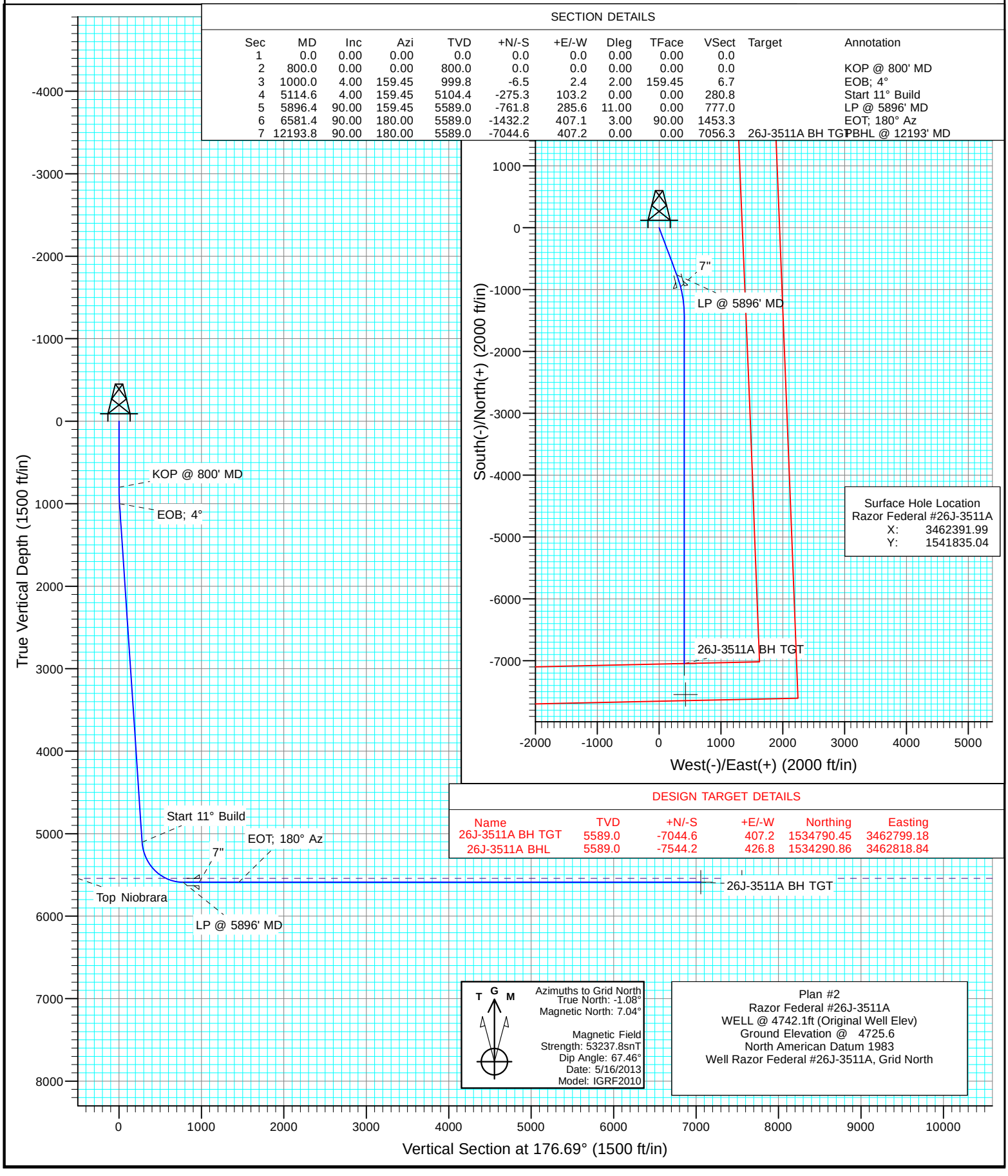
WHITING PETROLEUM CORPORATION

Project: Weld County, CO
Site: S26-T10N-R58W
Well: Razor Federal #26J-3511A
Wellbore: HZ
Design: Plan #2

CATHEDRAL

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		
2	800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.0		KOP @ 800' MD
3	1000.0	4.00	159.45	999.8	-6.5	2.4	2.00	159.45	6.7		EOB; 4°
4	5114.6	4.00	159.45	5104.4	-275.3	103.2	0.00	0.00	280.8		Start 11° Build
5	5896.4	90.00	159.45	5589.0	-761.8	285.6	11.00	0.00	777.0		LP @ 5896' MD
6	6581.4	90.00	180.00	5589.0	-1432.2	407.1	3.00	90.00	1453.3		EOT; 180° Az
7	12193.8	90.00	180.00	5589.0	-7044.6	407.2	0.00	0.00	7056.3	26J-3511A BH TGT	PBHL @ 12193' MD



DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
26J-3511A BH TGT	5589.0	-7044.6	407.2	1534790.45	3462799.18
26J-3511A BHL	5589.0	-7544.2	426.8	1534290.86	3462818.84

T G M

Azimuths to Grid North
True North: -1.08°
Magnetic North: 7.04°

Magnetic Field
Strength: 53237.8snT
Dip Angle: 67.46°
Date: 5/16/2013
Model: IGRF2010

Plan #2
Razor Federal #26J-3511A
WELL @ 4742.1ft (Original Well Elev)
Ground Elevation @ 4725.6
North American Datum 1983
Well Razor Federal #26J-3511A, Grid North

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor Federal #26J-3511A
Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Site:	S26-T10N-R58W	**North Reference:**	Grid
Well:	Razor Federal #26J-3511A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

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 S26-T10N-R58W

Site Position:		**Northing:**	1,541,777.36 ft	**Latitude:**	40° 48' 31.46 N
From:	Lat/Long	**Easting:**	3,459,649.47 ft	**Longitude:**	103° 50' 22.31 W
Position Uncertainty:	0.0 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	1.07 °

Well Razor Federal #26J-3511A

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,541,835.04 ft	**Latitude:**	40° 48' 31.52 N
	+E/-W	0.0 ft	**Easting:**	3,462,391.99 ft	**Longitude:**	103° 49' 46.64 W
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,725.6 ft

Wellbore HZ

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/16/2013	8.12	67.46	53,238

Design Plan #2

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	176.69

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	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	4.00	159.45	999.8	-6.5	2.4	2.00	2.00	0.00	159.45	
5,114.6	4.00	159.45	5,104.4	-275.3	103.2	0.00	0.00	0.00	0.00	
5,896.4	90.00	159.45	5,589.0	-761.8	285.6	11.00	11.00	0.00	0.00	
6,581.4	90.00	180.00	5,589.0	-1,432.2	407.1	3.00	0.00	3.00	90.00	
12,193.8	90.00	180.00	5,589.0	-7,044.6	407.2	0.00	0.00	0.00	0.00	26J-3511A BH TGT

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor Federal #26J-3511A
Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Site:	S26-T10N-R58W	**North Reference:**	Grid
Well:	Razor Federal #26J-3511A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

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	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	KOP @ 800' MD
900.0	2.00	159.45	900.0	-1.6	0.6	1.7	2.00	2.00	
1,000.0	4.00	159.45	999.8	-6.5	2.4	6.7	2.00	2.00	EOB; 4°
1,100.0	4.00	159.45	1,099.6	-13.1	4.9	13.3	0.00	0.00	
1,200.0	4.00	159.45	1,199.4	-19.6	7.3	20.0	0.00	0.00	
1,300.0	4.00	159.45	1,299.1	-26.1	9.8	26.7	0.00	0.00	
1,400.0	4.00	159.45	1,398.9	-32.7	12.2	33.3	0.00	0.00	
1,500.0	4.00	159.45	1,498.6	-39.2	14.7	40.0	0.00	0.00	
1,600.0	4.00	159.45	1,598.4	-45.7	17.1	46.6	0.00	0.00	
1,700.0	4.00	159.45	1,698.1	-52.3	19.6	53.3	0.00	0.00	
1,800.0	4.00	159.45	1,797.9	-58.8	22.0	60.0	0.00	0.00	
1,900.0	4.00	159.45	1,897.6	-65.3	24.5	66.6	0.00	0.00	
2,000.0	4.00	159.45	1,997.4	-71.9	26.9	73.3	0.00	0.00	
2,100.0	4.00	159.45	2,097.2	-78.4	29.4	79.9	0.00	0.00	
2,200.0	4.00	159.45	2,196.9	-84.9	31.8	86.6	0.00	0.00	
2,300.0	4.00	159.45	2,296.7	-91.4	34.3	93.3	0.00	0.00	
2,400.0	4.00	159.45	2,396.4	-98.0	36.7	99.9	0.00	0.00	
2,500.0	4.00	159.45	2,496.2	-104.5	39.2	106.6	0.00	0.00	
2,600.0	4.00	159.45	2,595.9	-111.0	41.6	113.3	0.00	0.00	
2,700.0	4.00	159.45	2,695.7	-117.6	44.1	119.9	0.00	0.00	
2,800.0	4.00	159.45	2,795.5	-124.1	46.5	126.6	0.00	0.00	
2,900.0	4.00	159.45	2,895.2	-130.6	49.0	133.2	0.00	0.00	
3,000.0	4.00	159.45	2,995.0	-137.2	51.4	139.9	0.00	0.00	
3,100.0	4.00	159.45	3,094.7	-143.7	53.9	146.6	0.00	0.00	
3,200.0	4.00	159.45	3,194.5	-150.2	56.3	153.2	0.00	0.00	
3,300.0	4.00	159.45	3,294.2	-156.8	58.8	159.9	0.00	0.00	
3,400.0	4.00	159.45	3,394.0	-163.3	61.2	166.6	0.00	0.00	
3,500.0	4.00	159.45	3,493.7	-169.8	63.7	173.2	0.00	0.00	
3,600.0	4.00	159.45	3,593.5	-176.4	66.1	179.9	0.00	0.00	
3,700.0	4.00	159.45	3,693.3	-182.9	68.6	186.5	0.00	0.00	
3,800.0	4.00	159.45	3,793.0	-189.4	71.0	193.2	0.00	0.00	
3,900.0	4.00	159.45	3,892.8	-196.0	73.5	199.9	0.00	0.00	
4,000.0	4.00	159.45	3,992.5	-202.5	75.9	206.5	0.00	0.00	
4,100.0	4.00	159.45	4,092.3	-209.0	78.4	213.2	0.00	0.00	
4,200.0	4.00	159.45	4,192.0	-215.6	80.8	219.9	0.00	0.00	
4,300.0	4.00	159.45	4,291.8	-222.1	83.3	226.5	0.00	0.00	
4,400.0	4.00	159.45	4,391.6	-228.6	85.7	233.2	0.00	0.00	
4,500.0	4.00	159.45	4,491.3	-235.1	88.2	239.8	0.00	0.00	
4,600.0	4.00	159.45	4,591.1	-241.7	90.6	246.5	0.00	0.00	
4,700.0	4.00	159.45	4,690.8	-248.2	93.0	253.2	0.00	0.00	
4,800.0	4.00	159.45	4,790.6	-254.7	95.5	259.8	0.00	0.00	
4,900.0	4.00	159.45	4,890.3	-261.3	97.9	266.5	0.00	0.00	
5,000.0	4.00	159.45	4,990.1	-267.8	100.4	273.2	0.00	0.00	
5,100.0	4.00	159.45	5,089.9	-274.3	102.8	279.8	0.00	0.00	

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Site:	S26-T10N-R58W	**North Reference:**	Grid
Well:	Razor Federal #26J-3511A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

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
5,114.6	4.00	159.45	5,104.4	-275.3	103.2	280.8	0.00	0.00	Start 11° Build
5,200.0	13.39	159.45	5,188.7	-287.4	107.7	293.1	11.00	11.00	
5,300.0	24.39	159.45	5,283.2	-317.6	119.1	324.0	11.00	11.00	
5,400.0	35.39	159.45	5,369.8	-364.2	136.5	371.5	11.00	11.00	
5,500.0	46.39	159.45	5,445.2	-425.4	159.5	433.9	11.00	11.00	
5,600.0	57.39	159.45	5,506.9	-499.0	187.1	509.0	11.00	11.00	
5,673.6	65.49	159.45	5,542.0	-559.5	209.7	570.7	11.00	11.00	Top Niobrara
5,700.0	68.39	159.45	5,552.4	-582.2	218.3	593.9	11.00	11.00	
5,800.0	79.39	159.45	5,580.1	-672.1	251.9	685.5	11.00	11.00	
5,896.4	90.00	159.45	5,589.0	-761.8	285.6	777.0	11.00	11.00	LP @ 5896' MD
5,900.0	90.00	159.56	5,589.0	-765.2	286.8	780.5	3.00	0.00	
6,000.0	90.00	162.56	5,589.0	-859.8	319.3	876.7	3.00	0.00	
6,100.0	90.00	165.56	5,589.0	-955.9	346.8	974.3	3.00	0.00	7"
6,200.0	90.00	168.56	5,589.0	-1,053.3	369.2	1,072.9	3.00	0.00	
6,300.0	90.00	171.56	5,589.0	-1,151.8	386.4	1,172.2	3.00	0.00	
6,400.0	90.00	174.56	5,589.0	-1,251.1	398.5	1,272.0	3.00	0.00	
6,500.0	90.00	177.56	5,589.0	-1,350.8	405.4	1,372.0	3.00	0.00	
6,581.4	90.00	180.00	5,589.0	-1,432.2	407.1	1,453.3	3.00	0.00	EOT; 180° Az
6,600.0	90.00	180.00	5,589.0	-1,450.8	407.1	1,471.9	0.00	0.00	
6,700.0	90.00	180.00	5,589.0	-1,550.8	407.1	1,571.7	0.00	0.00	
6,800.0	90.00	180.00	5,589.0	-1,650.8	407.1	1,671.6	0.00	0.00	
6,900.0	90.00	180.00	5,589.0	-1,750.8	407.1	1,771.4	0.00	0.00	
7,000.0	90.00	180.00	5,589.0	-1,850.8	407.1	1,871.2	0.00	0.00	
7,100.0	90.00	180.00	5,589.0	-1,950.8	407.1	1,971.1	0.00	0.00	
7,200.0	90.00	180.00	5,589.0	-2,050.8	407.1	2,070.9	0.00	0.00	
7,300.0	90.00	180.00	5,589.0	-2,150.8	407.1	2,170.7	0.00	0.00	
7,400.0	90.00	180.00	5,589.0	-2,250.8	407.1	2,270.6	0.00	0.00	
7,500.0	90.00	180.00	5,589.0	-2,350.8	407.1	2,370.4	0.00	0.00	
7,600.0	90.00	180.00	5,589.0	-2,450.8	407.1	2,470.2	0.00	0.00	
7,700.0	90.00	180.00	5,589.0	-2,550.8	407.1	2,570.1	0.00	0.00	
7,800.0	90.00	180.00	5,589.0	-2,650.8	407.1	2,669.9	0.00	0.00	
7,900.0	90.00	180.00	5,589.0	-2,750.8	407.1	2,769.7	0.00	0.00	
8,000.0	90.00	180.00	5,589.0	-2,850.8	407.1	2,869.6	0.00	0.00	
8,100.0	90.00	180.00	5,589.0	-2,950.8	407.1	2,969.4	0.00	0.00	
8,200.0	90.00	180.00	5,589.0	-3,050.8	407.1	3,069.2	0.00	0.00	
8,300.0	90.00	180.00	5,589.0	-3,150.8	407.1	3,169.1	0.00	0.00	
8,400.0	90.00	180.00	5,589.0	-3,250.8	407.1	3,268.9	0.00	0.00	
8,500.0	90.00	180.00	5,589.0	-3,350.8	407.1	3,368.7	0.00	0.00	
8,600.0	90.00	180.00	5,589.0	-3,450.8	407.1	3,468.6	0.00	0.00	
8,700.0	90.00	180.00	5,589.0	-3,550.8	407.1	3,568.4	0.00	0.00	
8,800.0	90.00	180.00	5,589.0	-3,650.8	407.1	3,668.2	0.00	0.00	
8,900.0	90.00	180.00	5,589.0	-3,750.8	407.1	3,768.1	0.00	0.00	
9,000.0	90.00	180.00	5,589.0	-3,850.8	407.2	3,867.9	0.00	0.00	
9,100.0	90.00	180.00	5,589.0	-3,950.8	407.2	3,967.7	0.00	0.00	
9,200.0	90.00	180.00	5,589.0	-4,050.8	407.2	4,067.6	0.00	0.00	
9,300.0	90.00	180.00	5,589.0	-4,150.8	407.2	4,167.4	0.00	0.00	
9,400.0	90.00	180.00	5,589.0	-4,250.8	407.2	4,267.2	0.00	0.00	
9,500.0	90.00	180.00	5,589.0	-4,350.8	407.2	4,367.1	0.00	0.00	
9,600.0	90.00	180.00	5,589.0	-4,450.8	407.2	4,466.9	0.00	0.00	
9,700.0	90.00	180.00	5,589.0	-4,550.8	407.2	4,566.7	0.00	0.00	
9,800.0	90.00	180.00	5,589.0	-4,650.8	407.2	4,666.6	0.00	0.00	
9,900.0	90.00	180.00	5,589.0	-4,750.8	407.2	4,766.4	0.00	0.00	

