.605	
4,100.0	4,092.3	4,100.6	4,093.1	9.8	9.7	109.19	-209.9	19.7	69.0	49.6	19.35	3.565	
4,200.0	4,192.0	4,200.6	4,192.9	10.0	9.9	108.96	-216.7	21.4	70.1	50.2	19.87	3.527	
4,300.0	4,291.8	4,300.6	4,292.6	10.3	10.2	108.73	-223.5	23.0	71.2	50.8	20.39	3.491	
4,400.0	4,391.6	4,400.6	4,392.4	10.6	10.5	108.51	-230.3	24.7	72.3	51.4	20.92	3.457	
4,500.0	4,491.3	4,500.5	4,492.1	10.8	10.7	108.29	-237.0	26.4	73.4	52.0	21.44	3.425	
4,600.0	4,591.1	4,600.5	4,591.9	11.1	11.0	108.09	-243.8	28.1	74.6	52.6	21.97	3.394	
4,700.0	4,690.8	4,700.5	4,691.6	11.4	11.2	107.89	-250.6	29.7	75.7	53.2	22.49	3.365	
4,800.0	4,790.6	4,800.5	4,791.4	11.6	11.5	107.69	-257.3	31.4	76.8	53.8	23.02	3.337	
4,900.0	4,890.3	4,900.5	4,891.1	11.9	11.8	107.50	-264.1	33.1	77.9	54.4	23.54	3.310	
5,000.0	4,990.1	5,000.5	4,990.9	12.1	12.0	107.32	-270.9	34.8	79.0	55.0	24.07	3.284	
5,100.0	5,089.9	5,100.5	5,090.6	12.4	12.3	107.14	-277.7	36.4	80.2	55.6	24.59	3.259	

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 #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-1508B - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.6	5,200.5	5,190.3	12.7	12.6	106.96	-284.4	38.1	81.3	56.2	25.12	3.236	
5,300.0	5,289.4	5,300.5	5,290.1	12.9	12.8	106.79	-291.2	39.8	82.4	56.8	25.64	3.213	
5,400.0	5,389.1	5,400.5	5,389.8	13.2	13.1	106.63	-298.0	41.5	83.5	57.4	26.17	3.192	
5,500.0	5,488.5	5,500.3	5,489.5	13.5	13.3	108.56	-304.7	43.1	85.7	59.1	26.67	3.215	
5,600.0	5,584.4	5,601.8	5,590.2	13.9	13.6	117.81	-315.2	45.7	94.4	67.5	26.91	3.509	
5,700.0	5,673.2	5,708.1	5,691.9	14.6	14.1	124.64	-345.0	53.1	108.2	81.2	27.00	4.010	
5,800.0	5,751.6	5,818.3	5,788.4	15.4	14.9	128.17	-396.2	65.8	124.8	97.7	27.12	4.602	
5,900.0	5,816.8	5,932.3	5,874.3	16.5	15.9	129.07	-468.6	83.7	142.6	114.9	27.70	5.147	
6,000.0	5,866.5	6,049.6	5,943.5	17.7	17.1	128.01	-560.2	106.4	160.3	131.2	29.13	5.503	
6,100.0	5,898.6	6,169.4	5,990.7	19.2	18.7	125.48	-666.9	132.8	177.3	145.6	31.68	5.596	
6,200.0	5,912.1	6,291.0	6,011.7	20.7	20.5	121.88	-782.8	161.4	193.0	157.7	35.29	5.469	
6,300.0	5,912.6	6,389.1	6,012.6	22.3	22.0	119.18	-878.3	183.8	207.1	168.1	38.96	5.315	
6,400.0	5,912.6	6,479.0	6,012.6	23.7	23.2	117.20	-966.7	200.2	220.9	178.6	42.26	5.227	
6,500.0	5,912.6	6,568.3	6,012.6	25.2	24.5	115.50	-1,055.1	212.4	234.4	188.9	45.48	5.153	
6,600.0	5,912.6	6,657.0	6,012.6	26.8	25.8	114.04	-1,143.5	220.3	247.6	199.0	48.63	5.091	
6,700.0	5,912.5	6,745.3	6,012.6	28.4	27.1	112.78	-1,231.7	224.1	260.4	208.7	51.68	5.038	
6,800.0	5,912.5	6,839.5	6,012.6	29.9	28.6	111.68	-1,325.9	224.5	272.0	217.3	54.75	4.968	
6,900.0	5,912.5	6,939.2	6,012.6	31.5	30.3	111.02	-1,425.6	224.5	279.3	221.5	57.74	4.837	
7,000.0	5,912.5	7,039.2	6,012.6	33.1	32.0	110.81	-1,525.5	224.5	281.7	221.2	60.47	4.658	
7,100.0	5,912.5	7,139.2	6,012.6	34.7	33.7	110.81	-1,625.5	224.5	281.7	218.0	63.71	4.422	
7,200.0	5,912.5	7,239.2	6,012.6	36.4	35.5	110.81	-1,725.5	224.5	281.7	214.7	67.02	4.203	
7,300.0	5,912.5	7,339.2	6,012.6	38.0	37.2	110.81	-1,825.5	224.5	281.7	211.4	70.36	4.004	
7,400.0	5,912.5	7,439.2	6,012.6	39.8	39.0	110.82	-1,925.5	224.5	281.7	208.0	73.73	3.821	
7,500.0	5,912.5	7,539.2	6,012.6	41.5	40.8	110.82	-2,025.5	224.5	281.7	204.6	77.12	3.653	
7,600.0	5,912.5	7,639.2	6,012.6	43.2	42.6	110.82	-2,125.5	224.5	281.7	201.2	80.53	3.499	
7,700.0	5,912.5	7,739.2	6,012.6	45.0	44.4	110.82	-2,225.5	224.5	281.8	197.8	83.96	3.356	
7,800.0	5,912.5	7,839.2	6,012.6	46.8	46.3	110.83	-2,325.5	224.5	281.8	194.4	87.41	3.224	
7,900.0	5,912.5	7,939.2	6,012.6	48.6	48.1	110.83	-2,425.5	224.5	281.8	190.9	90.87	3.101	
8,000.0	5,912.5	8,039.2	6,012.7	50.4	49.9	110.83	-2,525.5	224.5	281.8	187.4	94.34	2.987	
8,100.0	5,912.4	8,139.2	6,012.7	52.2	51.8	110.83	-2,625.5	224.5	281.8	184.0	97.83	2.881	
8,200.0	5,912.4	8,239.2	6,012.7	54.0	53.6	110.83	-2,725.5	224.5	281.8	180.5	101.32	2.781	
8,300.0	5,912.4	8,339.2	6,012.7	55.8	55.5	110.84	-2,825.5	224.5	281.8	177.0	104.83	2.688	
8,400.0	5,912.4	8,439.2	6,012.7	57.6	57.3	110.84	-2,925.5	224.5	281.8	173.5	108.34	2.601	
8,500.0	5,912.4	8,539.2	6,012.7	59.5	59.2	110.84	-3,025.5	224.5	281.8	170.0	111.86	2.520	
8,600.0	5,912.4	8,639.2	6,012.7	61.3	61.1	110.84	-3,125.5	224.5	281.8	166.5	115.39	2.443	
8,700.0	5,912.4	8,739.2	6,012.7	63.1	62.9	110.85	-3,225.5	224.5	281.9	162.9	118.92	2.370	
8,800.0	5,912.4	8,839.2	6,012.7	65.0	64.8	110.85	-3,325.5	224.5	281.9	159.4	122.46	2.302	
8,900.0	5,912.4	8,939.2	6,012.7	66.8	66.7	110.85	-3,425.5	224.5	281.9	155.9	126.00	2.237	
9,000.0	5,912.4	9,039.2	6,012.7	68.7	68.6	110.85	-3,525.5	224.5	281.9	152.3	129.55	2.176	
9,100.0	5,912.4	9,139.2	6,012.7	70.6	70.4	110.85	-3,625.5	224.5	281.9	148.8	133.10	2.118	
9,200.0	5,912.4	9,239.2	6,012.7	72.4	72.3	110.86	-3,725.5	224.5	281.9	145.3	136.66	2.063	
9,300.0	5,912.4	9,339.2	6,012.7	74.3	74.2	110.86	-3,825.5	224.5	281.9	141.7	140.22	2.011	
9,400.0	5,912.3	9,439.2	6,012.7	76.1	76.1	110.86	-3,925.5	224.5	281.9	138.1	143.78	1.961	
9,500.0	5,912.3	9,539.2	6,012.7	78.0	78.0	110.86	-4,025.5	224.5	281.9	134.6	147.35	1.913	
9,600.0	5,912.3	9,639.2	6,012.8	79.9	79.9	110.87	-4,125.5	224.5	281.9	131.0	150.92	1.868	
9,700.0	5,912.3	9,739.2	6,012.8	81.8	81.8	110.87	-4,225.5	224.5	282.0	127.5	154.49	1.825	
9,800.0	5,912.3	9,839.2	6,012.8	83.6	83.7	110.87	-4,325.5	224.5	282.0	123.9	158.06	1.784	
9,900.0	5,912.3	9,939.2	6,012.8	85.5	85.6	110.87	-4,425.5	224.5	282.0	120.3	161.64	1.744	
10,000.0	5,912.3	10,039.2	6,012.8	87.4	87.5	110.88	-4,525.5	224.5	282.0	116.8	165.22	1.707	
10,100.0	5,912.3	10,139.2	6,012.8	89.3	89.4	110.88	-4,625.5	224.5	282.0	113.2	168.80	1.671	
10,200.0	5,912.3	10,239.2	6,012.8	91.2	91.2	110.88	-4,725.5	224.5	282.0	109.6	172.38	1.636	
10,300.0	5,912.3	10,339.2	6,012.8	93.1	93.1	110.88	-4,825.5	224.5	282.0	106.1	175.97	1.603	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-1508B - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
10,400.0	5,912.3	10,439.2	6,012.8	94.9	95.0	110.88	-4,925.5	224.5	282.0	102.5	179.55	1.571	
10,500.0	5,912.3	10,539.2	6,012.8	96.8	96.9	110.89	-5,025.5	224.5	282.0	98.9	183.14	1.540	
