WHITING PETROLEUM CORPORATION

Project: Weld County, CO
Site: S10-T10N-R58W
Well: Razor #10F-1511A
Wellbore: HZ
Design: Plan #1

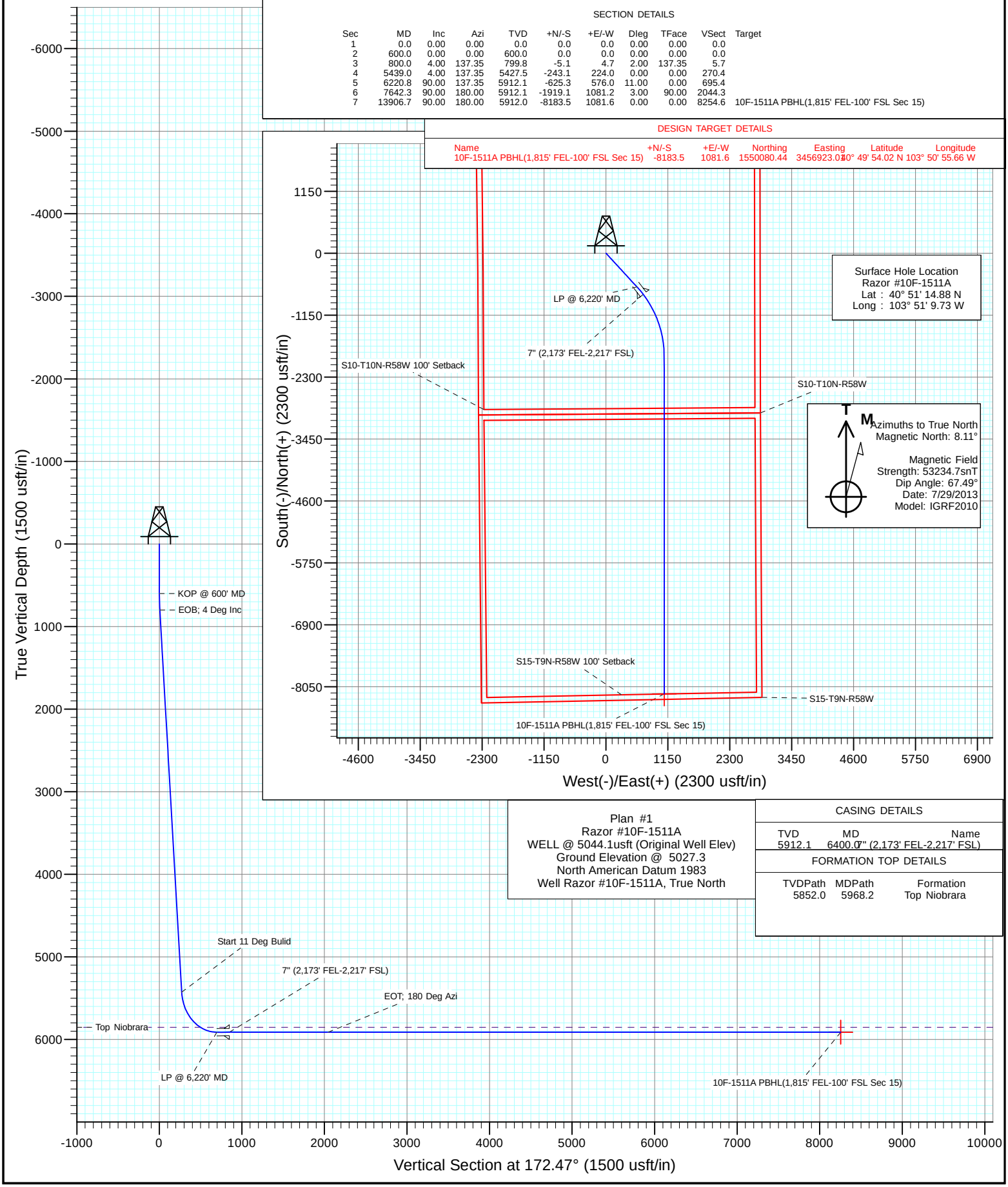
CATHEDRAL

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	600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.0	
3	800.0	4.00	137.35	799.8	-5.1	4.7	2.00	137.35	5.7	
4	5439.0	4.00	137.35	5427.5	-243.1	224.0	0.00	0.00	270.4	
5	6220.8	90.00	137.35	5912.1	-625.3	576.0	11.00	0.00	695.4	
6	7642.3	90.00	180.00	5912.1	-1919.1	1081.2	3.00	90.00	2044.3	
7	13906.7	90.00	180.00	5912.0	-8183.5	1081.6	0.00	0.00	8254.6	10F-1511A PBHL(1,815' FEL-100' FSL Sec 15)

DESIGN TARGET DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
10F-1511A PBHL(1,815' FEL-100' FSL Sec 15)	-8183.5	1081.6	1550080.44	3456923.01	40° 49' 54.02 N	103° 50' 55.66 W



Plan #1
Razor #10F-1511A
WELL @ 5044.1usft (Original Well Elev)
Ground Elevation @ 5027.3
North American Datum 1983
Well Razor #10F-1511A, True North

CASING DETAILS

TVD	MD	Name
5912.1	6400.0	7" (2,173' FEL-2,217' FSL)

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5852.0	5968.2	Top Niobrara

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #10F-1511A
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-1511A	**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-1511A

Well Position	**+N/-S**	0.0 usft	**Northing:**	1,558,242.41 usft	**Latitude:**	40° 51' 14.88 N
	+E/-W	0.0 usft	**Easting:**	3,455,689.60 usft	**Longitude:**	103° 51' 9.73 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	172.47

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	
600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.00	0.00	
800.0	4.00	137.35	799.8	-5.1	4.7	2.00	2.00	0.00	137.35	
5,439.0	4.00	137.35	5,427.5	-243.1	224.0	0.00	0.00	0.00	0.00	
6,220.8	90.00	137.35	5,912.1	-625.3	576.0	11.00	11.00	0.00	0.00	
7,642.3	90.00	180.00	5,912.1	-1,919.1	1,081.2	3.00	0.00	3.00	90.00	
13,906.7	90.00	180.00	5,912.0	-8,183.5	1,081.6	0.00	0.00	0.00	0.00	10F-1511A PBHL(1,8

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #10F-1511A
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-1511A	**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	KOP @ 600' MD
700.0	2.00	137.35	700.0	-1.3	1.2	1.4	2.00	2.00	
800.0	4.00	137.35	799.8	-5.1	4.7	5.7	2.00	2.00	EOB; 4 Deg Inc
900.0	4.00	137.35	899.6	-10.3	9.5	11.4	0.00	0.00	
1,000.0	4.00	137.35	999.4	-15.4	14.2	17.1	0.00	0.00	
1,100.0	4.00	137.35	1,099.1	-20.5	18.9	22.8	0.00	0.00	
1,200.0	4.00	137.35	1,198.9	-25.7	23.6	28.5	0.00	0.00	
1,300.0	4.00	137.35	1,298.6	-30.8	28.4	34.2	0.00	0.00	
1,400.0	4.00	137.35	1,398.4	-35.9	33.1	39.9	0.00	0.00	
1,500.0	4.00	137.35	1,498.1	-41.0	37.8	45.6	0.00	0.00	
1,600.0	4.00	137.35	1,597.9	-46.2	42.5	51.4	0.00	0.00	
1,700.0	4.00	137.35	1,697.6	-51.3	47.3	57.1	0.00	0.00	
1,800.0	4.00	137.35	1,797.4	-56.4	52.0	62.8	0.00	0.00	
1,900.0	4.00	137.35	1,897.2	-61.6	56.7	68.5	0.00	0.00	
2,000.0	4.00	137.35	1,996.9	-66.7	61.4	74.2	0.00	0.00	
2,100.0	4.00	137.35	2,096.7	-71.8	66.2	79.9	0.00	0.00	
2,200.0	4.00	137.35	2,196.4	-77.0	70.9	85.6	0.00	0.00	
2,300.0	4.00	137.35	2,296.2	-82.1	75.6	91.3	0.00	0.00	
2,400.0	4.00	137.35	2,395.9	-87.2	80.3	97.0	0.00	0.00	
2,500.0	4.00	137.35	2,495.7	-92.4	85.1	102.7	0.00	0.00	
2,600.0	4.00	137.35	2,595.5	-97.5	89.8	108.4	0.00	0.00	
2,700.0	4.00	137.35	2,695.2	-102.6	94.5	114.1	0.00	0.00	
2,800.0	4.00	137.35	2,795.0	-107.7	99.3	119.8	0.00	0.00	
2,900.0	4.00	137.35	2,894.7	-112.9	104.0	125.5	0.00	0.00	
3,000.0	4.00	137.35	2,994.5	-118.0	108.7	131.2	0.00	0.00	
3,100.0	4.00	137.35	3,094.2	-123.1	113.4	136.9	0.00	0.00	
3,200.0	4.00	137.35	3,194.0	-128.3	118.2	142.6	0.00	0.00	
3,300.0	4.00	137.35	3,293.7	-133.4	122.9	148.3	0.00	0.00	
3,400.0	4.00	137.35	3,393.5	-138.5	127.6	154.1	0.00	0.00	
3,500.0	4.00	137.35	3,493.3	-143.7	132.3	159.8	0.00	0.00	
3,600.0	4.00	137.35	3,593.0	-148.8	137.1	165.5	0.00	0.00	
3,700.0	4.00	137.35	3,692.8	-153.9	141.8	171.2	0.00	0.00	
3,800.0	4.00	137.35	3,792.5	-159.1	146.5	176.9	0.00	0.00	
3,900.0	4.00	137.35	3,892.3	-164.2	151.2	182.6	0.00	0.00	
4,000.0	4.00	137.35	3,992.0	-169.3	156.0	188.3	0.00	0.00	
4,100.0	4.00	137.35	4,091.8	-174.4	160.7	194.0	0.00	0.00	
4,200.0	4.00	137.35	4,191.6	-179.6	165.4	199.7	0.00	0.00	
4,300.0	4.00	137.35	4,291.3	-184.7	170.1	205.4	0.00	0.00	
4,400.0	4.00	137.35	4,391.1	-189.8	174.9	211.1	0.00	0.00	
4,500.0	4.00	137.35	4,490.8	-195.0	179.6	216.8	0.00	0.00	
4,600.0	4.00	137.35	4,590.6	-200.1	184.3	222.5	0.00	0.00	
4,700.0	4.00	137.35	4,690.3	-205.2	189.0	228.2	0.00	0.00	
4,800.0	4.00	137.35	4,790.1	-210.4	193.8	233.9	0.00	0.00	
4,900.0	4.00	137.35	4,889.9	-215.5	198.5	239.6	0.00	0.00	
5,000.0	4.00	137.35	4,989.6	-220.6	203.2	245.3	0.00	0.00	
5,100.0	4.00	137.35	5,089.4	-225.7	208.0	251.1	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-1511A	**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	137.35	5,189.1	-230.9	212.7	256.8	0.00	0.00	
5,300.0	4.00	137.35	5,288.9	-236.0	217.4	262.5	0.00	0.00	
5,400.0	4.00	137.35	5,388.6	-241.1	222.1	268.2	0.00	0.00	
5,439.0	4.00	137.35	5,427.5	-243.1	224.0	270.4	0.00	0.00	Start 11 Deg Bulid
5,450.0	5.21	137.35	5,438.5	-243.8	224.6	271.1	11.00	11.00	
5,500.0	10.71	137.35	5,488.0	-248.9	229.3	276.8	11.00	11.00	
5,550.0	16.21	137.35	5,536.6	-257.4	237.1	286.3	11.00	11.00	
5,600.0	21.71	137.35	5,583.9	-269.4	248.1	299.6	11.00	11.00	
5,650.0	27.21	137.35	5,629.4	-284.6	262.2	316.5	11.00	11.00	
5,700.0	32.71	137.35	5,672.7	-303.0	279.1	336.9	11.00	11.00	
5,750.0	38.21	137.35	5,713.4	-324.3	298.7	360.6	11.00	11.00	
5,800.0	43.71	137.35	5,751.1	-348.4	320.9	387.4	11.00	11.00	
5,850.0	49.21	137.35	5,785.6	-375.0	345.5	417.1	11.00	11.00	
5,900.0	54.71	137.35	5,816.4	-404.0	372.1	449.3	11.00	11.00	
5,950.0	60.21	137.35	5,843.2	-435.0	400.7	483.7	11.00	11.00	
5,968.2	62.21	137.35	5,852.0	-446.7	411.5	496.8	11.00	11.00	Top Niobrara
6,000.0	65.71	137.35	5,866.0	-467.7	430.9	520.1	11.00	11.00	
6,050.0	71.21	137.35	5,884.3	-501.9	462.4	558.2	11.00	11.00	
6,100.0	76.71	137.35	5,898.1	-537.3	494.9	597.5	11.00	11.00	
6,150.0	82.21	137.35	5,907.3	-573.4	528.2	637.7	11.00	11.00	
6,200.0	87.71	137.35	5,911.6	-610.0	561.9	678.4	11.00	11.00	
6,220.8	90.00	137.35	5,912.1	-625.3	576.0	695.4	11.00	11.00	LP @ 6,220' MD
6,300.0	90.00	139.73	5,912.1	-684.7	628.4	761.1	3.00	0.00	
6,400.0	90.00	142.73	5,912.1	-762.6	691.1	846.6	3.00	0.00	7" (2,173' FEL-2,217' FSL)
6,500.0	90.00	145.73	5,912.1	-843.7	749.5	934.7	3.00	0.00	
6,600.0	90.00	148.73	5,912.1	-927.8	803.6	1,025.1	3.00	0.00	
6,700.0	90.00	151.73	5,912.1	-1,014.6	853.3	1,117.6	3.00	0.00	
6,800.0	90.00	154.73	5,912.1	-1,103.9	898.3	1,212.1	3.00	0.00	
6,900.0	90.00	157.73	5,912.1	-1,195.4	938.6	1,308.0	3.00	0.00	
7,000.0	90.00	160.73	5,912.1	-1,288.9	974.1	1,405.4	3.00	0.00	
7,100.0	90.00	163.73	5,912.1	-1,384.1	1,004.6	1,503.8	3.00	0.00	
7,200.0	90.00	166.73	5,912.1	-1,480.8	1,030.1	1,603.0	3.00	0.00	
7,300.0	90.00	169.73	5,912.1	-1,578.6	1,050.5	1,702.7	3.00	0.00	
7,400.0	90.00	172.73	5,912.1	-1,677.5	1,065.8	1,802.6	3.00	0.00	
7,500.0	90.00	175.73	5,912.1	-1,776.9	1,075.8	1,902.6	3.00	0.00	
7,600.0	90.00	178.73	5,912.1	-1,876.8	1,080.7	2,002.2	3.00	0.00	
7,642.3	90.00	180.00	5,912.1	-1,919.1	1,081.2	2,044.3	3.00	0.00	EOT; 180 Deg Azi
7,700.0	90.00	180.00	5,912.1	-1,976.8	1,081.2	2,101.4	0.00	0.00	
7,800.0	90.00	180.00	5,912.1	-2,076.8	1,081.2	2,200.6	0.00	0.00	
7,900.0	90.00	180.00	5,912.1	-2,176.8	1,081.2	2,299.7	0.00	0.00	
8,000.0	90.00	180.00	5,912.1	-2,276.8	1,081.2	2,398.8	0.00	0.00	
8,100.0	90.00	180.00	5,912.1	-2,376.8	1,081.2	2,498.0	0.00	0.00	
8,200.0	90.00	180.00	5,912.1	-2,476.8	1,081.2	2,597.1	0.00	0.00	
8,300.0	90.00	180.00	5,912.0	-2,576.8	1,081.2	2,696.3	0.00	0.00	
8,400.0	90.00	180.00	5,912.0	-2,676.8	1,081.2	2,795.4	0.00	0.00	
8,500.0	90.00	180.00	5,912.0	-2,776.8	1,081.2	2,894.5	0.00	0.00	
8,600.0	90.00	180.00	5,912.0	-2,876.8	1,081.2	2,993.7	0.00	0.00	
8,700.0	90.00	180.00	5,912.0	-2,976.8	1,081.2	3,092.8	0.00	0.00	
8,800.0	90.00	180.00	5,912.0	-3,076.8	1,081.2	3,191.9	0.00	0.00	
8,900.0	90.00	180.00	5,912.0	-3,176.8	1,081.2	3,291.1	0.00	0.00	
9,000.0	90.00	180.00	5,912.0	-3,276.8	1,081.2	3,390.2	0.00	0.00	
9,100.0	90.00	180.00	5,912.0	-3,376.8	1,081.3	3,489.4	0.00	0.00	

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Site:	S10-T10N-R58W	**North Reference:**	True
Well:	Razor #10F-1511A	**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
9,200.0	90.00	180.00	5,912.0	-3,476.8	1,081.3	3,588.5	0.00	0.00	
9,300.0	90.00	180.00	5,912.0	-3,576.8	1,081.3	3,687.6	0.00	0.00	
9,400.0	90.00	180.00	5,912.0	-3,676.8	1,081.3	3,786.8	0.00	0.00	
9,500.0	90.00	180.00	5,912.0	-3,776.8	1,081.3	3,885.9	0.00	0.00	
9,600.0	90.00	180.00	5,912.0	-3,876.8	1,081.3	3,985.1	0.00	0.00	
9,700.0	90.00	180.00	5,912.0	-3,976.8	1,081.3	4,084.2	0.00	0.00	
9,800.0	90.00	180.00	5,912.0	-4,076.8	1,081.3	4,183.3	0.00	0.00	
9,900.0	90.00	180.00	5,912.0	-4,176.8	1,081.3	4,282.5	0.00	0.00	
10,000.0	90.00	180.00	5,912.0	-4,276.8	1,081.3	4,381.6	0.00	0.00	
10,100.0	90.00	180.00	5,912.0	-4,376.8	1,081.3	4,480.8	0.00	0.00	
10,200.0	90.00	180.00	5,912.0	-4,476.8	1,081.3	4,579.9	0.00	0.00	
10,300.0	90.00	180.00	5,912.0	-4,576.8	1,081.3	4,679.0	0.00	0.00	
10,400.0	90.00	180.00	5,912.0	-4,676.8	1,081.3	4,778.2	0.00	0.00	
10,500.0	90.00	180.00	5,912.0	-4,776.8	1,081.3	4,877.3	0.00	0.00	
10,600.0	90.00	180.00	5,912.0	-4,876.8	1,081.4	4,976.4	0.00	0.00	
10,700.0	90.00	180.00	5,912.0	-4,976.8	1,081.4	5,075.6	0.00	0.00	
10,800.0	90.00	180.00	5,912.0	-5,076.8	1,081.4	5,174.7	0.00	0.00	
10,900.0	90.00	180.00	5,912.0	-5,176.8	1,081.4	5,273.9	0.00	0.00	
11,000.0	90.00	180.00	5,912.0	-5,276.8	1,081.4	5,373.0	0.00	0.00	
11,100.0	90.00	180.00	5,912.0	-5,376.8	1,081.4	5,472.1	0.00	0.00	
11,200.0	90.00	180.00	5,912.0	-5,476.8	1,081.4	5,571.3	0.00	0.00	
11,300.0	90.00	180.00	5,912.0	-5,576.8	1,081.4	5,670.4	0.00	0.00	
11,400.0	90.00	180.00	5,912.0	-5,676.8	1,081.4	5,769.6	0.00	0.00	
11,500.0	90.00	180.00	5,912.0	-5,776.8	1,081.4	5,868.7	0.00	0.00	
11,600.0	90.00	180.00	5,912.0	-5,876.8	1,081.4	5,967.8	0.00	0.00	
11,700.0	90.00	180.00	5,912.0	-5,976.8	1,081.4	6,067.0	0.00	0.00	
11,800.0	90.00	180.00	5,912.0	-6,076.8	1,081.4	6,166.1	0.00	0.00	
11,900.0	90.00	180.00	5,912.0	-6,176.8	1,081.4	6,265.3	0.00	0.00	
12,000.0	90.00	180.00	5,912.0	-6,276.8	1,081.5	6,364.4	0.00	0.00	
12,100.0	90.00	180.00	5,912.0	-6,376.8	1,081.5	6,463.5	0.00	0.00	
12,200.0	90.00	180.00	5,912.0	-6,476.8	1,081.5	6,562.7	0.00	0.00	
12,300.0	90.00	180.00	5,912.0	-6,576.8	1,081.5	6,661.8	0.00	0.00	
12,400.0	90.00	180.00	5,912.0	-6,676.8	1,081.5	6,760.9	0.00	0.00	
12,500.0	90.00	180.00	5,912.0	-6,776.8	1,081.5	6,860.1	0.00	0.00	
12,600.0	90.00	180.00	5,912.0	-6,876.8	1,081.5	6,959.2	0.00	0.00	
12,700.0	90.00	180.00	5,912.0	-6,976.8	1,081.5	7,058.4	0.00	0.00	
12,800.0	90.00	180.00	5,912.0	-7,076.8	1,081.5	7,157.5	0.00	0.00	
12,900.0	90.00	180.00	5,912.0	-7,176.8	1,081.5	7,256.6	0.00	0.00	
13,000.0	90.00	180.00	5,912.0	-7,276.8	1,081.5	7,355.8	0.00	0.00	
13,100.0	90.00	180.00	5,912.0	-7,376.8	1,081.5	7,454.9	0.00	0.00	
13,200.0	90.00	180.00	5,912.0	-7,476.8	1,081.5	7,554.1	0.00	0.00	
13,300.0	90.00	180.00	5,912.0	-7,576.8	1,081.5	7,653.2	0.00	0.00	
13,400.0	90.00	180.00	5,912.0	-7,676.8	1,081.5	7,752.3	0.00	0.00	
13,500.0	90.00	180.00	5,912.0	-7,776.8	1,081.6	7,851.5	0.00	0.00	
13,600.0	90.00	180.00	5,912.0	-7,876.8	1,081.6	7,950.6	0.00	0.00	
13,700.0	90.00	180.00	5,912.0	-7,976.8	1,081.6	8,049.7	0.00	0.00	
13,800.0	90.00	180.00	5,912.0	-8,076.8	1,081.6	8,148.9	0.00	0.00	
13,906.7	90.00	180.00	5,912.0	-8,183.5	1,081.6	8,254.6	0.00	0.00	PBHL @ 13,906' MD

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #10F-1511A
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-1511A	**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-1511A PBHL(1,815' - plan hits target center - Point	0.00	0.00	5,912.0	-8,183.5	1,081.6	1,550,080.44	3,456,923.01	40° 49' 54.02 N	103° 50' 55.66 W

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
6,400.0	5,912.1	7" (2,173' FEL-2,217' FSL)	7	7-1/2

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,968.2	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
600.0	600.0	0.0	0.0	KOP @ 600' MD
800.0	799.8	-5.1	4.7	EOB; 4 Deg Inc
5,439.0	5,427.5	-243.1	224.0	Start 11 Deg Bulid
6,220.8	5,912.1	-625.3	576.0	LP @ 6,220' MD
7,642.3	5,912.1	-1,919.1	1,081.2	EOT; 180 Deg Azi
13,906.7	5,912.0	-8,183.5	1,081.6	PBHL @ 13,906' MD

Whiting Petroleum Corporation

Weld County, CO
S10-T10N-R58W
Razor #10F-1511A
HZ
Plan #1

Anticollision Report

19 August, 2013

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1511A
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-1511A	**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	13,906.7	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	211.2	209.2	106.408	CC, ES
Razor #10F-0305A - HZ - Plan #1	5,400.0	5,342.7	844.5	820.5	35.209	SF
Razor #10F-0306B - HZ - Plan #1	600.0	600.0	180.7	178.3	74.227	CC, ES
Razor #10F-0306B - HZ - Plan #1	5,400.0	5,346.7	799.8	775.8	33.283	SF
Razor #10F-0307A - HZ - Plan #1	600.0	600.0	151.3	148.8	62.130	CC, ES
Razor #10F-0307A - HZ - Plan #1	5,400.0	5,351.8	748.6	724.4	30.998	SF
Razor #10F-0308B - HZ - Plan #1	600.0	600.0	123.6	121.2	50.785	CC, ES
Razor #10F-0308B - HZ - Plan #1	5,400.0	5,359.2	682.4	658.0	27.966	SF
Razor #10F-0309A - HZ - Plan #1	600.0	600.0	99.9	97.5	41.030	CC, ES
Razor #10F-0309A - HZ - Plan #1	5,400.0	5,364.0	630.8	606.2	25.641	SF
Razor #10F-0310B - HZ - Plan #1	600.0	600.0	81.9	79.4	33.622	CC, ES
Razor #10F-0310B - HZ - Plan #1	5,400.0	5,368.3	581.6	556.8	23.442	SF
Razor #10F-0311A - HZ - Plan #1	600.0	600.0	74.9	72.4	30.756	CC, ES
Razor #10F-0311A - HZ - Plan #1	1,300.0	1,294.1	113.3	107.9	20.812	SF
Razor #10F-0312B - HZ - Plan #1	600.0	600.0	81.9	79.5	33.640	CC, ES
Razor #10F-0312B - HZ - Plan #1	1,400.0	1,393.2	115.3	109.4	19.463	SF
Razor #10F-1505A - HZ - Plan #1	600.0	600.0	197.5	195.1	81.117	CC, ES
Razor #10F-1505A - HZ - Plan #1	5,400.0	5,379.1	558.4	533.1	22.061	SF
Razor #10F-1506B - HZ - Plan #1	600.0	600.0	164.5	162.0	67.545	CC, ES
Razor #10F-1506B - HZ - Plan #1	5,400.0	5,386.2	476.5	450.9	18.613	SF
Razor #10F-1507A - HZ - Plan #1	600.0	600.0	132.2	129.7	54.289	CC, ES
Razor #10F-1507A - HZ - Plan #1	13,906.7	13,581.9	1,253.0	936.2	3.956	SF
Razor #10F-1508B - HZ - Plan #1	600.0	600.0	98.4	95.9	40.401	CC, ES
Razor #10F-1508B - HZ - Plan #1	13,906.7	13,697.1	928.7	614.6	2.957	SF
Razor #10F-1509A - HZ - Plan #1	600.0	600.0	66.1	63.7	27.144	CC, ES
Razor #10F-1509A - HZ - Plan #1	13,906.7	13,658.0	659.6	345.2	2.098	SF
Razor #10F-1510B - HZ - Plan #1	600.0	600.0	33.0	30.6	13.572	CC, ES
Razor #10F-1510B - HZ - Plan #1	13,906.7	13,858.2	344.9	42.5	1.141	Level 2, SF
Razor #10F-1512B - HZ - Plan #1	500.0	500.0	53.8	51.8	27.097	CC
Razor #10F-1512B - HZ - Plan #1	13,906.7	14,155.5	345.7	45.1	1.150	Level 2, ES, SF