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Well:	Razor Federal #26J-3511A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

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
10,000.0	90.00	180.00	5,589.0	-4,850.8	407.2	4,866.2	0.00	0.00	
10,100.0	90.00	180.00	5,589.0	-4,950.8	407.2	4,966.1	0.00	0.00	
10,200.0	90.00	180.00	5,589.0	-5,050.8	407.2	5,065.9	0.00	0.00	
10,300.0	90.00	180.00	5,589.0	-5,150.8	407.2	5,165.7	0.00	0.00	
10,400.0	90.00	180.00	5,589.0	-5,250.8	407.2	5,265.6	0.00	0.00	
10,500.0	90.00	180.00	5,589.0	-5,350.8	407.2	5,365.4	0.00	0.00	
10,600.0	90.00	180.00	5,589.0	-5,450.8	407.2	5,465.2	0.00	0.00	
10,700.0	90.00	180.00	5,589.0	-5,550.8	407.2	5,565.1	0.00	0.00	
10,800.0	90.00	180.00	5,589.0	-5,650.8	407.2	5,664.9	0.00	0.00	
10,900.0	90.00	180.00	5,589.0	-5,750.8	407.2	5,764.7	0.00	0.00	
11,000.0	90.00	180.00	5,589.0	-5,850.8	407.2	5,864.6	0.00	0.00	
11,100.0	90.00	180.00	5,589.0	-5,950.8	407.2	5,964.4	0.00	0.00	
11,200.0	90.00	180.00	5,589.0	-6,050.8	407.2	6,064.2	0.00	0.00	
11,300.0	90.00	180.00	5,589.0	-6,150.8	407.2	6,164.1	0.00	0.00	
11,400.0	90.00	180.00	5,589.0	-6,250.8	407.2	6,263.9	0.00	0.00	
11,500.0	90.00	180.00	5,589.0	-6,350.8	407.2	6,363.7	0.00	0.00	
11,600.0	90.00	180.00	5,589.0	-6,450.8	407.2	6,463.6	0.00	0.00	
11,700.0	90.00	180.00	5,589.0	-6,550.8	407.2	6,563.4	0.00	0.00	
11,800.0	90.00	180.00	5,589.0	-6,650.8	407.2	6,663.2	0.00	0.00	
11,900.0	90.00	180.00	5,589.0	-6,750.8	407.2	6,763.1	0.00	0.00	
12,000.0	90.00	180.00	5,589.0	-6,850.8	407.2	6,862.9	0.00	0.00	
12,100.0	90.00	180.00	5,589.0	-6,950.8	407.2	6,962.7	0.00	0.00	
12,193.8	90.00	180.00	5,589.0	-7,044.6	407.2	7,056.3	0.00	0.00	PBHL @ 12193' MD

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
26J-3511A BH TGT - plan hits target center - Point	0.00	0.00	5,589.0	-7,044.6	407.2	1,534,790.45	3,462,799.18	40° 47' 21.85 N	103° 49' 43.07 W
26J-3511A BHL - plan misses target center by 500.0ft at 12193.8ft MD (5589.0 TVD, -7044.6 N, 407.2 E) - Point	0.00	0.00	5,589.0	-7,544.2	426.8	1,534,290.86	3,462,818.84	40° 47' 16.91 N	103° 49' 42.94 W

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
6,100.0	5,589.0	7"	0.000	0.000

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,673.6	5,542.0	Top Niobrara		0.00	

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Razor Federal #26J-3511A
Company:	Whiting Petroleum Corporation	**TVD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Project:	Weld County, CO	**MD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Site:	S26-T10N-R58W	**North Reference:**	Grid
Well:	Razor Federal #26J-3511A	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
800.0	800.0	0.0	0.0	KOP @ 800' MD
1,000.0	999.8	-6.5	2.4	EOB; 4°
5,114.6	5,104.4	-275.3	103.2	Start 11° Build
5,896.4	5,589.0	-761.8	285.6	LP @ 5896' MD
6,581.4	5,589.0	-1,432.2	407.1	EOT; 180° Az
12,193.8	5,589.0	-7,044.6	407.2	PBHL @ 12193' MD

CATHEDRAL

Whiting Petroleum Corporation

Weld County, CO
S26-T10N-R58W
Razor Federal #26J-3511A
HZ
Plan #2

Anticollision Report

18 June, 2013

CATHEDRAL

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor Federal #26J-3511A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	**MD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	Grid
Reference Well:	Razor Federal #26J-3511A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Reference Plan #2

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 500.0ft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	2.00 **Sigma**		

Survey Tool Program **Date** 6/18/2013

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	12,193.4	Plan #2 (HZ)	ISCWSA MWD	MWD - ISCWSA

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
S26-T10N-R58W						
Razor #26J-2633L - HZ - Plan #1	200.0	200.0	123.9	123.3	194.432	CC
Razor #26J-2633L - HZ - Plan #1	5,200.0	5,195.4	144.2	118.8	5.678	ES
Razor #26J-2633L - HZ - Plan #1	5,250.0	5,244.1	145.1	119.3	5.635	SF
Razor #26K-3507A - HZ - Plan #2						Out of range
Razor #26K-3508B - HZ - Plan #2						Out of range
Razor 26-3524H (Existing) - Existing - SURVEYs						Out of range
Razor Federal #26I-3513A - HZ - Plan #1						Out of range
Razor Federal #26I-3514B - HZ - Plan #1						Out of range
Razor Federal #26I-3515A - HZ - Plan #2						Out of range
Razor Federal #26I-3516B - HZ - Plan #2						Out of range
Razor Federal #26J-2309A - HZ - Plan #1	500.0	500.0	33.2	31.2	16.729	CC, ES
Razor Federal #26J-2309A - HZ - Plan #1	800.0	798.2	42.2	38.9	12.657	SF
Razor Federal #26J-2310B - HZ - Plan #1	1,202.6	1,202.8	87.1	82.0	17.192	CC, ES
Razor Federal #26J-2310B - HZ - Plan #1	1,600.0	1,596.4	103.1	96.3	15.016	SF
Razor Federal #26J-2311A - HZ - Plan #1	1,002.9	1,002.6	31.5	27.3	7.542	CC, ES
Razor Federal #26J-2311A - HZ - Plan #1	1,100.0	1,098.7	33.8	29.2	7.376	SF
Razor Federal #26J-2312B - HZ - Plan #1	1,609.0	1,608.5	10.3	3.4	1.494	Level 3, CC, ES, SF
Razor Federal #26J-3509A - HZ - Plan #2	800.0	800.0	65.3	62.0	19.593	CC, ES
Razor Federal #26J-3509A - HZ - Plan #2	5,114.6	5,111.1	221.9	197.5	9.069	SF
Razor Federal #26J-3510B - HZ - Plan #2	600.0	600.0	82.1	79.6	33.700	CC, ES
Razor Federal #26J-3510B - HZ - Plan #2	12,193.8	12,127.4	341.5	80.5	1.308	Level 3, SF
Razor Federal #26J-3512B - HZ - Plan #1	1,224.1	1,218.9	67.9	62.9	13.567	CC
Razor Federal #26J-3512B - HZ - Plan #1	5,400.0	5,374.2	73.4	46.7	2.748	ES
Razor Federal #26J-3512B - HZ - Plan #1	12,193.8	12,328.9	360.6	100.4	1.386	Level 3, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor Federal #26J-3511A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	**MD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	Grid
Reference Well:	Razor Federal #26J-3511A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design S26-T10N-R58W - Razor #26J-2633L - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-128.38	-76.9	-97.1	123.9				
100.0	100.0	100.0	100.0	0.1	0.1	-128.38	-76.9	-97.1	123.9	123.7	0.19	660.136	
200.0	200.0	200.0	200.0	0.3	0.3	-128.38	-76.9	-97.1	123.9	123.3	0.64	194.432	CC
300.0	300.0	298.3	298.3	0.5	0.5	-129.09	-78.6	-96.7	124.6	123.5	1.06	117.504	
400.0	400.0	397.1	397.0	0.8	0.7	-131.07	-83.2	-95.4	126.7	125.2	1.49	84.956	
500.0	500.0	496.9	496.7	1.0	0.9	-133.24	-88.4	-94.0	129.1	127.2	1.94	66.435	
600.0	600.0	596.8	596.4	1.2	1.2	-135.32	-93.7	-92.6	131.8	129.4	2.41	54.794	
700.0	700.0	696.6	696.1	1.4	1.4	-137.32	-99.0	-91.2	134.7	131.8	2.87	46.898	
800.0	800.0	796.5	795.8	1.7	1.7	-139.23	-104.2	-89.8	137.7	134.3	3.34	41.229	
900.0	900.0	896.4	895.5	1.9	1.9	60.06	-109.5	-88.4	139.9	136.2	3.75	37.346	
1,000.0	999.8	996.4	995.4	2.0	2.2	60.09	-114.7	-87.0	140.5	136.3	4.17	33.718	
1,100.0	1,099.6	1,096.4	1,095.2	2.2	2.4	60.76	-120.0	-85.6	140.2	135.6	4.60	30.449	
1,200.0	1,199.4	1,196.4	1,195.1	2.5	2.7	61.42	-125.3	-84.2	139.9	134.8	5.05	27.683	
1,300.0	1,299.1	1,296.4	1,294.9	2.7	2.9	62.08	-130.5	-82.8	139.6	134.1	5.51	25.328	
1,400.0	1,398.9	1,396.4	1,394.7	2.9	3.2	62.75	-135.8	-81.4	139.4	133.4	5.98	23.307	
1,500.0	1,498.6	1,496.4	1,494.6	3.1	3.4	63.42	-141.0	-80.0	139.1	132.7	6.45	21.561	
1,600.0	1,598.4	1,596.3	1,594.4	3.4	3.7	64.10	-146.3	-78.6	138.9	132.0	6.93	20.041	
1,700.0	1,698.1	1,696.3	1,694.3	3.6	3.9	64.77	-151.6	-77.2	138.7	131.3	7.42	18.708	
1,800.0	1,797.9	1,796.3	1,794.1	3.9	4.2	65.45	-156.8	-75.8	138.6	130.7	7.90	17.533	
1,900.0	1,897.6	1,896.3	1,893.9	4.1	4.4	66.13	-162.1	-74.4	138.4	130.0	8.39	16.489	
2,000.0	1,997.4	1,996.3	1,993.8	4.4	4.7	66.81	-167.3	-73.0	138.3	129.4	8.89	15.557	
2,100.0	2,097.2	2,096.3	2,093.6	4.6	4.9	67.49	-172.6	-71.6	138.2	128.8	9.39	14.721	
2,200.0	2,196.9	2,196.3	2,193.4	4.9	5.2	68.17	-177.9	-70.2	138.1	128.2	9.88	13.968	
2,300.0	2,296.7	2,296.2	2,293.3	5.1	5.4	68.85	-183.1	-68.8	138.0	127.6	10.39	13.287	
2,400.0	2,396.4	2,396.2	2,393.1	5.4	5.7	69.54	-188.4	-67.4	137.9	127.1	10.89	12.668	
2,500.0	2,496.2	2,496.2	2,493.0	5.6	5.9	70.22	-193.7	-66.0	137.9	126.5	11.39	12.103	
2,600.0	2,595.9	2,596.2	2,592.8	5.9	6.2	70.90	-198.9	-64.6	137.9	126.0	11.90	11.587	
2,630.4	2,626.3	2,626.6	2,623.1	6.0	6.2	71.11	-200.5	-64.2	137.9	125.8	12.06	11.438	
2,700.0	2,695.7	2,696.2	2,692.6	6.1	6.4	71.59	-204.2	-63.2	137.9	125.5	12.41	11.113	
2,800.0	2,795.5	2,796.2	2,792.5	6.4	6.7	72.27	-209.4	-61.8	137.9	125.0	12.92	10.677	
2,900.0	2,895.2	2,896.2	2,892.3	6.6	6.9	72.96	-214.7	-60.4	138.0	124.5	13.43	10.274	
3,000.0	2,995.0	2,996.1	2,992.2	6.9	7.2	73.64	-220.0	-59.0	138.0	124.1	13.94	9.902	
3,100.0	3,094.7	3,096.1	3,092.0	7.2	7.4	74.32	-225.2	-57.6	138.1	123.7	14.45	9.557	
3,200.0	3,194.5	3,196.1	3,191.8	7.4	7.7	75.00	-230.5	-56.2	138.2	123.2	14.96	9.236	
3,300.0	3,294.2	3,296.1	3,291.7	7.7	7.9	75.68	-235.8	-54.8	138.3	122.8	15.48	8.937	
3,400.0	3,394.0	3,396.1	3,391.5	7.9	8.2	76.36	-241.0	-53.4	138.5	122.5	15.99	8.658	
3,500.0	3,493.7	3,496.1	3,491.3	8.2	8.4	77.04	-246.3	-52.0	138.6	122.1	16.51	8.397	
3,600.0	3,593.5	3,596.1	3,591.2	8.5	8.7	77.72	-251.5	-50.6	138.8	121.8	17.02	8.153	
3,700.0	3,693.3	3,696.1	3,691.0	8.7	8.9	78.39	-256.8	-49.1	139.0	121.5	17.54	7.925	
3,800.0	3,793.0	3,796.0	3,790.9	9.0	9.2	79.06	-262.1	-47.7	139.2	121.2	18.06	7.710	
3,900.0	3,892.8	3,896.0	3,890.7	9.3	9.4	79.73	-267.3	-46.3	139.5	120.9	18.58	7.508	
4,000.0	3,992.5	3,996.0	3,990.5	9.5	9.7	80.40	-272.6	-44.9	139.7	120.6	19.09	7.318	
4,100.0	4,092.3	4,096.0	4,090.4	9.8	9.9	81.07	-277.8	-43.5	140.0	120.4	19.61	7.138	
4,200.0	4,192.0	4,196.0	4,190.2	10.0	10.2	81.73	-283.1	-42.1	140.3	120.2	20.13	6.969	
4,300.0	4,291.8	4,296.0	4,290.0	10.3	10.4	82.39	-288.4	-40.7	140.6	120.0	20.65	6.809	
4,400.0	4,391.6	4,396.0	4,389.9	10.6	10.7	83.04	-293.6	-39.3	140.9	119.8	21.17	6.658	
4,500.0	4,491.3	4,495.9	4,489.7	10.8	10.9	83.70	-298.9	-37.9	141.3	119.6	21.69	6.515	
4,600.0	4,591.1	4,595.9	4,589.6	11.1	11.2	84.35	-304.2	-36.5	141.7	119.4	22.20	6.380	
4,700.0	4,690.8	4,695.9	4,689.4	11.4	11.4	84.99	-309.4	-35.1	142.0	119.3	22.72	6.251	
4,800.0	4,790.6	4,795.9	4,789.2	11.6	11.7	85.64	-314.7	-33.7	142.4	119.2	23.24	6.129	
4,900.0	4,890.3	4,895.9	4,889.1	11.9	11.9	86.28	-319.9	-32.3	142.9	119.1	23.76	6.013	
5,000.0	4,990.1	4,995.9	4,988.9	12.1	12.2	86.91	-325.2	-30.9	143.3	119.0	24.28	5.903	