10,600.0	5,912.3	10,639.2	6,012.8	98.7	98.8	110.89	-5,125.5	224.5	282.0	95.3	186.73	1.510	
10,700.0	5,912.2	10,739.2	6,012.8	100.6	100.8	110.89	-5,225.5	224.5	282.1	91.7	190.32	1.482	Level 3
10,800.0	5,912.2	10,839.2	6,012.8	102.5	102.7	110.89	-5,325.5	224.5	282.1	88.2	193.91	1.455	Level 3
10,900.0	5,912.2	10,939.2	6,012.8	104.4	104.6	110.90	-5,425.5	224.5	282.1	84.6	197.50	1.428	Level 3
11,000.0	5,912.2	11,039.2	6,012.8	106.3	106.5	110.90	-5,525.5	224.5	282.1	81.0	201.10	1.403	Level 3
11,100.0	5,912.2	11,139.2	6,012.8	108.2	108.4	110.90	-5,625.5	224.5	282.1	77.4	204.69	1.378	Level 3
11,200.0	5,912.2	11,239.2	6,012.9	110.1	110.3	110.90	-5,725.5	224.5	282.1	73.8	208.29	1.354	Level 3
11,300.0	5,912.2	11,339.2	6,012.9	112.0	112.2	110.91	-5,825.5	224.5	282.1	70.2	211.88	1.331	Level 3
11,400.0	5,912.2	11,439.2	6,012.9	113.9	114.1	110.91	-5,925.5	224.5	282.1	66.6	215.48	1.309	Level 3
11,500.0	5,912.2	11,539.2	6,012.9	115.8	116.0	110.91	-6,025.5	224.5	282.1	63.1	219.08	1.288	Level 3
11,600.0	5,912.2	11,639.2	6,012.9	117.7	117.9	110.91	-6,125.5	224.5	282.1	59.5	222.68	1.267	Level 3
11,700.0	5,912.2	11,739.2	6,012.9	119.6	119.8	110.91	-6,225.5	224.5	282.2	55.9	226.28	1.247	Level 2
11,800.0	5,912.2	11,839.2	6,012.9	121.5	121.7	110.92	-6,325.5	224.5	282.2	52.3	229.88	1.227	Level 2
11,900.0	5,912.1	11,939.2	6,012.9	123.4	123.6	110.92	-6,425.5	224.5	282.2	48.7	233.48	1.209	Level 2
12,000.0	5,912.1	12,039.2	6,012.9	125.3	125.5	110.92	-6,525.5	224.5	282.2	45.1	237.09	1.190	Level 2
12,100.0	5,912.1	12,139.2	6,012.9	127.2	127.4	110.92	-6,625.5	224.5	282.2	41.5	240.69	1.172	Level 2
12,200.0	5,912.1	12,239.2	6,012.9	129.1	129.4	110.93	-6,725.5	224.5	282.2	37.9	244.29	1.155	Level 2
12,300.0	5,912.1	12,339.2	6,012.9	131.0	131.3	110.93	-6,825.5	224.5	282.2	34.3	247.90	1.138	Level 2
12,400.0	5,912.1	12,439.2	6,012.9	132.9	133.2	110.93	-6,925.5	224.5	282.2	30.7	251.50	1.122	Level 2
12,500.0	5,912.1	12,539.2	6,012.9	134.8	135.1	110.93	-7,025.5	224.5	282.2	27.1	255.11	1.106	Level 2
12,600.0	5,912.1	12,639.2	6,012.9	136.7	137.0	110.94	-7,125.5	224.5	282.2	23.5	258.71	1.091	Level 2
12,700.0	5,912.1	12,739.2	6,013.0	138.6	138.9	110.94	-7,225.5	224.5	282.3	19.9	262.32	1.076	Level 2
12,800.0	5,912.1	12,839.2	6,013.0	140.5	140.8	110.94	-7,325.5	224.5	282.3	16.3	265.92	1.061	Level 2
12,900.0	5,912.1	12,939.2	6,013.0	142.4	142.7	110.94	-7,425.5	224.5	282.3	12.7	269.53	1.047	Level 2
13,000.0	5,912.1	13,039.2	6,013.0	144.3	144.6	110.94	-7,525.5	224.5	282.3	9.1	273.14	1.033	Level 2
13,100.0	5,912.1	13,139.2	6,013.0	146.3	146.6	110.95	-7,625.5	224.5	282.3	5.5	276.75	1.020	Level 2
13,200.0	5,912.0	13,239.2	6,013.0	148.2	148.5	110.95	-7,725.5	224.5	282.3	2.0	280.35	1.007	Level 2
13,300.0	5,912.0	13,339.2	6,013.0	150.1	150.4	110.95	-7,825.5	224.5	282.3	-1.6	283.96	0.994	Level 1
13,400.0	5,912.0	13,439.2	6,013.0	152.0	152.3	110.95	-7,925.5	224.5	282.3	-5.2	287.57	0.982	Level 1
13,500.0	5,912.0	13,539.2	6,013.0	153.9	154.2	110.96	-8,025.5	224.5	282.3	-8.8	291.18	0.970	Level 1
13,600.0	5,912.0	13,639.2	6,013.0	155.8	156.1	110.96	-8,125.5	224.5	282.3	-12.4	294.79	0.958	Level 1
13,671.4	5,912.0	13,710.6	6,013.0	157.2	157.4	110.96	-8,197.0	224.5	282.4	-15.0	297.33	0.950	Level 1, ES, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-1510B - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.02	0.0	33.0	33.0				
100.0	100.0	100.0	100.0	0.1	0.1	90.02	0.0	33.0	33.0	32.9	0.19	176.699	
200.0	200.0	200.0	200.0	0.3	0.3	90.02	0.0	33.0	33.0	32.4	0.64	51.912	
300.0	300.0	300.0	300.0	0.5	0.5	90.02	0.0	33.0	33.0	32.0	1.09	30.425	
400.0	400.0	400.0	400.0	0.8	0.8	90.02	0.0	33.0	33.0	31.5	1.54	21.518	
500.0	500.0	500.0	500.0	1.0	1.0	90.02	0.0	33.0	33.0	31.1	1.99	16.646	
600.0	600.0	600.0	600.0	1.2	1.2	90.02	0.0	33.0	33.0	30.6	2.43	13.572	
700.0	700.0	700.0	700.0	1.4	1.4	90.02	0.0	33.0	33.0	30.2	2.88	11.457	CC, ES
800.0	800.0	799.3	799.3	1.7	1.6	92.44	-1.4	34.0	34.0	30.7	3.31	10.290	
900.0	900.0	898.5	898.4	1.9	1.8	-60.04	-5.7	36.8	36.4	32.7	3.69	9.877	
1,000.0	999.8	998.5	998.1	2.0	2.0	-58.80	-11.6	40.7	38.3	34.2	4.06	9.427	
1,100.0	1,099.6	1,098.5	1,097.8	2.2	2.2	-59.86	-17.4	44.5	39.3	34.8	4.47	8.799	
1,200.0	1,199.4	1,198.5	1,197.6	2.5	2.5	-60.87	-23.2	48.4	40.3	35.4	4.89	8.243	
1,300.0	1,299.1	1,298.5	1,297.3	2.7	2.7	-61.82	-29.0	52.2	41.3	36.0	5.33	7.753	
1,400.0	1,398.9	1,398.4	1,397.1	2.9	2.9	-62.73	-34.8	56.1	42.4	36.6	5.78	7.323	
1,500.0	1,498.6	1,498.4	1,496.8	3.1	3.2	-63.60	-40.7	59.9	43.4	37.2	6.25	6.946	
1,600.0	1,598.4	1,598.4	1,596.6	3.4	3.4	-64.43	-46.5	63.7	44.5	37.7	6.72	6.613	
1,700.0	1,698.1	1,698.4	1,696.3	3.6	3.7	-65.21	-52.3	67.6	45.5	38.3	7.20	6.320	
1,800.0	1,797.9	1,798.4	1,796.1	3.9	3.9	-65.96	-58.1	71.4	46.6	38.9	7.69	6.059	
1,900.0	1,897.6	1,898.4	1,895.8	4.1	4.2	-66.68	-63.9	75.3	47.7	39.5	8.18	5.827	
2,000.0	1,997.4	1,998.4	1,995.6	4.4	4.4	-67.37	-69.8	79.1	48.8	40.1	8.68	5.619	
2,100.0	2,097.2	2,098.4	2,095.3	4.6	4.7	-68.02	-75.6	83.0	49.8	40.7	9.17	5.432	
2,200.0	2,196.9	2,198.4	2,195.1	4.9	4.9	-68.65	-81.4	86.8	50.9	41.3	9.68	5.264	
2,300.0	2,296.7	2,298.4	2,294.8	5.1	5.2	-69.25	-87.2	90.7	52.0	41.9	10.18	5.111	
2,400.0	2,396.4	2,398.4	2,394.6	5.4	5.5	-69.83	-93.0	94.5	53.1	42.5	10.69	4.972	
2,500.0	2,496.2	2,498.4	2,494.3	5.6	5.7	-70.38	-98.9	98.3	54.3	43.1	11.20	4.845	
2,600.0	2,595.9	2,598.4	2,594.1	5.9	6.0	-70.91	-104.7	102.2	55.4	43.7	11.71	4.729	
2,700.0	2,695.7	2,698.3	2,693.8	6.1	6.2	-71.42	-110.5	106.0	56.5	44.3	12.22	4.623	
2,800.0	2,795.5	2,798.3	2,793.6	6.4	6.5	-71.91	-116.3	109.9	57.6	44.9	12.74	4.524	
2,900.0	2,895.2	2,898.3	2,893.3	6.7	6.8	-72.38	-122.1	113.7	58.8	45.5	13.25	4.434	
3,000.0	2,995.0	2,998.3	2,993.1	6.9	7.0	-72.83	-128.0	117.6	59.9	46.1	13.77	4.350	
3,100.0	3,094.7	3,098.3	3,092.8	7.2	7.3	-73.27	-133.8	121.4	61.0	46.7	14.29	4.272	
3,200.0	3,194.5	3,198.3	3,192.6	7.4	7.5	-73.69	-139.6	125.3	62.2	47.4	14.81	4.199	
3,300.0	3,294.2	3,298.3	3,292.3	7.7	7.8	-74.09	-145.4	129.1	63.3	48.0	15.33	4.131	
3,400.0	3,394.0	3,398.3	3,392.0	8.0	8.1	-74.48	-151.2	133.0	64.5	48.6	15.85	4.068	