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1511A
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-1511A	**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	-69.22	74.9	-197.5	211.2				
100.0	100.0	100.0	100.0	0.1	0.1	-69.22	74.9	-197.5	211.2	211.0	0.19	1,129.560	
200.0	200.0	200.0	200.0	0.3	0.3	-69.22	74.9	-197.5	211.2	210.6	0.64	331.848	
300.0	300.0	300.0	300.0	0.5	0.5	-69.22	74.9	-197.5	211.2	210.1	1.09	194.494	
400.0	400.0	400.0	400.0	0.8	0.8	-69.22	74.9	-197.5	211.2	209.7	1.54	137.558	
500.0	500.0	500.0	500.0	1.0	1.0	-69.22	74.9	-197.5	211.2	209.2	1.99	106.408	CC, ES
600.0	600.0	594.4	594.4	1.2	1.2	-68.97	76.3	-198.3	212.5	210.1	2.42	87.768	
700.0	700.0	688.5	688.4	1.4	1.4	154.56	80.2	-200.8	218.1	215.2	2.84	76.820	
800.0	799.8	787.1	786.7	1.6	1.6	156.05	86.0	-204.4	228.5	225.2	3.26	70.153	
900.0	899.6	886.1	885.5	1.8	1.9	157.67	91.9	-208.1	240.7	237.0	3.68	65.466	
1,000.0	999.4	985.1	984.3	2.0	2.1	159.12	97.7	-211.7	253.1	249.0	4.11	61.644	
1,100.0	1,099.1	1,084.2	1,083.1	2.3	2.4	160.44	103.6	-215.4	265.6	261.1	4.54	58.493	
1,200.0	1,198.9	1,183.2	1,181.9	2.5	2.6	161.64	109.5	-219.0	278.3	273.3	4.98	55.869	
1,300.0	1,298.6	1,282.2	1,280.7	2.8	2.9	162.74	115.3	-222.7	291.0	285.6	5.42	53.660	
1,400.0	1,398.4	1,381.3	1,379.5	3.0	3.1	163.74	121.2	-226.3	303.9	298.0	5.87	51.782	
1,500.0	1,498.1	1,480.3	1,478.2	3.3	3.4	164.66	127.0	-230.0	316.8	310.5	6.32	50.166	
1,600.0	1,597.9	1,579.3	1,577.0	3.5	3.6	165.51	132.9	-233.6	329.8	323.1	6.76	48.769	
1,700.0	1,697.6	1,678.4	1,675.8	3.8	3.9	166.30	138.8	-237.3	342.9	335.7	7.21	47.547	
1,800.0	1,797.4	1,777.4	1,774.6	4.0	4.1	167.03	144.6	-241.0	356.0	348.4	7.66	46.472	
1,900.0	1,897.2	1,876.5	1,873.4	4.3	4.4	167.70	150.5	-244.6	369.2	361.1	8.11	45.519	
2,000.0	1,996.9	1,975.5	1,972.2	4.5	4.6	168.33	156.4	-248.3	382.5	373.9	8.56	44.669	
2,100.0	2,096.7	2,074.5	2,071.0	4.8	4.9	168.92	162.2	-251.9	395.8	386.7	9.01	43.906	
2,200.0	2,196.4	2,173.6	2,169.8	5.0	5.1	169.47	168.1	-255.6	409.1	399.6	9.47	43.219	
2,300.0	2,296.2	2,272.6	2,268.6	5.3	5.4	169.98	173.9	-259.2	422.4	412.5	9.92	42.597	
2,400.0	2,395.9	2,371.6	2,367.4	5.6	5.6	170.47	179.8	-262.9	435.8	425.4	10.37	42.031	
2,500.0	2,495.7	2,470.7	2,466.2	5.8	5.9	170.92	185.7	-266.5	449.2	438.4	10.82	41.513	
2,600.0	2,595.5	2,569.7	2,565.0	6.1	6.1	171.35	191.5	-270.2	462.7	451.4	11.27	41.039	
2,700.0	2,695.2	2,668.7	2,663.8	6.3	6.4	171.75	197.4	-273.9	476.1	464.4	11.73	40.603	
2,800.0	2,795.0	2,767.8	2,762.6	6.6	6.7	172.13	203.3	-277.5	489.6	477.4	12.18	40.201	
2,900.0	2,894.7	2,866.8	2,861.4	6.9	6.9	172.49	209.1	-281.2	503.1	490.5	12.63	39.828	
3,000.0	2,994.5	2,965.8	2,960.2	7.1	7.2	172.84	215.0	-284.8	516.6	503.6	13.09	39.483	
3,100.0	3,094.2	3,064.9	3,059.0	7.4	7.4	173.16	220.8	-288.5	530.2	516.6	13.54	39.161	
3,200.0	3,194.0	3,163.9	3,157.7	7.6	7.7	173.47	226.7	-292.1	543.7	529.8	13.99	38.861	
3,300.0	3,293.7	3,262.9	3,256.5	7.9	7.9	173.76	232.6	-295.8	557.3	542.9	14.45	38.581	
3,400.0	3,393.5	3,362.0	3,355.3	8.2	8.2	174.04	238.4	-299.4	570.9	556.0	14.90	38.318	
3,500.0	3,493.3	3,461.0	3,454.1	8.4	8.4	174.31	244.3	-303.1	584.5	569.1	15.35	38.072	
3,600.0	3,593.0	3,560.1	3,552.9	8.7	8.7	174.56	250.1	-306.8	598.1	582.3	15.81	37.840	
3,700.0	3,692.8	3,659.1	3,651.7	9.0	8.9	174.81	256.0	-310.4	611.7	595.5	16.26	37.622	
3,800.0	3,792.5	3,758.1	3,750.5	9.2	9.2	175.04	261.9	-314.1	625.4	608.6	16.71	37.415	
3,900.0	3,892.3	3,857.2	3,849.3	9.5	9.5	175.26	267.7	-317.7	639.0	621.8	17.17	37.221	
4,000.0	3,992.0	3,956.2	3,948.1	9.7	9.7	175.47	273.6	-321.4	652.7	635.0	17.62	37.036	
4,100.0	4,091.8	4,055.2	4,046.9	10.0	10.0	175.68	279.5	-325.0	666.3	648.2	18.08	36.861	
4,200.0	4,191.6	4,154.3	4,145.7	10.3	10.2	175.88	285.3	-328.7	680.0	661.5	18.53	36.696	
4,300.0	4,291.3	4,253.3	4,244.5	10.5	10.5	176.06	291.2	-332.3	693.7	674.7	18.98	36.538	
4,400.0	4,391.1	4,352.3	4,343.3	10.8	10.7	176.25	297.0	-336.0	707.3	687.9	19.44	36.388	
4,500.0	4,490.8	4,451.4	4,442.1	11.1	11.0	176.42	302.9	-339.7	721.0	701.1	19.89	36.245	
4,600.0	4,590.6	4,550.4	4,540.9	11.3	11.2	176.59	308.8	-343.3	734.7	714.4	20.35	36.108	
4,700.0	4,690.3	4,649.4	4,639.7	11.6	11.5	176.75	314.6	-347.0	748.4	727.6	20.80	35.978	
4,800.0	4,790.1	4,748.5	4,738.5	11.8	11.7	176.91	320.5	-350.6	762.1	740.9	21.26	35.854	
4,900.0	4,889.9	4,847.5	4,837.2	12.1	12.0	177.06	326.4	-354.3	775.8	754.1	21.71	35.735	
5,000.0	4,989.6	4,946.5	4,936.0	12.4	12.3	177.20	332.2	-357.9	789.6	767.4	22.17	35.621	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1511A
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-1511A	**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	5,089.4	5,045.6	5,034.8	12.6	12.5	177.34	338.1	-361.6	803.3	780.7	22.62	35.511	
5,200.0	5,189.1	5,144.6	5,133.6	12.9	12.8	177.48	343.9	-365.3	817.0	793.9	23.07	35.407	
5,300.0	5,288.9	5,243.7	5,232.4	13.2	13.0	177.61	349.8	-368.9	830.7	807.2	23.53	35.306	
5,400.0	5,388.6	5,342.7	5,331.2	13.4	13.3	177.74	355.7	-372.6	844.5	820.5	23.98	35.209	SF
5,500.0	5,488.0	5,439.0	5,427.3	13.7	13.5	177.81	361.4	-376.1	861.7	837.6	24.10	35.752	
5,600.0	5,583.9	5,474.7	5,462.8	14.2	13.6	177.72	364.5	-378.1	899.2	876.0	23.23	38.703	
5,700.0	5,672.7	5,500.0	5,487.8	14.8	13.7	177.48	368.0	-380.2	958.7	937.1	21.58	44.427	
5,800.0	5,751.1	5,526.1	5,513.3	15.7	13.8	177.02	372.6	-383.2	1,035.5	1,016.2	19.26	53.774	
5,900.0	5,816.4	5,550.0	5,536.4	16.8	13.9	175.97	377.9	-386.4	1,124.7	1,108.3	16.44	68.431	
6,000.0	5,866.0	5,550.0	5,536.4	18.1	13.9	171.25	377.9	-386.4	1,221.3	1,207.2	14.05	86.911	
6,100.0	5,898.1	5,550.0	5,536.4	19.7	13.9	25.14	377.9	-386.4	1,321.0	1,303.9	17.05	77.479	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1511A
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-1511A	**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	-65.50	74.9	-164.4	180.7				
100.0	100.0	100.0	100.0	0.1	0.1	-65.50	74.9	-164.4	180.7	180.5	0.19	966.373	
200.0	200.0	200.0	200.0	0.3	0.3	-65.50	74.9	-164.4	180.7	180.1	0.64	283.906	
300.0	300.0	300.0	300.0	0.5	0.5	-65.50	74.9	-164.4	180.7	179.6	1.09	166.395	
400.0	400.0	400.0	400.0	0.8	0.8	-65.50	74.9	-164.4	180.7	179.2	1.54	117.685	
500.0	500.0	500.0	500.0	1.0	1.0	-65.50	74.9	-164.4	180.7	178.7	1.99	91.035	
600.0	600.0	600.0	600.0	1.2	1.2	-65.50	74.9	-164.4	180.7	178.3	2.43	74.227	CC, ES
700.0	700.0	695.6	695.5	1.4	1.4	157.67	76.4	-165.0	183.5	180.7	2.85	64.358	
800.0	799.8	790.5	790.3	1.6	1.6	159.15	80.8	-166.8	192.1	188.8	3.26	58.917	
900.0	899.6	889.1	888.7	1.8	1.9	161.14	87.2	-169.3	203.9	200.2	3.68	55.366	
1,000.0	999.4	988.1	987.5	2.0	2.1	162.93	93.6	-171.8	215.9	211.8	4.11	52.524	
1,100.0	1,099.1	1,087.2	1,086.3	2.3	2.4	164.52	100.1	-174.3	228.1	223.6	4.55	50.187	
1,200.0	1,198.9	1,186.2	1,185.1	2.5	2.6	165.95	106.5	-176.9	240.5	235.5	4.99	48.245	
1,300.0	1,298.6	1,285.3	1,283.9	2.8	2.8	167.24	112.9	-179.4	253.0	247.6	5.43	46.614	
1,400.0	1,398.4	1,384.4	1,382.8	3.0	3.1	168.41	119.4	-181.9	265.7	259.8	5.87	45.231	
1,500.0	1,498.1	1,483.4	1,481.6	3.3	3.3	169.47	125.8	-184.5	278.4	272.1	6.32	44.046	
1,600.0	1,597.9	1,582.5	1,580.4	3.5	3.6	170.44	132.2	-187.0	291.2	284.5	6.77	43.022	
1,700.0	1,697.6	1,681.5	1,679.2	3.8	3.8	171.33	138.6	-189.5	304.1	296.9	7.22	42.130	
1,800.0	1,797.4	1,780.6	1,778.0	4.0	4.1	172.15	145.1	-192.1	317.1	309.4	7.67	41.347	
1,900.0	1,897.2	1,879.7	1,876.9	4.3	4.3	172.90	151.5	-194.6	330.1	322.0	8.12	40.654	
2,000.0	1,996.9	1,978.7	1,975.7	4.5	4.6	173.59	157.9	-197.1	343.2	334.6	8.57	40.038	
2,100.0	2,096.7	2,077.8	2,074.5	4.8	4.8	174.24	164.4	-199.6	356.3	347.3	9.02	39.486	
2,200.0	2,196.4	2,176.8	2,173.3	5.0	5.1	174.83	170.8	-202.2	369.4	360.0	9.48	38.990	
2,300.0	2,296.2	2,275.9	2,272.1	5.3	5.3	175.39	177.2	-204.7	382.6	372.7	9.93	38.542	
2,400.0	2,395.9	2,374.9	2,371.0	5.6	5.6	175.91	183.7	-207.2	395.9	385.5	10.38	38.134	
2,500.0	2,495.7	2,474.0	2,469.8	5.8	5.8	176.40	190.1	-209.8	409.1	398.3	10.83	37.763	
2,600.0	2,595.5	2,573.1	2,568.6	6.1	6.1	176.85	196.5	-212.3	422.4	411.1	11.29	37.423	
2,700.0	2,695.2	2,672.1	2,667.4	6.3	6.3	177.28	202.9	-214.8	435.7	424.0	11.74	37.110	
2,800.0	2,795.0	2,771.2	2,766.2	6.6	6.6	177.68	209.4	-217.4	449.0	436.8	12.19	36.822	
2,900.0	2,894.7	2,870.2	2,865.0	6.9	6.9	178.06	215.8	-219.9	462.4	449.7	12.65	36.556	
3,000.0	2,994.5	2,969.3	2,963.9	7.1	7.1	178.42	222.2	-222.4	475.8	462.7	13.10	36.310	
3,100.0	3,094.2	3,068.4	3,062.7	7.4	7.4	178.76	228.7	-224.9	489.1	475.6	13.56	36.080	
3,200.0	3,194.0	3,167.4	3,161.5	7.6	7.6	179.08	235.1	-227.5	502.5	488.5	14.01	35.867	
3,300.0	3,293.7	3,266.5	3,260.3	7.9	7.9	179.38	241.5	-230.0	516.0	501.5	14.47	35.667	
3,400.0	3,393.5	3,365.5	3,359.1	8.2	8.1	179.67	248.0	-232.5	529.4	514.5	14.92	35.481	
3,500.0	3,493.3	3,464.6	3,458.0	8.4	8.4	179.94	254.4	-235.1	542.8	527.5	15.38	35.306	
3,600.0	3,593.0	3,563.7	3,556.8	8.7	8.6	-179.80	260.8	-237.6	556.3	540.5	15.83	35.141	
3,700.0	3,692.8	3,662.7	3,655.6	9.0	8.9	-179.55	267.3	-240.1	569.8	553.5	16.29	34.986	
3,800.0	3,792.5	3,761.8	3,754.4	9.2	9.1	-179.31	273.7	-242.7	583.2	566.5	16.74	34.840	
3,900.0	3,892.3	3,860.8	3,853.2	9.5	9.4	-179.08	280.1	-245.2	596.7	579.5	17.20	34.702	
4,000.0	3,992.0	3,959.9	3,952.0	9.7	9.6	-178.87	286.5	-247.7	610.2	592.6	17.65	34.572	
4,100.0	4,091.8	4,059.0	4,050.9	10.0	9.9	-178.66	293.0	-250.2	623.7	605.6	18.11	34.448	
4,200.0	4,191.6	4,158.0	4,149.7	10.3	10.2	-178.46	299.4	-252.8	637.2	618.7	18.56	34.331	
4,300.0	4,291.3	4,257.1	4,248.5	10.5	10.4	-178.27	305.8	-255.3	650.7	631.7	19.02	34.219	
4,400.0	4,391.1	4,356.1	4,347.3	10.8	10.7	-178.09	312.3	-257.8	664.3	644.8	19.47	34.113	
4,500.0	4,490.8	4,455.2	4,446.1	11.1	10.9	-177.92	318.7	-260.4	677.8	657.9	19.93	34.013	
4,600.0	4,590.6	4,554.3	4,545.0	11.3	11.2	-177.75	325.1	-262.9	691.3	671.0	20.38	33.916	
4,700.0	4,690.3	4,653.3	4,643.8	11.6	11.4	-177.59	331.6	-265.4	704.9	684.0	20.84	33.825	
4,800.0	4,790.1	4,752.4	4,742.6	11.8	11.7	-177.43	338.0	-268.0	718.4	697.1	21.29	33.737	
4,900.0	4,889.9	4,851.4	4,841.4	12.1	11.9	-177.28	344.4	-270.5	732.0	710.2	21.75	33.653	
5,000.0	4,989.6	4,950.5	4,940.2	12.4	12.2	-177.14	350.8	-273.0	745.5	723.3	22.21	33.573	
5,100.0	5,089.4	5,049.6	5,039.0	12.6	12.4	-177.00	357.3	-275.6	759.1	736.4	22.66	33.496	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1511A
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-1511A	**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	5,189.1	5,148.6	5,137.9	12.9	12.7	-176.86	363.7	-278.1	772.7	749.5	23.12	33.422	
5,300.0	5,288.9	5,247.7	5,236.7	13.2	13.0	-176.73	370.1	-280.6	786.2	762.7	23.57	33.351	
5,400.0	5,388.6	5,346.7	5,335.5	13.4	13.2	-176.61	376.6	-283.1	799.8	775.8	24.03	33.283	SF
5,500.0	5,488.0	5,445.2	5,433.7	13.7	13.5	-176.42	383.0	-285.7	816.9	792.7	24.16	33.818	
5,600.0	5,583.9	5,539.0	5,527.3	14.2	13.7	-176.14	389.0	-288.1	851.0	827.6	23.40	36.369	
5,700.0	5,672.7	5,571.9	5,560.0	14.8	13.8	-175.64	392.1	-289.2	904.9	883.1	21.74	41.624	
5,800.0	5,751.1	5,600.0	5,587.8	15.7	13.9	-174.66	396.2	-290.9	977.4	958.0	19.40	50.390	
5,900.0	5,816.4	5,600.0	5,587.8	16.8	13.9	-172.48	396.2	-290.9	1,064.0	1,047.4	16.59	64.123	
6,000.0	5,866.0	5,624.7	5,611.9	18.1	14.0	-166.40	401.0	-292.7	1,158.8	1,144.2	14.54	79.676	
6,100.0	5,898.1	5,628.0	5,615.2	19.7	14.0	-96.14	401.7	-293.0	1,258.0	1,224.7	33.31	37.768	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1511A
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-1511A	**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	-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	808.884	
200.0	200.0	200.0	200.0	0.3	0.3	-60.31	74.9	-131.4	151.3	150.6	0.64	237.638	
300.0	300.0	300.0	300.0	0.5	0.5	-60.31	74.9	-131.4	151.3	150.2	1.09	139.278	
400.0	400.0	400.0	400.0	0.8	0.8	-60.31	74.9	-131.4	151.3	149.7	1.54	98.506	
500.0	500.0	500.0	500.0	1.0	1.0	-60.31	74.9	-131.4	151.3	149.3	1.99	76.199	
600.0	600.0	600.0	600.0	1.2	1.2	-60.31	74.9	-131.4	151.3	148.8	2.43	62.130	CC, ES
700.0	700.0	700.0	700.0	1.4	1.4	162.53	74.9	-131.4	152.9	150.1	2.86	53.442	
800.0	799.8	796.4	796.4	1.6	1.7	163.50	76.5	-131.7	159.0	155.7	3.27	48.651	
900.0	899.6	892.2	892.1	1.8	1.9	165.41	81.3	-132.4	169.0	165.3	3.68	45.875	
1,000.0	999.4	991.0	990.6	2.0	2.1	167.62	88.1	-133.4	180.5	176.4	4.11	43.871	
1,100.0	1,099.1	1,090.1	1,089.5	2.3	2.3	169.56	94.9	-134.5	192.2	187.7	4.55	42.255	
1,200.0	1,198.9	1,189.2	1,188.4	2.5	2.6	171.28	101.8	-135.5	204.1	199.2	4.99	40.920	
1,300.0	1,298.6	1,288.3	1,287.2	2.8	2.8	172.81	108.6	-136.6	216.2	210.8	5.43	39.803	
1,400.0	1,398.4	1,387.5	1,386.1	3.0	3.1	174.18	115.4	-137.6	228.5	222.6	5.88	38.860	
1,500.0	1,498.1	1,486.6	1,485.0	3.3	3.3	175.41	122.3	-138.7	240.8	234.5	6.33	38.056	
1,600.0	1,597.9	1,585.7	1,583.8	3.5	3.5	176.51	129.1	-139.7	253.2	246.5	6.78	37.364	
1,700.0	1,697.6	1,684.8	1,682.7	3.8	3.8	177.52	135.9	-140.7	265.8	258.5	7.23	36.765	
1,800.0	1,797.4	1,783.9	1,781.6	4.0	4.0	178.43	142.8	-141.8	278.4	270.7	7.68	36.240	
1,900.0	1,897.2	1,883.0	1,880.5	4.3	4.3	179.27	149.6	-142.8	291.0	282.9	8.13	35.779	
2,000.0	1,996.9	1,982.1	1,979.3	4.5	4.5	-179.97	156.4	-143.9	303.7	295.2	8.59	35.369	
2,100.0	2,096.7	2,081.2	2,078.2	4.8	4.8	-179.26	163.3	-144.9	316.5	307.5	9.04	35.004	
2,200.0	2,196.4	2,180.3	2,177.1	5.0	5.0	-178.62	170.1	-146.0	329.3	319.8	9.50	34.677	
2,300.0	2,296.2	2,279.4	2,275.9	5.3	5.3	-178.02	176.9	-147.0	342.2	332.2	9.95	34.382	
2,400.0	2,395.9	2,378.6	2,374.8	5.6	5.5	-177.46	183.8	-148.1	355.0	344.6	10.41	34.115	
2,500.0	2,495.7	2,477.7	2,473.7	5.8	5.8	-176.94	190.6	-149.1	368.0	357.1	10.86	33.872	
2,600.0	2,595.5	2,576.8	2,572.5	6.1	6.0	-176.46	197.4	-150.2	380.9	369.6	11.32	33.650	
2,700.0	2,695.2	2,675.9	2,671.4	6.3	6.3	-176.01	204.3	-151.2	393.9	382.1	11.78	33.447	
2,800.0	2,795.0	2,775.0	2,770.3	6.6	6.6	-175.58	211.1	-152.2	406.9	394.6	12.23	33.260	
2,900.0	2,894.7	2,874.1	2,869.1	6.9	6.8	-175.19	217.9	-153.3	419.9	407.2	12.69	33.088	
3,000.0	2,994.5	2,973.2	2,968.0	7.1	7.1	-174.82	224.8	-154.3	432.9	419.7	13.15	32.928	
3,100.0	3,094.2	3,072.3	3,066.9	7.4	7.3	-174.47	231.6	-155.4	445.9	432.3	13.60	32.780	
3,200.0	3,194.0	3,171.4	3,165.7	7.6	7.6	-174.14	238.4	-156.4	459.0	444.9	14.06	32.643	
3,300.0	3,293.7	3,270.5	3,264.6	7.9	7.8	-173.82	245.3	-157.5	472.1	457.5	14.52	32.514	
3,400.0	3,393.5	3,369.7	3,363.5	8.2	8.1	-173.53	252.1	-158.5	485.2	470.2	14.98	32.395	
3,500.0	3,493.3	3,468.8	3,462.3	8.4	8.3	-173.25	258.9	-159.6	498.3	482.8	15.43	32.282	
3,600.0	3,593.0	3,567.9	3,561.2	8.7	8.6	-172.98	265.8	-160.6	511.4	495.5	15.89	32.177	
3,700.0	3,692.8	3,667.0	3,660.1	9.0	8.8	-172.73	272.6	-161.7	524.5	508.1	16.35	32.078	
3,800.0	3,792.5	3,766.1	3,758.9	9.2	9.1	-172.49	279.5	-162.7	537.6	520.8	16.81	31.985	
3,900.0	3,892.3	3,865.2	3,857.8	9.5	9.3	-172.26	286.3	-163.7	550.7	533.5	17.27	31.897	
4,000.0	3,992.0	3,964.3	3,956.7	9.7	9.6	-172.04	293.1	-164.8	563.9	546.2	17.72	31.814	
4,100.0	4,091.8	4,063.4	4,055.6	10.0	9.8	-171.83	300.0	-165.8	577.1	558.9	18.18	31.735	
4,200.0	4,191.6	4,162.5	4,154.4	10.3	10.1	-171.64	306.8	-166.9	590.2	571.6	18.64	31.661	
4,300.0	4,291.3	4,261.6	4,253.3	10.5	10.3	-171.45	313.6	-167.9	603.4	584.3	19.10	31.590	
4,400.0	4,391.1	4,360.8	4,352.2	10.8	10.6	-171.26	320.5	-169.0	616.6	597.0	19.56	31.523	
4,500.0	4,490.8	4,459.9	4,451.0	11.1	10.9	-171.09	327.3	-170.0	629.7	609.7	20.02	31.459	
4,600.0	4,590.6	4,559.0	4,549.9	11.3	11.1	-170.92	334.1	-171.1	642.9	622.4	20.48	31.398	
4,700.0	4,690.3	4,658.1	4,648.8	11.6	11.4	-170.76	341.0	-172.1	656.1	635.2	20.94	31.340	
4,800.0	4,790.1	4,757.2	4,747.6	11.8	11.6	-170.61	347.8	-173.2	669.3	647.9	21.39	31.284	
4,900.0	4,889.9	4,856.3	4,846.5	12.1	11.9	-170.46	354.6	-174.2	682.5	660.7	21.85	31.231	
5,000.0	4,989.6	4,955.4	4,945.4	12.4	12.1	-170.32	361.5	-175.3	695.7	673.4	22.31	31.181	
5,100.0	5,089.4	5,054.5	5,044.2	12.6	12.4	-170.18	368.3	-176.3	708.9	686.2	22.77	31.132	

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-1511A
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-1511A	**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	5,189.1	5,153.6	5,143.1	12.9	12.6	-170.05	375.1	-177.3	722.1	698.9	23.23	31.086	
5,300.0	5,288.9	5,252.7	5,242.0	13.2	12.9	-169.92	382.0	-178.4	735.4	711.7	23.69	31.041	
5,400.0	5,388.6	5,351.8	5,340.8	13.4	13.1	-169.80	388.8	-179.4	748.6	724.4	24.15	30.998	SF
5,500.0	5,488.0	5,443.8	5,432.6	13.7	13.4	-169.49	395.2	-180.4	765.3	741.0	24.27	31.527	
5,600.0	5,583.9	5,482.8	5,471.3	14.2	13.5	-168.66	399.6	-181.1	802.8	779.4	23.46	34.221	
5,700.0	5,672.7	5,515.4	5,503.3	14.8	13.6	-166.99	405.6	-182.0	862.1	840.2	21.94	39.288	
5,800.0	5,751.1	5,550.0	5,536.9	15.7	13.7	-163.88	414.0	-183.3	938.8	918.8	20.03	46.883	
5,900.0	5,816.4	5,550.0	5,536.9	16.8	13.7	-156.61	414.0	-183.3	1,027.5	1,008.7	18.78	54.704	
6,000.0	5,866.0	5,550.0	5,536.9	18.1	13.7	-133.44	414.0	-183.3	1,123.8	1,099.7	24.09	46.644	
6,100.0	5,898.1	5,567.9	5,553.9	19.7	13.8	-65.58	419.2	-184.1	1,222.4	1,191.7	30.74	39.761	
6,200.0	5,911.7	5,550.0	5,536.9	21.3	13.7	-24.20	414.0	-183.3	1,320.8	1,304.3	16.44	80.319	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1511A
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-1511A	**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	-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	661.176	
200.0	200.0	200.0	200.0	0.3	0.3	-52.71	74.9	-98.4	123.6	123.0	0.64	194.244	
300.0	300.0	300.0	300.0	0.5	0.5	-52.71	74.9	-98.4	123.6	122.6	1.09	113.845	
400.0	400.0	400.0	400.0	0.8	0.8	-52.71	74.9	-98.4	123.6	122.1	1.54	80.518	
500.0	500.0	500.0	500.0	1.0	1.0	-52.71	74.9	-98.4	123.6	121.7	1.99	62.285	
600.0	600.0	600.0	600.0	1.2	1.2	-52.71	74.9	-98.4	123.6	121.2	2.43	50.785	CC, ES
700.0	700.0	700.0	700.0	1.4	1.4	170.08	74.9	-98.4	125.4	122.5	2.86	43.805	
800.0	799.8	799.8	799.8	1.6	1.7	170.46	74.9	-98.4	130.5	127.2	3.27	39.861	
900.0	899.6	897.2	897.2	1.8	1.9	171.52	76.5	-98.1	138.3	134.6	3.69	37.475	
1,000.0	999.4	994.1	994.0	2.0	2.1	173.57	81.4	-97.4	147.8	143.7	4.11	35.936	
1,100.0	1,099.1	1,093.2	1,092.8	2.3	2.3	175.97	88.2	-96.4	158.6	154.1	4.55	34.866	
1,200.0	1,198.9	1,192.4	1,191.8	2.5	2.6	178.07	95.1	-95.3	169.6	164.7	4.99	34.001	
1,300.0	1,298.6	1,291.6	1,290.7	2.8	2.8	179.91	101.9	-94.3	180.9	175.4	5.43	33.282	
1,400.0	1,398.4	1,390.8	1,389.7	3.0	3.0	-178.47	108.8	-93.3	192.3	186.4	5.88	32.680	
1,500.0	1,498.1	1,490.0	1,488.7	3.3	3.3	-177.03	115.6	-92.2	203.8	197.5	6.34	32.171	
1,600.0	1,597.9	1,589.2	1,587.6	3.5	3.5	-175.74	122.5	-91.2	215.5	208.7	6.79	31.737	
1,700.0	1,697.6	1,688.4	1,686.6	3.8	3.8	-174.58	129.3	-90.2	227.2	220.0	7.24	31.362	
1,800.0	1,797.4	1,787.6	1,785.6	4.0	4.0	-173.54	136.1	-89.1	239.0	231.3	7.70	31.038	
1,900.0	1,897.2	1,886.8	1,884.5	4.3	4.3	-172.60	143.0	-88.1	250.9	242.8	8.16	30.754	
2,000.0	1,996.9	1,986.1	1,983.5	4.5	4.5	-171.74	149.8	-87.1	262.9	254.3	8.62	30.504	
2,100.0	2,096.7	2,085.3	2,082.5	4.8	4.8	-170.96	156.7	-86.0	274.9	265.8	9.08	30.283	
2,200.0	2,196.4	2,184.5	2,181.4	5.0	5.0	-170.24	163.5	-85.0	287.0	277.4	9.54	30.085	
2,300.0	2,296.2	2,283.7	2,280.4	5.3	5.3	-169.58	170.4	-84.0	299.1	289.1	10.00	29.908	
2,400.0	2,395.9	2,382.9	2,379.4	5.6	5.5	-168.98	177.2	-82.9	311.2	300.8	10.46	29.749	
2,500.0	2,495.7	2,482.1	2,478.3	5.8	5.8	-168.41	184.0	-81.9	323.4	312.5	10.92	29.605	
2,600.0	2,595.5	2,581.3	2,577.3	6.1	6.0	-167.89	190.9	-80.9	335.6	324.2	11.39	29.474	
2,700.0	2,695.2	2,680.5	2,676.3	6.3	6.3	-167.41	197.7	-79.8	347.8	336.0	11.85	29.355	
2,800.0	2,795.0	2,779.7	2,775.2	6.6	6.5	-166.96	204.6	-78.8	360.0	347.7	12.31	29.246	
2,900.0	2,894.7	2,878.9	2,874.2	6.9	6.8	-166.53	211.4	-77.8	372.3	359.5	12.77	29.145	
3,000.0	2,994.5	2,978.1	2,973.2	7.1	7.0	-166.14	218.3	-76.7	384.6	371.4	13.24	29.053	
3,100.0	3,094.2	3,077.4	3,072.1	7.4	7.3	-165.77	225.1	-75.7	396.9	383.2	13.70	28.967	
3,200.0	3,194.0	3,176.6	3,171.1	7.6	7.5	-165.42	231.9	-74.7	409.2	395.1	14.17	28.888	
3,300.0	3,293.7	3,275.8	3,270.1	7.9	7.8	-165.09	238.8	-73.6	421.6	406.9	14.63	28.815	
3,400.0	3,393.5	3,375.0	3,369.0	8.2	8.0	-164.78	245.6	-72.6	433.9	418.8	15.09	28.746	
3,500.0	3,493.3	3,474.2	3,468.0	8.4	8.3	-164.49	252.5	-71.6	446.3	430.7	15.56	28.682	
3,600.0	3,593.0	3,573.4	3,567.0	8.7	8.5	-164.21	259.3	-70.5	458.6	442.6	16.02	28.622	
3,700.0	3,692.8	3,672.6	3,665.9	9.0	8.8	-163.95	266.2	-69.5	471.0	454.5	16.49	28.566	
3,800.0	3,792.5	3,771.8	3,764.9	9.2	9.0	-163.70	273.0	-68.5	483.4	466.4	16.95	28.514	
3,900.0	3,892.3	3,871.0	3,863.9	9.5	9.3	-163.47	279.8	-67.4	495.8	478.4	17.42	28.464	
4,000.0	3,992.0	3,970.2	3,962.8	9.7	9.5	-163.24	286.7	-66.4	508.2	490.3	17.88	28.417	
4,100.0	4,091.8	4,069.4	4,061.8	10.0	9.8	-163.03	293.5	-65.4	520.6	502.2	18.35	28.373	
4,200.0	4,191.6	4,168.6	4,160.8	10.3	10.0	-162.82	300.4	-64.3	533.0	514.2	18.81	28.332	
4,300.0	4,291.3	4,267.9	4,259.7	10.5	10.3	-162.63	307.2	-63.3	545.4	526.1	19.28	28.292	
4,400.0	4,391.1	4,367.1	4,358.7	10.8	10.5	-162.44	314.1	-62.3	557.9	538.1	19.74	28.255	
4,500.0	4,490.8	4,466.3	4,457.7	11.1	10.8	-162.26	320.9	-61.2	570.3	550.1	20.21	28.219	
4,600.0	4,590.6	4,565.5	4,556.6	11.3	11.1	-162.09	327.7	-60.2	582.7	562.1	20.67	28.185	
4,700.0	4,690.3	4,664.7	4,655.6	11.6	11.3	-161.93	334.6	-59.2	595.2	574.0	21.14	28.153	
4,800.0	4,790.1	4,763.9	4,754.6	11.8	11.6	-161.77	341.4	-58.1	607.6	586.0	21.61	28.123	
4,900.0	4,889.9	4,863.1	4,853.5	12.1	11.8	-161.62	348.3	-57.1	620.1	598.0	22.07	28.093	
5,000.0	4,989.6	4,962.3	4,952.5	12.4	12.1	-161.48	355.1	-56.1	632.5	610.0	22.54	28.066	
5,100.0	5,089.4	5,061.5	5,051.5	12.6	12.3	-161.34	362.0	-55.1	645.0	622.0	23.00	28.039	

