

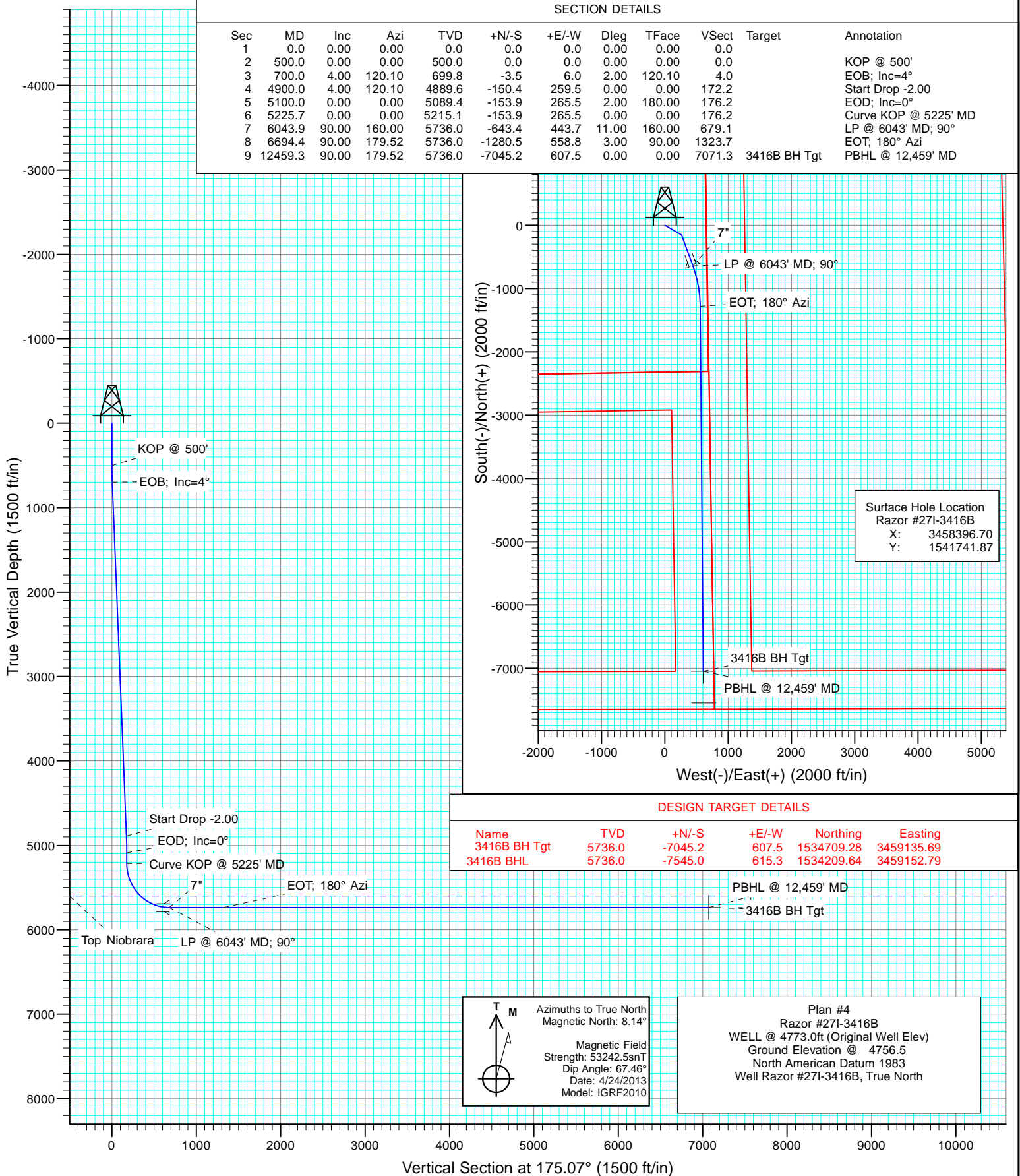


Project: Weld County, CO
Site: S27-T10N-R58W
Well: Razor #27I-3416B
Wellbore: HZ
Design: Plan #4



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		
2	500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.0		KOP @ 500'
3	700.0	4.00	120.10	699.8	-3.5	6.0	2.00	120.10	4.0		EOB; Inc=4°
4	4900.0	4.00	120.10	4889.6	-150.4	259.5	0.00	0.00	172.2		Start Drop -2.00
5	5100.0	0.00	0.00	5089.4	-153.9	265.5	2.00	180.00	176.2		EOD; Inc=0°
6	5225.7	0.00	0.00	5215.1	-153.9	265.5	0.00	0.00	176.2		Curve KOP @ 5225' MD
7	6043.9	90.00	160.00	5736.0	-643.4	443.7	11.00	160.00	679.1		LP @ 6043' MD; 90°
8	6694.4	90.00	179.52	5736.0	-1280.5	558.8	3.00	90.00	1323.7		EOT; 180° Azi
9	12459.3	90.00	179.52	5736.0	-7045.2	607.5	0.00	0.00	7071.3	3416B BH Tgt	PBHL @ 12,459' MD



Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #27I-3416B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site:	S27-T10N-R58W	North Reference:	True
Well:	Razor #27I-3416B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #4		

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		S27-T10N-R58W			
Site Position:		Northing:	1,541,650.73 ft	Latitude:	40° 48' 30.94 N
From:	Lat/Long	Easting:	3,455,691.89 ft	Longitude:	103° 51' 13.80 W
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	1.06 °

Well	Razor #27I-3416B					
Well Position	+N/-S	0.0 ft	Northing:	1,541,741.87 ft	Latitude:	40° 48' 31.34 N
	+E/-W	0.0 ft	Easting:	3,458,396.70 ft	Longitude:	103° 50' 38.61 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,756.5 ft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/24/2013	8.14	67.46	53,242

Design	Plan #4				
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	175.07	

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	
500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.00	0.00	
700.0	4.00	120.10	699.8	-3.5	6.0	2.00	2.00	0.00	120.10	
4,900.0	4.00	120.10	4,889.6	-150.4	259.5	0.00	0.00	0.00	0.00	
5,100.0	0.00	0.00	5,089.4	-153.9	265.5	2.00	-2.00	0.00	180.00	
5,225.7	0.00	0.00	5,215.1	-153.9	265.5	0.00	0.00	0.00	0.00	
6,043.9	90.00	160.00	5,736.0	-643.4	443.7	11.00	11.00	0.00	160.00	
6,694.4	90.00	179.52	5,736.0	-1,280.5	558.8	3.00	0.00	3.00	90.00	
12,459.3	90.00	179.52	5,736.0	-7,045.2	607.5	0.00	0.00	0.00	0.00	3416B BH Tgt

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #27I-3416B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site:	S27-T10N-R58W	North Reference:	True
Well:	Razor #27I-3416B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #4		

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	KOP @ 500'
600.0	2.00	120.10	600.0	-0.9	1.5	1.0	2.00	2.00	
700.0	4.00	120.10	699.8	-3.5	6.0	4.0	2.00	2.00	EOB; Inc=4°
800.0	4.00	120.10	799.6	-7.0	12.1	8.0	0.00	0.00	
900.0	4.00	120.10	899.4	-10.5	18.1	12.0	0.00	0.00	
1,000.0	4.00	120.10	999.1	-14.0	24.1	16.0	0.00	0.00	
1,100.0	4.00	120.10	1,098.9	-17.5	30.2	20.0	0.00	0.00	
1,200.0	4.00	120.10	1,198.6	-21.0	36.2	24.0	0.00	0.00	
1,300.0	4.00	120.10	1,298.4	-24.5	42.2	28.0	0.00	0.00	
1,400.0	4.00	120.10	1,398.1	-28.0	48.3	32.0	0.00	0.00	
1,500.0	4.00	120.10	1,497.9	-31.5	54.3	36.0	0.00	0.00	
1,600.0	4.00	120.10	1,597.6	-35.0	60.4	40.0	0.00	0.00	
1,700.0	4.00	120.10	1,697.4	-38.5	66.4	44.0	0.00	0.00	
1,800.0	4.00	120.10	1,797.2	-42.0	72.4	48.0	0.00	0.00	
1,900.0	4.00	120.10	1,896.9	-45.5	78.5	52.1	0.00	0.00	
2,000.0	4.00	120.10	1,996.7	-49.0	84.5	56.1	0.00	0.00	
2,100.0	4.00	120.10	2,096.4	-52.5	90.5	60.1	0.00	0.00	
2,200.0	4.00	120.10	2,196.2	-56.0	96.6	64.1	0.00	0.00	
2,300.0	4.00	120.10	2,295.9	-59.5	102.6	68.1	0.00	0.00	
2,400.0	4.00	120.10	2,395.7	-63.0	108.6	72.1	0.00	0.00	
2,500.0	4.00	120.10	2,495.5	-66.5	114.7	76.1	0.00	0.00	
2,600.0	4.00	120.10	2,595.2	-70.0	120.7	80.1	0.00	0.00	
2,700.0	4.00	120.10	2,695.0	-73.5	126.7	84.1	0.00	0.00	
2,800.0	4.00	120.10	2,794.7	-77.0	132.8	88.1	0.00	0.00	
2,900.0	4.00	120.10	2,894.5	-80.5	138.8	92.1	0.00	0.00	
3,000.0	4.00	120.10	2,994.2	-84.0	144.8	96.1	0.00	0.00	
3,100.0	4.00	120.10	3,094.0	-87.5	150.9	100.1	0.00	0.00	
3,200.0	4.00	120.10	3,193.7	-91.0	156.9	104.1	0.00	0.00	
3,300.0	4.00	120.10	3,293.5	-94.5	162.9	108.1	0.00	0.00	
3,400.0	4.00	120.10	3,393.3	-98.0	169.0	112.1	0.00	0.00	
3,500.0	4.00	120.10	3,493.0	-101.5	175.0	116.1	0.00	0.00	
3,600.0	4.00	120.10	3,592.8	-105.0	181.1	120.1	0.00	0.00	
3,700.0	4.00	120.10	3,692.5	-108.5	187.1	124.1	0.00	0.00	
3,800.0	4.00	120.10	3,792.3	-111.9	193.1	128.1	0.00	0.00	
3,900.0	4.00	120.10	3,892.0	-115.4	199.2	132.1	0.00	0.00	
4,000.0	4.00	120.10	3,991.8	-118.9	205.2	136.1	0.00	0.00	
4,100.0	4.00	120.10	4,091.6	-122.4	211.2	140.1	0.00	0.00	
4,200.0	4.00	120.10	4,191.3	-125.9	217.3	144.1	0.00	0.00	
4,300.0	4.00	120.10	4,291.1	-129.4	223.3	148.1	0.00	0.00	
4,400.0	4.00	120.10	4,390.8	-132.9	229.3	152.2	0.00	0.00	
4,500.0	4.00	120.10	4,490.6	-136.4	235.4	156.2	0.00	0.00	
4,600.0	4.00	120.10	4,590.3	-139.9	241.4	160.2	0.00	0.00	
4,700.0	4.00	120.10	4,690.1	-143.4	247.4	164.2	0.00	0.00	
4,800.0	4.00	120.10	4,789.9	-146.9	253.5	168.2	0.00	0.00	
4,900.0	4.00	120.10	4,889.6	-150.4	259.5	172.2	0.00	0.00	Start Drop -2.00
5,000.0	2.00	120.10	4,989.5	-153.1	264.0	175.2	2.00	-2.00	
5,100.0	0.00	0.00	5,089.4	-153.9	265.5	176.2	2.00	-2.00	EOD; Inc=0°

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #27I-3416B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site:	S27-T10N-R58W	North Reference:	True
Well:	Razor #27I-3416B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #4		

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	0.00	0.00	5,189.4	-153.9	265.5	176.2	0.00	0.00	
5,225.7	0.00	0.00	5,215.1	-153.9	265.5	176.2	0.00	0.00	Curve KOP @ 5225' MD
5,300.0	8.17	160.00	5,289.2	-158.9	267.4	181.3	11.00	11.00	
5,400.0	19.17	160.00	5,386.2	-181.1	275.4	204.1	11.00	11.00	
5,500.0	30.17	160.00	5,476.9	-220.2	289.7	244.3	11.00	11.00	
5,600.0	41.17	160.00	5,558.1	-275.0	309.6	300.5	11.00	11.00	
5,658.8	47.64	160.00	5,600.0	-313.6	323.7	340.2	11.00	11.00	Top Niobrara
5,700.0	52.17	160.00	5,626.6	-343.2	334.4	370.7	11.00	11.00	
5,800.0	63.17	160.00	5,680.0	-422.5	363.3	452.1	11.00	11.00	
5,900.0	74.17	160.00	5,716.3	-509.9	395.1	542.0	11.00	11.00	
6,000.0	85.17	160.00	5,734.2	-602.2	428.7	636.8	11.00	11.00	
6,043.9	90.00	160.00	5,736.0	-643.4	443.7	679.1	11.00	11.00	LP @ 6043' MD; 90° - 7"
6,100.0	90.00	161.68	5,736.0	-696.4	462.1	733.5	3.00	0.00	
6,200.0	90.00	164.68	5,736.0	-792.1	491.0	831.4	3.00	0.00	
6,300.0	90.00	167.68	5,736.0	-889.2	514.9	930.2	3.00	0.00	
6,400.0	90.00	170.68	5,736.0	-987.4	533.7	1,029.6	3.00	0.00	
6,500.0	90.00	173.68	5,736.0	-1,086.5	547.3	1,129.5	3.00	0.00	
6,600.0	90.00	176.68	5,736.0	-1,186.1	555.7	1,229.5	3.00	0.00	
6,694.4	90.00	179.52	5,736.0	-1,280.5	558.8	1,323.7	3.00	0.00	EOT; 180° Azi
6,700.0	90.00	179.52	5,736.0	-1,286.1	558.9	1,329.3	0.00	0.00	
6,800.0	90.00	179.52	5,736.0	-1,386.0	559.7	1,429.0	0.00	0.00	
6,900.0	90.00	179.52	5,736.0	-1,486.0	560.5	1,528.7	0.00	0.00	
7,000.0	90.00	179.52	5,736.0	-1,586.0	561.4	1,628.4	0.00	0.00	
7,100.0	90.00	179.52	5,736.0	-1,686.0	562.2	1,728.1	0.00	0.00	
7,200.0	90.00	179.52	5,736.0	-1,786.0	563.1	1,827.8	0.00	0.00	
7,300.0	90.00	179.52	5,736.0	-1,886.0	563.9	1,927.5	0.00	0.00	
7,400.0	90.00	179.52	5,736.0	-1,986.0	564.8	2,027.2	0.00	0.00	
7,500.0	90.00	179.52	5,736.0	-2,086.0	565.6	2,126.9	0.00	0.00	
7,600.0	90.00	179.52	5,736.0	-2,186.0	566.5	2,226.6	0.00	0.00	
7,700.0	90.00	179.52	5,736.0	-2,286.0	567.3	2,326.3	0.00	0.00	
7,800.0	90.00	179.52	5,736.0	-2,386.0	568.2	2,426.0	0.00	0.00	
7,900.0	90.00	179.52	5,736.0	-2,486.0	569.0	2,525.7	0.00	0.00	
8,000.0	90.00	179.52	5,736.0	-2,586.0	569.8	2,625.4	0.00	0.00	
8,100.0	90.00	179.52	5,736.0	-2,686.0	570.7	2,725.1	0.00	0.00	
8,200.0	90.00	179.52	5,736.0	-2,786.0	571.5	2,824.8	0.00	0.00	
8,300.0	90.00	179.52	5,736.0	-2,886.0	572.4	2,924.5	0.00	0.00	
8,400.0	90.00	179.52	5,736.0	-2,986.0	573.2	3,024.2	0.00	0.00	
8,500.0	90.00	179.52	5,736.0	-3,086.0	574.1	3,123.9	0.00	0.00	
8,600.0	90.00	179.52	5,736.0	-3,186.0	574.9	3,223.6	0.00	0.00	
8,700.0	90.00	179.52	5,736.0	-3,286.0	575.8	3,323.3	0.00	0.00	
8,800.0	90.00	179.52	5,736.0	-3,386.0	576.6	3,423.0	0.00	0.00	
8,900.0	90.00	179.52	5,736.0	-3,486.0	577.5	3,522.7	0.00	0.00	
9,000.0	90.00	179.52	5,736.0	-3,586.0	578.3	3,622.4	0.00	0.00	
9,100.0	90.00	179.52	5,736.0	-3,686.0	579.1	3,722.1	0.00	0.00	
9,200.0	90.00	179.52	5,736.0	-3,786.0	580.0	3,821.8	0.00	0.00	
9,300.0	90.00	179.52	5,736.0	-3,886.0	580.8	3,921.5	0.00	0.00	
9,400.0	90.00	179.52	5,736.0	-3,986.0	581.7	4,021.2	0.00	0.00	
9,500.0	90.00	179.52	5,736.0	-4,086.0	582.5	4,120.9	0.00	0.00	
9,600.0	90.00	179.52	5,736.0	-4,185.9	583.4	4,220.6	0.00	0.00	
9,700.0	90.00	179.52	5,736.0	-4,285.9	584.2	4,320.3	0.00	0.00	
9,800.0	90.00	179.52	5,736.0	-4,385.9	585.1	4,420.0	0.00	0.00	
9,900.0	90.00	179.52	5,736.0	-4,485.9	585.9	4,519.7	0.00	0.00	

