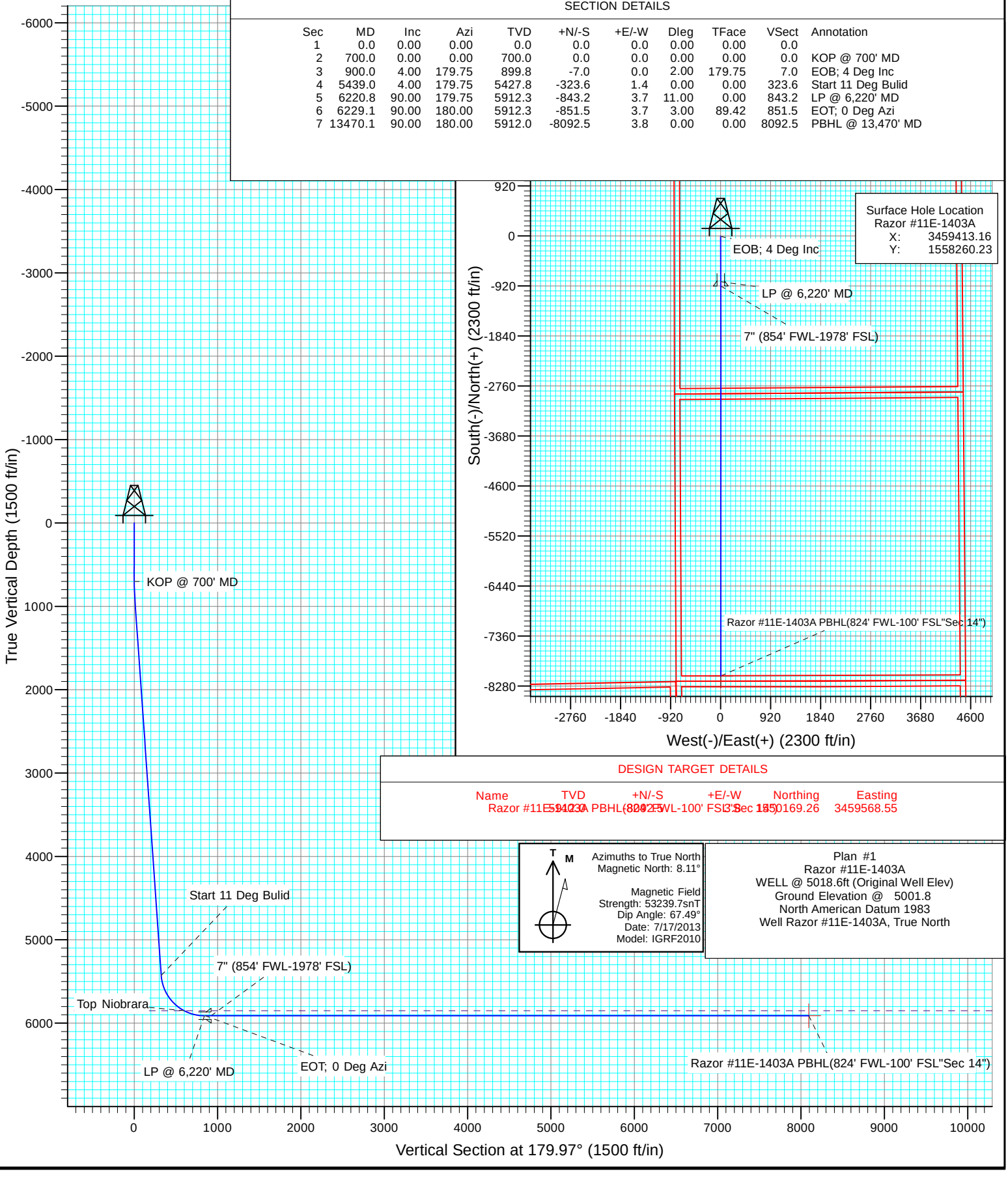
WHITING PETROLEUM CORPORATION

Project: Weld County, CO
Site: S11-T10N-R58W
Well: Razor #11E-1403A
Wellbore: HZ
Design: Plan #1

CATHEDRAL

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	700.0	0.00	0.00	700.0	0.0	0.0	0.00	0.00	0.0	KOP @ 700' MD
3	900.0	4.00	179.75	899.8	-7.0	0.0	2.00	179.75	7.0	EOB; 4 Deg Inc
4	5439.0	4.00	179.75	5427.8	-323.6	1.4	0.00	0.00	323.6	Start 11 Deg Bulid
5	6220.8	90.00	179.75	5912.3	-843.2	3.7	11.00	0.00	843.2	LP @ 6,220' MD
6	6229.1	90.00	180.00	5912.3	-851.5	3.7	3.00	89.42	851.5	EOT; 0 Deg Azi
7	13470.1	90.00	180.00	5912.0	-8092.5	3.8	0.00	0.00	8092.5	PBHL @ 13,470' MD



DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
Razor #11E-1403A PBHL(824' FWL-100' FSL"Sec 14")	5912.0	-8092.5	3.8	1550169.26	3459568.55

T M
Azimuths to True North
Magnetic North: 8.11°
Magnetic Field
Strength: 53239.7snT
Dip Angle: 67.49°
Date: 7/17/2013
Model: IGRF2010

Plan #1
Razor #11E-1403A
WELL @ 5018.6ft (Original Well Elev)
Ground Elevation @ 5001.8
North American Datum 1983
Well Razor #11E-1403A, True North

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #11E-1403A
Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 5018.6ft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 5018.6ft (Original Well Elev)
Site:	S11-T10N-R58W	**North Reference:**	True
Well:	Razor #11E-1403A	**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 S11-T10N-R58W

Site Position:		**Northing:**	1,558,623.69 ft	**Latitude:**	40.854775
From:	Lat/Long	**Easting:**	3,463,396.85 ft	**Longitude:**	-103.824847
Position Uncertainty:	0.0 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	1.08 °

Well Razor #11E-1403A

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,558,260.23 ft	**Latitude:**	40.853983
	+E/-W	0.0 ft	**Easting:**	3,459,413.16 ft	**Longitude:**	-103.839269
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	5,001.8 ft

Wellbore HZ

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/17/2013	8.11	67.49	53,240

Design Plan #1

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	179.97

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.00	0.00	0.00	0.00	
900.0	4.00	179.75	899.8	-7.0	0.0	2.00	2.00	0.00	179.75	
5,439.0	4.00	179.75	5,427.8	-323.6	1.4	0.00	0.00	0.00	0.00	
6,220.8	90.00	179.75	5,912.3	-843.2	3.7	11.00	11.00	0.00	0.00	
6,229.1	90.00	180.00	5,912.3	-851.5	3.7	3.00	0.03	3.00	89.42	
13,470.1	90.00	180.00	5,912.0	-8,092.5	3.8	0.00	0.00	0.00	0.00	Razor #11E-1403A PI

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #11E-1403A
Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 5018.6ft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 5018.6ft (Original Well Elev)
Site:	S11-T10N-R58W	**North Reference:**	True
Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	KOP @ 700' MD
800.0	2.00	179.75	800.0	-1.7	0.0	1.7	2.00	2.00	
900.0	4.00	179.75	899.8	-7.0	0.0	7.0	2.00	2.00	EOB; 4 Deg Inc
1,000.0	4.00	179.75	999.6	-14.0	0.1	14.0	0.00	0.00	
1,100.0	4.00	179.75	1,099.4	-20.9	0.1	20.9	0.00	0.00	
1,200.0	4.00	179.75	1,199.1	-27.9	0.1	27.9	0.00	0.00	
1,300.0	4.00	179.75	1,298.9	-34.9	0.2	34.9	0.00	0.00	
1,400.0	4.00	179.75	1,398.6	-41.9	0.2	41.9	0.00	0.00	
1,500.0	4.00	179.75	1,498.4	-48.8	0.2	48.8	0.00	0.00	
1,600.0	4.00	179.75	1,598.1	-55.8	0.2	55.8	0.00	0.00	
1,700.0	4.00	179.75	1,697.9	-62.8	0.3	62.8	0.00	0.00	
1,800.0	4.00	179.75	1,797.6	-69.8	0.3	69.8	0.00	0.00	
1,900.0	4.00	179.75	1,897.4	-76.7	0.3	76.7	0.00	0.00	
2,000.0	4.00	179.75	1,997.2	-83.7	0.4	83.7	0.00	0.00	
2,100.0	4.00	179.75	2,096.9	-90.7	0.4	90.7	0.00	0.00	
2,200.0	4.00	179.75	2,196.7	-97.7	0.4	97.7	0.00	0.00	
2,300.0	4.00	179.75	2,296.4	-104.6	0.5	104.6	0.00	0.00	
2,400.0	4.00	179.75	2,396.2	-111.6	0.5	111.6	0.00	0.00	
2,500.0	4.00	179.75	2,495.9	-118.6	0.5	118.6	0.00	0.00	
2,600.0	4.00	179.75	2,595.7	-125.6	0.5	125.6	0.00	0.00	
2,700.0	4.00	179.75	2,695.5	-132.5	0.6	132.5	0.00	0.00	
2,800.0	4.00	179.75	2,795.2	-139.5	0.6	139.5	0.00	0.00	
2,900.0	4.00	179.75	2,895.0	-146.5	0.6	146.5	0.00	0.00	
3,000.0	4.00	179.75	2,994.7	-153.5	0.7	153.5	0.00	0.00	
3,100.0	4.00	179.75	3,094.5	-160.4	0.7	160.4	0.00	0.00	
3,200.0	4.00	179.75	3,194.2	-167.4	0.7	167.4	0.00	0.00	
3,300.0	4.00	179.75	3,294.0	-174.4	0.8	174.4	0.00	0.00	
3,400.0	4.00	179.75	3,393.7	-181.4	0.8	181.4	0.00	0.00	
3,500.0	4.00	179.75	3,493.5	-188.3	0.8	188.3	0.00	0.00	
3,600.0	4.00	179.75	3,593.3	-195.3	0.9	195.3	0.00	0.00	
3,700.0	4.00	179.75	3,693.0	-202.3	0.9	202.3	0.00	0.00	
3,800.0	4.00	179.75	3,792.8	-209.3	0.9	209.3	0.00	0.00	
3,900.0	4.00	179.75	3,892.5	-216.2	0.9	216.2	0.00	0.00	
4,000.0	4.00	179.75	3,992.3	-223.2	1.0	223.2	0.00	0.00	
4,100.0	4.00	179.75	4,092.0	-230.2	1.0	230.2	0.00	0.00	
4,200.0	4.00	179.75	4,191.8	-237.2	1.0	237.2	0.00	0.00	
4,300.0	4.00	179.75	4,291.6	-244.1	1.1	244.1	0.00	0.00	
4,400.0	4.00	179.75	4,391.3	-251.1	1.1	251.1	0.00	0.00	
4,500.0	4.00	179.75	4,491.1	-258.1	1.1	258.1	0.00	0.00	
4,600.0	4.00	179.75	4,590.8	-265.1	1.2	265.1	0.00	0.00	
4,700.0	4.00	179.75	4,690.6	-272.1	1.2	272.1	0.00	0.00	
4,800.0	4.00	179.75	4,790.3	-279.0	1.2	279.0	0.00	0.00	
4,900.0	4.00	179.75	4,890.1	-286.0	1.2	286.0	0.00	0.00	
5,000.0	4.00	179.75	4,989.9	-293.0	1.3	293.0	0.00	0.00	
5,100.0	4.00	179.75	5,089.6	-300.0	1.3	300.0	0.00	0.00	

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #11E-1403A
Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 5018.6ft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 5018.6ft (Original Well Elev)
Site:	S11-T10N-R58W	**North Reference:**	True
Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
5,200.0	4.00	179.75	5,189.4	-306.9	1.3	306.9	0.00	0.00	
5,300.0	4.00	179.75	5,289.1	-313.9	1.4	313.9	0.00	0.00	
5,400.0	4.00	179.75	5,388.9	-320.9	1.4	320.9	0.00	0.00	
5,439.0	4.00	179.75	5,427.8	-323.6	1.4	323.6	0.00	0.00	Start 11 Deg Bulid
5,450.0	5.21	179.75	5,438.7	-324.5	1.4	324.5	11.00	11.00	
5,500.0	10.71	179.75	5,488.2	-331.4	1.4	331.4	11.00	11.00	
5,550.0	16.21	179.75	5,536.9	-343.0	1.5	343.0	11.00	11.00	
5,600.0	21.71	179.75	5,584.1	-359.3	1.6	359.3	11.00	11.00	
5,650.0	27.21	179.75	5,629.6	-380.0	1.7	380.0	11.00	11.00	
5,700.0	32.71	179.75	5,672.9	-404.9	1.8	404.9	11.00	11.00	
5,750.0	38.21	179.75	5,713.6	-433.9	1.9	433.9	11.00	11.00	
5,800.0	43.71	179.75	5,751.4	-466.7	2.0	466.7	11.00	11.00	
5,850.0	49.21	179.75	5,785.8	-502.9	2.2	502.9	11.00	11.00	
5,900.0	54.71	179.75	5,816.6	-542.3	2.4	542.3	11.00	11.00	
5,950.0	60.21	179.75	5,843.5	-584.4	2.5	584.4	11.00	11.00	
5,967.7	62.15	179.75	5,852.0	-599.9	2.6	599.9	11.00	11.00	Top Niobrara
6,000.0	65.71	179.75	5,866.2	-628.9	2.7	628.9	11.00	11.00	
6,050.0	71.21	179.75	5,884.6	-675.4	2.9	675.4	11.00	11.00	
6,100.0	76.71	179.75	5,898.4	-723.5	3.2	723.5	11.00	11.00	
6,150.0	82.21	179.75	5,907.5	-772.6	3.4	772.6	11.00	11.00	
6,200.0	87.71	179.75	5,911.9	-822.4	3.6	822.4	11.00	11.00	
6,220.8	90.00	179.75	5,912.3	-843.2	3.7	843.2	11.00	11.00	LP @ 6,220' MD
6,229.1	90.00	180.00	5,912.3	-851.5	3.7	851.5	3.00	0.03	EOT; 0 Deg Azi
6,300.0	90.00	180.00	5,912.3	-922.4	3.7	922.4	0.00	0.00	7" (854' FWL-1978' FSL)
6,400.0	90.00	180.00	5,912.3	-1,022.4	3.7	1,022.4	0.00	0.00	
6,500.0	90.00	180.00	5,912.3	-1,122.4	3.7	1,122.4	0.00	0.00	
6,600.0	90.00	180.00	5,912.3	-1,222.4	3.7	1,222.4	0.00	0.00	
6,700.0	90.00	180.00	5,912.3	-1,322.4	3.7	1,322.4	0.00	0.00	
6,800.0	90.00	180.00	5,912.3	-1,422.4	3.7	1,422.4	0.00	0.00	
6,900.0	90.00	180.00	5,912.3	-1,522.4	3.7	1,522.4	0.00	0.00	
7,000.0	90.00	180.00	5,912.3	-1,622.4	3.7	1,622.4	0.00	0.00	
7,100.0	90.00	180.00	5,912.3	-1,722.4	3.7	1,722.4	0.00	0.00	
7,200.0	90.00	180.00	5,912.3	-1,822.4	3.7	1,822.4	0.00	0.00	
7,300.0	90.00	180.00	5,912.3	-1,922.4	3.7	1,922.4	0.00	0.00	
7,400.0	90.00	180.00	5,912.3	-2,022.4	3.7	2,022.4	0.00	0.00	
7,500.0	90.00	180.00	5,912.3	-2,122.4	3.7	2,122.4	0.00	0.00	
7,600.0	90.00	180.00	5,912.3	-2,222.4	3.7	2,222.4	0.00	0.00	
7,700.0	90.00	180.00	5,912.3	-2,322.4	3.7	2,322.4	0.00	0.00	
7,800.0	90.00	180.00	5,912.3	-2,422.4	3.7	2,422.4	0.00	0.00	
7,900.0	90.00	180.00	5,912.3	-2,522.4	3.7	2,522.4	0.00	0.00	
8,000.0	90.00	180.00	5,912.3	-2,622.4	3.7	2,622.4	0.00	0.00	
8,100.0	90.00	180.00	5,912.2	-2,722.4	3.7	2,722.4	0.00	0.00	
8,200.0	90.00	180.00	5,912.2	-2,822.4	3.7	2,822.4	0.00	0.00	
8,300.0	90.00	180.00	5,912.2	-2,922.4	3.7	2,922.4	0.00	0.00	
8,400.0	90.00	180.00	5,912.2	-3,022.4	3.7	3,022.4	0.00	0.00	
8,500.0	90.00	180.00	5,912.2	-3,122.4	3.7	3,122.4	0.00	0.00	
8,600.0	90.00	180.00	5,912.2	-3,222.4	3.7	3,222.4	0.00	0.00	
8,700.0	90.00	180.00	5,912.2	-3,322.4	3.7	3,322.4	0.00	0.00	
8,800.0	90.00	180.00	5,912.2	-3,422.4	3.7	3,422.4	0.00	0.00	
8,900.0	90.00	180.00	5,912.2	-3,522.4	3.8	3,522.4	0.00	0.00	
9,000.0	90.00	180.00	5,912.2	-3,622.4	3.8	3,622.4	0.00	0.00	
9,100.0	90.00	180.00	5,912.2	-3,722.4	3.8	3,722.4	0.00	0.00	

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #11E-1403A
Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 5018.6ft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 5018.6ft (Original Well Elev)
Site:	S11-T10N-R58W	**North Reference:**	True
Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
9,200.0	90.00	180.00	5,912.2	-3,822.4	3.8	3,822.4	0.00	0.00	
9,300.0	90.00	180.00	5,912.2	-3,922.4	3.8	3,922.4	0.00	0.00	
9,400.0	90.00	180.00	5,912.2	-4,022.4	3.8	4,022.4	0.00	0.00	
9,500.0	90.00	180.00	5,912.2	-4,122.4	3.8	4,122.4	0.00	0.00	
9,600.0	90.00	180.00	5,912.2	-4,222.4	3.8	4,222.4	0.00	0.00	
9,700.0	90.00	180.00	5,912.2	-4,322.4	3.8	4,322.4	0.00	0.00	
9,800.0	90.00	180.00	5,912.2	-4,422.4	3.8	4,422.4	0.00	0.00	
9,900.0	90.00	180.00	5,912.2	-4,522.4	3.8	4,522.4	0.00	0.00	
10,000.0	90.00	180.00	5,912.2	-4,622.4	3.8	4,622.4	0.00	0.00	
10,100.0	90.00	180.00	5,912.2	-4,722.4	3.8	4,722.4	0.00	0.00	
10,200.0	90.00	180.00	5,912.2	-4,822.4	3.8	4,822.4	0.00	0.00	
10,300.0	90.00	180.00	5,912.2	-4,922.4	3.8	4,922.4	0.00	0.00	
10,400.0	90.00	180.00	5,912.1	-5,022.4	3.8	5,022.4	0.00	0.00	
10,500.0	90.00	180.00	5,912.1	-5,122.4	3.8	5,122.4	0.00	0.00	
10,600.0	90.00	180.00	5,912.1	-5,222.4	3.8	5,222.4	0.00	0.00	
10,700.0	90.00	180.00	5,912.1	-5,322.4	3.8	5,322.4	0.00	0.00	
10,800.0	90.00	180.00	5,912.1	-5,422.4	3.8	5,422.4	0.00	0.00	
10,900.0	90.00	180.00	5,912.1	-5,522.4	3.8	5,522.4	0.00	0.00	
11,000.0	90.00	180.00	5,912.1	-5,622.4	3.8	5,622.4	0.00	0.00	
11,100.0	90.00	180.00	5,912.1	-5,722.4	3.8	5,722.4	0.00	0.00	
11,200.0	90.00	180.00	5,912.1	-5,822.4	3.8	5,822.4	0.00	0.00	
11,300.0	90.00	180.00	5,912.1	-5,922.4	3.8	5,922.4	0.00	0.00	
11,400.0	90.00	180.00	5,912.1	-6,022.4	3.8	6,022.4	0.00	0.00	
11,500.0	90.00	180.00	5,912.1	-6,122.4	3.8	6,122.4	0.00	0.00	
11,600.0	90.00	180.00	5,912.1	-6,222.4	3.8	6,222.4	0.00	0.00	
11,700.0	90.00	180.00	5,912.1	-6,322.4	3.8	6,322.4	0.00	0.00	
11,800.0	90.00	180.00	5,912.1	-6,422.4	3.8	6,422.4	0.00	0.00	
11,900.0	90.00	180.00	5,912.1	-6,522.4	3.8	6,522.4	0.00	0.00	
12,000.0	90.00	180.00	5,912.1	-6,622.4	3.8	6,622.4	0.00	0.00	
12,100.0	90.00	180.00	5,912.1	-6,722.4	3.8	6,722.4	0.00	0.00	
12,200.0	90.00	180.00	5,912.1	-6,822.4	3.8	6,822.4	0.00	0.00	
12,300.0	90.00	180.00	5,912.1	-6,922.4	3.8	6,922.4	0.00	0.00	
12,400.0	90.00	180.00	5,912.1	-7,022.4	3.8	7,022.4	0.00	0.00	
12,500.0	90.00	180.00	5,912.1	-7,122.4	3.8	7,122.4	0.00	0.00	
12,600.0	90.00	180.00	5,912.0	-7,222.4	3.8	7,222.4	0.00	0.00	
12,700.0	90.00	180.00	5,912.0	-7,322.4	3.8	7,322.4	0.00	0.00	
12,800.0	90.00	180.00	5,912.0	-7,422.4	3.8	7,422.4	0.00	0.00	
12,900.0	90.00	180.00	5,912.0	-7,522.4	3.8	7,522.4	0.00	0.00	
13,000.0	90.00	180.00	5,912.0	-7,622.4	3.8	7,622.4	0.00	0.00	
13,100.0	90.00	180.00	5,912.0	-7,722.4	3.8	7,722.4	0.00	0.00	
13,200.0	90.00	180.00	5,912.0	-7,822.4	3.8	7,822.4	0.00	0.00	
13,300.0	90.00	180.00	5,912.0	-7,922.4	3.8	7,922.4	0.00	0.00	
13,400.0	90.00	180.00	5,912.0	-8,022.4	3.8	8,022.4	0.00	0.00	
13,470.1	90.00	180.00	5,912.0	-8,092.5	3.8	8,092.5	0.00	0.00	PBHL @ 13,470' MD

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor #11E-1403A
Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 5018.6ft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 5018.6ft (Original Well Elev)
Site:	S11-T10N-R58W	**North Reference:**	True
Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Razor #11E-1403A PBH - plan hits target center - Point	0.00	0.00	5,912.0	-8,092.5	3.8	1,550,169.26	3,459,568.55	40.831772	-103.839256

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
6,300.0	5,912.3	7" (854' FWL-1978' FSL)	7.000	7.500

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,967.7	5,852.0	Top Niobrara		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
700.0	700.0	0.0	0.0	KOP @ 700' MD
900.0	899.8	-7.0	0.0	EOB; 4 Deg Inc
5,439.0	5,427.8	-323.6	1.4	Start 11 Deg Bulid
6,220.8	5,912.3	-843.2	3.7	LP @ 6,220' MD
6,229.1	5,912.3	-851.5	3.7	EOT; 0 Deg Azi
13,470.1	5,912.0	-8,092.5	3.8	PBHL @ 13,470' MD

Whiting Petroleum Corporation

Weld County, CO
S11-T10N-R58W
Razor #11E-1403A
HZ
Plan #1

Anticollision Report

22 July, 2013

Cathedral Energy Services

Anticollision Report

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #11E-1403A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Reference Site:	S11-T10N-R58W	**MD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference Plan #1

Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	**Error Model:**	Systematic Ellipse
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0usft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	2.00 **Sigma**		

Survey Tool Program **Date** 7/19/2013

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	13,470.1	Plan #1 (HZ)	ISCWSA MWD	MWD - ISCWSA

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
S11-T10N-R58W						
Razor #11E-0201A - HZ - Plan #1	700.0	700.0	100.7	97.8	34.900	CC, ES
Razor #11E-0201A - HZ - Plan #1	1,000.0	991.9	118.2	114.1	28.746	SF
Razor #11E-0202B - HZ - Plan #1	700.0	700.0	81.9	79.0	28.387	CC, ES
Razor #11E-0202B - HZ - Plan #1	900.0	893.6	95.1	91.4	25.640	SF
Razor #11E-0203A - HZ - Plan #1	600.0	600.0	74.9	72.5	30.766	CC, ES
Razor #11E-0203A - HZ - Plan #1	800.0	794.5	83.4	80.1	25.232	SF
Razor #11E-0204B - HZ - Plan #1	500.0	500.0	82.8	80.8	41.712	CC, ES
Razor #11E-0204B - HZ - Plan #1	900.0	892.9	109.7	106.0	29.515	SF
Razor #11E-1401A - HZ - Plan #1	500.0	500.0	66.1	64.1	33.292	CC, ES
Razor #11E-1401A - HZ - Plan #1	13,471.0	13,579.9	660.3	349.4	2.123	SF
Razor #11E-1402B - HZ - Plan #1	600.0	600.0	33.0	30.6	13.572	CC, ES
Razor #11E-1402B - HZ - Plan #1	13,471.0	13,594.1	345.6	46.0	1.154	Level 2, SF
Razor #11E-1404B - HZ - Plan #1	733.6	733.6	33.0	30.0	10.922	CC
Razor #11E-1404B - HZ - Plan #1	800.0	800.0	33.1	29.8	10.009	ES
Razor #11E-1404B - HZ - Plan #1	13,471.0	13,609.2	344.9	44.8	1.149	Level 2, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #11E-1403A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Reference Site:	S11-T10N-R58W	**MD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S11-T10N-R58W - Razor #11E-0201A - HZ - Plan #1

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-41.04	75.9	-66.1	100.7				
100.0	100.0	100.0	100.0	0.1	0.1	-41.04	75.9	-66.1	100.7	100.5	0.19	538.265	
200.0	200.0	200.0	200.0	0.3	0.3	-41.04	75.9	-66.1	100.7	100.0	0.64	158.135	
300.0	300.0	300.0	300.0	0.5	0.5	-41.04	75.9	-66.1	100.7	99.6	1.09	92.682	
400.0	400.0	400.0	400.0	0.8	0.8	-41.04	75.9	-66.1	100.7	99.1	1.54	65.550	
500.0	500.0	500.0	500.0	1.0	1.0	-41.04	75.9	-66.1	100.7	98.7	1.99	50.706	
600.0	600.0	600.0	600.0	1.2	1.2	-41.04	75.9	-66.1	100.7	98.2	2.43	41.344	
700.0	700.0	700.0	700.0	1.4	1.4	-41.04	75.9	-66.1	100.7	97.8	2.88	34.900	CC, ES
800.0	800.0	800.0	800.0	1.6	1.7	139.84	75.9	-66.1	102.0	98.7	3.31	30.848	
900.0	899.8	896.3	896.3	1.8	1.9	141.65	77.3	-66.9	107.7	104.0	3.70	29.086	
1,000.0	999.6	991.9	991.7	2.0	2.1	144.01	81.5	-69.3	118.2	114.1	4.11	28.746	SF
1,100.0	1,099.3	1,090.6	1,090.2	2.2	2.3	146.11	87.4	-72.8	130.9	126.4	4.54	28.846	
1,200.0	1,199.1	1,189.7	1,189.1	2.5	2.6	147.85	93.4	-76.2	143.7	138.7	4.96	28.943	
1,300.0	1,298.9	1,288.8	1,287.9	2.7	2.8	149.30	99.4	-79.7	156.6	151.2	5.40	29.016	
1,400.0	1,398.6	1,387.9	1,386.8	2.9	3.0	150.53	105.4	-83.2	169.6	163.8	5.83	29.069	
1,500.0	1,498.4	1,487.0	1,485.6	3.2	3.3	151.59	111.3	-86.6	182.7	176.4	6.27	29.109	
1,600.0	1,598.1	1,586.1	1,584.5	3.4	3.5	152.50	117.3	-90.1	195.8	189.0	6.72	29.140	
1,700.0	1,697.9	1,685.2	1,683.3	3.6	3.8	153.30	123.3	-93.6	208.9	201.8	7.16	29.163	
1,800.0	1,797.6	1,784.3	1,782.2	3.9	4.0	154.01	129.3	-97.1	222.1	214.5	7.61	29.182	
1,900.0	1,897.4	1,883.4	1,881.0	4.2	4.3	154.63	135.3	-100.5	235.3	227.3	8.06	29.196	
2,000.0	1,997.2	1,982.4	1,979.9	4.4	4.5	155.19	141.2	-104.0	248.6	240.1	8.51	29.208	
2,100.0	2,096.9	2,081.5	2,078.7	4.7	4.8	155.69	147.2	-107.5	261.8	252.9	8.96	29.216	
2,200.0	2,196.7	2,180.6	2,177.6	4.9	5.0	156.15	153.2	-110.9	275.1	265.7	9.41	29.224	
2,300.0	2,296.4	2,279.7	2,276.4	5.2	5.3	156.56	159.2	-114.4	288.4	278.5	9.87	29.229	
2,400.0	2,396.2	2,378.8	2,375.3	5.4	5.5	156.94	165.1	-117.9	301.7	291.4	10.32	29.233	
2,500.0	2,495.9	2,477.9	2,474.1	5.7	5.8	157.28	171.1	-121.3	315.1	304.3	10.78	29.237	
2,600.0	2,595.7	2,577.0	2,573.0	5.9	6.0	157.60	177.1	-124.8	328.4	317.2	11.23	29.239	
2,700.0	2,695.4	2,676.1	2,671.8	6.2	6.3	157.89	183.1	-128.3	341.7	330.0	11.69	29.241	
2,800.0	2,795.2	2,775.2	2,770.7	6.5	6.5	158.16	189.1	-131.7	355.1	342.9	12.14	29.242	
2,900.0	2,895.0	2,874.3	2,869.5	6.7	6.8	158.41	195.0	-135.2	368.4	355.8	12.60	29.243	
3,000.0	2,994.7	2,973.4	2,968.4	7.0	7.0	158.64	201.0	-138.7	381.8	368.7	13.06	29.244	
3,100.0	3,094.5	3,072.4	3,067.2	7.2	7.3	158.86	207.0	-142.2	395.2	381.7	13.51	29.244	
3,200.0	3,194.2	3,171.5	3,166.1	7.5	7.5	159.06	213.0	-145.6	408.5	394.6	13.97	29.244	
3,300.0	3,294.0	3,270.6	3,264.9	7.8	7.8	159.25	219.0	-149.1	421.9	407.5	14.43	29.244	
3,400.0	3,393.7	3,369.7	3,363.8	8.0	8.0	159.43	224.9	-152.6	435.3	420.4	14.89	29.244	
3,500.0	3,493.5	3,468.8	3,462.6	8.3	8.3	159.60	230.9	-156.0	448.7	433.4	15.34	29.243	
3,600.0	3,593.3	3,567.9	3,561.5	8.5	8.5	159.75	236.9	-159.5	462.1	446.3	15.80	29.243	
3,700.0	3,693.0	3,667.0	3,660.3	8.8	8.8	159.90	242.9	-163.0	475.5	459.2	16.26	29.242	
3,800.0	3,792.8	3,766.1	3,759.2	9.1	9.0	160.04	248.8	-166.4	488.9	472.2	16.72	29.241	
3,900.0	3,892.5	3,865.2	3,858.0	9.3	9.3	160.18	254.8	-169.9	502.3	485.1	17.18	29.240	
4,000.0	3,992.3	3,964.3	3,956.9	9.6	9.6	160.30	260.8	-173.4	515.7	498.0	17.64	29.239	
4,100.0	4,092.0	4,063.4	4,055.7	9.9	9.8	160.42	266.8	-176.9	529.1	511.0	18.10	29.238	
4,200.0	4,191.8	4,162.5	4,154.6	10.1	10.1	160.54	272.8	-180.3	542.5	523.9	18.55	29.237	
4,300.0	4,291.5	4,261.5	4,253.4	10.4	10.3	160.64	278.7	-183.8	555.9	536.9	19.01	29.236	
4,400.0	4,391.3	4,360.6	4,352.3	10.6	10.6	160.75	284.7	-187.3	569.3	549.8	19.47	29.235	
4,500.0	4,491.1	4,459.7	4,451.1	10.9	10.8	160.85	290.7	-190.7	582.7	562.8	19.93	29.234	
4,600.0	4,590.8	4,558.8	4,550.0	11.2	11.1	160.94	296.7	-194.2	596.1	575.8	20.39	29.233	
4,700.0	4,690.6	4,657.9	4,648.8	11.4	11.3	161.03	302.6	-197.7	609.6	588.7	20.85	29.232	
4,800.0	4,790.3	4,757.0	4,747.7	11.7	11.6	161.12	308.6	-201.1	623.0	601.7	21.31	29.231	
4,900.0	4,890.1	4,856.1	4,846.5	12.0	11.8	161.20	314.6	-204.6	636.4	614.6	21.77	29.230	
5,000.0	4,989.8	4,955.2	4,945.4	12.2	12.1	161.28	320.6	-208.1	649.8	627.6	22.23	29.229	
5,100.0	5,089.6	5,054.3	5,044.2	12.5	12.4	161.35	326.6	-211.6	663.2	640.5	22.69	29.228	

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 #11E-1403A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Reference Site:	S11-T10N-R58W	**MD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S11-T10N-R58W - Razor #11E-0201A - HZ - Plan #1

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.4	5,153.4	5,143.1	12.8	12.6	161.43	332.5	-215.0	676.7	653.5	23.15	29.227	
5,300.0	5,289.1	5,252.5	5,241.9	13.0	12.9	161.50	338.5	-218.5	690.1	666.5	23.61	29.226	
5,400.0	5,388.9	5,351.5	5,340.8	13.3	13.1	161.57	344.5	-222.0	703.5	679.4	24.07	29.225	
5,439.0	5,427.8	5,390.2	5,379.3	13.4	13.2	161.59	346.8	-223.3	708.7	684.5	24.25	29.225	
5,450.0	5,438.7	5,401.1	5,390.2	13.4	13.2	161.55	347.5	-223.7	710.3	686.1	24.27	29.270	
5,500.0	5,488.2	5,443.1	5,432.1	13.6	13.4	161.28	350.0	-225.2	720.3	696.1	24.22	29.739	
5,550.0	5,536.8	5,450.0	5,439.0	13.8	13.4	160.70	350.6	-225.5	736.3	712.4	23.93	30.770	
5,600.0	5,584.1	5,481.8	5,470.6	14.0	13.5	160.03	353.9	-227.4	757.6	734.1	23.54	32.184	
5,650.0	5,629.6	5,500.0	5,488.5	14.3	13.5	158.97	356.6	-229.0	784.7	761.7	22.99	34.124	
5,700.0	5,672.9	5,500.0	5,488.5	14.7	13.5	157.23	356.6	-229.0	816.8	794.5	22.35	36.553	
5,750.0	5,713.6	5,527.4	5,515.2	15.1	13.6	155.40	361.7	-231.9	852.7	830.9	21.74	39.227	
5,800.0	5,751.4	5,550.0	5,537.0	15.5	13.7	152.86	366.8	-234.9	892.6	871.3	21.23	42.039	
5,850.0	5,785.8	5,550.0	5,537.0	16.0	13.7	148.49	366.8	-234.9	935.1	913.9	21.16	44.191	
5,900.0	5,816.6	5,550.0	5,537.0	16.5	13.7	141.91	366.8	-234.9	980.2	958.2	21.99	44.578	
5,950.0	5,843.5	5,550.0	5,537.0	17.1	13.7	131.61	366.8	-234.9	1,027.1	1,002.8	24.34	42.195	
6,000.0	5,866.2	5,550.0	5,537.0	17.7	13.7	115.25	366.8	-234.9	1,075.3	1,046.9	28.38	37.890	
6,050.0	5,884.6	5,550.0	5,537.0	18.4	13.7	91.73	366.8	-234.9	1,124.0	1,092.3	31.71	35.445	
6,100.0	5,898.4	5,550.0	5,537.0	19.1	13.7	66.64	366.8	-234.9	1,172.9	1,142.7	30.25	38.778	
6,150.0	5,907.5	5,550.0	5,537.0	19.8	13.7	47.68	366.8	-234.9	1,221.5	1,196.0	25.51	47.883	
6,200.0	5,911.9	5,550.0	5,537.0	20.5	13.7	35.51	366.8	-234.9	1,269.4	1,248.4	21.03	60.351	
6,220.8	5,912.3	5,550.0	5,537.0	20.8	13.7	31.87	366.8	-234.9	1,289.1	1,269.5	19.54	65.958	
6,229.1	5,912.3	5,550.0	5,537.0	21.0	13.7	32.44	366.8	-234.9	1,296.9	1,277.0	19.86	65.286	
6,300.0	5,912.3	5,550.0	5,537.0	22.0	13.7	32.44	366.8	-234.9	1,363.7	1,343.2	20.48	66.588	
6,400.0	5,912.3	5,550.0	5,537.0	23.6	13.7	32.44	366.8	-234.9	1,458.6	1,437.1	21.44	68.015	
6,500.0	5,912.3	5,550.0	5,537.0	25.2	13.7	32.44	366.8	-234.9	1,554.1	1,531.7	22.45	69.239	
6,600.0	5,912.3	5,550.0	5,537.0	26.9	13.7	32.44	366.8	-234.9	1,650.2	1,626.7	23.48	70.294	
6,700.0	5,912.3	5,529.6	5,517.4	28.6	13.6	30.84	362.1	-232.2	1,746.2	1,722.5	23.64	73.856	
6,800.0	5,912.3	5,524.7	5,512.6	30.3	13.6	30.48	361.1	-231.6	1,842.8	1,818.3	24.48	75.293	
6,900.0	5,912.3	5,520.1	5,508.1	32.0	13.6	30.15	360.2	-231.1	1,939.7	1,914.4	25.33	76.583	
7,000.0	5,912.3	5,500.0	5,488.5	33.8	13.5	28.76	356.6	-229.0	2,037.2	2,011.7	25.53	79.781	
7,100.0	5,912.3	5,500.0	5,488.5	35.6	13.5	28.76	356.6	-229.0	2,134.5	2,107.9	26.58	80.317	
7,200.0	5,912.3	5,500.0	5,488.5	37.4	13.5	28.76	356.6	-229.0	2,232.0	2,204.4	27.63	80.794	
7,300.0	5,912.3	5,500.0	5,488.5	39.2	13.5	28.76	356.6	-229.0	2,329.7	2,301.0	28.68	81.222	
7,400.0	5,912.3	5,500.0	5,488.5	41.0	13.5	28.76	356.6	-229.0	2,427.6	2,397.8	29.79	81.504	
7,500.0	5,912.3	5,500.0	5,488.5	42.9	13.5	28.76	356.6	-229.0	2,525.7	2,494.8	30.89	81.753	
7,600.0	5,912.3	5,500.0	5,488.5	44.7	13.5	28.76	356.6	-229.0	2,623.9	2,591.9	32.01	81.977	
7,700.0	5,912.3	5,500.0	5,488.5	46.5	13.5	28.76	356.6	-229.0	2,722.3	2,689.1	33.13	82.178	
7,800.0	5,912.2	5,500.0	5,488.5	48.4	13.5	28.76	356.6	-229.0	2,820.7	2,786.5	34.25	82.361	
7,900.0	5,912.2	5,500.0	5,488.5	50.2	13.5	28.76	356.6	-229.0	2,919.3	2,883.9	35.37	82.527	
8,000.0	5,912.2	5,500.0	5,488.5	52.1	13.5	28.76	356.6	-229.0	3,018.0	2,981.5	36.50	82.679	
8,100.0	5,912.2	5,500.0	5,488.5	54.0	13.5	28.76	356.6	-229.0	3,116.7	3,079.1	37.63	82.818	
8,200.0	5,912.2	5,500.0	5,488.5	55.8	13.5	28.76	356.6	-229.0	3,215.5	3,176.8	38.77	82.946	
8,300.0	5,912.2	5,500.0	5,488.5	57.7	13.5	28.76	356.6	-229.0	3,314.4	3,274.5	39.90	83.063	
8,400.0	5,912.2	5,477.6	5,466.4	59.6	13.5	27.36	353.4	-227.1	3,412.9	3,373.2	39.72	85.917	
8,500.0	5,912.2	5,475.8	5,464.6	61.5	13.5	27.26	353.2	-227.0	3,511.8	3,471.1	40.73	86.219	
8,600.0	5,912.2	5,474.1	5,462.9	63.3	13.4	27.16	353.0	-226.9	3,610.8	3,569.1	41.74	86.503	
8,700.0	5,912.2	5,472.5	5,461.3	65.2	13.4	27.06	352.8	-226.8	3,709.9	3,667.1	42.76	86.769	
8,800.0	5,912.2	5,450.0	5,439.0	67.1	13.4	25.83	350.6	-225.5	3,809.4	3,766.8	42.60	89.423	
8,900.0	5,912.2	5,450.0	5,439.0	69.0	13.4	25.83	350.6	-225.5	3,908.4	3,864.8	43.68	89.475	
9,000.0	5,912.2	5,450.0	5,439.0	70.9	13.4	25.83	350.6	-225.5	4,007.6	3,962.8	44.77	89.524	
9,100.0	5,912.2	5,450.0	5,439.0	72.8	13.4	25.83	350.6	-225.5	4,106.7	4,060.9	45.85	89.569	
9,200.0	5,912.2	5,450.0	5,439.0	74.7	13.4	25.83	350.6	-225.5	4,205.9	4,159.0	46.94	89.611	

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 #11E-1403A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Reference Site:	S11-T10N-R58W	**MD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S11-T10N-R58W - Razor #11E-0201A - HZ - Plan #1

Survey Program: 0-ISCWSA MWD

Offset Site Error: 0.0 usft

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
9,300.0	5,912.2	5,450.0	5,439.0	76.6	13.4	25.83	350.6	-225.5	4,305.1	4,257.1	48.02	89.651	
9,400.0	5,912.2	5,450.0	5,439.0	78.5	13.4	25.83	350.6	-225.5	4,404.4	4,355.3	49.11	89.688	
9,500.0	5,912.2	5,450.0	5,439.0	80.4	13.4	25.83	350.6	-225.5	4,503.7	4,453.5	50.20	89.723	
9,600.0	5,912.2	5,450.0	5,439.0	82.3	13.4	25.83	350.6	-225.5	4,603.0	4,551.8	51.28	89.756	
9,700.0	5,912.2	5,450.0	5,439.0	84.1	13.4	25.83	350.6	-225.5	4,702.4	4,650.0	52.37	89.788	
9,800.0	5,912.2	5,450.0	5,439.0	86.0	13.4	25.83	350.6	-225.5	4,801.8	4,748.3	53.46	89.817	
9,900.0	5,912.2	5,450.0	5,439.0	87.9	13.4	25.83	350.6	-225.5	4,901.2	4,846.6	54.55	89.845	
10,000.0	5,912.2	5,450.0	5,439.0	89.9	13.4	25.83	350.6	-225.5	5,000.6	4,945.0	55.64	89.872	
10,100.0	5,912.1	5,450.0	5,439.0	91.8	13.4	25.83	350.6	-225.5	5,100.1	5,043.4	56.73	89.897	
10,200.0	5,912.1	5,450.0	5,439.0	93.7	13.4	25.83	350.6	-225.5	5,199.6	5,141.7	57.82	89.921	
10,300.0	5,912.1	5,450.0	5,439.0	95.6	13.4	25.83	350.6	-225.5	5,299.1	5,240.1	58.92	89.943	
10,400.0	5,912.1	5,450.0	5,439.0	97.5	13.4	25.83	350.6	-225.5	5,398.6	5,338.6	60.01	89.965	
10,500.0	5,912.1	5,450.0	5,439.0	99.4	13.4	25.83	350.6	-225.5	5,498.1	5,437.0	61.10	89.986	
10,600.0	5,912.1	5,450.0	5,439.0	101.3	13.4	25.83	350.6	-225.5	5,597.7	5,535.5	62.19	90.005	
10,700.0	5,912.1	5,450.0	5,439.0	103.2	13.4	25.83	350.6	-225.5	5,697.2	5,633.9	63.29	90.024	
10,800.0	5,912.1	5,450.0	5,439.0	105.1	13.4	25.83	350.6	-225.5	5,796.8	5,732.4	64.38	90.042	
10,900.0	5,912.1	5,450.0	5,439.0	107.0	13.4	25.83	350.6	-225.5	5,896.4	5,830.9	65.47	90.060	
11,000.0	5,912.1	5,450.0	5,439.0	108.9	13.4	25.83	350.6	-225.5	5,996.0	5,929.4	66.57	90.076	
11,100.0	5,912.1	5,450.0	5,439.0	110.8	13.4	25.83	350.6	-225.5	6,095.6	6,028.0	67.66	90.092	
11,200.0	5,912.1	5,450.0	5,439.0	112.7	13.4	25.83	350.6	-225.5	6,195.3	6,126.5	68.75	90.107	
11,300.0	5,912.1	5,450.0	5,439.0	114.6	13.4	25.83	350.6	-225.5	6,294.9	6,225.1	69.85	90.122	
11,400.0	5,912.1	5,450.0	5,439.0	116.5	13.4	25.83	350.6	-225.5	6,394.6	6,323.6	70.94	90.136	
11,500.0	5,912.1	5,450.0	5,439.0	118.5	13.4	25.83	350.6	-225.5	6,494.2	6,422.2	72.04	90.149	
11,600.0	5,912.1	5,450.0	5,439.0	120.4	13.4	25.83	350.6	-225.5	6,593.9	6,520.8	73.13	90.163	
11,700.0	5,912.1	5,443.9	5,432.9	122.3	13.4	25.52	350.1	-225.2	6,693.6	6,619.8	73.72	90.794	
11,800.0	5,912.1	5,438.0	5,427.0	124.2	13.3	25.23	349.7	-225.0	6,793.3	6,718.9	74.32	91.402	
11,900.0	5,912.1	5,438.0	5,427.0	126.1	13.3	25.23	349.7	-225.0	6,893.0	6,817.6	75.41	91.411	
12,000.0	5,912.1	5,438.0	5,427.0	128.0	13.3	25.23	349.7	-225.0	6,992.7	6,916.2	76.49	91.421	
12,100.0	5,912.1	5,438.0	5,427.0	129.9	13.3	25.23	349.7	-225.0	7,092.4	7,014.8	77.57	91.430	
12,200.0	5,912.1	5,438.0	5,427.0	131.8	13.3	25.23	349.7	-225.0	7,192.1	7,113.4	78.66	91.438	
12,300.0	5,912.1	5,438.0	5,427.0	133.7	13.3	25.23	349.7	-225.0	7,291.8	7,212.1	79.74	91.447	
12,400.0	5,912.0	5,438.0	5,427.0	135.7	13.3	25.23	349.7	-225.0	7,391.5	7,310.7	80.82	91.455	
12,500.0	5,912.0	5,438.0	5,427.0	137.6	13.3	25.23	349.7	-225.0	7,491.3	7,409.4	81.91	91.462	
12,600.0	5,912.0	5,438.0	5,427.0	139.5	13.3	25.23	349.7	-225.0	7,591.0	7,508.0	82.99	91.470	
12,700.0	5,912.0	5,438.0	5,427.0	141.4	13.3	25.23	349.7	-225.0	7,690.8	7,606.7	84.07	91.477	
12,800.0	5,912.0	5,438.0	5,427.0	143.3	13.3	25.23	349.7	-225.0	7,790.5	7,705.4	85.16	91.484	
12,900.0	5,912.0	5,438.0	5,427.0	145.2	13.3	25.23	349.7	-225.0	7,890.3	7,804.1	86.24	91.491	
13,000.0	5,912.0	5,432.8	5,421.9	147.1	13.3	24.98	349.4	-224.8	7,990.1	7,903.2	86.85	92.001	
13,100.0	5,912.0	5,426.8	5,415.8	149.1	13.3	24.69	349.0	-224.6	8,089.9	8,002.5	87.37	92.590	
13,200.0	5,912.0	5,420.8	5,409.8	151.0	13.3	24.41	348.7	-224.4	8,189.6	8,101.7	87.90	93.173	
13,300.0	5,912.0	5,414.7	5,403.8	152.9	13.3	24.13	348.3	-224.2	8,289.4	8,201.0	88.42	93.748	
13,400.0	5,912.0	5,408.7	5,397.8	154.8	13.3	23.86	347.9	-224.0	8,389.2	8,300.2	88.95	94.317	
13,470.1	5,912.0	5,404.5	5,393.6	156.1	13.3	23.68	347.7	-223.8	8,459.1	8,369.8	89.31	94.711	
13,471.0	5,912.0	5,404.4	5,393.5	156.2	13.3	23.67	347.7	-223.8	8,460.0	8,370.7	89.32	94.719	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #11E-1403A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Reference Site:	S11-T10N-R58W	**MD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S11-T10N-R58W - Razor #11E-0202B - HZ - Plan #1