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-1511A
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-1511A	**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	5,189.1	5,160.7	5,150.4	12.9	12.6	-161.21	368.8	-54.0	657.5	634.0	23.47	28.013	
5,300.0	5,288.9	5,259.9	5,249.4	13.2	12.8	-161.08	375.7	-53.0	669.9	646.0	23.94	27.989	
5,400.0	5,388.6	5,359.2	5,348.4	13.4	13.1	-160.96	382.5	-52.0	682.4	658.0	24.40	27.966	SF
5,500.0	5,488.0	5,457.8	5,446.8	13.7	13.3	-160.53	389.3	-50.9	698.2	673.6	24.58	28.409	
5,600.0	5,583.9	5,545.6	5,534.4	14.2	13.6	-159.67	395.4	-50.0	730.2	706.3	23.98	30.455	
5,700.0	5,672.7	5,583.9	5,572.4	14.8	13.7	-157.56	399.8	-49.3	782.2	759.5	22.73	34.417	
5,800.0	5,751.1	5,600.0	5,588.3	15.7	13.7	-153.16	402.5	-48.9	852.7	831.3	21.39	39.868	
5,900.0	5,816.4	5,650.0	5,636.9	16.8	13.9	-146.07	413.9	-47.2	936.5	915.3	21.16	44.256	
6,000.0	5,866.0	5,650.0	5,636.9	18.1	13.9	-127.89	413.9	-47.2	1,028.7	1,003.2	25.52	40.314	
6,100.0	5,898.1	5,650.0	5,636.9	19.7	13.9	-87.91	413.9	-47.2	1,125.5	1,092.6	32.90	34.206	
6,200.0	5,911.7	5,650.0	5,636.9	21.3	13.9	-47.14	413.9	-47.2	1,222.7	1,196.3	26.36	46.390	
6,300.0	5,912.1	5,650.0	5,636.9	23.0	13.9	-35.28	413.9	-47.2	1,318.7	1,296.2	22.55	58.472	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1511A
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-1511A	**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	-41.42	74.9	-66.1	99.9				
100.0	100.0	100.0	100.0	0.1	0.1	-41.42	74.9	-66.1	99.9	99.7	0.19	534.179	
200.0	200.0	200.0	200.0	0.3	0.3	-41.42	74.9	-66.1	99.9	99.3	0.64	156.934	
300.0	300.0	300.0	300.0	0.5	0.5	-41.42	74.9	-66.1	99.9	98.8	1.09	91.978	
400.0	400.0	400.0	400.0	0.8	0.8	-41.42	74.9	-66.1	99.9	98.4	1.54	65.052	
500.0	500.0	500.0	500.0	1.0	1.0	-41.42	74.9	-66.1	99.9	97.9	1.99	50.321	
600.0	600.0	600.0	600.0	1.2	1.2	-41.42	74.9	-66.1	99.9	97.5	2.43	41.030	CC, ES
700.0	700.0	700.0	700.0	1.4	1.4	-178.79	74.9	-66.1	101.6	98.8	2.86	35.513	
800.0	799.8	799.8	799.8	1.6	1.7	-178.85	74.9	-66.1	106.9	103.6	3.27	32.633	
900.0	899.6	899.6	899.6	1.8	1.9	-178.92	74.9	-66.1	113.8	110.2	3.69	30.819	
1,000.0	999.4	997.4	997.3	2.0	2.1	-178.29	76.5	-65.5	121.6	117.5	4.12	29.549	
1,100.0	1,099.1	1,094.7	1,094.5	2.3	2.3	-176.48	81.1	-63.8	131.1	126.6	4.55	28.851	
1,200.0	1,198.9	1,193.8	1,193.4	2.5	2.6	-174.24	87.6	-61.5	141.8	136.8	4.99	28.441	
1,300.0	1,298.6	1,293.1	1,292.5	2.8	2.8	-172.31	94.1	-59.1	152.6	147.2	5.43	28.106	
1,400.0	1,398.4	1,392.4	1,391.5	3.0	3.0	-170.64	100.6	-56.7	163.6	157.7	5.88	27.825	
1,500.0	1,498.1	1,491.7	1,490.6	3.3	3.3	-169.18	107.2	-54.4	174.7	168.4	6.33	27.587	
1,600.0	1,597.9	1,591.0	1,589.6	3.5	3.5	-167.89	113.7	-52.0	185.9	179.1	6.79	27.384	
1,700.0	1,697.6	1,690.3	1,688.7	3.8	3.7	-166.75	120.2	-49.7	197.2	189.9	7.25	27.209	
1,800.0	1,797.4	1,789.6	1,787.7	4.0	4.0	-165.74	126.7	-47.3	208.5	200.8	7.71	27.057	
1,900.0	1,897.2	1,888.9	1,886.8	4.3	4.2	-164.82	133.2	-44.9	219.9	211.8	8.17	26.924	
2,000.0	1,996.9	1,988.2	1,985.8	4.5	4.5	-164.00	139.7	-42.6	231.4	222.8	8.63	26.808	
2,100.0	2,096.7	2,087.4	2,084.9	4.8	4.7	-163.26	146.2	-40.2	242.9	233.8	9.10	26.704	
2,200.0	2,196.4	2,186.7	2,183.9	5.0	5.0	-162.58	152.7	-37.8	254.4	244.9	9.56	26.613	
2,300.0	2,296.2	2,286.0	2,283.0	5.3	5.2	-161.97	159.2	-35.5	266.0	256.0	10.03	26.530	
2,400.0	2,395.9	2,385.3	2,382.0	5.6	5.5	-161.40	165.7	-33.1	277.6	267.1	10.49	26.456	
2,500.0	2,495.7	2,484.6	2,481.1	5.8	5.7	-160.88	172.3	-30.8	289.2	278.3	10.96	26.390	
2,600.0	2,595.5	2,583.9	2,580.1	6.1	6.0	-160.40	178.8	-28.4	300.9	289.4	11.43	26.329	
2,700.0	2,695.2	2,683.2	2,679.2	6.3	6.2	-159.96	185.3	-26.0	312.5	300.6	11.89	26.274	
2,800.0	2,795.0	2,782.5	2,778.2	6.6	6.5	-159.54	191.8	-23.7	324.2	311.8	12.36	26.224	
2,900.0	2,894.7	2,881.8	2,877.3	6.9	6.7	-159.16	198.3	-21.3	335.9	323.1	12.83	26.177	
3,000.0	2,994.5	2,981.0	2,976.3	7.1	7.0	-158.80	204.8	-18.9	347.6	334.3	13.30	26.135	
3,100.0	3,094.2	3,080.3	3,075.4	7.4	7.2	-158.47	211.3	-16.6	359.3	345.6	13.77	26.096	
3,200.0	3,194.0	3,179.6	3,174.4	7.6	7.5	-158.15	217.8	-14.2	371.1	356.8	14.24	26.059	
3,300.0	3,293.7	3,278.9	3,273.4	7.9	7.7	-157.86	224.3	-11.8	382.8	368.1	14.71	26.026	
3,400.0	3,393.5	3,378.2	3,372.5	8.2	8.0	-157.58	230.9	-9.5	394.6	379.4	15.18	25.994	
3,500.0	3,493.3	3,477.5	3,471.5	8.4	8.2	-157.32	237.4	-7.1	406.3	390.7	15.65	25.965	
3,600.0	3,593.0	3,576.8	3,570.6	8.7	8.5	-157.07	243.9	-4.8	418.1	402.0	16.12	25.938	
3,700.0	3,692.8	3,676.1	3,669.6	9.0	8.7	-156.84	250.4	-2.4	429.9	413.3	16.59	25.912	
3,800.0	3,792.5	3,775.4	3,768.7	9.2	9.0	-156.62	256.9	0.0	441.6	424.6	17.06	25.888	
3,900.0	3,892.3	3,874.7	3,867.7	9.5	9.2	-156.41	263.4	2.3	453.4	435.9	17.53	25.866	
4,000.0	3,992.0	3,973.9	3,966.8	9.7	9.5	-156.21	269.9	4.7	465.2	447.2	18.00	25.845	
4,100.0	4,091.8	4,073.2	4,065.8	10.0	9.7	-156.03	276.4	7.1	477.0	458.6	18.47	25.825	
4,200.0	4,191.6	4,172.5	4,164.9	10.3	10.0	-155.85	282.9	9.4	488.8	469.9	18.94	25.806	
4,300.0	4,291.3	4,271.8	4,263.9	10.5	10.3	-155.68	289.4	11.8	500.6	481.2	19.41	25.788	
4,400.0	4,391.1	4,371.1	4,363.0	10.8	10.5	-155.51	296.0	14.1	512.5	492.6	19.89	25.771	
4,500.0	4,490.8	4,470.4	4,462.0	11.1	10.8	-155.36	302.5	16.5	524.3	503.9	20.36	25.755	
4,600.0	4,590.6	4,569.7	4,561.1	11.3	11.0	-155.21	309.0	18.9	536.1	515.3	20.83	25.740	
4,700.0	4,690.3	4,669.0	4,660.1	11.6	11.3	-155.07	315.5	21.2	547.9	526.6	21.30	25.725	
4,800.0	4,790.1	4,768.3	4,759.2	11.8	11.5	-154.93	322.0	23.6	559.7	538.0	21.77	25.711	
4,900.0	4,889.9	4,867.5	4,858.2	12.1	11.8	-154.80	328.5	26.0	571.6	549.3	22.24	25.698	
5,000.0	4,989.6	4,966.8	4,957.3	12.4	12.0	-154.67	335.0	28.3	583.4	560.7	22.71	25.686	
5,100.0	5,089.4	5,066.1	5,056.3	12.6	12.3	-154.55	341.5	30.7	595.2	572.1	23.19	25.674	

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-1511A
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-1511A	**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	5,189.1	5,165.4	5,155.4	12.9	12.5	-154.44	348.0	33.1	607.1	583.4	23.66	25.662	
5,300.0	5,288.9	5,264.7	5,254.4	13.2	12.8	-154.33	354.6	35.4	618.9	594.8	24.13	25.651	
5,400.0	5,388.6	5,364.0	5,353.4	13.4	13.0	-154.22	361.1	37.8	630.8	606.2	24.60	25.641	SF
5,500.0	5,488.0	5,450.0	5,439.2	13.7	13.3	-153.69	366.8	39.9	646.0	621.2	24.79	26.065	
5,600.0	5,583.9	5,500.0	5,488.7	14.2	13.4	-151.97	373.4	42.3	681.6	657.4	24.28	28.078	
5,700.0	5,672.7	5,536.1	5,524.0	14.8	13.6	-148.56	381.0	45.0	738.0	714.6	23.42	31.509	
5,800.0	5,751.1	5,567.2	5,553.7	15.7	13.7	-142.48	389.2	48.0	810.9	788.0	22.93	35.368	
5,900.0	5,816.4	5,600.0	5,584.5	16.8	13.8	-131.94	399.8	51.8	895.8	871.5	24.22	36.985	
6,000.0	5,866.0	5,600.0	5,584.5	18.1	13.8	-109.86	399.8	51.8	987.6	958.4	29.21	33.814	
6,100.0	5,898.1	5,600.0	5,584.5	19.7	13.8	-75.88	399.8	51.8	1,082.9	1,051.0	31.88	33.970	
6,200.0	5,911.7	5,600.0	5,584.5	21.3	13.8	-47.48	399.8	51.8	1,177.7	1,151.4	26.26	44.842	
6,300.0	5,912.1	5,600.0	5,584.5	23.0	13.8	-38.56	399.8	51.8	1,271.1	1,247.3	23.87	53.260	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1511A
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-1511A	**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	81.9				
100.0	100.0	100.0	100.0	0.1	0.1	-23.81	74.9	-33.0	81.9	81.7	0.19	437.735	
200.0	200.0	200.0	200.0	0.3	0.3	-23.81	74.9	-33.0	81.9	81.2	0.64	128.600	
300.0	300.0	300.0	300.0	0.5	0.5	-23.81	74.9	-33.0	81.9	80.8	1.09	75.372	
400.0	400.0	400.0	400.0	0.8	0.8	-23.81	74.9	-33.0	81.9	80.3	1.54	53.307	
500.0	500.0	500.0	500.0	1.0	1.0	-23.81	74.9	-33.0	81.9	79.9	1.99	41.236	
600.0	600.0	600.0	600.0	1.2	1.2	-23.81	74.9	-33.0	81.9	79.4	2.43	33.622	CC, ES
700.0	700.0	700.0	700.0	1.4	1.4	-161.53	74.9	-33.0	83.5	80.7	2.86	29.177	
800.0	799.8	799.8	799.8	1.6	1.7	-162.58	74.9	-33.0	88.5	85.2	3.28	27.012	
900.0	899.6	899.6	899.6	1.8	1.9	-163.83	74.9	-33.0	95.2	91.5	3.70	25.746	
1,000.0	999.4	999.4	999.4	2.0	2.1	-164.93	74.9	-33.0	101.9	97.8	4.12	24.706	
1,100.0	1,099.1	1,097.2	1,097.2	2.3	2.3	-165.12	76.3	-32.2	109.5	105.0	4.55	24.054	
1,200.0	1,198.9	1,194.7	1,194.5	2.5	2.6	-163.91	80.6	-29.7	118.9	113.9	4.99	23.847	
1,300.0	1,298.6	1,293.9	1,293.5	2.8	2.8	-162.17	86.5	-26.1	129.4	124.0	5.43	23.827	
1,400.0	1,398.4	1,393.3	1,392.7	3.0	3.0	-160.68	92.5	-22.6	140.0	134.2	5.88	23.810	
1,500.0	1,498.1	1,492.7	1,491.8	3.3	3.2	-159.41	98.4	-19.0	150.7	144.4	6.34	23.790	
1,600.0	1,597.9	1,592.0	1,590.9	3.5	3.5	-158.30	104.4	-15.5	161.5	154.7	6.79	23.769	
1,700.0	1,697.6	1,691.4	1,690.1	3.8	3.7	-157.34	110.3	-11.9	172.3	165.0	7.25	23.748	
1,800.0	1,797.4	1,790.8	1,789.2	4.0	4.0	-156.48	116.3	-8.3	183.1	175.4	7.72	23.727	
1,900.0	1,897.2	1,890.2	1,888.3	4.3	4.2	-155.73	122.2	-4.8	194.0	185.8	8.18	23.708	
2,000.0	1,996.9	1,989.5	1,987.5	4.5	4.4	-155.05	128.2	-1.2	204.9	196.3	8.65	23.690	
2,100.0	2,096.7	2,088.9	2,086.6	4.8	4.7	-154.44	134.1	2.3	215.9	206.8	9.12	23.673	
2,200.0	2,196.4	2,188.3	2,185.7	5.0	4.9	-153.89	140.1	5.9	226.8	217.2	9.59	23.657	
2,300.0	2,296.2	2,287.7	2,284.9	5.3	5.2	-153.39	146.0	9.4	237.8	227.8	10.06	23.642	
2,400.0	2,395.9	2,387.0	2,384.0	5.6	5.4	-152.94	152.0	13.0	248.8	238.3	10.53	23.629	
2,500.0	2,495.7	2,486.4	2,483.1	5.8	5.7	-152.52	157.9	16.5	259.8	248.8	11.00	23.616	
2,600.0	2,595.5	2,585.8	2,582.3	6.1	5.9	-152.14	163.9	20.1	270.8	259.4	11.47	23.604	
2,700.0	2,695.2	2,685.2	2,681.4	6.3	6.2	-151.78	169.8	23.6	281.9	269.9	11.95	23.592	
2,800.0	2,795.0	2,784.5	2,780.5	6.6	6.4	-151.46	175.8	27.2	292.9	280.5	12.42	23.582	
2,900.0	2,894.7	2,883.9	2,879.7	6.9	6.7	-151.16	181.8	30.7	304.0	291.1	12.90	23.572	
3,000.0	2,994.5	2,983.3	2,978.8	7.1	6.9	-150.87	187.7	34.3	315.0	301.7	13.37	23.563	
3,100.0	3,094.2	3,082.7	3,077.9	7.4	7.2	-150.61	193.7	37.8	326.1	312.3	13.84	23.554	
3,200.0	3,194.0	3,182.0	3,177.1	7.6	7.4	-150.37	199.6	41.4	337.2	322.8	14.32	23.546	
3,300.0	3,293.7	3,281.4	3,276.2	7.9	7.7	-150.14	205.6	44.9	348.2	333.5	14.80	23.538	
3,400.0	3,393.5	3,380.8	3,375.3	8.2	7.9	-149.92	211.5	48.5	359.3	344.1	15.27	23.531	
3,500.0	3,493.3	3,480.2	3,474.5	8.4	8.2	-149.72	217.5	52.0	370.4	354.7	15.75	23.524	
3,600.0	3,593.0	3,579.5	3,573.6	8.7	8.4	-149.53	223.4	55.6	381.5	365.3	16.22	23.517	
3,700.0	3,692.8	3,678.9	3,672.7	9.0	8.7	-149.35	229.4	59.2	392.6	375.9	16.70	23.511	
3,800.0	3,792.5	3,778.3	3,771.9	9.2	8.9	-149.18	235.3	62.7	403.7	386.5	17.18	23.505	
3,900.0	3,892.3	3,877.7	3,871.0	9.5	9.2	-149.02	241.3	66.3	414.8	397.2	17.65	23.500	
4,000.0	3,992.0	3,977.0	3,970.1	9.7	9.5	-148.87	247.2	69.8	425.9	407.8	18.13	23.495	
4,100.0	4,091.8	4,076.4	4,069.3	10.0	9.7	-148.72	253.2	73.4	437.0	418.4	18.61	23.490	
4,200.0	4,191.6	4,175.8	4,168.4	10.3	10.0	-148.59	259.1	76.9	448.1	429.1	19.08	23.485	
4,300.0	4,291.3	4,275.2	4,267.5	10.5	10.2	-148.45	265.1	80.5	459.3	439.7	19.56	23.480	
4,400.0	4,391.1	4,374.5	4,366.7	10.8	10.5	-148.33	271.0	84.0	470.4	450.3	20.04	23.476	
4,500.0	4,490.8	4,473.9	4,465.8	11.1	10.7	-148.21	277.0	87.6	481.5	461.0	20.51	23.472	
4,600.0	4,590.6	4,573.3	4,564.9	11.3	11.0	-148.10	282.9	91.1	492.6	471.6	20.99	23.468	
4,700.0	4,690.3	4,672.7	4,664.0	11.6	11.2	-147.99	288.9	94.7	503.7	482.3	21.47	23.464	
4,800.0	4,790.1	4,772.0	4,763.2	11.8	11.5	-147.88	294.8	98.2	514.9	492.9	21.95	23.460	
4,900.0	4,889.9	4,871.4	4,862.3	12.1	11.7	-147.79	300.8	101.8	526.0	503.6	22.42	23.457	
5,000.0	4,989.6	4,970.8	4,961.4	12.4	12.0	-147.69	306.8	105.3	537.1	514.2	22.90	23.454	
5,100.0	5,089.4	5,070.2	5,060.6	12.6	12.2	-147.60	312.7	108.9	548.2	524.9	23.38	23.450	

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-1511A
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-1511A	**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	5,189.1	5,169.5	5,159.7	12.9	12.5	-147.51	318.7	112.4	559.4	535.5	23.86	23.447	
5,300.0	5,288.9	5,268.9	5,258.8	13.2	12.8	-147.43	324.6	116.0	570.5	546.2	24.33	23.444	
5,400.0	5,388.6	5,368.3	5,358.0	13.4	13.0	-147.35	330.6	119.5	581.6	556.8	24.81	23.442	SF
5,500.0	5,488.0	5,467.2	5,456.7	13.7	13.3	-146.86	336.5	123.1	595.7	570.7	25.07	23.764	
5,600.0	5,583.9	5,550.0	5,539.2	14.2	13.5	-145.84	341.5	126.1	624.6	599.8	24.75	25.233	
5,700.0	5,672.7	5,600.0	5,588.7	14.8	13.6	-143.21	347.5	129.7	672.7	648.5	24.11	27.896	
5,800.0	5,751.1	5,633.3	5,621.3	15.7	13.8	-138.02	353.7	133.4	738.2	714.4	23.80	31.012	
5,900.0	5,816.4	5,650.0	5,637.3	16.8	13.8	-128.30	357.5	135.6	817.2	792.1	25.08	32.587	
6,000.0	5,866.0	5,679.7	5,665.6	18.1	14.0	-113.22	365.3	140.3	904.7	876.0	28.67	31.555	
6,100.0	5,898.1	5,700.0	5,684.6	19.7	14.0	-90.08	371.4	143.9	997.2	964.6	32.59	30.598	
6,200.0	5,911.7	5,700.0	5,684.6	21.3	14.0	-62.42	371.4	143.9	1,090.6	1,059.7	30.94	35.253	
6,300.0	5,912.1	5,700.0	5,684.6	23.0	14.0	-54.00	371.4	143.9	1,184.0	1,154.0	29.95	39.525	
6,400.0	5,912.1	5,681.2	5,667.0	24.7	14.0	-45.02	365.7	140.5	1,279.2	1,251.3	27.88	45.874	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1511A
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-1511A	**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	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	400.424	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	74.9	0.0	74.9	74.2	0.64	117.639	
300.0	300.0	300.0	300.0	0.5	0.5	0.00	74.9	0.0	74.9	73.8	1.09	68.947	
400.0	400.0	400.0	400.0	0.8	0.8	0.00	74.9	0.0	74.9	73.3	1.54	48.764	
500.0	500.0	500.0	500.0	1.0	1.0	0.00	74.9	0.0	74.9	72.9	1.99	37.721	
600.0	600.0	600.0	600.0	1.2	1.2	0.00	74.9	0.0	74.9	72.4	2.43	30.756	CC, ES
700.0	700.0	700.0	700.0	1.4	1.4	-138.22	74.9	0.0	76.2	73.3	2.86	26.616	
800.0	799.8	799.8	799.8	1.6	1.7	-140.66	74.9	0.0	80.2	76.9	3.28	24.457	
900.0	899.6	899.6	899.6	1.8	1.9	-143.62	74.9	0.0	85.7	82.0	3.70	23.139	
1,000.0	999.4	999.4	999.4	2.0	2.1	-146.21	74.9	0.0	91.4	87.2	4.13	22.102	
1,100.0	1,099.1	1,099.1	1,099.1	2.3	2.3	-148.50	74.9	0.0	97.3	92.7	4.57	21.277	
1,200.0	1,198.9	1,196.8	1,196.8	2.5	2.6	-149.75	76.1	1.1	104.3	99.3	5.01	20.830	
1,300.0	1,298.6	1,294.1	1,294.0	2.8	2.8	-149.48	79.9	4.3	113.3	107.9	5.45	20.812	SF
1,400.0	1,398.4	1,393.4	1,393.1	3.0	3.0	-148.55	85.1	8.8	123.6	117.7	5.90	20.956	
1,500.0	1,498.1	1,492.9	1,492.3	3.3	3.2	-147.75	90.4	13.3	133.8	127.5	6.35	21.070	
1,600.0	1,597.9	1,592.4	1,591.5	3.5	3.5	-147.07	95.7	17.8	144.1	137.3	6.81	21.159	
1,700.0	1,697.6	1,691.8	1,690.7	3.8	3.7	-146.48	100.9	22.3	154.4	147.1	7.27	21.229	
1,800.0	1,797.4	1,791.3	1,789.9	4.0	3.9	-145.97	106.2	26.9	164.7	157.0	7.74	21.284	
1,900.0	1,897.2	1,890.7	1,889.1	4.3	4.2	-145.51	111.4	31.4	175.0	166.8	8.21	21.328	
2,000.0	1,996.9	1,990.2	1,988.3	4.5	4.4	-145.11	116.7	35.9	185.4	176.7	8.68	21.364	
2,100.0	2,096.7	2,089.6	2,087.6	4.8	4.7	-144.74	122.0	40.4	195.7	186.6	9.15	21.393	
2,200.0	2,196.4	2,189.1	2,186.8	5.0	4.9	-144.42	127.2	44.9	206.1	196.4	9.62	21.416	
2,300.0	2,296.2	2,288.6	2,286.0	5.3	5.1	-144.12	132.5	49.5	216.4	206.3	10.10	21.436	
2,400.0	2,395.9	2,388.0	2,385.2	5.6	5.4	-143.86	137.8	54.0	226.8	216.2	10.57	21.452	
2,500.0	2,495.7	2,487.5	2,484.4	5.8	5.6	-143.61	143.0	58.5	237.1	226.1	11.05	21.465	
2,600.0	2,595.5	2,586.9	2,583.6	6.1	5.9	-143.39	148.3	63.0	247.5	236.0	11.53	21.477	
2,700.0	2,695.2	2,686.4	2,682.8	6.3	6.1	-143.18	153.6	67.5	257.9	245.9	12.00	21.486	
2,800.0	2,795.0	2,785.8	2,782.1	6.6	6.4	-142.99	158.8	72.1	268.3	255.8	12.48	21.494	
2,900.0	2,894.7	2,885.3	2,881.3	6.9	6.6	-142.82	164.1	76.6	278.6	265.7	12.96	21.501	
3,000.0	2,994.5	2,984.8	2,980.5	7.1	6.9	-142.65	169.4	81.1	289.0	275.6	13.44	21.506	
3,100.0	3,094.2	3,084.2	3,079.7	7.4	7.1	-142.50	174.6	85.6	299.4	285.5	13.92	21.511	
3,200.0	3,194.0	3,183.7	3,178.9	7.6	7.4	-142.36	179.9	90.1	309.8	295.4	14.40	21.515	
3,300.0	3,293.7	3,283.1	3,278.1	7.9	7.6	-142.23	185.1	94.6	320.2	305.3	14.88	21.518	
3,400.0	3,393.5	3,382.6	3,377.3	8.2	7.9	-142.10	190.4	99.2	330.6	315.2	15.36	21.521	
3,500.0	3,493.3	3,482.0	3,476.6	8.4	8.1	-141.99	195.7	103.7	341.0	325.1	15.84	21.523	
3,600.0	3,593.0	3,581.5	3,575.8	8.7	8.4	-141.88	200.9	108.2	351.3	335.0	16.32	21.525	
3,700.0	3,692.8	3,681.0	3,675.0	9.0	8.7	-141.77	206.2	112.7	361.7	344.9	16.80	21.527	
3,800.0	3,792.5	3,780.4	3,774.2	9.2	8.9	-141.68	211.5	117.2	372.1	354.8	17.29	21.528	
3,900.0	3,892.3	3,879.9	3,873.4	9.5	9.2	-141.59	216.7	121.8	382.5	364.8	17.77	21.529	
4,000.0	3,992.0	3,979.3	3,972.6	9.7	9.4	-141.50	222.0	126.3	392.9	374.7	18.25	21.530	
4,100.0	4,091.8	4,078.8	4,071.8	10.0	9.7	-141.41	227.3	130.8	403.3	384.6	18.73	21.531	
4,200.0	4,191.6	4,178.2	4,171.1	10.3	9.9	-141.34	232.5	135.3	413.7	394.5	19.21	21.531	
4,300.0	4,291.3	4,277.7	4,270.3	10.5	10.2	-141.26	237.8	139.8	424.1	404.4	19.70	21.531	
4,400.0	4,391.1	4,377.1	4,369.5	10.8	10.4	-141.19	243.1	144.3	434.5	414.3	20.18	21.532	
4,500.0	4,490.8	4,476.6	4,468.7	11.1	10.7	-141.12	248.3	148.9	444.9	424.2	20.66	21.532	
4,600.0	4,590.6	4,576.1	4,567.9	11.3	10.9	-141.06	253.6	153.4	455.3	434.2	21.15	21.532	
4,700.0	4,690.3	4,675.5	4,667.1	11.6	11.2	-141.00	258.9	157.9	465.7	444.1	21.63	21.532	
4,800.0	4,790.1	4,775.0	4,766.3	11.8	11.4	-140.94	264.1	162.4	476.1	454.0	22.11	21.532	
4,900.0	4,889.9	4,874.4	4,865.6	12.1	11.7	-140.88	269.4	166.9	486.5	463.9	22.59	21.531	
5,000.0	4,989.6	4,973.9	4,964.8	12.4	11.9	-140.83	274.6	171.5	496.9	473.8	23.08	21.531	
5,100.0	5,089.4	5,073.3	5,064.0	12.6	12.2	-140.77	279.9	176.0	507.3	483.7	23.56	21.531	