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 Federal #26J-3511A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	**MD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	Grid
Reference Well:	Razor Federal #26J-3511A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design S26-T10N-R58W - Razor #26J-2633L - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.0	5,089.9	5,095.9	5,088.8	12.4	12.4	87.54	-330.5	-29.5	143.8	119.0	24.80	5.798	
5,114.6	5,104.4	5,110.5	5,103.3	12.4	12.5	87.64	-331.2	-29.3	143.8	119.0	24.87	5.783	
5,150.0	5,139.6	5,145.8	5,138.6	12.5	12.5	88.32	-333.1	-28.8	144.0	118.9	25.07	5.743	
5,200.0	5,188.7	5,195.4	5,188.1	12.7	12.7	90.88	-335.7	-28.1	144.2	118.8	25.39	5.678	ES
5,250.0	5,236.7	5,244.1	5,236.7	13.0	12.8	95.12	-338.3	-27.4	145.1	119.3	25.74	5.635	SF
5,300.0	5,283.2	5,291.4	5,284.0	13.2	12.9	100.67	-340.8	-26.8	147.7	121.6	26.06	5.667	
5,350.0	5,327.7	5,337.1	5,329.6	13.5	13.0	106.96	-343.2	-26.1	153.3	127.0	26.26	5.838	
5,400.0	5,369.8	5,380.0	5,372.4	13.9	13.1	113.27	-345.3	-25.6	163.2	137.0	26.25	6.218	
5,450.0	5,409.1	5,419.4	5,411.8	14.3	13.2	118.98	-346.7	-25.2	178.7	152.7	26.03	6.864	
5,500.0	5,445.2	5,455.1	5,447.5	14.8	13.3	123.60	-347.6	-24.9	200.2	174.5	25.69	7.795	
5,550.0	5,477.9	5,486.7	5,479.1	15.3	13.3	126.85	-348.0	-24.8	227.6	202.2	25.34	8.982	
5,600.0	5,506.9	5,514.4	5,506.9	15.9	13.4	128.65	-348.0	-24.8	260.2	235.0	25.14	10.348	
5,650.0	5,531.7	5,539.3	5,531.7	16.5	13.4	129.07	-348.0	-24.8	297.1	271.9	25.23	11.774	
5,700.0	5,552.4	5,559.9	5,552.4	17.2	13.5	127.65	-348.0	-24.8	337.6	311.7	25.88	13.045	
5,750.0	5,568.5	5,576.1	5,568.5	17.9	13.5	123.88	-348.0	-24.8	380.8	353.5	27.31	13.941	
5,800.0	5,580.1	5,587.6	5,580.1	18.7	13.5	116.89	-348.0	-24.8	426.1	396.4	29.71	14.346	
5,850.0	5,586.9	5,594.5	5,586.9	19.4	13.5	105.40	-348.0	-24.8	473.0	440.2	32.74	14.446	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor Federal #26J-3511A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	**MD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	Grid
Reference Well:	Razor Federal #26J-3511A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design S26-T10N-R58W - Razor Federal #26J-2309A - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-91.06	-0.6	-33.2	33.2				
100.0	100.0	100.0	100.0	0.1	0.1	-91.06	-0.6	-33.2	33.2	33.0	0.19	177.002	
200.0	200.0	200.0	200.0	0.3	0.3	-91.06	-0.6	-33.2	33.2	32.6	0.64	52.133	
300.0	300.0	300.0	300.0	0.5	0.5	-91.06	-0.6	-33.2	33.2	32.1	1.09	30.568	
400.0	400.0	400.0	400.0	0.8	0.8	-91.06	-0.6	-33.2	33.2	31.7	1.54	21.624	
500.0	500.0	500.0	500.0	1.0	1.0	-91.06	-0.6	-33.2	33.2	31.2	1.99	16.729	CC, ES
600.0	600.0	599.4	599.3	1.2	1.2	-88.60	0.8	-34.1	34.2	31.7	2.43	14.045	
700.0	700.0	698.5	698.3	1.4	1.4	-82.04	5.2	-36.9	37.3	34.4	2.88	12.950	
800.0	800.0	798.2	797.8	1.7	1.7	-74.86	11.0	-40.7	42.2	38.9	3.34	12.657	SF
900.0	900.0	897.8	897.2	1.9	1.9	132.75	16.9	-44.5	48.8	45.0	3.76	12.984	
1,000.0	999.8	997.1	996.2	2.0	2.2	140.29	22.7	-48.2	58.6	54.4	4.16	14.073	
1,100.0	1,099.6	1,096.1	1,095.0	2.2	2.4	146.50	28.5	-52.0	70.6	66.0	4.57	15.426	
1,200.0	1,199.4	1,195.2	1,193.8	2.5	2.6	150.89	34.3	-55.7	83.1	78.1	4.99	16.645	
1,300.0	1,299.1	1,294.2	1,292.6	2.7	2.9	154.11	40.1	-59.4	96.0	90.6	5.42	17.722	
1,400.0	1,398.9	1,393.2	1,391.4	2.9	3.1	156.56	45.9	-63.2	109.2	103.3	5.85	18.666	
1,500.0	1,498.6	1,492.3	1,490.2	3.1	3.4	158.49	51.7	-66.9	122.5	116.2	6.28	19.493	
1,600.0	1,598.4	1,591.3	1,589.0	3.4	3.6	160.04	57.5	-70.7	135.9	129.1	6.72	20.220	
1,700.0	1,698.1	1,690.4	1,687.8	3.6	3.9	161.30	63.3	-74.4	149.3	142.2	7.16	20.863	
1,800.0	1,797.9	1,789.4	1,786.6	3.9	4.1	162.36	69.1	-78.1	162.9	155.3	7.60	21.433	
1,900.0	1,897.6	1,888.4	1,885.4	4.1	4.4	163.26	75.0	-81.9	176.5	168.4	8.04	21.941	
2,000.0	1,997.4	1,987.5	1,984.2	4.4	4.7	164.03	80.8	-85.6	190.1	181.6	8.49	22.397	
2,100.0	2,097.2	2,086.5	2,083.0	4.6	4.9	164.69	86.6	-89.4	203.7	194.8	8.93	22.807	
2,200.0	2,196.9	2,185.5	2,181.8	4.9	5.2	165.27	92.4	-93.1	217.4	208.0	9.38	23.178	
2,300.0	2,296.7	2,284.6	2,280.6	5.1	5.4	165.79	98.2	-96.8	231.1	221.3	9.83	23.515	
2,400.0	2,396.4	2,383.6	2,379.4	5.4	5.7	166.24	104.0	-100.6	244.8	234.5	10.28	23.822	
2,500.0	2,496.2	2,482.7	2,478.2	5.6	5.9	166.65	109.8	-104.3	258.5	247.8	10.73	24.103	
2,600.0	2,595.9	2,581.7	2,576.9	5.9	6.2	167.02	115.6	-108.1	272.3	261.1	11.18	24.361	
2,700.0	2,695.7	2,680.7	2,675.7	6.1	6.4	167.35	121.4	-111.8	286.0	274.4	11.63	24.599	
2,800.0	2,795.5	2,779.8	2,774.5	6.4	6.7	167.65	127.2	-115.5	299.8	287.7	12.08	24.819	
2,900.0	2,895.2	2,878.8	2,873.3	6.6	6.9	167.92	133.0	-119.3	313.5	301.0	12.53	25.022	
3,000.0	2,995.0	2,977.8	2,972.1	6.9	7.2	168.17	138.8	-123.0	327.3	314.3	12.98	25.211	
3,100.0	3,094.7	3,076.9	3,070.9	7.2	7.4	168.40	144.7	-126.8	341.1	327.7	13.44	25.387	
3,200.0	3,194.5	3,175.9	3,169.7	7.4	7.7	168.62	150.5	-130.5	354.9	341.0	13.89	25.552	
3,300.0	3,294.2	3,275.0	3,268.5	7.7	8.0	168.81	156.3	-134.2	368.7	354.3	14.34	25.706	
3,400.0	3,394.0	3,374.0	3,367.3	7.9	8.2	169.00	162.1	-138.0	382.4	367.6	14.79	25.850	
3,500.0	3,493.7	3,473.0	3,466.1	8.2	8.5	169.17	167.9	-141.7	396.2	381.0	15.25	25.985	
3,600.0	3,593.5	3,572.1	3,564.9	8.5	8.7	169.32	173.7	-145.5	410.0	394.3	15.70	26.113	
3,700.0	3,693.3	3,671.1	3,663.7	8.7	9.0	169.47	179.5	-149.2	423.8	407.7	16.16	26.233	
3,800.0	3,793.0	3,770.1	3,762.5	9.0	9.2	169.61	185.3	-152.9	437.6	421.0	16.61	26.347	
3,900.0	3,892.8	3,869.2	3,861.3	9.3	9.5	169.74	191.1	-156.7	451.4	434.4	17.06	26.454	
4,000.0	3,992.5	3,968.2	3,960.1	9.5	9.7	169.86	196.9	-160.4	465.2	447.7	17.52	26.555	
4,100.0	4,092.3	4,067.3	4,058.9	9.8	10.0	169.98	202.7	-164.2	479.0	461.1	17.97	26.652	
4,200.0	4,192.0	4,166.3	4,157.7	10.0	10.2	170.09	208.5	-167.9	492.8	474.4	18.43	26.743	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor Federal #26J-3511A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	**MD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	Grid
Reference Well:	Razor Federal #26J-3511A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design S26-T10N-R58W - Razor Federal #26J-2310B - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-139.68	-76.3	-64.7	100.0				
100.0	100.0	100.0	100.0	0.1	0.1	-139.68	-76.3	-64.7	100.0	99.9	0.19	533.042	
200.0	200.0	200.0	200.0	0.3	0.3	-139.68	-76.3	-64.7	100.0	99.4	0.64	156.998	
300.0	300.0	300.0	300.0	0.5	0.5	-139.68	-76.3	-64.7	100.0	99.0	1.09	92.056	
400.0	400.0	400.0	400.0	0.8	0.8	-139.68	-76.3	-64.7	100.0	98.5	1.54	65.119	
500.0	500.0	500.0	500.0	1.0	1.0	-139.68	-76.3	-64.7	100.0	98.1	1.99	50.378	
600.0	600.0	600.0	600.0	1.2	1.2	-139.68	-76.3	-64.7	100.0	97.6	2.44	41.079	
700.0	700.0	700.0	700.0	1.4	1.4	-139.68	-76.3	-64.7	100.0	97.2	2.88	34.678	
800.0	800.0	801.7	801.7	1.7	1.7	-138.77	-74.6	-65.4	99.2	95.8	3.34	29.717	
900.0	900.0	903.0	902.8	1.9	1.9	65.58	-69.5	-67.2	96.0	92.2	3.77	25.489	
1,000.0	999.8	1,002.3	1,001.8	2.0	2.1	72.56	-63.0	-69.5	91.5	87.3	4.18	21.913	
1,100.0	1,099.6	1,101.3	1,100.6	2.2	2.4	81.12	-56.5	-71.9	88.2	83.6	4.61	19.154	
1,200.0	1,199.4	1,200.3	1,199.4	2.5	2.6	90.11	-50.0	-74.2	87.1	82.0	5.05	17.233	
1,202.6	1,201.9	1,202.8	1,201.9	2.5	2.6	90.34	-49.8	-74.3	87.1	82.0	5.06	17.192	CC, ES
1,300.0	1,299.1	1,299.3	1,298.2	2.7	2.8	99.11	-43.5	-76.6	88.1	82.6	5.51	15.998	
1,400.0	1,398.9	1,398.4	1,397.0	2.9	3.1	107.70	-37.0	-78.9	91.3	85.3	5.96	15.305	
1,500.0	1,498.6	1,497.4	1,495.8	3.1	3.3	115.55	-30.5	-81.3	96.4	90.0	6.42	15.017	
1,600.0	1,598.4	1,596.4	1,594.6	3.4	3.6	122.52	-24.0	-83.6	103.1	96.3	6.87	15.016	SF
1,700.0	1,698.1	1,695.4	1,693.3	3.6	3.8	128.56	-17.5	-86.0	111.2	103.9	7.31	15.207	
1,800.0	1,797.9	1,794.5	1,792.1	3.9	4.1	133.74	-11.0	-88.3	120.4	112.6	7.76	15.520	
1,900.0	1,897.6	1,893.5	1,890.9	4.1	4.3	138.17	-4.5	-90.7	130.4	122.2	8.20	15.907	
2,000.0	1,997.4	1,992.5	1,989.7	4.4	4.6	141.96	2.0	-93.0	141.1	132.4	8.64	16.332	
2,100.0	2,097.2	2,091.5	2,088.5	4.6	4.8	145.20	8.5	-95.4	152.2	143.2	9.08	16.774	
2,200.0	2,196.9	2,190.6	2,187.3	4.9	5.1	147.99	15.0	-97.7	163.9	154.3	9.52	17.219	
2,300.0	2,296.7	2,289.6	2,286.1	5.1	5.3	150.42	21.5	-100.1	175.8	165.8	9.96	17.657	
2,400.0	2,396.4	2,388.6	2,384.8	5.4	5.6	152.53	28.0	-102.4	188.0	177.6	10.40	18.082	
2,500.0	2,496.2	2,487.7	2,483.6	5.6	5.8	154.38	34.4	-104.8	200.5	189.6	10.84	18.491	
2,600.0	2,595.9	2,586.7	2,582.4	5.9	6.1	156.02	40.9	-107.1	213.1	201.8	11.28	18.884	
2,700.0	2,695.7	2,685.7	2,681.2	6.1	6.3	157.47	47.4	-109.4	225.9	214.1	11.73	19.258	
2,800.0	2,795.5	2,784.7	2,780.0	6.4	6.6	158.76	53.9	-111.8	238.8	226.6	12.17	19.614	
2,900.0	2,895.2	2,883.8	2,878.8	6.6	6.8	159.93	60.4	-114.1	251.8	239.1	12.62	19.952	
3,000.0	2,995.0	2,982.8	2,977.6	6.9	7.1	160.98	66.9	-116.5	264.9	251.8	13.06	20.273	
3,100.0	3,094.7	3,081.8	3,076.3	7.2	7.3	161.93	73.4	-118.8	278.0	264.5	13.51	20.578	
3,200.0	3,194.5	3,180.8	3,175.1	7.4	7.6	162.79	79.9	-121.2	291.3	277.3	13.96	20.867	
3,300.0	3,294.2	3,279.9	3,273.9	7.7	7.8	163.58	86.4	-123.5	304.6	290.2	14.41	21.142	
3,400.0	3,394.0	3,378.9	3,372.7	7.9	8.1	164.30	92.9	-125.9	318.0	303.1	14.86	21.403	
3,500.0	3,493.7	3,477.9	3,471.5	8.2	8.4	164.97	99.4	-128.2	331.4	316.1	15.31	21.651	
3,600.0	3,593.5	3,576.9	3,570.3	8.5	8.6	165.58	105.9	-130.6	344.8	329.1	15.75	21.887	
3,700.0	3,693.3	3,676.0	3,669.1	8.7	8.9	166.15	112.4	-132.9	358.3	342.1	16.20	22.111	
3,800.0	3,793.0	3,775.0	3,767.8	9.0	9.1	166.67	118.9	-135.3	371.8	355.2	16.66	22.325	
3,900.0	3,892.8	3,874.0	3,866.6	9.3	9.4	167.16	125.4	-137.6	385.4	368.3	17.11	22.529	
4,000.0	3,992.5	3,973.1	3,965.4	9.5	9.6	167.62	131.9	-140.0	398.9	381.4	17.56	22.723	
4,100.0	4,092.3	4,072.1	4,064.2	9.8	9.9	168.04	138.4	-142.3	412.5	394.5	18.01	22.909	
4,200.0	4,192.0	4,171.1	4,163.0	10.0	10.1	168.44	144.9	-144.7	426.1	407.7	18.46	23.086	
4,300.0	4,291.8	4,270.1	4,261.8	10.3	10.4	168.81	151.4	-147.0	439.8	420.9	18.91	23.256	
4,400.0	4,391.6	4,369.2	4,360.6	10.6	10.6	169.17	157.9	-149.4	453.4	434.1	19.36	23.418	
4,500.0	4,491.3	4,468.2	4,459.3	10.8	10.9	169.50	164.4	-151.7	467.1	447.3	19.81	23.573	
4,600.0	4,591.1	4,567.2	4,558.1	11.1	11.1	169.81	170.9	-154.1	480.8	460.5	20.27	23.722	
4,700.0	4,690.8	4,666.2	4,656.9	11.4	11.4	170.10	177.4	-156.4	494.5	473.7	20.72	23.865	