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #27I-3416B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site:	S27-T10N-R58W	North Reference:	True
Well:	Razor #27I-3416B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #4		

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	179.52	5,736.0	-4,585.9	586.8	4,619.4	0.00	0.00	
10,100.0	90.00	179.52	5,736.0	-4,685.9	587.6	4,719.1	0.00	0.00	
10,200.0	90.00	179.52	5,736.0	-4,785.9	588.4	4,818.8	0.00	0.00	
10,300.0	90.00	179.52	5,736.0	-4,885.9	589.3	4,918.5	0.00	0.00	
10,400.0	90.00	179.52	5,736.0	-4,985.9	590.1	5,018.2	0.00	0.00	
10,500.0	90.00	179.52	5,736.0	-5,085.9	591.0	5,117.9	0.00	0.00	
10,600.0	90.00	179.52	5,736.0	-5,185.9	591.8	5,217.6	0.00	0.00	
10,700.0	90.00	179.52	5,736.0	-5,285.9	592.7	5,317.3	0.00	0.00	
10,800.0	90.00	179.52	5,736.0	-5,385.9	593.5	5,417.0	0.00	0.00	
10,900.0	90.00	179.52	5,736.0	-5,485.9	594.4	5,516.7	0.00	0.00	
11,000.0	90.00	179.52	5,736.0	-5,585.9	595.2	5,616.4	0.00	0.00	
11,100.0	90.00	179.52	5,736.0	-5,685.9	596.1	5,716.1	0.00	0.00	
11,200.0	90.00	179.52	5,736.0	-5,785.9	596.9	5,815.8	0.00	0.00	
11,300.0	90.00	179.52	5,736.0	-5,885.9	597.7	5,915.5	0.00	0.00	
11,400.0	90.00	179.52	5,736.0	-5,985.9	598.6	6,015.2	0.00	0.00	
11,500.0	90.00	179.52	5,736.0	-6,085.9	599.4	6,114.9	0.00	0.00	
11,600.0	90.00	179.52	5,736.0	-6,185.9	600.3	6,214.6	0.00	0.00	
11,700.0	90.00	179.52	5,736.0	-6,285.9	601.1	6,314.3	0.00	0.00	
11,800.0	90.00	179.52	5,736.0	-6,385.9	602.0	6,414.0	0.00	0.00	
11,900.0	90.00	179.52	5,736.0	-6,485.9	602.8	6,513.7	0.00	0.00	
12,000.0	90.00	179.52	5,736.0	-6,585.9	603.7	6,613.4	0.00	0.00	
12,100.0	90.00	179.52	5,736.0	-6,685.9	604.5	6,713.1	0.00	0.00	
12,200.0	90.00	179.52	5,736.0	-6,785.9	605.4	6,812.8	0.00	0.00	
12,300.0	90.00	179.52	5,736.0	-6,885.9	606.2	6,912.5	0.00	0.00	
12,400.0	90.00	179.52	5,736.0	-6,985.8	607.0	7,012.2	0.00	0.00	
12,459.3	90.00	179.52	5,736.0	-7,045.1	607.5	7,071.3	0.00	0.00	PBHL @ 12,459' MD

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
3416B BHL - hit/miss target - Shape - Point	0.00	0.00	5,736.0	-7,545.0	615.3	1,534,209.64	3,459,152.79	40° 47' 16.79 N	103° 50' 30.61 W
- plan misses target center by 500.0ft at 12459.3ft MD (5736.0 TVD, -7045.1 N, 607.5 E)									
3416B BH Tgt - plan hits target center - Point	0.00	0.00	5,736.0	-7,045.2	607.5	1,534,709.28	3,459,135.69	40° 47' 21.73 N	103° 50' 30.71 W

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
6,043.9	5,736.0	7"	0.000	0.000

Database: USA EDM 5000 Multi Users DB
Company: Whiting Petroleum Corporation
Project: Weld County, CO
Site: S27-T10N-R58W
Well: Razor #27I-3416B
Wellbore: HZ
Design: Plan #4

Local Co-ordinate Reference: Well Razor #27I-3416B
TVD Reference: WELL @ 4773.0ft (Original Well Elev)
MD Reference: WELL @ 4773.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,658.8	5,600.0	Top Niobrara		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
500.0	500.0	0.0	0.0	KOP @ 500'
700.0	699.8	-3.5	6.0	EOB; Inc=4°
4,900.0	4,889.6	-150.4	259.5	Start Drop -2.00
5,100.0	5,089.4	-153.9	265.5	EOD; Inc=0°
5,225.7	5,215.1	-153.9	265.5	Curve KOP @ 5225' MD
6,043.9	5,736.0	-643.4	443.7	LP @ 6043' MD; 90°
6,694.4	5,736.0	-1,280.5	558.8	EOT; 180° Azi
12,459.3	5,736.0	-7,045.1	607.5	PBHL @ 12,459' MD



WHITING PETROLEUM CORPORATION

Whiting Petroleum Corporation

Weld County, CO

S27-T10N-R58W

Razor #27I-3416B

HZ

Plan #4

Anticollision Report

24 June, 2013

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #27I-3416B
Project:	Weld County, CO	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #27I-3416B	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 #4	Offset TVD Reference:	Offset Datum

Reference	Plan #4		
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 1,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	6/24/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	12,459.3	Plan #4 (HZ)	ISCWSA MWD	MWD - ISCWSA	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S27-T10N-R58W						
Razor #27I-2213A - HZ - Plan #2	500.0	500.0	100.6	98.6	50.667	CC, ES
Razor #27I-2213A - HZ - Plan #2	5,200.0	5,163.8	431.2	407.9	18.520	SF
Razor #27I-2214B - HZ - Plan #3	300.0	300.0	99.4	98.3	95.728	CC, ES
Razor #27I-2214B - HZ - Plan #3	5,225.7	5,223.1	629.6	608.6	29.990	SF
Razor #27I-2215A - HZ - Plan #1	500.0	500.0	74.7	72.9	40.663	CC, ES
Razor #27I-2215A - HZ - Plan #1	5,200.0	5,171.0	352.0	331.0	16.761	SF
Razor #27I-2216B - HZ - Plan #2	500.0	500.0	33.2	31.4	18.086	CC
Razor #27I-2216B - HZ - Plan #2	600.0	600.8	33.6	31.3	15.116	ES
Razor #27I-2216B - HZ - Plan #2	900.0	900.6	44.4	41.0	13.052	SF
Razor #27I-3413A - HZ - Plan #2	500.0	500.0	124.3	122.3	62.610	CC, ES
Razor #27I-3413A - HZ - Plan #2	12,459.3	12,587.6	993.8	723.1	3.672	SF
Razor #27I-3414B - HZ - Plan #2	500.0	500.0	66.2	64.2	33.318	CC, ES
Razor #27I-3414B - HZ - Plan #2	12,459.3	12,557.6	659.9	388.4	2.431	SF
Razor #27I-3415A - HZ - Plan #2	500.0	500.0	81.8	79.8	41.168	CC
Razor #27I-3415A - HZ - Plan #2	12,459.3	12,594.5	341.4	78.4	1.298	Level 3, ES, SF
Razor #27J-3411A - HZ - Plan #3						Out of range
Razor #27J-3412B - HZ - Plan #3						Out of range

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #27I-3416B
Project:	Weld County, CO	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #27I-3416B	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 #4	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2213A - HZ - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	-41.12	75.8	-66.2	100.6					
100.0	100.0	100.0	100.0	0.1	0.1	-41.12	75.8	-66.2	100.6	100.4	0.19	536.102		
200.0	200.0	200.0	200.0	0.3	0.3	-41.12	75.8	-66.2	100.6	100.0	0.64	157.900		
300.0	300.0	300.0	300.0	0.5	0.5	-41.12	75.8	-66.2	100.6	99.5	1.09	92.584		
400.0	400.0	400.0	400.0	0.8	0.8	-41.12	75.8	-66.2	100.6	99.1	1.54	65.493		
500.0	500.0	500.0	500.0	1.0	1.0	-41.12	75.8	-66.2	100.6	98.6	1.99	50.667 CC, ES		
600.0	600.0	600.0	600.0	1.2	1.2	-161.52	75.8	-66.2	102.3	99.9	2.42	42.300		
700.0	699.8	699.8	699.8	1.4	1.4	-162.38	75.8	-66.2	107.2	104.4	2.84	37.760		
800.0	799.6	799.6	799.6	1.6	1.7	-163.44	75.8	-66.2	113.9	110.6	3.27	34.867		
900.0	899.4	899.4	899.4	1.8	1.9	-164.38	75.8	-66.2	120.6	116.9	3.70	32.595		
1,000.0	999.1	999.1	999.1	2.1	2.1	-165.23	75.8	-66.2	127.4	123.2	4.14	30.773		
1,100.0	1,098.9	1,094.5	1,094.5	2.3	2.3	-165.80	77.1	-67.0	135.7	131.1	4.57	29.691		
1,200.0	1,198.6	1,189.3	1,189.2	2.6	2.5	-166.00	81.1	-69.5	147.3	142.2	5.01	29.420		
1,300.0	1,298.4	1,287.9	1,287.5	2.8	2.8	-166.00	86.9	-73.1	160.7	155.3	5.45	29.505		
1,400.0	1,398.1	1,387.0	1,386.3	3.1	3.0	-166.01	92.8	-76.8	174.3	168.4	5.89	29.586		
1,500.0	1,497.9	1,491.8	1,491.1	3.3	3.2	-166.12	97.7	-79.9	186.4	180.1	6.32	29.496		
1,600.0	1,597.6	1,598.3	1,597.5	3.6	3.4	-166.50	99.5	-81.0	195.1	188.3	6.73	28.990		
1,700.0	1,697.4	1,698.2	1,697.4	3.8	3.6	-166.96	99.5	-81.0	201.8	194.7	7.15	28.226		
1,800.0	1,797.2	1,798.0	1,797.2	4.1	3.8	-167.39	99.5	-81.0	208.7	201.1	7.60	27.460		
1,900.0	1,896.9	1,897.7	1,896.9	4.4	4.0	-167.80	99.5	-81.0	215.5	207.4	8.05	26.777		
2,000.0	1,996.7	1,997.5	1,996.7	4.6	4.3	-168.18	99.5	-81.0	222.3	213.8	8.50	26.165		
2,100.0	2,096.4	2,097.2	2,096.4	4.9	4.5	-168.53	99.5	-81.0	229.1	220.2	8.94	25.615		
2,200.0	2,196.2	2,197.0	2,196.2	5.1	4.7	-168.87	99.5	-81.0	236.0	226.6	9.39	25.117		
2,300.0	2,295.9	2,296.8	2,295.9	5.4	4.9	-169.19	99.5	-81.0	242.8	233.0	9.84	24.665		
2,400.0	2,395.7	2,396.5	2,395.7	5.7	5.2	-169.49	99.5	-81.0	249.7	239.4	10.29	24.252		
2,500.0	2,495.5	2,496.3	2,495.5	5.9	5.4	-169.77	99.5	-81.0	256.5	245.8	10.75	23.874		
2,600.0	2,595.2	2,596.0	2,595.2	6.2	5.6	-170.04	99.5	-81.0	263.4	252.2	11.20	23.526		
2,700.0	2,695.0	2,695.8	2,695.0	6.4	5.8	-170.30	99.5	-81.0	270.3	258.6	11.65	23.206		
2,800.0	2,794.7	2,795.5	2,794.7	6.7	6.0	-170.54	99.5	-81.0	277.1	265.1	12.10	22.909		
2,900.0	2,894.5	2,895.3	2,894.5	7.0	6.3	-170.77	99.5	-81.0	284.0	271.5	12.55	22.634		
3,000.0	2,994.2	2,995.0	2,994.2	7.2	6.5	-170.99	99.5	-81.0	290.9	277.9	13.00	22.378		
3,100.0	3,094.0	3,094.8	3,094.0	7.5	6.7	-171.20	99.5	-81.0	297.8	284.4	13.45	22.139		
3,200.0	3,193.7	3,194.6	3,193.7	7.7	6.9	-171.40	99.5	-81.0	304.7	290.8	13.90	21.915		
3,300.0	3,293.5	3,294.3	3,293.5	8.0	7.2	-171.60	99.5	-81.0	311.6	297.3	14.36	21.706		
3,400.0	3,393.3	3,394.1	3,393.3	8.3	7.4	-171.78	99.5	-81.0	318.5	303.7	14.81	21.510		
3,500.0	3,493.0	3,493.8	3,493.0	8.5	7.6	-171.95	99.5	-81.0	325.4	310.2	15.26	21.326		
3,600.0	3,592.8	3,593.6	3,592.8	8.8	7.8	-172.12	99.5	-81.0	332.3	316.6	15.71	21.152		
3,700.0	3,692.5	3,693.3	3,692.5	9.1	8.1	-172.28	99.5	-81.0	339.2	323.1	16.16	20.988		
3,800.0	3,792.3	3,793.1	3,792.3	9.3	8.3	-172.44	99.5	-81.0	346.2	329.5	16.62	20.832		
3,900.0	3,892.0	3,892.9	3,892.0	9.6	8.5	-172.59	99.5	-81.0	353.1	336.0	17.07	20.686		
4,000.0	3,991.8	3,992.6	3,991.8	9.8	8.7	-172.73	99.5	-81.0	360.0	342.5	17.52	20.546		
4,100.0	4,091.6	4,092.4	4,091.6	10.1	9.0	-172.87	99.5	-81.0	366.9	348.9	17.97	20.414		
4,200.0	4,191.3	4,192.1	4,191.3	10.4	9.2	-173.00	99.5	-81.0	373.8	355.4	18.43	20.289		
4,300.0	4,291.1	4,291.9	4,291.1	10.6	9.4	-173.13	99.5	-81.0	380.8	361.9	18.88	20.169		
4,400.0	4,390.8	4,391.6	4,390.8	10.9	9.6	-173.25	99.5	-81.0	387.7	368.4	19.33	20.055		
4,500.0	4,490.6	4,491.4	4,490.6	11.1	9.8	-173.37	99.5	-81.0	394.6	374.8	19.78	19.947		
4,600.0	4,590.3	4,591.1	4,590.3	11.4	10.1	-173.49	99.5	-81.0	401.5	381.3	20.24	19.843		
4,700.0	4,690.1	4,690.9	4,690.1	11.7	10.3	-173.60	99.5	-81.0	408.5	387.8	20.69	19.744		
4,800.0	4,789.9	4,790.7	4,789.9	11.9	10.5	-173.71	99.5	-81.0	415.4	394.3	21.14	19.649		
4,900.0	4,889.6	4,890.4	4,889.6	12.2	10.7	-173.81	99.5	-81.0	422.3	400.7	21.59	19.558		
5,000.0	4,989.5	4,990.3	4,989.5	12.4	11.0	-173.90	99.5	-81.0	427.5	405.5	22.04	19.401		
5,100.0	5,089.4	5,090.3	5,089.4	12.6	11.2	-53.82	99.5	-81.0	429.3	406.4	22.92	18.730		