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-1511A
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-1511A	**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	5,189.1	5,172.8	5,163.2	12.9	12.5	-140.72	285.2	180.5	517.7	493.7	24.05	21.531	
5,300.0	5,288.9	5,272.3	5,262.4	13.2	12.7	-140.67	290.4	185.0	528.1	503.6	24.53	21.530	
5,400.0	5,388.6	5,371.7	5,361.6	13.4	13.0	-140.63	295.7	189.5	538.5	513.5	25.01	21.530	
5,500.0	5,488.0	5,450.0	5,439.7	13.7	13.2	-140.01	300.0	193.2	552.1	526.9	25.27	21.850	
5,600.0	5,583.9	5,500.0	5,489.2	14.2	13.3	-137.86	305.3	197.8	584.6	559.5	25.11	23.282	
5,700.0	5,672.7	5,550.0	5,537.8	14.8	13.5	-133.97	314.2	205.4	636.0	611.1	24.93	25.507	
5,800.0	5,751.1	5,600.0	5,585.0	15.7	13.7	-127.85	326.6	216.0	703.0	677.7	25.30	27.783	
5,900.0	5,816.4	5,623.6	5,606.7	16.8	13.9	-117.31	333.6	222.0	781.3	754.3	27.07	28.869	
6,000.0	5,866.0	5,650.0	5,630.5	18.1	14.0	-102.19	342.3	229.6	867.3	837.1	30.15	28.766	
6,100.0	5,898.1	5,650.0	5,630.5	19.7	14.0	-80.03	342.3	229.6	956.9	924.8	32.08	29.828	
6,200.0	5,911.7	5,650.0	5,630.5	21.3	14.0	-58.67	342.3	229.6	1,047.1	1,017.4	29.77	35.171	
6,300.0	5,912.1	5,650.0	5,630.5	23.0	14.0	-51.93	342.3	229.6	1,137.1	1,108.1	29.09	39.095	
6,400.0	5,912.1	5,650.0	5,630.5	24.7	14.0	-47.00	342.3	229.6	1,230.1	1,201.5	28.57	43.049	
6,500.0	5,912.1	5,650.0	5,630.5	26.4	14.0	-40.24	342.3	229.6	1,325.3	1,298.4	26.92	49.238	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1511A
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-1511A	**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	23.79	74.9	33.0	81.9				
100.0	100.0	100.0	100.0	0.1	0.1	23.79	74.9	33.0	81.9	81.7	0.19	437.966	
200.0	200.0	200.0	200.0	0.3	0.3	23.79	74.9	33.0	81.9	81.3	0.64	128.668	
300.0	300.0	300.0	300.0	0.5	0.5	23.79	74.9	33.0	81.9	80.8	1.09	75.411	
400.0	400.0	400.0	400.0	0.8	0.8	23.79	74.9	33.0	81.9	80.4	1.54	53.335	
500.0	500.0	500.0	500.0	1.0	1.0	23.79	74.9	33.0	81.9	79.9	1.99	41.258	
600.0	600.0	600.0	600.0	1.2	1.2	23.79	74.9	33.0	81.9	79.5	2.43	33.640	CC, ES
700.0	700.0	700.0	700.0	1.4	1.4	-114.65	74.9	33.0	82.6	79.8	2.86	28.873	
800.0	799.8	799.8	799.8	1.6	1.7	-117.82	74.9	33.0	84.9	81.7	3.28	25.912	
900.0	899.6	899.6	899.6	1.8	1.9	-121.81	74.9	33.0	88.4	84.7	3.71	23.839	
1,000.0	999.4	999.4	999.4	2.0	2.1	-125.49	74.9	33.0	92.3	88.1	4.15	22.248	
1,100.0	1,099.1	1,099.1	1,099.1	2.3	2.3	-128.86	74.9	33.0	96.5	91.9	4.59	21.016	
1,200.0	1,198.9	1,198.9	1,198.9	2.5	2.6	-131.94	74.9	33.0	101.0	96.0	5.04	20.051	
1,300.0	1,298.6	1,296.2	1,296.1	2.8	2.8	-134.04	76.0	34.3	107.0	101.5	5.48	19.520	
1,400.0	1,398.4	1,393.2	1,393.1	3.0	3.0	-134.71	79.2	38.0	115.3	109.4	5.92	19.463	SF
1,500.0	1,498.1	1,492.6	1,492.2	3.3	3.2	-134.64	83.7	43.3	125.0	118.6	6.38	19.587	
1,600.0	1,597.9	1,592.1	1,591.5	3.5	3.4	-134.59	88.2	48.5	134.6	127.8	6.84	19.684	
1,700.0	1,697.6	1,691.6	1,690.8	3.8	3.7	-134.54	92.7	53.8	144.3	137.0	7.30	19.759	
1,800.0	1,797.4	1,791.2	1,790.0	4.0	3.9	-134.50	97.2	59.1	154.0	146.2	7.77	19.817	
1,900.0	1,897.2	1,890.7	1,889.3	4.3	4.1	-134.46	101.7	64.4	163.6	155.4	8.24	19.861	
2,000.0	1,996.9	1,990.2	1,988.6	4.5	4.4	-134.43	106.2	69.6	173.3	164.6	8.71	19.895	
2,100.0	2,096.7	2,089.8	2,087.9	4.8	4.6	-134.40	110.7	74.9	183.0	173.8	9.19	19.921	
2,200.0	2,196.4	2,189.3	2,187.2	5.0	4.9	-134.37	115.2	80.2	192.7	183.0	9.66	19.941	
2,300.0	2,296.2	2,288.8	2,286.5	5.3	5.1	-134.35	119.8	85.5	202.3	192.2	10.14	19.956	
2,400.0	2,395.9	2,388.3	2,385.8	5.6	5.4	-134.32	124.3	90.8	212.0	201.4	10.62	19.968	
2,500.0	2,495.7	2,487.9	2,485.1	5.8	5.6	-134.30	128.8	96.0	221.7	210.6	11.10	19.977	
2,600.0	2,595.5	2,587.4	2,584.4	6.1	5.8	-134.29	133.3	101.3	231.3	219.8	11.58	19.983	
2,700.0	2,695.2	2,686.9	2,683.6	6.3	6.1	-134.27	137.8	106.6	241.0	228.9	12.06	19.987	
2,800.0	2,795.0	2,786.5	2,782.9	6.6	6.3	-134.25	142.3	111.9	250.7	238.1	12.54	19.990	
2,900.0	2,894.7	2,886.0	2,882.2	6.9	6.6	-134.24	146.8	117.1	260.3	247.3	13.02	19.992	
3,000.0	2,994.5	2,985.5	2,981.5	7.1	6.8	-134.23	151.3	122.4	270.0	256.5	13.51	19.993	
3,100.0	3,094.2	3,085.1	3,080.8	7.4	7.1	-134.21	155.8	127.7	279.7	265.7	13.99	19.992	
3,200.0	3,194.0	3,184.6	3,180.1	7.6	7.3	-134.20	160.4	133.0	289.3	274.9	14.47	19.992	
3,300.0	3,293.7	3,284.1	3,279.4	7.9	7.6	-134.19	164.9	138.3	299.0	284.0	14.96	19.990	
3,400.0	3,393.5	3,383.7	3,378.7	8.2	7.8	-134.18	169.4	143.5	308.7	293.2	15.44	19.988	
3,500.0	3,493.3	3,483.2	3,478.0	8.4	8.1	-134.17	173.9	148.8	318.3	302.4	15.93	19.986	
3,600.0	3,593.0	3,582.7	3,577.2	8.7	8.4	-134.16	178.4	154.1	328.0	311.6	16.41	19.984	
3,700.0	3,692.8	3,682.3	3,676.5	9.0	8.6	-134.15	182.9	159.4	337.7	320.8	16.90	19.981	
3,800.0	3,792.5	3,781.8	3,775.8	9.2	8.9	-134.15	187.4	164.6	347.3	330.0	17.39	19.979	
3,900.0	3,892.3	3,881.3	3,875.1	9.5	9.1	-134.14	191.9	169.9	357.0	339.1	17.87	19.976	
4,000.0	3,992.0	3,980.9	3,974.4	9.7	9.4	-134.13	196.4	175.2	366.7	348.3	18.36	19.973	
4,100.0	4,091.8	4,080.4	4,073.7	10.0	9.6	-134.12	201.0	180.5	376.4	357.5	18.85	19.970	
4,200.0	4,191.6	4,179.9	4,173.0	10.3	9.9	-134.12	205.5	185.8	386.0	366.7	19.33	19.967	
4,300.0	4,291.3	4,279.4	4,272.3	10.5	10.1	-134.11	210.0	191.0	395.7	375.9	19.82	19.964	
4,400.0	4,391.1	4,379.0	4,371.6	10.8	10.4	-134.11	214.5	196.3	405.4	385.1	20.31	19.961	
4,500.0	4,490.8	4,478.5	4,470.8	11.1	10.6	-134.10	219.0	201.6	415.0	394.2	20.80	19.957	
4,600.0	4,590.6	4,578.0	4,570.1	11.3	10.9	-134.09	223.5	206.9	424.7	403.4	21.28	19.954	
4,700.0	4,690.3	4,677.6	4,669.4	11.6	11.1	-134.09	228.0	212.1	434.4	412.6	21.77	19.951	
4,800.0	4,790.1	4,777.1	4,768.7	11.8	11.4	-134.08	232.5	217.4	444.0	421.8	22.26	19.948	
4,900.0	4,889.9	4,876.6	4,868.0	12.1	11.6	-134.08	237.0	222.7	453.7	431.0	22.75	19.945	
5,000.0	4,989.6	4,976.2	4,967.3	12.4	11.9	-134.08	241.6	228.0	463.4	440.1	23.24	19.942	
5,100.0	5,089.4	5,075.7	5,066.6	12.6	12.2	-134.07	246.1	233.3	473.0	449.3	23.72	19.939	

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-1511A
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-1511A	**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	5,189.1	5,175.2	5,165.9	12.9	12.4	-134.07	250.6	238.5	482.7	458.5	24.21	19.936	
5,300.0	5,288.9	5,274.8	5,265.2	13.2	12.7	-134.06	255.1	243.8	492.4	467.7	24.70	19.933	
5,400.0	5,388.6	5,374.3	5,364.4	13.4	12.9	-134.06	259.6	249.1	502.0	476.9	25.19	19.930	
5,500.0	5,488.0	5,473.4	5,463.4	13.7	13.2	-133.67	264.1	254.4	514.2	488.6	25.54	20.134	
5,600.0	5,583.9	5,550.0	5,539.7	14.2	13.4	-132.81	267.6	258.5	538.9	513.4	25.53	21.110	
5,700.0	5,672.7	5,600.0	5,589.2	14.8	13.5	-130.18	272.1	263.8	581.3	555.9	25.44	22.849	
5,800.0	5,751.1	5,650.0	5,637.8	15.7	13.7	-125.61	279.7	272.6	640.0	614.3	25.79	24.821	
5,900.0	5,816.4	5,688.5	5,674.4	16.8	13.9	-117.95	287.6	281.8	711.7	684.6	27.17	26.196	
6,000.0	5,866.0	5,714.9	5,698.8	18.1	14.0	-105.93	293.9	289.3	792.5	762.7	29.87	26.536	
6,100.0	5,898.1	5,731.8	5,714.2	19.7	14.1	-89.12	298.5	294.6	878.8	846.3	32.54	27.006	
6,200.0	5,911.7	5,750.0	5,730.6	21.3	14.2	-71.00	303.7	300.7	967.4	934.7	32.73	29.553	
6,300.0	5,912.1	5,750.0	5,730.6	23.0	14.2	-64.98	303.7	300.7	1,057.0	1,023.9	33.09	31.942	
6,400.0	5,912.1	5,750.0	5,730.6	24.7	14.2	-61.56	303.7	300.7	1,149.9	1,116.2	33.70	34.120	
6,500.0	5,912.1	5,737.3	5,719.2	26.4	14.1	-54.43	300.0	296.4	1,245.2	1,212.4	32.86	37.897	
6,600.0	5,912.1	5,734.2	5,716.4	28.2	14.1	-45.99	299.1	295.3	1,342.4	1,311.5	30.84	43.534	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1511A
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-1511A	**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	-197.5	197.5				
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	0.0	-197.5	197.5	197.3	0.19	1,056.086	
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-197.5	197.5	196.9	0.64	310.263	
300.0	300.0	300.0	300.0	0.5	0.5	-89.99	0.0	-197.5	197.5	196.4	1.09	181.843	
400.0	400.0	400.0	400.0	0.8	0.8	-89.99	0.0	-197.5	197.5	196.0	1.54	128.610	
500.0	500.0	500.0	500.0	1.0	1.0	-89.99	0.0	-197.5	197.5	195.5	1.99	99.486	
600.0	600.0	600.0	600.0	1.2	1.2	-89.99	0.0	-197.5	197.5	195.1	2.43	81.117	CC, ES
700.0	700.0	700.0	700.0	1.4	1.4	133.02	0.0	-197.5	198.7	195.8	2.86	69.449	
800.0	799.8	799.8	799.8	1.6	1.7	134.05	0.0	-197.5	202.3	199.0	3.27	61.776	
900.0	899.6	899.6	899.6	1.8	1.9	135.43	0.0	-197.5	207.2	203.5	3.70	55.992	
1,000.0	999.4	999.4	999.4	2.0	2.1	136.75	0.0	-197.5	212.2	208.1	4.14	51.311	
1,100.0	1,099.1	1,099.1	1,099.1	2.3	2.3	138.01	0.0	-197.5	217.4	212.8	4.58	47.480	
1,200.0	1,198.9	1,198.9	1,198.9	2.5	2.6	139.21	0.0	-197.5	222.6	217.6	5.02	44.307	
1,300.0	1,298.6	1,295.8	1,295.8	2.8	2.8	139.95	-1.4	-198.3	228.6	223.1	5.44	41.993	
1,400.0	1,398.4	1,392.6	1,392.5	3.0	2.9	139.91	-5.6	-200.6	235.8	229.9	5.85	40.325	
1,500.0	1,498.1	1,492.1	1,491.7	3.3	3.1	139.44	-11.7	-204.0	243.7	237.4	6.27	38.885	
1,600.0	1,597.9	1,591.8	1,591.1	3.5	3.3	139.00	-17.7	-207.4	251.6	244.9	6.70	37.564	
1,700.0	1,697.6	1,691.4	1,690.5	3.8	3.5	138.59	-23.8	-210.8	259.6	252.5	7.14	36.354	
1,800.0	1,797.4	1,791.1	1,790.0	4.0	3.7	138.20	-29.9	-214.2	267.6	260.0	7.59	35.248	
1,900.0	1,897.2	1,890.8	1,889.4	4.3	4.0	137.84	-36.0	-217.5	275.6	267.5	8.05	34.237	
2,000.0	1,996.9	1,990.4	1,988.8	4.5	4.2	137.50	-42.0	-220.9	283.6	275.0	8.51	33.314	
2,100.0	2,096.7	2,090.1	2,088.2	4.8	4.4	137.17	-48.1	-224.3	291.6	282.6	8.98	32.469	
2,200.0	2,196.4	2,189.8	2,187.7	5.0	4.6	136.86	-54.2	-227.7	299.6	290.1	9.45	31.695	
2,300.0	2,296.2	2,289.4	2,287.1	5.3	4.9	136.57	-60.3	-231.1	307.6	297.7	9.93	30.983	
2,400.0	2,395.9	2,389.1	2,386.5	5.6	5.1	136.29	-66.3	-234.4	315.6	305.2	10.41	30.329	
2,500.0	2,495.7	2,488.7	2,485.9	5.8	5.4	136.03	-72.4	-237.8	323.7	312.8	10.89	29.725	
2,600.0	2,595.5	2,588.4	2,585.4	6.1	5.6	135.78	-78.5	-241.2	331.7	320.3	11.37	29.167	
2,700.0	2,695.2	2,688.1	2,684.8	6.3	5.8	135.54	-84.6	-244.6	339.8	327.9	11.86	28.650	
2,800.0	2,795.0	2,787.7	2,784.2	6.6	6.1	135.31	-90.6	-248.0	347.8	335.5	12.35	28.171	
2,900.0	2,894.7	2,887.4	2,883.6	6.9	6.3	135.10	-96.7	-251.3	355.9	343.0	12.84	27.724	
3,000.0	2,994.5	2,987.1	2,983.0	7.1	6.6	134.89	-102.8	-254.7	363.9	350.6	13.33	27.308	
3,100.0	3,094.2	3,086.7	3,082.5	7.4	6.8	134.69	-108.9	-258.1	372.0	358.2	13.82	26.920	
3,200.0	3,194.0	3,186.4	3,181.9	7.6	7.1	134.50	-114.9	-261.5	380.1	365.8	14.31	26.556	
3,300.0	3,293.7	3,286.1	3,281.3	7.9	7.3	134.32	-121.0	-264.9	388.2	373.3	14.81	26.215	
3,400.0	3,393.5	3,385.7	3,380.7	8.2	7.6	134.14	-127.1	-268.3	396.2	380.9	15.30	25.895	
3,500.0	3,493.3	3,485.4	3,480.2	8.4	7.9	133.98	-133.2	-271.6	404.3	388.5	15.80	25.593	
3,600.0	3,593.0	3,585.1	3,579.6	8.7	8.1	133.81	-139.2	-275.0	412.4	396.1	16.29	25.309	
3,700.0	3,692.8	3,684.7	3,679.0	9.0	8.4	133.66	-145.3	-278.4	420.5	403.7	16.79	25.042	
3,800.0	3,792.5	3,784.4	3,778.4	9.2	8.6	133.51	-151.4	-281.8	428.6	411.3	17.29	24.788	
3,900.0	3,892.3	3,884.1	3,877.9	9.5	8.9	133.37	-157.5	-285.2	436.7	418.9	17.79	24.549	
4,000.0	3,992.0	3,983.7	3,977.3	9.7	9.1	133.23	-163.5	-288.5	444.8	426.5	18.29	24.322	
4,100.0	4,091.8	4,083.4	4,076.7	10.0	9.4	133.10	-169.6	-291.9	452.9	434.1	18.79	24.106	
4,200.0	4,191.6	4,183.1	4,176.1	10.3	9.6	132.97	-175.7	-295.3	461.0	441.7	19.29	23.901	
4,300.0	4,291.3	4,282.7	4,275.5	10.5	9.9	132.84	-181.8	-298.7	469.1	449.3	19.79	23.707	
4,400.0	4,391.1	4,382.4	4,375.0	10.8	10.2	132.72	-187.8	-302.1	477.2	456.9	20.29	23.521	
4,500.0	4,490.8	4,482.1	4,474.4	11.1	10.4	132.61	-193.9	-305.4	485.3	464.5	20.79	23.344	
4,600.0	4,590.6	4,581.7	4,573.8	11.3	10.7	132.49	-200.0	-308.8	493.4	472.1	21.29	23.176	
4,700.0	4,690.3	4,681.4	4,673.2	11.6	10.9	132.39	-206.1	-312.2	501.6	479.8	21.79	23.014	
4,800.0	4,790.1	4,781.1	4,772.7	11.8	11.2	132.28	-212.1	-315.6	509.7	487.4	22.29	22.860	
4,900.0	4,889.9	4,880.7	4,872.1	12.1	11.5	132.18	-218.2	-319.0	517.8	495.0	22.80	22.713	
5,000.0	4,989.6	4,980.4	4,971.5	12.4	11.7	132.08	-224.3	-322.4	525.9	502.6	23.30	22.571	
5,100.0	5,089.4	5,080.1	5,070.9	12.6	12.0	131.98	-230.4	-325.7	534.0	510.2	23.80	22.436	

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-1511A
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-1511A	**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	5,189.1	5,179.7	5,170.4	12.9	12.2	131.89	-236.4	-329.1	542.1	517.8	24.31	22.306	
5,300.0	5,288.9	5,279.4	5,269.8	13.2	12.5	131.80	-242.5	-332.5	550.3	525.5	24.81	22.181	
5,400.0	5,388.6	5,379.1	5,369.2	13.4	12.8	131.71	-248.6	-335.9	558.4	533.1	25.31	22.061	SF
5,500.0	5,488.0	5,463.8	5,453.7	13.7	13.0	131.11	-254.3	-339.1	569.4	543.7	25.67	22.181	
5,600.0	5,583.9	5,525.6	5,514.5	14.2	13.2	129.08	-264.0	-344.5	596.7	570.9	25.80	23.129	
5,700.0	5,672.7	5,582.4	5,568.7	14.8	13.5	125.46	-278.4	-352.5	640.5	614.5	25.99	24.644	
5,800.0	5,751.1	5,632.4	5,614.9	15.7	13.7	119.93	-295.3	-361.9	698.3	671.6	26.68	26.174	
5,900.0	5,816.4	5,674.9	5,652.5	16.8	14.0	112.01	-312.7	-371.6	767.0	738.6	28.38	27.026	
6,000.0	5,866.0	5,700.0	5,673.8	18.1	14.2	100.67	-324.1	-377.9	843.6	812.6	30.97	27.236	
6,100.0	5,898.1	5,736.2	5,703.5	19.7	14.4	87.91	-342.2	-388.0	924.9	891.5	33.41	27.686	
6,200.0	5,911.7	5,750.0	5,714.4	21.3	14.5	72.70	-349.6	-392.1	1,008.4	974.2	34.17	29.515	
6,300.0	5,912.1	5,768.3	5,728.6	23.0	14.7	72.24	-359.8	-397.8	1,091.9	1,055.7	36.20	30.163	
6,400.0	5,912.1	5,784.8	5,740.9	24.7	14.8	74.86	-369.3	-403.0	1,175.2	1,136.5	38.70	30.367	
6,500.0	5,912.1	5,800.0	5,752.0	26.4	15.0	77.02	-378.3	-408.1	1,257.9	1,216.8	41.10	30.605	
6,600.0	5,912.1	5,828.9	5,772.3	28.2	15.2	79.69	-396.4	-418.1	1,339.7	1,296.1	43.58	30.739	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1511A
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-1511A	**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	-164.5	164.5				
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	0.0	-164.5	164.5	164.3	0.19	879.387	
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-164.5	164.5	163.8	0.64	258.351	
300.0	300.0	300.0	300.0	0.5	0.5	-89.99	0.0	-164.5	164.5	163.4	1.09	151.418	
400.0	400.0	400.0	400.0	0.8	0.8	-89.99	0.0	-164.5	164.5	162.9	1.54	107.092	
500.0	500.0	500.0	500.0	1.0	1.0	-89.99	0.0	-164.5	164.5	162.5	1.99	82.841	
600.0	600.0	600.0	600.0	1.2	1.2	-89.99	0.0	-164.5	164.5	162.0	2.43	67.545	CC, ES
700.0	700.0	700.0	700.0	1.4	1.4	133.09	0.0	-164.5	165.6	162.8	2.86	57.899	
800.0	799.8	799.8	799.8	1.6	1.7	134.33	0.0	-164.5	169.3	166.0	3.27	51.689	
900.0	899.6	899.6	899.6	1.8	1.9	135.97	0.0	-164.5	174.2	170.5	3.70	47.078	
1,000.0	999.4	999.4	999.4	2.0	2.1	137.52	0.0	-164.5	179.3	175.2	4.14	43.353	
1,100.0	1,099.1	1,099.1	1,099.1	2.3	2.3	138.98	0.0	-164.5	184.5	179.9	4.58	40.312	
1,200.0	1,198.9	1,197.7	1,197.7	2.5	2.5	139.85	-1.5	-165.0	190.1	185.1	4.99	38.078	
1,300.0	1,298.6	1,296.3	1,296.2	2.8	2.7	139.69	-6.4	-166.5	196.4	191.0	5.39	36.402	
1,400.0	1,398.4	1,396.0	1,395.6	3.0	2.9	139.03	-13.0	-168.6	203.0	197.2	5.81	34.913	
1,500.0	1,498.1	1,495.8	1,495.2	3.3	3.1	138.41	-19.6	-170.7	209.6	203.4	6.25	33.555	
1,600.0	1,597.9	1,595.5	1,594.7	3.5	3.3	137.82	-26.3	-172.8	216.3	209.6	6.69	32.322	
1,700.0	1,697.6	1,695.3	1,694.2	3.8	3.5	137.28	-32.9	-174.9	223.0	215.8	7.14	31.204	
1,800.0	1,797.4	1,795.1	1,793.7	4.0	3.7	136.76	-39.5	-177.0	229.6	222.0	7.61	30.192	
1,900.0	1,897.2	1,894.8	1,893.2	4.3	4.0	136.27	-46.2	-179.1	236.4	228.3	8.07	29.274	
2,000.0	1,996.9	1,994.6	1,992.7	4.5	4.2	135.81	-52.8	-181.2	243.1	234.5	8.55	28.440	
2,100.0	2,096.7	2,094.3	2,092.2	4.8	4.4	135.38	-59.4	-183.3	249.8	240.8	9.03	27.682	
2,200.0	2,196.4	2,194.1	2,191.7	5.0	4.7	134.96	-66.1	-185.4	256.6	247.1	9.51	26.990	
2,300.0	2,296.2	2,293.8	2,291.2	5.3	4.9	134.57	-72.7	-187.5	263.4	253.4	9.99	26.358	
2,400.0	2,395.9	2,393.6	2,390.8	5.6	5.2	134.20	-79.3	-189.6	270.1	259.7	10.48	25.778	
2,500.0	2,495.7	2,493.3	2,490.3	5.8	5.4	133.85	-86.0	-191.7	276.9	266.0	10.97	25.245	
2,600.0	2,595.5	2,593.1	2,589.8	6.1	5.6	133.51	-92.6	-193.8	283.7	272.3	11.46	24.754	
2,700.0	2,695.2	2,692.8	2,689.3	6.3	5.9	133.19	-99.2	-195.9	290.5	278.6	11.96	24.300	
2,800.0	2,795.0	2,792.6	2,788.8	6.6	6.1	132.88	-105.9	-198.0	297.4	284.9	12.45	23.880	
2,900.0	2,894.7	2,892.4	2,888.3	6.9	6.4	132.59	-112.5	-200.1	304.2	291.2	12.95	23.490	
3,000.0	2,994.5	2,992.1	2,987.8	7.1	6.6	132.31	-119.1	-202.3	311.0	297.6	13.45	23.127	
3,100.0	3,094.2	3,091.9	3,087.3	7.4	6.9	132.04	-125.8	-204.4	317.9	303.9	13.95	22.789	
3,200.0	3,194.0	3,191.6	3,186.9	7.6	7.2	131.79	-132.4	-206.5	324.7	310.3	14.45	22.473	
3,300.0	3,293.7	3,291.4	3,286.4	7.9	7.4	131.54	-139.0	-208.6	331.6	316.6	14.95	22.178	
3,400.0	3,393.5	3,391.1	3,385.9	8.2	7.7	131.31	-145.7	-210.7	338.4	323.0	15.45	21.900	
3,500.0	3,493.3	3,490.9	3,485.4	8.4	7.9	131.08	-152.3	-212.8	345.3	329.3	15.96	21.640	
3,600.0	3,593.0	3,590.6	3,584.9	8.7	8.2	130.86	-158.9	-214.9	352.2	335.7	16.46	21.395	
3,700.0	3,692.8	3,690.4	3,684.4	9.0	8.4	130.65	-165.6	-217.0	359.1	342.1	16.97	21.164	
3,800.0	3,792.5	3,790.2	3,783.9	9.2	8.7	130.45	-172.2	-219.1	365.9	348.5	17.47	20.946	
3,900.0	3,892.3	3,889.9	3,883.4	9.5	8.9	130.26	-178.8	-221.2	372.8	354.8	17.98	20.739	
4,000.0	3,992.0	3,989.7	3,982.9	9.7	9.2	130.07	-185.5	-223.3	379.7	361.2	18.48	20.544	
4,100.0	4,091.8	4,089.4	4,082.5	10.0	9.5	129.89	-192.1	-225.4	386.6	367.6	18.99	20.359	
4,200.0	4,191.6	4,189.2	4,182.0	10.3	9.7	129.72	-198.7	-227.5	393.5	374.0	19.50	20.184	
4,300.0	4,291.3	4,288.9	4,281.5	10.5	10.0	129.55	-205.3	-229.6	400.4	380.4	20.00	20.017	
4,400.0	4,391.1	4,388.7	4,381.0	10.8	10.2	129.39	-212.0	-231.7	407.3	386.8	20.51	19.858	
4,500.0	4,490.8	4,488.4	4,480.5	11.1	10.5	129.23	-218.6	-233.8	414.2	393.2	21.02	19.707	
4,600.0	4,590.6	4,588.2	4,580.0	11.3	10.8	129.08	-225.2	-235.9	421.1	399.6	21.53	19.562	
4,700.0	4,690.3	4,687.9	4,679.5	11.6	11.0	128.93	-231.9	-238.0	428.0	406.0	22.04	19.425	
4,800.0	4,790.1	4,787.7	4,779.0	11.8	11.3	128.79	-238.5	-240.1	435.0	412.4	22.54	19.293	
4,900.0	4,889.9	4,887.5	4,878.6	12.1	11.5	128.65	-245.1	-242.2	441.9	418.8	23.05	19.167	
5,000.0	4,989.6	4,987.2	4,978.1	12.4	11.8	128.52	-251.8	-244.3	448.8	425.2	23.56	19.047	
5,100.0	5,089.4	5,087.0	5,077.6	12.6	12.1	128.39	-258.4	-246.4	455.7	431.6	24.07	18.932	