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 Federal #26J-3511A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	**MD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	Grid
Reference Well:	Razor Federal #26J-3511A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design S26-T10N-R58W - Razor Federal #26J-2311A - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	88.95	0.6	32.9	32.9				
100.0	100.0	100.0	100.0	0.1	0.1	88.95	0.6	32.9	32.9	32.8	0.19	175.527	
200.0	200.0	200.0	200.0	0.3	0.3	88.95	0.6	32.9	32.9	32.3	0.64	51.699	
300.0	300.0	300.0	300.0	0.5	0.5	88.95	0.6	32.9	32.9	31.9	1.09	30.313	
400.0	400.0	400.0	400.0	0.8	0.8	88.95	0.6	32.9	32.9	31.4	1.54	21.443	
500.0	500.0	500.0	500.0	1.0	1.0	88.95	0.6	32.9	32.9	31.0	1.99	16.589	
600.0	600.0	600.0	600.0	1.2	1.2	88.95	0.6	32.9	32.9	30.5	2.44	13.527	
700.0	700.0	700.0	700.0	1.4	1.4	88.95	0.6	32.9	32.9	30.1	2.88	11.419	
800.0	800.0	800.0	800.0	1.7	1.7	88.95	0.6	32.9	32.9	29.6	3.33	9.880	
900.0	900.0	900.0	900.0	1.9	1.9	-73.42	0.6	32.9	32.4	28.6	3.76	8.627	
1,000.0	999.8	999.7	999.7	2.0	2.1	-85.78	2.3	32.6	31.5	27.3	4.16	7.564	
1,002.9	1,002.7	1,002.6	1,002.6	2.1	2.1	-86.32	2.4	32.6	31.5	27.3	4.17	7.542	CC, ES
1,100.0	1,099.6	1,098.7	1,098.5	2.2	2.3	-106.56	7.4	31.8	33.8	29.2	4.58	7.376	SF
1,200.0	1,199.4	1,197.7	1,197.3	2.5	2.6	-124.68	14.2	30.6	41.1	36.1	5.02	8.190	
1,300.0	1,299.1	1,296.7	1,296.1	2.7	2.8	-136.59	21.0	29.4	51.2	45.7	5.45	9.392	
1,400.0	1,398.9	1,395.8	1,394.9	2.9	3.0	-144.38	27.8	28.3	62.7	56.8	5.88	10.666	
1,500.0	1,498.6	1,494.8	1,493.7	3.1	3.3	-149.70	34.6	27.1	75.0	68.7	6.31	11.890	
1,600.0	1,598.4	1,593.8	1,592.5	3.4	3.5	-153.50	41.4	26.0	87.8	81.1	6.74	13.020	
1,700.0	1,698.1	1,692.9	1,691.3	3.6	3.8	-156.33	48.2	24.8	100.9	93.7	7.18	14.049	
1,800.0	1,797.9	1,791.9	1,790.1	3.9	4.0	-158.50	55.1	23.6	114.1	106.5	7.62	14.980	
1,900.0	1,897.6	1,890.9	1,888.9	4.1	4.2	-160.22	61.9	22.5	127.5	119.4	8.06	15.823	
2,000.0	1,997.4	1,990.0	1,987.6	4.4	4.5	-161.62	68.7	21.3	141.0	132.5	8.50	16.586	
2,100.0	2,097.2	2,089.0	2,086.4	4.6	4.7	-162.77	75.5	20.1	154.5	145.6	8.94	17.278	
2,200.0	2,196.9	2,188.1	2,185.2	4.9	5.0	-163.73	82.3	19.0	168.1	158.7	9.39	17.908	
2,300.0	2,296.7	2,287.1	2,284.0	5.1	5.2	-164.55	89.1	17.8	181.7	171.9	9.83	18.483	
2,400.0	2,396.4	2,386.1	2,382.8	5.4	5.5	-165.26	95.9	16.6	195.4	185.1	10.28	19.009	
2,500.0	2,496.2	2,485.2	2,481.6	5.6	5.7	-165.87	102.7	15.5	209.1	198.4	10.73	19.493	
2,600.0	2,595.9	2,584.2	2,580.4	5.9	6.0	-166.41	109.5	14.3	222.8	211.6	11.17	19.938	
2,700.0	2,695.7	2,683.2	2,679.2	6.1	6.2	-166.89	116.3	13.2	236.5	224.9	11.62	20.350	
2,800.0	2,795.5	2,782.3	2,778.0	6.4	6.5	-167.31	123.2	12.0	250.3	238.2	12.07	20.731	
2,900.0	2,895.2	2,881.3	2,876.8	6.6	6.7	-167.69	130.0	10.8	264.0	251.5	12.52	21.084	
3,000.0	2,995.0	2,980.3	2,975.6	6.9	7.0	-168.03	136.8	9.7	277.8	264.8	12.97	21.414	
3,100.0	3,094.7	3,079.4	3,074.4	7.2	7.2	-168.34	143.6	8.5	291.6	278.1	13.42	21.721	
3,200.0	3,194.5	3,178.4	3,173.2	7.4	7.5	-168.62	150.4	7.3	305.3	291.5	13.87	22.008	
3,300.0	3,294.2	3,277.4	3,272.0	7.7	7.7	-168.88	157.2	6.2	319.1	304.8	14.33	22.277	
3,400.0	3,394.0	3,376.5	3,370.8	7.9	8.0	-169.12	164.0	5.0	332.9	318.1	14.78	22.529	
3,500.0	3,493.7	3,475.5	3,469.6	8.2	8.2	-169.33	170.8	3.8	346.7	331.5	15.23	22.767	
3,600.0	3,593.5	3,574.5	3,568.4	8.5	8.5	-169.53	177.6	2.7	360.5	344.8	15.68	22.990	
3,700.0	3,693.3	3,673.6	3,667.2	8.7	8.7	-169.72	184.4	1.5	374.3	358.2	16.13	23.201	
3,800.0	3,793.0	3,772.6	3,765.9	9.0	9.0	-169.89	191.3	0.3	388.1	371.5	16.59	23.401	
3,900.0	3,892.8	3,871.7	3,864.7	9.3	9.2	-170.05	198.1	-0.8	401.9	384.9	17.04	23.589	
4,000.0	3,992.5	3,970.7	3,963.5	9.5	9.5	-170.20	204.9	-2.0	415.7	398.3	17.49	23.768	
4,100.0	4,092.3	4,069.7	4,062.3	9.8	9.7	-170.34	211.7	-3.1	429.6	411.6	17.94	23.938	
4,200.0	4,192.0	4,168.8	4,161.1	10.0	10.0	-170.48	218.5	-4.3	443.4	425.0	18.40	24.099	
4,300.0	4,291.8	4,267.8	4,259.9	10.3	10.3	-170.60	225.3	-5.5	457.2	438.4	18.85	24.253	
4,400.0	4,391.6	4,366.8	4,358.7	10.6	10.5	-170.72	232.1	-6.6	471.0	451.7	19.31	24.399	
4,500.0	4,491.3	4,465.9	4,457.5	10.8	10.8	-170.83	238.9	-7.8	484.9	465.1	19.76	24.539	
4,600.0	4,591.1	4,564.9	4,556.3	11.1	11.0	-170.93	245.7	-9.0	498.7	478.5	20.21	24.672	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor Federal #26J-3511A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	**MD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	Grid
Reference Well:	Razor Federal #26J-3511A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design S26-T10N-R58W - Razor Federal #26J-2312B - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	178.92	-75.0	1.4	75.1				
100.0	100.0	100.0	100.0	0.1	0.1	178.92	-75.0	1.4	75.1	74.9	0.19	399.925	
200.0	200.0	200.0	200.0	0.3	0.3	178.92	-75.0	1.4	75.1	74.4	0.64	117.791	
300.0	300.0	300.0	300.0	0.5	0.5	178.92	-75.0	1.4	75.1	74.0	1.09	69.067	
400.0	400.0	400.0	400.0	0.8	0.8	178.92	-75.0	1.4	75.1	73.5	1.54	48.857	
500.0	500.0	500.0	500.0	1.0	1.0	178.92	-75.0	1.4	75.1	73.1	1.99	37.797	
600.0	600.0	600.0	600.0	1.2	1.2	178.92	-75.0	1.4	75.1	72.6	2.44	30.820	
700.0	700.0	700.0	700.0	1.4	1.4	178.92	-75.0	1.4	75.1	72.2	2.88	26.018	
800.0	800.0	800.0	800.0	1.7	1.7	178.92	-75.0	1.4	75.1	71.7	3.33	22.510	
900.0	900.0	900.0	900.0	1.9	1.9	19.94	-75.0	1.4	73.4	69.7	3.76	19.537	
1,000.0	999.8	999.8	999.8	2.0	2.1	21.46	-75.0	1.4	68.5	64.4	4.16	16.461	
1,100.0	1,099.6	1,099.6	1,099.6	2.2	2.3	23.82	-75.0	1.4	62.1	57.5	4.58	13.559	
1,200.0	1,199.4	1,201.3	1,201.3	2.5	2.6	26.60	-73.3	1.8	54.0	49.0	5.01	10.780	
1,300.0	1,299.1	1,302.2	1,302.1	2.7	2.8	30.17	-68.1	2.8	42.6	37.1	5.45	7.810	
1,400.0	1,398.9	1,401.3	1,400.9	2.9	3.0	36.45	-61.3	4.2	29.8	23.9	5.90	5.049	
1,500.0	1,498.6	1,500.4	1,499.8	3.1	3.2	51.53	-54.5	5.6	17.8	11.5	6.37	2.803	
1,600.0	1,598.4	1,599.5	1,598.7	3.4	3.5	99.46	-47.7	7.0	10.4	3.5	6.85	1.512	
1,609.0	1,607.3	1,608.5	1,607.5	3.4	3.5	106.07	-47.1	7.1	10.3	3.4	6.89	1.494	Level 3, CC, ES, SF
1,700.0	1,698.1	1,698.6	1,697.5	3.6	3.7	155.61	-41.0	8.4	15.9	8.7	7.20	2.215	
1,800.0	1,797.9	1,797.7	1,796.4	3.9	4.0	173.96	-34.2	9.7	27.5	19.9	7.61	3.618	
1,900.0	1,897.6	1,896.9	1,895.2	4.1	4.2	-178.86	-27.4	11.1	40.3	32.2	8.05	5.001	
2,000.0	1,997.4	1,996.0	1,994.1	4.4	4.4	-175.16	-20.6	12.5	53.3	44.8	8.50	6.275	
2,100.0	2,097.2	2,095.1	2,093.0	4.6	4.7	-172.91	-13.9	13.9	66.5	57.5	8.94	7.435	
2,200.0	2,196.9	2,194.2	2,191.8	4.9	4.9	-171.41	-7.1	15.3	79.7	70.3	9.39	8.490	
2,300.0	2,296.7	2,293.3	2,290.7	5.1	5.2	-170.34	-0.3	16.6	93.0	83.2	9.84	9.451	
2,400.0	2,396.4	2,392.4	2,389.5	5.4	5.4	-169.53	6.5	18.0	106.3	96.0	10.29	10.330	
2,500.0	2,496.2	2,491.5	2,488.4	5.6	5.7	-168.91	13.2	19.4	119.6	108.9	10.74	11.136	
2,600.0	2,595.9	2,590.6	2,587.3	5.9	5.9	-168.41	20.0	20.8	133.0	121.8	11.20	11.876	
2,700.0	2,695.7	2,689.7	2,686.1	6.1	6.2	-168.00	26.8	22.2	146.3	134.7	11.65	12.560	
2,800.0	2,795.5	2,788.8	2,785.0	6.4	6.4	-167.66	33.6	23.5	159.7	147.6	12.10	13.192	
2,900.0	2,895.2	2,887.9	2,883.8	6.6	6.7	-167.37	40.3	24.9	173.0	160.5	12.56	13.778	
3,000.0	2,995.0	2,987.0	2,982.7	6.9	6.9	-167.12	47.1	26.3	186.4	173.4	13.01	14.323	
3,100.0	3,094.7	3,086.1	3,081.6	7.2	7.2	-166.91	53.9	27.7	199.7	186.3	13.47	14.831	
3,200.0	3,194.5	3,185.2	3,180.4	7.4	7.4	-166.72	60.6	29.1	213.1	199.2	13.92	15.305	
3,300.0	3,294.2	3,284.3	3,279.3	7.7	7.7	-166.56	67.4	30.5	226.5	212.1	14.38	15.749	
3,400.0	3,394.0	3,383.4	3,378.1	7.9	7.9	-166.41	74.2	31.8	239.8	225.0	14.84	16.166	
3,500.0	3,493.7	3,482.5	3,477.0	8.2	8.2	-166.28	81.0	33.2	253.2	237.9	15.29	16.557	
3,600.0	3,593.5	3,581.6	3,575.8	8.5	8.4	-166.16	87.7	34.6	266.6	250.8	15.75	16.926	
3,700.0	3,693.3	3,680.7	3,674.7	8.7	8.7	-166.05	94.5	36.0	279.9	263.7	16.21	17.274	
3,800.0	3,793.0	3,779.8	3,773.6	9.0	8.9	-165.96	101.3	37.4	293.3	276.6	16.66	17.602	
3,900.0	3,892.8	3,878.9	3,872.4	9.3	9.2	-165.87	108.1	38.7	306.7	289.6	17.12	17.913	
4,000.0	3,992.5	3,978.0	3,971.3	9.5	9.4	-165.79	114.8	40.1	320.0	302.5	17.58	18.208	
4,100.0	4,092.3	4,077.1	4,070.1	9.8	9.7	-165.71	121.6	41.5	333.4	315.4	18.03	18.487	
4,200.0	4,192.0	4,176.2	4,169.0	10.0	9.9	-165.64	128.4	42.9	346.8	328.3	18.49	18.752	
4,300.0	4,291.8	4,275.3	4,267.9	10.3	10.2	-165.58	135.2	44.3	360.2	341.2	18.95	19.005	
4,400.0	4,391.6	4,374.4	4,366.7	10.6	10.4	-165.52	141.9	45.6	373.5	354.1	19.41	19.245	
4,500.0	4,491.3	4,473.5	4,465.6	10.8	10.7	-165.47	148.7	47.0	386.9	367.0	19.87	19.475	
4,600.0	4,591.1	4,572.6	4,564.4	11.1	10.9	-165.41	155.5	48.4	400.3	380.0	20.33	19.693	
4,700.0	4,690.8	4,671.7	4,663.3	11.4	11.2	-165.37	162.3	49.8	413.7	392.9	20.78	19.903	
4,800.0	4,790.6	4,770.8	4,762.2	11.6	11.4	-165.32	169.0	51.2	427.0	405.8	21.24	20.103	
4,900.0	4,890.3	4,869.9	4,861.0	11.9	11.7	-165.28	175.8	52.5	440.4	418.7	21.70	20.294	
5,000.0	4,990.1	4,969.0	4,959.9	12.1	11.9	-165.24	182.6	53.9	453.8	431.6	22.16	20.477	