3,500.0	3,493.7	3,498.3	3,491.8	8.2	8.3	-74.86	-157.1	136.8	65.6	49.3	16.37	4.009	
3,600.0	3,593.5	3,598.3	3,591.5	8.5	8.6	-75.22	-162.9	140.6	66.8	49.9	16.89	3.953	
3,700.0	3,693.3	3,698.3	3,691.3	8.7	8.8	-75.57	-168.7	144.5	67.9	50.5	17.41	3.901	
3,800.0	3,793.0	3,798.3	3,791.0	9.0	9.1	-75.91	-174.5	148.3	69.1	51.2	17.94	3.852	
3,900.0	3,892.8	3,898.3	3,890.8	9.3	9.4	-76.24	-180.3	152.2	70.3	51.8	18.46	3.806	
4,000.0	3,992.5	3,998.3	3,990.5	9.5	9.6	-76.56	-186.2	156.0	71.4	52.4	18.98	3.762	
4,100.0	4,092.3	4,098.2	4,090.3	9.8	9.9	-76.86	-192.0	159.9	72.6	53.1	19.51	3.721	
4,200.0	4,192.0	4,198.2	4,190.0	10.0	10.2	-77.16	-197.8	163.7	73.8	53.7	20.03	3.682	
4,300.0	4,291.8	4,298.2	4,289.8	10.3	10.4	-77.45	-203.6	167.6	74.9	54.4	20.56	3.645	
4,400.0	4,391.6	4,398.2	4,389.5	10.6	10.7	-77.73	-209.4	171.4	76.1	55.0	21.08	3.609	
4,500.0	4,491.3	4,498.2	4,489.3	10.8	10.9	-78.00	-215.3	175.2	77.3	55.7	21.61	3.576	
4,600.0	4,591.1	4,598.2	4,589.0	11.1	11.2	-78.26	-221.1	179.1	78.4	56.3	22.13	3.544	
4,700.0	4,690.8	4,698.2	4,688.8	11.4	11.5	-78.52	-226.9	182.9	79.6	57.0	22.66	3.514	
4,800.0	4,790.6	4,798.2	4,788.5	11.6	11.7	-78.77	-232.7	186.8	80.8	57.6	23.19	3.485	
4,900.0	4,890.3	4,898.2	4,888.3	11.9	12.0	-79.01	-238.5	190.6	82.0	58.3	23.71	3.457	
5,000.0	4,990.1	4,998.2	4,988.0	12.1	12.3	-79.24	-244.4	194.5	83.2	58.9	24.24	3.431	
5,100.0	5,089.9	5,098.2	5,087.8	12.4	12.5	-79.47	-250.2	198.3	84.3	59.6	24.77	3.405	

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 #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-1510B - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.6	5,198.2	5,187.5	12.7	12.8	-79.69	-256.0	202.2	85.5	60.2	25.29	3.381	
5,300.0	5,289.4	5,298.2	5,287.3	12.9	13.0	-79.90	-261.8	206.0	86.7	60.9	25.82	3.358	
5,400.0	5,389.1	5,398.1	5,387.0	13.2	13.3	-80.11	-267.6	209.8	87.9	61.5	26.35	3.336	
5,500.0	5,488.5	5,498.0	5,486.6	13.5	13.6	-82.56	-273.4	213.7	88.5	61.6	26.95	3.286	
5,533.5	5,521.1	5,531.1	5,519.6	13.6	13.7	-85.79	-275.4	215.0	88.4	61.2	27.24	3.247	
5,600.0	5,584.4	5,594.7	5,582.8	13.9	13.9	-93.85	-281.5	219.0	89.8	62.0	27.77	3.233	
5,700.0	5,673.2	5,692.6	5,677.1	14.6	14.3	-104.88	-303.1	233.3	98.0	69.5	28.52	3.436	
5,800.0	5,751.6	5,794.1	5,767.9	15.4	14.9	-113.11	-340.7	258.1	112.5	83.4	29.08	3.867	
5,900.0	5,816.8	5,899.6	5,851.1	16.5	15.8	-118.22	-394.5	293.6	131.2	101.5	29.71	4.417	
6,000.0	5,866.5	6,009.2	5,922.0	17.7	17.0	-120.71	-464.0	339.5	152.3	121.5	30.80	4.945	
6,100.0	5,898.6	6,123.0	5,975.6	19.2	18.5	-121.21	-547.6	394.8	174.2	141.5	32.70	5.328	
6,200.0	5,912.1	6,241.0	6,006.8	20.7	20.3	-120.24	-642.3	457.3	195.6	160.1	35.50	5.510	
6,300.0	5,912.6	6,357.8	6,013.1	22.3	22.2	-118.43	-739.7	521.3	214.4	175.5	38.91	5.510	
6,400.0	5,912.6	6,467.3	6,013.1	23.7	23.9	-116.12	-833.8	577.2	231.8	189.5	42.33	5.477	
6,500.0	5,912.6	6,578.2	6,013.1	25.2	25.7	-114.18	-932.2	628.3	249.1	203.4	45.67	5.454	
6,600.0	5,912.6	6,690.4	6,013.1	26.8	27.6	-112.53	-1,034.6	674.0	266.0	217.1	48.94	5.436	
6,700.0	5,912.5	6,804.0	6,013.1	28.4	29.4	-111.13	-1,140.9	714.2	282.5	230.4	52.10	5.423	
6,800.0	5,912.5	6,919.0	6,013.1	29.9	31.4	-109.94	-1,250.6	748.3	298.5	243.4	55.13	5.414	
6,900.0	5,912.5	7,035.3	6,013.1	31.5	33.3	-108.90	-1,363.6	776.0	313.8	255.8	58.01	5.409	
7,000.0	5,912.5	7,152.9	6,013.1	33.1	35.2	-108.02	-1,479.3	797.0	328.3	267.6	60.73	5.406	
7,100.0	5,912.5	7,272.1	6,013.1	34.7	37.1	-107.29	-1,597.6	810.9	339.5	275.0	64.57	5.258	
7,200.0	5,912.5	7,392.6	6,013.1	36.4	39.0	-106.96	-1,717.9	817.5	344.8	276.4	68.33	5.045	
7,300.0	5,912.5	7,500.2	6,013.1	38.0	40.7	-106.94	-1,825.6	818.0	345.2	273.4	71.77	4.809	
7,400.0	5,912.5	7,600.2	6,013.1	39.8	42.2	-106.94	-1,925.6	818.0	345.1	270.0	75.12	4.595	
7,500.0	5,912.5	7,700.2	6,013.1	41.5	43.9	-106.94	-2,025.6	818.0	345.1	266.6	78.50	4.397	
7,600.0	5,912.5	7,800.2	6,013.1	43.2	45.5	-106.94	-2,125.6	818.0	345.1	263.2	81.90	4.214	
7,700.0	5,912.5	7,900.2	6,013.1	45.0	47.2	-106.94	-2,225.6	818.0	345.1	259.8	85.33	4.045	
7,800.0	5,912.5	8,000.2	6,013.1	46.8	48.8	-106.95	-2,325.6	818.0	345.1	256.3	88.78	3.887	
7,900.0	5,912.5	8,100.2	6,013.1	48.6	50.5	-106.95	-2,425.6	818.0	345.1	252.9	92.26	3.741	
8,000.0	5,912.5	8,200.2	6,013.1	50.4	52.2	-106.95	-2,525.6	818.0	345.1	249.4	95.74	3.605	
8,100.0	5,912.4	8,300.2	6,013.1	52.2	54.0	-106.95	-2,625.6	818.0	345.1	245.9	99.25	3.477	
8,200.0	5,912.4	8,400.2	6,013.1	54.0	55.7	-106.95	-2,725.6	818.0	345.1	242.4	102.77	3.358	
8,300.0	5,912.4	8,500.2	6,013.1	55.8	57.4	-106.95	-2,825.6	818.0	345.1	238.8	106.30	3.247	
8,400.0	5,912.4	8,600.2	6,013.1	57.6	59.2	-106.95	-2,925.6	818.0	345.1	235.3	109.84	3.142	
8,500.0	5,912.4	8,700.2	6,013.1	59.5	61.0	-106.96	-3,025.6	818.0	345.1	231.7	113.39	3.044	
8,600.0	5,912.4	8,800.2	6,013.1	61.3	62.8	-106.96	-3,125.6	818.0	345.1	228.2	116.95	2.951	
8,700.0	5,912.4	8,900.2	6,013.1	63.1	64.5	-106.96	-3,225.6	818.0	345.1	224.6	120.52	2.863	
8,800.0	5,912.4	9,000.2	6,013.1	65.0	66.3	-106.96	-3,325.6	818.0	345.1	221.0	124.10	2.781	
8,900.0	5,912.4	9,100.2	6,013.1	66.8	68.1	-106.96	-3,425.6	818.0	345.1	217.4	127.68	2.703	
9,000.0	5,912.4	9,200.2	6,013.1	68.7	69.9	-106.96	-3,525.6	818.0	345.1	213.8	131.27	2.629	
9,100.0	5,912.4	9,300.2	6,013.1	70.6	71.8	-106.96	-3,625.6	818.0	345.1	210.2	134.87	2.559	
9,200.0	5,912.4	9,400.2	6,013.0	72.4	73.6	-106.97	-3,725.6	818.0	345.1	206.6	138.47	2.492	
9,300.0	5,912.4	9,500.2	6,013.0	74.3	75.4	-106.97	-3,825.6	818.0	345.1	203.0	142.07	2.429	
9,400.0	5,912.3	9,600.2	6,013.0	76.1	77.2	-106.97	-3,925.6	818.0	345.1	199.4	145.68	2.369	
9,500.0	5,912.3	9,700.2	6,013.0	78.0	79.1	-106.97	-4,025.6	818.0	345.1	195.8	149.30	2.311	
9,600.0	5,912.3	9,800.2	6,013.0	79.9	80.9	-106.97	-4,125.6	818.0	345.1	192.1	152.92	2.257	
9,700.0	5,912.3	9,900.2	6,013.0	81.8	82.7	-106.97	-4,225.6	818.0	345.1	188.5	156.54	2.204	
9,800.0	5,912.3	10,000.2	6,013.0	83.6	84.6	-106.97	-4,325.6	818.0	345.1	184.9	160.17	2.154	
9,900.0	5,912.3	10,100.2	6,013.0	85.5	86.4	-106.98	-4,425.6	818.0	345.0	181.3	163.80	2.107	