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-1511A
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-1511A	**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	5,189.1	5,186.7	5,177.1	12.9	12.3	128.26	-265.0	-248.5	462.6	438.1	24.58	18.821	
5,300.0	5,288.9	5,286.5	5,276.6	13.2	12.6	128.14	-271.7	-250.6	469.6	444.5	25.09	18.715	
5,400.0	5,388.6	5,386.2	5,376.1	13.4	12.8	128.02	-278.3	-252.7	476.5	450.9	25.60	18.613 SF	
5,500.0	5,488.0	5,485.7	5,475.4	13.7	13.1	127.68	-284.9	-254.8	485.6	459.6	26.02	18.665	
5,600.0	5,583.9	5,571.4	5,560.8	14.2	13.3	127.28	-291.6	-257.0	506.1	479.9	26.21	19.314	
5,700.0	5,672.7	5,640.2	5,628.1	14.8	13.6	125.39	-304.5	-261.0	542.0	515.6	26.38	20.545	
5,800.0	5,751.1	5,700.0	5,684.9	15.7	13.9	121.67	-322.5	-266.8	592.0	565.1	26.92	21.988	
5,900.0	5,816.4	5,760.9	5,740.0	16.8	14.2	116.19	-347.0	-274.6	653.7	625.3	28.35	23.055	
6,000.0	5,866.0	5,810.7	5,782.6	18.1	14.6	108.29	-371.6	-282.3	724.4	693.7	30.76	23.555	
6,100.0	5,898.1	5,850.0	5,814.4	19.7	14.9	97.71	-393.6	-289.3	801.7	767.9	33.75	23.753	
6,200.0	5,911.7	5,887.5	5,843.0	21.3	15.2	85.46	-416.7	-296.7	882.7	846.5	36.23	24.362	
6,300.0	5,912.1	5,918.3	5,865.1	23.0	15.5	85.13	-437.2	-303.1	965.0	926.5	38.54	25.042	
6,400.0	5,912.1	5,956.0	5,890.4	24.7	15.8	87.99	-463.7	-311.6	1,046.4	1,005.5	40.91	25.577	
6,500.0	5,912.1	6,002.3	5,918.7	26.4	16.3	90.55	-498.7	-322.7	1,126.3	1,083.1	43.28	26.024	
6,600.0	5,912.1	6,059.2	5,948.7	28.2	17.0	92.70	-544.7	-337.3	1,204.1	1,158.4	45.67	26.365	
6,700.0	5,912.1	6,128.1	5,977.8	30.0	17.8	94.32	-604.2	-356.1	1,278.8	1,230.7	48.14	26.567	
6,800.0	5,912.1	6,209.2	6,001.1	31.8	18.9	95.22	-678.1	-379.6	1,349.9	1,299.1	50.76	26.593	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1511A
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-1511A	**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	-89.98	0.0	-132.2	132.2				
100.0	100.0	100.0	100.0	0.1	0.1	-89.98	0.0	-132.2	132.2	132.0	0.19	706.797	
200.0	200.0	200.0	200.0	0.3	0.3	-89.98	0.0	-132.2	132.2	131.5	0.64	207.647	
300.0	300.0	300.0	300.0	0.5	0.5	-89.98	0.0	-132.2	132.2	131.1	1.09	121.700	
400.0	400.0	400.0	400.0	0.8	0.8	-89.98	0.0	-132.2	132.2	130.6	1.54	86.074	
500.0	500.0	500.0	500.0	1.0	1.0	-89.98	0.0	-132.2	132.2	130.2	1.99	66.582	
600.0	600.0	600.0	600.0	1.2	1.2	-89.98	0.0	-132.2	132.2	129.7	2.43	54.289	CC, ES
700.0	700.0	700.0	700.0	1.4	1.4	133.20	0.0	-132.2	133.4	130.5	2.86	46.618	
800.0	799.8	799.8	799.8	1.6	1.7	134.74	0.0	-132.2	137.0	133.7	3.27	41.839	
900.0	899.6	899.6	899.6	1.8	1.9	136.74	0.0	-132.2	142.0	138.3	3.70	38.378	
1,000.0	999.4	999.4	999.4	2.0	2.1	138.60	0.0	-132.2	147.2	143.0	4.13	35.592	
1,100.0	1,099.1	1,099.5	1,099.5	2.3	2.3	139.69	-1.7	-132.3	152.3	147.8	4.55	33.494	
1,200.0	1,198.9	1,199.8	1,199.7	2.5	2.5	139.44	-6.9	-132.5	157.2	152.3	4.95	31.784	
1,300.0	1,298.6	1,299.7	1,299.3	2.8	2.7	138.58	-13.9	-132.8	162.0	156.7	5.37	30.202	
1,400.0	1,398.4	1,399.6	1,398.9	3.0	2.9	137.77	-20.8	-133.1	166.9	161.1	5.80	28.776	
1,500.0	1,498.1	1,499.4	1,498.5	3.3	3.1	137.01	-27.8	-133.4	171.7	165.5	6.25	27.497	
1,600.0	1,597.9	1,599.3	1,598.1	3.5	3.3	136.29	-34.8	-133.7	176.6	169.9	6.70	26.352	
1,700.0	1,697.6	1,699.1	1,697.7	3.8	3.5	135.61	-41.7	-134.0	181.6	174.4	7.17	25.327	
1,800.0	1,797.4	1,799.0	1,797.4	4.0	3.8	134.96	-48.7	-134.4	186.5	178.9	7.64	24.408	
1,900.0	1,897.2	1,898.8	1,897.0	4.3	4.0	134.35	-55.6	-134.7	191.5	183.4	8.12	23.581	
2,000.0	1,996.9	1,998.7	1,996.6	4.5	4.2	133.77	-62.6	-135.0	196.5	187.9	8.60	22.836	
2,100.0	2,096.7	2,098.6	2,096.2	4.8	4.5	133.22	-69.6	-135.3	201.5	192.4	9.09	22.162	
2,200.0	2,196.4	2,198.4	2,195.8	5.0	4.7	132.70	-76.5	-135.6	206.5	196.9	9.58	21.551	
2,300.0	2,296.2	2,298.3	2,295.4	5.3	5.0	132.20	-83.5	-135.9	211.5	201.5	10.08	20.995	
2,400.0	2,395.9	2,398.1	2,395.0	5.6	5.2	131.72	-90.4	-136.2	216.6	206.0	10.57	20.486	
2,500.0	2,495.7	2,498.0	2,494.7	5.8	5.5	131.27	-97.4	-136.5	221.7	210.6	11.07	20.021	
2,600.0	2,595.5	2,597.8	2,594.3	6.1	5.7	130.83	-104.3	-136.8	226.7	215.2	11.57	19.594	
2,700.0	2,695.2	2,697.7	2,693.9	6.3	6.0	130.42	-111.3	-137.2	231.8	219.8	12.08	19.200	
2,800.0	2,795.0	2,797.5	2,793.5	6.6	6.2	130.02	-118.3	-137.5	237.0	224.4	12.58	18.837	
2,900.0	2,894.7	2,897.4	2,893.1	6.9	6.5	129.64	-125.2	-137.8	242.1	229.0	13.09	18.500	
3,000.0	2,994.5	2,997.3	2,992.7	7.1	6.7	129.27	-132.2	-138.1	247.2	233.6	13.59	18.187	
3,100.0	3,094.2	3,097.1	3,092.3	7.4	7.0	128.92	-139.1	-138.4	252.3	238.2	14.10	17.897	
3,200.0	3,194.0	3,197.0	3,191.9	7.6	7.2	128.59	-146.1	-138.7	257.5	242.9	14.61	17.626	
3,300.0	3,293.7	3,296.8	3,291.6	7.9	7.5	128.26	-153.1	-139.0	262.6	247.5	15.12	17.373	
3,400.0	3,393.5	3,396.7	3,391.2	8.2	7.7	127.95	-160.0	-139.3	267.8	252.2	15.63	17.136	
3,500.0	3,493.3	3,496.5	3,490.8	8.4	8.0	127.65	-167.0	-139.6	273.0	256.8	16.14	16.913	
3,600.0	3,593.0	3,596.4	3,590.4	8.7	8.3	127.37	-173.9	-140.0	278.2	261.5	16.65	16.705	
3,700.0	3,692.8	3,696.3	3,690.0	9.0	8.5	127.09	-180.9	-140.3	283.4	266.2	17.16	16.508	
3,800.0	3,792.5	3,796.1	3,789.6	9.2	8.8	126.82	-187.9	-140.6	288.5	270.9	17.68	16.323	
3,900.0	3,892.3	3,896.0	3,889.2	9.5	9.0	126.56	-194.8	-140.9	293.7	275.6	18.19	16.148	
4,000.0	3,992.0	3,995.8	3,988.8	9.7	9.3	126.32	-201.8	-141.2	298.9	280.2	18.70	15.983	
4,100.0	4,091.8	4,095.7	4,088.5	10.0	9.6	126.08	-208.7	-141.5	304.2	284.9	19.22	15.826	
4,200.0	4,191.6	4,195.5	4,188.1	10.3	9.8	125.84	-215.7	-141.8	309.4	289.6	19.73	15.678	
4,300.0	4,291.3	4,295.4	4,287.7	10.5	10.1	125.62	-222.6	-142.1	314.6	294.3	20.25	15.537	
4,400.0	4,391.1	4,395.2	4,387.3	10.8	10.3	125.40	-229.6	-142.4	319.8	299.1	20.76	15.403	
4,500.0	4,490.8	4,495.1	4,486.9	11.1	10.6	125.19	-236.6	-142.8	325.0	303.8	21.28	15.276	
4,600.0	4,590.6	4,595.0	4,586.5	11.3	10.9	124.99	-243.5	-143.1	330.3	308.5	21.79	15.154	
4,700.0	4,690.3	4,694.8	4,686.1	11.6	11.1	124.79	-250.5	-143.4	335.5	313.2	22.31	15.039	
4,800.0	4,790.1	4,794.7	4,785.8	11.8	11.4	124.60	-257.4	-143.7	340.8	317.9	22.83	14.928	
4,900.0	4,889.9	4,894.5	4,885.4	12.1	11.6	124.42	-264.4	-144.0	346.0	322.7	23.34	14.822	
5,000.0	4,989.6	4,994.4	4,985.0	12.4	11.9	124.24	-271.4	-144.3	351.2	327.4	23.86	14.722	
5,100.0	5,089.4	5,094.2	5,084.6	12.6	12.2	124.06	-278.3	-144.6	356.5	332.1	24.38	14.625	

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-1511A
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-1511A	**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

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	5,189.1	5,194.1	5,184.2	12.9	12.4	123.89	-285.3	-144.9	361.8	336.9	24.89	14.532	
5,300.0	5,288.9	5,294.0	5,283.8	13.2	12.7	123.73	-292.2	-145.2	367.0	341.6	25.41	14.443	
5,400.0	5,388.6	5,393.8	5,383.4	13.4	12.9	123.57	-299.2	-145.6	372.3	346.3	25.93	14.358	
5,500.0	5,488.0	5,486.4	5,475.6	13.7	13.2	122.96	-307.9	-145.9	380.0	353.6	26.39	14.399	
5,600.0	5,583.9	5,571.4	5,558.0	14.2	13.6	121.02	-328.4	-146.9	400.2	373.4	26.86	14.899	
5,700.0	5,672.7	5,650.0	5,630.2	14.8	14.0	117.83	-359.0	-148.2	433.1	405.6	27.50	15.748	
5,800.0	5,751.1	5,729.4	5,697.8	15.7	14.5	113.49	-400.7	-150.1	476.9	448.3	28.60	16.675	
5,900.0	5,816.4	5,800.0	5,751.8	16.8	15.1	108.03	-445.9	-152.1	529.9	499.5	30.35	17.460	
6,000.0	5,866.0	5,868.2	5,797.8	18.1	15.8	101.61	-496.2	-154.4	589.8	557.2	32.68	18.050	
6,100.0	5,898.1	5,931.4	5,834.2	19.7	16.5	94.41	-547.7	-156.7	654.8	619.5	35.31	18.544	
6,200.0	5,911.7	5,991.7	5,862.9	21.3	17.2	86.84	-600.6	-159.0	722.7	684.8	37.88	19.080	
6,300.0	5,912.1	6,053.5	5,885.7	23.0	18.0	87.42	-658.0	-161.6	790.9	750.3	40.62	19.469	
6,400.0	5,912.1	6,123.8	5,903.2	24.7	19.0	89.23	-726.0	-164.6	856.5	813.0	43.48	19.699	
6,500.0	5,912.1	6,201.1	5,911.7	26.4	20.1	89.97	-802.7	-168.1	918.5	872.0	46.48	19.761	
6,600.0	5,912.1	6,326.2	5,912.1	28.2	21.9	90.00	-927.7	-170.8	974.4	924.5	49.99	19.492	
6,700.0	5,912.1	6,413.0	5,912.0	30.0	23.2	90.00	-1,014.5	-170.8	1,024.1	970.9	53.21	19.248	
6,800.0	5,912.1	6,502.3	5,912.0	31.8	24.7	90.00	-1,103.8	-170.8	1,069.2	1,012.6	56.53	18.913	
6,900.0	5,912.1	6,593.8	5,912.0	33.5	26.2	90.00	-1,195.3	-170.8	1,109.5	1,049.6	59.87	18.532	
7,000.0	5,912.1	6,687.2	5,912.0	35.3	27.8	90.00	-1,288.7	-170.8	1,144.9	1,081.8	63.18	18.121	
7,100.0	5,912.1	6,782.5	5,912.0	37.0	29.4	90.00	-1,384.0	-170.9	1,175.5	1,109.0	66.44	17.693	
7,200.0	5,912.1	6,879.1	5,912.0	38.7	31.1	90.00	-1,480.6	-170.9	1,201.0	1,131.4	69.60	17.254	
7,300.0	5,912.1	6,977.0	5,912.0	40.3	32.8	90.00	-1,578.5	-170.9	1,221.4	1,148.7	72.65	16.812	
7,400.0	5,912.1	7,075.8	5,912.0	41.9	34.6	90.00	-1,677.3	-170.9	1,236.7	1,161.1	75.55	16.369	
7,500.0	5,912.1	7,175.3	5,912.0	43.5	36.3	90.00	-1,776.8	-170.9	1,246.7	1,168.5	78.27	15.928	
7,600.0	5,912.1	7,275.2	5,912.0	45.0	38.1	90.00	-1,876.7	-170.9	1,251.6	1,170.8	80.79	15.492	
7,700.0	5,912.1	7,375.2	5,912.0	46.5	40.0	90.00	-1,976.7	-170.9	1,252.1	1,168.3	83.81	14.940	
7,800.0	5,912.1	7,475.2	5,912.0	48.0	41.8	90.00	-2,076.7	-170.9	1,252.1	1,164.8	87.31	14.340	
7,900.0	5,912.1	7,575.2	5,912.0	49.5	43.6	90.00	-2,176.7	-170.9	1,252.1	1,161.2	90.85	13.782	
8,000.0	5,912.1	7,675.2	5,912.0	51.0	45.5	90.00	-2,276.7	-170.9	1,252.1	1,157.7	94.41	13.263	
8,100.0	5,912.1	7,775.2	5,912.0	52.6	47.3	90.00	-2,376.7	-170.9	1,252.1	1,154.1	97.99	12.778	
8,200.0	5,912.1	7,875.2	5,912.0	54.2	49.2	90.00	-2,476.7	-170.9	1,252.1	1,150.5	101.59	12.325	
8,300.0	5,912.1	7,975.2	5,912.0	55.8	51.0	90.00	-2,576.7	-171.0	1,252.2	1,146.9	105.21	11.901	
8,400.0	5,912.1	8,075.2	5,912.0	57.5	52.9	90.00	-2,676.7	-171.0	1,252.2	1,143.3	108.85	11.504	
8,500.0	5,912.1	8,175.2	5,912.0	59.1	54.8	90.00	-2,776.7	-171.0	1,252.2	1,139.7	112.50	11.131	
8,600.0	5,912.1	8,275.2	5,912.0	60.8	56.6	90.00	-2,876.7	-171.0	1,252.2	1,136.0	116.16	10.780	
8,700.0	5,912.1	8,375.2	5,912.0	62.4	58.5	90.00	-2,976.7	-171.0	1,252.2	1,132.4	119.83	10.450	
8,800.0	5,912.1	8,475.2	5,912.0	64.1	60.4	90.00	-3,076.7	-171.0	1,252.2	1,128.7	123.51	10.138	
8,900.0	5,912.1	8,575.2	5,912.0	65.8	62.3	90.00	-3,176.7	-171.0	1,252.2	1,125.0	127.21	9.844	
9,000.0	5,912.1	8,675.2	5,912.0	67.6	64.1	90.00	-3,276.7	-171.0	1,252.3	1,121.4	130.91	9.566	
9,100.0	5,912.1	8,775.2	5,912.0	69.3	66.0	90.00	-3,376.7	-171.0	1,252.3	1,117.7	134.62	9.302	
9,200.0	5,912.1	8,875.2	5,912.0	71.0	67.9	90.00	-3,476.7	-171.0	1,252.3	1,114.0	138.34	9.052	
9,300.0	5,912.1	8,975.2	5,912.0	72.8	69.8	90.00	-3,576.7	-171.0	1,252.3	1,110.2	142.06	8.815	
9,400.0	5,912.1	9,075.2	5,912.0	74.5	71.7	90.00	-3,676.7	-171.0	1,252.3	1,106.5	145.79	8.590	
9,500.0	5,912.1	9,175.2	5,912.0	76.3	73.6	90.00	-3,776.7	-171.1	1,252.3	1,102.8	149.53	8.375	
9,600.0	5,912.0	9,275.2	5,912.0	78.1	75.5	90.00	-3,876.7	-171.1	1,252.4	1,099.1	153.27	8.171	
9,700.0	5,912.0	9,375.2	5,912.0	79.8	77.4	90.00	-3,976.7	-171.1	1,252.4	1,095.3	157.02	7.976	
9,800.0	5,912.0	9,475.2	5,912.0	81.6	79.3	90.00	-4,076.7	-171.1	1,252.4	1,091.6	160.77	7.790	
9,900.0	5,912.0	9,575.2	5,912.0	83.4	81.2	90.00	-4,176.7	-171.1	1,252.4	1,087.9	164.52	7.612	
10,000.0	5,912.0	9,675.2	5,912.0	85.2	83.1	90.00	-4,276.7	-171.1	1,252.4	1,084.1	168.28	7.442	
10,100.0	5,912.0	9,775.2	5,912.0	87.0	85.0	90.00	-4,376.7	-171.1	1,252.4	1,080.4	172.05	7.280	
10,200.0	5,912.0	9,875.2	5,912.0	88.8	86.9	90.00	-4,476.7	-171.1	1,252.4	1,076.6	175.82	7.124	
10,300.0	5,912.0	9,975.2	5,912.0	90.6	88.8	90.00	-4,576.7	-171.1	1,252.5	1,072.9	179.59	6.974	