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-23.80	74.9	-33.0	81.9				
100.0	100.0	100.0	100.0	0.1	0.1	-23.80	74.9	-33.0	81.9	81.7	0.19	437.812	
200.0	200.0	200.0	200.0	0.3	0.3	-23.80	74.9	-33.0	81.9	81.2	0.64	128.623	
300.0	300.0	300.0	300.0	0.5	0.5	-23.80	74.9	-33.0	81.9	80.8	1.09	75.385	
400.0	400.0	400.0	400.0	0.8	0.8	-23.80	74.9	-33.0	81.9	80.3	1.54	53.317	
500.0	500.0	500.0	500.0	1.0	1.0	-23.80	74.9	-33.0	81.9	79.9	1.99	41.243	
600.0	600.0	600.0	600.0	1.2	1.2	-23.80	74.9	-33.0	81.9	79.4	2.43	33.628	
700.0	700.0	700.0	700.0	1.4	1.4	-23.80	74.9	-33.0	81.9	79.0	2.88	28.387	CC, ES
800.0	800.0	797.1	797.1	1.6	1.7	156.97	76.5	-33.6	85.2	81.9	3.30	25.794	
900.0	899.8	893.6	893.4	1.8	1.9	158.31	81.1	-35.2	95.1	91.4	3.71	25.640	SF
1,000.0	999.6	992.4	992.0	2.0	2.1	159.85	87.6	-37.4	108.5	104.4	4.12	26.326	
1,100.0	1,099.3	1,091.5	1,090.8	2.2	2.3	161.05	94.1	-39.7	122.0	117.5	4.54	26.879	
1,200.0	1,199.1	1,190.5	1,189.6	2.5	2.6	162.01	100.7	-41.9	135.6	130.6	4.97	27.310	
1,300.0	1,298.9	1,289.6	1,288.5	2.7	2.8	162.80	107.2	-44.2	149.2	143.8	5.40	27.649	
1,400.0	1,398.6	1,388.6	1,387.3	2.9	3.1	163.46	113.7	-46.4	162.8	157.0	5.83	27.922	
1,500.0	1,498.4	1,487.7	1,486.1	3.2	3.3	164.01	120.3	-48.7	176.4	170.2	6.27	28.145	
1,600.0	1,598.1	1,586.7	1,584.9	3.4	3.6	164.48	126.8	-50.9	190.1	183.4	6.71	28.329	
1,700.0	1,697.9	1,685.8	1,683.7	3.6	3.8	164.90	133.3	-53.2	203.8	196.6	7.15	28.484	
1,800.0	1,797.6	1,784.8	1,782.5	3.9	4.0	165.25	139.9	-55.4	217.4	209.8	7.60	28.614	
1,900.0	1,897.4	1,883.9	1,881.3	4.2	4.3	165.57	146.4	-57.7	231.1	223.1	8.05	28.726	
2,000.0	1,997.2	1,982.9	1,980.1	4.4	4.5	165.85	152.9	-59.9	244.8	236.3	8.49	28.823	
2,100.0	2,096.9	2,082.0	2,078.9	4.7	4.8	166.10	159.5	-62.2	258.5	249.5	8.94	28.907	
2,200.0	2,196.7	2,181.0	2,177.8	4.9	5.0	166.33	166.0	-64.4	272.2	262.8	9.39	28.980	
2,300.0	2,296.4	2,280.1	2,276.6	5.2	5.3	166.53	172.5	-66.7	285.9	276.0	9.84	29.045	
2,400.0	2,396.2	2,379.1	2,375.4	5.4	5.6	166.72	179.1	-68.9	299.6	289.3	10.29	29.103	
2,500.0	2,495.9	2,478.2	2,474.2	5.7	5.8	166.89	185.6	-71.2	313.3	302.5	10.75	29.154	
2,600.0	2,595.7	2,577.3	2,573.0	5.9	6.1	167.05	192.1	-73.4	327.0	315.8	11.20	29.200	
2,700.0	2,695.4	2,676.3	2,671.8	6.2	6.3	167.19	198.7	-75.7	340.7	329.0	11.65	29.241	
2,800.0	2,795.2	2,775.4	2,770.6	6.5	6.6	167.32	205.2	-78.0	354.4	342.3	12.10	29.279	
2,900.0	2,895.0	2,874.4	2,869.4	6.7	6.8	167.44	211.7	-80.2	368.1	355.5	12.56	29.313	
3,000.0	2,994.7	2,973.5	2,968.2	7.0	7.1	167.56	218.2	-82.5	381.8	368.8	13.01	29.344	
3,100.0	3,094.5	3,072.5	3,067.1	7.2	7.3	167.66	224.8	-84.7	395.5	382.1	13.47	29.373	
3,200.0	3,194.2	3,171.6	3,165.9	7.5	7.6	167.76	231.3	-87.0	409.2	395.3	13.92	29.399	
3,300.0	3,294.0	3,270.6	3,264.7	7.8	7.8	167.85	237.8	-89.2	423.0	408.6	14.38	29.423	
3,400.0	3,393.7	3,369.7	3,363.5	8.0	8.1	167.94	244.4	-91.5	436.7	421.8	14.83	29.445	
3,500.0	3,493.5	3,468.7	3,462.3	8.3	8.3	168.02	250.9	-93.7	450.4	435.1	15.29	29.466	
3,600.0	3,593.3	3,567.8	3,561.1	8.5	8.6	168.09	257.4	-96.0	464.1	448.4	15.74	29.485	
3,700.0	3,693.0	3,666.8	3,659.9	8.8	8.8	168.17	264.0	-98.2	477.8	461.6	16.20	29.502	
3,800.0	3,792.8	3,765.9	3,758.7	9.1	9.1	168.23	270.5	-100.5	491.5	474.9	16.65	29.519	
3,900.0	3,892.5	3,864.9	3,857.5	9.3	9.3	168.30	277.0	-102.7	505.3	488.2	17.11	29.534	
4,000.0	3,992.3	3,964.0	3,956.4	9.6	9.6	168.36	283.6	-105.0	519.0	501.4	17.56	29.549	
4,100.0	4,092.0	4,063.0	4,055.2	9.9	9.9	168.42	290.1	-107.2	532.7	514.7	18.02	29.562	
4,200.0	4,191.8	4,162.1	4,154.0	10.1	10.1	168.47	296.6	-109.5	546.4	528.0	18.48	29.575	
4,300.0	4,291.5	4,261.1	4,252.8	10.4	10.4	168.52	303.2	-111.7	560.2	541.2	18.93	29.587	
4,400.0	4,391.3	4,360.2	4,351.6	10.6	10.6	168.57	309.7	-114.0	573.9	554.5	19.39	29.599	
4,500.0	4,491.1	4,459.2	4,450.4	10.9	10.9	168.62	316.2	-116.2	587.6	567.8	19.85	29.609	
4,600.0	4,590.8	4,558.3	4,549.2	11.2	11.1	168.66	322.8	-118.5	601.3	581.0	20.30	29.619	
4,700.0	4,690.6	4,657.4	4,648.0	11.4	11.4	168.71	329.3	-120.7	615.1	594.3	20.76	29.629	
4,800.0	4,790.3	4,756.4	4,746.8	11.7	11.6	168.75	335.8	-123.0	628.8	607.6	21.22	29.638	
4,900.0	4,890.1	4,855.5	4,845.7	12.0	11.9	168.79	342.4	-125.2	642.5	620.8	21.67	29.647	
5,000.0	4,989.8	4,954.5	4,944.5	12.2	12.1	168.83	348.9	-127.5	656.2	634.1	22.13	29.655	
5,100.0	5,089.6	5,053.6	5,043.3	12.5	12.4	168.86	355.4	-129.7	670.0	647.4	22.59	29.662	

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 #11E-1403A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Reference Site:	S11-T10N-R58W	**MD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S11-T10N-R58W - Razor #11E-0202B - HZ - Plan #1

Survey Program: 0-ISCWSA MWD

Offset Site Error: 0.0 usft

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.4	5,152.6	5,142.1	12.8	12.6	168.90	362.0	-132.0	683.7	660.6	23.04	29.670	
5,300.0	5,289.1	5,251.7	5,240.9	13.0	12.9	168.93	368.5	-134.2	697.4	673.9	23.50	29.677	
5,400.0	5,388.9	5,350.7	5,339.7	13.3	13.2	168.96	375.0	-136.5	711.1	687.2	23.96	29.684	
5,439.0	5,427.8	5,389.4	5,378.3	13.4	13.3	168.97	377.6	-137.4	716.5	692.4	24.14	29.686	
5,450.0	5,438.7	5,400.2	5,389.1	13.4	13.3	168.95	378.3	-137.6	718.1	694.0	24.15	29.736	
5,500.0	5,488.2	5,449.2	5,437.9	13.6	13.4	168.79	381.5	-138.7	728.3	704.2	24.09	30.227	
5,550.0	5,536.8	5,496.9	5,485.5	13.8	13.5	168.60	384.7	-139.8	743.1	719.2	23.84	31.166	
5,600.0	5,584.1	5,540.0	5,528.5	14.0	13.6	168.34	387.5	-140.8	762.3	738.9	23.39	32.588	
5,650.0	5,629.6	5,550.0	5,538.5	14.3	13.7	167.75	388.3	-141.1	786.7	764.0	22.70	34.655	
5,700.0	5,672.9	5,574.8	5,563.1	14.7	13.7	167.07	390.9	-142.0	816.1	794.2	21.89	37.283	
5,750.0	5,713.6	5,600.0	5,588.0	15.1	13.8	166.14	394.7	-143.3	850.6	829.6	20.96	40.583	
5,800.0	5,751.4	5,600.0	5,588.0	15.5	13.8	164.49	394.7	-143.3	888.7	868.8	19.95	44.547	
5,850.0	5,785.8	5,600.0	5,588.0	16.0	13.8	162.05	394.7	-143.3	930.6	911.5	19.05	48.860	
5,900.0	5,816.6	5,618.6	5,606.3	16.5	13.9	159.01	398.3	-144.5	974.9	956.5	18.43	52.887	
5,950.0	5,843.5	5,624.6	5,612.1	17.1	13.9	153.59	399.5	-144.9	1,021.5	1,002.8	18.71	54.584	
6,000.0	5,866.2	5,628.7	5,616.1	17.7	13.9	143.75	400.4	-145.3	1,069.6	1,048.5	21.08	50.749	
6,050.0	5,884.6	5,631.1	5,618.4	18.4	13.9	123.46	401.0	-145.4	1,118.7	1,091.3	27.40	40.830	
6,100.0	5,898.4	5,631.8	5,619.1	19.1	13.9	84.80	401.1	-145.5	1,168.2	1,135.4	32.86	35.557	
6,150.0	5,907.5	5,631.1	5,618.4	19.8	13.9	48.47	401.0	-145.4	1,217.8	1,191.8	26.00	46.836	
6,200.0	5,911.9	5,629.0	5,616.3	20.5	13.9	30.22	400.5	-145.3	1,266.9	1,248.0	18.84	67.235	
6,220.8	5,912.3	5,627.7	5,615.1	20.8	13.9	25.76	400.2	-145.2	1,287.1	1,270.2	16.88	76.256	
6,229.1	5,912.3	5,627.2	5,614.6	21.0	13.9	26.55	400.1	-145.1	1,295.1	1,277.8	17.30	74.854	
6,300.0	5,912.3	5,622.7	5,610.3	22.0	13.9	26.17	399.1	-144.8	1,363.7	1,346.0	17.66	77.198	
6,400.0	5,912.3	5,600.0	5,588.0	23.6	13.8	24.37	394.7	-143.3	1,461.1	1,443.5	17.60	83.006	
6,500.0	5,912.3	5,600.0	5,588.0	25.2	13.8	24.37	394.7	-143.3	1,558.3	1,539.8	18.46	84.425	
6,600.0	5,912.3	5,600.0	5,588.0	26.9	13.8	24.37	394.7	-143.3	1,655.8	1,636.5	19.34	85.615	
6,700.0	5,912.3	5,600.0	5,588.0	28.6	13.8	24.37	394.7	-143.3	1,753.6	1,733.4	20.24	86.623	
6,800.0	5,912.3	5,600.0	5,588.0	30.3	13.8	24.37	394.7	-143.3	1,851.6	1,830.5	21.17	87.482	
6,900.0	5,912.3	5,600.0	5,588.0	32.0	13.8	24.37	394.7	-143.3	1,949.9	1,927.8	22.10	88.220	
7,000.0	5,912.3	5,600.0	5,588.0	33.8	13.8	24.37	394.7	-143.3	2,048.3	2,025.2	23.05	88.859	
7,100.0	5,912.3	5,600.0	5,588.0	35.6	13.8	24.37	394.7	-143.3	2,146.8	2,122.8	24.01	89.415	
7,200.0	5,912.3	5,600.0	5,588.0	37.4	13.8	24.37	394.7	-143.3	2,245.5	2,220.5	25.01	89.784	
7,300.0	5,912.3	5,600.0	5,588.0	39.2	13.8	24.37	394.7	-143.3	2,344.3	2,318.2	26.02	90.104	
7,400.0	5,912.3	5,600.0	5,588.0	41.0	13.8	24.37	394.7	-143.3	2,443.2	2,416.1	27.03	90.383	
7,500.0	5,912.3	5,577.6	5,565.9	42.9	13.7	22.82	391.3	-142.1	2,541.6	2,514.7	26.89	94.510	
7,600.0	5,912.3	5,575.3	5,563.6	44.7	13.7	22.67	391.0	-142.0	2,640.5	2,612.7	27.77	95.075	
7,700.0	5,912.3	5,573.2	5,561.5	46.5	13.7	22.53	390.7	-141.9	2,739.5	2,710.8	28.66	95.587	
7,800.0	5,912.2	5,571.1	5,559.5	48.4	13.7	22.41	390.4	-141.8	2,838.6	2,809.0	29.55	96.051	
7,900.0	5,912.2	5,550.0	5,538.5	50.2	13.7	21.16	388.3	-141.1	2,938.1	2,908.6	29.53	99.488	
8,000.0	5,912.2	5,550.0	5,538.5	52.1	13.7	21.16	388.3	-141.1	3,037.2	3,006.7	30.50	99.563	
8,100.0	5,912.2	5,550.0	5,538.5	54.0	13.7	21.16	388.3	-141.1	3,136.3	3,104.9	31.48	99.629	
8,200.0	5,912.2	5,550.0	5,538.5	55.8	13.7	21.16	388.3	-141.1	3,235.5	3,203.1	32.46	99.687	
8,300.0	5,912.2	5,550.0	5,538.5	57.7	13.7	21.16	388.3	-141.1	3,334.8	3,301.4	33.44	99.736	
8,400.0	5,912.2	5,550.0	5,538.5	59.6	13.7	21.16	388.3	-141.1	3,434.1	3,399.7	34.42	99.780	
8,500.0	5,912.2	5,550.0	5,538.5	61.5	13.7	21.16	388.3	-141.1	3,533.4	3,498.0	35.40	99.818	
8,600.0	5,912.2	5,550.0	5,538.5	63.3	13.7	21.16	388.3	-141.1	3,632.8	3,596.4	36.38	99.852	
8,700.0	5,912.2	5,550.0	5,538.5	65.2	13.7	21.16	388.3	-141.1	3,732.2	3,694.8	37.37	99.881	
8,800.0	5,912.2	5,550.0	5,538.5	67.1	13.7	21.16	388.3	-141.1	3,831.6	3,793.3	38.35	99.907	
8,900.0	5,912.2	5,550.0	5,538.5	69.0	13.7	21.16	388.3	-141.1	3,931.1	3,891.8	39.34	99.930	
9,000.0	5,912.2	5,550.0	5,538.5	70.9	13.7	21.16	388.3	-141.1	4,030.6	3,990.3	40.33	99.949	
9,100.0	5,912.2	5,550.0	5,538.5	72.8	13.7	21.16	388.3	-141.1	4,130.1	4,088.8	41.31	99.967	
9,200.0	5,912.2	5,550.0	5,538.5	74.7	13.7	21.16	388.3	-141.1	4,229.6	4,187.3	42.30	99.982	

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 #11E-1403A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Reference Site:	S11-T10N-R58W	**MD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S11-T10N-R58W - Razor #11E-0202B - HZ - Plan #1

Survey Program: 0-ISCWSA MWD

Offset Site Error: 0.0 usft

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
9,300.0	5,912.2	5,550.0	5,538.5	76.6	13.7	21.16	388.3	-141.1	4,329.2	4,285.9	43.29	99.996	
9,400.0	5,912.2	5,550.0	5,538.5	78.5	13.7	21.16	388.3	-141.1	4,428.8	4,384.5	44.28	100.008	
9,500.0	5,912.2	5,550.0	5,538.5	80.4	13.7	21.16	388.3	-141.1	4,528.4	4,483.1	45.28	100.018	
9,600.0	5,912.2	5,550.0	5,538.5	82.3	13.7	21.16	388.3	-141.1	4,628.0	4,581.7	46.27	100.027	
9,700.0	5,912.2	5,550.0	5,538.5	84.1	13.7	21.16	388.3	-141.1	4,727.6	4,680.4	47.26	100.035	
9,800.0	5,912.2	5,550.0	5,538.5	86.0	13.7	21.16	388.3	-141.1	4,827.3	4,779.0	48.25	100.042	
9,900.0	5,912.2	5,550.0	5,538.5	87.9	13.7	21.16	388.3	-141.1	4,926.9	4,877.7	49.25	100.049	
10,000.0	5,912.2	5,544.8	5,533.3	89.9	13.7	20.88	387.8	-140.9	5,026.6	4,976.7	49.89	100.747	
10,100.0	5,912.1	5,540.0	5,528.5	91.8	13.6	20.63	387.5	-140.8	5,126.3	5,075.7	50.57	101.376	
10,200.0	5,912.1	5,540.0	5,528.5	93.7	13.6	20.63	387.5	-140.8	5,226.0	5,174.4	51.55	101.375	
10,300.0	5,912.1	5,540.0	5,528.5	95.6	13.6	20.63	387.5	-140.8	5,325.7	5,273.1	52.53	101.374	
10,400.0	5,912.1	5,540.0	5,528.5	97.5	13.6	20.63	387.5	-140.8	5,425.4	5,371.9	53.52	101.373	
10,500.0	5,912.1	5,540.0	5,528.5	99.4	13.6	20.63	387.5	-140.8	5,525.1	5,470.6	54.50	101.371	
10,600.0	5,912.1	5,540.0	5,528.5	101.3	13.6	20.63	387.5	-140.8	5,624.8	5,569.3	55.49	101.369	
10,700.0	5,912.1	5,540.0	5,528.5	103.2	13.6	20.63	387.5	-140.8	5,724.6	5,668.1	56.47	101.366	
10,800.0	5,912.1	5,536.2	5,524.8	105.1	13.6	20.43	387.3	-140.7	5,824.3	5,767.1	57.19	101.842	
10,900.0	5,912.1	5,529.6	5,518.2	107.0	13.6	20.10	386.8	-140.6	5,924.1	5,866.3	57.71	102.657	
11,000.0	5,912.1	5,523.0	5,511.6	108.9	13.6	19.77	386.4	-140.4	6,023.8	5,965.6	58.23	103.452	
11,100.0	5,912.1	5,516.4	5,505.0	110.8	13.6	19.46	386.0	-140.3	6,123.6	6,064.8	58.75	104.228	
11,200.0	5,912.1	5,509.8	5,498.4	112.7	13.6	19.15	385.5	-140.1	6,223.3	6,164.0	59.28	104.986	
11,300.0	5,912.1	5,503.2	5,491.8	114.6	13.5	18.86	385.1	-140.0	6,323.1	6,263.2	59.81	105.725	
11,400.0	5,912.1	5,496.6	5,485.3	116.5	13.5	18.57	384.6	-139.8	6,422.8	6,362.5	60.34	106.446	
11,500.0	5,912.1	5,490.0	5,478.7	118.5	13.5	18.29	384.2	-139.7	6,522.6	6,461.7	60.87	107.149	
11,600.0	5,912.1	5,483.4	5,472.1	120.4	13.5	18.02	383.8	-139.5	6,622.3	6,560.9	61.41	107.836	
11,700.0	5,912.1	5,476.8	5,465.5	122.3	13.5	17.75	383.3	-139.4	6,722.1	6,660.1	61.95	108.505	
11,800.0	5,912.1	5,470.2	5,458.9	124.2	13.5	17.49	382.9	-139.2	6,821.8	6,759.3	62.49	109.158	
11,900.0	5,912.1	5,463.6	5,452.3	126.1	13.4	17.24	382.5	-139.1	6,921.6	6,858.5	63.04	109.795	
12,000.0	5,912.1	5,457.0	5,445.8	128.0	13.4	16.99	382.0	-138.9	7,021.3	6,957.8	63.59	110.416	
12,100.0	5,912.1	5,450.4	5,439.2	129.9	13.4	16.75	381.6	-138.8	7,121.1	7,057.0	64.14	111.022	
12,200.0	5,912.1	5,443.8	5,432.6	131.8	13.4	16.52	381.2	-138.6	7,220.9	7,156.2	64.70	111.613	
12,300.0	5,912.1	5,437.2	5,426.0	133.7	13.4	16.29	380.7	-138.5	7,320.6	7,255.4	65.25	112.189	
12,400.0	5,912.0	5,430.6	5,419.4	135.7	13.4	16.07	380.3	-138.3	7,420.4	7,354.6	65.81	112.751	
12,500.0	5,912.0	5,424.0	5,412.8	137.6	13.3	15.85	379.9	-138.2	7,520.1	7,453.8	66.37	113.299	
12,600.0	5,912.0	5,417.4	5,406.3	139.5	13.3	15.64	379.4	-138.0	7,619.9	7,553.0	66.94	113.834	
12,700.0	5,912.0	5,410.8	5,399.7	141.4	13.3	15.43	379.0	-137.9	7,719.7	7,652.2	67.51	114.355	
12,800.0	5,912.0	5,404.2	5,393.1	143.3	13.3	15.23	378.6	-137.7	7,819.4	7,751.4	68.08	114.863	
12,900.0	5,912.0	5,397.6	5,386.5	145.2	13.3	15.03	378.1	-137.6	7,919.2	7,850.5	68.65	115.359	
13,000.0	5,912.0	5,391.0	5,379.9	147.1	13.3	14.84	377.7	-137.4	8,019.0	7,949.7	69.22	115.842	
13,100.0	5,912.0	5,384.4	5,373.3	149.1	13.2	14.65	377.2	-137.3	8,118.7	8,048.9	69.80	116.314	
13,200.0	5,912.0	5,377.8	5,366.8	151.0	13.2	14.47	376.8	-137.1	8,218.5	8,148.1	70.38	116.773	
13,300.0	5,912.0	5,371.2	5,360.2	152.9	13.2	14.29	376.4	-137.0	8,318.2	8,247.3	70.96	117.222	
13,400.0	5,912.0	5,364.6	5,353.6	154.8	13.2	14.11	375.9	-136.8	8,418.0	8,346.5	71.55	117.659	
13,470.1	5,912.0	5,360.0	5,349.0	156.1	13.2	13.99	375.6	-136.7	8,487.9	8,416.0	71.96	117.959	
13,471.0	5,912.0	5,359.9	5,348.9	156.2	13.2	13.99	375.6	-136.7	8,488.9	8,416.9	71.96	117.968	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #11E-1403A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Reference Site:	S11-T10N-R58W	**MD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S11-T10N-R58W - Razor #11E-0203A - HZ - Plan #1