10,000.0	5,912.3	10,200.2	6,013.0	87.4	88.3	-106.98	-4,525.6	818.0	345.0	177.6	167.43	2.061	
10,100.0	5,912.3	10,300.2	6,013.0	89.3	90.1	-106.98	-4,625.6	818.0	345.0	174.0	171.07	2.017	
10,200.0	5,912.3	10,400.2	6,013.0	91.2	92.0	-106.98	-4,725.6	818.0	345.0	170.3	174.70	1.975	

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 #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-1510B - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
10,300.0	5,912.3	10,500.2	6,013.0	93.1	93.8	-106.98	-4,825.6	818.0	345.0	166.7	178.34	1.935	
10,400.0	5,912.3	10,600.2	6,013.0	94.9	95.7	-106.98	-4,925.6	818.0	345.0	163.0	181.99	1.896	
10,500.0	5,912.3	10,700.2	6,013.0	96.8	97.6	-106.98	-5,025.6	818.0	345.0	159.4	185.63	1.859	
10,600.0	5,912.3	10,800.2	6,013.0	98.7	99.4	-106.98	-5,125.6	818.0	345.0	155.7	189.28	1.823	
10,700.0	5,912.2	10,900.2	6,013.0	100.6	101.3	-106.99	-5,225.6	818.0	345.0	152.1	192.93	1.788	
10,800.0	5,912.2	11,000.2	6,013.0	102.5	103.2	-106.99	-5,325.6	818.0	345.0	148.4	196.58	1.755	
10,900.0	5,912.2	11,100.2	6,013.0	104.4	105.1	-106.99	-5,425.6	818.0	345.0	144.8	200.23	1.723	
11,000.0	5,912.2	11,200.2	6,013.0	106.3	106.9	-106.99	-5,525.6	818.0	345.0	141.1	203.89	1.692	
11,100.0	5,912.2	11,300.2	6,013.0	108.2	108.8	-106.99	-5,625.6	818.0	345.0	137.5	207.54	1.662	
11,200.0	5,912.2	11,400.2	6,013.0	110.1	110.7	-106.99	-5,725.6	818.0	345.0	133.8	211.20	1.634	
11,300.0	5,912.2	11,500.2	6,013.0	112.0	112.6	-106.99	-5,825.6	818.0	345.0	130.1	214.86	1.606	
11,400.0	5,912.2	11,600.2	6,013.0	113.9	114.4	-107.00	-5,925.6	818.0	345.0	126.5	218.52	1.579	
11,500.0	5,912.2	11,700.2	6,013.0	115.8	116.3	-107.00	-6,025.6	818.0	345.0	122.8	222.18	1.553	
11,600.0	5,912.2	11,800.2	6,013.0	117.7	118.2	-107.00	-6,125.6	818.0	345.0	119.1	225.84	1.528	
11,700.0	5,912.2	11,900.2	6,013.0	119.6	120.1	-107.00	-6,225.6	818.0	345.0	115.5	229.50	1.503	
11,800.0	5,912.2	12,000.2	6,013.0	121.5	122.0	-107.00	-6,325.6	818.0	345.0	111.8	233.17	1.480	Level 3
11,900.0	5,912.1	12,100.2	6,013.0	123.4	123.9	-107.00	-6,425.6	817.9	345.0	108.1	236.83	1.457	Level 3
12,000.0	5,912.1	12,200.2	6,013.0	125.3	125.7	-107.00	-6,525.6	817.9	345.0	104.5	240.50	1.434	Level 3
12,100.0	5,912.1	12,300.2	6,013.0	127.2	127.6	-107.01	-6,625.6	817.9	345.0	100.8	244.17	1.413	Level 3
12,200.0	5,912.1	12,400.2	6,013.0	129.1	129.5	-107.01	-6,725.6	817.9	345.0	97.1	247.83	1.392	Level 3
12,300.0	5,912.1	12,500.2	6,013.0	131.0	131.4	-107.01	-6,825.6	817.9	345.0	93.5	251.50	1.372	Level 3
12,400.0	5,912.1	12,600.2	6,013.0	132.9	133.3	-107.01	-6,925.6	817.9	344.9	89.8	255.17	1.352	Level 3
12,500.0	5,912.1	12,700.2	6,013.0	134.8	135.2	-107.01	-7,025.6	817.9	344.9	86.1	258.84	1.333	Level 3
12,600.0	5,912.1	12,800.2	6,013.0	136.7	137.1	-107.01	-7,125.6	817.9	344.9	82.4	262.51	1.314	Level 3
12,700.0	5,912.1	12,900.2	6,013.0	138.6	139.0	-107.01	-7,225.6	817.9	344.9	78.8	266.19	1.296	Level 3
12,800.0	5,912.1	13,000.2	6,013.0	140.5	140.9	-107.02	-7,325.6	817.9	344.9	75.1	269.86	1.278	Level 3
12,900.0	5,912.1	13,100.2	6,013.0	142.4	142.8	-107.02	-7,425.6	817.9	344.9	71.4	273.53	1.261	Level 3
13,000.0	5,912.1	13,200.2	6,013.0	144.3	144.7	-107.02	-7,525.6	817.9	344.9	67.7	277.21	1.244	Level 2
13,100.0	5,912.1	13,300.2	6,013.0	146.3	146.6	-107.02	-7,625.6	817.9	344.9	64.0	280.88	1.228	Level 2
13,200.0	5,912.0	13,400.2	6,013.0	148.2	148.5	-107.02	-7,725.6	817.9	344.9	60.4	284.55	1.212	Level 2
13,300.0	5,912.0	13,500.2	6,013.0	150.1	150.4	-107.02	-7,825.6	817.9	344.9	56.7	288.23	1.197	Level 2
13,400.0	5,912.0	13,600.2	6,013.0	152.0	152.3	-107.02	-7,925.6	817.9	344.9	53.0	291.91	1.182	Level 2
13,500.0	5,912.0	13,700.2	6,013.0	153.9	154.2	-107.03	-8,025.6	817.9	344.9	49.3	295.58	1.167	Level 2
13,600.0	5,912.0	13,800.2	6,013.0	155.8	156.1	-107.03	-8,125.6	817.9	344.9	45.6	299.26	1.153	Level 2
13,650.1	5,912.0	13,850.3	6,013.0	156.8	157.0	-107.03	-8,175.6	817.9	344.9	43.8	301.08	1.146	Level 2
13,671.4	5,912.0	13,864.6	6,013.0	157.2	157.3	-107.03	-8,189.9	817.9	345.0	43.2	301.75	1.143	Level 2, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-1511A - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.02	0.0	66.1	66.1				
100.0	100.0	100.0	100.0	0.1	0.1	90.02	0.0	66.1	66.1	65.9	0.19	353.398	
200.0	200.0	200.0	200.0	0.3	0.3	90.02	0.0	66.1	66.1	65.5	0.64	103.823	
300.0	300.0	300.0	300.0	0.5	0.5	90.02	0.0	66.1	66.1	65.0	1.09	60.850	
400.0	400.0	400.0	400.0	0.8	0.8	90.02	0.0	66.1	66.1	64.6	1.54	43.037	
500.0	500.0	500.0	500.0	1.0	1.0	90.02	0.0	66.1	66.1	64.1	1.99	33.291	
600.0	600.0	600.0	600.0	1.2	1.2	90.02	0.0	66.1	66.1	63.7	2.43	27.144	CC, ES
700.0	700.0	698.4	698.4	1.4	1.4	91.08	-1.3	67.2	67.3	64.4	2.86	23.536	
800.0	800.0	796.6	796.5	1.7	1.6	94.03	-5.0	70.7	70.9	67.6	3.27	21.680	
900.0	900.0	896.4	896.0	1.9	1.8	-60.08	-10.1	75.4	75.3	71.6	3.67	20.525	
1,000.0	999.8	996.4	995.7	2.0	2.0	-60.02	-15.2	80.1	77.9	73.9	4.06	19.217	
1,100.0	1,099.6	1,096.3	1,095.4	2.2	2.3	-61.09	-20.4	84.8	79.8	75.3	4.47	17.844	
1,200.0	1,199.4	1,196.3	1,195.2	2.5	2.5	-62.11	-25.5	89.5	81.6	76.7	4.90	16.645	
1,300.0	1,299.1	1,296.3	1,294.9	2.7	2.7	-63.09	-30.6	94.3	83.5	78.1	5.35	15.602	
1,400.0	1,398.9	1,396.3	1,394.6	2.9	3.0	-64.03	-35.7	99.0	85.4	79.5	5.81	14.695	
1,500.0	1,498.6	1,496.2	1,494.4	3.1	3.2	-64.92	-40.9	103.7	87.3	81.0	6.28	13.904	
1,600.0	1,598.4	1,596.2	1,594.1	3.4	3.5	-65.78	-46.0	108.4	89.2	82.4	6.75	13.210	
1,700.0	1,698.1	1,696.2	1,693.8	3.6	3.7	-66.59	-51.1	113.2	91.2	83.9	7.23	12.599	
1,800.0	1,797.9	1,796.1	1,793.6	3.9	4.0	-67.38	-56.3	117.9	93.1	85.4	7.72	12.058	
1,900.0	1,897.6	1,896.1	1,893.3	4.1	4.3	-68.13	-61.4	122.6	95.1	86.9	8.21	11.578	
2,000.0	1,997.4	1,996.1	1,993.0	4.4	4.5	-68.85	-66.5	127.3	97.1	88.4	8.71	11.148	
2,100.0	2,097.2	2,096.1	2,092.7	4.6	4.8	-69.54	-71.6	132.1	99.1	89.9	9.21	10.762	
2,200.0	2,196.9	2,196.0	2,192.5	4.9	5.0	-70.21	-76.8	136.8	101.2	91.4	9.71	10.415	
2,300.0	2,296.7	2,296.0	2,292.2	5.1	5.3	-70.84	-81.9	141.5	103.2	93.0	10.22	10.100	
2,400.0	2,396.4	2,396.0	2,391.9	5.4	5.5	-71.46	-87.0	146.2	105.3	94.5	10.73	9.814	
2,500.0	2,496.2	2,496.0	2,491.7	5.6	5.8	-72.05	-92.2	151.0	107.3	96.1	11.23	9.553	