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-1511A
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-1511A	**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	5,912.0	10,075.2	5,912.0	92.5	90.7	90.00	-4,676.7	-171.1	1,252.5	1,069.1	183.36	6.831	
10,500.0	5,912.0	10,175.2	5,912.0	94.3	92.6	90.00	-4,776.7	-171.1	1,252.5	1,065.4	187.14	6.693	
10,600.0	5,912.0	10,275.2	5,912.0	96.1	94.5	90.00	-4,876.7	-171.1	1,252.5	1,061.6	190.91	6.561	
10,700.0	5,912.0	10,375.2	5,912.0	97.9	96.4	90.00	-4,976.7	-171.2	1,252.5	1,057.8	194.70	6.433	
10,800.0	5,912.0	10,475.2	5,912.0	99.8	98.3	90.00	-5,076.7	-171.2	1,252.5	1,054.1	198.48	6.311	
10,900.0	5,912.0	10,575.2	5,912.0	101.6	100.2	90.00	-5,176.7	-171.2	1,252.5	1,050.3	202.27	6.193	
11,000.0	5,912.0	10,675.2	5,912.0	103.4	102.1	90.00	-5,276.7	-171.2	1,252.6	1,046.5	206.05	6.079	
11,100.0	5,912.0	10,775.2	5,912.0	105.3	104.0	90.00	-5,376.7	-171.2	1,252.6	1,042.7	209.85	5.969	
11,200.0	5,912.0	10,875.2	5,912.0	107.1	105.9	90.00	-5,476.7	-171.2	1,252.6	1,039.0	213.64	5.863	
11,300.0	5,912.0	10,975.2	5,912.0	109.0	107.8	90.00	-5,576.7	-171.2	1,252.6	1,035.2	217.43	5.761	
11,400.0	5,912.0	11,075.2	5,912.0	110.8	109.7	90.00	-5,676.7	-171.2	1,252.6	1,031.4	221.23	5.662	
11,500.0	5,912.0	11,175.2	5,912.0	112.7	111.6	90.00	-5,776.7	-171.2	1,252.6	1,027.6	225.03	5.567	
11,600.0	5,912.0	11,275.2	5,912.0	114.5	113.5	90.00	-5,876.7	-171.2	1,252.7	1,023.8	228.82	5.474	
11,700.0	5,912.0	11,375.2	5,912.0	116.4	115.4	90.00	-5,976.7	-171.2	1,252.7	1,020.0	232.62	5.385	
11,800.0	5,912.0	11,475.2	5,912.0	118.2	117.3	90.00	-6,076.7	-171.2	1,252.7	1,016.3	236.43	5.298	
11,900.0	5,912.0	11,575.2	5,912.0	120.1	119.3	90.00	-6,176.7	-171.3	1,252.7	1,012.5	240.23	5.215	
12,000.0	5,912.0	11,675.2	5,912.0	122.0	121.2	90.00	-6,276.7	-171.3	1,252.7	1,008.7	244.03	5.133	
12,100.0	5,912.0	11,775.2	5,912.0	123.8	123.1	90.00	-6,376.7	-171.3	1,252.7	1,004.9	247.84	5.055	
12,200.0	5,912.0	11,875.2	5,912.0	125.7	125.0	90.00	-6,476.7	-171.3	1,252.7	1,001.1	251.65	4.978	
12,300.0	5,912.0	11,975.2	5,912.0	127.6	126.9	90.00	-6,576.7	-171.3	1,252.8	997.3	255.46	4.904	
12,400.0	5,912.0	12,075.2	5,912.0	129.4	128.8	90.00	-6,676.7	-171.3	1,252.8	993.5	259.26	4.832	
12,500.0	5,912.0	12,175.2	5,912.0	131.3	130.7	90.00	-6,776.7	-171.3	1,252.8	989.7	263.07	4.762	
12,600.0	5,912.0	12,275.2	5,912.0	133.2	132.6	90.00	-6,876.7	-171.3	1,252.8	985.9	266.89	4.694	
12,700.0	5,912.0	12,375.2	5,912.0	135.1	134.6	90.00	-6,976.7	-171.3	1,252.8	982.1	270.70	4.628	
12,800.0	5,912.0	12,475.2	5,912.0	136.9	136.5	90.00	-7,076.7	-171.3	1,252.8	978.3	274.51	4.564	
12,900.0	5,912.0	12,575.2	5,912.0	138.8	138.4	90.00	-7,176.7	-171.3	1,252.9	974.5	278.32	4.501	
13,000.0	5,912.0	12,675.2	5,912.0	140.7	140.3	90.00	-7,276.7	-171.3	1,252.9	970.7	282.14	4.441	
13,100.0	5,912.0	12,775.2	5,912.0	142.6	142.2	90.00	-7,376.7	-171.4	1,252.9	966.9	285.95	4.381	
13,200.0	5,912.0	12,875.2	5,912.0	144.4	144.1	90.00	-7,476.7	-171.4	1,252.9	963.1	289.77	4.324	
13,300.0	5,912.0	12,975.2	5,912.0	146.3	146.0	90.00	-7,576.7	-171.4	1,252.9	959.3	293.59	4.268	
13,400.0	5,912.0	13,075.2	5,912.0	148.2	148.0	90.00	-7,676.7	-171.4	1,252.9	955.5	297.40	4.213	
13,500.0	5,912.0	13,175.2	5,912.0	150.1	149.9	90.00	-7,776.7	-171.4	1,252.9	951.7	301.22	4.160	
13,600.0	5,912.0	13,275.2	5,912.0	152.0	151.8	90.00	-7,876.7	-171.4	1,253.0	947.9	305.04	4.107	
13,700.0	5,912.0	13,375.2	5,912.0	153.9	153.7	90.00	-7,976.7	-171.4	1,253.0	944.1	308.86	4.057	
13,800.0	5,912.0	13,475.2	5,912.0	155.8	155.6	90.00	-8,076.7	-171.4	1,253.0	940.3	312.68	4.007	
13,900.0	5,912.0	13,575.2	5,912.0	157.6	157.5	90.00	-8,176.7	-171.4	1,253.0	936.5	316.50	3.959	
13,906.7	5,912.0	13,581.9	5,912.0	157.8	157.7	90.00	-8,183.4	-171.4	1,253.0	936.2	316.76	3.956	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1511A
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-1511A	**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	-89.98	0.0	-98.4	98.4				
100.0	100.0	100.0	100.0	0.1	0.1	-89.98	0.0	-98.4	98.4	98.2	0.19	525.988	
200.0	200.0	200.0	200.0	0.3	0.3	-89.98	0.0	-98.4	98.4	97.7	0.64	154.528	
300.0	300.0	300.0	300.0	0.5	0.5	-89.98	0.0	-98.4	98.4	97.3	1.09	90.568	
400.0	400.0	400.0	400.0	0.8	0.8	-89.98	0.0	-98.4	98.4	96.8	1.54	64.055	
500.0	500.0	500.0	500.0	1.0	1.0	-89.98	0.0	-98.4	98.4	96.4	1.99	49.550	
600.0	600.0	600.0	600.0	1.2	1.2	-89.98	0.0	-98.4	98.4	95.9	2.43	40.401	CC, ES
700.0	700.0	700.0	700.0	1.4	1.4	133.39	0.0	-98.4	99.6	96.7	2.86	34.799	
800.0	799.8	799.8	799.8	1.6	1.7	135.45	0.0	-98.4	103.2	99.9	3.27	31.523	
900.0	899.6	899.6	899.6	1.8	1.9	138.03	0.0	-98.4	108.3	104.6	3.70	29.275	
1,000.0	999.4	1,000.8	1,000.8	2.0	2.1	139.58	-1.7	-97.9	113.0	108.9	4.11	27.500	
1,100.0	1,099.1	1,102.1	1,102.0	2.3	2.3	139.37	-6.9	-96.7	116.4	111.9	4.51	25.836	
1,200.0	1,198.9	1,202.1	1,201.7	2.5	2.5	138.42	-13.7	-95.0	119.2	114.3	4.92	24.229	
1,300.0	1,298.6	1,302.0	1,301.4	2.8	2.7	137.51	-20.4	-93.3	122.1	116.8	5.36	22.804	
1,400.0	1,398.4	1,402.0	1,401.1	3.0	2.9	136.64	-27.2	-91.6	125.0	119.2	5.80	21.547	
1,500.0	1,498.1	1,501.9	1,500.8	3.3	3.1	135.81	-34.0	-90.0	128.0	121.7	6.26	20.438	
1,600.0	1,597.9	1,601.8	1,600.5	3.5	3.3	135.02	-40.7	-88.3	131.0	124.2	6.73	19.459	
1,700.0	1,697.6	1,701.8	1,700.2	3.8	3.6	134.27	-47.5	-86.6	133.9	126.7	7.20	18.591	
1,800.0	1,797.4	1,801.7	1,799.8	4.0	3.8	133.54	-54.3	-84.9	137.0	129.3	7.69	17.819	
1,900.0	1,897.2	1,901.7	1,899.5	4.3	4.0	132.85	-61.0	-83.3	140.0	131.8	8.17	17.129	
2,000.0	1,996.9	2,001.6	1,999.2	4.5	4.3	132.19	-67.8	-81.6	143.0	134.4	8.66	16.511	
2,100.0	2,096.7	2,101.5	2,098.9	4.8	4.5	131.55	-74.6	-79.9	146.1	137.0	9.16	15.955	
2,200.0	2,196.4	2,201.5	2,198.6	5.0	4.8	130.95	-81.3	-78.2	149.2	139.5	9.66	15.452	
2,300.0	2,296.2	2,301.4	2,298.3	5.3	5.0	130.36	-88.1	-76.6	152.3	142.2	10.16	14.996	
2,400.0	2,395.9	2,401.4	2,398.0	5.6	5.3	129.80	-94.9	-74.9	155.4	144.8	10.66	14.580	
2,500.0	2,495.7	2,501.3	2,497.7	5.8	5.5	129.27	-101.6	-73.2	158.6	147.4	11.17	14.201	
2,600.0	2,595.5	2,601.2	2,597.4	6.1	5.8	128.75	-108.4	-71.5	161.7	150.0	11.67	13.854	
2,700.0	2,695.2	2,701.2	2,697.1	6.3	6.0	128.25	-115.2	-69.9	164.9	152.7	12.18	13.534	
2,800.0	2,795.0	2,801.1	2,796.8	6.6	6.3	127.77	-121.9	-68.2	168.0	155.3	12.69	13.240	
2,900.0	2,894.7	2,901.1	2,896.5	6.9	6.6	127.31	-128.7	-66.5	171.2	158.0	13.20	12.968	
3,000.0	2,994.5	3,001.0	2,996.2	7.1	6.8	126.87	-135.5	-64.8	174.4	160.7	13.72	12.716	
3,100.0	3,094.2	3,100.9	3,095.9	7.4	7.1	126.44	-142.2	-63.2	177.6	163.4	14.23	12.482	
3,200.0	3,194.0	3,200.9	3,195.6	7.6	7.3	126.03	-149.0	-61.5	180.8	166.1	14.75	12.264	
3,300.0	3,293.7	3,300.8	3,295.3	7.9	7.6	125.63	-155.8	-59.8	184.1	168.8	15.26	12.061	
3,400.0	3,393.5	3,400.8	3,395.0	8.2	7.8	125.24	-162.5	-58.1	187.3	171.5	15.78	11.871	
3,500.0	3,493.3	3,500.7	3,494.7	8.4	8.1	124.87	-169.3	-56.5	190.5	174.2	16.30	11.692	
3,600.0	3,593.0	3,600.6	3,594.4	8.7	8.4	124.51	-176.1	-54.8	193.8	177.0	16.81	11.525	
3,700.0	3,692.8	3,700.6	3,694.1	9.0	8.6	124.17	-182.8	-53.1	197.0	179.7	17.33	11.368	
3,800.0	3,792.5	3,800.5	3,793.8	9.2	8.9	123.83	-189.6	-51.4	200.3	182.4	17.85	11.221	
3,900.0	3,892.3	3,900.5	3,893.5	9.5	9.1	123.51	-196.4	-49.8	203.6	185.2	18.37	11.081	
4,000.0	3,992.0	4,000.4	3,993.2	9.7	9.4	123.19	-203.1	-48.1	206.8	187.9	18.89	10.949	
4,100.0	4,091.8	4,100.3	4,092.9	10.0	9.7	122.89	-209.9	-46.4	210.1	190.7	19.41	10.825	
4,200.0	4,191.6	4,200.3	4,192.6	10.3	9.9	122.59	-216.7	-44.7	213.4	193.5	19.93	10.707	
4,300.0	4,291.3	4,300.2	4,292.3	10.5	10.2	122.30	-223.4	-43.1	216.7	196.2	20.45	10.595	
4,400.0	4,391.1	4,400.2	4,392.0	10.8	10.5	122.02	-230.2	-41.4	220.0	199.0	20.97	10.489	
4,500.0	4,490.8	4,500.1	4,491.7	11.1	10.7	121.75	-237.0	-39.7	223.3	201.8	21.50	10.388	
4,600.0	4,590.6	4,600.0	4,591.4	11.3	11.0	121.49	-243.7	-38.0	226.6	204.6	22.02	10.292	
4,700.0	4,690.3	4,700.0	4,691.0	11.6	11.2	121.24	-250.5	-36.4	229.9	207.4	22.54	10.200	
4,800.0	4,790.1	4,799.9	4,790.7	11.8	11.5	120.99	-257.3	-34.7	233.2	210.2	23.06	10.113	
4,900.0	4,889.9	4,899.9	4,890.4	12.1	11.8	120.75	-264.0	-33.0	236.5	213.0	23.58	10.030	
5,000.0	4,989.6	4,999.8	4,990.1	12.4	12.0	120.52	-270.8	-31.3	239.9	215.8	24.11	9.950	
5,100.0	5,089.4	5,099.7	5,089.8	12.6	12.3	120.29	-277.6	-29.7	243.2	218.6	24.63	9.874	

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-1511A
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-1511A	**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

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	5,189.1	5,199.7	5,189.5	12.9	12.6	120.07	-284.4	-28.0	246.5	221.4	25.15	9.801	
5,300.0	5,288.9	5,299.6	5,289.2	13.2	12.8	119.85	-291.1	-26.3	249.9	224.2	25.68	9.731	
5,400.0	5,388.6	5,399.6	5,388.9	13.4	13.1	119.64	-297.9	-24.6	253.2	227.0	26.20	9.664	
5,500.0	5,488.0	5,499.3	5,488.5	13.7	13.3	119.76	-304.6	-23.0	258.3	231.6	26.68	9.682	
5,600.0	5,583.9	5,599.2	5,587.7	14.2	13.6	121.42	-314.8	-20.5	272.4	245.4	27.05	10.072	
5,700.0	5,672.7	5,701.2	5,685.5	14.8	14.1	121.69	-342.4	-13.6	295.6	268.1	27.55	10.730	
5,800.0	5,751.1	5,804.0	5,776.5	15.7	14.7	120.27	-388.4	-2.2	326.6	298.2	28.43	11.489	
5,900.0	5,816.4	5,906.7	5,856.4	16.8	15.6	117.41	-450.7	13.2	364.2	334.2	30.02	12.134	
6,000.0	5,866.0	6,009.3	5,922.1	18.1	16.7	113.41	-527.0	32.1	407.1	374.6	32.41	12.560	
6,100.0	5,898.1	6,112.1	5,971.3	19.7	17.9	108.61	-614.5	53.7	453.8	418.3	35.55	12.766	
6,200.0	5,911.7	6,216.3	6,002.1	21.3	19.4	103.32	-710.9	77.6	502.9	463.7	39.19	12.832	
6,300.0	5,912.1	6,320.8	6,012.6	23.0	21.0	101.74	-811.7	102.5	550.3	507.6	42.75	12.874	
6,400.0	5,912.1	6,400.0	6,012.6	24.7	22.1	100.72	-889.0	119.9	593.5	547.5	45.98	12.906	
6,500.0	5,912.1	6,461.3	6,012.6	26.4	23.0	99.99	-949.2	131.2	635.2	586.2	48.97	12.971	
6,600.0	5,912.1	6,529.5	6,012.6	28.2	23.9	99.32	-1,016.6	141.5	675.6	623.6	52.01	12.990	
6,700.0	5,912.1	6,600.0	6,012.6	30.0	24.9	98.74	-1,086.7	149.6	714.5	659.5	55.02	12.986	
6,800.0	5,912.1	6,664.2	6,012.6	31.8	25.9	98.26	-1,150.6	154.7	751.9	694.0	57.88	12.989	
6,900.0	5,912.1	6,730.8	6,012.6	33.5	26.9	97.83	-1,217.2	157.7	787.7	727.0	60.67	12.983	
7,000.0	5,912.1	6,802.5	6,012.6	35.3	28.0	97.44	-1,288.8	158.4	821.8	758.4	63.42	12.959	
7,100.0	5,912.1	6,897.7	6,012.6	37.0	29.6	97.05	-1,384.0	158.4	852.1	785.7	66.48	12.818	
7,200.0	5,912.1	6,994.4	6,012.6	38.7	31.2	96.76	-1,480.7	158.4	877.5	808.0	69.43	12.638	
7,300.0	5,912.1	7,092.2	6,012.6	40.3	32.9	96.53	-1,578.6	158.4	897.7	825.5	72.25	12.426	
7,400.0	5,912.1	7,191.1	6,012.6	41.9	34.6	96.37	-1,677.4	158.4	912.9	838.0	74.90	12.188	
7,500.0	5,912.1	7,290.5	6,012.6	43.5	36.4	96.27	-1,776.9	158.4	922.9	845.5	77.37	11.929	
7,600.0	5,912.1	7,390.4	6,012.6	45.0	38.1	96.22	-1,876.8	158.4	927.7	848.1	79.63	11.650	
7,700.0	5,912.1	7,490.4	6,012.6	46.5	39.9	96.22	-1,976.8	158.4	928.2	845.7	82.52	11.248	
7,800.0	5,912.1	7,590.4	6,012.6	48.0	41.7	96.22	-2,076.8	158.4	928.2	842.2	86.00	10.793	
7,900.0	5,912.1	7,690.4	6,012.6	49.5	43.5	96.22	-2,176.8	158.4	928.2	838.7	89.51	10.370	
8,000.0	5,912.1	7,790.4	6,012.6	51.0	45.4	96.22	-2,276.8	158.4	928.2	835.2	93.04	9.976	
8,100.0	5,912.1	7,890.4	6,012.6	52.6	47.2	96.22	-2,376.8	158.4	928.2	831.6	96.60	9.609	
8,200.0	5,912.1	7,990.4	6,012.7	54.2	49.0	96.22	-2,476.8	158.4	928.2	828.1	100.17	9.266	
8,300.0	5,912.1	8,090.4	6,012.7	55.8	50.9	96.22	-2,576.8	158.4	928.2	824.5	103.77	8.945	
8,400.0	5,912.1	8,190.4	6,012.7	57.5	52.7	96.22	-2,676.8	158.4	928.3	820.9	107.38	8.645	
8,500.0	5,912.1	8,290.4	6,012.7	59.1	54.6	96.22	-2,776.8	158.4	928.3	817.3	111.00	8.363	
8,600.0	5,912.1	8,390.4	6,012.7	60.8	56.4	96.22	-2,876.8	158.4	928.3	813.6	114.64	8.097	
8,700.0	5,912.1	8,490.4	6,012.7	62.4	58.3	96.22	-2,976.8	158.4	928.3	810.0	118.29	7.848	
8,800.0	5,912.1	8,590.4	6,012.7	64.1	60.2	96.22	-3,076.8	158.4	928.3	806.3	121.95	7.612	
8,900.0	5,912.1	8,690.4	6,012.7	65.8	62.0	96.22	-3,176.8	158.4	928.3	802.7	125.62	7.390	
9,000.0	5,912.1	8,790.4	6,012.7	67.6	63.9	96.22	-3,276.8	158.4	928.3	799.0	129.30	7.180	
9,100.0	5,912.1	8,890.4	6,012.7	69.3	65.8	96.22	-3,376.8	158.4	928.3	795.3	132.99	6.981	
9,200.0	5,912.1	8,990.4	6,012.7	71.0	67.6	96.23	-3,476.8	158.4	928.3	791.6	136.68	6.792	
9,300.0	5,912.1	9,090.4	6,012.7	72.8	69.5	96.23	-3,576.8	158.4	928.3	787.9	140.38	6.613	
9,400.0	5,912.1	9,190.4	6,012.7	74.5	71.4	96.23	-3,676.8	158.4	928.3	784.2	144.09	6.443	
9,500.0	5,912.1	9,290.4	6,012.7	76.3	73.3	96.23	-3,776.8	158.4	928.3	780.5	147.81	6.281	
9,600.0	5,912.0	9,390.4	6,012.7	78.1	75.2	96.23	-3,876.8	158.4	928.4	776.8	151.53	6.127	
9,700.0	5,912.0	9,490.4	6,012.7	79.8	77.1	96.23	-3,976.8	158.4	928.4	773.1	155.25	5.980	
9,800.0	5,912.0	9,590.4	6,012.8	81.6	79.0	96.23	-4,076.8	158.4	928.4	769.4	158.98	5.840	
9,900.0	5,912.0	9,690.4	6,012.8	83.4	80.8	96.23	-4,176.8	158.4	928.4	765.7	162.72	5.706	
10,000.0	5,912.0	9,790.4	6,012.8	85.2	82.7	96.23	-4,276.8	158.4	928.4	761.9	166.45	5.577	
10,100.0	5,912.0	9,890.4	6,012.8	87.0	84.6	96.23	-4,376.8	158.4	928.4	758.2	170.20	5.455	
10,200.0	5,912.0	9,990.4	6,012.8	88.8	86.5	96.23	-4,476.8	158.4	928.4	754.5	173.94	5.337	
10,300.0	5,912.0	10,090.4	6,012.8	90.6	88.4	96.23	-4,576.8	158.4	928.4	750.7	177.69	5.225	

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-1511A
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-1511A	**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	5,912.0	10,190.4	6,012.8	92.5	90.3	96.23	-4,676.8	158.4	928.4	747.0	181.44	5.117	
10,500.0	5,912.0	10,290.4	6,012.8	94.3	92.2	96.23	-4,776.8	158.4	928.4	743.2	185.20	5.013	
10,600.0	5,912.0	10,390.4	6,012.8	96.1	94.1	96.23	-4,876.8	158.4	928.4	739.5	188.96	4.914	
10,700.0	5,912.0	10,490.4	6,012.8	97.9	96.0	96.23	-4,976.8	158.4	928.5	735.7	192.72	4.818	
10,800.0	5,912.0	10,590.4	6,012.8	99.8	97.9	96.23	-5,076.8	158.4	928.5	732.0	196.48	4.725	
10,900.0	5,912.0	10,690.4	6,012.8	101.6	99.8	96.23	-5,176.8	158.4	928.5	728.2	200.25	4.637	
11,000.0	5,912.0	10,790.4	6,012.8	103.4	101.7	96.23	-5,276.8	158.4	928.5	724.5	204.01	4.551	
11,100.0	5,912.0	10,890.4	6,012.8	105.3	103.6	96.23	-5,376.8	158.4	928.5	720.7	207.78	4.469	
11,200.0	5,912.0	10,990.4	6,012.8	107.1	105.5	96.23	-5,476.8	158.4	928.5	716.9	211.56	4.389	
11,300.0	5,912.0	11,090.4	6,012.8	109.0	107.4	96.23	-5,576.8	158.4	928.5	713.2	215.33	4.312	
11,400.0	5,912.0	11,190.4	6,012.9	110.8	109.3	96.23	-5,676.8	158.4	928.5	709.4	219.11	4.238	
11,500.0	5,912.0	11,290.4	6,012.9	112.7	111.2	96.23	-5,776.8	158.4	928.5	705.6	222.88	4.166	
11,600.0	5,912.0	11,390.4	6,012.9	114.5	113.2	96.23	-5,876.8	158.4	928.5	701.9	226.66	4.097	
11,700.0	5,912.0	11,490.4	6,012.9	116.4	115.1	96.23	-5,976.8	158.4	928.5	698.1	230.44	4.029	
11,800.0	5,912.0	11,590.4	6,012.9	118.2	117.0	96.24	-6,076.8	158.4	928.5	694.3	234.22	3.964	
11,900.0	5,912.0	11,690.4	6,012.9	120.1	118.9	96.24	-6,176.8	158.4	928.6	690.6	238.01	3.901	
12,000.0	5,912.0	11,790.4	6,012.9	122.0	120.8	96.24	-6,276.8	158.4	928.6	686.8	241.79	3.840	
12,100.0	5,912.0	11,890.4	6,012.9	123.8	122.7	96.24	-6,376.8	158.4	928.6	683.0	245.58	3.781	
12,200.0	5,912.0	11,990.4	6,012.9	125.7	124.6	96.24	-6,476.8	158.4	928.6	679.2	249.36	3.724	
12,300.0	5,912.0	12,090.4	6,012.9	127.6	126.5	96.24	-6,576.8	158.4	928.6	675.4	253.15	3.668	
12,400.0	5,912.0	12,190.4	6,012.9	129.4	128.4	96.24	-6,676.8	158.4	928.6	671.7	256.94	3.614	
12,500.0	5,912.0	12,290.4	6,012.9	131.3	130.3	96.24	-6,776.8	158.4	928.6	667.9	260.73	3.562	
12,600.0	5,912.0	12,390.4	6,012.9	133.2	132.2	96.24	-6,876.8	158.4	928.6	664.1	264.52	3.511	
12,700.0	5,912.0	12,490.4	6,012.9	135.1	134.2	96.24	-6,976.8	158.4	928.6	660.3	268.31	3.461	
12,800.0	5,912.0	12,590.4	6,012.9	136.9	136.1	96.24	-7,076.8	158.4	928.6	656.5	272.10	3.413	
12,900.0	5,912.0	12,690.4	6,012.9	138.8	138.0	96.24	-7,176.8	158.4	928.6	652.7	275.90	3.366	
13,000.0	5,912.0	12,790.4	6,013.0	140.7	139.9	96.24	-7,276.8	158.4	928.7	649.0	279.69	3.320	
13,100.0	5,912.0	12,890.4	6,013.0	142.6	141.8	96.24	-7,376.8	158.4	928.7	645.2	283.49	3.276	
13,200.0	5,912.0	12,990.4	6,013.0	144.4	143.7	96.24	-7,476.8	158.4	928.7	641.4	287.28	3.233	
13,300.0	5,912.0	13,090.4	6,013.0	146.3	145.6	96.24	-7,576.8	158.4	928.7	637.6	291.08	3.190	
13,400.0	5,912.0	13,190.4	6,013.0	148.2	147.5	96.24	-7,676.8	158.4	928.7	633.8	294.88	3.149	
13,500.0	5,912.0	13,290.4	6,013.0	150.1	149.4	96.24	-7,776.8	158.4	928.7	630.0	298.68	3.109	
13,600.0	5,912.0	13,390.4	6,013.0	152.0	151.4	96.24	-7,876.8	158.4	928.7	626.2	302.47	3.070	
13,700.0	5,912.0	13,490.4	6,013.0	153.9	153.3	96.24	-7,976.8	158.4	928.7	622.4	306.27	3.032	
13,800.0	5,912.0	13,590.4	6,013.0	155.8	155.2	96.24	-8,076.8	158.4	928.7	618.7	310.07	2.995	
13,900.0	5,912.0	13,690.4	6,013.0	157.6	157.1	96.24	-8,176.8	158.4	928.7	614.9	313.87	2.959	
13,906.7	5,912.0	13,697.1	6,013.0	157.8	157.2	96.24	-8,183.5	158.4	928.7	614.6	314.13	2.957	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1511A
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-1511A	**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-1509A - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.98	0.0	-66.1	66.1				
100.0	100.0	100.0	100.0	0.1	0.1	-89.98	0.0	-66.1	66.1	65.9	0.19	353.398	
200.0	200.0	200.0	200.0	0.3	0.3	-89.98	0.0	-66.1	66.1	65.5	0.64	103.823	
300.0	300.0	300.0	300.0	0.5	0.5	-89.98	0.0	-66.1	66.1	65.0	1.09	60.850	
400.0	400.0	400.0	400.0	0.8	0.8	-89.98	0.0	-66.1	66.1	64.6	1.54	43.037	
500.0	500.0	500.0	500.0	1.0	1.0	-89.98	0.0	-66.1	66.1	64.1	1.99	33.291	
600.0	600.0	600.0	600.0	1.2	1.2	-89.98	0.0	-66.1	66.1	63.7	2.43	27.144	CC, ES
700.0	700.0	700.0	700.0	1.4	1.4	133.74	0.0	-66.1	67.3	64.4	2.86	23.519	
800.0	799.8	799.8	799.8	1.6	1.7	136.74	0.0	-66.1	71.0	67.7	3.27	21.685	
900.0	899.6	900.9	900.9	1.8	1.9	139.22	-1.6	-65.4	75.3	71.7	3.67	20.512	
1,000.0	999.4	1,002.2	1,002.1	2.0	2.1	139.20	-6.5	-63.3	78.0	73.9	4.07	19.182	
1,100.0	1,099.1	1,102.2	1,101.8	2.3	2.2	138.13	-12.9	-60.5	79.8	75.3	4.48	17.814	
1,200.0	1,198.9	1,202.2	1,201.5	2.5	2.5	137.11	-19.3	-57.7	81.7	76.7	4.91	16.619	
1,300.0	1,298.6	1,302.2	1,301.3	2.8	2.7	136.13	-25.7	-55.0	83.5	78.2	5.36	15.579	
1,400.0	1,398.4	1,402.1	1,401.0	3.0	2.9	135.20	-32.1	-52.2	85.4	79.6	5.82	14.675	
1,500.0	1,498.1	1,502.1	1,500.7	3.3	3.1	134.31	-38.5	-49.4	87.3	81.0	6.29	13.886	
1,600.0	1,597.9	1,602.1	1,600.4	3.5	3.4	133.45	-44.9	-46.7	89.3	82.5	6.76	13.195	
1,700.0	1,697.6	1,702.0	1,700.2	3.8	3.6	132.64	-51.3	-43.9	91.2	84.0	7.25	12.585	
1,800.0	1,797.4	1,802.0	1,799.9	4.0	3.9	131.85	-57.8	-41.1	93.2	85.4	7.74	12.046	
1,900.0	1,897.2	1,902.0	1,899.6	4.3	4.1	131.10	-64.2	-38.4	95.2	86.9	8.23	11.567	
2,000.0	1,996.9	2,002.0	1,999.4	4.5	4.4	130.38	-70.6	-35.6	97.2	88.4	8.72	11.138	
2,100.0	2,096.7	2,101.9	2,099.1	4.8	4.6	129.69	-77.0	-32.9	99.2	90.0	9.22	10.753	
2,200.0	2,196.4	2,201.9	2,198.8	5.0	4.9	129.03	-83.4	-30.1	101.2	91.5	9.73	10.407	
2,300.0	2,296.2	2,301.9	2,298.5	5.3	5.1	128.39	-89.8	-27.3	103.3	93.0	10.23	10.093	
2,400.0	2,395.9	2,401.9	2,398.3	5.6	5.4	127.78	-96.2	-24.6	105.3	94.6	10.74	9.807	
2,500.0	2,495.7	2,501.8	2,498.0	5.8	5.6	127.19	-102.6	-21.8	107.4	96.1	11.25	9.547	
2,600.0	2,595.5	2,601.8	2,597.7	6.1	5.9	126.62	-109.0	-19.0	109.5	97.7	11.76	9.309	
2,700.0	2,695.2	2,701.8	2,697.5	6.3	6.1	126.08	-115.4	-16.3	111.6	99.3	12.27	9.090	
2,800.0	2,795.0	2,801.7	2,797.2	6.6	6.4	125.55	-121.8	-13.5	113.6	100.9	12.79	8.889	
2,900.0	2,894.7	2,901.7	2,896.9	6.9	6.7	125.05	-128.2	-10.7	115.8	102.5	13.30	8.703	
3,000.0	2,994.5	3,001.7	2,996.6	7.1	6.9	124.56	-134.6	-8.0	117.9	104.1	13.82	8.531	
3,100.0	3,094.2	3,101.7	3,096.4	7.4	7.2	124.09	-141.0	-5.2	120.0	105.7	14.33	8.371	
3,200.0	3,194.0	3,201.6	3,196.1	7.6	7.4	123.64	-147.4	-2.5	122.1	107.3	14.85	8.223	
3,300.0	3,293.7	3,301.6	3,295.8	7.9	7.7	123.20	-153.8	0.3	124.3	108.9	15.37	8.085	
3,400.0	3,393.5	3,401.6	3,395.6	8.2	8.0	122.77	-160.2	3.1	126.4	110.5	15.89	7.955	
3,500.0	3,493.3	3,501.5	3,495.3	8.4	8.2	122.36	-166.6	5.8	128.6	112.2	16.41	7.834	
3,600.0	3,593.0	3,601.5	3,595.0	8.7	8.5	121.97	-173.0	8.6	130.7	113.8	16.93	7.721	
3,700.0	3,692.8	3,701.5	3,694.8	9.0	8.7	121.58	-179.4	11.4	132.9	115.4	17.45	7.614	
3,800.0	3,792.5	3,801.5	3,794.5	9.2	9.0	121.21	-185.8	14.1	135.1	117.1	17.98	7.514	
3,900.0	3,892.3	3,901.4	3,894.2	9.5	9.3	120.85	-192.2	16.9	137.2	118.7	18.50	7.419	
4,000.0	3,992.0	4,001.4	3,993.9	9.7	9.5	120.51	-198.6	19.7	139.4	120.4	19.02	7.330	
4,100.0	4,091.8	4,101.4	4,093.7	10.0	9.8	120.17	-205.0	22.4	141.6	122.1	19.54	7.246	
4,200.0	4,191.6	4,201.4	4,193.4	10.3	10.0	119.84	-211.4	25.2	143.8	123.7	20.07	7.166	
4,300.0	4,291.3	4,301.3	4,293.1	10.5	10.3	119.52	-217.8	28.0	146.0	125.4	20.59	7.090	
4,400.0	4,391.1	4,401.3	4,392.9	10.8	10.6	119.22	-224.2	30.7	148.2	127.1	21.12	7.018	
4,500.0	4,490.8	4,501.3	4,492.6	11.1	10.8	118.92	-230.6	33.5	150.4	128.8	21.64	6.950	
4,600.0	4,590.6	4,601.2	4,592.3	11.3	11.1	118.63	-237.0	36.2	152.6	130.5	22.17	6.885	
4,700.0	4,690.3	4,701.2	4,692.0	11.6	11.4	118.35	-243.4	39.0	154.8	132.1	22.69	6.824	
4,800.0	4,790.1	4,801.2	4,791.8	11.8	11.6	118.07	-249.8	41.8	157.1	133.8	23.22	6.765	
4,900.0	4,889.9	4,901.2	4,891.5	12.1	11.9	117.81	-256.2	44.5	159.3	135.5	23.74	6.708	
5,000.0	4,989.6	5,001.1	4,991.2	12.4	12.1	117.55	-262.6	47.3	161.5	137.2	24.27	6.655	
5,100.0	5,089.4	5,101.1	5,091.0	12.6	12.4	117.30	-269.0	50.1	163.7	138.9	24.79	6.604	