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	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	400.546	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	74.9	0.0	74.9	74.3	0.64	117.678	
300.0	300.0	300.0	300.0	0.5	0.5	0.00	74.9	0.0	74.9	73.8	1.09	68.970	
400.0	400.0	400.0	400.0	0.8	0.8	0.00	74.9	0.0	74.9	73.4	1.54	48.779	
500.0	500.0	500.0	500.0	1.0	1.0	0.00	74.9	0.0	74.9	72.9	1.99	37.733	
600.0	600.0	600.0	600.0	1.2	1.2	0.00	74.9	0.0	74.9	72.5	2.43	30.766	CC, ES
700.0	700.0	697.4	697.4	1.4	1.4	-0.11	76.6	-0.1	76.6	73.7	2.88	26.600	
800.0	800.0	794.5	794.3	1.6	1.7	179.84	81.5	-0.6	83.4	80.1	3.31	25.232	SF
900.0	899.8	893.6	893.2	1.8	1.9	179.50	88.4	-1.2	95.6	91.9	3.72	25.710	
1,000.0	999.6	992.6	992.0	2.0	2.1	179.25	95.2	-1.8	109.5	105.3	4.13	26.530	
1,100.0	1,099.3	1,091.6	1,090.8	2.2	2.4	179.06	102.1	-2.4	123.4	118.8	4.54	27.150	
1,200.0	1,199.1	1,190.7	1,189.5	2.5	2.6	178.91	109.0	-3.1	137.3	132.3	4.97	27.629	
1,300.0	1,298.9	1,289.7	1,288.3	2.7	2.8	178.78	115.9	-3.7	151.2	145.8	5.40	28.005	
1,400.0	1,398.6	1,388.7	1,387.1	2.9	3.1	178.68	122.8	-4.3	165.1	159.2	5.83	28.306	
1,500.0	1,498.4	1,487.7	1,485.9	3.2	3.3	178.59	129.6	-4.9	179.0	172.7	6.27	28.549	
1,600.0	1,598.1	1,586.8	1,584.7	3.4	3.6	178.52	136.5	-5.5	192.9	186.2	6.71	28.751	
1,700.0	1,697.9	1,685.8	1,683.5	3.6	3.8	178.45	143.4	-6.2	206.8	199.6	7.15	28.919	
1,800.0	1,797.6	1,784.8	1,782.3	3.9	4.1	178.39	150.3	-6.8	220.7	213.1	7.59	29.061	
1,900.0	1,897.4	1,883.9	1,881.0	4.2	4.3	178.34	157.2	-7.4	234.6	226.5	8.04	29.182	
2,000.0	1,997.2	1,982.9	1,979.8	4.4	4.6	178.30	164.0	-8.0	248.5	240.0	8.48	29.286	
2,100.0	2,096.9	2,081.9	2,078.6	4.7	4.8	178.26	170.9	-8.6	262.4	253.5	8.93	29.377	
2,200.0	2,196.7	2,180.9	2,177.4	4.9	5.1	178.22	177.8	-9.3	276.3	266.9	9.38	29.456	
2,300.0	2,296.4	2,280.0	2,276.2	5.2	5.3	178.19	184.7	-9.9	290.2	280.4	9.83	29.525	
2,400.0	2,396.2	2,379.0	2,375.0	5.4	5.6	178.16	191.6	-10.5	304.1	293.8	10.28	29.587	
2,500.0	2,495.9	2,478.0	2,473.8	5.7	5.8	178.14	198.4	-11.1	318.0	307.3	10.73	29.641	
2,600.0	2,595.7	2,577.1	2,572.6	5.9	6.1	178.11	205.3	-11.7	331.9	320.7	11.18	29.690	
2,700.0	2,695.4	2,676.1	2,671.3	6.2	6.3	178.09	212.2	-12.3	345.8	334.2	11.63	29.734	
2,800.0	2,795.2	2,775.1	2,770.1	6.5	6.6	178.07	219.1	-13.0	359.7	347.6	12.08	29.774	
2,900.0	2,895.0	2,874.1	2,868.9	6.7	6.9	178.05	226.0	-13.6	373.6	361.1	12.53	29.810	
3,000.0	2,994.7	2,973.2	2,967.7	7.0	7.1	178.03	232.8	-14.2	387.5	374.5	12.99	29.843	
3,100.0	3,094.5	3,072.2	3,066.5	7.2	7.4	178.01	239.7	-14.8	401.4	388.0	13.44	29.873	
3,200.0	3,194.2	3,171.2	3,165.3	7.5	7.6	178.00	246.6	-15.4	415.3	401.4	13.89	29.901	
3,300.0	3,294.0	3,270.2	3,264.1	7.8	7.9	177.98	253.5	-16.1	429.2	414.9	14.34	29.926	
3,400.0	3,393.7	3,369.3	3,362.9	8.0	8.1	177.97	260.4	-16.7	443.1	428.4	14.80	29.949	
3,500.0	3,493.5	3,468.3	3,461.6	8.3	8.4	177.96	267.2	-17.3	457.1	441.8	15.25	29.971	
3,600.0	3,593.3	3,567.3	3,560.4	8.5	8.6	177.95	274.1	-17.9	471.0	455.3	15.70	29.991	
3,700.0	3,693.0	3,666.4	3,659.2	8.8	8.9	177.93	281.0	-18.5	484.9	468.7	16.16	30.010	
3,800.0	3,792.8	3,765.4	3,758.0	9.1	9.1	177.92	287.9	-19.2	498.8	482.2	16.61	30.027	
3,900.0	3,892.5	3,864.4	3,856.8	9.3	9.4	177.91	294.8	-19.8	512.7	495.6	17.06	30.043	
4,000.0	3,992.3	3,963.4	3,955.6	9.6	9.6	177.90	301.6	-20.4	526.6	509.1	17.52	30.058	
4,100.0	4,092.0	4,062.5	4,054.4	9.9	9.9	177.89	308.5	-21.0	540.5	522.5	17.97	30.072	
4,200.0	4,191.8	4,161.5	4,153.2	10.1	10.1	177.89	315.4	-21.6	554.4	536.0	18.43	30.086	
4,300.0	4,291.5	4,260.5	4,251.9	10.4	10.4	177.88	322.3	-22.3	568.3	549.4	18.88	30.098	
4,400.0	4,391.3	4,359.6	4,350.7	10.6	10.6	177.87	329.2	-22.9	582.2	562.9	19.34	30.110	
4,500.0	4,491.1	4,458.6	4,449.5	10.9	10.9	177.86	336.0	-23.5	596.1	576.3	19.79	30.121	
4,600.0	4,590.8	4,557.6	4,548.3	11.2	11.2	177.85	342.9	-24.1	610.0	589.8	20.24	30.131	
4,700.0	4,690.6	4,656.6	4,647.1	11.4	11.4	177.85	349.8	-24.7	623.9	603.2	20.70	30.141	
4,800.0	4,790.3	4,755.7	4,745.9	11.7	11.7	177.84	356.7	-25.3	637.8	616.7	21.15	30.151	
4,900.0	4,890.1	4,854.7	4,844.7	12.0	11.9	177.84	363.6	-26.0	651.7	630.1	21.61	30.160	
5,000.0	4,989.8	4,953.7	4,943.5	12.2	12.2	177.83	370.4	-26.6	665.6	643.6	22.06	30.168	
5,100.0	5,089.6	5,052.8	5,042.2	12.5	12.4	177.82	377.3	-27.2	679.5	657.0	22.52	30.176	

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

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #11E-1403A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Reference Site:	S11-T10N-R58W	**MD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S11-T10N-R58W - Razor #11E-0203A - HZ - Plan #1

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.4	5,151.8	5,141.0	12.8	12.7	177.82	384.2	-27.8	693.4	670.5	22.97	30.184	
5,300.0	5,289.1	5,250.8	5,239.8	13.0	12.9	177.81	391.1	-28.4	707.3	683.9	23.43	30.191	
5,400.0	5,388.9	5,349.8	5,338.6	13.3	13.2	177.81	398.0	-29.1	721.2	697.4	23.88	30.198	
5,439.0	5,427.8	5,388.5	5,377.1	13.4	13.3	177.81	400.6	-29.3	726.7	702.6	24.06	30.201	
5,450.0	5,438.7	5,399.3	5,388.0	13.4	13.3	177.80	401.4	-29.4	728.3	704.2	24.07	30.253	
5,500.0	5,488.2	5,442.8	5,431.3	13.6	13.4	177.76	404.4	-29.6	738.7	714.7	23.99	30.788	
5,550.0	5,536.8	5,450.0	5,438.5	13.8	13.4	177.69	405.0	-29.7	755.1	731.5	23.63	31.956	
5,600.0	5,584.1	5,480.4	5,468.7	14.0	13.5	177.59	408.7	-30.0	777.2	754.1	23.13	33.607	
5,650.0	5,629.6	5,500.0	5,488.0	14.3	13.6	177.45	411.9	-30.3	805.1	782.7	22.40	35.935	
5,700.0	5,672.9	5,500.0	5,488.0	14.7	13.6	177.22	411.9	-30.3	838.1	816.7	21.46	39.060	
5,750.0	5,713.6	5,524.1	5,511.6	15.1	13.7	176.95	416.9	-30.8	875.1	854.7	20.40	42.908	
5,800.0	5,751.4	5,550.0	5,536.6	15.5	13.8	176.59	423.5	-31.4	916.3	897.2	19.18	47.772	
5,850.0	5,785.8	5,550.0	5,536.6	16.0	13.8	175.95	423.5	-31.4	959.9	942.1	17.80	53.940	
5,900.0	5,816.6	5,550.0	5,536.6	16.5	13.8	174.88	423.5	-31.4	1,006.1	989.8	16.35	61.552	
5,950.0	5,843.5	5,550.0	5,536.6	17.1	13.8	172.83	423.5	-31.4	1,054.1	1,039.2	14.97	70.435	
6,000.0	5,866.2	5,550.0	5,536.6	17.7	13.8	167.45	423.5	-31.4	1,103.4	1,089.0	14.38	76.712	
6,050.0	5,884.6	5,550.0	5,536.6	18.4	13.8	129.85	423.5	-31.4	1,153.2	1,127.3	25.87	44.574	
6,100.0	5,898.4	5,550.0	5,536.6	19.1	13.8	18.47	423.5	-31.4	1,203.2	1,189.0	14.13	85.159	
6,150.0	5,907.5	5,550.0	5,536.6	19.8	13.8	8.18	423.5	-31.4	1,252.8	1,242.8	10.00	125.308	
6,200.0	5,911.9	5,550.0	5,536.6	20.5	13.8	5.19	423.5	-31.4	1,301.7	1,292.9	8.72	149.217	
6,220.8	5,912.3	5,550.0	5,536.6	20.8	13.8	4.49	423.5	-31.4	1,321.7	1,313.2	8.50	155.578	
6,229.1	5,912.3	5,550.0	5,536.6	21.0	13.8	5.33	423.5	-31.4	1,329.7	1,321.0	8.70	152.750	
6,300.0	5,912.3	5,550.0	5,536.6	22.0	13.8	5.33	423.5	-31.4	1,397.8	1,388.7	9.09	153.724	
6,400.0	5,912.3	5,550.0	5,536.6	23.6	13.8	5.33	423.5	-31.4	1,494.3	1,484.6	9.68	154.345	
6,500.0	5,912.3	5,550.0	5,536.6	25.2	13.8	5.33	423.5	-31.4	1,591.3	1,581.0	10.30	154.432	
6,600.0	5,912.3	5,526.9	5,514.3	26.9	13.7	4.95	417.6	-30.8	1,687.9	1,677.0	10.87	155.332	
6,700.0	5,912.3	5,521.6	5,509.1	28.6	13.7	4.87	416.4	-30.7	1,785.2	1,773.7	11.51	155.057	
6,800.0	5,912.3	5,500.0	5,488.0	30.3	13.6	4.58	411.9	-30.3	1,883.0	1,870.9	12.13	155.278	
6,900.0	5,912.3	5,500.0	5,488.0	32.0	13.6	4.58	411.9	-30.3	1,980.6	1,967.8	12.81	154.555	
7,000.0	5,912.3	5,500.0	5,488.0	33.8	13.6	4.58	411.9	-30.3	2,078.3	2,064.8	13.51	153.825	
7,100.0	5,912.3	5,500.0	5,488.0	35.6	13.6	4.58	411.9	-30.3	2,176.3	2,162.1	14.21	153.106	
7,200.0	5,912.3	5,500.0	5,488.0	37.4	13.6	4.58	411.9	-30.3	2,274.5	2,259.5	14.92	152.409	
7,300.0	5,912.3	5,500.0	5,488.0	39.2	13.6	4.58	411.9	-30.3	2,372.8	2,357.1	15.64	151.740	
7,400.0	5,912.3	5,500.0	5,488.0	41.0	13.6	4.58	411.9	-30.3	2,471.2	2,454.9	16.35	151.103	
7,500.0	5,912.3	5,500.0	5,488.0	42.9	13.6	4.58	411.9	-30.3	2,569.8	2,552.7	17.08	150.498	
7,600.0	5,912.3	5,500.0	5,488.0	44.7	13.6	4.58	411.9	-30.3	2,668.5	2,650.7	17.80	149.925	
7,700.0	5,912.3	5,500.0	5,488.0	46.5	13.6	4.58	411.9	-30.3	2,767.2	2,748.7	18.52	149.383	
7,800.0	5,912.2	5,500.0	5,488.0	48.4	13.6	4.58	411.9	-30.3	2,866.1	2,846.8	19.25	148.871	
7,900.0	5,912.2	5,500.0	5,488.0	50.2	13.6	4.58	411.9	-30.3	2,965.0	2,945.0	19.98	148.387	
8,000.0	5,912.2	5,500.0	5,488.0	52.1	13.6	4.58	411.9	-30.3	3,064.0	3,043.3	20.71	147.930	
8,100.0	5,912.2	5,476.8	5,465.1	54.0	13.5	4.30	408.1	-30.0	3,162.5	3,141.1	21.37	148.015	
8,200.0	5,912.2	5,474.8	5,463.1	55.8	13.5	4.28	407.9	-29.9	3,261.5	3,239.4	22.09	147.633	
8,300.0	5,912.2	5,472.9	5,461.3	57.7	13.5	4.26	407.6	-29.9	3,360.5	3,337.7	22.82	147.270	
8,400.0	5,912.2	5,450.0	5,438.5	59.6	13.4	4.03	405.0	-29.7	3,460.1	3,436.7	23.49	147.326	
8,500.0	5,912.2	5,450.0	5,438.5	61.5	13.4	4.03	405.0	-29.7	3,559.2	3,535.0	24.22	146.956	
8,600.0	5,912.2	5,450.0	5,438.5	63.3	13.4	4.03	405.0	-29.7	3,658.3	3,633.4	24.95	146.605	
8,700.0	5,912.2	5,450.0	5,438.5	65.2	13.4	4.03	405.0	-29.7	3,757.5	3,731.8	25.69	146.273	
8,800.0	5,912.2	5,450.0	5,438.5	67.1	13.4	4.03	405.0	-29.7	3,856.7	3,830.3	26.42	145.957	
8,900.0	5,912.2	5,450.0	5,438.5	69.0	13.4	4.03	405.0	-29.7	3,956.0	3,928.8	27.16	145.657	
9,000.0	5,912.2	5,450.0	5,438.5	70.9	13.4	4.03	405.0	-29.7	4,055.3	4,027.4	27.90	145.372	
9,100.0	5,912.2	5,450.0	5,438.5	72.8	13.4	4.03	405.0	-29.7	4,154.6	4,126.0	28.63	145.100	
9,200.0	5,912.2	5,450.0	5,438.5	74.7	13.4	4.03	405.0	-29.7	4,254.0	4,224.6	29.37	144.841	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #11E-1403A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Reference Site:	S11-T10N-R58W	**MD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S11-T10N-R58W - Razor #11E-0203A - HZ - Plan #1

Survey Program: 0-ISCWSA MWD

Offset Site Error: 0.0 usft

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
9,300.0	5,912.2	5,450.0	5,438.5	76.6	13.4	4.03	405.0	-29.7	4,353.4	4,323.3	30.11	144.594	
9,400.0	5,912.2	5,450.0	5,438.5	78.5	13.4	4.03	405.0	-29.7	4,452.8	4,421.9	30.85	144.358	
9,500.0	5,912.2	5,450.0	5,438.5	80.4	13.4	4.03	405.0	-29.7	4,552.2	4,520.6	31.58	144.133	
9,600.0	5,912.2	5,450.0	5,438.5	82.3	13.4	4.03	405.0	-29.7	4,651.7	4,619.4	32.32	143.917	
9,700.0	5,912.2	5,450.0	5,438.5	84.1	13.4	4.03	405.0	-29.7	4,751.2	4,718.1	33.06	143.710	
9,800.0	5,912.2	5,450.0	5,438.5	86.0	13.4	4.03	405.0	-29.7	4,850.7	4,816.9	33.80	143.512	
9,900.0	5,912.2	5,450.0	5,438.5	87.9	13.4	4.03	405.0	-29.7	4,950.2	4,915.7	34.54	143.322	
10,000.0	5,912.2	5,450.0	5,438.5	89.9	13.4	4.03	405.0	-29.7	5,049.8	5,014.5	35.28	143.140	
10,100.0	5,912.1	5,450.0	5,438.5	91.8	13.4	4.03	405.0	-29.7	5,149.3	5,113.3	36.02	142.965	
10,200.0	5,912.1	5,450.0	5,438.5	93.7	13.4	4.03	405.0	-29.7	5,248.9	5,212.2	36.76	142.797	
10,300.0	5,912.1	5,450.0	5,438.5	95.6	13.4	4.03	405.0	-29.7	5,348.5	5,311.0	37.50	142.635	
10,400.0	5,912.1	5,450.0	5,438.5	97.5	13.4	4.03	405.0	-29.7	5,448.1	5,409.9	38.24	142.479	
10,500.0	5,912.1	5,450.0	5,438.5	99.4	13.4	4.03	405.0	-29.7	5,547.7	5,508.8	38.98	142.329	
10,600.0	5,912.1	5,450.0	5,438.5	101.3	13.4	4.03	405.0	-29.7	5,647.4	5,607.7	39.72	142.184	
10,700.0	5,912.1	5,450.0	5,438.5	103.2	13.4	4.03	405.0	-29.7	5,747.0	5,706.6	40.46	142.045	
10,800.0	5,912.1	5,450.0	5,438.5	105.1	13.4	4.03	405.0	-29.7	5,846.7	5,805.5	41.20	141.910	
10,900.0	5,912.1	5,444.8	5,433.3	107.0	13.4	3.98	404.6	-29.7	5,946.3	5,904.4	41.92	141.846	
11,000.0	5,912.1	5,444.1	5,432.6	108.9	13.4	3.97	404.5	-29.7	6,046.0	6,003.4	42.66	141.728	
11,100.0	5,912.1	5,439.0	5,427.5	110.8	13.4	3.93	404.2	-29.6	6,145.7	6,102.4	43.38	141.668	
11,200.0	5,912.1	5,439.0	5,427.5	112.7	13.4	3.93	404.2	-29.6	6,245.4	6,201.3	44.12	141.550	
11,300.0	5,912.1	5,439.0	5,427.5	114.6	13.4	3.93	404.2	-29.6	6,345.1	6,300.3	44.86	141.435	
11,400.0	5,912.1	5,439.0	5,427.5	116.5	13.4	3.93	404.2	-29.6	6,444.8	6,399.2	45.60	141.324	
11,500.0	5,912.1	5,439.0	5,427.5	118.5	13.4	3.93	404.2	-29.6	6,544.6	6,498.2	46.34	141.216	
11,600.0	5,912.1	5,439.0	5,427.5	120.4	13.4	3.93	404.2	-29.6	6,644.3	6,597.2	47.09	141.112	
11,700.0	5,912.1	5,439.0	5,427.5	122.3	13.4	3.93	404.2	-29.6	6,744.0	6,696.2	47.83	141.011	
11,800.0	5,912.1	5,439.0	5,427.5	124.2	13.4	3.93	404.2	-29.6	6,843.8	6,795.2	48.57	140.913	
11,900.0	5,912.1	5,439.0	5,427.5	126.1	13.4	3.93	404.2	-29.6	6,943.5	6,894.2	49.31	140.817	
12,000.0	5,912.1	5,434.0	5,422.5	128.0	13.4	3.88	403.8	-29.6	7,043.3	6,993.2	50.03	140.783	
12,100.0	5,912.1	5,427.0	5,415.6	129.9	13.4	3.82	403.3	-29.5	7,143.0	7,092.3	50.74	140.769	
12,200.0	5,912.1	5,420.1	5,408.6	131.8	13.4	3.77	402.8	-29.5	7,242.8	7,191.3	51.46	140.754	
12,300.0	5,912.1	5,413.1	5,401.7	133.7	13.3	3.71	402.4	-29.5	7,342.5	7,290.4	52.17	140.739	
12,400.0	5,912.0	5,406.1	5,394.8	135.7	13.3	3.66	401.9	-29.4	7,442.3	7,389.4	52.89	140.722	
12,500.0	5,912.0	5,399.2	5,387.8	137.6	13.3	3.60	401.4	-29.4	7,542.1	7,488.5	53.60	140.705	
12,600.0	5,912.0	5,392.2	5,380.9	139.5	13.3	3.55	400.9	-29.3	7,641.8	7,587.5	54.32	140.687	
12,700.0	5,912.0	5,385.3	5,374.0	141.4	13.3	3.50	400.4	-29.3	7,741.6	7,686.5	55.03	140.668	
12,800.0	5,912.0	5,378.3	5,367.0	143.3	13.3	3.45	399.9	-29.2	7,841.3	7,785.6	55.75	140.649	
12,900.0	5,912.0	5,371.4	5,360.1	145.2	13.2	3.41	399.5	-29.2	7,941.1	7,884.6	56.47	140.629	
13,000.0	5,912.0	5,364.4	5,353.2	147.1	13.2	3.36	399.0	-29.2	8,040.8	7,983.7	57.19	140.609	
13,100.0	5,912.0	5,357.5	5,346.2	149.1	13.2	3.31	398.5	-29.1	8,140.6	8,082.7	57.90	140.588	
13,200.0	5,912.0	5,350.5	5,339.3	151.0	13.2	3.27	398.0	-29.1	8,240.4	8,181.7	58.62	140.568	
13,300.0	5,912.0	5,343.6	5,332.3	152.9	13.2	3.23	397.5	-29.0	8,340.1	8,280.8	59.34	140.546	
13,400.0	5,912.0	5,336.6	5,325.4	154.8	13.1	3.18	397.0	-29.0	8,439.9	8,379.8	60.06	140.525	
13,470.1	5,912.0	5,331.8	5,320.6	156.1	13.1	3.15	396.7	-28.9	8,509.8	8,449.2	60.56	140.510	
13,471.0	5,912.0	5,331.7	5,320.5	156.2	13.1	3.15	396.7	-28.9	8,510.7	8,450.1	60.57	140.517	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #11E-1403A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Reference Site:	S11-T10N-R58W	**MD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S11-T10N-R58W - Razor #11E-0204B - HZ - Plan #1