2,600.0	2,595.9	2,595.9	2,591.4	5.9	6.1	-72.61	-97.3	155.7	109.4	97.7	11.75	9.314	
2,700.0	2,695.7	2,695.9	2,691.1	6.1	6.3	-73.16	-102.4	160.4	111.5	99.2	12.26	9.095	
2,800.0	2,795.5	2,795.9	2,790.8	6.4	6.6	-73.68	-107.6	165.1	113.6	100.8	12.77	8.894	
2,900.0	2,895.2	2,895.8	2,890.6	6.7	6.8	-74.19	-112.7	169.9	115.7	102.4	13.29	8.708	
3,000.0	2,995.0	2,995.8	2,990.3	6.9	7.1	-74.68	-117.8	174.6	117.8	104.0	13.80	8.535	
3,100.0	3,094.7	3,095.8	3,090.0	7.2	7.4	-75.15	-122.9	179.3	119.9	105.6	14.32	8.375	
3,200.0	3,194.5	3,195.8	3,189.8	7.4	7.6	-75.61	-128.1	184.0	122.1	107.2	14.84	8.227	
3,300.0	3,294.2	3,295.7	3,289.5	7.7	7.9	-76.04	-133.2	188.8	124.2	108.9	15.36	8.088	
3,400.0	3,394.0	3,395.7	3,389.2	8.0	8.2	-76.47	-138.3	193.5	126.4	110.5	15.88	7.958	
3,500.0	3,493.7	3,495.7	3,488.9	8.2	8.4	-76.88	-143.5	198.2	128.5	112.1	16.40	7.837	
3,600.0	3,593.5	3,595.7	3,588.7	8.5	8.7	-77.28	-148.6	202.9	130.7	113.8	16.92	7.724	
3,700.0	3,693.3	3,695.6	3,688.4	8.7	8.9	-77.66	-153.7	207.7	132.8	115.4	17.44	7.617	
3,800.0	3,793.0	3,795.6	3,788.1	9.0	9.2	-78.03	-158.8	212.4	135.0	117.0	17.96	7.516	
3,900.0	3,892.8	3,895.6	3,887.9	9.3	9.5	-78.39	-164.0	217.1	137.2	118.7	18.48	7.422	
4,000.0	3,992.5	3,995.5	3,987.6	9.5	9.7	-78.74	-169.1	221.8	139.4	120.4	19.01	7.332	
4,100.0	4,092.3	4,095.5	4,087.3	9.8	10.0	-79.08	-174.2	226.6	141.6	122.0	19.53	7.248	
4,200.0	4,192.0	4,195.5	4,187.1	10.0	10.3	-79.40	-179.4	231.3	143.7	123.7	20.05	7.168	
4,300.0	4,291.8	4,295.5	4,286.8	10.3	10.5	-79.72	-184.5	236.0	145.9	125.4	20.58	7.092	
4,400.0	4,391.6	4,395.4	4,386.5	10.6	10.8	-80.03	-189.6	240.7	148.1	127.0	21.10	7.020	
4,500.0	4,491.3	4,495.4	4,486.2	10.8	11.0	-80.33	-194.7	245.5	150.3	128.7	21.63	6.952	
4,600.0	4,591.1	4,595.4	4,586.0	11.1	11.3	-80.62	-199.9	250.2	152.6	130.4	22.15	6.887	
4,700.0	4,690.8	4,695.3	4,685.7	11.4	11.6	-80.90	-205.0	254.9	154.8	132.1	22.68	6.825	
4,800.0	4,790.6	4,795.3	4,785.4	11.6	11.8	-81.17	-210.1	259.6	157.0	133.8	23.20	6.766	
4,900.0	4,890.3	4,895.3	4,885.2	11.9	12.1	-81.44	-215.3	264.4	159.2	135.5	23.73	6.710	
5,000.0	4,990.1	4,995.3	4,984.9	12.1	12.4	-81.70	-220.4	269.1	161.4	137.2	24.25	6.656	
5,100.0	5,089.9	5,095.2	5,084.6	12.4	12.6	-81.95	-225.5	273.8	163.7	138.9	24.78	6.605	

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 #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-1511A - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.6	5,195.2	5,184.3	12.7	12.9	-82.20	-230.7	278.5	165.9	140.6	25.30	6.556	
5,300.0	5,289.4	5,295.2	5,284.1	12.9	13.1	-82.43	-235.8	283.3	168.1	142.3	25.83	6.509	
5,400.0	5,389.1	5,395.2	5,383.8	13.2	13.4	-82.67	-240.9	288.0	170.4	144.0	26.36	6.463	
5,500.0	5,488.5	5,487.9	5,476.1	13.5	13.7	-82.99	-247.4	293.9	173.3	146.4	26.92	6.438	
5,600.0	5,584.4	5,574.9	5,560.4	13.9	14.1	-83.80	-263.0	308.3	180.8	153.1	27.75	6.516	
5,700.0	5,673.2	5,661.7	5,639.7	14.6	14.6	-84.92	-288.6	332.0	193.3	164.4	28.89	6.691	
5,800.0	5,751.6	5,750.0	5,713.4	15.4	15.2	-86.16	-324.3	364.8	210.6	180.2	30.38	6.932	
5,900.0	5,816.8	5,834.6	5,775.4	16.5	16.1	-87.08	-366.6	403.8	232.4	200.2	32.22	7.214	
6,000.0	5,866.5	5,921.3	5,828.3	17.7	17.1	-87.74	-417.0	450.2	258.2	223.8	34.43	7.499	
6,100.0	5,898.6	6,008.8	5,869.5	19.2	18.3	-88.04	-473.7	502.4	287.2	250.2	36.98	7.765	
6,200.0	5,912.1	6,097.8	5,897.6	20.7	19.6	-88.01	-535.7	559.5	318.5	278.6	39.82	7.998	
6,300.0	5,912.6	6,189.3	5,911.1	22.3	21.2	-89.75	-602.2	620.8	352.7	310.1	42.61	8.278	
6,400.0	5,912.6	6,296.7	5,912.1	23.7	23.0	-89.92	-682.2	692.4	390.8	345.5	45.38	8.613	
6,500.0	5,912.6	6,414.7	5,912.1	25.2	25.0	-89.93	-774.3	766.0	428.5	380.2	48.31	8.870	
6,600.0	5,912.6	6,536.1	5,912.1	26.8	27.1	-89.94	-873.8	835.6	465.3	413.9	51.32	9.067	
6,700.0	5,912.5	6,661.2	5,912.1	28.4	29.3	-89.94	-980.6	900.7	500.9	446.5	54.30	9.223	
6,800.0	5,912.5	6,790.1	5,912.1	29.9	31.6	-89.95	-1,094.9	960.2	535.1	477.9	57.24	9.349	
6,900.0	5,912.5	6,923.0	5,912.1	31.5	33.9	-89.95	-1,216.7	1,013.3	567.9	507.8	60.09	9.450	
7,000.0	5,912.5	7,059.9	5,912.1	33.1	36.3	-89.95	-1,345.7	1,059.1	598.9	536.0	62.85	9.529	
7,100.0	5,912.5	7,201.8	5,912.1	34.7	38.7	-89.96	-1,482.6	1,096.6	625.4	558.2	67.11	9.319	
7,200.0	5,912.5	7,348.9	5,912.1	36.4	41.1	-89.96	-1,626.9	1,124.7	644.5	573.0	71.50	9.013	
7,300.0	5,912.5	7,499.6	5,912.1	38.0	43.5	-89.96	-1,776.5	1,141.9	655.9	579.9	75.94	8.636	
7,400.0	5,912.5	7,648.7	5,912.1	39.8	45.7	-89.96	-1,925.5	1,147.3	659.4	579.1	80.29	8.212	
7,500.0	5,912.5	7,748.7	5,912.1	41.5	47.2	-89.96	-2,025.5	1,147.3	659.4	575.6	83.75	7.873	
7,600.0	5,912.5	7,848.7	5,912.1	43.2	48.7	-89.96	-2,125.5	1,147.3	659.4	572.2	87.24	7.559	
7,700.0	5,912.5	7,948.7	5,912.1	45.0	50.2	-89.96	-2,225.5	1,147.3	659.4	568.6	90.75	7.266	
7,800.0	5,912.5	8,048.7	5,912.1	46.8	51.8	-89.96	-2,325.5	1,147.3	659.4	565.1	94.29	6.993	
7,900.0	5,912.5	8,148.7	5,912.1	48.6	53.4	-89.97	-2,425.5	1,147.3	659.4	561.5	97.85	6.739	
8,000.0	5,912.5	8,248.7	5,912.1	50.4	55.0	-89.97	-2,525.5	1,147.3	659.4	558.0	101.44	6.500	
8,100.0	5,912.4	8,348.7	5,912.1	52.2	56.6	-89.97	-2,625.5	1,147.3	659.4	554.4	105.04	6.278	
8,200.0	5,912.4	8,448.7	5,912.1	54.0	58.3	-89.97	-2,725.5	1,147.3	659.4	550.7	108.66	6.069	
8,300.0	5,912.4	8,548.7	5,912.1	55.8	59.9	-89.97	-2,825.5	1,147.3	659.4	547.1	112.29	5.872	
8,400.0	5,912.4	8,648.7	5,912.1	57.6	61.6	-89.97	-2,925.5	1,147.3	659.4	543.5	115.94	5.687	
8,500.0	5,912.4	8,748.7	5,912.1	59.5	63.3	-89.97	-3,025.5	1,147.3	659.4	539.8	119.60	5.513	
8,600.0	5,912.4	8,848.7	5,912.1	61.3	65.0	-89.97	-3,125.5	1,147.3	659.4	536.1	123.27	5.349	
8,700.0	5,912.4	8,948.7	5,912.1	63.1	66.7	-89.97	-3,225.5	1,147.3	659.4	532.5	126.95	5.194	
8,800.0	5,912.4	9,048.7	5,912.1	65.0	68.4	-89.97	-3,325.5	1,147.4	659.4	528.8	130.65	5.047	
8,900.0	5,912.4	9,148.7	5,912.1	66.8	70.1	-89.97	-3,425.5	1,147.4	659.4	525.1	134.34	4.908	
9,000.0	5,912.4	9,248.7	5,912.1	68.7	71.9	-89.97	-3,525.5	1,147.4	659.4	521.4	138.05	4.777	
9,100.0	5,912.4	9,348.7	5,912.1	70.6	73.6	-89.97	-3,625.5	1,147.4	659.4	517.7	141.77	4.652	