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #27I-3416B
Project:	Weld County, CO	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #27I-3416B	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 #4	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2213A - HZ - Plan #2													Offset Site Error: 0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	
5,114.7	5,104.1	5,104.9	5,104.1	12.6	11.2	-53.82	99.5	-81.0	429.3	406.3	22.98	18.680	
5,200.0	5,189.4	5,163.8	5,163.0	12.8	11.4	-53.77	100.4	-81.6	431.2	407.9	23.28	18.520 SF	
5,225.7	5,215.1	5,178.3	5,177.4	12.8	11.4	-53.71	101.4	-82.2	433.1	409.7	23.36	18.536	
5,250.0	5,239.4	5,200.0	5,199.0	12.9	11.4	146.28	103.5	-83.5	436.1	413.1	22.99	18.968	
5,300.0	5,289.2	5,218.9	5,217.7	13.0	11.5	145.92	106.0	-85.1	446.6	423.6	23.06	19.366	
5,350.0	5,338.3	5,250.0	5,248.1	13.2	11.6	145.57	111.3	-88.4	463.5	440.5	23.04	20.122	
5,400.0	5,386.2	5,267.6	5,265.2	13.4	11.6	144.57	114.9	-90.7	486.1	463.2	22.87	21.252	
5,450.0	5,432.6	5,300.0	5,296.2	13.6	11.7	143.85	123.0	-95.7	514.3	491.7	22.65	22.706	
5,500.0	5,476.9	5,300.0	5,296.2	13.9	11.7	140.97	123.0	-95.7	546.8	524.4	22.42	24.390	
5,550.0	5,518.9	5,320.6	5,315.5	14.2	11.7	138.48	128.9	-99.4	583.5	561.2	22.27	26.200	
5,600.0	5,558.1	5,332.4	5,326.5	14.5	11.8	134.36	132.6	-101.7	623.6	601.2	22.40	27.844	
5,650.0	5,594.1	5,350.0	5,342.7	15.0	11.8	129.50	138.5	-105.4	666.6	643.7	22.89	29.127	
5,700.0	5,626.6	5,350.0	5,342.7	15.4	11.8	120.36	138.5	-105.4	711.4	687.0	24.40	29.159	
5,750.0	5,655.3	5,350.0	5,342.7	15.9	11.8	107.88	138.5	-105.4	757.8	731.3	26.52	28.576	
5,800.0	5,680.0	5,350.0	5,342.7	16.5	11.8	92.13	138.5	-105.4	805.1	776.8	28.28	28.464	
5,850.0	5,700.3	5,350.0	5,342.7	17.1	11.8	75.01	138.5	-105.4	852.7	824.5	28.28	30.153	
5,900.0	5,716.3	5,350.0	5,342.7	17.8	11.8	59.47	138.5	-105.4	900.3	874.1	26.20	34.356	
5,950.0	5,727.6	5,350.0	5,342.7	18.5	11.8	47.22	138.5	-105.4	947.3	924.2	23.10	41.018	
6,000.0	5,734.2	5,350.0	5,342.7	19.2	11.8	38.17	138.5	-105.4	993.6	973.6	19.98	49.726	

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #271-3416B
Project:	Weld County, CO	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #271-3416B	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 #4	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #271-2214B - HZ - Plan #3													Offset Site Error: 0.0 ft	
Survey Program: O-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	0.0	-99.4	99.4					
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	0.0	-99.4	99.4	99.1	0.24	414.829		
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-99.4	99.4	98.7	0.64	155.559		
300.0	300.0	300.0	300.0	0.5	0.5	-89.99	0.0	-99.4	99.4	98.3	1.04	95.728	CC, ES	
400.0	400.0	396.8	396.8	0.8	0.7	-89.67	0.6	-100.9	101.0	99.5	1.43	70.460		
500.0	500.0	493.4	493.2	1.0	0.9	-88.78	2.3	-105.5	105.8	103.9	1.83	57.682		
600.0	600.0	592.8	592.4	1.2	1.0	152.60	4.6	-112.0	113.9	111.7	2.21	51.590		
700.0	699.8	692.0	691.4	1.4	1.3	154.54	7.0	-118.5	125.3	122.7	2.58	48.607		
800.0	799.6	791.1	790.2	1.6	1.5	156.54	9.4	-125.0	138.4	135.4	2.96	46.807		
900.0	899.4	890.1	889.0	1.8	1.7	158.20	11.7	-131.5	151.6	148.3	3.34	45.369		
1,000.0	999.1	989.1	987.8	2.1	1.9	159.58	14.1	-138.0	164.9	161.2	3.73	44.208		
1,100.0	1,098.9	1,088.2	1,086.6	2.3	2.1	160.76	16.4	-144.5	178.4	174.2	4.12	43.255		
1,200.0	1,198.6	1,187.2	1,185.4	2.6	2.3	161.77	18.8	-151.0	191.8	187.3	4.52	42.464		
1,300.0	1,298.4	1,286.2	1,284.2	2.8	2.5	162.65	21.2	-157.5	205.4	200.5	4.91	41.798		
1,400.0	1,398.1	1,385.3	1,383.0	3.1	2.7	163.43	23.5	-164.0	218.9	213.6	5.31	41.230		
1,500.0	1,497.9	1,484.3	1,481.7	3.3	2.9	164.11	25.9	-170.5	232.5	226.8	5.71	40.741		
1,600.0	1,597.6	1,583.3	1,580.5	3.6	3.1	164.71	28.3	-177.0	246.2	240.1	6.11	40.316		
1,700.0	1,697.4	1,682.4	1,679.3	3.8	3.3	165.26	30.6	-183.4	259.8	253.3	6.51	39.944		
1,800.0	1,797.2	1,781.4	1,778.1	4.1	3.5	165.74	33.0	-189.9	273.5	266.6	6.90	39.614		
1,900.0	1,896.9	1,880.4	1,876.9	4.4	3.8	166.19	35.3	-196.4	287.2	279.9	7.30	39.321		
2,000.0	1,996.7	1,979.5	1,975.7	4.6	4.0	166.59	37.7	-202.9	300.9	293.2	7.70	39.059		
2,100.0	2,096.4	2,078.5	2,074.5	4.9	4.2	166.95	40.1	-209.4	314.7	306.6	8.10	38.823		
2,200.0	2,196.2	2,177.5	2,173.3	5.1	4.4	167.29	42.4	-215.9	328.4	319.9	8.51	38.609		
2,300.0	2,295.9	2,276.6	2,272.1	5.4	4.6	167.60	44.8	-222.4	342.1	333.2	8.91	38.415		
2,400.0	2,395.7	2,375.6	2,370.9	5.7	4.8	167.88	47.2	-228.9	355.9	346.6	9.31	38.238		
2,500.0	2,495.5	2,474.6	2,469.7	5.9	5.0	168.15	49.5	-235.4	369.7	360.0	9.71	38.075		
2,600.0	2,595.2	2,573.7	2,568.5	6.2	5.2	168.39	51.9	-241.9	383.4	373.3	10.11	37.926		
2,700.0	2,695.0	2,672.7	2,667.3	6.4	5.4	168.62	54.2	-248.4	397.2	386.7	10.51	37.788		
2,800.0	2,794.7	2,771.8	2,766.1	6.7	5.6	168.83	56.6	-254.9	411.0	400.1	10.91	37.661		
2,900.0	2,894.5	2,870.8	2,864.8	7.0	5.9	169.03	59.0	-261.3	424.8	413.5	11.31	37.542		
3,000.0	2,994.2	2,969.8	2,963.6	7.2	6.1	169.22	61.3	-267.8	438.6	426.9	11.72	37.432		
3,100.0	3,094.0	3,068.9	3,062.4	7.5	6.3	169.39	63.7	-274.3	452.4	440.3	12.12	37.329		
3,200.0	3,193.7	3,167.9	3,161.2	7.7	6.5	169.56	66.1	-280.8	466.2	453.7	12.52	37.233		
3,300.0	3,293.5	3,266.9	3,260.0	8.0	6.7	169.71	68.4	-287.3	480.0	467.1	12.92	37.143		
3,400.0	3,393.3	3,366.0	3,358.8	8.3	6.9	169.86	70.8	-293.8	493.8	480.5	13.32	37.059		
3,500.0	3,493.0	3,465.0	3,457.6	8.5	7.1	170.00	73.2	-300.3	507.6	493.9	13.73	36.979		
3,600.0	3,592.8	3,564.0	3,556.4	8.8	7.3	170.13	75.5	-306.8	521.4	507.3	14.13	36.904		
3,700.0	3,692.5	3,666.1	3,658.2	9.1	7.5	170.26	77.9	-313.4	535.2	520.7	14.54	36.818		
3,800.0	3,792.3	3,788.6	3,780.6	9.3	7.8	170.41	79.7	-318.4	546.3	531.4	14.98	36.473		
3,900.0	3,892.0	3,900.0	3,892.0	9.6	7.9	170.54	80.0	-319.0	553.8	538.4	15.40	35.949		
4,000.0	3,991.8	3,999.8	3,991.8	9.8	8.1	170.66	80.0	-319.0	560.6	544.8	15.81	35.465		
4,100.0	4,091.6	4,099.6	4,091.6	10.1	8.2	170.77	80.0	-319.0	567.5	551.3	16.21	35.005		
4,200.0	4,191.3	4,199.3	4,191.3	10.4	8.4	170.88	80.0	-319.0	574.4	557.8	16.62	34.567		
4,300.0	4,291.1	4,299.1	4,291.1	10.6	8.5	170.99	80.0	-319.0	581.3	564.3	17.02	34.151		
4,400.0	4,390.8	4,398.8	4,390.8	10.9	8.7	171.10	80.0	-319.0	588.2	570.8	17.43	33.753		
4,500.0	4,490.6	4,498.6	4,490.6	11.1	8.8	171.20	80.0	-319.0	595.1	577.3	17.83	33.375		
4,600.0	4,590.3	4,598.3	4,590.3	11.4	9.0	171.30	80.0	-319.0	602.0	583.7	18.23	33.012		
4,700.0	4,690.1	4,698.1	4,690.1	11.7	9.1	171.40	80.0	-319.0	608.9	590.2	18.64	32.666		
4,800.0	4,789.9	4,797.8	4,789.9	11.9	9.3	171.50	80.0	-319.0	615.8	596.7	19.04	32.335		
4,900.0	4,889.6	4,897.6	4,889.6	12.2	9.5	171.59	80.0	-319.0	622.7	603.2	19.45	32.017		
5,000.0	4,989.5	4,997.5	4,989.5	12.4	9.6	171.68	80.0	-319.0	627.9	608.0	19.82	31.677		
5,100.0	5,089.4	5,097.4	5,089.4	12.6	9.8	-68.19	80.0	-319.0	629.6	609.0	20.53	30.661		

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #27I-3416B
Project:	Weld County, CO	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #27I-3416B	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 #4	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2214B - HZ - Plan #3													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
5,200.0	5,189.4	5,197.4	5,189.4	12.8	9.9	-68.19	80.0	-319.0	629.6	608.7	20.90	30.122		
5,217.1	5,206.6	5,214.6	5,206.6	12.8	10.0	-68.19	80.0	-319.0	629.6	608.6	20.96	30.033		
5,225.7	5,215.1	5,223.1	5,215.1	12.8	10.0	-68.19	80.0	-319.0	629.6	608.6	20.99	29.990 SF		
5,250.0	5,239.4	5,239.9	5,231.9	12.9	10.0	131.81	80.2	-319.0	630.1	609.4	20.73	30.402		
5,300.0	5,289.2	5,273.8	5,265.7	13.0	10.1	131.85	82.4	-319.0	634.5	613.5	21.00	30.212		
5,350.0	5,338.3	5,300.0	5,291.7	13.2	10.1	131.70	85.6	-319.0	643.4	622.1	21.31	30.189		
5,400.0	5,386.2	5,335.3	5,326.5	13.4	10.2	131.72	92.0	-319.0	656.8	635.3	21.60	30.413		
5,450.0	5,432.6	5,361.5	5,351.9	13.6	10.3	131.28	98.2	-319.0	675.0	653.1	21.85	30.895		
5,500.0	5,476.9	5,383.9	5,373.4	13.9	10.3	130.37	104.6	-319.0	697.6	675.5	22.10	31.565		
5,550.0	5,518.9	5,400.0	5,388.6	14.2	10.4	128.64	109.7	-319.0	724.7	702.3	22.42	32.328		
5,600.0	5,558.1	5,417.5	5,405.1	14.5	10.4	126.45	115.8	-319.0	755.8	732.9	22.86	33.069		
5,650.0	5,594.1	5,429.0	5,415.7	15.0	10.5	123.04	120.1	-319.0	790.5	767.0	23.50	33.640		
5,700.0	5,626.6	5,437.2	5,423.2	15.4	10.5	118.36	123.3	-319.0	828.2	803.8	24.40	33.950		
5,750.0	5,655.3	5,450.0	5,434.9	15.9	10.5	113.01	128.6	-319.0	868.5	843.0	25.49	34.077		
5,800.0	5,680.0	5,450.0	5,434.9	16.5	10.5	104.89	128.6	-319.0	910.6	883.9	26.71	34.090		
5,850.0	5,700.3	5,450.0	5,434.9	17.1	10.5	95.37	128.6	-319.0	954.1	926.4	27.64	34.514		
5,900.0	5,716.3	5,450.0	5,434.9	17.8	10.5	84.89	128.6	-319.0	998.4	970.5	27.86	35.831		

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #271-3416B
Project:	Weld County, CO	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #271-3416B	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 #4	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #271-2215A - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: O-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance					Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	0.00	74.7	0.0	74.7					
100.0	100.0	100.0	100.0	0.1	0.1	0.00	74.7	0.0	74.7	74.5	0.24	311.759		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	74.7	0.0	74.7	74.1	0.64	116.908		
300.0	300.0	300.0	300.0	0.5	0.5	0.00	74.7	0.0	74.7	73.7	1.04	71.943		
400.0	400.0	400.0	400.0	0.8	0.7	0.00	74.7	0.0	74.7	73.3	1.44	51.959		
500.0	500.0	500.0	500.0	1.0	0.8	0.00	74.7	0.0	74.7	72.9	1.84	40.663 CC, ES		
600.0	600.0	600.0	600.0	1.2	1.0	-121.23	74.7	0.0	75.6	73.4	2.22	34.084		
700.0	699.8	699.8	699.8	1.4	1.2	-124.45	74.7	0.0	78.4	75.8	2.59	30.277		
800.0	799.6	799.6	799.6	1.6	1.4	-128.44	74.7	0.0	82.6	79.6	2.98	27.743		
900.0	899.4	899.4	899.4	1.8	1.5	-132.03	74.7	0.0	87.1	83.7	3.37	25.846		
1,000.0	999.1	999.1	999.1	2.1	1.7	-135.26	74.7	0.0	91.9	88.1	3.77	24.405		
1,100.0	1,098.9	1,098.9	1,098.9	2.3	1.9	-138.16	74.7	0.0	97.0	92.8	4.16	23.292		
1,200.0	1,198.6	1,198.6	1,198.6	2.6	2.1	-140.76	74.7	0.0	102.3	97.7	4.56	22.419		
1,300.0	1,298.4	1,298.4	1,298.4	2.8	2.2	-143.11	74.7	0.0	107.8	102.8	4.96	21.722		
1,400.0	1,398.1	1,398.1	1,398.1	3.1	2.4	-145.22	74.7	0.0	113.5	108.1	5.36	21.159		
1,500.0	1,497.9	1,497.9	1,497.9	3.3	2.6	-147.13	74.7	0.0	119.3	113.5	5.76	20.699		
1,600.0	1,597.6	1,597.6	1,597.6	3.6	2.8	-148.86	74.7	0.0	125.2	119.0	6.16	20.317		
1,700.0	1,697.4	1,697.4	1,697.4	3.8	2.9	-150.44	74.7	0.0	131.2	124.6	6.56	19.997		
1,800.0	1,797.2	1,797.2	1,797.2	4.1	3.1	-151.87	74.7	0.0	137.3	130.4	6.96	19.727		
1,900.0	1,896.9	1,896.9	1,896.9	4.4	3.3	-153.18	74.7	0.0	143.5	136.2	7.36	19.497		
2,000.0	1,996.7	1,996.7	1,996.7	4.6	3.5	-154.39	74.7	0.0	149.8	142.0	7.76	19.299		
2,100.0	2,096.4	2,096.4	2,096.4	4.9	3.6	-155.49	74.7	0.0	156.1	147.9	8.16	19.128		
2,200.0	2,196.2	2,196.2	2,196.2	5.1	3.8	-156.51	74.7	0.0	162.5	153.9	8.56	18.979		
2,300.0	2,295.9	2,295.9	2,295.9	5.4	4.0	-157.46	74.7	0.0	168.9	159.9	8.96	18.848		
2,400.0	2,395.7	2,395.7	2,395.7	5.7	4.2	-158.33	74.7	0.0	175.4	166.0	9.36	18.733		
2,500.0	2,495.5	2,495.5	2,495.5	5.9	4.3	-159.14	74.7	0.0	181.9	172.1	9.76	18.631		
2,600.0	2,595.2	2,595.2	2,595.2	6.2	4.5	-159.90	74.7	0.0	188.4	178.2	10.16	18.539		
2,700.0	2,695.0	2,695.0	2,695.0	6.4	4.7	-160.60	74.7	0.0	195.0	184.4	10.56	18.458		
2,800.0	2,794.7	2,794.7	2,794.7	6.7	4.8	-161.26	74.7	0.0	201.6	190.6	10.96	18.385		
2,900.0	2,894.5	2,894.5	2,894.5	7.0	5.0	-161.88	74.7	0.0	208.2	196.8	11.36	18.319		
3,000.0	2,994.2	2,994.2	2,994.2	7.2	5.2	-162.45	74.7	0.0	214.8	203.1	11.77	18.259		
3,100.0	3,094.0	3,094.0	3,094.0	7.5	5.4	-163.00	74.7	0.0	221.5	209.3	12.17	18.204		
3,200.0	3,193.7	3,193.7	3,193.7	7.7	5.5	-163.51	74.7	0.0	228.2	215.6	12.57	18.155		
3,300.0	3,293.5	3,293.5	3,293.5	8.0	5.7	-163.99	74.7	0.0	234.9	221.9	12.97	18.109		
3,400.0	3,393.3	3,393.3	3,393.3	8.3	5.9	-164.45	74.7	0.0	241.6	228.2	13.37	18.068		
3,500.0	3,493.0	3,493.0	3,493.0	8.5	6.1	-164.88	74.7	0.0	248.3	234.5	13.77	18.029		
3,600.0	3,592.8	3,592.8	3,592.8	8.8	6.2	-165.29	74.7	0.0	255.1	240.9	14.17	17.994		
3,700.0	3,692.5	3,692.5	3,692.5	9.1	6.4	-165.68	74.7	0.0	261.8	247.2	14.58	17.962		
3,800.0	3,792.3	3,792.3	3,792.3	9.3	6.6	-166.05	74.7	0.0	268.6	253.6	14.98	17.931		
3,900.0	3,892.0	3,892.0	3,892.0	9.6	6.8	-166.40	74.7	0.0	275.3	260.0	15.38	17.903		
4,000.0	3,991.8	3,991.8	3,991.8	9.8	6.9	-166.73	74.7	0.0	282.1	266.4	15.78	17.877		
4,100.0	4,091.6	4,091.6	4,091.6	10.1	7.1	-167.05	74.7	0.0	288.9	272.7	16.18	17.853		
4,200.0	4,191.3	4,191.3	4,191.3	10.4	7.3	-167.35	74.7	0.0	295.7	279.1	16.59	17.830		
4,300.0	4,291.1	4,291.1	4,291.1	10.6	7.5	-167.64	74.7	0.0	302.5	285.6	16.99	17.809		
4,400.0	4,390.8	4,390.8	4,390.8	10.9	7.6	-167.91	74.7	0.0	309.4	292.0	17.39	17.789		
4,500.0	4,490.6	4,490.6	4,490.6	11.1	7.8	-168.18	74.7	0.0	316.2	298.4	17.79	17.771		
4,600.0	4,590.3	4,590.3	4,590.3	11.4	8.0	-168.43	74.7	0.0	323.0	304.8	18.19	17.753		
4,700.0	4,690.1	4,690.1	4,690.1	11.7	8.2	-168.68	74.7	0.0	329.9	311.3	18.60	17.737		
4,800.0	4,789.9	4,789.9	4,789.9	11.9	8.3	-168.91	74.7	0.0	336.7	317.7	19.00	17.721		
4,900.0	4,889.6	4,889.6	4,889.6	12.2	8.5	-169.13	74.7	0.0	343.5	324.1	19.40	17.706		
5,000.0	4,989.5	4,989.5	4,989.5	12.4	8.7	-169.31	74.7	0.0	348.7	328.9	19.79	17.624		
5,100.0	5,089.4	5,089.4	5,089.4	12.6	8.9	-49.27	74.7	0.0	350.4	329.7	20.66	16.957		

