

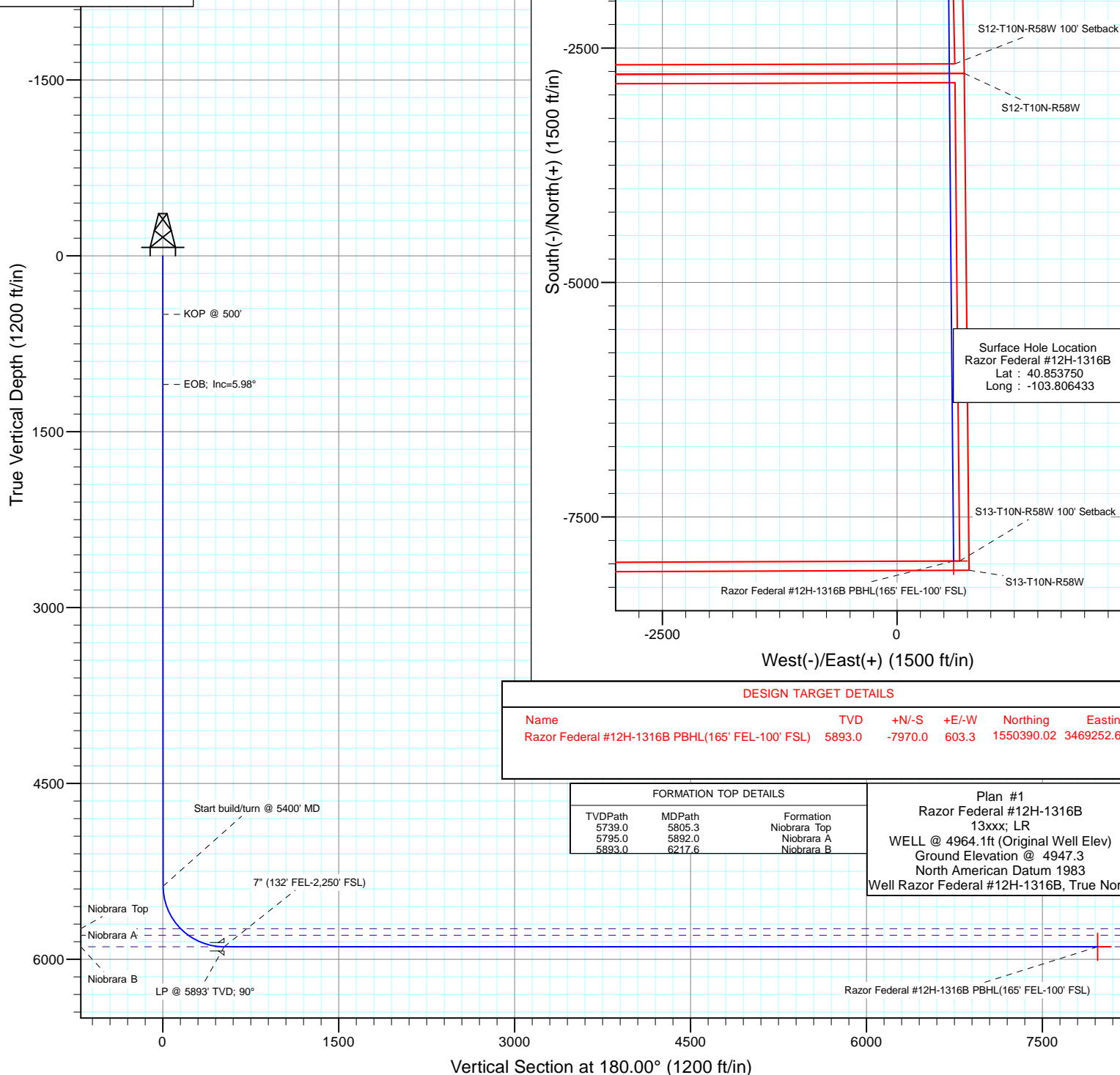
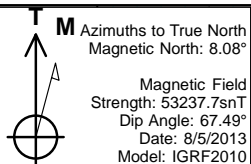


Project: Weld County, CO
Site: S12-T10N-R58W
Well: Razor Federal #12H-1316B
Wellbore: Hz
Design: Plan #1



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	KOP @ 500'
2	500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.0	EOB; Inc=5.98°
3	1098.2	5.98	90.35	1097.1	-0.2	31.2	1.00	90.35	0.2	Start build/turn @ 5400' MD
4	5400.3	5.98	90.35	5375.8	-2.9	479.6	0.00	0.00	2.9	LP @ 5893' TVD; 90°
5	6217.7	90.00	179.50	5893.0	-523.3	538.3	11.00	89.16	523.3	TD at 13664.7
6	13664.7	90.00	179.50	5893.0	-7970.0	603.3	0.00	0.00	7970.0	



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site:	S12-T10N-R58W	North Reference:	True
Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Project	Weld County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		S12-T10N-R58W			
Site Position:		Northing:	1,558,541.09 ft	Latitude:	40.854456
From:	Lat/Long	Easting:	3,465,183.08 ft	Longitude:	-103.818397
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	1.09 °

Well	Razor Federal #12H-1316B					
Well Position	+N/-S	0.0 ft	Northing:	1,558,347.05 ft	Latitude:	40.853750
	+E/-W	0.0 ft	Easting:	3,468,497.22 ft	Longitude:	-103.806433
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,947.3 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	8/5/2013	8.08	67.49	53,238

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	180.00

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(ft)	(ft)	Rate	Rate	Rate	(°)	
(ft)			(ft)			(°/100ft)	(°/100ft)	(°/100ft)		
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	
1,098.2	5.98	90.35	1,097.1	-0.2	31.2	1.00	1.00	0.00	90.35	
5,400.3	5.98	90.35	5,375.8	-2.9	479.6	0.00	0.00	0.00	0.00	
6,217.7	90.00	179.50	5,893.0	-523.3	538.3	11.00	10.28	10.91	89.16	
13,664.7	90.00	179.50	5,893.0	-7,970.0	603.3	0.00	0.00	0.00	0.00	Razor Federal #12H-