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

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1511A
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-1511A	**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-1509A - 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	5,189.1	5,201.1	5,190.7	12.9	12.7	117.05	-275.4	52.8	166.0	140.6	25.32	6.554	
5,300.0	5,288.9	5,301.1	5,290.4	13.2	12.9	116.81	-281.8	55.6	168.2	142.3	25.85	6.507	
5,400.0	5,388.6	5,401.0	5,390.1	13.4	13.2	116.58	-288.2	58.4	170.4	144.0	26.37	6.462	
5,500.0	5,488.0	5,503.6	5,492.0	13.7	13.5	115.89	-298.5	62.8	173.8	146.8	26.94	6.451	
5,600.0	5,583.9	5,607.0	5,590.9	14.2	14.0	113.82	-325.9	74.6	182.6	154.9	27.73	6.588	
5,700.0	5,672.7	5,709.0	5,680.7	14.8	14.7	110.69	-369.9	93.6	197.3	168.5	28.88	6.834	
5,800.0	5,751.1	5,809.2	5,758.2	15.7	15.5	106.92	-427.9	118.7	217.5	187.0	30.50	7.129	
5,900.0	5,816.4	5,907.4	5,821.1	16.8	16.6	102.84	-497.0	148.5	242.3	209.6	32.66	7.419	
6,000.0	5,866.0	6,003.8	5,868.0	18.1	17.8	98.70	-574.2	181.8	270.9	235.5	35.35	7.663	
6,100.0	5,898.1	6,099.0	5,898.4	19.7	19.1	94.66	-656.9	217.5	302.1	263.7	38.40	7.867	
6,200.0	5,911.7	6,193.5	5,911.8	21.3	20.6	90.84	-742.7	254.5	334.8	293.1	41.67	8.034	
6,300.0	5,912.1	6,277.6	5,912.6	23.0	21.9	90.08	-820.1	287.1	367.3	322.4	44.91	8.178	
6,400.0	5,912.1	6,356.6	5,912.6	24.7	23.1	90.07	-894.2	314.7	398.7	350.7	48.00	8.307	
6,500.0	5,912.1	6,434.9	5,912.6	26.4	24.2	90.07	-968.6	339.0	429.1	378.0	51.08	8.400	
6,600.0	5,912.1	6,512.5	5,912.6	28.2	25.4	90.06	-1,043.3	360.1	458.3	404.2	54.13	8.467	
6,700.0	5,912.1	6,589.5	5,912.6	30.0	26.6	90.06	-1,118.1	378.0	486.5	429.3	57.13	8.514	
6,800.0	5,912.1	6,665.8	5,912.6	31.8	27.8	90.06	-1,193.0	392.7	513.4	453.3	60.04	8.550	
6,900.0	5,912.1	6,741.5	5,912.5	33.5	29.0	90.05	-1,267.9	404.4	539.1	476.3	62.83	8.580	
7,000.0	5,912.1	6,816.8	5,912.5	35.3	30.2	90.05	-1,342.6	413.1	563.6	498.1	65.48	8.607	
7,100.0	5,912.1	6,900.0	5,912.5	37.0	31.5	90.05	-1,425.6	419.2	586.9	518.8	68.10	8.618	
7,200.0	5,912.1	6,965.8	5,912.5	38.7	32.5	90.04	-1,491.4	421.5	608.8	538.5	70.29	8.660	
7,300.0	5,912.1	7,053.1	5,912.5	40.3	33.9	90.04	-1,578.6	421.8	628.8	556.1	72.65	8.655	
7,400.0	5,912.1	7,151.9	5,912.5	41.9	35.5	90.04	-1,677.5	421.8	644.0	569.0	75.04	8.582	
7,500.0	5,912.1	7,251.4	5,912.5	43.5	37.2	90.04	-1,777.0	421.8	654.1	576.8	77.26	8.465	
7,600.0	5,912.1	7,351.3	5,912.5	45.0	38.9	90.04	-1,876.8	421.8	658.9	579.6	79.29	8.311	
7,700.0	5,912.1	7,451.3	5,912.5	46.5	40.6	90.04	-1,976.8	421.8	659.4	577.3	82.07	8.035	
7,800.0	5,912.1	7,551.3	5,912.5	48.0	42.4	90.04	-2,076.8	421.8	659.4	573.9	85.54	7.709	
7,900.0	5,912.1	7,651.3	5,912.5	49.5	44.1	90.04	-2,176.8	421.8	659.4	570.4	89.04	7.406	
8,000.0	5,912.1	7,751.3	5,912.5	51.0	45.9	90.04	-2,276.8	421.8	659.4	566.8	92.56	7.124	
8,100.0	5,912.1	7,851.3	5,912.5	52.6	47.7	90.03	-2,376.8	421.8	659.4	563.3	96.12	6.860	
8,200.0	5,912.1	7,951.3	5,912.5	54.2	49.5	90.03	-2,476.8	421.8	659.4	559.7	99.69	6.614	
8,300.0	5,912.1	8,051.3	5,912.4	55.8	51.3	90.03	-2,576.8	421.8	659.4	556.1	103.28	6.384	
8,400.0	5,912.1	8,151.3	5,912.4	57.5	53.1	90.03	-2,676.8	421.8	659.4	552.5	106.90	6.169	
8,500.0	5,912.1	8,251.3	5,912.4	59.1	54.9	90.03	-2,776.8	421.8	659.4	548.9	110.52	5.966	
8,600.0	5,912.1	8,351.3	5,912.4	60.8	56.7	90.03	-2,876.8	421.8	659.4	545.2	114.16	5.776	
8,700.0	5,912.1	8,451.3	5,912.4	62.4	58.6	90.03	-2,976.8	421.8	659.4	541.6	117.82	5.597	
8,800.0	5,912.1	8,551.3	5,912.4	64.1	60.4	90.03	-3,076.8	421.8	659.4	537.9	121.48	5.428	
8,900.0	5,912.1	8,651.3	5,912.4	65.8	62.2	90.03	-3,176.8	421.8	659.4	534.3	125.16	5.269	
9,000.0	5,912.1	8,751.3	5,912.4	67.6	64.1	90.03	-3,276.8	421.8	659.4	530.6	128.85	5.118	
9,100.0	5,912.1	8,851.3	5,912.4	69.3	65.9	90.03	-3,376.8	421.8	659.4	526.9	132.54	4.975	
9,200.0	5,912.1	8,951.3	5,912.4	71.0	67.8	90.03	-3,476.8	421.8	659.4	523.2	136.25	4.840	
9,300.0	5,912.1	9,051.3	5,912.4	72.8	69.6	90.03	-3,576.8	421.8	659.4	519.5	139.96	4.712	
9,400.0	5,912.1	9,151.3	5,912.4	74.5	71.5	90.03	-3,676.8	421.8	659.4	515.8	143.68	4.590	
9,500.0	5,912.1	9,251.3	5,912.4	76.3	73.4	90.03	-3,776.8	421.9	659.4	512.0	147.40	4.474	
9,600.0	5,912.0	9,351.3	5,912.3	78.1	75.2	90.03	-3,876.8	421.9	659.4	508.3	151.13	4.363	
9,700.0	5,912.0	9,451.3	5,912.3	79.8	77.1	90.03	-3,976.8	421.9	659.4	504.6	154.87	4.258	
9,800.0	5,912.0	9,551.3	5,912.3	81.6	79.0	90.02	-4,076.8	421.9	659.4	500.8	158.61	4.158	
9,900.0	5,912.0	9,651.3	5,912.3	83.4	80.9	90.02	-4,176.8	421.9	659.4	497.1	162.35	4.062	
10,000.0	5,912.0	9,751.3	5,912.3	85.2	82.7	90.02	-4,276.8	421.9	659.4	493.3	166.11	3.970	
10,100.0	5,912.0	9,851.3	5,912.3	87.0	84.6	90.02	-4,376.8	421.9	659.5	489.6	169.86	3.882	
10,200.0	5,912.0	9,951.3	5,912.3	88.8	86.5	90.02	-4,476.8	421.9	659.5	485.8	173.62	3.798	
10,300.0	5,912.0	10,051.3	5,912.3	90.6	88.4	90.02	-4,576.8	421.9	659.5	482.1	177.38	3.718	

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-1511A
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-1511A	**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-1509A - 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	5,912.0	10,151.3	5,912.3	92.5	90.3	90.02	-4,676.8	421.9	659.5	478.3	181.15	3.640	
10,500.0	5,912.0	10,251.3	5,912.3	94.3	92.1	90.02	-4,776.8	421.9	659.5	474.5	184.92	3.566	
10,600.0	5,912.0	10,351.3	5,912.3	96.1	94.0	90.02	-4,876.8	421.9	659.5	470.8	188.69	3.495	
10,700.0	5,912.0	10,451.3	5,912.3	97.9	95.9	90.02	-4,976.8	421.9	659.5	467.0	192.46	3.426	
10,800.0	5,912.0	10,551.3	5,912.3	99.8	97.8	90.02	-5,076.8	421.9	659.5	463.2	196.24	3.361	
10,900.0	5,912.0	10,651.3	5,912.2	101.6	99.7	90.02	-5,176.8	421.9	659.5	459.5	200.02	3.297	
11,000.0	5,912.0	10,751.3	5,912.2	103.4	101.6	90.02	-5,276.8	421.9	659.5	455.7	203.80	3.236	
11,100.0	5,912.0	10,851.3	5,912.2	105.3	103.5	90.02	-5,376.8	421.9	659.5	451.9	207.59	3.177	
11,200.0	5,912.0	10,951.3	5,912.2	107.1	105.4	90.02	-5,476.8	421.9	659.5	448.1	211.37	3.120	
11,300.0	5,912.0	11,051.3	5,912.2	109.0	107.3	90.02	-5,576.8	421.9	659.5	444.3	215.16	3.065	
11,400.0	5,912.0	11,151.3	5,912.2	110.8	109.2	90.02	-5,676.8	421.9	659.5	440.5	218.95	3.012	
11,500.0	5,912.0	11,251.3	5,912.2	112.7	111.1	90.01	-5,776.8	421.9	659.5	436.7	222.75	2.961	
11,600.0	5,912.0	11,351.3	5,912.2	114.5	113.0	90.01	-5,876.8	421.9	659.5	433.0	226.54	2.911	
11,700.0	5,912.0	11,451.3	5,912.2	116.4	114.9	90.01	-5,976.8	421.9	659.5	429.2	230.34	2.863	
11,800.0	5,912.0	11,551.3	5,912.2	118.2	116.8	90.01	-6,076.8	421.9	659.5	425.4	234.13	2.817	
11,900.0	5,912.0	11,651.3	5,912.2	120.1	118.7	90.01	-6,176.8	421.9	659.5	421.6	237.93	2.772	
12,000.0	5,912.0	11,751.3	5,912.2	122.0	120.6	90.01	-6,276.8	421.9	659.5	417.8	241.73	2.728	
12,100.0	5,912.0	11,851.3	5,912.2	123.8	122.5	90.01	-6,376.8	422.0	659.5	414.0	245.54	2.686	
12,200.0	5,912.0	11,951.3	5,912.1	125.7	124.4	90.01	-6,476.8	422.0	659.5	410.2	249.34	2.645	
12,300.0	5,912.0	12,051.3	5,912.1	127.6	126.3	90.01	-6,576.8	422.0	659.5	406.4	253.14	2.605	
12,400.0	5,912.0	12,151.3	5,912.1	129.4	128.2	90.01	-6,676.8	422.0	659.5	402.6	256.95	2.567	
12,500.0	5,912.0	12,251.3	5,912.1	131.3	130.1	90.01	-6,776.8	422.0	659.5	398.8	260.76	2.529	
12,600.0	5,912.0	12,351.3	5,912.1	133.2	132.0	90.01	-6,876.8	422.0	659.5	395.0	264.56	2.493	
12,700.0	5,912.0	12,451.3	5,912.1	135.1	133.9	90.01	-6,976.8	422.0	659.5	391.2	268.37	2.458	
12,800.0	5,912.0	12,551.3	5,912.1	136.9	135.8	90.01	-7,076.8	422.0	659.5	387.3	272.18	2.423	
12,900.0	5,912.0	12,651.3	5,912.1	138.8	137.7	90.01	-7,176.8	422.0	659.5	383.5	275.99	2.390	
13,000.0	5,912.0	12,751.3	5,912.1	140.7	139.6	90.01	-7,276.8	422.0	659.5	379.7	279.80	2.357	
13,100.0	5,912.0	12,851.3	5,912.1	142.6	141.5	90.00	-7,376.8	422.0	659.5	375.9	283.62	2.325	
13,200.0	5,912.0	12,951.3	5,912.1	144.4	143.4	90.00	-7,476.8	422.0	659.5	372.1	287.43	2.295	
13,300.0	5,912.0	13,051.3	5,912.1	146.3	145.3	90.00	-7,576.8	422.0	659.5	368.3	291.24	2.265	
13,400.0	5,912.0	13,151.3	5,912.1	148.2	147.2	90.00	-7,676.8	422.0	659.5	364.5	295.06	2.235	
13,500.0	5,912.0	13,251.3	5,912.0	150.1	149.1	90.00	-7,776.8	422.0	659.5	360.7	298.87	2.207	
13,600.0	5,912.0	13,351.3	5,912.0	152.0	151.0	90.00	-7,876.8	422.0	659.5	356.9	302.69	2.179	
13,700.0	5,912.0	13,451.3	5,912.0	153.9	153.0	90.00	-7,976.8	422.0	659.6	353.0	306.51	2.152	
13,800.0	5,912.0	13,551.3	5,912.0	155.8	154.9	90.00	-8,076.8	422.0	659.6	349.2	310.32	2.125	
13,900.0	5,912.0	13,651.3	5,912.0	157.6	156.8	90.00	-8,176.8	422.0	659.6	345.4	314.14	2.100	
13,906.7	5,912.0	13,658.0	5,912.0	157.8	156.9	90.00	-8,183.5	422.0	659.6	345.2	314.40	2.098	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1511A
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-1511A	**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	-89.99	0.0	-33.0	33.0				
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	0.0	-33.0	33.0	32.9	0.19	176.699	
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-33.0	33.0	32.4	0.64	51.912	
300.0	300.0	300.0	300.0	0.5	0.5	-89.99	0.0	-33.0	33.0	32.0	1.09	30.425	
400.0	400.0	400.0	400.0	0.8	0.8	-89.99	0.0	-33.0	33.0	31.5	1.54	21.518	
500.0	500.0	500.0	500.0	1.0	1.0	-89.99	0.0	-33.0	33.0	31.1	1.99	16.646	
600.0	600.0	600.0	600.0	1.2	1.2	-89.99	0.0	-33.0	33.0	30.6	2.43	13.572	CC, ES
700.0	700.0	700.0	700.0	1.4	1.4	134.79	0.0	-33.0	34.3	31.4	2.86	11.972	
800.0	799.8	800.7	800.7	1.6	1.6	138.33	-1.5	-32.1	37.0	33.7	3.25	11.386	
900.0	899.6	901.5	901.3	1.8	1.8	139.15	-5.9	-29.1	38.9	35.2	3.63	10.699	
1,000.0	999.4	1,001.5	1,001.1	2.0	2.0	138.01	-11.7	-25.3	39.7	35.6	4.04	9.813	
1,100.0	1,099.1	1,101.5	1,100.8	2.3	2.3	136.92	-17.5	-21.4	40.5	36.0	4.47	9.052	
1,200.0	1,198.9	1,201.5	1,200.6	2.5	2.5	135.88	-23.4	-17.6	41.3	36.4	4.92	8.402	
1,300.0	1,298.6	1,301.5	1,300.3	2.8	2.7	134.88	-29.2	-13.8	42.2	36.8	5.38	7.844	
1,400.0	1,398.4	1,401.5	1,400.1	3.0	2.9	133.91	-35.0	-9.9	43.0	37.2	5.85	7.364	
1,500.0	1,498.1	1,501.5	1,499.8	3.3	3.2	132.99	-40.8	-6.1	43.9	37.6	6.32	6.948	
1,600.0	1,597.9	1,601.5	1,599.6	3.5	3.4	132.10	-46.6	-2.2	44.8	38.0	6.80	6.586	
1,700.0	1,697.6	1,701.5	1,699.3	3.8	3.7	131.25	-52.5	1.6	45.7	38.4	7.29	6.268	
1,800.0	1,797.4	1,801.4	1,799.1	4.0	3.9	130.42	-58.3	5.5	46.6	38.8	7.78	5.988	
1,900.0	1,897.2	1,901.4	1,898.8	4.3	4.2	129.63	-64.1	9.3	47.5	39.2	8.28	5.739	
2,000.0	1,996.9	2,001.4	1,998.6	4.5	4.4	128.87	-69.9	13.2	48.4	39.6	8.78	5.517	
2,100.0	2,096.7	2,101.4	2,098.3	4.8	4.7	128.14	-75.7	17.0	49.4	40.1	9.28	5.319	
2,200.0	2,196.4	2,201.4	2,198.1	5.0	5.0	127.44	-81.6	20.8	50.3	40.5	9.78	5.140	
2,300.0	2,296.2	2,301.4	2,297.8	5.3	5.2	126.76	-87.4	24.7	51.2	40.9	10.29	4.978	
2,400.0	2,395.9	2,401.4	2,397.6	5.6	5.5	126.10	-93.2	28.5	52.2	41.4	10.80	4.831	
2,500.0	2,495.7	2,501.4	2,497.3	5.8	5.7	125.47	-99.0	32.4	53.1	41.8	11.31	4.697	
2,600.0	2,595.5	2,601.4	2,597.1	6.1	6.0	124.87	-104.8	36.2	54.1	42.3	11.83	4.575	
2,700.0	2,695.2	2,701.4	2,696.8	6.3	6.2	124.28	-110.7	40.1	55.1	42.7	12.34	4.463	
2,800.0	2,795.0	2,801.4	2,796.6	6.6	6.5	123.71	-116.5	43.9	56.0	43.2	12.86	4.360	
2,900.0	2,894.7	2,901.4	2,896.3	6.9	6.8	123.17	-122.3	47.8	57.0	43.7	13.37	4.264	
3,000.0	2,994.5	3,001.4	2,996.1	7.1	7.0	122.64	-128.1	51.6	58.0	44.1	13.89	4.176	
3,100.0	3,094.2	3,101.4	3,095.8	7.4	7.3	122.13	-133.9	55.4	59.0	44.6	14.41	4.095	
3,200.0	3,194.0	3,201.4	3,195.6	7.6	7.5	121.63	-139.8	59.3	60.0	45.1	14.93	4.019	
3,300.0	3,293.7	3,301.4	3,295.3	7.9	7.8	121.15	-145.6	63.1	61.0	45.5	15.45	3.948	
3,400.0	3,393.5	3,401.3	3,395.1	8.2	8.1	120.69	-151.4	67.0	62.0	46.0	15.97	3.882	
3,500.0	3,493.3	3,501.3	3,494.8	8.4	8.3	120.24	-157.2	70.8	63.0	46.5	16.49	3.820	
3,600.0	3,593.0	3,601.3	3,594.6	8.7	8.6	119.81	-163.0	74.7	64.0	47.0	17.02	3.762	
3,700.0	3,692.8	3,701.3	3,694.3	9.0	8.8	119.39	-168.9	78.5	65.0	47.5	17.54	3.707	
3,800.0	3,792.5	3,801.3	3,794.1	9.2	9.1	118.98	-174.7	82.4	66.0	48.0	18.06	3.656	
3,900.0	3,892.3	3,901.3	3,893.8	9.5	9.4	118.59	-180.5	86.2	67.1	48.5	18.59	3.608	
4,000.0	3,992.0	4,001.3	3,993.6	9.7	9.6	118.21	-186.3	90.0	68.1	49.0	19.11	3.563	
4,100.0	4,091.8	4,101.3	4,093.3	10.0	9.9	117.83	-192.1	93.9	69.1	49.5	19.64	3.520	
4,200.0	4,191.6	4,201.3	4,193.1	10.3	10.2	117.47	-198.0	97.7	70.1	50.0	20.16	3.479	
4,300.0	4,291.3	4,301.3	4,292.8	10.5	10.4	117.12	-203.8	101.6	71.2	50.5	20.69	3.440	
4,400.0	4,391.1	4,401.3	4,392.6	10.8	10.7	116.78	-209.6	105.4	72.2	51.0	21.22	3.404	
4,500.0	4,490.8	4,501.3	4,492.3	11.1	10.9	116.45	-215.4	109.3	73.3	51.5	21.74	3.369	
4,600.0	4,590.6	4,601.3	4,592.1	11.3	11.2	116.13	-221.2	113.1	74.3	52.0	22.27	3.336	
4,700.0	4,690.3	4,701.3	4,691.8	11.6	11.5	115.82	-227.1	117.0	75.3	52.5	22.79	3.305	
4,800.0	4,790.1	4,801.3	4,791.6	11.8	11.7	115.51	-232.9	120.8	76.4	53.1	23.32	3.275	
4,900.0	4,889.9	4,901.3	4,891.3	12.1	12.0	115.22	-238.7	124.7	77.4	53.6	23.85	3.246	
5,000.0	4,989.6	5,001.2	4,991.1	12.4	12.3	114.93	-244.5	128.5	78.5	54.1	24.38	3.219	
5,100.0	5,089.4	5,101.2	5,090.8	12.6	12.5	114.65	-250.3	132.3	79.5	54.6	24.90	3.193	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1511A
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-1511A	**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	5,189.1	5,201.2	5,190.6	12.9	12.8	114.38	-256.2	136.2	80.6	55.1	25.43	3.168	
5,300.0	5,288.9	5,301.2	5,290.3	13.2	13.1	114.11	-262.0	140.0	81.6	55.7	25.96	3.144	
5,400.0	5,388.6	5,401.2	5,390.1	13.4	13.3	113.85	-267.8	143.9	82.7	56.2	26.49	3.122	
5,500.0	5,488.0	5,501.1	5,489.7	13.7	13.6	115.58	-273.6	147.7	85.2	58.3	26.95	3.162	
5,600.0	5,583.9	5,603.9	5,591.8	14.2	13.9	124.09	-282.8	153.8	95.6	68.6	27.04	3.537	
5,700.0	5,672.7	5,712.6	5,695.6	14.8	14.4	129.91	-309.3	171.3	110.4	83.4	26.96	4.094	
5,800.0	5,751.1	5,825.4	5,793.9	15.7	15.2	132.43	-355.1	201.6	127.0	100.0	26.98	4.706	
5,900.0	5,816.4	5,941.8	5,880.5	16.8	16.2	132.42	-419.7	244.3	143.9	116.4	27.54	5.227	
6,000.0	5,866.0	6,061.3	5,949.3	18.1	17.7	130.54	-501.0	297.9	160.4	131.2	29.12	5.507	
6,100.0	5,898.1	6,182.8	5,994.6	19.7	19.4	127.27	-594.8	359.9	175.6	143.7	31.98	5.492	
6,200.0	5,911.7	6,305.3	6,012.8	21.3	21.4	122.97	-695.6	426.5	189.5	153.4	36.04	5.257	
6,300.0	5,912.1	6,400.0	6,013.1	23.0	22.9	120.13	-775.5	477.4	203.2	163.2	40.01	5.079	
6,400.0	5,912.1	6,490.3	6,013.1	24.7	24.3	118.03	-853.9	522.2	216.9	173.2	43.70	4.964	
6,500.0	5,912.1	6,579.8	6,013.1	26.4	25.7	116.25	-933.6	562.9	230.5	183.1	47.32	4.870	
6,600.0	5,912.1	6,668.7	6,013.1	28.2	27.2	114.71	-1,014.6	599.6	243.7	192.8	50.86	4.791	
6,700.0	5,912.1	6,757.1	6,013.1	30.0	28.7	113.39	-1,096.7	632.3	256.5	202.2	54.27	4.726	
6,800.0	5,912.1	6,845.1	6,013.1	31.8	30.1	112.24	-1,179.8	661.0	268.9	211.3	57.54	4.673	
6,900.0	5,912.1	6,932.6	6,013.1	33.5	31.6	111.24	-1,263.7	685.8	280.7	220.1	60.64	4.629	
7,000.0	5,912.1	7,019.6	6,013.1	35.3	33.0	110.36	-1,348.2	706.6	292.1	228.5	63.57	4.595	
7,100.0	5,912.1	7,100.0	6,013.1	37.0	34.3	109.64	-1,427.1	722.3	302.9	236.7	66.19	4.576	
7,200.0	5,912.1	7,192.5	6,013.1	38.7	35.8	108.92	-1,518.5	736.4	312.9	244.1	68.81	4.548	
7,300.0	5,912.1	7,278.5	6,013.1	40.3	37.2	108.33	-1,604.0	745.4	322.4	251.3	71.12	4.534	
7,400.0	5,912.1	7,364.1	6,013.1	41.9	38.5	107.82	-1,689.5	750.6	331.2	258.0	73.19	4.525	
7,500.0	5,912.1	7,451.6	6,013.1	43.5	39.9	107.36	-1,776.9	752.0	339.3	264.2	75.07	4.519	
7,600.0	5,912.1	7,551.5	6,013.1	45.0	41.5	107.08	-1,876.8	752.0	343.9	267.0	76.90	4.472	
7,700.0	5,912.1	7,651.5	6,013.1	46.5	43.1	107.06	-1,976.8	752.0	344.4	264.9	79.47	4.333	
7,800.0	5,912.1	7,751.5	6,013.1	48.0	44.7	107.05	-2,076.8	751.9	344.4	261.6	82.77	4.161	
7,900.0	5,912.1	7,851.5	6,013.1	49.5	46.3	107.05	-2,176.8	751.9	344.4	258.3	86.10	4.000	
8,000.0	5,912.1	7,951.5	6,013.1	51.0	48.0	107.05	-2,276.8	751.9	344.4	254.9	89.46	3.850	
8,100.0	5,912.1	8,051.5	6,013.1	52.6	49.7	107.05	-2,376.8	751.9	344.4	251.6	92.84	3.710	
8,200.0	5,912.1	8,151.5	6,013.1	54.2	51.4	107.05	-2,476.8	751.9	344.4	248.2	96.25	3.578	
8,300.0	5,912.1	8,251.5	6,013.1	55.8	53.1	107.05	-2,576.8	751.9	344.4	244.7	99.68	3.455	
8,400.0	5,912.1	8,351.5	6,013.1	57.5	54.9	107.05	-2,676.8	751.9	344.4	241.3	103.13	3.340	
8,500.0	5,912.1	8,451.5	6,013.1	59.1	56.6	107.05	-2,776.8	751.9	344.4	237.8	106.59	3.231	
8,600.0	5,912.1	8,551.5	6,013.1	60.8	58.3	107.05	-2,876.8	751.9	344.4	234.4	110.07	3.129	
8,700.0	5,912.1	8,651.5	6,013.1	62.4	60.1	107.05	-2,976.8	751.9	344.4	230.9	113.57	3.033	
8,800.0	5,912.1	8,751.5	6,013.1	64.1	61.9	107.05	-3,076.8	751.9	344.5	227.4	117.07	2.942	
8,900.0	5,912.1	8,851.5	6,013.1	65.8	63.7	107.05	-3,176.8	751.9	344.5	223.9	120.59	2.856	
9,000.0	5,912.1	8,951.5	6,013.1	67.6	65.5	107.05	-3,276.8	751.9	344.5	220.3	124.12	2.775	
9,100.0	5,912.1	9,051.5	6,013.1	69.3	67.3	107.05	-3,376.8	751.9	344.5	216.8	127.66	2.698	
9,200.0	5,912.1	9,151.5	6,013.1	71.0	69.1	107.05	-3,476.8	751.9	344.5	213.3	131.21	2.626	
9,300.0	5,912.1	9,251.5	6,013.1	72.8	70.9	107.05	-3,576.8	751.9	344.5	209.7	134.76	2.556	
9,400.0	5,912.1	9,351.5	6,013.1	74.5	72.7	107.05	-3,676.8	751.9	344.5	206.2	138.33	2.490	
9,500.0	5,912.1	9,451.5	6,013.0	76.3	74.5	107.05	-3,776.8	751.9	344.5	202.6	141.90	2.428	
9,600.0	5,912.0	9,551.5	6,013.0	78.1	76.3	107.05	-3,876.8	751.9	344.5	199.0	145.48	2.368	
9,700.0	5,912.0	9,651.5	6,013.0	79.8	78.2	107.05	-3,976.8	751.9	344.5	195.5	149.06	2.311	
9,800.0	5,912.0	9,751.5	6,013.0	81.6	80.0	107.05	-4,076.8	751.9	344.5	191.9	152.65	2.257	
9,900.0	5,912.0	9,851.5	6,013.0	83.4	81.8	107.05	-4,176.8	751.9	344.5	188.3	156.24	2.205	
10,000.0	5,912.0	9,951.5	6,013.0	85.2	83.7	107.05	-4,276.8	751.9	344.6	184.7	159.84	2.156	
10,100.0	5,912.0	10,051.5	6,013.0	87.0	85.5	107.04	-4,376.8	751.9	344.6	181.1	163.45	2.108	
10,200.0	5,912.0	10,151.5	6,013.0	88.8	87.4	107.04	-4,476.8	751.9	344.6	177.5	167.06	2.063	
10,300.0	5,912.0	10,251.5	6,013.0	90.6	89.2	107.04	-4,576.8	751.9	344.6	173.9	170.67	2.019	