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	23.52	75.9	33.0	82.8				
100.0	100.0	100.0	100.0	0.1	0.1	23.52	75.9	33.0	82.8	82.6	0.19	442.789	
200.0	200.0	200.0	200.0	0.3	0.3	23.52	75.9	33.0	82.8	82.2	0.64	130.085	
300.0	300.0	300.0	300.0	0.5	0.5	23.52	75.9	33.0	82.8	81.7	1.09	76.242	
400.0	400.0	400.0	400.0	0.8	0.8	23.52	75.9	33.0	82.8	81.3	1.54	53.923	
500.0	500.0	500.0	500.0	1.0	1.0	23.52	75.9	33.0	82.8	80.8	1.99	41.712	CC, ES
600.0	600.0	597.2	597.2	1.2	1.2	23.29	77.5	33.4	84.5	82.0	2.43	34.767	
700.0	700.0	694.2	694.1	1.4	1.4	22.65	82.4	34.4	89.4	86.6	2.88	31.073	
800.0	800.0	793.6	793.2	1.6	1.7	-158.22	89.2	35.8	97.9	94.6	3.31	29.592	
900.0	899.8	892.9	892.3	1.8	1.9	-159.78	95.9	37.2	109.7	106.0	3.72	29.515	SF
1,000.0	999.6	991.9	991.1	2.0	2.1	-161.36	102.7	38.5	123.1	119.0	4.13	29.842	
1,100.0	1,099.3	1,091.0	1,089.9	2.2	2.4	-162.64	109.5	39.9	136.7	132.1	4.55	30.066	
1,200.0	1,199.1	1,190.0	1,188.7	2.5	2.6	-163.68	116.2	41.3	150.3	145.3	4.97	30.223	
1,300.0	1,298.9	1,289.0	1,287.4	2.7	2.9	-164.56	123.0	42.7	163.9	158.5	5.40	30.335	
1,400.0	1,398.6	1,388.1	1,386.2	2.9	3.1	-165.29	129.8	44.1	177.6	171.8	5.84	30.416	
1,500.0	1,498.4	1,487.1	1,485.0	3.2	3.4	-165.92	136.5	45.5	191.3	185.0	6.28	30.473	
1,600.0	1,598.1	1,586.2	1,583.8	3.4	3.6	-166.47	143.3	46.9	205.0	198.3	6.72	30.516	
1,700.0	1,697.9	1,685.2	1,682.6	3.6	3.9	-166.95	150.1	48.3	218.7	211.6	7.16	30.547	
1,800.0	1,797.6	1,784.2	1,781.4	3.9	4.1	-167.37	156.8	49.7	232.5	224.9	7.61	30.569	
1,900.0	1,897.4	1,883.3	1,880.2	4.2	4.4	-167.75	163.6	51.0	246.2	238.2	8.05	30.585	
2,000.0	1,997.2	1,982.3	1,979.0	4.4	4.6	-168.08	170.4	52.4	260.0	251.5	8.50	30.596	
2,100.0	2,096.9	2,081.3	2,077.8	4.7	4.9	-168.39	177.2	53.8	273.8	264.8	8.95	30.604	
2,200.0	2,196.7	2,180.4	2,176.6	4.9	5.1	-168.66	183.9	55.2	287.6	278.2	9.39	30.609	
2,300.0	2,296.4	2,279.4	2,275.4	5.2	5.4	-168.91	190.7	56.6	301.3	291.5	9.84	30.612	
2,400.0	2,396.2	2,378.5	2,374.2	5.4	5.6	-169.13	197.5	58.0	315.1	304.8	10.29	30.613	
2,500.0	2,495.9	2,477.5	2,473.0	5.7	5.9	-169.34	204.2	59.4	328.9	318.2	10.74	30.612	
2,600.0	2,595.7	2,576.5	2,571.8	5.9	6.1	-169.53	211.0	60.8	342.7	331.5	11.20	30.611	
2,700.0	2,695.4	2,675.6	2,670.6	6.2	6.4	-169.71	217.8	62.2	356.5	344.9	11.65	30.609	
2,800.0	2,795.2	2,774.6	2,769.4	6.5	6.6	-169.87	224.5	63.5	370.3	358.2	12.10	30.607	
2,900.0	2,895.0	2,873.6	2,868.2	6.7	6.9	-170.02	231.3	64.9	384.1	371.6	12.55	30.604	
3,000.0	2,994.7	2,972.7	2,967.0	7.0	7.1	-170.16	238.1	66.3	398.0	385.0	13.00	30.601	
3,100.0	3,094.5	3,071.7	3,065.8	7.2	7.4	-170.29	244.8	67.7	411.8	398.3	13.46	30.597	
3,200.0	3,194.2	3,170.7	3,164.6	7.5	7.7	-170.41	251.6	69.1	425.6	411.7	13.91	30.594	
3,300.0	3,294.0	3,269.8	3,263.4	7.8	7.9	-170.53	258.4	70.5	439.4	425.0	14.36	30.590	
3,400.0	3,393.7	3,368.8	3,362.2	8.0	8.2	-170.64	265.1	71.9	453.2	438.4	14.82	30.586	
3,500.0	3,493.5	3,467.9	3,461.0	8.3	8.4	-170.74	271.9	73.3	467.0	451.8	15.27	30.582	
3,600.0	3,593.3	3,566.9	3,559.7	8.5	8.7	-170.83	278.7	74.7	480.9	465.1	15.73	30.578	
3,700.0	3,693.0	3,665.9	3,658.5	8.8	8.9	-170.92	285.4	76.0	494.7	478.5	16.18	30.575	
3,800.0	3,792.8	3,765.0	3,757.3	9.1	9.2	-171.01	292.2	77.4	508.5	491.9	16.63	30.571	
3,900.0	3,892.5	3,864.0	3,856.1	9.3	9.4	-171.09	299.0	78.8	522.3	505.2	17.09	30.567	
4,000.0	3,992.3	3,963.0	3,954.9	9.6	9.7	-171.17	305.7	80.2	536.2	518.6	17.54	30.563	
4,100.0	4,092.0	4,062.1	4,053.7	9.9	9.9	-171.24	312.5	81.6	550.0	532.0	18.00	30.559	
4,200.0	4,191.8	4,161.1	4,152.5	10.1	10.2	-171.31	319.3	83.0	563.8	545.4	18.45	30.555	
4,300.0	4,291.5	4,260.2	4,251.3	10.4	10.4	-171.37	326.0	84.4	577.6	558.7	18.91	30.552	
4,400.0	4,391.3	4,359.2	4,350.1	10.6	10.7	-171.44	332.8	85.8	591.5	572.1	19.36	30.548	
4,500.0	4,491.1	4,458.2	4,448.9	10.9	10.9	-171.50	339.6	87.2	605.3	585.5	19.82	30.545	
4,600.0	4,590.8	4,557.3	4,547.7	11.2	11.2	-171.55	346.3	88.6	619.1	598.9	20.27	30.541	
4,700.0	4,690.6	4,656.3	4,646.5	11.4	11.5	-171.61	353.1	89.9	633.0	612.2	20.73	30.538	
4,800.0	4,790.3	4,755.3	4,745.3	11.7	11.7	-171.66	359.9	91.3	646.8	625.6	21.18	30.535	
4,900.0	4,890.1	4,854.4	4,844.1	12.0	12.0	-171.71	366.6	92.7	660.6	639.0	21.64	30.531	
5,000.0	4,989.8	4,953.4	4,942.9	12.2	12.2	-171.76	373.4	94.1	674.5	652.4	22.09	30.528	
5,100.0	5,089.6	5,052.4	5,041.7	12.5	12.5	-171.81	380.2	95.5	688.3	665.7	22.55	30.525	

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 #11E-1403A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Reference Site:	S11-T10N-R58W	**MD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S11-T10N-R58W - Razor #11E-0204B - HZ - Plan #1

Survey Program: 0-ISCWSA MWD

Offset Site Error: 0.0 usft

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.4	5,151.5	5,140.5	12.8	12.7	-171.85	386.9	96.9	702.1	679.1	23.00	30.522	
5,300.0	5,289.1	5,250.5	5,239.3	13.0	13.0	-171.89	393.7	98.3	716.0	692.5	23.46	30.519	
5,400.0	5,388.9	5,349.6	5,338.1	13.3	13.2	-171.93	400.5	99.7	729.8	705.9	23.91	30.516	
5,439.0	5,427.8	5,388.2	5,376.6	13.4	13.3	-171.95	403.1	100.2	735.2	711.1	24.09	30.515	
5,450.0	5,438.7	5,399.1	5,387.5	13.4	13.4	-171.93	403.9	100.4	736.8	712.7	24.10	30.567	
5,500.0	5,488.2	5,448.0	5,436.2	13.6	13.5	-171.82	407.2	101.0	747.1	723.1	24.04	31.076	
5,550.0	5,536.8	5,495.7	5,483.8	13.8	13.6	-171.69	410.5	101.7	762.0	738.2	23.78	32.049	
5,600.0	5,584.1	5,540.0	5,528.0	14.0	13.7	-171.50	413.5	102.3	781.3	758.0	23.31	33.525	
5,650.0	5,629.6	5,550.0	5,538.0	14.3	13.7	-171.07	414.3	102.5	805.8	783.2	22.58	35.680	
5,700.0	5,672.9	5,573.6	5,561.4	14.7	13.8	-170.56	416.8	103.0	835.4	813.7	21.73	38.451	
5,750.0	5,713.6	5,600.0	5,587.5	15.1	13.9	-169.90	420.9	103.9	870.1	849.4	20.73	41.973	
5,800.0	5,751.4	5,600.0	5,587.5	15.5	13.9	-168.68	420.9	103.9	908.4	888.8	19.60	46.350	
5,850.0	5,785.8	5,600.0	5,587.5	16.0	13.9	-166.87	420.9	103.9	950.4	931.9	18.47	51.447	
5,900.0	5,816.6	5,616.5	5,603.7	16.5	14.0	-164.53	424.2	104.5	994.9	977.4	17.50	56.836	
5,950.0	5,843.5	5,622.3	5,609.4	17.1	14.0	-160.33	425.4	104.8	1,041.7	1,024.5	17.12	60.835	
6,000.0	5,866.2	5,626.3	5,613.2	17.7	14.0	-152.29	426.3	105.0	1,090.0	1,071.5	18.48	58.974	
6,050.0	5,884.6	5,628.6	5,615.5	18.4	14.0	-133.13	426.9	105.1	1,139.2	1,114.6	24.67	46.184	
6,100.0	5,898.4	5,629.3	5,616.1	19.1	14.0	-84.50	427.0	105.1	1,189.0	1,156.0	32.91	36.123	
6,150.0	5,907.5	5,628.5	5,615.4	19.8	14.0	-40.12	426.8	105.1	1,238.7	1,215.7	22.93	54.014	
6,200.0	5,911.9	5,626.4	5,613.3	20.5	14.0	-23.27	426.3	105.0	1,287.9	1,272.2	15.70	82.034	
6,220.8	5,912.3	5,625.1	5,612.1	20.8	14.0	-19.58	426.1	104.9	1,308.2	1,294.1	14.05	93.086	
6,229.1	5,912.3	5,624.6	5,611.6	21.0	14.0	-18.60	425.9	104.9	1,316.2	1,302.6	13.67	96.310	
6,300.0	5,912.3	5,620.2	5,607.3	22.0	14.0	-18.32	425.0	104.7	1,385.1	1,371.1	14.00	98.929	
6,400.0	5,912.3	5,600.0	5,587.5	23.6	13.9	-17.14	420.9	103.9	1,482.8	1,468.6	14.15	104.761	
6,500.0	5,912.3	5,600.0	5,587.5	25.2	13.9	-17.14	420.9	103.9	1,580.3	1,565.4	14.89	106.110	
6,600.0	5,912.3	5,600.0	5,587.5	26.9	13.9	-17.14	420.9	103.9	1,678.1	1,662.4	15.66	107.172	
6,700.0	5,912.3	5,600.0	5,587.5	28.6	13.9	-17.14	420.9	103.9	1,776.1	1,759.7	16.44	108.013	
6,800.0	5,912.3	5,600.0	5,587.5	30.3	13.9	-17.14	420.9	103.9	1,874.4	1,857.1	17.25	108.684	
6,900.0	5,912.3	5,600.0	5,587.5	32.0	13.9	-17.14	420.9	103.9	1,972.8	1,954.7	18.06	109.225	
7,000.0	5,912.3	5,600.0	5,587.5	33.8	13.9	-17.14	420.9	103.9	2,071.4	2,052.5	18.89	109.663	
7,100.0	5,912.3	5,600.0	5,587.5	35.6	13.9	-17.14	420.9	103.9	2,170.1	2,150.4	19.72	110.020	
7,200.0	5,912.3	5,600.0	5,587.5	37.4	13.9	-17.14	420.9	103.9	2,268.9	2,248.3	20.57	110.313	
7,300.0	5,912.3	5,600.0	5,587.5	39.2	13.9	-17.14	420.9	103.9	2,367.8	2,346.4	21.42	110.554	
7,400.0	5,912.3	5,578.0	5,565.8	41.0	13.8	-16.02	417.4	103.1	2,466.3	2,444.7	21.57	114.318	
7,500.0	5,912.3	5,575.6	5,563.5	42.9	13.8	-15.90	417.1	103.1	2,565.2	2,542.9	22.35	114.800	
7,600.0	5,912.3	5,573.4	5,561.3	44.7	13.8	-15.80	416.8	103.0	2,664.3	2,641.1	23.12	115.221	
7,700.0	5,912.3	5,571.3	5,559.2	46.5	13.8	-15.70	416.5	103.0	2,763.4	2,739.4	23.91	115.593	
7,800.0	5,912.2	5,550.0	5,538.0	48.4	13.7	-14.79	414.3	102.5	2,862.9	2,838.8	24.15	118.543	
7,900.0	5,912.2	5,550.0	5,538.0	50.2	13.7	-14.79	414.3	102.5	2,962.0	2,937.0	24.99	118.542	
8,000.0	5,912.2	5,550.0	5,538.0	52.1	13.7	-14.79	414.3	102.5	3,061.2	3,035.4	25.83	118.533	
8,100.0	5,912.2	5,550.0	5,538.0	54.0	13.7	-14.79	414.3	102.5	3,160.4	3,133.7	26.67	118.519	
8,200.0	5,912.2	5,550.0	5,538.0	55.8	13.7	-14.79	414.3	102.5	3,259.7	3,232.2	27.51	118.499	
8,300.0	5,912.2	5,550.0	5,538.0	57.7	13.7	-14.79	414.3	102.5	3,359.0	3,330.6	28.35	118.476	
8,400.0	5,912.2	5,550.0	5,538.0	59.6	13.7	-14.79	414.3	102.5	3,458.3	3,429.2	29.20	118.450	
8,500.0	5,912.2	5,550.0	5,538.0	61.5	13.7	-14.79	414.3	102.5	3,557.7	3,527.7	30.04	118.422	
8,600.0	5,912.2	5,550.0	5,538.0	63.3	13.7	-14.79	414.3	102.5	3,657.2	3,626.3	30.89	118.393	
8,700.0	5,912.2	5,550.0	5,538.0	65.2	13.7	-14.79	414.3	102.5	3,756.6	3,724.9	31.74	118.362	
8,800.0	5,912.2	5,550.0	5,538.0	67.1	13.7	-14.79	414.3	102.5	3,856.1	3,823.5	32.59	118.330	
8,900.0	5,912.2	5,550.0	5,538.0	69.0	13.7	-14.79	414.3	102.5	3,955.6	3,922.2	33.44	118.298	
9,000.0	5,912.2	5,550.0	5,538.0	70.9	13.7	-14.79	414.3	102.5	4,055.1	4,020.8	34.29	118.266	
9,100.0	5,912.2	5,550.0	5,538.0	72.8	13.7	-14.79	414.3	102.5	4,154.7	4,119.5	35.14	118.233	
9,200.0	5,912.2	5,550.0	5,538.0	74.7	13.7	-14.79	414.3	102.5	4,254.3	4,218.3	35.99	118.201	

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 #11E-1403A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Reference Site:	S11-T10N-R58W	**MD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S11-T10N-R58W - Razor #11E-0204B - HZ - Plan #1

Survey Program: 0-ISCWSA MWD

Offset Site Error: 0.0 usft

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
9,300.0	5,912.2	5,550.0	5,538.0	76.6	13.7	-14.79	414.3	102.5	4,353.9	4,317.0	36.84	118.168	
9,400.0	5,912.2	5,550.0	5,538.0	78.5	13.7	-14.79	414.3	102.5	4,453.5	4,415.8	37.70	118.136	
9,500.0	5,912.2	5,550.0	5,538.0	80.4	13.7	-14.79	414.3	102.5	4,553.1	4,514.5	38.55	118.104	
9,600.0	5,912.2	5,550.0	5,538.0	82.3	13.7	-14.79	414.3	102.5	4,652.7	4,613.3	39.41	118.073	
9,700.0	5,912.2	5,550.0	5,538.0	84.1	13.7	-14.79	414.3	102.5	4,752.4	4,712.1	40.26	118.042	
9,800.0	5,912.2	5,545.1	5,533.1	86.0	13.7	-14.59	413.9	102.4	4,852.1	4,811.1	40.93	118.546	
9,900.0	5,912.2	5,540.0	5,528.0	87.9	13.7	-14.40	413.5	102.3	4,951.7	4,910.2	41.60	119.042	
10,000.0	5,912.2	5,540.0	5,528.0	89.9	13.7	-14.40	413.5	102.3	5,051.4	5,009.0	42.45	119.008	
10,100.0	5,912.1	5,540.0	5,528.0	91.8	13.7	-14.40	413.5	102.3	5,151.1	5,107.8	43.30	118.974	
10,200.0	5,912.1	5,540.0	5,528.0	93.7	13.7	-14.40	413.5	102.3	5,250.8	5,206.7	44.15	118.941	
10,300.0	5,912.1	5,540.0	5,528.0	95.6	13.7	-14.40	413.5	102.3	5,350.6	5,305.6	45.00	118.909	
10,400.0	5,912.1	5,540.0	5,528.0	97.5	13.7	-14.40	413.5	102.3	5,450.3	5,404.4	45.85	118.877	
10,500.0	5,912.1	5,540.0	5,528.0	99.4	13.7	-14.40	413.5	102.3	5,550.0	5,503.3	46.70	118.846	
10,600.0	5,912.1	5,536.7	5,524.7	101.3	13.7	-14.27	413.3	102.3	5,649.8	5,602.4	47.42	119.149	
10,700.0	5,912.1	5,529.8	5,517.9	103.2	13.7	-14.02	412.8	102.2	5,749.5	5,701.5	48.00	119.781	
10,800.0	5,912.1	5,523.0	5,511.1	105.1	13.7	-13.78	412.3	102.1	5,849.3	5,800.7	48.59	120.388	
10,900.0	5,912.1	5,516.1	5,504.2	107.0	13.7	-13.55	411.9	102.0	5,949.0	5,899.8	49.18	120.971	
11,000.0	5,912.1	5,509.3	5,497.4	108.9	13.6	-13.32	411.4	101.9	6,048.8	5,999.0	49.77	121.531	
11,100.0	5,912.1	5,502.5	5,490.6	110.8	13.6	-13.10	410.9	101.8	6,148.5	6,098.2	50.37	122.069	
11,200.0	5,912.1	5,495.6	5,483.8	112.7	13.6	-12.88	410.5	101.7	6,248.3	6,197.3	50.97	122.587	
11,300.0	5,912.1	5,488.8	5,477.0	114.6	13.6	-12.68	410.0	101.6	6,348.0	6,296.5	51.57	123.084	
11,400.0	5,912.1	5,482.0	5,470.1	116.5	13.6	-12.48	409.5	101.5	6,447.8	6,395.6	52.18	123.562	
11,500.0	5,912.1	5,475.1	5,463.3	118.5	13.6	-12.28	409.1	101.4	6,547.5	6,494.7	52.79	124.022	
11,600.0	5,912.1	5,468.3	5,456.5	120.4	13.5	-12.09	408.6	101.3	6,647.3	6,593.9	53.41	124.464	
11,700.0	5,912.1	5,461.4	5,449.7	122.3	13.5	-11.91	408.1	101.2	6,747.0	6,693.0	54.02	124.890	
11,800.0	5,912.1	5,454.6	5,442.9	124.2	13.5	-11.73	407.7	101.1	6,846.8	6,792.2	54.64	125.299	
11,900.0	5,912.1	5,447.8	5,436.0	126.1	13.5	-11.55	407.2	101.0	6,946.6	6,891.3	55.27	125.693	
12,000.0	5,912.1	5,440.9	5,429.2	128.0	13.5	-11.38	406.7	100.9	7,046.3	6,990.4	55.89	126.072	
12,100.0	5,912.1	5,434.1	5,422.4	129.9	13.4	-11.22	406.2	100.8	7,146.1	7,089.5	56.52	126.437	
12,200.0	5,912.1	5,427.3	5,415.6	131.8	13.4	-11.06	405.8	100.8	7,245.8	7,188.7	57.15	126.789	
12,300.0	5,912.1	5,420.4	5,408.8	133.7	13.4	-10.90	405.3	100.7	7,345.6	7,287.8	57.78	127.127	
12,400.0	5,912.0	5,413.6	5,401.9	135.7	13.4	-10.75	404.8	100.6	7,445.3	7,386.9	58.42	127.453	
12,500.0	5,912.0	5,406.7	5,395.1	137.6	13.4	-10.60	404.4	100.5	7,545.1	7,486.0	59.05	127.767	
12,600.0	5,912.0	5,399.9	5,388.3	139.5	13.4	-10.45	403.9	100.4	7,644.8	7,585.1	59.69	128.070	
12,700.0	5,912.0	5,393.1	5,381.5	141.4	13.3	-10.31	403.4	100.3	7,744.6	7,684.3	60.33	128.362	
12,800.0	5,912.0	5,386.2	5,374.7	143.3	13.3	-10.17	403.0	100.2	7,844.4	7,783.4	60.98	128.643	
12,900.0	5,912.0	5,379.4	5,367.8	145.2	13.3	-10.04	402.5	100.1	7,944.1	7,882.5	61.62	128.915	
13,000.0	5,912.0	5,372.6	5,361.0	147.1	13.3	-9.91	402.0	100.0	8,043.9	7,981.6	62.27	129.176	
13,100.0	5,912.0	5,365.7	5,354.2	149.1	13.3	-9.78	401.6	99.9	8,143.6	8,080.7	62.92	129.429	
13,200.0	5,912.0	5,358.9	5,347.4	151.0	13.3	-9.66	401.1	99.8	8,243.4	8,179.8	63.57	129.673	
13,300.0	5,912.0	5,352.0	5,340.5	152.9	13.2	-9.53	400.6	99.7	8,343.1	8,278.9	64.22	129.908	
13,400.0	5,912.0	5,345.2	5,333.7	154.8	13.2	-9.41	400.2	99.6	8,442.9	8,378.0	64.88	130.135	
13,470.1	5,912.0	5,340.4	5,328.9	156.1	13.2	-9.33	399.8	99.5	8,512.8	8,447.5	65.34	130.289	
13,471.0	5,912.0	5,340.3	5,328.9	156.2	13.2	-9.33	399.8	99.5	8,513.7	8,448.4	65.34	130.298	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #11E-1403A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Reference Site:	S11-T10N-R58W	**MD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S11-T10N-R58W - Razor #11E-1401A - HZ - Plan #1