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 Federal #26J-3511A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	**MD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	Grid
Reference Well:	Razor Federal #26J-3511A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design S26-T10N-R58W - Razor Federal #26J-2312B - HZ - Plan #1

Survey Program: 0-ISCWSA MWD

Offset Site Error: 0.0 ft

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.0	5,089.9	5,068.1	5,058.7	12.4	12.2	-165.20	189.3	55.3	467.2	444.5	22.62	20.653	
5,114.6	5,104.4	5,082.6	5,073.2	12.4	12.2	-165.20	190.3	55.5	469.1	446.4	22.69	20.679	
5,150.0	5,139.6	5,117.5	5,108.0	12.5	12.3	-165.05	192.7	56.0	475.0	452.3	22.72	20.910	
5,200.0	5,188.7	5,165.9	5,156.3	12.7	12.4	-164.85	196.0	56.7	487.2	464.6	22.61	21.550	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor Federal #26J-3511A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	**MD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	Grid
Reference Well:	Razor Federal #26J-3511A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design S26-T10N-R58W - Razor Federal #26J-3509A - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-91.06	-1.2	-65.3	65.3				
100.0	100.0	100.0	100.0	0.1	0.1	-91.06	-1.2	-65.3	65.3	65.1	0.19	348.105	
200.0	200.0	200.0	200.0	0.3	0.3	-91.06	-1.2	-65.3	65.3	64.7	0.64	102.528	
300.0	300.0	300.0	300.0	0.5	0.5	-91.06	-1.2	-65.3	65.3	64.2	1.09	60.117	
400.0	400.0	400.0	400.0	0.8	0.8	-91.06	-1.2	-65.3	65.3	63.8	1.54	42.526	
500.0	500.0	500.0	500.0	1.0	1.0	-91.06	-1.2	-65.3	65.3	63.3	1.99	32.900	
600.0	600.0	600.0	600.0	1.2	1.2	-91.06	-1.2	-65.3	65.3	62.9	2.44	26.827	
700.0	700.0	700.0	700.0	1.4	1.4	-91.06	-1.2	-65.3	65.3	62.4	2.88	22.646	
800.0	800.0	800.0	800.0	1.7	1.7	-91.06	-1.2	-65.3	65.3	62.0	3.33	19.593	CC, ES
900.0	900.0	900.0	900.0	1.9	1.9	110.91	-1.2	-65.3	65.9	62.2	3.76	17.554	
1,000.0	999.8	999.8	999.8	2.0	2.1	114.99	-1.2	-65.3	68.0	63.8	4.16	16.341	
1,100.0	1,099.6	1,099.5	1,099.5	2.2	2.3	118.68	-2.9	-65.7	71.3	66.7	4.55	15.669	
1,200.0	1,199.4	1,199.3	1,199.2	2.5	2.5	119.38	-8.0	-66.6	74.9	70.0	4.93	15.191	
1,300.0	1,299.1	1,299.2	1,298.8	2.7	2.7	118.73	-14.9	-68.0	78.6	73.2	5.33	14.730	
1,400.0	1,398.9	1,399.2	1,398.5	2.9	2.9	118.14	-21.7	-69.3	82.3	76.5	5.76	14.289	
1,500.0	1,498.6	1,499.1	1,498.2	3.1	3.1	117.59	-28.5	-70.6	86.0	79.8	6.20	13.875	
1,600.0	1,598.4	1,599.0	1,597.9	3.4	3.3	117.10	-35.4	-72.0	89.7	83.1	6.65	13.491	
1,700.0	1,698.1	1,699.0	1,697.6	3.6	3.5	116.64	-42.2	-73.3	93.4	86.3	7.11	13.139	
1,800.0	1,797.9	1,798.9	1,797.3	3.9	3.8	116.22	-49.1	-74.6	97.2	89.6	7.58	12.816	
1,900.0	1,897.6	1,898.8	1,897.0	4.1	4.0	115.82	-55.9	-76.0	100.9	92.8	8.06	12.521	
2,000.0	1,997.4	1,998.7	1,996.6	4.4	4.2	115.46	-62.8	-77.3	104.6	96.1	8.54	12.251	
2,100.0	2,097.2	2,098.7	2,096.3	4.6	4.5	115.12	-69.6	-78.6	108.4	99.3	9.03	12.004	
2,200.0	2,196.9	2,198.6	2,196.0	4.9	4.7	114.81	-76.4	-79.9	112.1	102.6	9.52	11.777	
2,300.0	2,296.7	2,298.5	2,295.7	5.1	5.0	114.51	-83.3	-81.3	115.8	105.8	10.01	11.569	
2,400.0	2,396.4	2,398.5	2,395.4	5.4	5.2	114.23	-90.1	-82.6	119.6	109.1	10.51	11.378	
2,500.0	2,496.2	2,498.4	2,495.1	5.6	5.5	113.97	-97.0	-83.9	123.3	112.3	11.01	11.202	
2,600.0	2,595.9	2,598.3	2,594.7	5.9	5.7	113.73	-103.8	-85.3	127.1	115.6	11.51	11.039	
2,700.0	2,695.7	2,698.2	2,694.4	6.1	6.0	113.50	-110.6	-86.6	130.9	118.8	12.02	10.888	
2,800.0	2,795.5	2,798.2	2,794.1	6.4	6.2	113.28	-117.5	-87.9	134.6	122.1	12.53	10.748	
2,900.0	2,895.2	2,898.1	2,893.8	6.6	6.5	113.07	-124.3	-89.3	138.4	125.3	13.03	10.617	
3,000.0	2,995.0	2,998.0	2,993.5	6.9	6.7	112.88	-131.2	-90.6	142.1	128.6	13.54	10.496	
3,100.0	3,094.7	3,098.0	3,093.2	7.2	7.0	112.69	-138.0	-91.9	145.9	131.9	14.05	10.383	
3,200.0	3,194.5	3,197.9	3,192.9	7.4	7.2	112.52	-144.9	-93.2	149.7	135.1	14.56	10.276	
3,300.0	3,294.2	3,297.8	3,292.5	7.7	7.5	112.35	-151.7	-94.6	153.4	138.4	15.08	10.177	
3,400.0	3,394.0	3,397.7	3,392.2	7.9	7.7	112.19	-158.5	-95.9	157.2	141.6	15.59	10.084	
3,500.0	3,493.7	3,497.7	3,491.9	8.2	8.0	112.04	-165.4	-97.2	161.0	144.9	16.10	9.996	
3,600.0	3,593.5	3,597.6	3,591.6	8.5	8.3	111.89	-172.2	-98.6	164.7	148.1	16.62	9.913	
3,700.0	3,693.3	3,697.5	3,691.3	8.7	8.5	111.76	-179.1	-99.9	168.5	151.4	17.13	9.835	
3,800.0	3,793.0	3,797.4	3,791.0	9.0	8.8	111.62	-185.9	-101.2	172.3	154.6	17.65	9.761	
3,900.0	3,892.8	3,897.4	3,890.6	9.3	9.0	111.50	-192.8	-102.6	176.1	157.9	18.17	9.691	
4,000.0	3,992.5	3,997.3	3,990.3	9.5	9.3	111.38	-199.6	-103.9	179.8	161.1	18.68	9.625	
4,100.0	4,092.3	4,097.2	4,090.0	9.8	9.6	111.26	-206.4	-105.2	183.6	164.4	19.20	9.562	
4,200.0	4,192.0	4,197.2	4,189.7	10.0	9.8	111.15	-213.3	-106.5	187.4	167.7	19.72	9.502	
4,300.0	4,291.8	4,297.1	4,289.4	10.3	10.1	111.04	-220.1	-107.9	191.2	170.9	20.24	9.445	
4,400.0	4,391.6	4,397.0	4,389.1	10.6	10.3	110.94	-227.0	-109.2	194.9	174.2	20.76	9.391	
4,500.0	4,491.3	4,496.9	4,488.8	10.8	10.6	110.84	-233.8	-110.5	198.7	177.4	21.28	9.340	
4,600.0	4,591.1	4,596.9	4,588.4	11.1	10.9	110.74	-240.7	-111.9	202.5	180.7	21.79	9.290	
4,700.0	4,690.8	4,696.8	4,688.1	11.4	11.1	110.65	-247.5	-113.2	206.3	183.9	22.31	9.243	
4,800.0	4,790.6	4,796.7	4,787.8	11.6	11.4	110.56	-254.3	-114.5	210.0	187.2	22.83	9.199	
4,900.0	4,890.3	4,896.7	4,887.5	11.9	11.6	110.48	-261.2	-115.9	213.8	190.5	23.35	9.155	
5,000.0	4,990.1	4,996.6	4,987.2	12.1	11.9	110.40	-268.0	-117.2	217.6	193.7	23.87	9.114	
5,100.0	5,089.9	5,096.5	5,086.9	12.4	12.2	110.32	-274.9	-118.5	221.4	197.0	24.40	9.075	

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 Federal #26J-3511A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	**MD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	Grid
Reference Well:	Razor Federal #26J-3511A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design S26-T10N-R58W - Razor Federal #26J-3509A - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,114.6	5,104.4	5,111.1	5,101.4	12.4	12.2	110.30	-275.9	-118.7	221.9	197.5	24.47	9.069 SF	
5,150.0	5,139.6	5,144.0	5,134.1	12.5	12.3	110.13	-279.0	-119.3	223.9	199.2	24.65	9.081	
5,200.0	5,188.7	5,189.9	5,179.4	12.7	12.5	109.71	-286.6	-120.8	228.7	203.8	24.95	9.167	
5,250.0	5,236.7	5,235.5	5,223.4	13.0	12.7	109.07	-298.1	-123.0	236.0	210.7	25.30	9.328	
5,300.0	5,283.2	5,280.6	5,265.9	13.2	12.9	108.23	-313.1	-125.9	245.7	220.0	25.72	9.554	
5,350.0	5,327.7	5,325.2	5,306.3	13.5	13.1	107.21	-331.4	-129.5	257.6	231.4	26.20	9.832	
5,400.0	5,369.8	5,369.2	5,344.6	13.9	13.4	106.02	-352.7	-133.7	271.6	244.9	26.76	10.148	
5,450.0	5,409.1	5,412.5	5,380.3	14.3	13.8	104.67	-376.8	-138.3	287.6	260.2	27.44	10.481	
5,500.0	5,445.2	5,455.2	5,413.4	14.8	14.1	103.18	-403.2	-143.5	305.4	277.2	28.24	10.816	
5,550.0	5,477.9	5,497.2	5,443.7	15.3	14.5	101.56	-431.8	-149.0	324.9	295.8	29.14	11.149	
5,600.0	5,506.9	5,538.7	5,471.2	15.9	14.9	99.82	-462.3	-154.9	345.8	315.7	30.15	11.469	
5,650.0	5,531.7	5,579.7	5,495.9	16.5	15.3	97.99	-494.3	-161.2	368.0	336.8	31.26	11.774	
5,700.0	5,552.4	5,620.2	5,517.7	17.2	15.8	96.07	-527.9	-167.7	391.3	358.9	32.44	12.061	
5,750.0	5,568.5	5,660.5	5,536.7	17.9	16.3	94.10	-562.7	-174.5	415.5	381.8	33.70	12.331	
5,800.0	5,580.1	5,700.0	5,552.6	18.7	16.8	92.07	-598.2	-181.4	440.4	405.4	35.00	12.584	
5,850.0	5,586.9	5,740.7	5,566.1	19.4	17.3	90.06	-635.9	-188.7	465.9	429.5	36.35	12.815	
5,896.4	5,589.0	5,778.1	5,575.8	20.2	17.9	88.20	-671.4	-195.6	489.8	452.2	37.63	13.016	
5,900.0	5,589.0	5,781.0	5,576.4	20.2	17.9	88.29	-674.2	-196.1	491.6	453.9	37.73	13.029	