9,200.0	5,912.4	9,448.7	5,912.1	72.4	75.4	-89.97	-3,725.5	1,147.4	659.4	513.9	145.49	4.533	
9,300.0	5,912.4	9,548.7	5,912.1	74.3	77.2	-89.97	-3,825.5	1,147.4	659.4	510.2	149.22	4.419	
9,400.0	5,912.3	9,648.7	5,912.0	76.1	78.9	-89.97	-3,925.5	1,147.4	659.4	506.5	152.95	4.311	
9,500.0	5,912.3	9,748.7	5,912.0	78.0	80.7	-89.98	-4,025.5	1,147.4	659.4	502.8	156.69	4.209	
9,600.0	5,912.3	9,848.7	5,912.0	79.9	82.5	-89.98	-4,125.5	1,147.4	659.4	499.0	160.43	4.110	
9,700.0	5,912.3	9,948.7	5,912.0	81.8	84.3	-89.98	-4,225.5	1,147.4	659.4	495.3	164.18	4.017	
9,800.0	5,912.3	10,048.7	5,912.0	83.6	86.1	-89.98	-4,325.5	1,147.4	659.4	491.5	167.93	3.927	
9,900.0	5,912.3	10,148.7	5,912.0	85.5	87.9	-89.98	-4,425.5	1,147.4	659.5	487.8	171.69	3.841	
10,000.0	5,912.3	10,248.7	5,912.0	87.4	89.7	-89.98	-4,525.5	1,147.4	659.5	484.0	175.45	3.759	
10,100.0	5,912.3	10,348.7	5,912.0	89.3	91.5	-89.98	-4,625.5	1,147.4	659.5	480.2	179.21	3.680	
10,200.0	5,912.3	10,448.7	5,912.0	91.2	93.3	-89.98	-4,725.5	1,147.4	659.5	476.5	182.98	3.604	
10,300.0	5,912.3	10,548.7	5,912.0	93.1	95.2	-89.98	-4,825.5	1,147.5	659.5	472.7	186.75	3.531	

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 #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-1511A - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
10,400.0	5,912.3	10,648.7	5,912.0	94.9	97.0	-89.98	-4,925.5	1,147.5	659.5	468.9	190.53	3.461	
10,500.0	5,912.3	10,748.7	5,912.0	96.8	98.8	-89.98	-5,025.5	1,147.5	659.5	465.2	194.30	3.394	
10,600.0	5,912.3	10,848.7	5,912.0	98.7	100.7	-89.98	-5,125.5	1,147.5	659.5	461.4	198.08	3.329	
10,700.0	5,912.2	10,948.7	5,912.0	100.6	102.5	-89.98	-5,225.5	1,147.5	659.5	457.6	201.86	3.267	
10,800.0	5,912.2	11,048.7	5,912.0	102.5	104.3	-89.98	-5,325.5	1,147.5	659.5	453.8	205.65	3.207	
10,900.0	5,912.2	11,148.7	5,912.0	104.4	106.2	-89.98	-5,425.5	1,147.5	659.5	450.0	209.43	3.149	
11,000.0	5,912.2	11,248.7	5,912.0	106.3	108.0	-89.98	-5,525.5	1,147.5	659.5	446.3	213.22	3.093	
11,100.0	5,912.2	11,348.7	5,912.0	108.2	109.9	-89.98	-5,625.5	1,147.5	659.5	442.5	217.01	3.039	
11,200.0	5,912.2	11,448.7	5,912.0	110.1	111.7	-89.99	-5,725.5	1,147.5	659.5	438.7	220.80	2.987	
11,300.0	5,912.2	11,548.7	5,912.0	112.0	113.6	-89.99	-5,825.5	1,147.5	659.5	434.9	224.59	2.936	
11,400.0	5,912.2	11,648.7	5,912.0	113.9	115.4	-89.99	-5,925.5	1,147.5	659.5	431.1	228.39	2.888	
11,500.0	5,912.2	11,748.7	5,912.0	115.8	117.3	-89.99	-6,025.5	1,147.5	659.5	427.3	232.19	2.840	
11,600.0	5,912.2	11,848.7	5,912.0	117.7	119.2	-89.99	-6,125.5	1,147.5	659.5	423.5	235.98	2.795	
11,700.0	5,912.2	11,948.7	5,912.0	119.6	121.0	-89.99	-6,225.5	1,147.6	659.5	419.7	239.78	2.750	
11,800.0	5,912.2	12,048.7	5,912.0	121.5	122.9	-89.99	-6,325.5	1,147.6	659.5	415.9	243.59	2.707	
11,900.0	5,912.1	12,148.7	5,912.0	123.4	124.7	-89.99	-6,425.5	1,147.6	659.5	412.1	247.39	2.666	
12,000.0	5,912.1	12,248.7	5,912.0	125.3	126.6	-89.99	-6,525.5	1,147.6	659.5	408.3	251.19	2.626	
12,100.0	5,912.1	12,348.7	5,912.0	127.2	128.5	-89.99	-6,625.5	1,147.6	659.5	404.5	255.00	2.586	
12,200.0	5,912.1	12,448.7	5,912.0	129.1	130.3	-89.99	-6,725.5	1,147.6	659.5	400.7	258.80	2.548	
12,300.0	5,912.1	12,548.7	5,912.0	131.0	132.2	-89.99	-6,825.5	1,147.6	659.5	396.9	262.61	2.511	
12,400.0	5,912.1	12,648.7	5,912.0	132.9	134.1	-89.99	-6,925.5	1,147.6	659.5	393.1	266.42	2.476	
12,500.0	5,912.1	12,748.7	5,912.0	134.8	136.0	-89.99	-7,025.5	1,147.6	659.5	389.3	270.23	2.441	
12,600.0	5,912.1	12,848.7	5,912.0	136.7	137.8	-89.99	-7,125.5	1,147.6	659.5	385.5	274.04	2.407	
12,700.0	5,912.1	12,948.7	5,912.0	138.6	139.7	-89.99	-7,225.5	1,147.6	659.5	381.7	277.85	2.374	
12,800.0	5,912.1	13,048.7	5,912.0	140.5	141.6	-89.99	-7,325.5	1,147.6	659.5	377.9	281.66	2.342	
12,900.0	5,912.1	13,148.7	5,912.0	142.4	143.5	-90.00	-7,425.5	1,147.6	659.5	374.1	285.47	2.310	
13,000.0	5,912.1	13,248.7	5,912.0	144.3	145.4	-90.00	-7,525.5	1,147.6	659.5	370.3	289.29	2.280	
13,100.0	5,912.1	13,348.7	5,912.0	146.3	147.2	-90.00	-7,625.5	1,147.7	659.5	366.4	293.10	2.250	
13,200.0	5,912.0	13,448.7	5,912.0	148.2	149.1	-90.00	-7,725.5	1,147.7	659.5	362.6	296.91	2.221	
13,300.0	5,912.0	13,548.7	5,912.0	150.1	151.0	-90.00	-7,825.5	1,147.7	659.5	358.8	300.73	2.193	
13,400.0	5,912.0	13,648.7	5,912.0	152.0	152.9	-90.00	-7,925.5	1,147.7	659.6	355.0	304.55	2.166	
13,500.0	5,912.0	13,748.7	5,912.0	153.9	154.8	-90.00	-8,025.5	1,147.7	659.6	351.2	308.36	2.139	
13,600.0	5,912.0	13,848.7	5,912.0	155.8	156.7	-90.00	-8,125.5	1,147.7	659.6	347.4	312.18	2.113	
13,636.5	5,912.0	13,885.2	5,912.0	156.5	157.4	-90.00	-8,162.0	1,147.7	659.6	346.0	313.55	2.104	
13,671.4	5,912.0	13,906.7	5,912.0	157.2	157.8	-90.00	-8,183.5	1,147.7	659.7	345.1	314.64	2.097	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-1512B - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.01	0.0	119.9	119.9				
100.0	100.0	100.0	100.0	0.1	0.1	90.01	0.0	119.9	119.9	119.7	0.19	641.048	
200.0	200.0	200.0	200.0	0.3	0.3	90.01	0.0	119.9	119.9	119.2	0.64	188.331	
300.0	300.0	300.0	300.0	0.5	0.5	90.01	0.0	119.9	119.9	118.8	1.09	110.379	
400.0	400.0	400.0	400.0	0.8	0.8	90.01	0.0	119.9	119.9	118.3	1.54	78.067	
500.0	500.0	500.0	500.0	1.0	1.0	90.01	0.0	119.9	119.9	117.9	1.99	60.389	CC, ES
600.0	600.0	596.8	596.8	1.2	1.2	90.51	-1.1	121.1	121.2	118.8	2.41	50.344	
700.0	700.0	693.5	693.3	1.4	1.4	91.92	-4.2	124.9	125.2	122.3	2.82	44.339	
800.0	800.0	793.0	792.6	1.7	1.6	93.78	-8.6	130.3	130.7	127.5	3.25	40.210	
900.0	900.0	892.8	892.2	1.9	1.8	-61.71	-13.1	135.6	135.6	132.0	3.66	37.051	
1,000.0	999.8	992.8	991.9	2.0	2.1	-61.92	-17.5	141.0	138.9	134.8	4.06	34.216	
1,100.0	1,099.6	1,092.7	1,091.6	2.2	2.3	-62.79	-21.9	146.4	141.4	136.9	4.48	31.544	
1,200.0	1,199.4	1,192.7	1,191.3	2.5	2.5	-63.64	-26.4	151.7	143.8	138.9	4.92	29.241	
1,300.0	1,299.1	1,292.6	1,291.0	2.7	2.8	-64.46	-30.8	157.1	146.4	141.0	5.37	27.254	
1,400.0	1,398.9	1,392.6	1,390.7	2.9	3.1	-65.25	-35.3	162.5	148.9	143.1	5.83	25.535	
1,500.0	1,498.6	1,492.5	1,490.4	3.1	3.3	-66.01	-39.7	167.8	151.5	145.2	6.30	24.041	