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #27I-3416B
Project:	Weld County, CO	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #27I-3416B	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 #4	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2215A - HZ - Plan #1													Offset Site Error: 0.0 ft
Survey Program: 0-MWD													Offset Well Error: 0.0 ft
Reference		Offset		Semi Major Axis			Distance					Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis		
5,114.1	5,103.5	5,103.5	5,103.5	12.6	8.9	-49.27	74.7	0.0	350.4	329.7	20.72	16.915	
5,200.0	5,189.4	5,171.0	5,170.9	12.8	9.0	-49.05	76.5	0.0	352.0	331.0	21.00	16.761 SF	
5,225.7	5,215.1	5,188.8	5,188.6	12.8	9.0	-48.83	78.2	0.1	353.7	332.6	21.08	16.773	
5,250.0	5,239.4	5,200.0	5,199.8	12.9	9.0	151.22	79.6	0.1	356.3	335.6	20.64	17.263	
5,300.0	5,289.2	5,238.5	5,237.7	13.0	9.1	151.76	86.3	0.2	366.3	345.3	20.97	17.465	
5,350.0	5,338.3	5,269.0	5,267.3	13.2	9.2	152.18	93.6	0.4	382.6	361.3	21.27	17.988	
5,400.0	5,386.2	5,300.0	5,296.9	13.4	9.2	152.64	102.8	0.6	405.1	383.6	21.45	18.883	
5,450.0	5,432.6	5,320.1	5,315.8	13.6	9.3	152.27	109.7	0.7	433.2	411.7	21.51	20.140	
5,500.0	5,476.9	5,350.0	5,343.3	13.9	9.4	152.41	121.2	1.0	466.7	445.2	21.49	21.721	
5,550.0	5,518.9	5,350.0	5,343.3	14.2	9.4	149.34	121.2	1.0	504.3	482.8	21.44	23.518	
5,600.0	5,558.1	5,368.6	5,360.2	14.5	9.4	147.18	129.2	1.1	545.6	524.1	21.45	25.432	
5,650.0	5,594.1	5,377.8	5,368.4	15.0	9.4	142.45	133.4	1.2	589.8	568.1	21.75	27.113	
5,700.0	5,626.6	5,384.0	5,373.8	15.4	9.5	134.52	136.3	1.3	636.2	613.5	22.67	28.059	
5,750.0	5,655.3	5,400.0	5,387.8	15.9	9.5	124.79	144.0	1.5	684.3	660.2	24.16	28.329	
5,800.0	5,680.0	5,400.0	5,387.8	16.5	9.5	103.61	144.0	1.5	733.0	706.7	26.29	27.881	
5,850.0	5,700.3	5,400.0	5,387.8	17.1	9.5	76.21	144.0	1.5	782.0	756.2	25.76	30.358	
5,900.0	5,716.3	5,384.4	5,374.2	17.8	9.5	49.62	136.5	1.3	830.6	808.6	22.00	37.757	
5,950.0	5,727.6	5,379.8	5,370.1	18.5	9.4	35.46	134.3	1.2	878.8	860.5	18.37	47.828	
6,000.0	5,734.2	5,373.7	5,364.7	19.2	9.4	26.85	131.5	1.2	926.1	910.4	15.66	59.132	
6,043.9	5,736.0	5,367.3	5,359.0	19.9	9.4	21.93	128.6	1.1	966.5	952.5	13.99	69.073	

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #271-3416B
Project:	Weld County, CO	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #271-3416B	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 #4	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #271-2216B - HZ - Plan #2													Offset Site Error:	0.0 ft
Survey Program: O-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance					Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	0.0	-33.2	33.2					
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	0.0	-33.2	33.2	33.0	0.24	138.661		
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-33.2	33.2	32.6	0.64	51.997		
300.0	300.0	300.0	300.0	0.5	0.5	-89.99	0.0	-33.2	33.2	32.2	1.04	31.998		
400.0	400.0	400.0	400.0	0.8	0.7	-89.99	0.0	-33.2	33.2	31.8	1.44	23.110		
500.0	500.0	500.0	500.0	1.0	0.8	-89.99	0.0	-33.2	33.2	31.4	1.84	18.086 CC		
600.0	600.0	600.8	600.8	1.2	1.0	153.56	1.3	-32.0	33.6	31.3	2.22	15.116 ES		
700.0	699.8	701.3	701.1	1.4	1.2	163.85	5.0	-28.2	35.3	32.7	2.60	13.587		
800.0	799.6	800.9	800.5	1.6	1.4	175.45	9.9	-23.3	39.2	36.2	3.00	13.095		
900.0	899.4	900.6	899.9	1.8	1.6	-175.33	14.8	-18.4	44.4	41.0	3.40	13.052 SF		
1,000.0	999.1	1,000.2	999.3	2.1	1.8	-168.18	19.7	-13.5	50.5	46.7	3.82	13.224		
1,100.0	1,098.9	1,099.8	1,098.7	2.3	2.0	-162.64	24.7	-8.6	57.3	53.0	4.25	13.485		
1,200.0	1,198.6	1,199.5	1,198.1	2.6	2.2	-158.29	29.6	-3.6	64.4	59.7	4.68	13.772		
1,300.0	1,298.4	1,299.1	1,297.5	2.8	2.4	-154.82	34.5	1.3	71.8	66.7	5.11	14.059		
1,400.0	1,398.1	1,398.7	1,396.9	3.1	2.6	-152.01	39.4	6.2	79.5	73.9	5.54	14.333		
1,500.0	1,497.9	1,498.4	1,496.3	3.3	2.8	-149.69	44.3	11.1	87.3	81.3	5.98	14.589		
1,600.0	1,597.6	1,598.0	1,595.7	3.6	3.0	-147.76	49.2	16.0	95.2	88.8	6.42	14.825		
1,700.0	1,697.4	1,697.7	1,695.1	3.8	3.3	-146.13	54.2	20.9	103.2	96.4	6.86	15.042		
1,800.0	1,797.2	1,797.3	1,794.5	4.1	3.5	-144.73	59.1	25.8	111.3	104.0	7.30	15.240		
1,900.0	1,896.9	1,896.9	1,893.9	4.4	3.7	-143.52	64.0	30.8	119.4	111.7	7.75	15.422		
2,000.0	1,996.7	1,996.6	1,993.3	4.6	3.9	-142.47	68.9	35.7	127.6	119.4	8.19	15.588		
2,100.0	2,096.4	2,096.2	2,092.7	4.9	4.1	-141.54	73.8	40.6	135.9	127.2	8.63	15.741		
2,200.0	2,196.2	2,195.9	2,192.0	5.1	4.3	-140.72	78.7	45.5	144.1	135.0	9.07	15.881		
2,300.0	2,295.9	2,295.5	2,291.4	5.4	4.5	-139.99	83.6	50.4	152.4	142.9	9.52	16.011		
2,400.0	2,395.7	2,395.1	2,390.8	5.7	4.7	-139.33	88.6	55.3	160.7	150.7	9.96	16.130		
2,500.0	2,495.5	2,494.8	2,490.2	5.9	4.9	-138.74	93.5	60.2	169.0	158.6	10.41	16.241		
2,600.0	2,595.2	2,594.4	2,589.6	6.2	5.1	-138.21	98.4	65.2	177.4	166.5	10.85	16.344		
2,700.0	2,695.0	2,694.0	2,689.0	6.4	5.4	-137.72	103.3	70.1	185.7	174.4	11.30	16.439		
2,800.0	2,794.7	2,793.7	2,788.4	6.7	5.6	-137.27	108.2	75.0	194.1	182.3	11.74	16.529		
2,900.0	2,894.5	2,893.3	2,887.8	7.0	5.8	-136.86	113.1	79.9	202.5	190.3	12.19	16.612		
3,000.0	2,994.2	2,993.0	2,987.2	7.2	6.0	-136.49	118.0	84.8	210.9	198.2	12.63	16.690		
3,100.0	3,094.0	3,092.6	3,086.6	7.5	6.2	-136.14	123.0	89.7	219.2	206.2	13.08	16.763		
3,200.0	3,193.7	3,192.2	3,186.0	7.7	6.4	-135.82	127.9	94.6	227.6	214.1	13.53	16.832		
3,300.0	3,293.5	3,291.9	3,285.4	8.0	6.6	-135.52	132.8	99.6	236.1	222.1	13.97	16.896		
3,400.0	3,393.3	3,391.5	3,384.8	8.3	6.8	-135.24	137.7	104.5	244.5	230.1	14.42	16.957		
3,500.0	3,493.0	3,491.2	3,484.2	8.5	7.0	-134.98	142.6	109.4	252.9	238.0	14.86	17.015		
3,600.0	3,592.8	3,590.8	3,583.6	8.8	7.3	-134.74	147.5	114.3	261.3	246.0	15.31	17.069		
3,700.0	3,692.5	3,690.4	3,683.0	9.1	7.5	-134.51	152.4	119.2	269.7	254.0	15.76	17.121		
3,800.0	3,792.3	3,790.1	3,782.4	9.3	7.7	-134.30	157.4	124.1	278.2	262.0	16.20	17.170		
3,900.0	3,892.0	3,889.7	3,881.8	9.6	7.9	-134.10	162.3	129.0	286.6	270.0	16.65	17.216		
4,000.0	3,991.8	3,989.3	3,981.2	9.8	8.1	-133.91	167.2	134.0	295.1	278.0	17.09	17.260		
4,100.0	4,091.6	4,089.0	4,080.6	10.1	8.3	-133.73	172.1	138.9	303.5	286.0	17.54	17.302		
4,200.0	4,191.3	4,188.6	4,180.0	10.4	8.5	-133.56	177.0	143.8	311.9	294.0	17.99	17.342		
4,300.0	4,291.1	4,288.3	4,279.4	10.6	8.7	-133.40	181.9	148.7	320.4	302.0	18.43	17.380		
4,400.0	4,390.8	4,387.9	4,378.8	10.9	8.9	-133.24	186.8	153.6	328.8	310.0	18.88	17.417		
4,500.0	4,490.6	4,487.5	4,478.2	11.1	9.2	-133.10	191.8	158.5	337.3	318.0	19.33	17.452		
4,600.0	4,590.3	4,587.2	4,577.5	11.4	9.4	-132.96	196.7	163.5	345.8	326.0	19.77	17.485		
4,700.0	4,690.1	4,686.8	4,676.9	11.7	9.6	-132.83	201.6	168.4	354.2	334.0	20.22	17.517		
4,800.0	4,789.9	4,786.5	4,776.3	11.9	9.8	-132.70	206.5	173.3	362.7	342.0	20.67	17.548		
4,900.0	4,889.6	4,886.1	4,875.7	12.2	10.0	-132.58	211.4	178.2	371.1	350.0	21.11	17.577		
5,000.0	4,989.5	4,992.4	4,981.8	12.4	10.2	-132.54	215.6	182.4	377.7	356.2	21.53	17.543		
5,100.0	5,089.4	5,100.0	5,089.4	12.6	10.4	-12.42	217.0	183.8	379.9	357.9	21.99	17.275		

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #27I-3416B
Project:	Weld County, CO	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #27I-3416B	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 #4	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-2216B - HZ - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,189.4	5,200.0	5,189.4	12.8	10.5	-12.42	217.0	183.8	379.9	357.5	22.33	17.009		
5,225.7	5,215.1	5,225.7	5,215.1	12.8	10.6	-12.42	217.0	183.8	379.9	357.4	22.42	16.943		
5,250.0	5,239.4	5,240.1	5,229.5	12.9	10.6	-172.41	217.2	183.8	380.7	358.4	22.37	17.020		
5,300.0	5,289.2	5,269.2	5,258.6	13.0	10.6	-172.27	218.8	184.0	388.0	365.4	22.67	17.116		
5,350.0	5,338.3	5,300.0	5,289.2	13.2	10.7	-172.00	222.3	184.4	402.5	379.6	22.88	17.590		
5,400.0	5,386.2	5,323.0	5,311.9	13.4	10.8	-171.58	226.0	184.9	423.6	400.7	22.92	18.484		
5,450.0	5,432.6	5,350.0	5,338.3	13.6	10.9	-170.99	231.7	185.6	450.9	428.1	22.80	19.775		
5,500.0	5,476.9	5,366.8	5,354.6	13.9	11.0	-170.20	235.9	186.1	483.5	461.0	22.51	21.476		
5,550.0	5,518.9	5,384.3	5,371.3	14.2	11.0	-169.11	240.8	186.7	520.7	498.7	22.09	23.575		
5,600.0	5,558.1	5,400.0	5,386.2	14.5	11.1	-167.58	245.7	187.3	561.8	540.2	21.55	26.068		
5,650.0	5,594.1	5,400.0	5,386.2	15.0	11.1	-165.08	245.7	187.3	606.1	585.1	20.95	28.924		
5,700.0	5,626.6	5,418.7	5,403.8	15.4	11.2	-161.53	252.1	188.1	652.3	631.9	20.46	31.880		
5,750.0	5,655.3	5,424.7	5,409.3	15.9	11.2	-154.57	254.3	188.3	700.4	679.9	20.49	34.187		
5,800.0	5,680.0	5,428.3	5,412.6	16.5	11.2	-138.33	255.7	188.5	749.6	727.1	22.47	33.355		
5,850.0	5,700.3	5,429.7	5,413.9	17.1	11.2	-92.95	256.2	188.5	799.3	772.7	26.64	30.010		
5,900.0	5,716.3	5,429.1	5,413.4	17.8	11.2	-41.82	256.0	188.5	849.1	828.3	20.78	40.852		
5,950.0	5,727.6	5,426.8	5,411.3	18.5	11.2	-22.73	255.1	188.4	898.5	883.1	15.41	58.316		
6,000.0	5,734.2	5,422.9	5,407.7	19.2	11.2	-14.91	253.7	188.2	947.1	934.1	12.96	73.076		
6,043.9	5,736.0	5,418.3	5,403.4	19.9	11.2	-11.22	252.0	188.0	988.8	976.9	11.88	83.219		