Cathedral Energy Services

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Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site:	S12-T10N-R58W	North Reference:	True
Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	KOP @ 500'
600.0	1.00	90.35	600.0	0.0	0.9	0.0	1.00	1.00	
700.0	2.00	90.35	700.0	0.0	3.5	0.0	1.00	1.00	
800.0	3.00	90.35	799.9	0.0	7.9	0.0	1.00	1.00	
900.0	4.00	90.35	899.7	-0.1	14.0	0.1	1.00	1.00	
1,000.0	5.00	90.35	999.4	-0.1	21.8	0.1	1.00	1.00	
1,098.2	5.98	90.35	1,097.1	-0.2	31.2	0.2	1.00	1.00	EOB; Inc=5.98°
1,100.0	5.98	90.35	1,098.9	-0.2	31.4	0.2	0.00	0.00	
1,200.0	5.98	90.35	1,198.4	-0.3	41.8	0.3	0.00	0.00	
1,300.0	5.98	90.35	1,297.8	-0.3	52.2	0.3	0.00	0.00	
1,400.0	5.98	90.35	1,397.3	-0.4	62.7	0.4	0.00	0.00	
1,500.0	5.98	90.35	1,496.7	-0.4	73.1	0.4	0.00	0.00	
1,600.0	5.98	90.35	1,596.2	-0.5	83.5	0.5	0.00	0.00	
1,700.0	5.98	90.35	1,695.6	-0.6	93.9	0.6	0.00	0.00	
1,800.0	5.98	90.35	1,795.1	-0.6	104.3	0.6	0.00	0.00	
1,900.0	5.98	90.35	1,894.5	-0.7	114.8	0.7	0.00	0.00	
2,000.0	5.98	90.35	1,994.0	-0.8	125.2	0.8	0.00	0.00	
2,100.0	5.98	90.35	2,093.5	-0.8	135.6	0.8	0.00	0.00	
2,200.0	5.98	90.35	2,192.9	-0.9	146.0	0.9	0.00	0.00	
2,300.0	5.98	90.35	2,292.4	-1.0	156.4	1.0	0.00	0.00	
2,400.0	5.98	90.35	2,391.8	-1.0	166.9	1.0	0.00	0.00	
2,500.0	5.98	90.35	2,491.3	-1.1	177.3	1.1	0.00	0.00	
2,600.0	5.98	90.35	2,590.7	-1.1	187.7	1.1	0.00	0.00	
2,700.0	5.98	90.35	2,690.2	-1.2	198.1	1.2	0.00	0.00	
2,800.0	5.98	90.35	2,789.6	-1.3	208.6	1.3	0.00	0.00	
2,900.0	5.98	90.35	2,889.1	-1.3	219.0	1.3	0.00	0.00	
3,000.0	5.98	90.35	2,988.6	-1.4	229.4	1.4	0.00	0.00	
3,100.0	5.98	90.35	3,088.0	-1.5	239.8	1.5	0.00	0.00	
3,200.0	5.98	90.35	3,187.5	-1.5	250.2	1.5	0.00	0.00	
3,300.0	5.98	90.35	3,286.9	-1.6	260.7	1.6	0.00	0.00	
3,400.0	5.98	90.35	3,386.4	-1.6	271.1	1.6	0.00	0.00	
3,500.0	5.98	90.35	3,485.8	-1.7	281.5	1.7	0.00	0.00	
3,600.0	5.98	90.35	3,585.3	-1.8	291.9	1.8	0.00	0.00	
3,700.0	5.98	90.35	3,684.7	-1.8	302.4	1.8	0.00	0.00	
3,800.0	5.98	90.35	3,784.2	-1.9	312.8	1.9	0.00	0.00	
3,900.0	5.98	90.35	3,883.7	-2.0	323.2	2.0	0.00	0.00	
4,000.0	5.98	90.35	3,983.1	-2.0	333.6	2.0	0.00	0.00	
4,100.0	5.98	90.35	4,082.6	-2.1	344.0	2.1	0.00	0.00	
4,200.0	5.98	90.35	4,182.0	-2.2	354.5	2.2	0.00	0.00	
4,300.0	5.98	90.35	4,281.5	-2.2	364.9	2.2	0.00	0.00	
4,400.0	5.98	90.35	4,380.9	-2.3	375.3	2.3	0.00	0.00	
4,500.0	5.98	90.35	4,480.4	-2.3	385.7	2.3	0.00	0.00	
4,600.0	5.98	90.35	4,579.8	-2.4	396.2	2.4	0.00	0.00	
4,700.0	5.98	90.35	4,679.3	-2.5	406.6	2.5	0.00	0.00	
4,800.0	5.98	90.35	4,778.8	-2.5	417.0	2.5	0.00	0.00	
4,900.0	5.98	90.35	4,878.2	-2.6	427.4	2.6	0.00	0.00	
5,000.0	5.98	90.35	4,977.7	-2.7	437.8	2.7	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site:	S12-T10N-R58W	North Reference:	True
Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
5,100.0	5.98	90.35	5,077.1	-2.7	448.3	2.7	0.00	0.00	
5,200.0	5.98	90.35	5,176.6	-2.8	458.7	2.8	0.00	0.00	
5,300.0	5.98	90.35	5,276.0	-2.8	469.1	2.8	0.00	0.00	
5,400.3	5.98	90.35	5,375.8	-2.9	479.6	2.9	0.00	0.00	Start build/turn @ 5400' MD