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor Federal #26J-3511A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	**MD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	Grid
Reference Well:	Razor Federal #26J-3511A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design S26-T10N-R58W - Razor Federal #26J-3510B - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-157.20	-75.7	-31.8	82.1				
100.0	100.0	100.0	100.0	0.1	0.1	-157.20	-75.7	-31.8	82.1	81.9	0.19	437.287	
200.0	200.0	200.0	200.0	0.3	0.3	-157.20	-75.7	-31.8	82.1	81.4	0.64	128.795	
300.0	300.0	300.0	300.0	0.5	0.5	-157.20	-75.7	-31.8	82.1	81.0	1.09	75.519	
400.0	400.0	400.0	400.0	0.8	0.8	-157.20	-75.7	-31.8	82.1	80.5	1.54	53.421	
500.0	500.0	500.0	500.0	1.0	1.0	-157.20	-75.7	-31.8	82.1	80.1	1.99	41.328	
600.0	600.0	600.0	600.0	1.2	1.2	-157.20	-75.7	-31.8	82.1	79.6	2.44	33.700	CC, ES
700.0	700.0	697.5	697.5	1.4	1.4	-157.76	-77.3	-31.6	83.6	80.7	2.85	29.287	
800.0	800.0	794.8	794.7	1.7	1.6	-159.33	-82.2	-31.0	88.1	84.8	3.26	27.020	
900.0	900.0	894.5	894.2	1.9	1.8	39.90	-89.1	-30.2	93.0	89.3	3.65	25.482	
1,000.0	999.8	994.5	993.9	2.0	2.0	40.05	-96.1	-29.4	95.2	91.2	4.03	23.642	
1,100.0	1,099.6	1,094.5	1,093.6	2.2	2.2	40.89	-103.0	-28.6	96.2	91.7	4.43	21.702	
1,200.0	1,199.4	1,194.5	1,193.4	2.5	2.5	41.72	-109.9	-27.8	97.1	92.3	4.85	20.026	
1,300.0	1,299.1	1,294.5	1,293.1	2.7	2.7	42.53	-116.9	-27.0	98.1	92.8	5.28	18.578	
1,400.0	1,398.9	1,394.5	1,392.8	2.9	3.0	43.32	-123.8	-26.2	99.1	93.4	5.72	17.321	
1,500.0	1,498.6	1,494.4	1,492.6	3.1	3.2	44.10	-130.7	-25.4	100.1	93.9	6.17	16.225	
1,600.0	1,598.4	1,594.4	1,592.3	3.4	3.4	44.86	-137.6	-24.6	101.1	94.5	6.62	15.265	
1,700.0	1,698.1	1,694.4	1,692.1	3.6	3.7	45.61	-144.6	-23.8	102.2	95.1	7.09	14.419	
1,800.0	1,797.9	1,794.4	1,791.8	3.9	4.0	46.34	-151.5	-23.0	103.2	95.7	7.55	13.669	
1,900.0	1,897.6	1,894.4	1,891.6	4.1	4.2	47.06	-158.4	-22.2	104.3	96.3	8.02	13.001	
2,000.0	1,997.4	1,994.4	1,991.3	4.4	4.5	47.76	-165.3	-21.3	105.4	96.9	8.50	12.404	
2,100.0	2,097.2	2,094.4	2,091.0	4.6	4.7	48.45	-172.3	-20.5	106.5	97.5	8.98	11.866	
2,200.0	2,196.9	2,194.3	2,190.8	4.9	5.0	49.12	-179.2	-19.7	107.6	98.2	9.46	11.381	
2,300.0	2,296.7	2,294.3	2,290.5	5.1	5.2	49.78	-186.1	-18.9	108.8	98.8	9.94	10.941	
2,400.0	2,396.4	2,394.3	2,390.3	5.4	5.5	50.42	-193.1	-18.1	109.9	99.5	10.43	10.541	
2,500.0	2,496.2	2,494.3	2,490.0	5.6	5.8	51.06	-200.0	-17.3	111.1	100.2	10.92	10.175	
2,600.0	2,595.9	2,594.3	2,589.8	5.9	6.0	51.67	-206.9	-16.5	112.3	100.9	11.41	9.840	
2,700.0	2,695.7	2,694.3	2,689.5	6.1	6.3	52.28	-213.8	-15.7	113.5	101.6	11.91	9.532	
2,800.0	2,795.5	2,794.3	2,789.2	6.4	6.5	52.87	-220.8	-14.9	114.7	102.3	12.40	9.248	
2,900.0	2,895.2	2,894.2	2,889.0	6.6	6.8	53.45	-227.7	-14.1	115.9	103.0	12.90	8.985	
3,000.0	2,995.0	2,994.2	2,988.7	6.9	7.1	54.02	-234.6	-13.3	117.1	103.7	13.40	8.742	
3,100.0	3,094.7	3,094.2	3,088.5	7.2	7.3	54.58	-241.5	-12.5	118.4	104.5	13.90	8.516	
3,200.0	3,194.5	3,194.2	3,188.2	7.4	7.6	55.12	-248.5	-11.7	119.6	105.2	14.40	8.306	
3,300.0	3,294.2	3,294.2	3,287.9	7.7	7.9	55.65	-255.4	-10.8	120.9	106.0	14.91	8.110	
3,400.0	3,394.0	3,394.2	3,387.7	7.9	8.1	56.18	-262.3	-10.0	122.2	106.8	15.41	7.926	
3,500.0	3,493.7	3,494.2	3,487.4	8.2	8.4	56.69	-269.3	-9.2	123.5	107.5	15.92	7.755	
3,600.0	3,593.5	3,594.1	3,587.2	8.5	8.6	57.19	-276.2	-8.4	124.7	108.3	16.43	7.594	
3,700.0	3,693.3	3,694.1	3,686.9	8.7	8.9	57.68	-283.1	-7.6	126.0	109.1	16.94	7.442	
3,800.0	3,793.0	3,794.1	3,786.7	9.0	9.2	58.16	-290.0	-6.8	127.4	109.9	17.45	7.300	
3,900.0	3,892.8	3,894.1	3,886.4	9.3	9.4	58.63	-297.0	-6.0	128.7	110.7	17.96	7.166	
4,000.0	3,992.5	3,994.1	3,986.1	9.5	9.7	59.09	-303.9	-5.2	130.0	111.5	18.47	7.039	
4,100.0	4,092.3	4,094.1	4,085.9	9.8	10.0	59.54	-310.8	-4.4	131.3	112.4	18.98	6.919	
4,200.0	4,192.0	4,194.1	4,185.6	10.0	10.2	59.99	-317.8	-3.6	132.7	113.2	19.50	6.806	
4,300.0	4,291.8	4,294.0	4,285.4	10.3	10.5	60.42	-324.7	-2.8	134.0	114.0	20.01	6.698	
4,400.0	4,391.6	4,394.0	4,385.1	10.6	10.7	60.84	-331.6	-2.0	135.4	114.9	20.53	6.596	
4,500.0	4,491.3	4,494.0	4,484.9	10.8	11.0	61.26	-338.5	-1.2	136.8	115.7	21.04	6.499	
4,600.0	4,591.1	4,594.0	4,584.6	11.1	11.3	61.67	-345.5	-0.3	138.1	116.6	21.56	6.407	
4,700.0	4,690.8	4,694.0	4,684.3	11.4	11.5	62.07	-352.4	0.5	139.5	117.4	22.08	6.320	
4,800.0	4,790.6	4,794.0	4,784.1	11.6	11.8	62.46	-359.3	1.3	140.9	118.3	22.60	6.236	
4,900.0	4,890.3	4,894.0	4,883.8	11.9	12.1	62.85	-366.2	2.1	142.3	119.2	23.12	6.156	
5,000.0	4,990.1	4,993.9	4,983.6	12.1	12.3	63.22	-373.2	2.9	143.7	120.1	23.64	6.080	
5,100.0	5,089.9	5,093.9	5,083.3	12.4	12.6	63.59	-380.1	3.7	145.1	121.0	24.16	6.008	

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 Federal #26J-3511A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	**MD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	Grid
Reference Well:	Razor Federal #26J-3511A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design S26-T10N-R58W - Razor Federal #26J-3510B - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,114.6	5,104.4	5,108.5	5,097.9	12.4	12.6	63.65	-381.1	3.8	145.3	121.1	24.23	5.997	
5,150.0	5,139.6	5,143.9	5,133.1	12.5	12.7	64.20	-383.6	4.1	145.3	120.9	24.44	5.946	
5,200.0	5,188.7	5,193.5	5,182.7	12.7	12.9	66.62	-387.0	4.5	143.6	118.8	24.81	5.789	
5,250.0	5,236.7	5,237.4	5,226.3	13.0	13.0	70.11	-391.1	5.0	141.1	115.9	25.25	5.588	
5,300.0	5,283.2	5,280.2	5,268.5	13.2	13.1	73.91	-398.5	5.8	139.9	114.1	25.80	5.423	
5,316.7	5,298.3	5,294.7	5,282.5	13.3	13.2	75.24	-401.7	6.2	139.8	113.8	26.03	5.372	
5,350.0	5,327.7	5,323.6	5,310.4	13.5	13.3	77.96	-409.4	7.1	140.2	113.7	26.45	5.299	
5,400.0	5,369.8	5,367.5	5,351.8	13.9	13.5	82.13	-424.0	8.8	142.2	114.9	27.21	5.224	
5,450.0	5,409.1	5,412.1	5,392.4	14.3	13.8	86.26	-442.3	10.9	146.0	117.9	28.04	5.206	
5,500.0	5,445.2	5,457.3	5,431.8	14.8	14.1	90.21	-464.3	13.5	151.7	122.7	28.91	5.245	
5,550.0	5,477.9	5,503.3	5,469.8	15.3	14.5	93.86	-490.0	16.5	159.2	129.4	29.81	5.339	
5,600.0	5,506.9	5,550.1	5,505.9	15.9	14.9	97.12	-519.6	20.0	168.4	137.7	30.72	5.481	
5,650.0	5,531.7	5,597.9	5,539.8	16.5	15.3	99.94	-552.9	23.8	179.1	147.5	31.64	5.661	
5,700.0	5,552.4	5,646.6	5,571.2	17.2	15.8	102.31	-589.9	28.2	191.2	158.6	32.60	5.864	
5,750.0	5,568.5	5,696.5	5,599.5	17.9	16.4	104.24	-630.7	32.9	204.4	170.8	33.61	6.080	
5,800.0	5,580.1	5,747.6	5,624.3	18.7	17.0	105.76	-675.0	38.1	218.4	183.7	34.70	6.295	
5,850.0	5,586.9	5,800.0	5,645.1	19.4	17.7	106.90	-722.8	43.7	233.1	197.2	35.87	6.499	
5,896.4	5,589.0	5,850.1	5,660.4	20.2	18.4	107.66	-770.2	49.2	247.1	210.1	37.04	6.672	
5,900.0	5,589.0	5,854.0	5,661.4	20.2	18.5	107.81	-773.9	49.6	248.2	211.1	37.12	6.687	
6,000.0	5,589.0	5,968.9	5,677.8	21.6	20.2	109.35	-886.7	62.8	272.8	232.9	39.89	6.840	
6,100.0	5,589.0	6,059.9	5,678.0	23.1	21.5	108.17	-977.2	71.9	289.8	246.8	42.92	6.751	
6,200.0	5,589.0	6,145.7	5,678.0	24.6	22.6	107.15	-1,062.9	76.6	306.0	260.1	45.84	6.675	
6,300.0	5,589.0	6,234.7	5,678.0	26.2	23.9	106.26	-1,151.8	77.6	321.4	272.6	48.79	6.588	
6,400.0	5,589.0	6,333.9	5,678.0	27.8	25.5	105.58	-1,251.1	77.6	333.0	281.2	51.89	6.418	
6,500.0	5,589.0	6,433.7	5,678.0	29.3	27.2	105.22	-1,350.8	77.6	339.7	284.8	54.93	6.184	
6,581.4	5,589.0	6,515.1	5,678.0	30.6	28.6	105.13	-1,432.2	77.6	341.4	284.1	57.28	5.960	
6,600.0	5,589.0	6,533.7	5,678.0	30.9	28.9	105.13	-1,450.8	77.6	341.4	283.5	57.89	5.897	
6,700.0	5,589.0	6,633.7	5,678.0	32.6	30.6	105.13	-1,550.8	77.6	341.4	280.1	61.25	5.573	
6,800.0	5,589.0	6,733.7	5,678.0	34.3	32.4	105.13	-1,650.8	77.6	341.4	276.7	64.65	5.280	
6,900.0	5,589.0	6,833.7	5,678.0	36.0	34.2	105.13	-1,750.8	77.6	341.4	273.3	68.08	5.014	
7,000.0	5,589.0	6,933.7	5,678.0	37.7	35.9	105.13	-1,850.8	77.6	341.4	269.8	71.54	4.772	
7,100.0	5,589.0	7,033.7	5,678.0	39.5	37.7	105.13	-1,950.8	77.6	341.4	266.3	75.03	4.550	
7,200.0	5,589.0	7,133.7	5,678.0	41.2	39.6	105.13	-2,050.8	77.6	341.4	262.8	78.54	4.347	
7,300.0	5,589.0	7,233.7	5,678.0	43.0	41.4	105.13	-2,150.8	77.6	341.4	259.3	82.06	4.160	
7,400.0	5,589.0	7,333.7	5,678.0	44.8	43.2	105.13	-2,250.8	77.6	341.4	255.8	85.61	3.988	
7,500.0	5,589.0	7,433.7	5,678.0	46.6	45.0	105.12	-2,350.8	77.6	341.4	252.2	89.17	3.829	
7,600.0	5,589.0	7,533.7	5,678.0	48.4	46.9	105.12	-2,450.8	77.6	341.4	248.6	92.74	3.681	
7,700.0	5,589.0	7,633.7	5,678.0	50.2	48.7	105.12	-2,550.8	77.6	341.4	245.1	96.32	3.544	
7,800.0	5,589.0	7,733.7	5,678.0	52.0	50.6	105.12	-2,650.8	77.6	341.4	241.5	99.92	3.417	
7,900.0	5,589.0	7,833.7	5,678.0	53.9	52.5	105.12	-2,750.8	77.6	341.4	237.9	103.52	3.298	
8,000.0	5,589.0	7,933.7	5,678.0	55.7	54.3	105.12	-2,850.8	77.6	341.4	234.3	107.13	3.187	
8,100.0	5,589.0	8,033.7	5,678.0	57.5	56.2	105.12	-2,950.8	77.6	341.4	230.7	110.75	3.083	
8,200.0	5,589.0	8,133.7	5,678.0	59.4	58.1	105.12	-3,050.8	77.6	341.4	227.0	114.37	2.985	
8,300.0	5,589.0	8,233.7	5,678.0	61.2	59.9	105.12	-3,150.8	77.6	341.4	223.4	118.00	2.893	
8,400.0	5,589.0	8,333.7	5,678.0	63.1	61.8	105.12	-3,250.8	77.6	341.4	219.8	121.64	2.807	
8,500.0	5,589.0	8,433.7	5,678.0	65.0	63.7	105.12	-3,350.8	77.6	341.4	216.1	125.28	2.725	
8,600.0	5,589.0	8,533.7	5,678.0	66.8	65.6	105.12	-3,450.8	77.6	341.4	212.5	128.93	2.648	
8,700.0	5,589.0	8,633.7	5,678.0	68.7	67.4	105.12	-3,550.8	77.5	341.4	208.8	132.58	2.575	
8,800.0	5,589.0	8,733.7	5,678.0	70.5	69.3	105.12	-3,650.8	77.5	341.4	205.2	136.23	2.506	
8,900.0	5,589.0	8,833.7	5,678.0	72.4	71.2	105.12	-3,750.8	77.5	341.4	201.5	139.89	2.441	
9,000.0	5,589.0	8,933.7	5,678.0	74.3	73.1	105.12	-3,850.8	77.5	341.4	197.9	143.55	2.378	
9,100.0	5,589.0	9,033.7	5,678.0	76.2	75.0	105.12	-3,950.8	77.5	341.4	194.2	147.21	2.319	