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #271-3416B
Project:	Weld County, CO	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #271-3416B	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 #4	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #271-3413A - HZ - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	-53.07	74.7	-99.4	124.3					
100.0	100.0	100.0	100.0	0.1	0.1	-53.07	74.7	-99.4	124.3	124.1	0.19	662.467		
200.0	200.0	200.0	200.0	0.3	0.3	-53.07	74.7	-99.4	124.3	123.7	0.64	195.118		
300.0	300.0	300.0	300.0	0.5	0.5	-53.07	74.7	-99.4	124.3	123.2	1.09	114.408		
400.0	400.0	400.0	400.0	0.8	0.8	-53.07	74.7	-99.4	124.3	122.8	1.54	80.931		
500.0	500.0	500.0	500.0	1.0	1.0	-53.07	74.7	-99.4	124.3	122.3	1.99	62.610 CC, ES		
600.0	600.0	600.0	600.0	1.2	1.2	-173.26	74.7	-99.4	126.1	123.6	2.42	52.143		
700.0	699.8	699.8	699.8	1.4	1.4	-173.51	74.7	-99.4	131.3	128.4	2.84	46.224		
800.0	799.6	799.6	799.6	1.6	1.7	-173.84	74.7	-99.4	138.2	134.9	3.27	42.322		
900.0	899.4	899.4	899.4	1.8	1.9	-174.14	74.7	-99.4	145.1	141.4	3.70	39.250		
1,000.0	999.1	999.1	999.1	2.1	2.1	-174.40	74.7	-99.4	152.1	147.9	4.13	36.780		
1,100.0	1,098.9	1,098.9	1,098.9	2.3	2.3	-174.65	74.7	-99.4	159.0	154.4	4.57	34.758		
1,200.0	1,198.6	1,198.6	1,198.6	2.6	2.6	-174.87	74.7	-99.4	166.0	160.9	5.02	33.076		
1,300.0	1,298.4	1,298.4	1,298.4	2.8	2.8	-175.08	74.7	-99.4	172.9	167.5	5.46	31.656		
1,400.0	1,398.1	1,398.1	1,398.1	3.1	3.0	-175.27	74.7	-99.4	179.9	174.0	5.91	30.443		
1,500.0	1,497.9	1,497.9	1,497.9	3.3	3.2	-175.45	74.7	-99.4	186.8	180.5	6.36	29.396		
1,600.0	1,597.6	1,597.6	1,597.6	3.6	3.5	-175.61	74.7	-99.4	193.8	187.0	6.80	28.482		
1,700.0	1,697.4	1,697.4	1,697.4	3.8	3.7	-175.76	74.7	-99.4	200.7	193.5	7.25	27.679		
1,800.0	1,797.2	1,797.2	1,797.2	4.1	3.9	-175.91	74.7	-99.4	207.7	200.0	7.70	26.968		
1,900.0	1,896.9	1,896.9	1,896.9	4.4	4.1	-176.04	74.7	-99.4	214.6	206.5	8.15	26.333		
2,000.0	1,996.7	1,996.7	1,996.7	4.6	4.4	-176.16	74.7	-99.4	221.6	213.0	8.60	25.764		
2,100.0	2,096.4	2,096.4	2,096.4	4.9	4.6	-176.28	74.7	-99.4	228.6	219.5	9.05	25.250		
2,200.0	2,196.2	2,196.2	2,196.2	5.1	4.8	-176.39	74.7	-99.4	235.5	226.0	9.50	24.785		
2,300.0	2,295.9	2,295.9	2,295.9	5.4	5.0	-176.49	74.7	-99.4	242.5	232.5	9.95	24.361		
2,400.0	2,395.7	2,395.7	2,395.7	5.7	5.3	-176.59	74.7	-99.4	249.5	239.0	10.41	23.973		
2,500.0	2,495.5	2,495.5	2,495.5	5.9	5.5	-176.68	74.7	-99.4	256.4	245.6	10.86	23.618		
2,600.0	2,595.2	2,595.2	2,595.2	6.2	5.7	-176.77	74.7	-99.4	263.4	252.1	11.31	23.290		
2,700.0	2,695.0	2,695.0	2,695.0	6.4	5.9	-176.86	74.7	-99.4	270.3	258.6	11.76	22.987		
2,800.0	2,794.7	2,794.7	2,794.7	6.7	6.2	-176.93	74.7	-99.4	277.3	265.1	12.21	22.707		
2,900.0	2,894.5	2,894.5	2,894.5	7.0	6.4	-177.01	74.7	-99.4	284.3	271.6	12.66	22.446		
3,000.0	2,994.2	2,994.2	2,994.2	7.2	6.6	-177.08	74.7	-99.4	291.2	278.1	13.12	22.203		
3,100.0	3,094.0	3,094.0	3,094.0	7.5	6.8	-177.15	74.7	-99.4	298.2	284.6	13.57	21.976		
3,200.0	3,193.7	3,193.7	3,193.7	7.7	7.0	-177.21	74.7	-99.4	305.2	291.2	14.02	21.764		
3,300.0	3,293.5	3,293.5	3,293.5	8.0	7.3	-177.28	74.7	-99.4	312.1	297.7	14.47	21.565		
3,400.0	3,393.3	3,393.3	3,393.3	8.3	7.5	-177.34	74.7	-99.4	319.1	304.2	14.93	21.378		
3,500.0	3,493.0	3,493.0	3,493.0	8.5	7.7	-177.39	74.7	-99.4	326.1	310.7	15.38	21.202		
3,600.0	3,592.8	3,592.8	3,592.8	8.8	7.9	-177.45	74.7	-99.4	333.0	317.2	15.83	21.035		
3,700.0	3,692.5	3,692.5	3,692.5	9.1	8.2	-177.50	74.7	-99.4	340.0	323.7	16.29	20.878		
3,800.0	3,792.3	3,792.3	3,792.3	9.3	8.4	-177.55	74.7	-99.4	347.0	330.2	16.74	20.730		
3,900.0	3,892.0	3,892.0	3,892.0	9.6	8.6	-177.60	74.7	-99.4	354.0	336.8	17.19	20.589		
4,000.0	3,991.8	3,991.8	3,991.8	9.8	8.8	-177.65	74.7	-99.4	360.9	343.3	17.64	20.455		
4,100.0	4,091.6	4,091.6	4,091.6	10.1	9.1	-177.69	74.7	-99.4	367.9	349.8	18.10	20.328		
4,200.0	4,191.3	4,191.3	4,191.3	10.4	9.3	-177.73	74.7	-99.4	374.9	356.3	18.55	20.208		
4,300.0	4,291.1	4,291.1	4,291.1	10.6	9.5	-177.77	74.7	-99.4	381.8	362.8	19.00	20.093		
4,400.0	4,390.8	4,390.8	4,390.8	10.9	9.7	-177.81	74.7	-99.4	388.8	369.4	19.46	19.983		
4,500.0	4,490.6	4,490.6	4,490.6	11.1	10.0	-177.85	74.7	-99.4	395.8	375.9	19.91	19.878		
4,600.0	4,590.3	4,590.3	4,590.3	11.4	10.2	-177.89	74.7	-99.4	402.7	382.4	20.36	19.778		
4,700.0	4,690.1	4,690.1	4,690.1	11.7	10.4	-177.93	74.7	-99.4	409.7	388.9	20.82	19.682		
4,800.0	4,789.9	4,789.9	4,789.9	11.9	10.6	-177.96	74.7	-99.4	416.7	395.4	21.27	19.591		
4,900.0	4,889.6	4,889.6	4,889.6	12.2	10.9	-177.99	74.7	-99.4	423.7	401.9	21.72	19.503		
5,000.0	4,989.5	4,989.5	4,989.5	12.4	11.1	-178.02	74.7	-99.4	428.9	406.7	22.16	19.351		
5,100.0	5,089.4	5,089.4	5,089.4	12.6	11.3	-57.93	74.7	-99.4	430.6	407.7	22.97	18.749		

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #271-3416B
Project:	Weld County, CO	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #271-3416B	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 #4	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #271-3413A - HZ - Plan #2													Offset Site Error: 0.0 ft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,189.4	5,202.4	5,202.2	12.8	11.5	-58.62	69.7	-101.2	429.7	406.3	23.36	18.391		
5,225.7	5,215.1	5,232.8	5,232.1	12.8	11.6	-59.30	64.8	-102.9	428.8	405.4	23.45	18.287		
5,250.0	5,239.4	5,261.0	5,259.6	12.9	11.6	139.96	58.8	-105.0	428.2	405.0	23.19	18.467		
5,259.6	5,249.0	5,272.1	5,270.3	12.9	11.7	139.63	56.0	-106.0	428.1	404.9	23.22	18.434		
5,300.0	5,289.2	5,317.6	5,313.4	13.0	11.7	138.06	42.5	-110.8	429.1	405.8	23.34	18.383		
5,350.0	5,338.3	5,371.9	5,363.1	13.2	11.8	135.74	21.9	-118.1	433.2	409.8	23.44	18.485		
5,400.0	5,386.2	5,423.7	5,408.1	13.4	11.9	133.04	-2.3	-126.7	440.6	417.1	23.52	18.736		
5,450.0	5,432.6	5,473.0	5,448.4	13.6	12.1	130.03	-29.1	-136.2	451.3	427.7	23.64	19.090		
5,500.0	5,476.9	5,519.9	5,484.0	13.9	12.2	126.74	-57.9	-146.3	465.3	441.5	23.87	19.497		
5,550.0	5,518.9	5,564.5	5,515.2	14.2	12.4	123.21	-87.9	-156.9	482.5	458.3	24.25	19.901		
5,600.0	5,558.1	5,607.0	5,542.3	14.5	12.6	119.45	-118.6	-167.9	502.6	477.8	24.81	20.260		
5,650.0	5,594.1	5,647.5	5,565.5	15.0	12.9	115.48	-149.9	-178.9	525.4	499.8	25.63	20.499		
5,700.0	5,626.6	5,686.3	5,585.4	15.4	13.1	111.32	-181.3	-190.0	550.4	523.8	26.66	20.646		
5,750.0	5,655.3	5,723.6	5,602.0	15.9	13.4	107.02	-212.8	-201.2	577.4	549.6	27.84	20.744		
5,800.0	5,680.0	5,759.6	5,615.8	16.5	13.7	102.60	-244.1	-212.3	606.0	576.9	29.09	20.831		
5,850.0	5,700.3	5,794.6	5,627.0	17.1	14.0	98.12	-275.4	-223.4	635.8	605.4	30.36	20.941		
5,900.0	5,716.3	5,828.8	5,635.7	17.8	14.4	93.65	-306.6	-234.4	666.4	634.8	31.58	21.102		
5,950.0	5,727.6	5,862.4	5,642.2	18.5	14.7	89.26	-337.6	-245.4	697.6	664.9	32.69	21.340		
6,000.0	5,734.2	5,895.6	5,646.4	19.2	15.1	85.01	-368.7	-256.4	729.1	695.4	33.67	21.653		
6,043.9	5,736.0	5,924.6	5,648.4	19.9	15.4	81.45	-395.9	-266.0	756.7	722.3	34.43	21.982		
6,100.0	5,736.0	5,977.8	5,648.9	20.6	16.0	82.12	-446.1	-283.5	791.3	755.5	35.85	22.073		
6,200.0	5,736.0	6,123.6	5,648.9	22.0	17.7	83.21	-586.1	-324.6	845.8	806.9	38.89	21.748		
6,300.0	5,736.0	6,288.3	5,648.9	23.4	19.9	83.95	-747.2	-358.0	888.7	846.2	42.47	20.925		
6,400.0	5,736.0	6,468.7	5,648.9	24.8	22.5	84.41	-926.4	-378.6	918.4	871.8	46.56	19.724		
6,500.0	5,736.0	6,628.9	5,648.9	26.3	24.9	84.62	-1,086.5	-382.8	934.2	883.6	50.51	18.494		
6,600.0	5,736.0	6,728.6	5,648.9	27.8	26.5	84.69	-1,186.2	-382.8	942.5	889.0	53.55	17.600		
6,694.4	5,736.0	6,822.9	5,648.9	29.1	28.0	84.71	-1,280.5	-382.8	945.6	889.2	56.37	16.775		
6,700.0	5,736.0	6,828.5	5,648.9	29.2	28.1	84.71	-1,286.1	-382.8	945.7	889.1	56.55	16.722		
6,800.0	5,736.0	6,928.5	5,648.9	30.8	29.7	84.72	-1,386.1	-382.8	946.5	886.6	59.86	15.812		
6,900.0	5,736.0	7,028.5	5,648.9	32.4	31.3	84.72	-1,486.1	-382.8	947.3	884.1	63.23	14.983		
7,000.0	5,736.0	7,128.5	5,648.9	34.1	33.0	84.73	-1,586.1	-382.8	948.2	881.5	66.65	14.226		
7,100.0	5,736.0	7,228.5	5,648.9	35.7	34.7	84.73	-1,686.1	-382.8	949.0	878.9	70.11	13.535		
7,200.0	5,736.0	7,328.5	5,648.9	37.4	36.5	84.74	-1,786.1	-382.8	949.8	876.2	73.62	12.903		
7,300.0	5,736.0	7,428.5	5,648.9	39.2	38.2	84.74	-1,886.1	-382.8	950.7	873.5	77.15	12.322		
7,400.0	5,736.0	7,528.5	5,648.9	40.9	40.0	84.75	-1,986.1	-382.7	951.5	870.8	80.71	11.789		
7,500.0	5,736.0	7,628.5	5,648.9	42.6	41.8	84.75	-2,086.1	-382.7	952.3	868.0	84.30	11.297		
7,600.0	5,736.0	7,728.5	5,648.9	44.4	43.6	84.76	-2,186.1	-382.7	953.2	865.3	87.91	10.843		
7,700.0	5,736.0	7,828.5	5,648.9	46.2	45.4	84.76	-2,286.1	-382.7	954.0	862.5	91.54	10.422		
7,800.0	5,736.0	7,928.5	5,648.9	48.0	47.2	84.77	-2,386.1	-382.7	954.8	859.7	95.18	10.032		
7,900.0	5,736.0	8,028.5	5,648.9	49.8	49.0	84.77	-2,486.1	-382.7	955.7	856.8	98.84	9.669		
8,000.0	5,736.0	8,128.5	5,648.9	51.6	50.8	84.78	-2,586.1	-382.7	956.5	854.0	102.51	9.331		
8,100.0	5,736.0	8,228.4	5,648.9	53.4	52.7	84.78	-2,686.1	-382.7	957.4	851.2	106.19	9.015		
8,200.0	5,736.0	8,328.4	5,648.9	55.2	54.5	84.79	-2,786.1	-382.7	958.2	848.3	109.89	8.720		
8,300.0	5,736.0	8,428.4	5,648.9	57.0	56.3	84.79	-2,886.1	-382.7	959.0	845.4	113.59	8.443		
8,400.0	5,736.0	8,528.4	5,648.9	58.9	58.2	84.79	-2,986.1	-382.7	959.9	842.6	117.30	8.183		
8,500.0	5,736.0	8,628.4	5,648.9	60.7	60.0	84.80	-3,086.1	-382.7	960.7	839.7	121.02	7.938		
8,600.0	5,736.0	8,728.4	5,648.9	62.6	61.9	84.80	-3,186.0	-382.7	961.5	836.8	124.75	7.708		
8,700.0	5,736.0	8,828.4	5,648.9	64.4	63.8	84.81	-3,286.0	-382.7	962.4	833.9	128.49	7.490		
8,800.0	5,736.0	8,928.4	5,648.9	66.3	65.6	84.81	-3,386.0	-382.7	963.2	831.0	132.22	7.285		
8,900.0	5,736.0	9,028.4	5,648.9	68.1	67.5	84.82	-3,486.0	-382.6	964.0	828.1	135.97	7.090		
9,000.0	5,736.0	9,128.4	5,648.9	70.0	69.4	84.82	-3,586.0	-382.6	964.9	825.2	139.72	6.906		
9,100.0	5,736.0	9,228.4	5,648.9	71.9	71.2	84.83	-3,686.0	-382.6	965.7	822.2	143.47	6.731		