5,450.0	8.16	132.54	5,425.1	-5.3	484.8	5.3	11.00	4.38	
5,500.0	12.55	151.43	5,474.3	-12.5	490.0	12.5	11.00	8.79	
5,550.0	17.58	160.18	5,522.6	-24.4	495.1	24.4	11.00	10.04	
5,600.0	22.82	165.08	5,569.5	-40.9	500.2	40.9	11.00	10.48	
5,650.0	28.15	168.21	5,614.6	-61.8	505.1	61.8	11.00	10.67	
5,700.0	33.53	170.40	5,657.5	-87.0	509.8	87.0	11.00	10.77	
5,750.0	38.95	172.05	5,697.9	-116.2	514.3	116.2	11.00	10.83	
5,800.0	44.38	173.35	5,735.2	-149.1	518.5	149.1	11.00	10.86	
5,805.3	44.96	173.48	5,739.0	-152.9	518.9	152.9	11.00	10.88	Niobrara Top
5,850.0	49.82	174.42	5,769.2	-185.5	522.4	185.5	11.00	10.89	
5,892.0	54.40	175.20	5,795.0	-218.5	525.4	218.5	11.00	10.90	Niobrara A
5,900.0	55.28	175.34	5,799.6	-225.1	525.9	225.1	11.00	10.91	
5,950.0	60.73	176.13	5,826.1	-267.3	529.1	267.3	11.00	10.92	
6,000.0	66.20	176.85	5,848.4	-312.0	531.8	312.0	11.00	10.93	
6,050.0	71.66	177.51	5,866.4	-358.5	534.1	358.5	11.00	10.93	
6,100.0	77.13	178.13	5,879.8	-406.6	535.9	406.6	11.00	10.94	
6,150.0	82.60	178.72	5,888.6	-455.8	537.3	455.8	11.00	10.94	
6,200.0	88.07	179.30	5,892.7	-505.6	538.1	505.6	11.00	10.94	
6,217.6	89.99	179.50	5,893.0	-523.2	538.3	523.2	11.00	10.94	Niobrara B
6,217.7	90.00	179.50	5,893.0	-523.3	538.3	523.3	6.87	6.83	LP @ 5893' TVD; 90° - 7" (132' FEL-2,250' FSL
6,300.0	90.00	179.50	5,893.0	-605.6	539.0	605.6	0.00	0.00	
6,400.0	90.00	179.50	5,893.0	-705.6	539.9	705.6	0.00	0.00	
6,500.0	90.00	179.50	5,893.0	-805.6	540.8	805.6	0.00	0.00	
6,600.0	90.00	179.50	5,893.0	-905.6	541.6	905.6	0.00	0.00	
6,700.0	90.00	179.50	5,893.0	-1,005.6	542.5	1,005.6	0.00	0.00	
6,800.0	90.00	179.50	5,893.0	-1,105.6	543.4	1,105.6	0.00	0.00	
6,900.0	90.00	179.50	5,893.0	-1,205.6	544.3	1,205.6	0.00	0.00	
7,000.0	90.00	179.50	5,893.0	-1,305.6	545.1	1,305.6	0.00	0.00	
7,100.0	90.00	179.50	5,893.0	-1,405.6	546.0	1,405.6	0.00	0.00	
7,200.0	90.00	179.50	5,893.0	-1,505.6	546.9	1,505.6	0.00	0.00	
7,300.0	90.00	179.50	5,893.0	-1,605.6	547.7	1,605.6	0.00	0.00	
7,400.0	90.00	179.50	5,893.0	-1,705.6	548.6	1,705.6	0.00	0.00	
7,500.0	90.00	179.50	5,893.0	-1,805.6	549.5	1,805.6	0.00	0.00	
7,600.0	90.00	179.50	5,893.0	-1,905.6	550.4	1,905.6	0.00	0.00	
7,700.0	90.00	179.50	5,893.0	-2,005.6	551.2	2,005.6	0.00	0.00	
7,800.0	90.00	179.50	5,893.0	-2,105.6	552.1	2,105.6	0.00	0.00	
7,900.0	90.00	179.50	5,893.0	-2,205.6	553.0	2,205.6	0.00	0.00	
8,000.0	90.00	179.50	5,893.0	-2,305.6	553.9	2,305.6	0.00	0.00	
8,100.0	90.00	179.50	5,893.0	-2,405.6	554.7	2,405.6	0.00	0.00	
8,200.0	90.00	179.50	5,893.0	-2,505.6	555.6	2,505.6	0.00	0.00	
8,300.0	90.00	179.50	5,893.0	-2,605.6	556.5	2,605.6	0.00	0.00	
8,400.0	90.00	179.50	5,893.0	-2,705.5	557.3	2,705.5	0.00	0.00	
8,500.0	90.00	179.50	5,893.0	-2,805.5	558.2	2,805.5	0.00	0.00	
8,600.0	90.00	179.50	5,893.0	-2,905.5	559.1	2,905.5	0.00	0.00	
8,700.0	90.00	179.50	5,893.0	-3,005.5	560.0	3,005.5	0.00	0.00	
8,800.0	90.00	179.50	5,893.0	-3,105.5	560.8	3,105.5	0.00	0.00	
8,900.0	90.00	179.50	5,893.0	-3,205.5	561.7	3,205.5	0.00	0.00	
9,000.0	90.00	179.50	5,893.0	-3,305.5	562.6	3,305.5	0.00	0.00	