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	0.0	-66.1	66.1				
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	0.0	-66.1	66.1	65.9	0.19	353.417	
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-66.1	66.1	65.5	0.64	103.827	
300.0	300.0	300.0	300.0	0.5	0.5	-89.99	0.0	-66.1	66.1	65.0	1.09	60.852	
400.0	400.0	400.0	400.0	0.8	0.8	-89.99	0.0	-66.1	66.1	64.6	1.54	43.038	
500.0	500.0	500.0	500.0	1.0	1.0	-89.99	0.0	-66.1	66.1	64.1	1.99	33.292	CC, ES
600.0	600.0	598.9	598.9	1.2	1.2	-91.29	-1.5	-66.9	66.9	64.5	2.41	27.791	
700.0	700.0	697.6	697.5	1.4	1.4	-95.02	-6.1	-69.2	69.5	66.6	2.82	24.649	
800.0	800.0	797.4	797.0	1.6	1.6	81.88	-12.3	-72.3	73.1	69.9	3.22	22.710	
900.0	899.8	897.4	896.7	1.8	1.8	81.42	-18.5	-75.4	76.4	72.8	3.62	21.125	
1,000.0	999.6	997.3	996.4	2.0	2.0	82.30	-24.7	-78.6	79.4	75.4	4.04	19.652	
1,100.0	1,099.3	1,097.3	1,096.1	2.2	2.3	83.12	-31.0	-81.7	82.5	78.0	4.49	18.379	
1,200.0	1,199.1	1,197.2	1,195.8	2.5	2.5	83.88	-37.2	-84.8	85.5	80.6	4.95	17.285	
1,300.0	1,298.9	1,297.2	1,295.5	2.7	2.8	84.58	-43.4	-88.0	88.6	83.2	5.42	16.346	
1,400.0	1,398.6	1,397.1	1,395.2	2.9	3.0	85.24	-49.6	-91.1	91.7	85.8	5.90	15.536	
1,500.0	1,498.4	1,497.1	1,495.0	3.2	3.3	85.86	-55.9	-94.3	94.8	88.4	6.39	14.834	
1,600.0	1,598.1	1,597.0	1,594.7	3.4	3.5	86.43	-62.1	-97.4	97.9	91.0	6.88	14.222	
1,700.0	1,697.9	1,696.9	1,694.4	3.6	3.8	86.98	-68.3	-100.5	101.0	93.6	7.38	13.685	
1,800.0	1,797.6	1,796.9	1,794.1	3.9	4.1	87.48	-74.5	-103.7	104.1	96.3	7.88	13.210	
1,900.0	1,897.4	1,896.8	1,893.8	4.2	4.3	87.96	-80.8	-106.8	107.3	98.9	8.39	12.789	
2,000.0	1,997.2	1,996.8	1,993.5	4.4	4.6	88.41	-87.0	-109.9	110.4	101.5	8.90	12.413	
2,100.0	2,096.9	2,096.7	2,093.2	4.7	4.8	88.84	-93.2	-113.1	113.6	104.2	9.40	12.075	
2,200.0	2,196.7	2,196.7	2,192.9	4.9	5.1	89.25	-99.4	-116.2	116.7	106.8	9.92	11.771	
2,300.0	2,296.4	2,296.6	2,292.6	5.2	5.4	89.63	-105.7	-119.4	119.9	109.5	10.43	11.494	
2,400.0	2,396.2	2,396.6	2,392.3	5.4	5.6	89.99	-111.9	-122.5	123.0	112.1	10.94	11.243	
2,500.0	2,495.9	2,496.5	2,492.0	5.7	5.9	90.33	-118.1	-125.6	126.2	114.8	11.46	11.014	
2,600.0	2,595.7	2,596.5	2,591.7	5.9	6.1	90.66	-124.3	-128.8	129.4	117.4	11.98	10.804	
2,700.0	2,695.4	2,696.4	2,691.4	6.2	6.4	90.97	-130.6	-131.9	132.6	120.1	12.49	10.611	
2,800.0	2,795.2	2,796.4	2,791.1	6.5	6.7	91.27	-136.8	-135.0	135.7	122.7	13.01	10.432	
2,900.0	2,895.0	2,896.3	2,890.8	6.7	6.9	91.56	-143.0	-138.2	138.9	125.4	13.53	10.268	
3,000.0	2,994.7	2,996.3	2,990.5	7.0	7.2	91.83	-149.3	-141.3	142.1	128.1	14.05	10.115	
3,100.0	3,094.5	3,096.2	3,090.2	7.2	7.5	92.09	-155.5	-144.5	145.3	130.7	14.57	9.973	
3,200.0	3,194.2	3,196.1	3,189.9	7.5	7.7	92.33	-161.7	-147.6	148.5	133.4	15.09	9.840	
3,300.0	3,294.0	3,296.1	3,289.6	7.8	8.0	92.57	-167.9	-150.7	151.7	136.1	15.61	9.717	
3,400.0	3,393.7	3,396.0	3,389.3	8.0	8.2	92.80	-174.2	-153.9	154.9	138.8	16.13	9.601	
3,500.0	3,493.5	3,496.0	3,489.0	8.3	8.5	93.02	-180.4	-157.0	158.1	141.4	16.66	9.492	
3,600.0	3,593.3	3,595.9	3,588.7	8.5	8.8	93.23	-186.6	-160.2	161.3	144.1	17.18	9.390	
3,700.0	3,693.0	3,695.9	3,688.4	8.8	9.0	93.43	-192.8	-163.3	164.5	146.8	17.70	9.294	
3,800.0	3,792.8	3,795.8	3,788.1	9.1	9.3	93.62	-199.1	-166.4	167.7	149.5	18.22	9.204	
3,900.0	3,892.5	3,895.8	3,887.8	9.3	9.6	93.81	-205.3	-169.6	170.9	152.2	18.75	9.118	
4,000.0	3,992.3	3,995.7	3,987.5	9.6	9.8	93.99	-211.5	-172.7	174.1	154.9	19.27	9.037	
4,100.0	4,092.0	4,095.7	4,087.2	9.9	10.1	94.16	-217.7	-175.8	177.4	157.6	19.79	8.960	
4,200.0	4,191.8	4,195.6	4,186.9	10.1	10.3	94.33	-224.0	-179.0	180.6	160.2	20.32	8.888	
4,300.0	4,291.5	4,295.6	4,286.6	10.4	10.6	94.49	-230.2	-182.1	183.8	162.9	20.84	8.819	
4,400.0	4,391.3	4,395.5	4,386.3	10.6	10.9	94.65	-236.4	-185.3	187.0	165.6	21.36	8.753	
4,500.0	4,491.1	4,495.5	4,486.0	10.9	11.1	94.80	-242.6	-188.4	190.2	168.3	21.89	8.690	
4,600.0	4,590.8	4,595.4	4,585.8	11.2	11.4	94.94	-248.9	-191.5	193.4	171.0	22.41	8.631	
4,700.0	4,690.6	4,695.4	4,685.5	11.4	11.7	95.08	-255.1	-194.7	196.7	173.7	22.94	8.574	
4,800.0	4,790.3	4,795.3	4,785.2	11.7	11.9	95.22	-261.3	-197.8	199.9	176.4	23.46	8.520	
4,900.0	4,890.1	4,895.2	4,884.9	12.0	12.2	95.35	-267.5	-200.9	203.1	179.1	23.99	8.468	
5,000.0	4,989.8	4,995.2	4,984.6	12.2	12.5	95.48	-273.8	-204.1	206.3	181.8	24.51	8.418	
5,100.0	5,089.6	5,095.1	5,084.3	12.5	12.7	95.60	-280.0	-207.2	209.6	184.5	25.04	8.370	

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 #11E-1403A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Reference Site:	S11-T10N-R58W	**MD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S11-T10N-R58W - Razor #11E-1401A - HZ - Plan #1

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.4	5,195.1	5,184.0	12.8	13.0	95.72	-286.2	-210.4	212.8	187.2	25.56	8.325	
5,300.0	5,289.1	5,295.0	5,283.7	13.0	13.3	95.84	-292.4	-213.5	216.0	189.9	26.08	8.281	
5,400.0	5,388.9	5,395.0	5,383.4	13.3	13.5	95.95	-298.7	-216.6	219.2	192.6	26.61	8.239	
5,439.0	5,427.8	5,434.0	5,422.3	13.4	13.6	95.99	-301.1	-217.9	220.5	193.7	26.81	8.223	
5,450.0	5,438.7	5,444.2	5,432.4	13.4	13.6	95.99	-301.8	-218.2	220.9	194.0	26.87	8.220	
5,500.0	5,488.2	5,487.5	5,475.5	13.6	13.8	95.95	-306.4	-220.6	223.8	196.6	27.16	8.238	
5,550.0	5,536.8	5,530.7	5,517.7	13.8	14.0	95.87	-314.3	-224.5	228.6	201.1	27.52	8.307	
5,600.0	5,584.1	5,573.7	5,559.0	14.0	14.2	95.76	-325.1	-230.0	235.4	207.4	27.95	8.423	
5,650.0	5,629.6	5,616.4	5,598.8	14.3	14.4	95.60	-338.9	-236.9	244.0	215.6	28.44	8.580	
5,700.0	5,672.9	5,658.9	5,637.0	14.7	14.7	95.36	-355.4	-245.3	254.5	225.5	29.01	8.772	
5,750.0	5,713.6	5,700.0	5,672.4	15.1	14.9	95.01	-374.0	-254.6	266.6	237.0	29.64	8.995	
5,800.0	5,751.4	5,742.8	5,707.5	15.5	15.3	94.62	-396.0	-265.7	280.4	250.0	30.36	9.233	
5,850.0	5,785.8	5,784.3	5,739.4	16.0	15.6	94.10	-419.6	-277.6	295.6	264.4	31.19	9.478	
5,900.0	5,816.6	5,825.5	5,768.9	16.5	16.0	93.48	-445.3	-290.6	312.2	280.1	32.10	9.727	
5,950.0	5,843.5	5,866.5	5,795.9	17.1	16.5	92.76	-472.8	-304.4	330.1	297.0	33.09	9.976	
6,000.0	5,866.2	5,907.3	5,820.3	17.7	16.9	91.95	-502.0	-319.1	349.0	314.9	34.15	10.221	
6,050.0	5,884.6	5,950.0	5,843.0	18.4	17.4	91.12	-534.3	-335.4	368.9	333.6	35.31	10.450	
6,100.0	5,898.4	5,988.8	5,861.0	19.1	17.9	90.07	-565.0	-350.9	389.7	353.2	36.49	10.679	
6,150.0	5,907.5	6,029.7	5,877.2	19.8	18.5	89.03	-598.6	-367.8	411.1	373.3	37.75	10.889	
6,200.0	5,911.9	6,071.0	5,890.4	20.5	19.0	87.96	-633.4	-385.4	433.0	393.9	39.06	11.084	
6,220.8	5,912.3	6,088.3	5,895.1	20.8	19.3	87.50	-648.3	-392.9	442.2	402.6	39.62	11.161	
6,229.1	5,912.3	6,095.2	5,896.8	21.0	19.4	87.77	-654.3	-395.9	445.9	406.0	39.86	11.187	
6,300.0	5,912.3	6,156.3	5,907.8	22.0	20.3	89.40	-707.9	-422.9	477.5	435.7	41.77	11.432	
6,400.0	5,912.3	6,254.4	5,911.8	23.6	21.7	89.94	-795.5	-466.7	522.3	477.5	44.81	11.657	
6,500.0	5,912.3	6,382.2	5,911.8	25.2	23.5	89.95	-912.4	-518.4	562.7	514.5	48.20	11.673	
6,600.0	5,912.3	6,517.2	5,911.8	26.9	25.5	89.95	-1,039.4	-564.3	596.7	544.9	51.80	11.519	
6,700.0	5,912.3	6,658.7	5,911.8	28.6	27.5	89.96	-1,175.5	-602.6	623.9	568.2	55.63	11.215	
6,800.0	5,912.3	6,805.5	5,911.8	30.3	29.8	89.96	-1,319.3	-631.7	643.7	584.0	59.63	10.795	
6,900.0	5,912.3	6,956.0	5,911.8	32.0	32.0	89.96	-1,468.7	-649.9	655.8	592.0	63.75	10.287	
7,000.0	5,912.3	7,108.4	5,911.8	33.8	34.4	89.96	-1,621.0	-656.3	660.0	592.1	67.93	9.716	
7,100.0	5,912.3	7,209.8	5,911.8	35.6	36.0	89.96	-1,722.3	-656.3	660.0	588.6	71.39	9.246	
7,200.0	5,912.3	7,309.8	5,911.8	37.4	37.6	89.96	-1,822.3	-656.3	660.0	585.1	74.88	8.815	
7,300.0	5,912.3	7,409.8	5,911.8	39.2	39.2	89.96	-1,922.3	-656.3	660.0	581.6	78.40	8.418	
7,400.0	5,912.3	7,509.8	5,911.9	41.0	40.9	89.96	-2,022.3	-656.3	660.0	578.1	81.96	8.053	
7,500.0	5,912.3	7,609.8	5,911.9	42.9	42.6	89.97	-2,122.3	-656.3	660.0	574.5	85.54	7.716	
7,600.0	5,912.3	7,709.8	5,911.9	44.7	44.3	89.97	-2,222.3	-656.3	660.0	570.9	89.14	7.404	
7,700.0	5,912.3	7,809.8	5,911.9	46.5	46.0	89.97	-2,322.3	-656.3	660.0	567.3	92.76	7.115	
7,800.0	5,912.2	7,909.8	5,911.9	48.4	47.7	89.97	-2,422.3	-656.3	660.0	563.6	96.40	6.847	
7,900.0	5,912.2	8,009.8	5,911.9	50.2	49.5	89.97	-2,522.3	-656.3	660.0	560.0	100.06	6.597	
8,000.0	5,912.2	8,109.8	5,911.9	52.1	51.2	89.97	-2,622.3	-656.3	660.1	556.3	103.73	6.363	
8,100.0	5,912.2	8,209.8	5,911.9	54.0	53.0	89.97	-2,722.3	-656.3	660.1	552.7	107.41	6.145	
8,200.0	5,912.2	8,309.8	5,911.9	55.8	54.8	89.97	-2,822.3	-656.3	660.1	549.0	111.10	5.941	
8,300.0	5,912.2	8,409.8	5,911.9	57.7	56.6	89.97	-2,922.3	-656.3	660.1	545.3	114.80	5.750	
8,400.0	5,912.2	8,509.8	5,911.9	59.6	58.4	89.97	-3,022.3	-656.3	660.1	541.6	118.51	5.570	
8,500.0	5,912.2	8,609.8	5,911.9	61.5	60.2	89.97	-3,122.3	-656.3	660.1	537.8	122.23	5.400	
8,600.0	5,912.2	8,709.8	5,911.9	63.3	62.0	89.97	-3,222.3	-656.3	660.1	534.1	125.96	5.240	
8,700.0	5,912.2	8,809.8	5,911.9	65.2	63.8	89.97	-3,322.3	-656.3	660.1	530.4	129.70	5.090	
8,800.0	5,912.2	8,909.8	5,911.9	67.1	65.7	89.97	-3,422.3	-656.3	660.1	526.7	133.44	4.947	
8,900.0	5,912.2	9,009.8	5,911.9	69.0	67.5	89.97	-3,522.3	-656.3	660.1	522.9	137.18	4.812	
9,000.0	5,912.2	9,109.8	5,911.9	70.9	69.3	89.97	-3,622.3	-656.3	660.1	519.2	140.93	4.684	
9,100.0	5,912.2	9,209.8	5,911.9	72.8	71.2	89.97	-3,722.3	-656.4	660.1	515.4	144.69	4.562	
9,200.0	5,912.2	9,309.8	5,911.9	74.7	73.0	89.98	-3,822.3	-656.4	660.1	511.7	148.45	4.447	

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 #11E-1403A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Reference Site:	S11-T10N-R58W	**MD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S11-T10N-R58W - Razor #11E-1401A - HZ - Plan #1

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
9,300.0	5,912.2	9,409.8	5,911.9	76.6	74.9	89.98	-3,922.3	-656.4	660.1	507.9	152.22	4.337	
9,400.0	5,912.2	9,509.8	5,911.9	78.5	76.7	89.98	-4,022.3	-656.4	660.1	504.1	155.99	4.232	
9,500.0	5,912.2	9,609.8	5,911.9	80.4	78.6	89.98	-4,122.3	-656.4	660.1	500.4	159.76	4.132	
9,600.0	5,912.2	9,709.8	5,911.9	82.3	80.4	89.98	-4,222.3	-656.4	660.1	496.6	163.54	4.037	
9,700.0	5,912.2	9,809.8	5,911.9	84.1	82.3	89.98	-4,322.3	-656.4	660.1	492.8	167.32	3.945	
9,800.0	5,912.2	9,909.8	5,911.9	86.0	84.2	89.98	-4,422.3	-656.4	660.1	489.0	171.10	3.858	
9,900.0	5,912.2	10,009.8	5,911.9	87.9	86.0	89.98	-4,522.3	-656.4	660.1	485.3	174.88	3.775	
10,000.0	5,912.2	10,109.8	5,911.9	89.9	87.9	89.98	-4,622.3	-656.4	660.2	481.5	178.67	3.695	
10,100.0	5,912.1	10,209.8	5,911.9	91.8	89.8	89.98	-4,722.3	-656.4	660.2	477.7	182.46	3.618	
10,200.0	5,912.1	10,309.8	5,911.9	93.7	91.7	89.98	-4,822.3	-656.4	660.2	473.9	186.25	3.544	
10,300.0	5,912.1	10,409.8	5,911.9	95.6	93.5	89.98	-4,922.3	-656.4	660.2	470.1	190.05	3.474	
10,400.0	5,912.1	10,509.8	5,911.9	97.5	95.4	89.98	-5,022.3	-656.4	660.2	466.3	193.84	3.406	
10,500.0	5,912.1	10,609.8	5,911.9	99.4	97.3	89.98	-5,122.3	-656.4	660.2	462.5	197.64	3.340	
10,600.0	5,912.1	10,709.8	5,911.9	101.3	99.2	89.98	-5,222.3	-656.4	660.2	458.7	201.44	3.277	
10,700.0	5,912.1	10,809.8	5,911.9	103.2	101.1	89.98	-5,322.3	-656.4	660.2	454.9	205.24	3.217	
10,800.0	5,912.1	10,909.8	5,911.9	105.1	102.9	89.99	-5,422.3	-656.4	660.2	451.1	209.04	3.158	
10,900.0	5,912.1	11,009.8	5,911.9	107.0	104.8	89.99	-5,522.3	-656.4	660.2	447.3	212.85	3.102	
11,000.0	5,912.1	11,109.8	5,911.9	108.9	106.7	89.99	-5,622.3	-656.4	660.2	443.5	216.65	3.047	
11,100.0	5,912.1	11,209.8	5,911.9	110.8	108.6	89.99	-5,722.3	-656.4	660.2	439.7	220.46	2.995	
11,200.0	5,912.1	11,309.8	5,911.9	112.7	110.5	89.99	-5,822.3	-656.4	660.2	435.9	224.27	2.944	
11,300.0	5,912.1	11,409.8	5,911.9	114.6	112.4	89.99	-5,922.3	-656.4	660.2	432.1	228.08	2.895	
11,400.0	5,912.1	11,509.8	5,911.9	116.5	114.3	89.99	-6,022.3	-656.4	660.2	428.3	231.89	2.847	
11,500.0	5,912.1	11,609.8	5,912.0	118.5	116.2	89.99	-6,122.3	-656.4	660.2	424.5	235.70	2.801	
11,600.0	5,912.1	11,709.8	5,912.0	120.4	118.1	89.99	-6,222.3	-656.4	660.2	420.7	239.51	2.757	
11,700.0	5,912.1	11,809.8	5,912.0	122.3	120.0	89.99	-6,322.3	-656.4	660.2	416.9	243.33	2.713	
11,800.0	5,912.1	11,909.8	5,912.0	124.2	121.9	89.99	-6,422.3	-656.4	660.2	413.1	247.14	2.672	
11,900.0	5,912.1	12,009.8	5,912.0	126.1	123.8	89.99	-6,522.3	-656.4	660.2	409.3	250.96	2.631	
12,000.0	5,912.1	12,109.8	5,912.0	128.0	125.7	89.99	-6,622.3	-656.4	660.3	405.5	254.77	2.592	
12,100.0	5,912.1	12,209.8	5,912.0	129.9	127.5	89.99	-6,722.3	-656.4	660.3	401.7	258.59	2.553	
12,200.0	5,912.1	12,309.8	5,912.0	131.8	129.4	89.99	-6,822.3	-656.4	660.3	397.9	262.41	2.516	
12,300.0	5,912.1	12,409.8	5,912.0	133.7	131.3	89.99	-6,922.3	-656.4	660.3	394.0	266.23	2.480	
12,400.0	5,912.0	12,509.8	5,912.0	135.7	133.2	89.99	-7,022.3	-656.4	660.3	390.2	270.05	2.445	
12,500.0	5,912.0	12,609.8	5,912.0	137.6	135.1	90.00	-7,122.3	-656.5	660.3	386.4	273.87	2.411	
12,600.0	5,912.0	12,709.8	5,912.0	139.5	137.0	90.00	-7,222.3	-656.5	660.3	382.6	277.69	2.378	
12,700.0	5,912.0	12,809.8	5,912.0	141.4	138.9	90.00	-7,322.3	-656.5	660.3	378.8	281.51	2.346	
12,800.0	5,912.0	12,909.8	5,912.0	143.3	140.9	90.00	-7,422.3	-656.5	660.3	375.0	285.33	2.314	
12,900.0	5,912.0	13,009.8	5,912.0	145.2	142.8	90.00	-7,522.3	-656.5	660.3	371.1	289.15	2.284	
13,000.0	5,912.0	13,109.8	5,912.0	147.1	144.7	90.00	-7,622.3	-656.5	660.3	367.3	292.98	2.254	
13,100.0	5,912.0	13,209.8	5,912.0	149.1	146.6	90.00	-7,722.3	-656.5	660.3	363.5	296.80	2.225	
13,200.0	5,912.0	13,309.8	5,912.0	151.0	148.5	90.00	-7,822.3	-656.5	660.3	359.7	300.62	2.196	
13,300.0	5,912.0	13,409.8	5,912.0	152.9	150.4	90.00	-7,922.3	-656.5	660.3	355.9	304.45	2.169	
13,400.0	5,912.0	13,509.8	5,912.0	154.8	152.3	90.00	-8,022.3	-656.5	660.3	352.0	308.27	2.142	
13,470.1	5,912.0	13,579.9	5,912.0	156.1	153.6	90.00	-8,092.4	-656.5	660.3	349.4	310.95	2.124	
13,471.0	5,912.0	13,579.9	5,912.0	156.2	153.6	90.00	-8,092.4	-656.5	660.3	349.4	310.97	2.123	SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #11E-1403A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Reference Site:	S11-T10N-R58W	**MD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S11-T10N-R58W - Razor #11E-1402B - HZ - Plan #1