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #27I-3416B
Project:	Weld County, CO	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #27I-3416B	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 #4	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-3413A - HZ - Plan #2													Offset Site Error: 0.0 ft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
9,200.0	5,736.0	9,328.4	5,648.9	73.7	73.1	84.83	-3,786.0	-382.6	966.5	819.3	147.23	6.565		
9,300.0	5,736.0	9,428.4	5,648.9	75.6	75.0	84.84	-3,886.0	-382.6	967.4	816.4	151.00	6.407		
9,400.0	5,736.0	9,528.4	5,648.9	77.5	76.9	84.84	-3,986.0	-382.6	968.2	813.5	154.76	6.256		
9,500.0	5,736.0	9,628.4	5,649.0	79.3	78.8	84.85	-4,086.0	-382.6	969.0	810.5	158.53	6.113		
9,600.0	5,736.0	9,728.4	5,649.0	81.2	80.6	84.85	-4,186.0	-382.6	969.9	807.6	162.31	5.976		
9,700.0	5,736.0	9,828.4	5,649.0	83.1	82.5	84.85	-4,286.0	-382.6	970.7	804.6	166.08	5.845		
9,800.0	5,736.0	9,928.4	5,649.0	85.0	84.4	84.86	-4,386.0	-382.6	971.6	801.7	169.86	5.720		
9,900.0	5,736.0	10,028.4	5,649.0	86.9	86.3	84.86	-4,486.0	-382.6	972.4	798.7	173.64	5.600		
10,000.0	5,736.0	10,128.4	5,649.0	88.7	88.2	84.87	-4,586.0	-382.6	973.2	795.8	177.43	5.485		
10,100.0	5,736.0	10,228.4	5,649.0	90.6	90.1	84.87	-4,686.0	-382.6	974.1	792.8	181.21	5.375		
10,200.0	5,736.0	10,328.4	5,649.0	92.5	92.0	84.88	-4,786.0	-382.6	974.9	789.9	185.00	5.270		
10,300.0	5,736.0	10,428.4	5,649.0	94.4	93.9	84.88	-4,886.0	-382.6	975.7	786.9	188.79	5.168		
10,400.0	5,736.0	10,528.4	5,649.0	96.3	95.8	84.89	-4,986.0	-382.5	976.6	784.0	192.58	5.071		
10,500.0	5,736.0	10,628.4	5,649.0	98.2	97.7	84.89	-5,086.0	-382.5	977.4	781.0	196.38	4.977		
10,600.0	5,736.0	10,728.4	5,649.0	100.1	99.6	84.90	-5,186.0	-382.5	978.2	778.1	200.17	4.887		
10,700.0	5,736.0	10,828.4	5,649.0	102.0	101.5	84.90	-5,286.0	-382.5	979.1	775.1	203.97	4.800		
10,800.0	5,736.0	10,928.4	5,649.0	103.9	103.4	84.90	-5,386.0	-382.5	979.9	772.1	207.77	4.716		
10,900.0	5,736.0	11,028.4	5,649.0	105.8	105.3	84.91	-5,486.0	-382.5	980.7	769.2	211.57	4.636		
11,000.0	5,736.0	11,128.3	5,649.0	107.7	107.2	84.91	-5,586.0	-382.5	981.6	766.2	215.37	4.558		
11,100.0	5,736.0	11,228.3	5,649.0	109.6	109.1	84.92	-5,686.0	-382.5	982.4	763.2	219.17	4.482		
11,200.0	5,736.0	11,328.3	5,649.0	111.5	111.0	84.92	-5,786.0	-382.5	983.3	760.3	222.97	4.410		
11,300.0	5,736.0	11,428.3	5,649.0	113.4	112.9	84.93	-5,886.0	-382.5	984.1	757.3	226.78	4.339		
11,400.0	5,736.0	11,528.3	5,649.0	115.3	114.8	84.93	-5,985.9	-382.5	984.9	754.3	230.59	4.271		
11,500.0	5,736.0	11,628.3	5,649.0	117.2	116.7	84.94	-6,085.9	-382.5	985.8	751.4	234.39	4.206		
11,600.0	5,736.0	11,728.3	5,649.0	119.1	118.6	84.94	-6,185.9	-382.5	986.6	748.4	238.20	4.142		
11,700.0	5,736.0	11,828.3	5,649.0	121.0	120.5	84.94	-6,285.9	-382.5	987.4	745.4	242.01	4.080		
11,800.0	5,736.0	11,928.3	5,649.0	122.9	122.4	84.95	-6,385.9	-382.5	988.3	742.4	245.82	4.020		
11,900.0	5,736.0	12,028.3	5,649.0	124.8	124.3	84.95	-6,485.9	-382.5	989.1	739.5	249.63	3.962		
12,000.0	5,736.0	12,128.3	5,649.0	126.7	126.2	84.96	-6,585.9	-382.4	989.9	736.5	253.44	3.906		
12,100.0	5,736.0	12,228.3	5,649.0	128.6	128.1	84.96	-6,685.9	-382.4	990.8	733.5	257.25	3.851		
12,200.0	5,736.0	12,328.3	5,649.0	130.5	130.0	84.97	-6,785.9	-382.4	991.6	730.5	261.07	3.798		
12,300.0	5,736.0	12,428.3	5,649.0	132.4	131.9	84.97	-6,885.9	-382.4	992.4	727.6	264.88	3.747		
12,400.0	5,736.0	12,528.3	5,649.0	134.3	133.7	84.97	-6,985.9	-382.4	993.3	724.7	268.60	3.698		
12,459.3	5,736.0	12,587.6	5,649.0	135.4	134.7	84.98	-7,045.2	-382.4	993.8	723.1	270.66	3.672 SF		

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #271-3416B
Project:	Weld County, CO	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #271-3416B	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 #4	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #271-3416B - HZ - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	-89.98	0.0	-66.2	66.2					
100.0	100.0	100.0	100.0	0.1	0.1	-89.98	0.0	-66.2	66.2	66.0	0.19	352.530		
200.0	200.0	200.0	200.0	0.3	0.3	-89.98	0.0	-66.2	66.2	65.5	0.64	103.832		
300.0	300.0	300.0	300.0	0.5	0.5	-89.98	0.0	-66.2	66.2	65.1	1.09	60.882		
400.0	400.0	400.0	400.0	0.8	0.8	-89.98	0.0	-66.2	66.2	64.6	1.54	43.067		
500.0	500.0	500.0	500.0	1.0	1.0	-89.98	0.0	-66.2	66.2	64.2	1.99	33.318 CC, ES		
600.0	600.0	600.0	600.0	1.2	1.2	150.64	0.0	-66.2	67.7	65.3	2.42	28.002		
700.0	699.8	699.8	699.8	1.4	1.4	152.63	0.0	-66.2	72.3	69.4	2.84	25.461		
800.0	799.6	799.6	799.6	1.6	1.7	154.97	0.0	-66.2	78.5	75.3	3.27	24.038		
900.0	899.4	899.4	899.4	1.8	1.9	156.96	0.0	-66.2	84.9	81.2	3.70	22.931		
1,000.0	999.1	999.1	999.1	2.1	2.1	158.67	0.0	-66.2	91.4	87.2	4.14	22.055		
1,100.0	1,098.9	1,098.9	1,098.9	2.3	2.3	160.16	0.0	-66.2	97.9	93.3	4.59	21.348		
1,200.0	1,198.6	1,198.6	1,198.6	2.6	2.6	161.46	0.0	-66.2	104.5	99.5	5.03	20.769		
1,300.0	1,298.4	1,298.4	1,298.4	2.8	2.8	162.60	0.0	-66.2	111.1	105.7	5.48	20.287		
1,400.0	1,398.1	1,398.1	1,398.1	3.1	3.0	163.61	0.0	-66.2	117.8	111.9	5.93	19.880		
1,500.0	1,497.9	1,497.9	1,497.9	3.3	3.2	164.52	0.0	-66.2	124.5	118.2	6.38	19.534		
1,600.0	1,597.6	1,597.6	1,597.6	3.6	3.5	165.33	0.0	-66.2	131.3	124.4	6.82	19.235		
1,700.0	1,697.4	1,697.4	1,697.4	3.8	3.7	166.06	0.0	-66.2	138.0	130.8	7.27	18.974		
1,800.0	1,797.2	1,797.2	1,797.2	4.1	3.9	166.73	0.0	-66.2	144.8	137.1	7.72	18.746		
1,900.0	1,896.9	1,896.9	1,896.9	4.4	4.1	167.33	0.0	-66.2	151.6	143.4	8.18	18.544		
2,000.0	1,996.7	1,996.7	1,996.7	4.6	4.4	167.89	0.0	-66.2	158.4	149.8	8.63	18.365		
2,100.0	2,096.4	2,096.4	2,096.4	4.9	4.6	168.40	0.0	-66.2	165.3	156.2	9.08	18.204		
2,200.0	2,196.2	2,196.2	2,196.2	5.1	4.8	168.86	0.0	-66.2	172.1	162.6	9.53	18.059		
2,300.0	2,295.9	2,295.9	2,295.9	5.4	5.0	169.29	0.0	-66.2	178.9	169.0	9.98	17.928		
2,400.0	2,395.7	2,395.7	2,395.7	5.7	5.3	169.69	0.0	-66.2	185.8	175.4	10.43	17.809		
2,500.0	2,495.5	2,495.5	2,495.5	5.9	5.5	170.06	0.0	-66.2	192.7	181.8	10.88	17.701		
2,600.0	2,595.2	2,595.2	2,595.2	6.2	5.7	170.41	0.0	-66.2	199.5	188.2	11.34	17.601		
2,700.0	2,695.0	2,695.0	2,695.0	6.4	5.9	170.73	0.0	-66.2	206.4	194.6	11.79	17.510		
2,800.0	2,794.7	2,794.7	2,794.7	6.7	6.2	171.03	0.0	-66.2	213.3	201.1	12.24	17.425		
2,900.0	2,894.5	2,894.5	2,894.5	7.0	6.4	171.32	0.0	-66.2	220.2	207.5	12.69	17.347		
3,000.0	2,994.2	2,994.2	2,994.2	7.2	6.6	171.58	0.0	-66.2	227.1	214.0	13.15	17.275		
3,100.0	3,094.0	3,094.0	3,094.0	7.5	6.8	171.83	0.0	-66.2	234.0	220.4	13.60	17.208		
3,200.0	3,193.7	3,193.7	3,193.7	7.7	7.0	172.07	0.0	-66.2	240.9	226.9	14.05	17.145		
3,300.0	3,293.5	3,293.5	3,293.5	8.0	7.3	172.29	0.0	-66.2	247.8	233.3	14.50	17.086		
3,400.0	3,393.3	3,393.3	3,393.3	8.3	7.5	172.50	0.0	-66.2	254.7	239.8	14.96	17.031		
3,500.0	3,493.0	3,493.0	3,493.0	8.5	7.7	172.70	0.0	-66.2	261.7	246.2	15.41	16.980		
3,600.0	3,592.8	3,592.8	3,592.8	8.8	7.9	172.89	0.0	-66.2	268.6	252.7	15.86	16.931		
3,700.0	3,692.5	3,692.5	3,692.5	9.1	8.2	173.07	0.0	-66.2	275.5	259.2	16.32	16.885		
3,800.0	3,792.3	3,792.3	3,792.3	9.3	8.4	173.24	0.0	-66.2	282.4	265.7	16.77	16.842		
3,900.0	3,892.0	3,892.0	3,892.0	9.6	8.6	173.40	0.0	-66.2	289.4	272.1	17.22	16.801		
4,000.0	3,991.8	3,991.8	3,991.8	9.8	8.8	173.56	0.0	-66.2	296.3	278.6	17.68	16.763		
4,100.0	4,091.6	4,091.6	4,091.6	10.1	9.1	173.71	0.0	-66.2	303.2	285.1	18.13	16.726		
4,200.0	4,191.3	4,191.3	4,191.3	10.4	9.3	173.85	0.0	-66.2	310.2	291.6	18.58	16.692		
4,300.0	4,291.1	4,291.1	4,291.1	10.6	9.5	173.98	0.0	-66.2	317.1	298.1	19.03	16.659		
4,400.0	4,390.8	4,390.8	4,390.8	10.9	9.7	174.11	0.0	-66.2	324.0	304.5	19.49	16.627		
4,500.0	4,490.6	4,490.6	4,490.6	11.1	10.0	174.24	0.0	-66.2	331.0	311.0	19.94	16.597		
4,600.0	4,590.3	4,590.3	4,590.3	11.4	10.2	174.35	0.0	-66.2	337.9	317.5	20.39	16.569		
4,700.0	4,690.1	4,690.1	4,690.1	11.7	10.4	174.47	0.0	-66.2	344.9	324.0	20.85	16.542		
4,800.0	4,789.9	4,789.9	4,789.9	11.9	10.6	174.58	0.0	-66.2	351.8	330.5	21.30	16.516		
4,900.0	4,889.6	4,889.6	4,889.6	12.2	10.9	174.68	0.0	-66.2	358.7	337.0	21.75	16.491		
5,000.0	4,989.5	4,989.5	4,989.5	12.4	11.1	174.77	0.0	-66.2	364.0	341.8	22.19	16.398		
5,100.0	5,089.4	5,089.4	5,089.4	12.6	11.3	-65.10	0.0	-66.2	365.7	342.8	22.88	15.985		