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Wellbore:	Hz		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
9,100.0	90.00	179.50	5,893.0	-3,405.5	563.5	3,405.5	0.00	0.00	
9,200.0	90.00	179.50	5,893.0	-3,505.5	564.3	3,505.5	0.00	0.00	
9,300.0	90.00	179.50	5,893.0	-3,605.5	565.2	3,605.5	0.00	0.00	
9,400.0	90.00	179.50	5,893.0	-3,705.5	566.1	3,705.5	0.00	0.00	
9,500.0	90.00	179.50	5,893.0	-3,805.5	566.9	3,805.5	0.00	0.00	
9,600.0	90.00	179.50	5,893.0	-3,905.5	567.8	3,905.5	0.00	0.00	
9,700.0	90.00	179.50	5,893.0	-4,005.5	568.7	4,005.5	0.00	0.00	
9,800.0	90.00	179.50	5,893.0	-4,105.5	569.6	4,105.5	0.00	0.00	
9,900.0	90.00	179.50	5,893.0	-4,205.5	570.4	4,205.5	0.00	0.00	
10,000.0	90.00	179.50	5,893.0	-4,305.5	571.3	4,305.5	0.00	0.00	
10,100.0	90.00	179.50	5,893.0	-4,405.5	572.2	4,405.5	0.00	0.00	
10,200.0	90.00	179.50	5,893.0	-4,505.5	573.1	4,505.5	0.00	0.00	
10,300.0	90.00	179.50	5,893.0	-4,605.5	573.9	4,605.5	0.00	0.00	
10,400.0	90.00	179.50	5,893.0	-4,705.5	574.8	4,705.5	0.00	0.00	
10,500.0	90.00	179.50	5,893.0	-4,805.5	575.7	4,805.5	0.00	0.00	
10,600.0	90.00	179.50	5,893.0	-4,905.5	576.5	4,905.5	0.00	0.00	
10,700.0	90.00	179.50	5,893.0	-5,005.5	577.4	5,005.5	0.00	0.00	
10,800.0	90.00	179.50	5,893.0	-5,105.5	578.3	5,105.5	0.00	0.00	
10,900.0	90.00	179.50	5,893.0	-5,205.5	579.2	5,205.5	0.00	0.00	
11,000.0	90.00	179.50	5,893.0	-5,305.5	580.0	5,305.5	0.00	0.00	
11,100.0	90.00	179.50	5,893.0	-5,405.4	580.9	5,405.4	0.00	0.00	
11,200.0	90.00	179.50	5,893.0	-5,505.4	581.8	5,505.4	0.00	0.00	
11,300.0	90.00	179.50	5,893.0	-5,605.4	582.7	5,605.4	0.00	0.00	
11,400.0	90.00	179.50	5,893.0	-5,705.4	583.5	5,705.4	0.00	0.00	
11,500.0	90.00	179.50	5,893.0	-5,805.4	584.4	5,805.4	0.00	0.00	
11,600.0	90.00	179.50	5,893.0	-5,905.4	585.3	5,905.4	0.00	0.00	
11,700.0	90.00	179.50	5,893.0	-6,005.4	586.1	6,005.4	0.00	0.00	
11,800.0	90.00	179.50	5,893.0	-6,105.4	587.0	6,105.4	0.00	0.00	
11,900.0	90.00	179.50	5,893.0	-6,205.4	587.9	6,205.4	0.00	0.00	
12,000.0	90.00	179.50	5,893.0	-6,305.4	588.8	6,305.4	0.00	0.00	
12,100.0	90.00	179.50	5,893.0	-6,405.4	589.6	6,405.4	0.00	0.00	
12,200.0	90.00	179.50	5,893.0	-6,505.4	590.5	6,505.4	0.00	0.00	
12,300.0	90.00	179.50	5,893.0	-6,605.4	591.4	6,605.4	0.00	0.00	
12,400.0	90.00	179.50	5,893.0	-6,705.4	592.2	6,705.4	0.00	0.00	
12,500.0	90.00	179.50	5,893.0	-6,805.4	593.1	6,805.4	0.00	0.00	
12,600.0	90.00	179.50	5,893.0	-6,905.4	594.0	6,905.4	0.00	0.00	
12,700.0	90.00	179.50	5,893.0	-7,005.4	594.9	7,005.4	0.00	0.00	
12,800.0	90.00	179.50	5,893.0	-7,105.4	595.7	7,105.4	0.00	0.00	
12,900.0	90.00	179.50	5,893.0	-7,205.4	596.6	7,205.4	0.00	0.00	
13,000.0	90.00	179.50	5,893.0	-7,305.4	597.5	7,305.4	0.00	0.00	
13,100.0	90.00	179.50	5,893.0	-7,405.4	598.4	7,405.4	0.00	0.00	
13,200.0	90.00	179.50	5,893.0	-7,505.4	599.2	7,505.4	0.00	0.00	
13,300.0	90.00	179.50	5,893.0	-7,605.4	600.1	7,605.4	0.00	0.00	
13,400.0	90.00	179.50	5,893.0	-7,705.4	601.0	7,705.4	0.00	0.00	
13,500.0	90.00	179.50	5,893.0	-7,805.4	601.8	7,805.4	0.00	0.00	
13,600.0	90.00	179.50	5,893.0	-7,905.4	602.7	7,905.4	0.00	0.00	
13,664.7	90.00	179.50	5,893.0	-7,970.0	603.3	7,970.0	0.00	0.00	TD at 13664.7