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 Federal #26J-3511A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	**MD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	Grid
Reference Well:	Razor Federal #26J-3511A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design S26-T10N-R58W - Razor Federal #26J-3510B - HZ - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
9,200.0	5,589.0	9,133.7	5,678.0	78.0	76.9	105.12	-4,050.8	77.5	341.4	190.6	150.88	2.263	
9,300.0	5,589.0	9,233.7	5,678.0	79.9	78.8	105.12	-4,150.8	77.5	341.4	186.9	154.55	2.209	
9,400.0	5,589.0	9,333.7	5,678.0	81.8	80.7	105.12	-4,250.8	77.5	341.4	183.2	158.22	2.158	
9,500.0	5,589.0	9,433.7	5,678.0	83.7	82.6	105.12	-4,350.8	77.5	341.4	179.5	161.90	2.109	
9,600.0	5,589.0	9,533.7	5,678.0	85.6	84.5	105.12	-4,450.8	77.5	341.4	175.9	165.57	2.062	
9,700.0	5,589.0	9,633.7	5,678.0	87.4	86.4	105.12	-4,550.8	77.5	341.4	172.2	169.25	2.017	
9,800.0	5,589.0	9,733.7	5,678.0	89.3	88.2	105.12	-4,650.8	77.5	341.5	168.5	172.93	1.974	
9,900.0	5,589.0	9,833.7	5,678.0	91.2	90.1	105.11	-4,750.8	77.5	341.5	164.8	176.61	1.933	
10,000.0	5,589.0	9,933.7	5,678.0	93.1	92.0	105.11	-4,850.8	77.5	341.5	161.2	180.30	1.894	
10,100.0	5,589.0	10,033.7	5,678.0	95.0	93.9	105.11	-4,950.8	77.5	341.5	157.5	183.98	1.856	
10,200.0	5,589.0	10,133.7	5,678.0	96.9	95.8	105.11	-5,050.8	77.5	341.5	153.8	187.67	1.819	
10,300.0	5,589.0	10,233.7	5,678.0	98.8	97.7	105.11	-5,150.8	77.5	341.5	150.1	191.36	1.784	
10,400.0	5,589.0	10,333.7	5,678.0	100.7	99.6	105.11	-5,250.8	77.5	341.5	146.4	195.05	1.751	
10,500.0	5,589.0	10,433.7	5,678.0	102.6	101.5	105.11	-5,350.8	77.5	341.5	142.7	198.74	1.718	
10,600.0	5,589.0	10,533.7	5,678.0	104.5	103.5	105.11	-5,450.8	77.5	341.5	139.0	202.43	1.687	
10,700.0	5,589.0	10,633.7	5,678.0	106.4	105.4	105.11	-5,550.8	77.5	341.5	135.4	206.12	1.657	
10,800.0	5,589.0	10,733.7	5,678.0	108.3	107.3	105.11	-5,650.8	77.5	341.5	131.7	209.82	1.628	
10,900.0	5,589.0	10,833.7	5,678.0	110.1	109.2	105.11	-5,750.8	77.5	341.5	128.0	213.51	1.599	
11,000.0	5,589.0	10,933.7	5,678.0	112.0	111.1	105.11	-5,850.8	77.5	341.5	124.3	217.21	1.572	
11,100.0	5,589.0	11,033.7	5,678.0	113.9	113.0	105.11	-5,950.8	77.5	341.5	120.6	220.90	1.546	
11,200.0	5,589.0	11,133.7	5,678.0	115.8	114.9	105.11	-6,050.8	77.5	341.5	116.9	224.60	1.520	
11,300.0	5,589.0	11,233.7	5,678.0	117.7	116.8	105.11	-6,150.8	77.5	341.5	113.2	228.30	1.496	Level 3
11,400.0	5,589.0	11,333.7	5,678.0	119.6	118.7	105.11	-6,250.8	77.5	341.5	109.5	232.00	1.472	Level 3
11,500.0	5,589.0	11,433.7	5,678.0	121.5	120.6	105.11	-6,350.8	77.5	341.5	105.8	235.70	1.449	Level 3
11,600.0	5,589.0	11,533.7	5,678.0	123.4	122.5	105.11	-6,450.8	77.5	341.5	102.1	239.40	1.427	Level 3
11,700.0	5,589.0	11,633.7	5,678.0	125.3	124.4	105.11	-6,550.8	77.5	341.5	98.4	243.10	1.405	Level 3
11,800.0	5,589.0	11,733.7	5,678.0	127.2	126.3	105.11	-6,650.8	77.5	341.5	94.7	246.80	1.384	Level 3
11,900.0	5,589.0	11,833.7	5,678.0	129.1	128.2	105.11	-6,750.8	77.5	341.5	91.0	250.50	1.363	Level 3
12,000.0	5,589.0	11,933.7	5,678.0	131.1	130.1	105.11	-6,850.8	77.5	341.5	87.3	254.21	1.343	Level 3
12,100.0	5,589.0	12,033.7	5,678.0	133.0	132.0	105.11	-6,950.8	77.5	341.5	83.6	257.91	1.324	Level 3
12,193.8	5,589.0	12,127.4	5,678.0	134.4	133.8	105.11	-7,044.6	77.5	341.5	80.5	261.06	1.308	Level 3, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor Federal #26J-3511A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	**MD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	Grid
Reference Well:	Razor Federal #26J-3511A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design S26-T10N-R58W - Razor Federal #26J-3512B - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	155.23	-74.4	34.4	82.0				
100.0	100.0	100.0	100.0	0.1	0.1	155.23	-74.4	34.4	82.0	81.8	0.19	436.807	
200.0	200.0	200.0	200.0	0.3	0.3	155.23	-74.4	34.4	82.0	81.3	0.64	128.654	
300.0	300.0	300.0	300.0	0.5	0.5	155.23	-74.4	34.4	82.0	80.9	1.09	75.436	
400.0	400.0	400.0	400.0	0.8	0.8	155.23	-74.4	34.4	82.0	80.4	1.54	53.363	
500.0	500.0	500.0	500.0	1.0	1.0	155.23	-74.4	34.4	82.0	80.0	1.99	41.283	
600.0	600.0	600.0	600.0	1.2	1.2	155.23	-74.4	34.4	82.0	79.5	2.44	33.663	
700.0	700.0	700.0	700.0	1.4	1.4	155.23	-74.4	34.4	82.0	79.1	2.88	28.417	
800.0	800.0	800.0	800.0	1.7	1.7	155.23	-74.4	34.4	82.0	78.6	3.33	24.586	
900.0	900.0	900.0	900.0	1.9	1.9	-4.32	-74.4	34.4	80.2	76.5	3.76	21.355	
1,000.0	999.8	999.8	999.8	2.0	2.1	-4.63	-74.4	34.4	75.0	70.9	4.16	18.031	
1,100.0	1,099.6	1,097.3	1,097.2	2.2	2.3	-5.24	-75.8	35.2	69.8	65.2	4.54	15.362	
1,200.0	1,199.4	1,194.9	1,194.8	2.5	2.5	-6.24	-80.0	37.9	67.9	63.0	4.91	13.825	
1,224.1	1,223.4	1,218.9	1,218.7	2.5	2.5	-6.52	-81.5	38.8	67.9	62.9	5.00	13.567	CC
1,300.0	1,299.1	1,294.8	1,294.4	2.7	2.7	-7.43	-85.9	41.6	67.9	62.6	5.30	12.819	
1,400.0	1,398.9	1,394.8	1,394.1	2.9	2.9	-8.62	-91.8	45.3	68.0	62.3	5.69	11.932	
1,500.0	1,498.6	1,494.8	1,493.9	3.1	3.1	-9.81	-97.7	49.0	68.0	61.9	6.10	11.150	
1,600.0	1,598.4	1,594.7	1,593.6	3.4	3.3	-10.99	-103.6	52.7	68.2	61.6	6.52	10.458	
1,700.0	1,698.1	1,694.7	1,693.4	3.6	3.5	-12.17	-109.6	56.4	68.3	61.4	6.94	9.843	
1,800.0	1,797.9	1,794.7	1,793.1	3.9	3.8	-13.35	-115.5	60.2	68.5	61.1	7.37	9.296	
1,900.0	1,897.6	1,894.7	1,892.9	4.1	4.0	-14.52	-121.4	63.9	68.7	60.9	7.80	8.806	
2,000.0	1,997.4	1,994.7	1,992.6	4.4	4.3	-15.68	-127.3	67.6	68.9	60.7	8.23	8.367	
2,100.0	2,097.2	2,094.7	2,092.4	4.6	4.5	-16.83	-133.2	71.3	69.1	60.5	8.68	7.971	
2,200.0	2,196.9	2,194.7	2,192.1	4.9	4.7	-17.98	-139.1	75.0	69.4	60.3	9.12	7.613	
2,300.0	2,296.7	2,294.7	2,291.8	5.1	5.0	-19.11	-145.0	78.7	69.7	60.2	9.57	7.288	
2,400.0	2,396.4	2,394.7	2,391.6	5.4	5.2	-20.24	-150.9	82.5	70.1	60.1	10.02	6.993	
2,500.0	2,496.2	2,494.7	2,491.3	5.6	5.5	-21.35	-156.8	86.2	70.4	60.0	10.48	6.724	
2,600.0	2,595.9	2,594.6	2,591.1	5.9	5.7	-22.45	-162.7	89.9	70.8	59.9	10.94	6.477	
2,700.0	2,695.7	2,694.6	2,690.8	6.1	6.0	-23.54	-168.6	93.6	71.3	59.9	11.40	6.251	
2,800.0	2,795.5	2,794.6	2,790.6	6.4	6.2	-24.62	-174.5	97.3	71.7	59.8	11.86	6.043	
2,900.0	2,895.2	2,894.6	2,890.3	6.6	6.5	-25.68	-180.4	101.0	72.2	59.8	12.33	5.852	
3,000.0	2,995.0	2,994.6	2,990.1	6.9	6.8	-26.73	-186.3	104.7	72.7	59.9	12.80	5.675	
3,100.0	3,094.7	3,094.6	3,089.8	7.2	7.0	-27.76	-192.2	108.5	73.2	59.9	13.28	5.511	
3,200.0	3,194.5	3,194.6	3,189.6	7.4	7.3	-28.78	-198.1	112.2	73.7	60.0	13.76	5.359	
3,300.0	3,294.2	3,294.6	3,289.3	7.7	7.5	-29.78	-204.0	115.9	74.3	60.0	14.24	5.218	
3,400.0	3,394.0	3,394.6	3,389.1	7.9	7.8	-30.77	-209.9	119.6	74.9	60.2	14.72	5.087	
3,500.0	3,493.7	3,494.6	3,488.8	8.2	8.0	-31.74	-215.8	123.3	75.5	60.3	15.20	4.964	
3,600.0	3,593.5	3,594.5	3,588.6	8.5	8.3	-32.70	-221.7	127.0	76.1	60.4	15.69	4.850	
3,700.0	3,693.3	3,694.5	3,688.3	8.7	8.6	-33.64	-227.6	130.7	76.8	60.6	16.18	4.743	
3,800.0	3,793.0	3,794.5	3,788.0	9.0	8.8	-34.57	-233.5	134.5	77.4	60.8	16.67	4.643	
3,900.0	3,892.8	3,894.5	3,887.8	9.3	9.1	-35.48	-239.4	138.2	78.1	60.9	17.17	4.550	
4,000.0	3,992.5	3,994.5	3,987.5	9.5	9.3	-36.37	-245.3	141.9	78.8	61.2	17.67	4.462	
4,100.0	4,092.3	4,094.5	4,087.3	9.8	9.6	-37.24	-251.2	145.6	79.6	61.4	18.17	4.379	
4,200.0	4,192.0	4,194.5	4,187.0	10.0	9.9	-38.10	-257.1	149.3	80.3	61.6	18.67	4.302	
4,300.0	4,291.8	4,294.5	4,286.8	10.3	10.1	-38.95	-263.0	153.0	81.1	61.9	19.17	4.229	
4,400.0	4,391.6	4,394.5	4,386.5	10.6	10.4	-39.78	-268.9	156.7	81.8	62.2	19.68	4.160	
4,500.0	4,491.3	4,494.5	4,486.3	10.8	10.6	-40.59	-274.8	160.5	82.6	62.5	20.18	4.095	
4,600.0	4,591.1	4,594.4	4,586.0	11.1	10.9	-41.39	-280.8	164.2	83.5	62.8	20.69	4.033	
4,700.0	4,690.8	4,694.4	4,685.8	11.4	11.2	-42.17	-286.7	167.9	84.3	63.1	21.20	3.975	
4,800.0	4,790.6	4,794.4	4,785.5	11.6	11.4	-42.93	-292.6	171.6	85.1	63.4	21.71	3.921	
4,900.0	4,890.3	4,894.4	4,885.3	11.9	11.7	-43.69	-298.5	175.3	86.0	63.8	22.23	3.869	
5,000.0	4,990.1	4,994.4	4,985.0	12.1	11.9	-44.42	-304.4	179.0	86.9	64.1	22.74	3.820	