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	0.0	-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	176.700	
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	699.7	699.6	1.4	1.4	-92.84	-1.7	-33.5	33.5	30.7	2.86	11.746	
800.0	800.0	799.2	799.0	1.6	1.6	82.17	-6.7	-34.9	35.2	32.0	3.23	10.893	
900.0	899.8	899.1	898.7	1.8	1.8	80.25	-13.4	-36.7	37.3	33.7	3.62	10.319	
1,000.0	999.6	999.1	998.5	2.0	2.0	81.08	-20.1	-38.6	39.1	35.1	4.03	9.710	
1,100.0	1,099.3	1,099.1	1,098.2	2.2	2.2	81.84	-26.8	-40.4	40.9	36.5	4.47	9.166	
1,200.0	1,199.1	1,199.1	1,197.9	2.5	2.5	82.54	-33.6	-42.2	42.7	37.8	4.92	8.690	
1,300.0	1,298.9	1,299.1	1,297.7	2.7	2.7	83.17	-40.3	-44.1	44.6	39.2	5.39	8.274	
1,400.0	1,398.6	1,399.0	1,397.4	2.9	3.0	83.76	-47.0	-45.9	46.4	40.5	5.86	7.912	
1,500.0	1,498.4	1,499.0	1,497.2	3.2	3.2	84.30	-53.8	-47.8	48.2	41.9	6.35	7.596	
1,600.0	1,598.1	1,599.0	1,596.9	3.4	3.5	84.80	-60.5	-49.6	50.1	43.2	6.84	7.318	
1,700.0	1,697.9	1,699.0	1,696.6	3.6	3.7	85.27	-67.2	-51.4	51.9	44.6	7.34	7.074	
1,800.0	1,797.6	1,799.0	1,796.4	3.9	4.0	85.71	-73.9	-53.3	53.8	45.9	7.84	6.857	
1,900.0	1,897.4	1,898.9	1,896.1	4.2	4.2	86.11	-80.7	-55.1	55.6	47.3	8.34	6.664	
2,000.0	1,997.2	1,998.9	1,995.8	4.4	4.5	86.49	-87.4	-57.0	57.5	48.6	8.85	6.491	
2,100.0	2,096.9	2,098.9	2,095.6	4.7	4.7	86.85	-94.1	-58.8	59.3	49.9	9.36	6.335	
2,200.0	2,196.7	2,198.9	2,195.3	4.9	5.0	87.18	-100.8	-60.6	61.2	51.3	9.87	6.195	
2,300.0	2,296.4	2,298.9	2,295.1	5.2	5.3	87.50	-107.6	-62.5	63.0	52.6	10.39	6.067	
2,400.0	2,396.2	2,398.9	2,394.8	5.4	5.5	87.79	-114.3	-64.3	64.9	54.0	10.90	5.951	
2,500.0	2,495.9	2,498.8	2,494.5	5.7	5.8	88.07	-121.0	-66.2	66.7	55.3	11.42	5.845	
2,600.0	2,595.7	2,598.8	2,594.3	5.9	6.0	88.34	-127.8	-68.0	68.6	56.7	11.93	5.747	
2,700.0	2,695.4	2,698.8	2,694.0	6.2	6.3	88.59	-134.5	-69.8	70.5	58.0	12.45	5.658	
2,800.0	2,795.2	2,798.8	2,793.8	6.5	6.6	88.83	-141.2	-71.7	72.3	59.3	12.97	5.575	
2,900.0	2,895.0	2,898.8	2,893.5	6.7	6.8	89.05	-147.9	-73.5	74.2	60.7	13.49	5.498	
3,000.0	2,994.7	2,998.8	2,993.2	7.0	7.1	89.27	-154.7	-75.4	76.1	62.0	14.01	5.427	
3,100.0	3,094.5	3,098.7	3,093.0	7.2	7.3	89.47	-161.4	-77.2	77.9	63.4	14.53	5.361	
3,200.0	3,194.2	3,198.7	3,192.7	7.5	7.6	89.67	-168.1	-79.0	79.8	64.7	15.06	5.299	
3,300.0	3,294.0	3,298.7	3,292.4	7.8	7.9	89.86	-174.8	-80.9	81.7	66.1	15.58	5.241	
3,400.0	3,393.7	3,398.7	3,392.2	8.0	8.1	90.03	-181.6	-82.7	83.5	67.4	16.10	5.187	
3,500.0	3,493.5	3,498.7	3,491.9	8.3	8.4	90.20	-188.3	-84.6	85.4	68.8	16.63	5.137	
3,600.0	3,593.3	3,598.6	3,591.7	8.5	8.7	90.37	-195.0	-86.4	87.3	70.1	17.15	5.089	
3,700.0	3,693.0	3,698.6	3,691.4	8.8	8.9	90.52	-201.8	-88.2	89.1	71.5	17.67	5.044	
3,800.0	3,792.8	3,798.6	3,791.1	9.1	9.2	90.67	-208.5	-90.1	91.0	72.8	18.20	5.002	
3,900.0	3,892.5	3,898.6	3,890.9	9.3	9.4	90.82	-215.2	-91.9	92.9	74.2	18.72	4.961	
4,000.0	3,992.3	3,998.6	3,990.6	9.6	9.7	90.95	-221.9	-93.8	94.8	75.5	19.25	4.924	
4,100.0	4,092.0	4,098.6	4,090.4	9.9	10.0	91.09	-228.7	-95.6	96.6	76.9	19.77	4.888	
4,200.0	4,191.8	4,198.5	4,190.1	10.1	10.2	91.21	-235.4	-97.4	98.5	78.2	20.30	4.854	
4,300.0	4,291.5	4,298.5	4,289.8	10.4	10.5	91.34	-242.1	-99.3	100.4	79.6	20.82	4.821	
4,400.0	4,391.3	4,398.5	4,389.6	10.6	10.8	91.46	-248.8	-101.1	102.3	80.9	21.35	4.790	
4,500.0	4,491.1	4,498.5	4,489.3	10.9	11.0	91.57	-255.6	-103.0	104.1	82.3	21.87	4.761	
4,600.0	4,590.8	4,598.5	4,589.0	11.2	11.3	91.68	-262.3	-104.8	106.0	83.6	22.40	4.733	
4,700.0	4,690.6	4,698.4	4,688.8	11.4	11.6	91.79	-269.0	-106.6	107.9	85.0	22.92	4.706	
4,800.0	4,790.3	4,798.4	4,788.5	11.7	11.8	91.89	-275.8	-108.5	109.8	86.3	23.45	4.681	
4,900.0	4,890.1	4,898.4	4,888.3	12.0	12.1	91.99	-282.5	-110.3	111.6	87.7	23.98	4.656	
5,000.0	4,989.8	4,998.4	4,988.0	12.2	12.3	92.08	-289.2	-112.2	113.5	89.0	24.50	4.633	
5,100.0	5,089.6	5,098.4	5,087.7	12.5	12.6	92.18	-295.9	-114.0	115.4	90.4	25.03	4.611	

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 #11E-1403A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Reference Site:	S11-T10N-R58W	**MD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S11-T10N-R58W - Razor #11E-1402B - HZ - Plan #1

Survey Program: 0-ISCWSA MWD

Offset Site Error: 0.0 usft

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,189.4	5,198.4	5,187.5	12.8	12.9	92.26	-302.7	-115.8	117.3	91.7	25.56	4.589	
5,300.0	5,289.1	5,298.3	5,287.2	13.0	13.1	92.35	-309.4	-117.7	119.2	93.1	26.08	4.568	
5,400.0	5,388.9	5,398.3	5,387.0	13.3	13.4	92.44	-316.1	-119.5	121.0	94.4	26.61	4.549	
5,439.0	5,427.8	5,437.3	5,425.9	13.4	13.5	92.47	-318.7	-120.2	121.8	95.0	26.81	4.541	
5,450.0	5,438.7	5,448.3	5,436.8	13.4	13.5	92.51	-319.5	-120.4	122.0	95.1	26.87	4.539	
5,500.0	5,488.2	5,498.2	5,486.5	13.6	13.7	94.02	-322.8	-121.4	123.1	95.9	27.18	4.530	
5,550.0	5,536.8	5,547.2	5,535.5	13.8	13.8	97.51	-326.2	-122.3	124.9	97.4	27.51	4.541	
5,600.0	5,584.1	5,595.0	5,582.9	14.0	13.9	101.39	-332.1	-123.9	128.4	100.5	27.86	4.609	
5,650.0	5,629.6	5,643.6	5,630.2	14.3	14.1	104.91	-342.5	-126.7	133.8	105.5	28.21	4.741	
5,700.0	5,672.9	5,692.9	5,677.1	14.7	14.4	107.95	-357.2	-130.8	140.9	112.3	28.58	4.932	
5,750.0	5,713.6	5,743.0	5,723.0	15.1	14.7	110.45	-376.6	-136.1	149.7	120.7	28.95	5.170	
5,800.0	5,751.4	5,793.9	5,767.4	15.5	15.0	112.38	-400.4	-142.6	159.9	130.5	29.37	5.444	
5,850.0	5,785.8	5,845.5	5,809.8	16.0	15.4	113.76	-428.8	-150.4	171.3	141.4	29.85	5.738	
5,900.0	5,816.6	5,898.0	5,849.7	16.5	15.9	114.64	-461.7	-159.4	183.7	153.3	30.44	6.034	
5,950.0	5,843.5	5,951.3	5,886.5	17.1	16.4	115.05	-498.9	-169.5	196.9	165.7	31.18	6.315	
6,000.0	5,866.2	6,005.5	5,919.7	17.7	17.0	115.05	-540.2	-180.8	210.8	178.7	32.09	6.568	
6,050.0	5,884.6	6,060.6	5,948.7	18.4	17.6	114.70	-585.3	-193.2	225.2	192.0	33.18	6.786	
6,100.0	5,898.4	6,116.6	5,972.9	19.1	18.3	114.04	-634.0	-206.5	239.8	205.4	34.45	6.961	
6,150.0	5,907.5	6,173.5	5,991.8	19.8	19.1	113.12	-685.7	-220.6	254.6	218.7	35.90	7.094	
6,200.0	5,911.9	6,231.4	6,005.0	20.5	19.9	111.98	-740.0	-235.5	269.5	232.0	37.50	7.186	
6,220.8	5,912.3	6,255.8	6,008.6	20.8	20.3	111.45	-763.3	-241.9	275.6	237.4	38.20	7.214	
6,229.1	5,912.3	6,265.5	6,009.8	21.0	20.4	111.44	-772.7	-244.4	278.0	239.5	38.47	7.227	
6,300.0	5,912.3	6,348.5	6,012.8	22.0	21.6	110.43	-852.6	-266.1	296.2	255.4	40.84	7.254	
6,400.0	5,912.3	6,463.4	6,012.8	23.6	23.2	108.80	-964.7	-291.5	317.1	272.8	44.30	7.159	
6,500.0	5,912.3	6,581.2	6,012.8	25.2	24.8	107.74	-1,080.9	-310.5	332.5	284.8	47.72	6.967	
6,600.0	5,912.3	6,700.9	6,012.8	26.9	26.5	107.13	-1,200.0	-322.4	342.0	290.8	51.18	6.683	
6,700.0	5,912.3	6,821.6	6,012.8	28.6	28.3	106.91	-1,320.6	-326.9	345.6	290.9	54.63	6.326	
6,800.0	5,912.3	6,923.4	6,012.8	30.3	30.0	106.91	-1,422.4	-326.9	345.6	287.7	57.88	5.971	
6,900.0	5,912.3	7,023.4	6,012.8	32.0	31.6	106.91	-1,522.4	-326.9	345.6	284.4	61.20	5.647	
7,000.0	5,912.3	7,123.4	6,012.8	33.8	33.3	106.91	-1,622.4	-326.9	345.6	281.0	64.56	5.353	
7,100.0	5,912.3	7,223.4	6,012.8	35.6	35.0	106.92	-1,722.4	-326.9	345.6	277.6	67.95	5.086	
7,200.0	5,912.3	7,323.4	6,012.8	37.4	36.8	106.92	-1,822.4	-326.9	345.6	274.2	71.38	4.842	
7,300.0	5,912.3	7,423.4	6,012.8	39.2	38.5	106.92	-1,922.4	-326.9	345.6	270.8	74.83	4.618	
7,400.0	5,912.3	7,523.4	6,012.8	41.0	40.3	106.92	-2,022.4	-326.9	345.6	267.3	78.31	4.413	
7,500.0	5,912.3	7,623.4	6,012.8	42.9	42.1	106.92	-2,122.4	-326.9	345.6	263.8	81.80	4.225	
7,600.0	5,912.3	7,723.4	6,012.8	44.7	43.9	106.92	-2,222.4	-326.9	345.6	260.3	85.32	4.051	
7,700.0	5,912.3	7,823.4	6,012.8	46.5	45.7	106.92	-2,322.4	-326.9	345.6	256.7	88.85	3.890	
7,800.0	5,912.2	7,923.4	6,012.9	48.4	47.5	106.92	-2,422.4	-326.9	345.6	253.2	92.39	3.741	
7,900.0	5,912.2	8,023.4	6,012.9	50.2	49.3	106.93	-2,522.4	-326.9	345.6	249.7	95.94	3.602	
8,000.0	5,912.2	8,123.4	6,012.9	52.1	51.2	106.93	-2,622.4	-326.9	345.6	246.1	99.51	3.473	
8,100.0	5,912.2	8,223.4	6,012.9	54.0	53.0	106.93	-2,722.4	-326.9	345.6	242.5	103.08	3.353	
8,200.0	5,912.2	8,323.4	6,012.9	55.8	54.8	106.93	-2,822.4	-326.9	345.6	238.9	106.67	3.240	
8,300.0	5,912.2	8,423.4	6,012.9	57.7	56.7	106.93	-2,922.4	-326.9	345.6	235.3	110.26	3.134	
8,400.0	5,912.2	8,523.4	6,012.9	59.6	58.5	106.93	-3,022.4	-326.9	345.6	231.7	113.86	3.035	
8,500.0	5,912.2	8,623.4	6,012.9	61.5	60.4	106.93	-3,122.4	-326.9	345.6	228.1	117.46	2.942	
8,600.0	5,912.2	8,723.4	6,012.9	63.3	62.3	106.93	-3,222.4	-326.9	345.6	224.5	121.07	2.854	
8,700.0	5,912.2	8,823.4	6,012.9	65.2	64.1	106.93	-3,322.4	-326.9	345.6	220.9	124.69	2.772	
8,800.0	5,912.2	8,923.4	6,012.9	67.1	66.0	106.94	-3,422.4	-326.9	345.6	217.3	128.31	2.693	
8,900.0	5,912.2	9,023.4	6,012.9	69.0	67.9	106.94	-3,522.4	-326.9	345.6	213.7	131.94	2.619	
9,000.0	5,912.2	9,123.4	6,012.9	70.9	69.7	106.94	-3,622.4	-326.9	345.6	210.0	135.57	2.549	
9,100.0	5,912.2	9,223.4	6,012.9	72.8	71.6	106.94	-3,722.4	-326.9	345.6	206.4	139.20	2.483	
9,200.0	5,912.2	9,323.4	6,012.9	74.7	73.5	106.94	-3,822.4	-326.8	345.6	202.8	142.84	2.420	

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 #11E-1403A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Reference Site:	S11-T10N-R58W	**MD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S11-T10N-R58W - Razor #11E-1402B - HZ - Plan #1

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
9,300.0	5,912.2	9,423.4	6,012.9	76.6	75.4	106.94	-3,922.4	-326.8	345.6	199.1	146.48	2.359	
9,400.0	5,912.2	9,523.4	6,012.9	78.5	77.2	106.94	-4,022.4	-326.8	345.6	195.5	150.12	2.302	
9,500.0	5,912.2	9,623.4	6,012.9	80.4	79.1	106.94	-4,122.4	-326.8	345.6	191.8	153.77	2.248	
9,600.0	5,912.2	9,723.4	6,012.9	82.3	81.0	106.94	-4,222.4	-326.8	345.6	188.2	157.41	2.196	
9,700.0	5,912.2	9,823.4	6,012.9	84.1	82.9	106.95	-4,322.4	-326.8	345.6	184.5	161.06	2.146	
9,800.0	5,912.2	9,923.4	6,012.9	86.0	84.8	106.95	-4,422.4	-326.8	345.6	180.9	164.72	2.098	
9,900.0	5,912.2	10,023.4	6,012.9	87.9	86.7	106.95	-4,522.4	-326.8	345.6	177.2	168.37	2.053	
10,000.0	5,912.2	10,123.4	6,012.9	89.9	88.6	106.95	-4,622.4	-326.8	345.6	173.6	172.03	2.009	
10,100.0	5,912.1	10,223.4	6,012.9	91.8	90.5	106.95	-4,722.4	-326.8	345.6	169.9	175.69	1.967	
10,200.0	5,912.1	10,323.4	6,012.9	93.7	92.4	106.95	-4,822.4	-326.8	345.6	166.3	179.35	1.927	
10,300.0	5,912.1	10,423.4	6,012.9	95.6	94.3	106.95	-4,922.4	-326.8	345.6	162.6	183.01	1.888	
10,400.0	5,912.1	10,523.4	6,012.9	97.5	96.2	106.95	-5,022.4	-326.8	345.6	158.9	186.67	1.851	
10,500.0	5,912.1	10,623.4	6,012.9	99.4	98.1	106.95	-5,122.4	-326.8	345.6	155.3	190.34	1.816	
10,600.0	5,912.1	10,723.4	6,012.9	101.3	100.0	106.96	-5,222.4	-326.8	345.6	151.6	194.01	1.781	
10,700.0	5,912.1	10,823.4	6,012.9	103.2	101.9	106.96	-5,322.4	-326.8	345.6	147.9	197.67	1.748	
10,800.0	5,912.1	10,923.4	6,012.9	105.1	103.8	106.96	-5,422.4	-326.8	345.6	144.3	201.34	1.717	
10,900.0	5,912.1	11,023.4	6,012.9	107.0	105.7	106.96	-5,522.4	-326.8	345.6	140.6	205.01	1.686	
11,000.0	5,912.1	11,123.4	6,012.9	108.9	107.6	106.96	-5,622.4	-326.8	345.6	136.9	208.68	1.656	
11,100.0	5,912.1	11,223.4	6,012.9	110.8	109.5	106.96	-5,722.4	-326.8	345.6	133.3	212.36	1.628	
11,200.0	5,912.1	11,323.4	6,012.9	112.7	111.4	106.96	-5,822.4	-326.8	345.6	129.6	216.03	1.600	
11,300.0	5,912.1	11,423.4	6,012.9	114.6	113.3	106.96	-5,922.4	-326.8	345.6	125.9	219.70	1.573	
11,400.0	5,912.1	11,523.4	6,012.9	116.5	115.2	106.97	-6,022.4	-326.8	345.6	122.2	223.38	1.547	
11,500.0	5,912.1	11,623.4	6,012.9	118.5	117.1	106.97	-6,122.4	-326.8	345.6	118.6	227.05	1.522	
11,600.0	5,912.1	11,723.4	6,012.9	120.4	119.0	106.97	-6,222.4	-326.8	345.6	114.9	230.73	1.498	Level 3
11,700.0	5,912.1	11,823.4	6,012.9	122.3	120.9	106.97	-6,322.4	-326.8	345.6	111.2	234.40	1.474	Level 3
11,800.0	5,912.1	11,923.4	6,012.9	124.2	122.8	106.97	-6,422.4	-326.8	345.6	107.5	238.08	1.452	Level 3
11,900.0	5,912.1	12,023.4	6,013.0	126.1	124.7	106.97	-6,522.4	-326.8	345.6	103.9	241.76	1.430	Level 3
12,000.0	5,912.1	12,123.4	6,013.0	128.0	126.6	106.97	-6,622.4	-326.8	345.6	100.2	245.44	1.408	Level 3
12,100.0	5,912.1	12,223.4	6,013.0	129.9	128.5	106.97	-6,722.4	-326.7	345.6	96.5	249.12	1.387	Level 3
12,200.0	5,912.1	12,323.4	6,013.0	131.8	130.4	106.97	-6,822.4	-326.7	345.6	92.8	252.80	1.367	Level 3
12,300.0	5,912.1	12,423.4	6,013.0	133.7	132.3	106.98	-6,922.4	-326.7	345.6	89.1	256.48	1.348	Level 3
12,400.0	5,912.0	12,523.4	6,013.0	135.7	134.2	106.98	-7,022.4	-326.7	345.6	85.5	260.16	1.328	Level 3
12,500.0	5,912.0	12,623.4	6,013.0	137.6	136.2	106.98	-7,122.4	-326.7	345.6	81.8	263.84	1.310	Level 3
12,600.0	5,912.0	12,723.4	6,013.0	139.5	138.1	106.98	-7,222.4	-326.7	345.6	78.1	267.52	1.292	Level 3
12,700.0	5,912.0	12,823.4	6,013.0	141.4	140.0	106.98	-7,322.4	-326.7	345.6	74.4	271.21	1.274	Level 3
12,800.0	5,912.0	12,923.4	6,013.0	143.3	141.9	106.98	-7,422.4	-326.7	345.6	70.7	274.89	1.257	Level 3
12,900.0	5,912.0	13,023.4	6,013.0	145.2	143.8	106.98	-7,522.4	-326.7	345.6	67.1	278.57	1.241	Level 2
13,000.0	5,912.0	13,123.4	6,013.0	147.1	145.7	106.98	-7,622.4	-326.7	345.6	63.4	282.26	1.225	Level 2
13,100.0	5,912.0	13,223.4	6,013.0	149.1	147.6	106.98	-7,722.4	-326.7	345.6	59.7	285.94	1.209	Level 2
13,200.0	5,912.0	13,323.4	6,013.0	151.0	149.5	106.99	-7,822.4	-326.7	345.6	56.0	289.63	1.193	Level 2
13,300.0	5,912.0	13,423.4	6,013.0	152.9	151.4	106.99	-7,922.4	-326.7	345.6	52.3	293.31	1.178	Level 2
13,400.0	5,912.0	13,523.4	6,013.0	154.8	153.3	106.99	-8,022.4	-326.7	345.6	48.6	297.00	1.164	Level 2
13,470.1	5,912.0	13,593.5	6,013.0	156.1	154.7	106.99	-8,092.4	-326.7	345.6	46.1	299.58	1.154	Level 2
13,470.1	5,912.0	13,593.5	6,013.0	156.1	154.7	106.99	-8,092.5	-326.7	345.6	46.0	299.58	1.154	Level 2
13,471.0	5,912.0	13,594.1	6,013.0	156.2	154.7	106.99	-8,093.1	-326.7	345.6	46.0	299.60	1.154	Level 2, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #11E-1403A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Reference Site:	S11-T10N-R58W	**MD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S11-T10N-R58W - Razor #11E-1404B - HZ - Plan #1