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site:	S12-T10N-R58W	North Reference:	True
Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
Razor Federal #12H-131	0.00	0.00	5,893.0	-7,970.0	603.3	1,550,390.02	3,469,252.60	40.831875	-103.804253
- plan hits target center									
- Point									

Casing Points					
Measured Depth	Vertical Depth			Casing Diameter	Hole Diameter
(ft)	(ft)	Name		(in)	(in)
6,217.7	5,893.0	7" (132' FEL-2,250' FSL)		7.000	7.500

Formations					
Measured Depth	Vertical Depth			Dip	Dip Direction
(ft)	(ft)	Name	Lithology	(°)	(°)
5,805.3	5,739.0	Niobrara Top		0.00	
5,892.0	5,795.0	Niobrara A		0.00	
6,217.6	5,893.0	Niobrara B		0.00	

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(ft)	(ft)	+N/-S	+E/-W	Comment	
(ft)	(ft)	(ft)	(ft)		
500.0	500.0	0.0	0.0	KOP @ 500'	
1,098.2	1,097.1	-0.2	31.2	EOB; Inc=5.98°	
5,400.3	5,375.8	-2.9	479.6	Start build/turn @ 5400' MD	
6,217.7	5,893.0	-523.3	538.3	LP @ 5893' TVD; 90°	
13,664.7	5,893.0	-7,970.0	603.3	TD at 13664.7	

Whiting Petroleum Corporation

Weld County, CO

S12-T10N-R58W

Razor Federal #12H-1316B

Hz

Plan #1

Anticollision Report

05 August, 2013

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Project:	Weld County, CO	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,566.5ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	8/5/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	13,664.7	Plan #1 (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						
S12-T10N-R58W						
ALLAN 1 (EXISTING) - DAVIS OIL WELL - NO SURVEY						Out of range
Razor #12G-1312B - Hz - Plan #1	7,447.1	7,224.4	1,265.6	1,194.5	17.789	CC
Razor #12G-1312B - Hz - Plan #1	13,664.7	13,430.7	1,319.9	1,015.3	4.333	ES, SF
Razor #12H-0113A - Hz - Plan #1	500.0	500.0	124.5	122.5	62.705	CC, ES
Razor #12H-0113A - Hz - Plan #1	1,100.0	1,085.5	177.5	173.0	38.984	SF
Razor #12H-0115A - Hz - Plan #1	500.0	500.0	100.0	98.0	50.381	CC, ES
Razor #12H-0115A - Hz - Plan #1	5,400.0	5,405.3	423.6	399.5	17.556	SF
Razor #12H-0116B - Hz - Plan #1	1,027.0	1,030.1	81.9	77.6	19.035	CC
Razor #12H-0116B - Hz - Plan #1	1,300.0	1,303.1	83.1	77.4	14.623	ES
Razor #12H-0116B - Hz - Plan #1	5,400.0	5,400.0	114.3	87.9	4.338	SF
RAZOR 12-0141H (EXISTING) - WHTING WELL - SURV	995.3	996.7	123.8	119.7	30.269	CC
RAZOR 12-0141H (EXISTING) - WHTING WELL - SURV	1,000.0	1,001.4	123.8	119.7	30.118	ES
RAZOR 12-0141H (EXISTING) - WHTING WELL - SURV	2,200.0	2,193.1	177.2	167.6	18.602	SF
Razor Federal #12H-1313A - Hz - Plan #1	500.0	500.0	99.3	97.3	50.030	CC, ES
Razor Federal #12H-1313A - Hz - Plan #1	13,664.7	13,549.3	995.0	688.9	3.251	SF
Razor Federal #12H-1314B - Hz - Plan #1	500.0	500.0	66.1	64.1	33.307	CC, ES
Razor Federal #12H-1314B - Hz - Plan #1	13,664.7	13,640.2	660.3	353.0	2.149	SF
Razor Federal #12H-1315A - Hz - Plan #1	500.0	500.0	33.2	31.2	16.723	CC, ES
Razor Federal #12H-1315A - Hz - Plan #1	13,664.7	13,551.7	344.7	48.5	1.164	Level 2, SF
S18-T10N-R57W						
HORSETAIL #18-0713H - Hz - FINAL	6,462.7	12,435.0	760.4	608.5	5.008	CC, ES
HORSETAIL #18-0713H - Hz - FINAL	6,500.0	12,435.0	761.3	608.9	4.996	SF