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #271-3416B
Project:	Weld County, CO	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #271-3416B	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 #4	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #271-3416B - HZ - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
5,200.0	5,189.4	5,189.4	5,189.4	12.8	11.5	-65.10	0.0	-66.2	365.7	342.4	23.30	15.698		
5,225.7	5,215.1	5,215.2	5,215.2	12.8	11.6	-65.10	0.0	-66.2	365.7	342.3	23.40	15.627		
5,227.2	5,216.6	5,217.3	5,217.3	12.8	11.6	134.90	0.0	-66.2	365.7	342.6	23.13	15.808		
5,250.0	5,239.4	5,250.5	5,250.5	12.9	11.7	134.82	-1.2	-66.1	365.7	342.5	23.25	15.728		
5,300.0	5,289.2	5,322.8	5,322.1	13.0	11.8	134.16	-11.1	-65.9	366.0	342.6	23.44	15.616		
5,350.0	5,338.3	5,394.1	5,390.6	13.2	11.9	132.87	-30.4	-65.4	366.7	343.1	23.56	15.567		
5,400.0	5,386.2	5,463.7	5,454.4	13.4	12.0	131.00	-58.2	-64.6	367.9	344.3	23.66	15.554		
5,450.0	5,432.6	5,531.2	5,512.2	13.6	12.2	128.65	-93.0	-63.7	370.0	346.2	23.80	15.545		
5,500.0	5,476.9	5,596.4	5,563.2	13.9	12.4	125.89	-133.4	-62.7	373.0	348.9	24.06	15.504		
5,550.0	5,518.9	5,659.1	5,607.2	14.2	12.6	122.80	-178.0	-61.5	377.3	352.8	24.50	15.399		
5,600.0	5,558.1	5,719.2	5,644.1	14.5	12.9	119.48	-225.4	-60.3	382.9	357.8	25.16	15.219		
5,650.0	5,594.1	5,776.8	5,674.0	15.0	13.3	115.98	-274.6	-59.0	390.1	364.1	26.05	14.975		
5,700.0	5,626.6	5,832.1	5,697.5	15.4	13.7	112.37	-324.6	-57.7	398.9	371.8	27.15	14.690		
5,750.0	5,655.3	5,885.3	5,715.0	15.9	14.2	108.70	-374.8	-56.3	409.2	380.8	28.43	14.396		
5,800.0	5,680.0	5,936.6	5,726.9	16.5	14.7	105.01	-424.6	-55.0	421.0	391.2	29.81	14.122		
5,850.0	5,700.3	5,986.1	5,733.8	17.1	15.2	101.34	-473.7	-53.8	434.0	402.8	31.27	13.881		
5,900.0	5,716.3	6,033.2	5,735.9	17.8	15.7	97.77	-520.7	-52.5	448.2	415.4	32.77	13.677		
5,950.0	5,727.6	6,071.1	5,735.9	18.5	16.2	94.73	-558.6	-51.9	463.8	429.6	34.13	13.590		
6,000.0	5,734.2	6,114.7	5,735.9	19.2	16.7	91.97	-602.2	-51.9	480.6	445.1	35.51	13.532		
6,043.9	5,736.0	6,155.9	5,735.9	19.9	17.2	89.98	-643.4	-51.9	495.6	458.8	36.76	13.481		
6,100.0	5,736.0	6,208.9	5,735.9	20.6	18.0	89.98	-696.4	-51.9	514.0	475.7	38.29	13.424		
6,200.0	5,736.0	6,304.6	5,735.9	22.0	19.3	89.99	-792.1	-51.9	542.9	501.9	41.02	13.236		
6,300.0	5,736.0	6,401.7	5,735.9	23.4	20.8	89.99	-889.2	-51.9	566.8	522.9	43.87	12.920		
6,400.0	5,736.0	6,499.9	5,735.9	24.8	22.3	89.99	-987.4	-51.9	585.6	538.8	46.78	12.517		
6,500.0	5,736.0	6,599.0	5,735.9	26.3	23.9	89.99	-1,086.4	-51.9	599.2	549.5	49.71	12.053		
6,600.0	5,736.0	6,698.6	5,735.9	27.8	25.6	89.99	-1,186.1	-51.9	607.6	555.0	52.61	11.549		
6,694.4	5,736.0	6,792.9	5,735.9	29.1	27.1	89.99	-1,280.4	-51.9	610.7	555.4	55.28	11.048		
6,700.0	5,736.0	6,798.5	5,735.9	29.2	27.2	89.99	-1,286.0	-51.9	610.8	555.3	55.46	11.012		
6,800.0	5,736.0	6,898.5	5,735.9	30.8	29.0	89.99	-1,386.0	-51.9	611.6	552.8	58.85	10.392		
6,900.0	5,736.0	6,998.5	5,735.9	32.4	30.7	89.99	-1,486.0	-51.9	612.5	550.2	62.30	9.831		
7,000.0	5,736.0	7,098.5	5,735.9	34.1	32.5	89.99	-1,586.0	-51.9	613.3	547.5	65.79	9.323		
7,100.0	5,736.0	7,198.5	5,735.9	35.7	34.3	89.99	-1,686.0	-52.0	614.2	544.9	69.32	8.861		
7,200.0	5,736.0	7,298.5	5,735.9	37.4	36.0	89.99	-1,786.0	-52.0	615.0	542.2	72.88	8.439		
7,300.0	5,736.0	7,398.5	5,735.9	39.2	37.9	89.99	-1,886.0	-52.0	615.9	539.4	76.47	8.055		
7,400.0	5,736.0	7,498.5	5,735.9	40.9	39.7	89.99	-1,986.0	-52.0	616.7	536.7	80.08	7.702		
7,500.0	5,736.0	7,598.5	5,735.9	42.6	41.5	89.99	-2,086.0	-52.0	617.6	533.9	83.71	7.378		
7,600.0	5,736.0	7,698.5	5,735.9	44.4	43.3	89.99	-2,186.0	-52.0	618.4	531.1	87.37	7.079		
7,700.0	5,736.0	7,798.5	5,735.9	46.2	45.2	89.99	-2,286.0	-52.0	619.3	528.3	91.03	6.803		
7,800.0	5,736.0	7,898.5	5,735.9	48.0	47.0	89.99	-2,386.0	-52.0	620.2	525.4	94.72	6.547		
7,900.0	5,736.0	7,998.5	5,735.9	49.8	48.9	89.99	-2,486.0	-52.0	621.0	522.6	98.41	6.310		
8,000.0	5,736.0	8,098.5	5,735.9	51.6	50.7	89.99	-2,586.0	-52.0	621.9	519.7	102.12	6.090		
8,100.0	5,736.0	8,198.5	5,735.9	53.4	52.6	89.99	-2,686.0	-52.0	622.7	516.9	105.84	5.884		
8,200.0	5,736.0	8,298.5	5,735.9	55.2	54.5	89.99	-2,786.0	-52.0	623.6	514.0	109.56	5.691		
8,300.0	5,736.0	8,398.5	5,735.9	57.0	56.3	89.99	-2,885.9	-52.0	624.4	511.1	113.30	5.511		
8,400.0	5,736.0	8,498.5	5,735.9	58.9	58.2	89.99	-2,985.9	-52.0	625.3	508.2	117.04	5.342		
8,500.0	5,736.0	8,598.5	5,735.9	60.7	60.1	89.99	-3,085.9	-52.1	626.1	505.3	120.79	5.184		
8,600.0	5,736.0	8,698.5	5,735.9	62.6	62.0	89.99	-3,185.9	-52.1	627.0	502.4	124.54	5.034		
8,700.0	5,736.0	8,798.5	5,735.9	64.4	63.9	89.99	-3,285.9	-52.1	627.8	499.5	128.30	4.893		
8,800.0	5,736.0	8,898.5	5,735.9	66.3	65.7	89.99	-3,385.9	-52.1	628.7	496.6	132.07	4.760		
8,900.0	5,736.0	8,998.5	5,735.9	68.1	67.6	89.99	-3,485.9	-52.1	629.5	493.7	135.84	4.634		
9,000.0	5,736.0	9,098.4	5,735.9	70.0	69.5	89.99	-3,585.9	-52.1	630.4	490.8	139.61	4.515		
9,100.0	5,736.0	9,198.4	5,735.9	71.9	71.4	89.99	-3,685.9	-52.1	631.2	487.8	143.39	4.402		

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #27I-3416B
Project:	Weld County, CO	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #27I-3416B	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 #4	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-3414B - HZ - Plan #2													Offset Site Error: 0.0 ft	
Survey Program: 0-ISCSWA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning	
9,200.0	5,736.0	9,298.4	5,735.9	73.7	73.3	89.99	-3,785.9	-52.1	632.1	484.9	147.17	4.295		
9,300.0	5,736.0	9,398.4	5,735.9	75.6	75.2	89.99	-3,885.9	-52.1	632.9	482.0	150.96	4.193		
9,400.0	5,736.0	9,498.4	5,736.0	77.5	77.1	89.99	-3,985.9	-52.1	633.8	479.0	154.75	4.096		
9,500.0	5,736.0	9,598.4	5,736.0	79.3	79.0	89.99	-4,085.9	-52.1	634.6	476.1	158.54	4.003		
9,600.0	5,736.0	9,698.4	5,736.0	81.2	80.9	89.99	-4,185.9	-52.1	635.5	473.2	162.33	3.915		
9,700.0	5,736.0	9,798.4	5,736.0	83.1	82.8	89.99	-4,285.9	-52.1	636.4	470.2	166.13	3.830		
9,800.0	5,736.0	9,898.4	5,736.0	85.0	84.7	90.00	-4,385.9	-52.1	637.2	467.3	169.93	3.750		
9,900.0	5,736.0	9,998.4	5,736.0	86.9	86.6	90.00	-4,485.9	-52.2	638.1	464.3	173.73	3.673		
10,000.0	5,736.0	10,098.4	5,736.0	88.7	88.5	90.00	-4,585.9	-52.2	638.9	461.4	177.53	3.599		
10,100.0	5,736.0	10,198.4	5,736.0	90.6	90.4	90.00	-4,685.9	-52.2	639.8	458.4	181.34	3.528		
10,200.0	5,736.0	10,298.4	5,736.0	92.5	92.3	90.00	-4,785.9	-52.2	640.6	455.5	185.14	3.460		
10,300.0	5,736.0	10,398.4	5,736.0	94.4	94.2	90.00	-4,885.9	-52.2	641.5	452.5	188.95	3.395		
10,400.0	5,736.0	10,498.4	5,736.0	96.3	96.1	90.00	-4,985.9	-52.2	642.3	449.6	192.76	3.332		
10,500.0	5,736.0	10,598.4	5,736.0	98.2	98.0	90.00	-5,085.9	-52.2	643.2	446.6	196.57	3.272		
10,600.0	5,736.0	10,698.4	5,736.0	100.1	99.9	90.00	-5,185.9	-52.2	644.0	443.6	200.39	3.214		
10,700.0	5,736.0	10,798.4	5,736.0	102.0	101.8	90.00	-5,285.9	-52.2	644.9	440.7	204.20	3.158		
10,800.0	5,736.0	10,898.4	5,736.0	103.9	103.7	90.00	-5,385.9	-52.2	645.7	437.7	208.02	3.104		
10,900.0	5,736.0	10,998.4	5,736.0	105.8	105.6	90.00	-5,485.9	-52.2	646.6	434.8	211.83	3.052		
11,000.0	5,736.0	11,098.4	5,736.0	107.7	107.5	90.00	-5,585.9	-52.2	647.4	431.8	215.65	3.002		
11,100.0	5,736.0	11,198.4	5,736.0	109.6	109.4	90.00	-5,685.8	-52.2	648.3	428.8	219.47	2.954		
11,200.0	5,736.0	11,298.4	5,736.0	111.5	111.3	90.00	-5,785.8	-52.2	649.1	425.9	223.29	2.907		
11,300.0	5,736.0	11,398.4	5,736.0	113.4	113.3	90.00	-5,885.8	-52.3	650.0	422.9	227.11	2.862		
11,400.0	5,736.0	11,498.4	5,736.0	115.3	115.2	90.00	-5,985.8	-52.3	650.8	419.9	230.93	2.818		
11,500.0	5,736.0	11,598.4	5,736.0	117.2	117.1	90.00	-6,085.8	-52.3	651.7	416.9	234.76	2.776		
11,600.0	5,736.0	11,698.4	5,736.0	119.1	119.0	90.00	-6,185.8	-52.3	652.6	414.0	238.58	2.735		
11,700.0	5,736.0	11,798.4	5,736.0	121.0	120.9	90.00	-6,285.8	-52.3	653.4	411.0	242.40	2.696		
11,800.0	5,736.0	11,898.3	5,736.0	122.9	122.8	90.00	-6,385.8	-52.3	654.3	408.0	246.23	2.657		
11,900.0	5,736.0	11,998.3	5,736.0	124.8	124.7	90.00	-6,485.8	-52.3	655.1	405.1	250.05	2.620		
12,000.0	5,736.0	12,098.3	5,736.0	126.7	126.6	90.00	-6,585.8	-52.3	656.0	402.1	253.88	2.584		
12,100.0	5,736.0	12,198.3	5,736.0	128.6	128.5	90.00	-6,685.8	-52.3	656.8	399.1	257.71	2.549		
12,200.0	5,736.0	12,298.3	5,736.0	130.5	130.5	90.00	-6,785.8	-52.3	657.7	396.1	261.53	2.515		
12,300.0	5,736.0	12,398.3	5,736.0	132.4	132.4	90.00	-6,885.8	-52.3	658.5	393.2	265.36	2.482		
12,400.0	5,736.0	12,498.3	5,736.0	134.3	134.3	90.00	-6,985.8	-52.3	659.4	390.2	269.19	2.449		
12,459.3	5,736.0	12,557.6	5,736.0	135.4	135.4	90.00	-7,045.1	-52.3	659.9	388.4	271.46	2.431 SF		

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #271-3416B
Project:	Weld County, CO	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #271-3416B	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 #4	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #271-3415A - HZ - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	-23.98	74.7	-33.2	81.8					
100.0	100.0	100.0	100.0	0.1	0.1	-23.98	74.7	-33.2	81.8	81.6	0.19	435.589		
200.0	200.0	200.0	200.0	0.3	0.3	-23.98	74.7	-33.2	81.8	81.1	0.64	128.295		
300.0	300.0	300.0	300.0	0.5	0.5	-23.98	74.7	-33.2	81.8	80.7	1.09	75.226		
400.0	400.0	400.0	400.0	0.8	0.8	-23.98	74.7	-33.2	81.8	80.2	1.54	53.214		
500.0	500.0	500.0	500.0	1.0	1.0	-23.98	74.7	-33.2	81.8	79.8	1.99	41.168 CC		
600.0	600.0	600.0	600.0	1.2	1.2	-144.76	74.7	-33.2	83.2	80.8	2.42	34.404		
700.0	699.8	699.8	699.8	1.4	1.4	-146.69	74.7	-33.2	87.5	84.7	2.84	30.799		
800.0	799.6	799.6	799.6	1.6	1.7	-149.04	74.7	-33.2	93.4	90.1	3.27	28.556		
900.0	899.4	899.4	899.4	1.8	1.9	-151.11	74.7	-33.2	99.5	95.8	3.71	26.826		
1,000.0	999.1	999.1	999.1	2.1	2.1	-152.94	74.7	-33.2	105.6	101.5	4.15	25.464		
1,100.0	1,098.9	1,098.9	1,098.9	2.3	2.3	-154.56	74.7	-33.2	111.9	107.3	4.59	24.370		
1,200.0	1,198.6	1,198.6	1,198.6	2.6	2.6	-156.01	74.7	-33.2	118.2	113.2	5.04	23.476		
1,300.0	1,298.4	1,298.4	1,298.4	2.8	2.8	-157.32	74.7	-33.2	124.6	119.2	5.48	22.735		
1,400.0	1,398.1	1,398.1	1,398.1	3.1	3.0	-158.49	74.7	-33.2	131.1	125.2	5.93	22.111		
1,500.0	1,497.9	1,497.9	1,497.9	3.3	3.2	-159.56	74.7	-33.2	137.6	131.2	6.38	21.580		
1,600.0	1,597.6	1,597.6	1,597.6	3.6	3.5	-160.52	74.7	-33.2	144.2	137.3	6.83	21.123		
1,700.0	1,697.4	1,697.4	1,697.4	3.8	3.7	-161.41	74.7	-33.2	150.8	143.5	7.27	20.727		
1,800.0	1,797.2	1,797.2	1,797.2	4.1	3.9	-162.22	74.7	-33.2	157.4	149.7	7.72	20.379		
1,900.0	1,896.9	1,896.9	1,896.9	4.4	4.1	-162.96	74.7	-33.2	164.1	155.9	8.17	20.073		
2,000.0	1,996.7	1,996.7	1,996.7	4.6	4.4	-163.65	74.7	-33.2	170.7	162.1	8.62	19.800		
2,100.0	2,096.4	2,096.4	2,096.4	4.9	4.6	-164.28	74.7	-33.2	177.4	168.4	9.07	19.557		
2,200.0	2,196.2	2,196.2	2,196.2	5.1	4.8	-164.87	74.7	-33.2	184.2	174.6	9.52	19.338		
2,300.0	2,295.9	2,295.9	2,295.9	5.4	5.0	-165.42	74.7	-33.2	190.9	180.9	9.97	19.140		
2,400.0	2,395.7	2,395.7	2,395.7	5.7	5.3	-165.92	74.7	-33.2	197.7	187.2	10.43	18.961		
2,500.0	2,495.5	2,495.5	2,495.5	5.9	5.5	-166.40	74.7	-33.2	204.4	193.6	10.88	18.798		
2,600.0	2,595.2	2,595.2	2,595.2	6.2	5.7	-166.84	74.7	-33.2	211.2	199.9	11.33	18.648		
2,700.0	2,695.0	2,695.0	2,695.0	6.4	5.9	-167.26	74.7	-33.2	218.0	206.3	11.78	18.511		
2,800.0	2,794.7	2,794.7	2,794.7	6.7	6.2	-167.65	74.7	-33.2	224.8	212.6	12.23	18.384		
2,900.0	2,894.5	2,894.5	2,894.5	7.0	6.4	-168.02	74.7	-33.2	231.7	219.0	12.68	18.267		
3,000.0	2,994.2	2,994.2	2,994.2	7.2	6.6	-168.37	74.7	-33.2	238.5	225.4	13.13	18.159		
3,100.0	3,094.0	3,094.0	3,094.0	7.5	6.8	-168.70	74.7	-33.2	245.3	231.7	13.59	18.058		
3,200.0	3,193.7	3,193.7	3,193.7	7.7	7.0	-169.01	74.7	-33.2	252.2	238.1	14.04	17.965		
3,300.0	3,293.5	3,293.5	3,293.5	8.0	7.3	-169.30	74.7	-33.2	259.0	244.5	14.49	17.877		
3,400.0	3,393.3	3,393.3	3,393.3	8.3	7.5	-169.58	74.7	-33.2	265.9	250.9	14.94	17.795		
3,500.0	3,493.0	3,493.0	3,493.0	8.5	7.7	-169.85	74.7	-33.2	272.7	257.4	15.39	17.718		
3,600.0	3,592.8	3,592.8	3,592.8	8.8	7.9	-170.10	74.7	-33.2	279.6	263.8	15.85	17.646		
3,700.0	3,692.5	3,692.5	3,692.5	9.1	8.2	-170.34	74.7	-33.2	286.5	270.2	16.30	17.578		
3,800.0	3,792.3	3,792.3	3,792.3	9.3	8.4	-170.57	74.7	-33.2	293.4	276.6	16.75	17.514		
3,900.0	3,892.0	3,892.0	3,892.0	9.6	8.6	-170.79	74.7	-33.2	300.3	283.1	17.20	17.454		
4,000.0	3,991.8	3,991.8	3,991.8	9.8	8.8	-170.99	74.7	-33.2	307.1	289.5	17.66	17.397		
4,100.0	4,091.6	4,091.6	4,091.6	10.1	9.1	-171.19	74.7	-33.2	314.0	295.9	18.11	17.343		
4,200.0	4,191.3	4,191.3	4,191.3	10.4	9.3	-171.38	74.7	-33.2	320.9	302.4	18.56	17.291		
4,300.0	4,291.1	4,291.1	4,291.1	10.6	9.5	-171.57	74.7	-33.2	327.8	308.8	19.01	17.242		
4,400.0	4,390.8	4,390.8	4,390.8	10.9	9.7	-171.74	74.7	-33.2	334.7	315.3	19.47	17.196		
4,500.0	4,490.6	4,490.6	4,490.6	11.1	10.0	-171.91	74.7	-33.2	341.6	321.7	19.92	17.152		
4,600.0	4,590.3	4,590.3	4,590.3	11.4	10.2	-172.07	74.7	-33.2	348.5	328.2	20.37	17.110		
4,700.0	4,690.1	4,690.1	4,690.1	11.7	10.4	-172.23	74.7	-33.2	355.5	334.6	20.82	17.070		
4,800.0	4,789.9	4,789.9	4,789.9	11.9	10.6	-172.38	74.7	-33.2	362.4	341.1	21.28	17.031		
4,900.0	4,889.6	4,889.6	4,889.6	12.2	10.9	-172.52	74.7	-33.2	369.3	347.6	21.73	16.994		
5,000.0	4,989.5	4,989.5	4,989.5	12.4	11.1	-172.64	74.7	-33.2	374.5	352.3	22.17	16.891		
5,100.0	5,089.4	5,089.4	5,089.4	12.6	11.3	-52.58	74.7	-33.2	376.2	353.1	23.06	16.316		