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.01	0.0	33.0	33.0				
100.0	100.0	100.0	100.0	0.1	0.1	90.01	0.0	33.0	33.0	32.9	0.19	176.700	
200.0	200.0	200.0	200.0	0.3	0.3	90.01	0.0	33.0	33.0	32.4	0.64	51.912	
300.0	300.0	300.0	300.0	0.5	0.5	90.01	0.0	33.0	33.0	32.0	1.09	30.425	
400.0	400.0	400.0	400.0	0.8	0.8	90.01	0.0	33.0	33.0	31.5	1.54	21.518	
500.0	500.0	500.0	500.0	1.0	1.0	90.01	0.0	33.0	33.0	31.1	1.99	16.646	
600.0	600.0	600.0	600.0	1.2	1.2	90.01	0.0	33.0	33.0	30.6	2.43	13.572	
700.0	700.0	700.0	700.0	1.4	1.4	90.01	0.0	33.0	33.0	30.2	2.88	11.457	
733.6	733.6	733.6	733.6	1.5	1.5	-90.08	0.0	33.0	33.0	30.0	3.03	10.922	CC
800.0	800.0	800.0	800.0	1.6	1.7	-92.76	0.0	33.0	33.1	29.8	3.31	10.009	ES
900.0	899.8	899.7	899.7	1.8	1.9	-98.71	-1.7	33.5	33.9	30.2	3.68	9.209	
1,000.0	999.6	999.6	999.4	2.0	2.0	-101.46	-6.7	34.9	35.6	31.6	4.06	8.775	
1,100.0	1,099.3	1,099.6	1,099.2	2.2	2.2	-101.27	-13.4	36.8	37.5	33.0	4.47	8.395	
1,200.0	1,199.1	1,199.5	1,198.9	2.5	2.4	-101.11	-20.1	38.7	39.4	34.5	4.90	8.041	
1,300.0	1,298.9	1,299.5	1,298.6	2.7	2.7	-100.95	-26.8	40.6	41.3	35.9	5.34	7.718	
1,400.0	1,398.6	1,399.5	1,398.4	2.9	2.9	-100.81	-33.5	42.5	43.1	37.3	5.81	7.428	
1,500.0	1,498.4	1,499.5	1,498.1	3.2	3.1	-100.68	-40.3	44.4	45.0	38.7	6.28	7.169	
1,600.0	1,598.1	1,599.5	1,597.8	3.4	3.4	-100.56	-47.0	46.3	46.9	40.1	6.76	6.937	
1,700.0	1,697.9	1,699.5	1,697.6	3.6	3.6	-100.45	-53.7	48.2	48.8	41.5	7.25	6.730	
1,800.0	1,797.6	1,799.4	1,797.3	3.9	3.8	-100.35	-60.4	50.1	50.6	42.9	7.74	6.544	
1,900.0	1,897.4	1,899.4	1,897.1	4.2	4.1	-100.26	-67.1	52.0	52.5	44.3	8.24	6.378	
2,000.0	1,997.2	1,999.4	1,996.8	4.4	4.3	-100.17	-73.8	53.9	54.4	45.7	8.74	6.227	
2,100.0	2,096.9	2,099.4	2,096.5	4.7	4.6	-100.09	-80.5	55.8	56.3	47.0	9.24	6.091	
2,200.0	2,196.7	2,199.4	2,196.3	4.9	4.8	-100.01	-87.2	57.6	58.2	48.4	9.75	5.967	
2,300.0	2,296.4	2,299.3	2,296.0	5.2	5.1	-99.94	-94.0	59.5	60.0	49.8	10.26	5.855	
2,400.0	2,396.2	2,399.3	2,395.8	5.4	5.4	-99.88	-100.7	61.4	61.9	51.2	10.77	5.752	
2,500.0	2,495.9	2,499.3	2,495.5	5.7	5.6	-99.81	-107.4	63.3	63.8	52.5	11.28	5.657	
2,600.0	2,595.7	2,599.3	2,595.2	5.9	5.9	-99.75	-114.1	65.2	65.7	53.9	11.79	5.570	
2,700.0	2,695.4	2,699.3	2,695.0	6.2	6.1	-99.70	-120.8	67.1	67.6	55.3	12.31	5.490	
2,800.0	2,795.2	2,799.3	2,794.7	6.5	6.4	-99.64	-127.5	69.0	69.4	56.6	12.82	5.415	
2,900.0	2,895.0	2,899.2	2,894.5	6.7	6.6	-99.59	-134.2	70.9	71.3	58.0	13.34	5.346	
3,000.0	2,994.7	2,999.2	2,994.2	7.0	6.9	-99.55	-140.9	72.8	73.2	59.3	13.86	5.282	
3,100.0	3,094.5	3,099.2	3,093.9	7.2	7.2	-99.50	-147.7	74.7	75.1	60.7	14.38	5.222	
3,200.0	3,194.2	3,199.2	3,193.7	7.5	7.4	-99.46	-154.4	76.6	77.0	62.1	14.90	5.167	
3,300.0	3,294.0	3,299.2	3,293.4	7.8	7.7	-99.42	-161.1	78.5	78.8	63.4	15.42	5.114	
3,400.0	3,393.7	3,399.2	3,393.1	8.0	7.9	-99.38	-167.8	80.4	80.7	64.8	15.94	5.065	
3,500.0	3,493.5	3,499.1	3,492.9	8.3	8.2	-99.34	-174.5	82.3	82.6	66.1	16.46	5.019	
3,600.0	3,593.3	3,599.1	3,592.6	8.5	8.5	-99.30	-181.2	84.2	84.5	67.5	16.98	4.976	
3,700.0	3,693.0	3,699.1	3,692.4	8.8	8.7	-99.27	-187.9	86.0	86.4	68.9	17.50	4.935	
3,800.0	3,792.8	3,799.1	3,792.1	9.1	9.0	-99.24	-194.6	87.9	88.2	70.2	18.02	4.896	
3,900.0	3,892.5	3,899.1	3,891.8	9.3	9.2	-99.20	-201.4	89.8	90.1	71.6	18.55	4.859	
4,000.0	3,992.3	3,999.0	3,991.6	9.6	9.5	-99.17	-208.1	91.7	92.0	72.9	19.07	4.825	
4,100.0	4,092.0	4,099.0	4,091.3	9.9	9.8	-99.15	-214.8	93.6	93.9	74.3	19.59	4.792	
4,200.0	4,191.8	4,199.0	4,191.1	10.1	10.0	-99.12	-221.5	95.5	95.8	75.7	20.12	4.761	
4,300.0	4,291.5	4,299.0	4,290.8	10.4	10.3	-99.09	-228.2	97.4	97.7	77.0	20.64	4.731	
4,400.0	4,391.3	4,399.0	4,390.5	10.6	10.6	-99.07	-234.9	99.3	99.5	78.4	21.17	4.703	
4,500.0	4,491.1	4,499.0	4,490.3	10.9	10.8	-99.04	-241.6	101.2	101.4	79.7	21.69	4.676	
4,600.0	4,590.8	4,598.9	4,590.0	11.2	11.1	-99.02	-248.3	103.1	103.3	81.1	22.21	4.650	
4,700.0	4,690.6	4,698.9	4,689.7	11.4	11.3	-98.99	-255.1	105.0	105.2	82.4	22.74	4.625	
4,800.0	4,790.3	4,798.9	4,789.5	11.7	11.6	-98.97	-261.8	106.9	107.1	83.8	23.26	4.602	
4,900.0	4,890.1	4,898.9	4,889.2	12.0	11.9	-98.95	-268.5	108.8	108.9	85.1	23.79	4.579	
5,000.0	4,989.8	4,998.9	4,989.0	12.2	12.1	-98.93	-275.2	110.7	110.8	86.5	24.31	4.558	

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 #11E-1403A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Reference Site:	S11-T10N-R58W	**MD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S11-T10N-R58W - Razor #11E-1404B - HZ - Plan #1

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.0	5,089.6	5,098.8	5,088.7	12.5	12.4	-98.91	-281.9	112.5	112.7	87.9	24.84	4.537	
5,200.0	5,189.4	5,198.8	5,188.4	12.8	12.7	-98.89	-288.6	114.4	114.6	89.2	25.37	4.517	
5,300.0	5,289.1	5,298.8	5,288.2	13.0	12.9	-98.87	-295.3	116.3	116.5	90.6	25.89	4.498	
5,400.0	5,388.9	5,398.8	5,387.9	13.3	13.2	-98.85	-302.0	118.2	118.3	91.9	26.42	4.480	
5,439.0	5,427.8	5,437.8	5,426.8	13.4	13.3	-98.85	-304.7	119.0	119.1	92.5	26.62	4.473	
5,450.0	5,438.7	5,448.8	5,437.8	13.4	13.3	-98.88	-305.4	119.2	119.3	92.6	26.68	4.471	
5,500.0	5,488.2	5,498.6	5,487.5	13.6	13.4	-100.31	-308.8	120.1	120.8	93.9	26.96	4.482	
5,550.0	5,536.8	5,547.9	5,536.6	13.8	13.6	-103.68	-312.1	121.1	123.5	96.3	27.23	4.536	
5,600.0	5,584.1	5,597.0	5,585.3	14.0	13.7	-107.37	-318.3	122.8	128.0	100.5	27.50	4.655	
5,650.0	5,629.6	5,646.9	5,633.9	14.3	13.9	-110.56	-329.1	125.9	134.3	106.5	27.77	4.836	
5,700.0	5,672.9	5,697.6	5,681.9	14.7	14.2	-113.18	-344.7	130.2	142.2	114.1	28.05	5.069	
5,750.0	5,713.6	5,749.1	5,728.9	15.1	14.5	-115.19	-364.9	136.0	151.5	123.2	28.36	5.344	
5,800.0	5,751.4	5,801.4	5,774.2	15.5	14.8	-116.60	-390.0	143.0	162.1	133.4	28.73	5.643	
5,850.0	5,785.8	5,854.4	5,817.3	16.0	15.3	-117.46	-419.8	151.4	173.7	144.5	29.19	5.951	
5,900.0	5,816.6	5,908.3	5,857.6	16.5	15.7	-117.82	-454.2	161.1	186.2	156.4	29.79	6.250	
5,950.0	5,843.5	5,963.0	5,894.5	17.1	16.3	-117.74	-492.9	172.1	199.3	168.7	30.54	6.524	
6,000.0	5,866.2	6,018.4	5,927.4	17.7	16.9	-117.28	-535.9	184.2	212.9	181.4	31.49	6.761	
6,050.0	5,884.6	6,074.7	5,955.8	18.4	17.6	-116.48	-582.6	197.3	226.9	194.3	32.64	6.952	
6,100.0	5,898.4	6,131.7	5,979.0	19.1	18.3	-115.41	-632.7	211.5	241.1	207.1	34.02	7.088	
6,150.0	5,907.5	6,189.5	5,996.6	19.8	19.2	-114.09	-685.7	226.4	255.4	219.8	35.59	7.177	
6,200.0	5,911.9	6,248.1	6,008.1	20.5	20.0	-112.59	-740.9	242.0	269.7	232.4	37.33	7.225	
6,220.8	5,912.3	6,272.7	6,011.0	20.8	20.4	-111.91	-764.4	248.6	275.6	237.5	38.09	7.234	
6,229.1	5,912.3	6,282.5	6,011.8	21.0	20.5	-111.89	-773.9	251.3	277.9	239.6	38.33	7.250	
6,300.0	5,912.3	6,364.5	6,013.3	22.0	21.8	-110.55	-852.9	273.1	296.0	255.1	40.82	7.251	
6,400.0	5,912.3	6,479.5	6,013.3	23.6	23.4	-108.91	-965.0	298.4	316.8	272.5	44.34	7.145	
6,500.0	5,912.3	6,597.2	6,013.3	25.2	25.1	-107.85	-1,081.1	317.4	332.1	284.2	47.86	6.939	
6,600.0	5,912.3	6,716.9	6,013.3	26.9	26.9	-107.24	-1,200.2	329.2	341.6	290.2	51.39	6.646	
6,700.0	5,912.3	6,837.5	6,013.3	28.6	28.7	-107.02	-1,320.8	333.6	345.0	290.1	54.90	6.284	
6,800.0	5,912.3	6,939.1	6,013.3	30.3	30.4	-107.02	-1,422.4	333.6	345.1	286.9	58.18	5.930	
6,900.0	5,912.3	7,039.1	6,013.3	32.0	32.1	-107.02	-1,522.4	333.6	345.0	283.5	61.52	5.608	
7,000.0	5,912.3	7,139.1	6,013.3	33.8	33.8	-107.02	-1,622.4	333.6	345.0	280.1	64.90	5.316	
7,100.0	5,912.3	7,239.1	6,013.3	35.6	35.5	-107.02	-1,722.4	333.6	345.0	276.7	68.31	5.051	
7,200.0	5,912.3	7,339.1	6,013.3	37.4	37.3	-107.02	-1,822.4	333.6	345.0	273.3	71.76	4.809	
7,300.0	5,912.3	7,439.1	6,013.3	39.2	39.0	-107.02	-1,922.4	333.6	345.0	269.8	75.22	4.587	
7,400.0	5,912.3	7,539.1	6,013.3	41.0	40.8	-107.02	-2,022.4	333.6	345.0	266.3	78.71	4.384	
7,500.0	5,912.3	7,639.1	6,013.3	42.9	42.6	-107.02	-2,122.4	333.6	345.0	262.8	82.22	4.197	
7,600.0	5,912.3	7,739.1	6,013.3	44.7	44.4	-107.02	-2,222.4	333.6	345.0	259.3	85.74	4.024	
7,700.0	5,912.3	7,839.1	6,013.2	46.5	46.2	-107.02	-2,322.4	333.6	345.0	255.8	89.27	3.865	
7,800.0	5,912.2	7,939.1	6,013.2	48.4	48.1	-107.02	-2,422.4	333.6	345.0	252.2	92.82	3.717	
7,900.0	5,912.2	8,039.1	6,013.2	50.2	49.9	-107.02	-2,522.4	333.6	345.0	248.6	96.39	3.580	
8,000.0	5,912.2	8,139.1	6,013.2	52.1	51.7	-107.02	-2,622.4	333.6	345.0	245.1	99.96	3.452	
8,100.0	5,912.2	8,239.1	6,013.2	54.0	53.6	-107.02	-2,722.4	333.6	345.0	241.5	103.54	3.332	
8,200.0	5,912.2	8,339.1	6,013.2	55.8	55.4	-107.02	-2,822.4	333.6	345.0	237.9	107.12	3.221	
8,300.0	5,912.2	8,439.1	6,013.2	57.7	57.3	-107.02	-2,922.4	333.6	345.0	234.3	110.72	3.116	
8,400.0	5,912.2	8,539.1	6,013.2	59.6	59.1	-107.02	-3,022.4	333.6	345.0	230.7	114.32	3.018	
8,500.0	5,912.2	8,639.1	6,013.2	61.5	61.0	-107.02	-3,122.4	333.6	345.0	227.1	117.93	2.926	
8,600.0	5,912.2	8,739.1	6,013.2	63.3	62.9	-107.02	-3,222.4	333.6	345.0	223.5	121.54	2.839	
8,700.0	5,912.2	8,839.1	6,013.2	65.2	64.7	-107.02	-3,322.4	333.6	345.0	219.8	125.16	2.756	
8,800.0	5,912.2	8,939.1	6,013.2	67.1	66.6	-107.02	-3,422.4	333.6	345.0	216.2	128.79	2.679	
8,900.0	5,912.2	9,039.1	6,013.2	69.0	68.5	-107.02	-3,522.4	333.6	345.0	212.6	132.41	2.605	
9,000.0	5,912.2	9,139.1	6,013.2	70.9	70.4	-107.02	-3,622.4	333.6	345.0	209.0	136.05	2.536	
9,100.0	5,912.2	9,239.1	6,013.2	72.8	72.2	-107.02	-3,722.4	333.6	345.0	205.3	139.68	2.470	

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 #11E-1403A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Reference Site:	S11-T10N-R58W	**MD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S11-T10N-R58W - Razor #11E-1404B - HZ - Plan #1

Offset Site Error: 0.0 usft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
9,200.0	5,912.2	9,339.1	6,013.2	74.7	74.1	-107.02	-3,822.4	333.6	345.0	201.7	143.32	2.407	
9,300.0	5,912.2	9,439.1	6,013.2	76.6	76.0	-107.02	-3,922.4	333.6	345.0	198.0	146.96	2.348	
9,400.0	5,912.2	9,539.1	6,013.2	78.5	77.9	-107.02	-4,022.4	333.6	345.0	194.4	150.61	2.291	
9,500.0	5,912.2	9,639.1	6,013.2	80.4	79.8	-107.02	-4,122.4	333.6	345.0	190.7	154.25	2.237	
9,600.0	5,912.2	9,739.1	6,013.2	82.3	81.7	-107.02	-4,222.4	333.6	345.0	187.1	157.90	2.185	
9,700.0	5,912.2	9,839.1	6,013.2	84.1	83.6	-107.02	-4,322.4	333.6	345.0	183.4	161.55	2.135	
9,800.0	5,912.2	9,939.1	6,013.2	86.0	85.4	-107.02	-4,422.4	333.6	345.0	179.8	165.21	2.088	
9,900.0	5,912.2	10,039.1	6,013.1	87.9	87.3	-107.02	-4,522.4	333.6	345.0	176.1	168.86	2.043	
10,000.0	5,912.2	10,139.1	6,013.1	89.9	89.2	-107.02	-4,622.4	333.6	345.0	172.5	172.52	2.000	
10,100.0	5,912.1	10,239.1	6,013.1	91.8	91.1	-107.02	-4,722.4	333.6	345.0	168.8	176.18	1.958	
10,200.0	5,912.1	10,339.1	6,013.1	93.7	93.0	-107.02	-4,822.4	333.6	345.0	165.1	179.84	1.918	
10,300.0	5,912.1	10,439.1	6,013.1	95.6	94.9	-107.02	-4,922.4	333.6	345.0	161.5	183.50	1.880	
10,400.0	5,912.1	10,539.1	6,013.1	97.5	96.8	-107.02	-5,022.4	333.6	345.0	157.8	187.17	1.843	
10,500.0	5,912.1	10,639.1	6,013.1	99.4	98.7	-107.02	-5,122.4	333.6	345.0	154.1	190.83	1.808	
10,600.0	5,912.1	10,739.1	6,013.1	101.3	100.6	-107.02	-5,222.4	333.6	345.0	150.5	194.50	1.774	
10,700.0	5,912.1	10,839.1	6,013.1	103.2	102.5	-107.02	-5,322.4	333.6	345.0	146.8	198.17	1.741	
10,800.0	5,912.1	10,939.1	6,013.1	105.1	104.4	-107.02	-5,422.4	333.6	345.0	143.1	201.84	1.709	
10,900.0	5,912.1	11,039.1	6,013.1	107.0	106.3	-107.02	-5,522.4	333.6	345.0	139.4	205.51	1.679	
11,000.0	5,912.1	11,139.1	6,013.1	108.9	108.2	-107.02	-5,622.4	333.6	345.0	135.8	209.18	1.649	
11,100.0	5,912.1	11,239.1	6,013.1	110.8	110.1	-107.02	-5,722.4	333.6	345.0	132.1	212.85	1.621	
11,200.0	5,912.1	11,339.1	6,013.1	112.7	112.0	-107.02	-5,822.4	333.6	344.9	128.4	216.52	1.593	
11,300.0	5,912.1	11,439.1	6,013.1	114.6	113.9	-107.02	-5,922.4	333.6	344.9	124.7	220.20	1.567	
11,400.0	5,912.1	11,539.1	6,013.1	116.5	115.9	-107.02	-6,022.4	333.6	344.9	121.1	223.87	1.541	
11,500.0	5,912.1	11,639.1	6,013.1	118.5	117.8	-107.02	-6,122.4	333.6	344.9	117.4	227.55	1.516	
11,600.0	5,912.1	11,739.1	6,013.1	120.4	119.7	-107.02	-6,222.4	333.6	344.9	113.7	231.22	1.492	Level 3
11,700.0	5,912.1	11,839.1	6,013.1	122.3	121.6	-107.02	-6,322.4	333.6	344.9	110.0	234.90	1.468	Level 3
11,800.0	5,912.1	11,939.1	6,013.1	124.2	123.5	-107.02	-6,422.4	333.6	344.9	106.4	238.58	1.446	Level 3
11,900.0	5,912.1	12,039.1	6,013.1	126.1	125.4	-107.02	-6,522.4	333.6	344.9	102.7	242.26	1.424	Level 3
12,000.0	5,912.1	12,139.1	6,013.1	128.0	127.3	-107.02	-6,622.4	333.6	344.9	99.0	245.93	1.403	Level 3
12,100.0	5,912.1	12,239.1	6,013.0	129.9	129.2	-107.02	-6,722.4	333.6	344.9	95.3	249.61	1.382	Level 3
12,200.0	5,912.1	12,339.1	6,013.0	131.8	131.1	-107.02	-6,822.4	333.6	344.9	91.6	253.29	1.362	Level 3
12,300.0	5,912.1	12,439.1	6,013.0	133.7	133.0	-107.03	-6,922.4	333.6	344.9	87.9	256.97	1.342	Level 3
12,400.0	5,912.0	12,539.1	6,013.0	135.7	134.9	-107.03	-7,022.4	333.6	344.9	84.3	260.66	1.323	Level 3
12,500.0	5,912.0	12,639.1	6,013.0	137.6	136.8	-107.03	-7,122.4	333.6	344.9	80.6	264.34	1.305	Level 3
12,600.0	5,912.0	12,739.1	6,013.0	139.5	138.8	-107.03	-7,222.4	333.6	344.9	76.9	268.02	1.287	Level 3
12,700.0	5,912.0	12,839.1	6,013.0	141.4	140.7	-107.03	-7,322.4	333.6	344.9	73.2	271.70	1.269	Level 3
12,800.0	5,912.0	12,939.1	6,013.0	143.3	142.6	-107.03	-7,422.4	333.6	344.9	69.5	275.38	1.252	Level 3
12,900.0	5,912.0	13,039.1	6,013.0	145.2	144.5	-107.03	-7,522.4	333.6	344.9	65.8	279.07	1.236	Level 2
13,000.0	5,912.0	13,139.1	6,013.0	147.1	146.4	-107.03	-7,622.4	333.6	344.9	62.2	282.75	1.220	Level 2
13,100.0	5,912.0	13,239.1	6,013.0	149.1	148.3	-107.03	-7,722.4	333.6	344.9	58.5	286.44	1.204	Level 2
13,200.0	5,912.0	13,339.1	6,013.0	151.0	150.2	-107.03	-7,822.4	333.6	344.9	54.8	290.12	1.189	Level 2
13,300.0	5,912.0	13,439.1	6,013.0	152.9	152.1	-107.03	-7,922.4	333.6	344.9	51.1	293.81	1.174	Level 2
13,400.0	5,912.0	13,539.1	6,013.0	154.8	154.0	-107.03	-8,022.4	333.6	344.9	47.4	297.49	1.159	Level 2
13,470.0	5,912.0	13,609.1	6,013.0	156.1	155.4	-107.03	-8,092.4	333.6	344.9	44.8	300.07	1.149	Level 2
13,470.1	5,912.0	13,609.2	6,013.0	156.1	155.4	-107.03	-8,092.4	333.6	344.9	44.8	300.07	1.149	Level 2
13,471.0	5,912.0	13,609.2	6,013.0	156.2	155.4	-107.03	-8,092.4	333.6	344.9	44.8	300.09	1.149	Level 2, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor #11E-1403A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Reference Site:	S11-T10N-R58W	**MD Reference:**	WELL @ 5018.6usft (Original Well Elev)
Site Error:	0.0usft	**North Reference:**	True
Reference Well:	Razor #11E-1403A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0usft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 5018.6usft (Original Well Ele
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.00 W °

Coordinates are relative to: Razor #11E-1403A
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.07°