1,600.0	1,598.4	1,592.5	1,590.1	3.4	3.6	-66.75	-44.2	173.2	154.1	147.3	6.78	22.734	
1,700.0	1,698.1	1,692.4	1,689.8	3.6	3.8	-67.46	-48.6	178.6	156.7	149.5	7.26	21.586	
1,800.0	1,797.9	1,792.3	1,789.5	3.9	4.1	-68.15	-53.1	184.0	159.4	151.6	7.75	20.571	
1,900.0	1,897.6	1,892.3	1,889.2	4.1	4.3	-68.82	-57.5	189.3	162.0	153.8	8.24	19.669	
2,000.0	1,997.4	1,992.2	1,988.9	4.4	4.6	-69.46	-62.0	194.7	164.7	156.0	8.73	18.863	
2,100.0	2,097.2	2,092.2	2,088.6	4.6	4.8	-70.09	-66.4	200.1	167.4	158.2	9.23	18.140	
2,200.0	2,196.9	2,192.1	2,188.3	4.9	5.1	-70.69	-70.8	205.4	170.2	160.4	9.73	17.488	
2,300.0	2,296.7	2,292.1	2,288.0	5.1	5.4	-71.28	-75.3	210.8	172.9	162.7	10.23	16.898	
2,400.0	2,396.4	2,392.0	2,387.7	5.4	5.6	-71.85	-79.7	216.2	175.7	165.0	10.74	16.361	
2,500.0	2,496.2	2,492.0	2,487.4	5.6	5.9	-72.39	-84.2	221.6	178.5	167.2	11.25	15.872	
2,600.0	2,595.9	2,591.9	2,587.2	5.9	6.1	-72.93	-88.6	226.9	181.3	169.5	11.75	15.423	
2,700.0	2,695.7	2,691.9	2,686.9	6.1	6.4	-73.44	-93.1	232.3	184.1	171.8	12.26	15.012	
2,800.0	2,795.5	2,791.8	2,786.6	6.4	6.7	-73.94	-97.5	237.7	186.9	174.1	12.77	14.633	
2,900.0	2,895.2	2,891.8	2,886.3	6.7	6.9	-74.43	-102.0	243.0	189.8	176.5	13.29	14.283	
3,000.0	2,995.0	2,991.7	2,986.0	6.9	7.2	-74.90	-106.4	248.4	192.6	178.8	13.80	13.958	
3,100.0	3,094.7	3,091.7	3,085.7	7.2	7.5	-75.36	-110.8	253.8	195.5	181.2	14.31	13.657	
3,200.0	3,194.5	3,191.6	3,185.4	7.4	7.7	-75.80	-115.3	259.2	198.4	183.5	14.83	13.377	
3,300.0	3,294.2	3,291.5	3,285.1	7.7	8.0	-76.23	-119.7	264.5	201.3	185.9	15.35	13.116	
3,400.0	3,394.0	3,391.5	3,384.8	8.0	8.2	-76.65	-124.2	269.9	204.2	188.3	15.86	12.871	
3,500.0	3,493.7	3,491.4	3,484.5	8.2	8.5	-77.06	-128.6	275.3	207.1	190.7	16.38	12.642	
3,600.0	3,593.5	3,591.4	3,584.2	8.5	8.8	-77.45	-133.1	280.6	210.0	193.1	16.90	12.428	
3,700.0	3,693.3	3,691.3	3,683.9	8.7	9.0	-77.84	-137.5	286.0	213.0	195.5	17.42	12.226	
3,800.0	3,793.0	3,791.3	3,783.6	9.0	9.3	-78.21	-142.0	291.4	215.9	198.0	17.94	12.036	
3,900.0	3,892.8	3,891.2	3,883.3	9.3	9.6	-78.58	-146.4	296.8	218.9	200.4	18.46	11.857	
4,000.0	3,992.5	3,991.2	3,983.0	9.5	9.8	-78.93	-150.9	302.1	221.8	202.8	18.98	11.688	
4,100.0	4,092.3	4,091.1	4,082.7	9.8	10.1	-79.28	-155.3	307.5	224.8	205.3	19.50	11.529	
4,200.0	4,192.0	4,191.1	4,182.4	10.0	10.3	-79.62	-159.7	312.9	227.8	207.7	20.02	11.377	
4,300.0	4,291.8	4,291.0	4,282.1	10.3	10.6	-79.94	-164.2	318.2	230.7	210.2	20.54	11.234	
4,400.0	4,391.6	4,391.0	4,381.8	10.6	10.9	-80.26	-168.6	323.6	233.7	212.7	21.06	11.098	
4,500.0	4,491.3	4,490.9	4,481.5	10.8	11.1	-80.57	-173.1	329.0	236.7	215.2	21.58	10.968	
4,600.0	4,591.1	4,590.9	4,581.2	11.1	11.4	-80.88	-177.5	334.4	239.8	217.6	22.11	10.845	
4,700.0	4,690.8	4,690.8	4,680.9	11.4	11.7	-81.17	-182.0	339.7	242.8	220.1	22.63	10.728	
4,800.0	4,790.6	4,790.8	4,780.6	11.6	11.9	-81.46	-186.4	345.1	245.8	222.6	23.15	10.616	
4,900.0	4,890.3	4,890.7	4,880.3	11.9	12.2	-81.74	-190.9	350.5	248.8	225.1	23.68	10.509	
5,000.0	4,990.1	4,990.6	4,980.0	12.1	12.4	-82.02	-195.3	355.8	251.8	227.6	24.20	10.407	
5,100.0	5,089.9	5,090.6	5,079.7	12.4	12.7	-82.29	-199.7	361.2	254.9	230.2	24.72	10.310	

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 #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-1512B - HZ - Plan #1

Survey Program: 0-ISCWSA MWD

Offset Site Error: 0.0 ft

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.6	5,190.5	5,179.4	12.7	13.0	-82.55	-204.2	366.6	257.9	232.7	25.25	10.216	
5,300.0	5,289.4	5,290.5	5,279.1	12.9	13.2	-82.80	-208.6	372.0	261.0	235.2	25.77	10.127	
5,400.0	5,389.1	5,390.4	5,378.8	13.2	13.5	-83.05	-213.1	377.3	264.0	237.7	26.29	10.041	
5,500.0	5,488.5	5,490.2	5,478.4	13.5	13.8	-83.90	-217.5	382.7	266.7	239.8	26.87	9.925	
5,600.0	5,584.4	5,578.2	5,566.0	13.9	14.0	-87.41	-222.3	388.5	269.2	241.6	27.65	9.737	
5,700.0	5,673.2	5,656.1	5,642.0	14.6	14.3	-90.85	-233.0	401.5	279.1	250.4	28.64	9.744	
5,800.0	5,751.6	5,734.6	5,715.2	15.4	14.7	-93.82	-251.0	423.2	297.7	267.9	29.87	9.966	
5,900.0	5,816.8	5,813.9	5,783.9	16.5	15.3	-95.97	-276.1	453.5	325.1	293.8	31.36	10.368	
6,000.0	5,866.5	5,894.1	5,846.6	17.7	16.0	-97.13	-307.9	491.9	360.3	327.2	33.12	10.878	
6,100.0	5,898.6	5,976.0	5,901.9	19.2	16.9	-97.31	-346.4	538.4	402.2	366.9	35.23	11.414	
6,200.0	5,912.1	6,060.8	5,948.5	20.7	18.0	-96.62	-391.5	592.9	449.0	411.4	37.68	11.917	
6,300.0	5,912.6	6,152.3	5,985.2	22.3	19.3	-99.86	-444.8	657.4	499.9	460.2	39.78	12.567	
6,400.0	5,912.6	6,252.7	6,008.0	23.7	21.0	-101.88	-507.0	732.5	553.8	511.9	41.89	13.220	
6,500.0	5,912.6	6,360.9	6,012.6	25.2	22.9	-101.38	-576.2	815.5	609.2	564.8	44.42	13.714	
6,600.0	5,912.6	6,484.6	6,012.6	26.8	25.1	-100.35	-660.0	906.5	664.3	617.2	47.11	14.102	
6,700.0	5,912.5	6,615.2	6,012.6	28.4	27.4	-99.48	-754.6	996.5	718.3	668.5	49.80	14.423	
6,800.0	5,912.5	6,753.3	6,012.6	29.9	30.0	-98.72	-861.2	1,084.3	770.9	718.4	52.53	14.674	
6,900.0	5,912.5	6,899.9	6,012.6	31.5	32.7	-98.07	-980.8	1,168.9	821.7	766.2	55.45	14.819	
7,000.0	5,912.5	7,055.7	6,012.6	33.1	35.6	-97.49	-1,114.7	1,248.4	870.2	811.8	58.38	14.905	
7,100.0	5,912.5	7,223.6	6,012.6	34.7	38.6	-96.84	-1,265.8	1,321.7	913.6	850.4	63.17	14.462	
7,200.0	5,912.5	7,405.4	6,012.6	36.4	41.8	-96.36	-1,435.9	1,385.6	948.6	880.3	68.33	13.883	
7,300.0	5,912.5	7,598.9	6,012.6	38.0	45.0	-96.03	-1,622.8	1,435.6	974.4	900.6	73.71	13.218	
7,400.0	5,912.5	7,801.2	6,012.6	39.8	48.1	-95.84	-1,822.5	1,467.4	990.0	910.8	79.19	12.502	
7,500.0	5,912.5	8,004.6	6,012.6	41.5	51.1	-95.78	-2,025.5	1,477.9	995.1	910.5	84.53	11.771	
7,600.0	5,912.5	8,104.6	6,012.6	43.2	52.5	-95.78	-2,125.5	1,477.9	995.1	907.1	87.97	11.311	
7,700.0	5,912.5	8,204.6	6,012.7	45.0	53.9	-95.78	-2,225.5	1,477.9	995.1	903.6	91.42	10.884	
7,800.0	5,912.5	8,304.6	6,012.7	46.8	55.3	-95.78	-2,325.5	1,477.9	995.1	900.2	94.90	10.485	
7,900.0	5,912.5	8,404.6	6,012.7	48.6	56.8	-95.78	-2,425.5	1,477.9	995.1	896.7	98.41	10.112	
8,000.0	5,912.5	8,504.6	6,012.7	50.4	58.3	-95.78	-2,525.5	1,477.9	995.1	893.1	101.93	9.762	
8,100.0	5,912.4	8,604.6	6,012.7	52.2	59.8	-95.78	-2,625.5	1,477.9	995.1	889.6	105.48	9.433	