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Project:	Weld County, CO	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12G-1312B - HZ - Plan #1													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	6.2	6.2	0.0	0.0	-93.79	-93.1	-1,406.4	1,409.5					
100.0	100.0	106.2	106.2	0.1	0.1	-93.79	-93.1	-1,406.4	1,409.5	1,409.3	0.19	7,265.861		
200.0	200.0	206.2	206.2	0.3	0.3	-93.79	-93.1	-1,406.4	1,409.5	1,408.8	0.64	2,190.252		
300.0	300.0	306.2	306.2	0.5	0.6	-93.79	-93.1	-1,406.4	1,409.5	1,408.4	1.09	1,289.479		
400.0	400.0	406.2	406.2	0.8	0.8	-93.79	-93.1	-1,406.4	1,409.5	1,407.9	1.54	913.704		
500.0	500.0	506.2	506.2	1.0	1.0	-93.79	-93.1	-1,406.4	1,409.5	1,407.5	1.99	707.522		
600.0	600.0	606.2	606.2	1.2	1.2	175.87	-93.1	-1,406.4	1,410.3	1,407.9	2.43	580.693		
700.0	700.0	706.2	706.2	1.4	1.4	175.87	-93.1	-1,406.4	1,412.9	1,410.1	2.86	494.343		
800.0	799.9	806.1	806.1	1.6	1.7	175.88	-93.1	-1,406.4	1,417.3	1,414.0	3.29	430.386		
900.0	899.7	907.6	907.6	1.9	1.9	175.90	-93.1	-1,406.4	1,423.4	1,419.6	3.73	381.286		
1,000.0	999.4	1,036.4	1,036.3	2.1	2.2	175.80	-95.9	-1,404.7	1,430.1	1,425.9	4.20	340.819		
1,100.0	1,098.9	1,150.4	1,150.1	2.3	2.4	175.57	-102.1	-1,401.0	1,436.7	1,432.1	4.62	310.652		
1,200.0	1,198.4	1,249.9	1,249.4	2.6	2.6	175.36	-108.1	-1,397.5	1,444.0	1,439.0	5.05	286.062		
1,300.0	1,297.8	1,349.5	1,348.8	2.9	2.8	175.14	-114.1	-1,393.9	1,451.3	1,445.9	5.48	264.665		
1,400.0	1,397.3	1,449.1	1,448.1	3.2	3.0	174.93	-120.0	-1,390.4	1,458.7	1,452.7	5.93	246.023		
1,500.0	1,496.7	1,548.7	1,547.5	3.4	3.2	174.72	-126.0	-1,386.9	1,466.0	1,459.6	6.38	229.709		
1,600.0	1,596.2	1,648.3	1,646.8	3.7	3.5	174.52	-132.0	-1,383.3	1,473.4	1,466.5	6.84	215.356		
1,700.0	1,695.6	1,747.9	1,746.1	4.0	3.7	174.31	-138.0	-1,379.8	1,480.7	1,473.4	7.31	202.692		
1,800.0	1,795.1	1,847.5	1,845.5	4.3	3.9	174.11	-143.9	-1,376.2	1,488.1	1,480.4	7.77	191.419		
1,900.0	1,894.5	1,947.1	1,944.8	4.6	4.2	173.91	-149.9	-1,372.7	1,495.6	1,487.3	8.25	181.355		
2,000.0	1,994.0	2,046.6	2,044.2	4.9	4.4	173.71	-155.9	-1,369.1	1,503.0	1,494.3	8.72	172.323		
2,100.0	2,093.5	2,146.2	2,143.5	5.2	4.7	173.51	-161.9	-1,365.6	1,510.5	1,501.3	9.20	164.179		
2,200.0	2,192.9	2,245.8	2,242.9	5.5	4.9	173.32	-167.8	-1,362.1	1,517.9	1,508.3	9.68	156.805		
2,300.0	2,292.4	2,345.4	2,342.2	5.8	5.2	173.13	-173.8	-1,358.5	1,525.4	1,515.3	10.16	150.099		
2,400.0	2,391.8	2,445.0	2,441.6	6.1	5.4	172.93	-179.8	-1,355.0	1,532.9	1,522.3	10.65	143.980		
2,500.0	2,491.3	2,544.6	2,540.9	6.3	5.7	172.75	-185.8	-1,351.4	1,540.5	1,529.3	11.13	138.374		
2,600.0	2,590.7	2,644.2	2,640.2	6.6	5.9	172.56	-191.7	-1,347.9	1,548.0	1,536.4	11.62	133.222		
2,700.0	2,690.2	2,743.8	2,739.6	6.9	6.2	172.37	-197.7	-1,344.3	1,555.5	1,543.4	12.11	128.473		
2,800.0	2,789.6	2,843.3	2,838.9	7.2	6.4	172.19	-203.7	-1,340.8	1,563.1	1,550.5	12.60	124.081		
6,100.0	5,879.8	6,458.3	5,910.8	18.1	24.8	85.92	-1,019.4	-874.6	1,538.0	1,499.6	38.38	40.078		
6,200.0	5,892.7	6,500.0	5,910.8	19.0	25.5	89.75	-1,057.8	-858.4	1,501.7	1,461.9	39.81	37.719		
6,300.0	5,893.0	6,562.3	5,910.8	20.0	26.5	90.48	-1,115.8	-835.7	1,466.4	1,424.5	41.91	34.987		
6,400.0	5,893.0	6,600.0	5,910.8	21.2	27.1	90.49	-1,151.3	-823.0	1,433.9	1,390.1	43.79	32.744		
6,500.0	5,893.0	6,670.8	5,910.8	22.5	28.3	90.49	-1,218.6	-800.9	1,403.8	1,357.5	46.30	30.321		
6,600.0	5,893.0	6,726.5	5,910.8	23.8	29.2	90.50	-1,272.0	-785.3	1,376.6	1,328.0	48.66	28.289		
6,700.0	5,893.0	6,800.0	5,910.8	25.3	30.4	90.51	-1,343.2	-767.1	1,352.5	1,301.1	51.39	26.319		
6,800.0	5,893.0	6,840.5	5,910.8	26.8	31.0	90.51	-1,382.7	-758.3	1,330.9	1,277.2	53.65	24.805		
6,900.0	5,893.0	6,900.0	5,910.8	28.3	32.0	90.51	-1,441.1	-746.8	1,312.4	1,256.1	56.27	23.324		
7,000.0	5,893.0	6,957.3	5,910.8	29.9	32.9	90.52	-1,497.6	-737.5	1,296.9	1,238.0	58.89	22.021		
7,100.0	5,893.0	7,000.0	5,910.8	31.6	33.6	90.52	-1,540.0	-731.6	1,284.7	1,223.4	61.31	20.954		
7,200.0	5,893.0	7,076.1	5,910.8	33.2	34.8	90.52	-1,615.6	-723.5	1,275.2	1,210.9	64.31	19.830		
7,300.0	5,893.0	7,136.0	5,910.8	34.9	35.8	90.53	-1,675.4	-719.3	1,269.0	1,201.9	67.06	18.923		
7,400.0	5,893.0	7,200.0	5,910.8	36.7	36.8	90.53	-1,739.3	-716.8	1,266.0	1,196.1	69.90	18.111		
7,447.1	5,893.0	7,224.4	5,910.8	37.5	37.2	90.53	-1,763.7	-716.5	1,265.6	1,194.5	71.15	17.789 CC		
7,500.0	5,893.0	7,266.2	5,910.8	38.4	37.8	90.53	-1,805.6	-716.4	1,265.9	1,193.2	72.79	17.391		
7,600.0	5,893.0	7,366.2	5,910.8	40.1	39.4	90.53	-1,905.6	-716.4	1,266.8	1,190.5	76.30	16.603		
7,700.0	5,893.0	7,466.2	5,910.8	41.9	41.1	90.53	-2,005.5	-716.4	1,267.7	1,187.9	79.84	15.878		
7,800.0	5,893.0	7,566.2	5,910.8	43.7	42.7	90.53	-2,105.5	-716.4	1,268.6	1,185.2	83.41	15.209		
7,900.0	5,893.0	7,666.2	5,910.8	45.5	44.4	90.53	-2,205.5	-716.4	1,269.4	1,182.4	87.00	14.591		
8,000.0	5,893.0	7,766.2	5,910.9	47.3	46.1	90.53	-2,305.5	-716.4	1,270.3	1,179.7	90.61	14.019		
8,100.0	5,893.0	7,866.2	5,910.9	49.1	47.8	90.52	-2,405.5	-716.4	1,271.2	1,177.0	94.24	13.488		
8,200.0	5,893.0	7,966.2	5,910.9	50.9	49.5	90.52	-2,505.5	-716.4	1,272.1	1,174.2	97.89	12.995		