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #271-3416B
Project:	Weld County, CO	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #271-3416B	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 #4	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #271-3415A - HZ - Plan #2													Offset Site Error: 0.0 ft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,189.4	5,282.6	5,280.3	12.8	11.7	-54.50	53.4	-25.1	368.4	344.9	23.55	15.644		
5,225.7	5,215.1	5,341.2	5,335.3	12.8	11.8	-56.39	34.5	-17.9	360.9	337.3	23.65	15.262		
5,250.0	5,239.4	5,392.4	5,381.2	12.9	11.9	142.03	13.3	-9.8	352.4	329.0	23.42	15.048		
5,300.0	5,289.2	5,487.0	5,459.3	13.0	12.2	138.32	-36.4	9.1	332.6	308.9	23.68	14.044		
5,350.0	5,338.3	5,568.8	5,518.0	13.2	12.5	134.17	-89.4	29.3	310.9	287.0	23.95	12.983		
5,400.0	5,386.2	5,640.1	5,561.5	13.4	12.9	129.66	-142.2	49.4	288.7	264.4	24.31	11.873		
5,450.0	5,432.6	5,703.3	5,593.3	13.6	13.4	124.82	-193.2	68.8	266.9	242.0	24.86	10.734		
5,500.0	5,476.9	5,760.0	5,616.0	13.9	13.9	119.60	-241.8	87.3	246.5	220.8	25.67	9.603		
5,550.0	5,518.9	5,811.8	5,631.6	14.2	14.4	113.98	-287.9	104.9	228.4	201.6	26.74	8.540		
5,600.0	5,558.1	5,859.7	5,641.7	14.5	14.9	107.93	-331.6	121.5	213.5	185.4	28.06	7.610		
5,650.0	5,594.1	5,904.5	5,647.2	15.0	15.5	101.46	-373.1	137.3	202.5	173.0	29.51	6.865		
5,700.0	5,626.6	5,946.2	5,648.9	15.4	16.0	94.75	-412.1	152.2	196.1	165.2	30.92	6.342		
5,738.2	5,648.8	5,974.8	5,648.9	15.8	16.4	90.01	-438.9	162.1	194.6	162.8	31.83	6.114		
5,750.0	5,655.3	5,983.8	5,648.9	15.9	16.5	88.56	-447.3	165.2	194.7	162.7	32.08	6.070		
5,800.0	5,680.0	6,023.2	5,648.9	16.5	17.0	82.56	-484.6	178.1	197.8	164.7	33.01	5.991		
5,850.0	5,700.3	6,064.6	5,648.9	17.1	17.6	77.24	-523.9	190.9	203.6	169.9	33.69	6.042		
5,900.0	5,716.3	6,107.4	5,648.9	17.8	18.1	72.97	-565.0	203.1	210.8	176.5	34.23	6.157		
5,950.0	5,727.6	6,151.3	5,648.9	18.5	18.7	69.94	-607.3	214.8	218.3	183.5	34.83	6.269		
6,000.0	5,734.2	6,200.0	5,648.9	19.2	19.4	68.17	-654.5	226.5	225.6	190.0	35.64	6.330		
6,043.9	5,736.0	6,234.9	5,648.9	19.9	19.9	67.69	-688.6	234.2	231.4	194.8	36.52	6.336		
6,100.0	5,736.0	6,284.9	5,648.9	20.6	20.7	68.39	-737.6	244.1	238.4	200.3	38.03	6.267		
6,200.0	5,736.0	6,373.4	5,648.9	22.0	22.0	69.49	-824.9	258.5	250.5	209.8	40.64	6.163		
6,300.0	5,736.0	6,461.5	5,648.9	23.4	23.3	70.45	-912.4	268.8	262.1	218.9	43.25	6.060		
6,400.0	5,736.0	6,549.2	5,648.9	24.8	24.7	71.29	-999.9	275.0	273.2	227.4	45.83	5.961		
6,500.0	5,736.0	6,636.5	5,648.9	26.3	26.1	72.02	-1,087.1	277.2	283.8	235.4	48.35	5.869		
6,600.0	5,736.0	6,735.5	5,648.9	27.8	27.6	72.60	-1,186.1	277.2	291.7	240.8	50.95	5.726		
6,694.4	5,736.0	6,829.8	5,648.9	29.1	29.1	72.81	-1,280.5	277.2	294.7	241.5	53.28	5.532		
6,700.0	5,736.0	6,835.4	5,648.9	29.2	29.2	72.81	-1,286.1	277.2	294.8	241.3	53.45	5.515		
6,800.0	5,736.0	6,935.4	5,648.9	30.8	30.8	72.86	-1,386.1	277.2	295.6	238.9	56.67	5.216		
6,900.0	5,736.0	7,035.4	5,648.9	32.4	32.5	72.91	-1,486.1	277.3	296.4	236.4	59.94	4.945		
7,000.0	5,736.0	7,135.4	5,648.9	34.1	34.2	72.95	-1,586.1	277.3	297.2	233.9	63.26	4.698		
7,100.0	5,736.0	7,235.4	5,648.9	35.7	35.9	73.00	-1,686.0	277.3	298.0	231.4	66.63	4.473		
7,200.0	5,736.0	7,335.4	5,648.9	37.4	37.6	73.05	-1,786.0	277.3	298.8	228.8	70.03	4.267		
7,300.0	5,736.0	7,435.4	5,648.9	39.2	39.4	73.10	-1,886.0	277.3	299.6	226.1	73.46	4.078		
7,400.0	5,736.0	7,535.4	5,648.9	40.9	41.1	73.14	-1,986.0	277.3	300.4	223.5	76.92	3.905		
7,500.0	5,736.0	7,635.4	5,648.9	42.6	42.9	73.19	-2,086.0	277.3	301.2	220.8	80.41	3.746		
7,600.0	5,736.0	7,735.4	5,648.9	44.4	44.7	73.24	-2,186.0	277.3	302.0	218.1	83.91	3.599		
7,700.0	5,736.0	7,835.4	5,648.9	46.2	46.5	73.28	-2,286.0	277.3	302.8	215.4	87.44	3.463		
7,800.0	5,736.0	7,935.4	5,648.9	48.0	48.3	73.33	-2,386.0	277.3	303.6	212.6	90.98	3.337		
7,900.0	5,736.0	8,035.4	5,648.9	49.8	50.1	73.38	-2,486.0	277.3	304.4	209.9	94.54	3.220		
8,000.0	5,736.0	8,135.4	5,648.9	51.6	51.9	73.42	-2,586.0	277.3	305.2	207.1	98.11	3.111		
8,100.0	5,736.0	8,235.4	5,648.9	53.4	53.8	73.47	-2,686.0	277.3	306.0	204.3	101.70	3.009		
8,200.0	5,736.0	8,335.4	5,648.9	55.2	55.6	73.51	-2,786.0	277.3	306.9	201.6	105.29	2.914		
8,300.0	5,736.0	8,435.4	5,648.9	57.0	57.4	73.56	-2,886.0	277.3	307.7	198.8	108.90	2.825		
8,400.0	5,736.0	8,535.4	5,648.9	58.9	59.3	73.60	-2,986.0	277.3	308.5	196.0	112.51	2.742		
8,500.0	5,736.0	8,635.4	5,648.9	60.7	61.1	73.65	-3,086.0	277.3	309.3	193.1	116.14	2.663		
8,600.0	5,736.0	8,735.4	5,648.9	62.6	63.0	73.69	-3,186.0	277.3	310.1	190.3	119.77	2.589		
8,700.0	5,736.0	8,835.4	5,648.9	64.4	64.9	73.73	-3,286.0	277.3	310.9	187.5	123.41	2.519		
8,800.0	5,736.0	8,935.4	5,648.9	66.3	66.7	73.78	-3,386.0	277.3	311.7	184.6	127.05	2.453		
8,900.0	5,736.0	9,035.4	5,648.9	68.1	68.6	73.82	-3,486.0	277.3	312.5	181.8	130.70	2.391		
9,000.0	5,736.0	9,135.3	5,648.9	70.0	70.5	73.86	-3,586.0	277.3	313.3	178.9	134.36	2.332		
9,100.0	5,736.0	9,235.3	5,648.9	71.9	72.3	73.91	-3,686.0	277.3	314.1	176.1	138.02	2.276		

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #27I-3416B
Project:	Weld County, CO	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	S27-T10N-R58W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor #27I-3416B	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 #4	Offset TVD Reference:	Offset Datum

Offset Design S27-T10N-R58W - Razor #27I-3415A - HZ - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance					Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis			
9,200.0	5,736.0	9,335.3	5,648.9	73.7	74.2	73.95	-3,786.0	277.3	314.9	173.2	141.69	2.223		
9,300.0	5,736.0	9,435.3	5,648.9	75.6	76.1	73.99	-3,886.0	277.3	315.7	170.4	145.37	2.172		
9,400.0	5,736.0	9,535.3	5,648.9	77.5	78.0	74.03	-3,986.0	277.3	316.5	167.5	149.04	2.124		
9,500.0	5,736.0	9,635.3	5,649.0	79.3	79.8	74.08	-4,086.0	277.4	317.3	164.6	152.73	2.078		
9,600.0	5,736.0	9,735.3	5,649.0	81.2	81.7	74.12	-4,186.0	277.4	318.2	161.7	156.41	2.034		
9,700.0	5,736.0	9,835.3	5,649.0	83.1	83.6	74.16	-4,286.0	277.4	319.0	158.9	160.10	1.992		
9,800.0	5,736.0	9,935.3	5,649.0	85.0	85.5	74.20	-4,386.0	277.4	319.8	156.0	163.79	1.952		
9,900.0	5,736.0	10,035.3	5,649.0	86.9	87.4	74.24	-4,486.0	277.4	320.6	153.1	167.49	1.914		
10,000.0	5,736.0	10,135.3	5,649.0	88.7	89.3	74.28	-4,585.9	277.4	321.4	150.2	171.19	1.877		
10,100.0	5,736.0	10,235.3	5,649.0	90.6	91.2	74.33	-4,685.9	277.4	322.2	147.3	174.90	1.842		
10,200.0	5,736.0	10,335.3	5,649.0	92.5	93.1	74.37	-4,785.9	277.4	323.0	144.4	178.60	1.809		
10,300.0	5,736.0	10,435.3	5,649.0	94.4	94.9	74.41	-4,885.9	277.4	323.8	141.5	182.31	1.776		
10,400.0	5,736.0	10,535.3	5,649.0	96.3	96.8	74.45	-4,985.9	277.4	324.6	138.6	186.02	1.745		
10,500.0	5,736.0	10,635.3	5,649.0	98.2	98.7	74.49	-5,085.9	277.4	325.4	135.7	189.74	1.715		
10,600.0	5,736.0	10,735.3	5,649.0	100.1	100.6	74.53	-5,185.9	277.4	326.3	132.8	193.46	1.686		
10,700.0	5,736.0	10,835.3	5,649.0	102.0	102.5	74.57	-5,285.9	277.4	327.1	129.9	197.18	1.659		
10,800.0	5,736.0	10,935.3	5,649.0	103.9	104.4	74.61	-5,385.9	277.4	327.9	127.0	200.90	1.632		
10,900.0	5,736.0	11,035.3	5,649.0	105.8	106.3	74.65	-5,485.9	277.4	328.7	124.1	204.62	1.606		
11,000.0	5,736.0	11,135.3	5,649.0	107.7	108.2	74.68	-5,585.9	277.4	329.5	121.1	208.35	1.581		
11,100.0	5,736.0	11,235.3	5,649.0	109.6	110.1	74.72	-5,685.9	277.4	330.3	118.2	212.08	1.557		
11,200.0	5,736.0	11,335.3	5,649.0	111.5	112.0	74.76	-5,785.9	277.4	331.1	115.3	215.81	1.534		
11,300.0	5,736.0	11,435.3	5,649.0	113.4	113.9	74.80	-5,885.9	277.4	331.9	112.4	219.54	1.512		
11,400.0	5,736.0	11,535.3	5,649.0	115.3	115.8	74.84	-5,985.9	277.4	332.7	109.5	223.28	1.490 Level 3		
11,500.0	5,736.0	11,635.3	5,649.0	117.2	117.7	74.88	-6,085.9	277.4	333.6	106.5	227.01	1.469 Level 3		
11,600.0	5,736.0	11,735.3	5,649.0	119.1	119.6	74.91	-6,185.9	277.4	334.4	103.6	230.75	1.449 Level 3		
11,700.0	5,736.0	11,835.3	5,649.0	121.0	121.5	74.95	-6,285.9	277.4	335.2	100.7	234.49	1.429 Level 3		
11,800.0	5,736.0	11,935.2	5,649.0	122.9	123.4	74.99	-6,385.9	277.4	336.0	97.8	238.23	1.410 Level 3		
11,900.0	5,736.0	12,035.2	5,649.0	124.8	125.3	75.03	-6,485.9	277.4	336.8	94.8	241.97	1.392 Level 3		
12,000.0	5,736.0	12,135.2	5,649.0	126.7	127.3	75.06	-6,585.9	277.4	337.6	91.9	245.72	1.374 Level 3		
12,100.0	5,736.0	12,235.2	5,649.0	128.6	129.2	75.10	-6,685.9	277.5	338.4	89.0	249.47	1.357 Level 3		
12,200.0	5,736.0	12,335.2	5,649.0	130.5	131.1	75.14	-6,785.9	277.5	339.2	86.0	253.21	1.340 Level 3		
12,300.0	5,736.0	12,435.2	5,649.0	132.4	133.0	75.18	-6,885.9	277.5	340.1	83.1	256.96	1.323 Level 3		
12,400.0	5,736.0	12,535.2	5,649.0	134.3	134.9	75.21	-6,985.9	277.5	340.9	80.2	260.71	1.307 Level 3		
12,459.3	5,736.0	12,594.5	5,649.0	135.4	136.0	75.23	-7,045.2	277.5	341.4	78.4	262.94	1.298 Level 3, ES, SF		

Company: Whiting Petroleum Corporation
Project: Weld County, CO
Reference Site: S27-T10N-R58W
Site Error: 0.0ft
Reference Well: Razor #27I-3416B
Well Error: 0.0ft
Reference Wellbore: HZ
Reference Design: Plan #4

Local Co-ordinate Reference: Well Razor #27I-3416B
TVD Reference: WELL @ 4773.0ft (Original Well Elev)
MD Reference: WELL @ 4773.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Reference Depths are relative to WELL @ 4773.0ft (Original Well Elev)
 Offset Depths are relative to Offset Datum
 Central Meridian is 105° 30' 0.00 W °

Coordinates are relative to: Razor #27I-3416B
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 1.07°