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1511A
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-1511A	**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
10,400.0	5,912.0	10,351.5	6,013.0	92.5	91.1	107.04	-4,676.8	751.9	344.6	170.3	174.28	1.977	
10,500.0	5,912.0	10,451.5	6,013.0	94.3	92.9	107.04	-4,776.8	751.9	344.6	166.7	177.90	1.937	
10,600.0	5,912.0	10,551.5	6,013.0	96.1	94.8	107.04	-4,876.8	751.9	344.6	163.1	181.53	1.898	
10,700.0	5,912.0	10,651.5	6,013.0	97.9	96.7	107.04	-4,976.8	751.9	344.6	159.5	185.15	1.861	
10,800.0	5,912.0	10,751.5	6,013.0	99.8	98.5	107.04	-5,076.8	751.9	344.6	155.8	188.78	1.826	
10,900.0	5,912.0	10,851.5	6,013.0	101.6	100.4	107.04	-5,176.8	751.9	344.6	152.2	192.41	1.791	
11,000.0	5,912.0	10,951.5	6,013.0	103.4	102.3	107.04	-5,276.8	751.9	344.6	148.6	196.05	1.758	
11,100.0	5,912.0	11,051.5	6,013.0	105.3	104.1	107.04	-5,376.8	751.9	344.7	145.0	199.68	1.726	
11,200.0	5,912.0	11,151.5	6,013.0	107.1	106.0	107.04	-5,476.8	751.9	344.7	141.3	203.32	1.695	
11,300.0	5,912.0	11,251.5	6,013.0	109.0	107.9	107.04	-5,576.8	751.9	344.7	137.7	206.96	1.665	
11,400.0	5,912.0	11,351.5	6,013.0	110.8	109.8	107.04	-5,676.8	751.9	344.7	134.1	210.60	1.637	
11,500.0	5,912.0	11,451.5	6,013.0	112.7	111.6	107.04	-5,776.8	751.9	344.7	130.4	214.25	1.609	
11,600.0	5,912.0	11,551.5	6,013.0	114.5	113.5	107.04	-5,876.8	751.9	344.7	126.8	217.90	1.582	
11,700.0	5,912.0	11,651.5	6,013.0	116.4	115.4	107.04	-5,976.8	751.9	344.7	123.2	221.55	1.556	
11,800.0	5,912.0	11,751.5	6,013.0	118.2	117.3	107.04	-6,076.8	751.9	344.7	119.5	225.20	1.531	
11,900.0	5,912.0	11,851.5	6,013.0	120.1	119.2	107.04	-6,176.8	751.9	344.7	115.9	228.85	1.506	
12,000.0	5,912.0	11,951.5	6,013.0	122.0	121.1	107.04	-6,276.8	751.8	344.7	112.2	232.50	1.483	Level 3
12,100.0	5,912.0	12,051.5	6,013.0	123.8	122.9	107.04	-6,376.8	751.8	344.7	108.6	236.16	1.460	Level 3
12,200.0	5,912.0	12,151.5	6,013.0	125.7	124.8	107.04	-6,476.8	751.8	344.7	104.9	239.81	1.438	Level 3
12,300.0	5,912.0	12,251.5	6,013.0	127.6	126.7	107.04	-6,576.8	751.8	344.8	101.3	243.47	1.416	Level 3
12,400.0	5,912.0	12,351.5	6,013.0	129.4	128.6	107.03	-6,676.8	751.8	344.8	97.6	247.13	1.395	Level 3
12,500.0	5,912.0	12,451.5	6,013.0	131.3	130.5	107.03	-6,776.8	751.8	344.8	94.0	250.79	1.375	Level 3
12,600.0	5,912.0	12,551.5	6,013.0	133.2	132.4	107.03	-6,876.8	751.8	344.8	90.3	254.45	1.355	Level 3
12,700.0	5,912.0	12,651.5	6,013.0	135.1	134.3	107.03	-6,976.8	751.8	344.8	86.7	258.12	1.336	Level 3
12,800.0	5,912.0	12,751.5	6,013.0	136.9	136.2	107.03	-7,076.8	751.8	344.8	83.0	261.78	1.317	Level 3
12,900.0	5,912.0	12,851.5	6,013.0	138.8	138.1	107.03	-7,176.8	751.8	344.8	79.4	265.45	1.299	Level 3
13,000.0	5,912.0	12,951.5	6,013.0	140.7	140.0	107.03	-7,276.8	751.8	344.8	75.7	269.11	1.281	Level 3
13,100.0	5,912.0	13,051.5	6,013.0	142.6	141.9	107.03	-7,376.8	751.8	344.8	72.0	272.78	1.264	Level 3
13,200.0	5,912.0	13,151.5	6,013.0	144.4	143.7	107.03	-7,476.8	751.8	344.8	68.4	276.45	1.247	Level 2
13,300.0	5,912.0	13,251.5	6,013.0	146.3	145.6	107.03	-7,576.8	751.8	344.8	64.7	280.12	1.231	Level 2
13,400.0	5,912.0	13,351.5	6,013.0	148.2	147.5	107.03	-7,676.8	751.8	344.9	61.1	283.79	1.215	Level 2
13,500.0	5,912.0	13,451.5	6,013.0	150.1	149.4	107.03	-7,776.8	751.8	344.9	57.4	287.46	1.200	Level 2
13,600.0	5,912.0	13,551.5	6,013.0	152.0	151.3	107.03	-7,876.8	751.8	344.9	53.7	291.13	1.185	Level 2
13,700.0	5,912.0	13,651.5	6,013.0	153.9	153.2	107.03	-7,976.8	751.8	344.9	50.1	294.80	1.170	Level 2
13,800.0	5,912.0	13,751.5	6,013.0	155.8	155.1	107.03	-8,076.8	751.8	344.9	46.4	298.47	1.156	Level 2
13,900.0	5,912.0	13,851.5	6,013.0	157.6	157.0	107.03	-8,176.8	751.8	344.9	42.8	302.15	1.141	Level 2
13,906.7	5,912.0	13,858.2	6,013.0	157.8	157.2	107.03	-8,183.5	751.8	344.9	42.5	302.39	1.141	Level 2, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1511A
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-1511A	**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	53.8	53.8				
100.0	100.0	100.0	100.0	0.1	0.1	90.01	0.0	53.8	53.8	53.6	0.19	287.650	
200.0	200.0	200.0	200.0	0.3	0.3	90.01	0.0	53.8	53.8	53.2	0.64	84.507	
300.0	300.0	300.0	300.0	0.5	0.5	90.01	0.0	53.8	53.8	52.7	1.09	49.529	
400.0	400.0	400.0	400.0	0.8	0.8	90.01	0.0	53.8	53.8	52.3	1.54	35.030	
500.0	500.0	500.0	500.0	1.0	1.0	90.01	0.0	53.8	53.8	51.8	1.99	27.097	CC
600.0	600.0	598.5	598.5	1.2	1.2	91.14	-1.1	55.1	55.1	52.7	2.41	22.864	
700.0	700.0	696.9	696.8	1.4	1.4	-44.28	-4.3	59.0	58.0	55.2	2.80	20.700	
800.0	799.8	796.9	796.5	1.6	1.6	-43.78	-8.8	64.4	59.9	56.7	3.19	18.741	
900.0	899.6	896.9	896.2	1.8	1.8	-44.46	-13.2	69.7	60.5	56.8	3.61	16.741	
1,000.0	999.4	996.9	996.0	2.0	2.1	-45.13	-17.7	75.1	61.1	57.0	4.05	15.090	
1,100.0	1,099.1	1,096.8	1,095.7	2.3	2.3	-45.79	-22.1	80.5	61.7	57.2	4.50	13.721	
1,200.0	1,198.9	1,196.8	1,195.5	2.5	2.6	-46.43	-26.6	85.9	62.3	57.4	4.96	12.577	
1,300.0	1,298.6	1,296.8	1,295.2	2.8	2.8	-47.06	-31.0	91.2	63.0	57.6	5.42	11.611	
1,400.0	1,398.4	1,396.8	1,395.0	3.0	3.1	-47.68	-35.5	96.6	63.6	57.7	5.90	10.788	
1,500.0	1,498.1	1,496.8	1,494.7	3.3	3.3	-48.29	-39.9	102.0	64.3	57.9	6.38	10.081	
1,600.0	1,597.9	1,596.8	1,594.5	3.5	3.6	-48.88	-44.3	107.4	64.9	58.1	6.86	9.467	
1,700.0	1,697.6	1,696.8	1,694.2	3.8	3.8	-49.46	-48.8	112.7	65.6	58.3	7.35	8.931	
1,800.0	1,797.4	1,796.8	1,794.0	4.0	4.1	-50.03	-53.2	118.1	66.3	58.5	7.84	8.458	
1,900.0	1,897.2	1,896.8	1,893.7	4.3	4.3	-50.59	-57.7	123.5	67.0	58.6	8.33	8.039	
2,000.0	1,996.9	1,996.8	1,993.5	4.5	4.6	-51.13	-62.1	128.9	67.7	58.8	8.83	7.666	
2,100.0	2,096.7	2,096.8	2,093.2	4.8	4.9	-51.67	-66.6	134.2	68.4	59.0	9.32	7.331	
2,200.0	2,196.4	2,196.8	2,193.0	5.0	5.1	-52.19	-71.0	139.6	69.1	59.2	9.82	7.029	
2,300.0	2,296.2	2,296.8	2,292.7	5.3	5.4	-52.71	-75.5	145.0	69.8	59.4	10.33	6.756	
2,400.0	2,395.9	2,396.8	2,392.5	5.6	5.6	-53.21	-79.9	150.4	70.5	59.6	10.83	6.507	
2,500.0	2,495.7	2,496.8	2,492.2	5.8	5.9	-53.71	-84.4	155.7	71.2	59.9	11.33	6.281	
2,600.0	2,595.5	2,596.8	2,592.0	6.1	6.2	-54.19	-88.8	161.1	71.9	60.1	11.84	6.073	
2,700.0	2,695.2	2,696.8	2,691.7	6.3	6.4	-54.66	-93.3	166.5	72.6	60.3	12.35	5.882	
2,800.0	2,795.0	2,796.8	2,791.5	6.6	6.7	-55.13	-97.7	171.9	73.4	60.5	12.86	5.706	
2,900.0	2,894.7	2,896.8	2,891.3	6.9	6.9	-55.58	-102.2	177.2	74.1	60.7	13.37	5.543	
3,000.0	2,994.5	2,996.8	2,991.0	7.1	7.2	-56.03	-106.6	182.6	74.8	61.0	13.88	5.393	
3,100.0	3,094.2	3,096.8	3,090.8	7.4	7.5	-56.47	-111.1	188.0	75.6	61.2	14.39	5.252	
3,200.0	3,194.0	3,196.8	3,190.5	7.6	7.7	-56.90	-115.5	193.3	76.3	61.4	14.91	5.122	
3,300.0	3,293.7	3,296.7	3,290.3	7.9	8.0	-57.32	-119.9	198.7	77.1	61.7	15.42	5.000	
3,400.0	3,393.5	3,396.7	3,390.0	8.2	8.3	-57.73	-124.4	204.1	77.9	61.9	15.94	4.886	
3,500.0	3,493.3	3,496.7	3,489.8	8.4	8.5	-58.14	-128.8	209.5	78.6	62.2	16.45	4.779	
3,600.0	3,593.0	3,596.7	3,589.5	8.7	8.8	-58.53	-133.3	214.8	79.4	62.4	16.97	4.679	
3,700.0	3,692.8	3,696.7	3,689.3	9.0	9.0	-58.92	-137.7	220.2	80.2	62.7	17.48	4.584	
3,800.0	3,792.5	3,796.7	3,789.0	9.2	9.3	-59.30	-142.2	225.6	80.9	62.9	18.00	4.495	
3,900.0	3,892.3	3,896.7	3,888.8	9.5	9.6	-59.68	-146.6	231.0	81.7	63.2	18.52	4.412	
4,000.0	3,992.0	3,996.7	3,988.5	9.7	9.8	-60.05	-151.1	236.3	82.5	63.4	19.04	4.332	
4,100.0	4,091.8	4,096.7	4,088.3	10.0	10.1	-60.41	-155.5	241.7	83.3	63.7	19.56	4.257	
4,200.0	4,191.6	4,196.7	4,188.0	10.3	10.4	-60.76	-160.0	247.1	84.1	64.0	20.08	4.186	
4,300.0	4,291.3	4,296.7	4,287.8	10.5	10.6	-61.11	-164.4	252.5	84.9	64.2	20.60	4.119	
4,400.0	4,391.1	4,396.7	4,387.5	10.8	10.9	-61.45	-168.9	257.8	85.6	64.5	21.12	4.055	
4,500.0	4,490.8	4,496.7	4,487.3	11.1	11.1	-61.78	-173.3	263.2	86.4	64.8	21.64	3.994	
4,600.0	4,590.6	4,596.7	4,587.0	11.3	11.4	-62.11	-177.8	268.6	87.2	65.1	22.17	3.936	
4,700.0	4,690.3	4,696.7	4,686.8	11.6	11.7	-62.43	-182.2	274.0	88.0	65.4	22.69	3.880	
4,800.0	4,790.1	4,796.7	4,786.5	11.8	11.9	-62.75	-186.7	279.3	88.8	65.6	23.21	3.828	
4,900.0	4,889.9	4,896.7	4,886.3	12.1	12.2	-63.06	-191.1	284.7	89.7	65.9	23.74	3.777	
5,000.0	4,989.6	4,996.7	4,986.0	12.4	12.5	-63.37	-195.5	290.1	90.5	66.2	24.26	3.729	
5,100.0	5,089.4	5,096.7	5,085.8	12.6	12.7	-63.67	-200.0	295.4	91.3	66.5	24.78	3.683	

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-1511A
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-1511A	**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
5,200.0	5,189.1	5,196.7	5,185.5	12.9	13.0	-63.96	-204.4	300.8	92.1	66.8	25.31	3.639	
5,300.0	5,288.9	5,296.7	5,285.3	13.2	13.2	-64.25	-208.9	306.2	92.9	67.1	25.83	3.597	
5,400.0	5,388.6	5,396.7	5,385.1	13.4	13.5	-64.53	-213.3	311.6	93.7	67.4	26.36	3.556	
5,500.0	5,488.0	5,496.5	5,484.7	13.7	13.8	-66.89	-217.8	316.9	93.1	66.1	26.97	3.451	
5,600.0	5,583.9	5,591.3	5,578.9	14.2	14.0	-78.11	-223.6	324.0	88.7	60.7	28.03	3.165	
5,630.7	5,612.1	5,619.8	5,606.9	14.4	14.2	-82.11	-227.1	328.2	88.4	59.9	28.43	3.108	
5,700.0	5,672.7	5,685.4	5,669.8	14.8	14.5	-91.23	-238.9	342.5	90.2	60.9	29.28	3.079	
5,800.0	5,751.1	5,783.0	5,757.9	15.7	15.1	-103.19	-265.5	374.7	99.0	68.7	30.32	3.265	
5,900.0	5,816.4	5,884.9	5,839.8	16.8	15.9	-112.27	-303.9	421.1	113.8	82.8	31.02	3.669	
6,000.0	5,866.0	5,991.3	5,911.2	18.1	17.1	-118.24	-354.1	481.7	132.4	100.7	31.76	4.169	
6,100.0	5,898.1	6,102.7	5,967.2	19.7	18.6	-121.60	-415.3	555.7	152.7	119.7	33.05	4.621	
6,200.0	5,911.7	6,219.2	6,002.5	21.3	20.4	-122.98	-486.0	641.0	172.9	137.7	35.20	4.912	
6,300.0	5,912.1	6,338.2	6,012.6	23.0	22.5	-122.34	-561.5	732.2	189.8	151.4	38.45	4.937	
6,400.0	5,912.1	6,446.4	6,012.6	24.7	24.4	-119.85	-633.5	812.9	204.0	161.7	42.28	4.825	
6,500.0	5,912.1	6,555.7	6,012.6	26.4	26.3	-117.74	-710.8	890.2	218.1	172.1	46.03	4.739	
6,600.0	5,912.1	6,666.2	6,012.6	28.2	28.4	-115.94	-793.2	963.7	232.0	182.3	49.70	4.669	
6,700.0	5,912.1	6,777.7	6,012.6	30.0	30.4	-114.39	-880.6	1,032.9	245.6	192.4	53.25	4.612	
6,800.0	5,912.1	6,890.3	6,012.6	31.8	32.5	-113.06	-972.8	1,097.6	258.8	202.1	56.69	4.565	
6,900.0	5,912.1	7,004.0	6,012.6	33.5	34.7	-111.91	-1,069.6	1,157.2	271.4	211.4	59.99	4.524	
7,000.0	5,912.1	7,118.7	6,012.6	35.3	36.8	-110.92	-1,170.6	1,211.4	283.5	220.4	63.10	4.493	
7,100.0	5,912.1	7,234.3	6,012.6	37.0	38.8	-110.06	-1,275.7	1,259.8	294.9	228.9	65.99	4.468	
7,200.0	5,912.1	7,351.0	6,012.6	38.7	40.9	-109.32	-1,384.4	1,302.1	305.5	236.9	68.65	4.451	
7,300.0	5,912.1	7,468.5	6,012.6	40.3	42.9	-108.68	-1,496.3	1,337.9	315.4	244.3	71.06	4.438	
7,400.0	5,912.1	7,586.9	6,012.6	41.9	44.8	-108.12	-1,611.0	1,367.0	324.4	251.2	73.21	4.431	
7,500.0	5,912.1	7,706.0	6,012.6	43.5	46.7	-107.66	-1,728.1	1,389.0	332.5	257.4	75.09	4.428	
7,600.0	5,912.1	7,825.9	6,012.6	45.0	48.5	-107.26	-1,847.0	1,403.7	339.6	262.9	76.70	4.428	
7,700.0	5,912.1	7,946.4	6,012.6	46.5	50.3	-106.96	-1,967.3	1,411.0	345.0	265.5	79.45	4.342	
7,800.0	5,912.1	8,055.9	6,012.6	48.0	51.8	-106.92	-2,076.8	1,411.8	345.6	262.7	82.87	4.170	
7,900.0	5,912.1	8,155.9	6,012.6	49.5	53.2	-106.92	-2,176.8	1,411.8	345.6	259.5	86.11	4.013	
8,000.0	5,912.1	8,255.9	6,012.7	51.0	54.6	-106.92	-2,276.8	1,411.8	345.6	256.2	89.38	3.867	
8,100.0	5,912.1	8,355.9	6,012.7	52.6	56.1	-106.92	-2,376.8	1,411.8	345.6	252.9	92.68	3.729	
8,200.0	5,912.1	8,455.9	6,012.7	54.2	57.6	-106.92	-2,476.8	1,411.8	345.6	249.6	96.01	3.599	
8,300.0	5,912.1	8,555.9	6,012.7	55.8	59.1	-106.93	-2,576.8	1,411.8	345.6	246.2	99.37	3.478	
8,400.0	5,912.1	8,655.9	6,012.7	57.5	60.6	-106.93	-2,676.8	1,411.8	345.6	242.8	102.75	3.363	
8,500.0	5,912.1	8,755.9	6,012.7	59.1	62.2	-106.93	-2,776.8	1,411.8	345.6	239.4	106.15	3.256	
8,600.0	5,912.1	8,855.9	6,012.7	60.8	63.7	-106.93	-2,876.8	1,411.8	345.6	236.0	109.57	3.154	
8,700.0	5,912.1	8,955.9	6,012.7	62.4	65.3	-106.93	-2,976.8	1,411.8	345.6	232.6	113.01	3.058	
8,800.0	5,912.1	9,055.9	6,012.7	64.1	66.9	-106.93	-3,076.8	1,411.8	345.6	229.1	116.47	2.967	
8,900.0	5,912.1	9,155.9	6,012.7	65.8	68.6	-106.93	-3,176.8	1,411.9	345.6	225.7	119.94	2.882	
9,000.0	5,912.1	9,255.9	6,012.7	67.6	70.2	-106.93	-3,276.8	1,411.9	345.6	222.2	123.42	2.800	
9,100.0	5,912.1	9,355.9	6,012.7	69.3	71.8	-106.93	-3,376.8	1,411.9	345.6	218.7	126.91	2.723	
9,200.0	5,912.1	9,455.9	6,012.7	71.0	73.5	-106.94	-3,476.8	1,411.9	345.6	215.2	130.42	2.650	
9,300.0	5,912.1	9,555.9	6,012.7	72.8	75.2	-106.94	-3,576.8	1,411.9	345.6	211.7	133.94	2.580	
9,400.0	5,912.1	9,655.9	6,012.7	74.5	76.9	-106.94	-3,676.8	1,411.9	345.6	208.1	137.46	2.514	
9,500.0	5,912.1	9,755.9	6,012.7	76.3	78.6	-106.94	-3,776.8	1,411.9	345.6	204.6	141.00	2.451	
9,600.0	5,912.0	9,855.9	6,012.8	78.1	80.3	-106.94	-3,876.8	1,411.9	345.6	201.1	144.54	2.391	
9,700.0	5,912.0	9,955.9	6,012.8	79.8	82.0	-106.94	-3,976.8	1,411.9	345.6	197.5	148.09	2.334	
9,800.0	5,912.0	10,055.9	6,012.8	81.6	83.7	-106.94	-4,076.8	1,411.9	345.6	193.9	151.65	2.279	
9,900.0	5,912.0	10,155.9	6,012.8	83.4	85.5	-106.94	-4,176.8	1,411.9	345.6	190.4	155.22	2.227	
10,000.0	5,912.0	10,255.9	6,012.8	85.2	87.2	-106.95	-4,276.8	1,411.9	345.6	186.8	158.79	2.177	
10,100.0	5,912.0	10,355.9	6,012.8	87.0	88.9	-106.95	-4,376.8	1,411.9	345.6	183.2	162.36	2.129	
10,200.0	5,912.0	10,455.9	6,012.8	88.8	90.7	-106.95	-4,476.8	1,411.9	345.6	179.7	165.95	2.083	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1511A
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-1511A	**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
10,300.0	5,912.0	10,555.9	6,012.8	90.6	92.5	-106.95	-4,576.8	1,411.9	345.6	176.1	169.53	2.039	
10,400.0	5,912.0	10,655.9	6,012.8	92.5	94.2	-106.95	-4,676.8	1,411.9	345.6	172.5	173.13	1.996	
10,500.0	5,912.0	10,755.9	6,012.8	94.3	96.0	-106.95	-4,776.8	1,411.9	345.6	168.9	176.72	1.956	
10,600.0	5,912.0	10,855.9	6,012.8	96.1	97.8	-106.95	-4,876.8	1,411.9	345.6	165.3	180.32	1.917	
10,700.0	5,912.0	10,955.9	6,012.8	97.9	99.6	-106.95	-4,976.8	1,412.0	345.6	161.7	183.93	1.879	
10,800.0	5,912.0	11,055.9	6,012.8	99.8	101.4	-106.95	-5,076.8	1,412.0	345.6	158.1	187.54	1.843	
10,900.0	5,912.0	11,155.9	6,012.8	101.6	103.2	-106.96	-5,176.8	1,412.0	345.6	154.5	191.15	1.808	
11,000.0	5,912.0	11,255.9	6,012.8	103.4	105.0	-106.96	-5,276.8	1,412.0	345.6	150.8	194.76	1.775	
11,100.0	5,912.0	11,355.9	6,012.8	105.3	106.8	-106.96	-5,376.8	1,412.0	345.6	147.2	198.38	1.742	
11,200.0	5,912.0	11,455.9	6,012.8	107.1	108.6	-106.96	-5,476.8	1,412.0	345.6	143.6	202.00	1.711	
11,300.0	5,912.0	11,555.9	6,012.9	109.0	110.4	-106.96	-5,576.8	1,412.0	345.6	140.0	205.62	1.681	
11,400.0	5,912.0	11,655.9	6,012.9	110.8	112.2	-106.96	-5,676.8	1,412.0	345.6	136.4	209.25	1.652	
11,500.0	5,912.0	11,755.9	6,012.9	112.7	114.0	-106.96	-5,776.8	1,412.0	345.6	132.7	212.88	1.624	
11,600.0	5,912.0	11,855.9	6,012.9	114.5	115.9	-106.96	-5,876.8	1,412.0	345.6	129.1	216.51	1.596	
11,700.0	5,912.0	11,955.9	6,012.9	116.4	117.7	-106.97	-5,976.8	1,412.0	345.6	125.5	220.14	1.570	
11,800.0	5,912.0	12,055.9	6,012.9	118.2	119.5	-106.97	-6,076.8	1,412.0	345.6	121.8	223.78	1.544	
11,900.0	5,912.0	12,155.9	6,012.9	120.1	121.4	-106.97	-6,176.8	1,412.0	345.6	118.2	227.42	1.520	
12,000.0	5,912.0	12,255.9	6,012.9	122.0	123.2	-106.97	-6,276.8	1,412.0	345.6	114.6	231.05	1.496	Level 3
12,100.0	5,912.0	12,355.9	6,012.9	123.8	125.0	-106.97	-6,376.8	1,412.0	345.6	110.9	234.70	1.473	Level 3
12,200.0	5,912.0	12,455.9	6,012.9	125.7	126.9	-106.97	-6,476.8	1,412.0	345.6	107.3	238.34	1.450	Level 3
12,300.0	5,912.0	12,555.9	6,012.9	127.6	128.7	-106.97	-6,576.8	1,412.0	345.6	103.6	241.98	1.428	Level 3
12,400.0	5,912.0	12,655.9	6,012.9	129.4	130.6	-106.97	-6,676.8	1,412.0	345.6	100.0	245.63	1.407	Level 3
12,500.0	5,912.0	12,755.9	6,012.9	131.3	132.4	-106.97	-6,776.8	1,412.1	345.6	96.3	249.28	1.387	Level 3
12,600.0	5,912.0	12,855.9	6,012.9	133.2	134.3	-106.98	-6,876.8	1,412.1	345.6	92.7	252.93	1.367	Level 3
12,700.0	5,912.0	12,955.9	6,012.9	135.1	136.1	-106.98	-6,976.8	1,412.1	345.6	89.0	256.58	1.347	Level 3
12,800.0	5,912.0	13,055.9	6,012.9	136.9	138.0	-106.98	-7,076.8	1,412.1	345.6	85.4	260.23	1.328	Level 3
12,900.0	5,912.0	13,155.9	6,013.0	138.8	139.8	-106.98	-7,176.8	1,412.1	345.6	81.7	263.88	1.310	Level 3
13,000.0	5,912.0	13,255.9	6,013.0	140.7	141.7	-106.98	-7,276.8	1,412.1	345.6	78.1	267.54	1.292	Level 3
13,100.0	5,912.0	13,355.9	6,013.0	142.6	143.6	-106.98	-7,376.8	1,412.1	345.6	74.4	271.19	1.274	Level 3
13,200.0	5,912.0	13,455.9	6,013.0	144.4	145.4	-106.98	-7,476.8	1,412.1	345.6	70.8	274.85	1.258	Level 3
13,300.0	5,912.0	13,555.9	6,013.0	146.3	147.3	-106.98	-7,576.8	1,412.1	345.6	67.1	278.50	1.241	Level 2
13,400.0	5,912.0	13,655.9	6,013.0	148.2	149.1	-106.98	-7,676.8	1,412.1	345.6	63.5	282.16	1.225	Level 2
13,500.0	5,912.0	13,755.9	6,013.0	150.1	151.0	-106.99	-7,776.8	1,412.1	345.6	59.8	285.82	1.209	Level 2
13,600.0	5,912.0	13,855.9	6,013.0	152.0	152.9	-106.99	-7,876.8	1,412.1	345.6	56.1	289.48	1.194	Level 2
13,700.0	5,912.0	13,955.9	6,013.0	153.9	154.7	-106.99	-7,976.8	1,412.1	345.6	52.5	293.15	1.179	Level 2
13,800.0	5,912.0	14,055.9	6,013.0	155.8	156.6	-106.99	-8,076.8	1,412.1	345.6	48.8	296.81	1.165	Level 2
13,860.6	5,912.0	14,116.5	6,013.0	156.9	157.8	-106.99	-8,137.4	1,412.1	345.6	46.6	299.00	1.156	Level 2
13,900.0	5,912.0	14,155.5	6,013.0	157.6	158.5	-106.99	-8,176.4	1,412.1	345.6	45.2	300.46	1.150	Level 2
13,906.7	5,912.0	14,155.5	6,013.0	157.8	158.5	-106.99	-8,176.4	1,412.1	345.7	45.1	300.58	1.150	Level 2, ES, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #10F-1511A
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-1511A	**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-1511A
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.06°