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

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Project:	Weld County, CO	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12G-1312B - HZ - Plan #1													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		
8,300.0	5,893.0	8,066.2	5,910.9	52.7	51.3	90.52	-2,605.5	-716.4	1,272.9	1,171.4	101.55	12.535		
8,400.0	5,893.0	8,166.2	5,910.9	54.6	53.0	90.52	-2,705.5	-716.4	1,273.8	1,168.6	105.23	12.105		
8,500.0	5,893.0	8,266.2	5,910.9	56.4	54.8	90.52	-2,805.5	-716.4	1,274.7	1,165.8	108.91	11.704		
8,600.0	5,893.0	8,366.2	5,910.9	58.3	56.5	90.52	-2,905.5	-716.4	1,275.6	1,163.0	112.61	11.327		
8,700.0	5,893.0	8,466.2	5,910.9	60.1	58.3	90.52	-3,005.5	-716.4	1,276.4	1,160.1	116.32	10.974		
8,800.0	5,893.0	8,566.2	5,910.9	62.0	60.1	90.52	-3,105.5	-716.4	1,277.3	1,157.3	120.03	10.641		
8,900.0	5,893.0	8,666.2	5,910.9	63.8	61.9	90.52	-3,205.5	-716.4	1,278.2	1,154.4	123.76	10.328		
9,000.0	5,893.0	8,766.2	5,910.9	65.7	63.7	90.52	-3,305.5	-716.4	1,279.1	1,151.6	127.49	10.033		
9,100.0	5,893.0	8,866.2	5,910.9	67.6	65.5	90.52	-3,405.5	-716.4	1,279.9	1,148.7	131.23	9.754		
9,200.0	5,893.0	8,966.2	5,910.9	69.4	67.4	90.52	-3,505.5	-716.4	1,280.8	1,145.8	134.97	9.490		
9,300.0	5,893.0	9,066.2	5,910.9	71.3	69.2	90.52	-3,605.5	-716.4	1,281.7	1,143.0	138.72	9.239		
9,400.0	5,893.0	9,166.2	5,910.9	73.2	71.0	90.52	-3,705.5	-716.4	1,282.6	1,140.1	142.47	9.002		
9,500.0	5,893.0	9,266.2	5,910.9	75.1	72.8	90.52	-3,805.5	-716.4	1,283.4	1,137.2	146.23	8.777		
9,600.0	5,893.0	9,366.2	5,910.9	76.9	74.7	90.52	-3,905.5	-716.4	1,284.3	1,134.3	150.00	8.562		
9,700.0	5,893.0	9,466.2	5,910.9	78.8	76.5	90.52	-4,005.5	-716.4	1,285.2	1,131.4	153.76	8.358		
9,800.0	5,893.0	9,566.2	5,910.9	80.7	78.4	90.52	-4,105.5	-716.5	1,286.1	1,128.5	157.54	8.164		
9,900.0	5,893.0	9,666.2	5,910.9	82.6	80.2	90.52	-4,205.5	-716.5	1,286.9	1,125.6	161.31	7.978		
10,000.0	5,893.0	9,766.1	5,910.9	84.5	82.1	90.52	-4,305.5	-716.5	1,287.8	1,122.7	165.09	7.801		
10,100.0	5,893.0	9,866.1	5,910.9	86.4	83.9	90.52	-4,405.5	-716.5	1,288.7	1,119.8	168.87	7.631		
10,200.0	5,893.0	9,966.1	5,910.9	88.2	85.8	90.52	-4,505.5	-716.5	1,289.6	1,116.9	172.65	7.469		
10,300.0	5,893.0	10,066.1	5,910.9	90.1	87.7	90.52	-4,605.4	-716.5	1,290.4	1,114.0	176.44	7.314		
10,400.0	5,893.0	10,166.1	5,910.9	92.0	89.5	90.52	-4,705.4	-716.5	1,291.3	1,111.1	180.23	7.165		
10,500.0	5,893.0	10,266.1	5,910.9	93.9	91.4	90.52	-4,805.4	-716.5	1,292.2	1,108.2	184.02	7.022		
10,600.0	5,893.0	10,366.1	5,910.9	95.8	93.3	90.52	-4,905.4	-716.5	1,293.1	1,105.2	187.82	6.885		
10,700.0	5,893.0	10,466.1	5,910.9	97.7	95.1	90.52	-5,005.4	-716.5	1,293.9	1,102.3	191.61	6.753		
10,800.0	5,893.0	10,566.1	5,910.9	99.6	97.0	90.52	-5,105.4	-716.5	1,294.8	1,099.4	195.41	6.626		
10,900.0	5,893.0	10,666.1	5,910.9	101.5	98.9	90.52	-5,205.4	-716.5	1,295.7	1,096.5	199.21	6.504		
11,000.0	5,893.0	10,766.1	5,910.9	103.4	100.7	90.52	-5,305.4	-716.5	1,296.6	1,093.6	203.01	6.387		
11,100.0	5,893.0	10,866.1	5,910.9	105.3	102.6	90.52	-5,405.4	-716.5	1,297.4	1,090.6	206.81	6.273		
11,200.0	5,893.0	10,966.1	5,910.9	107.2	104.5	90.52	-5,505.4	-716.5	1,298.3	1,087.7	210.62	6.164		
11,300.0	5,893.0	11,066.1	5,910.9	109.1	106.4	90.52	-5,605.4	-716.5	1,299.2	1,084.8	214.42	6.059		
11,400.0	5,893.0	11,166.1	5,910.9	111.0	108.3	90.52	-5,705.4	-716.5	1,300.1	1,081.8	218.23	5.957		
11,500.0	5,893.0	11,266.1	5,911.0	112.9	110.2	90.52	-5,805.4	-716.5	1,300.9	1,078.9	222.04	5.859		
11,600.0	5,893.0	11,366.1	5,911.0	114.8	112.0	90.52	-5,905.4	-716.5	1,301.8	1,076.0	225.85	5.764		
11,700.0	5,893.0	11,466.1	5,911.0	116.7	113.9	90.52	-6,005.4	-716.5	1,302.7	1,073.0	229.66	5.672		
11,800.0	5,893.0	11,566.1	5,911.0	118.6	115.8	90.52	-6,105.4	-716.5	1,303.6	1,070.1	233.47	5.583		
11,900.0	5,893.0	11,666.1	5,911.0	120.5	117.7	90.52	-6,205.4	-716.5	1,304.4	1,067.1	237.29	5.497		
12,000.0	5,893.0	11,766.1	5,911.0	122.5	119.6	90.52	-6,305.4	-716.5	1,305.3	1,064.2	241.10	5.414		
12,100.0	5,893.0	11,866.1	5,911.0	124.4	121.5	90.52	-6,405.4	-716.5	1,306.2	1,061.3	244.91	5.333		
12,200.0	5,893.0	11,966.1	5,911.0	126.3	123.4	90.52	-6,505.4	-716.5	1,307.1	1,058.3	248.73	5.255		
12,300.0	5,893.0	12,066.1	5,911.0	128.2	125.3	90.52	-6,605.4	-716.5	1,307.9	1,055.4	252.55	5.179		
12,400.0	5,893.0	12,166.1	5,911.0	130.1	127.2	90.52	-6,705.4	-716.5	1,308.8	1,052.4	256.37	5.105		
12,500.0	5,893.0	12,266.1	5,911.0	132.0	129.1	90.51	-6,805.4	-716.5	1,309.7	1,049.5	260.18	5.034		
12,600.0	5,893.0	12,366.0	5,911.0	133.9	131.0	90.51	-6,905.4	-716.5	1,310.6	1,046.6	264.00	4.964		
12,700.0	5,893.0	12,466.0	5,911.0	135.8	132.9	90.51	-7,005.4	-716.5	1,311.4	1,043.6	267.82	4.897		
12,800.0	5,893.0	12,566.0	5,911.0	137.7	134.7	90.51	-7,105.4	-716.5	1,312.3	1,040.7	271.64	4.831		
12,900.0	5,893.0	12,666.0	5,911.0	139.6	136.6	90.51	-7,205.4	-716.5	1,313.2	1,037.7	275.47	4.767		
13,000.0	5,893.0	12,766.0	5,911.0	141.5	138.5	90.51	-7,305.3	-716.5	1,314.1	1,034.8	279.29	4.705		
13,100.0	5,893.0	12,866.0	5,911.0	143.5	140.4	90.51	-7,405.3	-716.5	1,314.9	1,031.8	283.11	4.645		
13,200.0	5,893.0	12,966.0	5,911.0	145.4	142.3	90.51	-7,505.3	-716.5	1,315.8	1,028.9	286.94	4.586		
13,300.0	5,893.0	13,066.0	5,911.0	147.3	144.2	90.51	-7,605.3	-716.5	1,316.7	1,025.9	290.76	4.528		
13,400.0	5,893.0	13,166.0	5,911.0	149.2	146.1	90.51	-7,705.3	-716.5	1,317.6	1,023.0	294.58	4.473		