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 Federal #26J-3511A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	**MD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	Grid
Reference Well:	Razor Federal #26J-3511A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design S26-T10N-R58W - Razor Federal #26J-3512B - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.0	5,089.9	5,094.4	5,084.7	12.4	12.2	-45.14	-310.3	182.7	87.8	64.5	23.26	3.773	
5,114.6	5,104.4	5,109.0	5,099.3	12.4	12.2	-45.25	-311.1	183.3	87.9	64.6	23.34	3.766	
5,150.0	5,139.6	5,144.4	5,134.6	12.5	12.3	-46.10	-313.2	184.6	87.4	63.8	23.53	3.714	
5,200.0	5,188.7	5,194.0	5,184.1	12.7	12.5	-49.58	-316.1	186.4	83.9	60.1	23.87	3.517	
5,250.0	5,236.7	5,238.9	5,228.8	13.0	12.6	-55.04	-319.8	188.8	79.0	54.7	24.32	3.248	
5,300.0	5,283.2	5,283.4	5,272.5	13.2	12.8	-61.65	-326.6	193.0	75.2	50.3	24.94	3.017	
5,350.0	5,327.7	5,328.5	5,316.0	13.5	13.0	-69.29	-336.6	199.3	73.2	47.5	25.76	2.843	
5,370.9	5,345.6	5,347.5	5,334.0	13.7	13.0	-72.69	-341.8	202.6	73.0	46.9	26.16	2.792	
5,400.0	5,369.8	5,374.2	5,358.9	13.9	13.2	-77.54	-350.0	207.8	73.4	46.7	26.73	2.748 ES	
5,450.0	5,409.1	5,420.6	5,400.8	14.3	13.5	-85.76	-366.9	218.4	76.1	48.4	27.69	2.750	
5,500.0	5,445.2	5,467.8	5,441.5	14.8	13.8	-93.35	-387.1	231.1	81.3	52.8	28.52	2.851	
5,550.0	5,477.9	5,515.9	5,480.5	15.3	14.2	-99.89	-410.9	246.1	88.7	59.6	29.18	3.041	
5,600.0	5,506.9	5,564.9	5,517.4	15.9	14.6	-105.24	-438.1	263.2	98.1	68.3	29.71	3.300	
5,650.0	5,531.7	5,614.8	5,551.8	16.5	15.1	-109.42	-468.7	282.5	108.9	78.7	30.20	3.605	
5,700.0	5,552.4	5,665.8	5,583.1	17.2	15.7	-112.58	-502.8	303.9	120.8	90.1	30.73	3.931	
5,750.0	5,568.5	5,718.0	5,610.9	17.9	16.3	-114.88	-540.1	327.4	133.5	102.2	31.36	4.258	
5,800.0	5,580.1	5,771.3	5,634.7	18.7	17.0	-116.46	-580.5	352.8	146.8	114.6	32.15	4.565	
5,850.0	5,586.9	5,826.0	5,653.9	19.4	17.8	-117.46	-623.8	380.0	160.3	127.2	33.12	4.840	
5,896.4	5,589.0	5,877.9	5,667.0	20.2	18.6	-117.97	-666.3	406.8	172.9	138.7	34.19	5.058	
5,900.0	5,589.0	5,882.0	5,667.8	20.2	18.7	-118.10	-669.7	408.9	173.9	139.6	34.25	5.077	
6,000.0	5,589.0	5,996.9	5,678.0	21.6	20.6	-117.45	-766.4	469.7	198.2	161.1	37.12	5.339	
6,100.0	5,589.0	6,104.5	5,678.0	23.1	22.2	-114.49	-859.3	523.9	220.5	179.9	40.55	5.438	
6,200.0	5,589.0	6,213.7	5,678.0	24.6	23.9	-112.10	-956.7	573.4	242.9	198.9	43.94	5.527	
6,300.0	5,589.0	6,324.7	5,678.0	26.2	25.7	-110.15	-1,058.3	617.9	265.1	217.8	47.22	5.614	
6,400.0	5,589.0	6,437.4	5,678.0	27.8	27.6	-108.54	-1,164.0	657.0	286.9	236.6	50.37	5.697	
6,500.0	5,589.0	6,551.9	5,678.0	29.3	29.5	-107.19	-1,273.5	690.3	308.3	255.0	53.38	5.776	
6,581.4	5,589.0	6,646.4	5,678.0	30.6	31.1	-106.25	-1,365.3	712.8	325.3	269.6	55.72	5.838	
6,600.0	5,589.0	6,668.2	5,678.0	30.9	31.5	-106.02	-1,386.6	717.3	329.0	272.6	56.45	5.828	
6,700.0	5,589.0	6,786.9	5,678.0	32.6	33.4	-105.08	-1,503.6	737.7	345.6	285.2	60.39	5.723	
6,800.0	5,589.0	6,907.8	5,678.0	34.3	35.3	-104.52	-1,623.7	751.0	356.3	292.0	64.28	5.543	
6,900.0	5,589.0	7,029.9	5,678.0	36.0	37.3	-104.29	-1,745.7	756.7	360.8	292.7	68.09	5.299	
7,000.0	5,589.0	7,135.1	5,678.0	37.7	38.9	-104.29	-1,850.8	756.9	360.9	289.4	71.54	5.045	
7,100.0	5,589.0	7,235.1	5,678.0	39.5	40.5	-104.29	-1,950.8	756.9	360.9	286.0	74.95	4.816	
7,200.0	5,589.0	7,335.1	5,678.0	41.2	42.1	-104.29	-2,050.8	756.9	360.9	282.6	78.38	4.605	
7,300.0	5,589.0	7,435.1	5,678.0	43.0	43.8	-104.29	-2,150.8	756.9	360.9	279.1	81.84	4.410	
7,400.0	5,589.0	7,535.1	5,678.0	44.8	45.5	-104.29	-2,250.8	756.9	360.9	275.6	85.32	4.230	
7,500.0	5,589.0	7,635.1	5,678.0	46.6	47.1	-104.29	-2,350.8	756.9	360.9	272.1	88.82	4.063	
7,600.0	5,589.0	7,735.1	5,678.0	48.4	48.8	-104.29	-2,450.8	756.9	360.9	268.6	92.34	3.908	
7,700.0	5,589.0	7,835.1	5,678.0	50.2	50.6	-104.29	-2,550.8	756.9	360.9	265.0	95.88	3.764	
7,800.0	5,589.0	7,935.1	5,678.0	52.0	52.3	-104.29	-2,650.8	756.9	360.9	261.5	99.43	3.630	
7,900.0	5,589.0	8,035.1	5,678.0	53.9	54.0	-104.29	-2,750.8	756.9	360.9	257.9	103.00	3.504	
8,000.0	5,589.0	8,135.1	5,678.0	55.7	55.8	-104.29	-2,850.8	756.9	360.9	254.3	106.57	3.386	
8,100.0	5,589.0	8,235.1	5,678.0	57.5	57.6	-104.29	-2,950.8	756.9	360.9	250.7	110.16	3.276	
8,200.0	5,589.0	8,335.1	5,678.0	59.4	59.3	-104.29	-3,050.8	756.8	360.9	247.1	113.75	3.172	
8,300.0	5,589.0	8,435.1	5,678.0	61.2	61.1	-104.29	-3,150.8	756.8	360.9	243.5	117.36	3.075	
8,400.0	5,589.0	8,535.1	5,678.0	63.1	62.9	-104.29	-3,250.8	756.8	360.9	239.9	120.97	2.983	
8,500.0	5,589.0	8,635.1	5,678.0	65.0	64.7	-104.29	-3,350.8	756.8	360.8	236.3	124.59	2.896	
8,600.0	5,589.0	8,735.1	5,678.0	66.8	66.5	-104.29	-3,450.8	756.8	360.8	232.6	128.22	2.814	
8,700.0	5,589.0	8,835.1	5,678.0	68.7	68.3	-104.29	-3,550.8	756.8	360.8	229.0	131.85	2.737	
8,800.0	5,589.0	8,935.1	5,678.0	70.5	70.1	-104.29	-3,650.8	756.8	360.8	225.3	135.49	2.663	
8,900.0	5,589.0	9,035.1	5,678.0	72.4	72.0	-104.29	-3,750.8	756.8	360.8	221.7	139.13	2.593	
9,000.0	5,589.0	9,135.1	5,678.0	74.3	73.8	-104.29	-3,850.8	756.8	360.8	218.0	142.78	2.527	

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 Federal #26J-3511A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	**MD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	Grid
Reference Well:	Razor Federal #26J-3511A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design S26-T10N-R58W - Razor Federal #26J-3512B - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-ISCWSA MWD

Offset Well Error: 0.0 ft

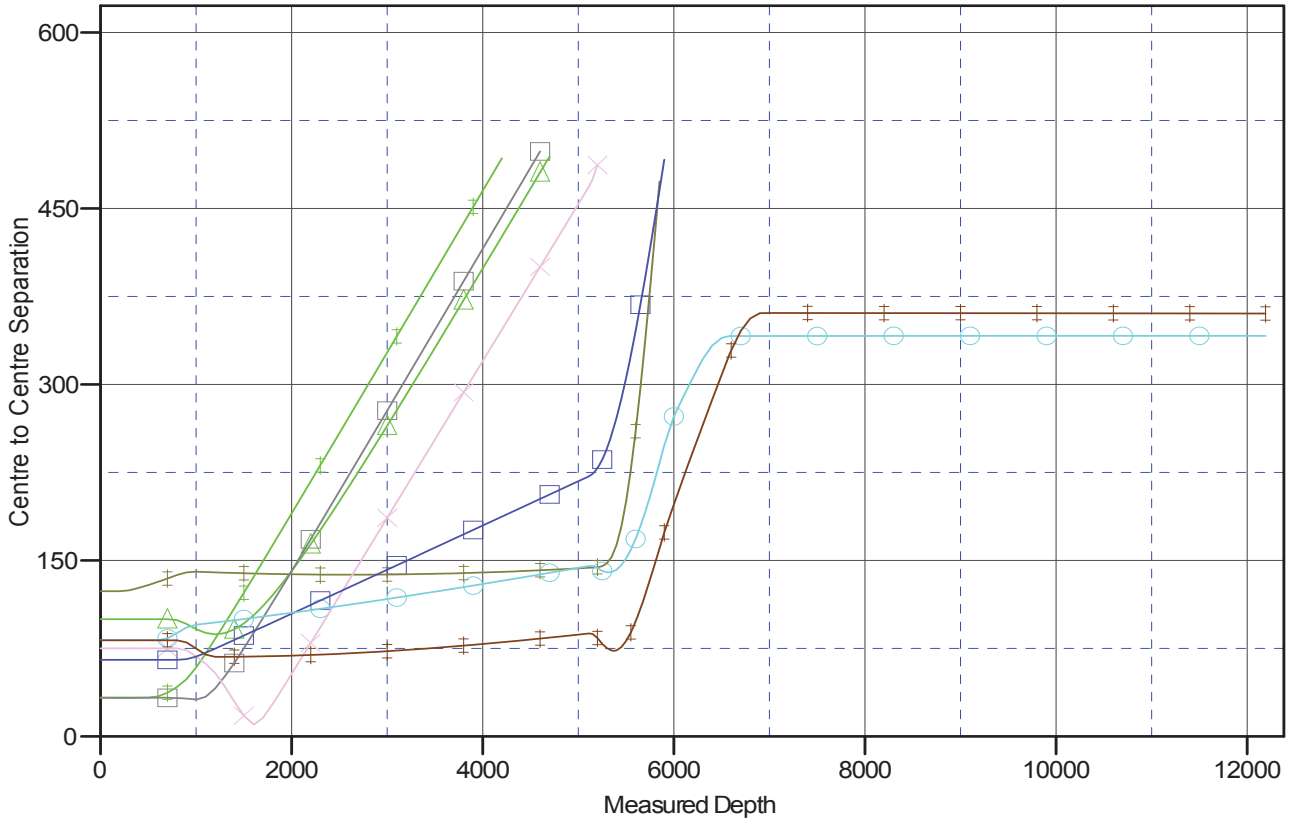
Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
9,100.0	5,589.0	9,235.1	5,678.0	76.2	75.6	-104.29	-3,950.8	756.8	360.8	214.4	146.43	2.464	
9,200.0	5,589.0	9,335.1	5,678.0	78.0	77.4	-104.29	-4,050.8	756.8	360.8	210.7	150.08	2.404	
9,300.0	5,589.0	9,435.1	5,678.0	79.9	79.3	-104.29	-4,150.8	756.8	360.8	207.0	153.74	2.347	
9,400.0	5,589.0	9,535.1	5,678.0	81.8	81.1	-104.29	-4,250.8	756.8	360.8	203.4	157.40	2.292	
9,500.0	5,589.0	9,635.1	5,678.0	83.7	83.0	-104.29	-4,350.8	756.8	360.8	199.7	161.07	2.240	
9,600.0	5,589.0	9,735.1	5,678.0	85.6	84.8	-104.29	-4,450.8	756.8	360.8	196.0	164.74	2.190	
9,700.0	5,589.0	9,835.1	5,678.0	87.4	86.7	-104.29	-4,550.8	756.8	360.8	192.4	168.41	2.142	
9,800.0	5,589.0	9,935.1	5,678.0	89.3	88.5	-104.29	-4,650.8	756.8	360.8	188.7	172.08	2.096	
9,900.0	5,589.0	10,035.1	5,678.0	91.2	90.4	-104.29	-4,750.8	756.7	360.7	185.0	175.76	2.052	
10,000.0	5,589.0	10,135.1	5,678.0	93.1	92.3	-104.29	-4,850.8	756.7	360.7	181.3	179.44	2.010	
10,100.0	5,589.0	10,235.1	5,678.0	95.0	94.1	-104.29	-4,950.8	756.7	360.7	177.6	183.12	1.970	
10,200.0	5,589.0	10,335.1	5,678.0	96.9	96.0	-104.29	-5,050.8	756.7	360.7	173.9	186.80	1.931	
10,300.0	5,589.0	10,435.1	5,678.0	98.8	97.8	-104.29	-5,150.8	756.7	360.7	170.2	190.49	1.894	
10,400.0	5,589.0	10,535.1	5,678.0	100.7	99.7	-104.29	-5,250.8	756.7	360.7	166.5	194.18	1.858	
10,500.0	5,589.0	10,635.1	5,678.0	102.6	101.6	-104.29	-5,350.8	756.7	360.7	162.8	197.86	1.823	
10,600.0	5,589.0	10,735.1	5,678.0	104.5	103.5	-104.29	-5,450.8	756.7	360.7	159.1	201.55	1.790	
10,700.0	5,589.0	10,835.1	5,678.0	106.4	105.3	-104.29	-5,550.8	756.7	360.7	155.4	205.25	1.757	
10,800.0	5,589.0	10,935.1	5,678.0	108.3	107.2	-104.29	-5,650.8	756.7	360.7	151.7	208.94	1.726	
10,900.0	5,589.0	11,035.1	5,678.0	110.1	109.1	-104.29	-5,750.8	756.7	360.7	148.0	212.63	1.696	
11,000.0	5,589.0	11,135.1	5,678.0	112.0	111.0	-104.29	-5,850.8	756.7	360.7	144.3	216.33	1.667	
11,100.0	5,589.0	11,235.1	5,678.0	113.9	112.8	-104.29	-5,950.8	756.7	360.7	140.6	220.03	1.639	
11,200.0	5,589.0	11,335.1	5,678.0	115.8	114.7	-104.29	-6,050.8	756.7	360.7	136.9	223.72	1.612	
11,300.0	5,589.0	11,435.1	5,678.0	117.7	116.6	-104.29	-6,150.8	756.7	360.6	133.2	227.42	1.586	
11,400.0	5,589.0	11,535.1	5,678.0	119.6	118.5	-104.29	-6,250.8	756.7	360.6	129.5	231.12	1.560	
11,500.0	5,589.0	11,635.1	5,678.0	121.5	120.4	-104.29	-6,350.8	756.7	360.6	125.8	234.82	1.536	
11,600.0	5,589.0	11,735.1	5,678.0	123.4	122.3	-104.29	-6,450.8	756.6	360.6	122.1	238.53	1.512	
11,700.0	5,589.0	11,835.1	5,678.0	125.3	124.1	-104.29	-6,550.8	756.6	360.6	118.4	242.23	1.489	Level 3
11,800.0	5,589.0	11,935.1	5,678.0	127.2	126.0	-104.29	-6,650.8	756.6	360.6	114.7	245.93	1.466	Level 3
11,900.0	5,589.0	12,035.1	5,678.0	129.1	127.9	-104.29	-6,750.8	756.6	360.6	111.0	249.64	1.445	Level 3
12,000.0	5,589.0	12,135.1	5,678.0	131.1	129.8	-104.29	-6,850.8	756.6	360.6	107.3	253.35	1.423	Level 3
12,100.0	5,589.0	12,235.1	5,678.0	133.0	131.7	-104.29	-6,950.8	756.6	360.6	103.5	257.05	1.403	Level 3
12,193.8	5,589.0	12,328.9	5,678.0	134.4	133.5	-104.29	-7,044.6	756.6	360.6	100.4	260.21	1.386	Level 3, SF

Company:	Whiting Petroleum Corporation	**Local Co-ordinate Reference:**	Well Razor Federal #26J-3511A
Project:	Weld County, CO	**TVD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Reference Site:	S26-T10N-R58W	**MD Reference:**	WELL @ 4742.1ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	Grid
Reference Well:	Razor Federal #26J-3511A	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4742.1ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.00 W °

Coordinates are relative to: Razor Federal #26J-3511A
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.08°

Ladder Plot



LEGEND

- Razor #26J-2633L, HZ, Plan #1 V0
- Razor Federal #26J-2309A, HZ, Plan #1 V0
- Razor Federal #26J-2310B, HZ, Plan #1 V0
- Razor Federal #26J-2311A, HZ, Plan #1 V0
- Razor Federal #26J-2312B, HZ, Plan #1 V0
- Razor Federal #26J-3509A, HZ, Plan #2 V0
- Razor Federal #26J-3510B, HZ, Plan #2 V0
- Razor Federal #26J-3512B, HZ, Plan #1 V0