8,200.0	5,912.4	8,704.6	6,012.7	54.0	61.4	-95.78	-2,725.5	1,477.9	995.1	886.0	109.05	9.125	
8,300.0	5,912.4	8,804.6	6,012.7	55.8	62.9	-95.78	-2,825.5	1,477.9	995.1	882.4	112.64	8.834	
8,400.0	5,912.4	8,904.6	6,012.7	57.6	64.5	-95.78	-2,925.5	1,477.9	995.1	878.9	116.24	8.561	
8,500.0	5,912.4	9,004.6	6,012.7	59.5	66.1	-95.78	-3,025.5	1,477.9	995.1	875.2	119.85	8.303	
8,600.0	5,912.4	9,104.6	6,012.7	61.3	67.7	-95.78	-3,125.5	1,477.9	995.1	871.6	123.48	8.059	
8,700.0	5,912.4	9,204.6	6,012.7	63.1	69.4	-95.79	-3,225.5	1,478.0	995.1	868.0	127.12	7.828	
8,800.0	5,912.4	9,304.6	6,012.7	65.0	71.0	-95.79	-3,325.5	1,478.0	995.1	864.3	130.77	7.610	
8,900.0	5,912.4	9,404.6	6,012.7	66.8	72.7	-95.79	-3,425.5	1,478.0	995.1	860.7	134.43	7.402	
9,000.0	5,912.4	9,504.6	6,012.7	68.7	74.3	-95.79	-3,525.5	1,478.0	995.1	857.0	138.10	7.206	
9,100.0	5,912.4	9,604.6	6,012.7	70.6	76.0	-95.79	-3,625.5	1,478.0	995.1	853.3	141.77	7.019	
9,200.0	5,912.4	9,704.6	6,012.7	72.4	77.7	-95.79	-3,725.5	1,478.0	995.1	849.7	145.46	6.841	
9,300.0	5,912.4	9,804.6	6,012.7	74.3	79.4	-95.79	-3,825.5	1,478.0	995.1	846.0	149.15	6.672	
9,400.0	5,912.3	9,904.6	6,012.8	76.1	81.1	-95.79	-3,925.5	1,478.0	995.1	842.3	152.85	6.510	
9,500.0	5,912.3	10,004.6	6,012.8	78.0	82.8	-95.79	-4,025.5	1,478.0	995.1	838.6	156.56	6.356	
9,600.0	5,912.3	10,104.6	6,012.8	79.9	84.6	-95.79	-4,125.5	1,478.0	995.1	834.9	160.27	6.209	
9,700.0	5,912.3	10,204.6	6,012.8	81.8	86.3	-95.79	-4,225.5	1,478.0	995.1	831.1	163.98	6.069	
9,800.0	5,912.3	10,304.6	6,012.8	83.6	88.1	-95.79	-4,325.5	1,478.0	995.1	827.4	167.70	5.934	
9,900.0	5,912.3	10,404.6	6,012.8	85.5	89.8	-95.80	-4,425.5	1,478.0	995.1	823.7	171.43	5.805	
10,000.0	5,912.3	10,504.6	6,012.8	87.4	91.6	-95.80	-4,525.5	1,478.0	995.1	820.0	175.16	5.681	
10,100.0	5,912.3	10,604.6	6,012.8	89.3	93.3	-95.80	-4,625.5	1,478.0	995.1	816.2	178.89	5.563	
10,200.0	5,912.3	10,704.6	6,012.8	91.2	95.1	-95.80	-4,725.5	1,478.0	995.1	812.5	182.63	5.449	
10,300.0	5,912.3	10,804.6	6,012.8	93.1	96.9	-95.80	-4,825.5	1,478.0	995.1	808.8	186.37	5.340	

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 #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S10-T10N-R58W - Razor #10F-1512B - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
10,400.0	5,912.3	10,904.6	6,012.8	94.9	98.7	-95.80	-4,925.5	1,478.1	995.1	805.0	190.12	5.234	
10,500.0	5,912.3	11,004.6	6,012.8	96.8	100.5	-95.80	-5,025.5	1,478.1	995.2	801.3	193.87	5.133	
10,600.0	5,912.3	11,104.6	6,012.8	98.7	102.3	-95.80	-5,125.5	1,478.1	995.2	797.5	197.62	5.036	
10,700.0	5,912.2	11,204.6	6,012.8	100.6	104.1	-95.80	-5,225.5	1,478.1	995.2	793.8	201.37	4.942	
10,800.0	5,912.2	11,304.6	6,012.8	102.5	105.9	-95.80	-5,325.5	1,478.1	995.2	790.0	205.13	4.851	
10,900.0	5,912.2	11,404.6	6,012.8	104.4	107.7	-95.80	-5,425.5	1,478.1	995.2	786.3	208.89	4.764	
11,000.0	5,912.2	11,504.6	6,012.9	106.3	109.5	-95.80	-5,525.5	1,478.1	995.2	782.5	212.65	4.680	
11,100.0	5,912.2	11,604.6	6,012.9	108.2	111.3	-95.80	-5,625.5	1,478.1	995.2	778.8	216.41	4.599	
11,200.0	5,912.2	11,704.6	6,012.9	110.1	113.1	-95.81	-5,725.5	1,478.1	995.2	775.0	220.18	4.520	
11,300.0	5,912.2	11,804.6	6,012.9	112.0	114.9	-95.81	-5,825.5	1,478.1	995.2	771.2	223.94	4.444	
11,400.0	5,912.2	11,904.6	6,012.9	113.9	116.8	-95.81	-5,925.5	1,478.1	995.2	767.5	227.71	4.370	
11,500.0	5,912.2	12,004.6	6,012.9	115.8	118.6	-95.81	-6,025.5	1,478.1	995.2	763.7	231.49	4.299	
11,600.0	5,912.2	12,104.6	6,012.9	117.7	120.4	-95.81	-6,125.5	1,478.1	995.2	759.9	235.26	4.230	
11,700.0	5,912.2	12,204.6	6,012.9	119.6	122.3	-95.81	-6,225.5	1,478.1	995.2	756.2	239.03	4.163	
11,800.0	5,912.2	12,304.6	6,012.9	121.5	124.1	-95.81	-6,325.5	1,478.1	995.2	752.4	242.81	4.099	
11,900.0	5,912.1	12,404.6	6,012.9	123.4	125.9	-95.81	-6,425.5	1,478.1	995.2	748.6	246.59	4.036	
12,000.0	5,912.1	12,504.6	6,012.9	125.3	127.8	-95.81	-6,525.5	1,478.1	995.2	744.8	250.37	3.975	
12,100.0	5,912.1	12,604.6	6,012.9	127.2	129.6	-95.81	-6,625.5	1,478.1	995.2	741.0	254.15	3.916	
12,200.0	5,912.1	12,704.6	6,012.9	129.1	131.5	-95.81	-6,725.5	1,478.2	995.2	737.3	257.93	3.858	
12,300.0	5,912.1	12,804.6	6,012.9	131.0	133.3	-95.81	-6,825.5	1,478.2	995.2	733.5	261.72	3.803	
12,400.0	5,912.1	12,904.6	6,012.9	132.9	135.2	-95.81	-6,925.5	1,478.2	995.2	729.7	265.50	3.748	
12,500.0	5,912.1	13,004.6	6,012.9	134.8	137.0	-95.82	-7,025.5	1,478.2	995.2	725.9	269.29	3.696	
12,600.0	5,912.1	13,104.6	6,012.9	136.7	138.9	-95.82	-7,125.5	1,478.2	995.2	722.1	273.07	3.644	
12,700.0	5,912.1	13,204.6	6,013.0	138.6	140.7	-95.82	-7,225.5	1,478.2	995.2	718.4	276.86	3.595	
12,800.0	5,912.1	13,304.6	6,013.0	140.5	142.6	-95.82	-7,325.5	1,478.2	995.2	714.6	280.65	3.546	
12,900.0	5,912.1	13,404.6	6,013.0	142.4	144.5	-95.82	-7,425.5	1,478.2	995.2	710.8	284.44	3.499	
13,000.0	5,912.1	13,504.6	6,013.0	144.3	146.3	-95.82	-7,525.5	1,478.2	995.2	707.0	288.23	3.453	
13,100.0	5,912.1	13,604.6	6,013.0	146.3	148.2	-95.82	-7,625.5	1,478.2	995.2	703.2	292.03	3.408	
13,200.0	5,912.0	13,704.6	6,013.0	148.2	150.1	-95.82	-7,725.5	1,478.2	995.2	699.4	295.82	3.364	
13,300.0	5,912.0	13,804.6	6,013.0	150.1	151.9	-95.82	-7,825.5	1,478.2	995.2	695.6	299.61	3.322	
13,400.0	5,912.0	13,904.6	6,013.0	152.0	153.8	-95.82	-7,925.5	1,478.2	995.2	691.8	303.41	3.280	
13,500.0	5,912.0	14,004.6	6,013.0	153.9	155.7	-95.82	-8,025.5	1,478.2	995.2	688.0	307.20	3.240	
13,600.0	5,912.0	14,104.6	6,013.0	155.8	157.5	-95.82	-8,125.5	1,478.2	995.2	684.2	311.00	3.200	
13,632.4	5,912.0	14,137.0	6,013.0	156.4	158.1	-95.82	-8,157.9	1,478.2	995.2	683.0	312.20	3.188	
13,671.4	5,912.0	14,155.5	6,013.0	157.2	158.5	-95.82	-8,176.4	1,478.2	995.5	682.2	313.30	3.177	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1509A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Reference Site:	S10-T10N-R58W	**MD Reference:**	WELL @ 5044.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Razor #10F-1509A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 5044.1ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Razor #10F-1509A
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.06°