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

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Project:	Weld County, CO	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													S12-T10N-R58W - Razor #12G-1312B - HZ - Plan #1		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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor							
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)								
13,500.0	5,893.0	13,266.0	5,911.0	151.1	148.0	90.51	-7,805.3	-716.5	1,318.4	1,020.0	298.41	4.418						
13,600.0	5,893.0	13,366.0	5,911.0	153.0	149.9	90.51	-7,905.3	-716.5	1,319.3	1,017.1	302.23	4.365						
13,664.7	5,893.0	13,430.7	5,911.0	154.3	151.1	90.51	-7,970.0	-716.5	1,319.9	1,015.3	304.60	4.333 ES, SF						

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Project:	Weld County, CO	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12H-0113A - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA 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	-52.93	75.0	-99.3	124.5					
100.0	100.0	100.0	100.0	0.1	0.1	-52.93	75.0	-99.3	124.5	124.3	0.19	665.634		
200.0	200.0	200.0	200.0	0.3	0.3	-52.93	75.0	-99.3	124.5	123.8	0.64	195.554		
300.0	300.0	300.0	300.0	0.5	0.5	-52.93	75.0	-99.3	124.5	123.4	1.09	114.613		
400.0	400.0	400.0	400.0	0.8	0.8	-52.93	75.0	-99.3	124.5	122.9	1.54	81.061		
500.0	500.0	500.0	500.0	1.0	1.0	-52.93	75.0	-99.3	124.5	122.5	1.99	62.705	CC, ES	
600.0	600.0	598.3	598.3	1.2	1.2	-143.73	75.0	-100.2	125.9	123.5	2.41	52.328		
700.0	700.0	696.4	696.3	1.4	1.4	-145.04	75.0	-102.7	130.1	127.3	2.81	46.221		
800.0	799.9	794.1	794.0	1.6	1.6	-147.03	75.1	-106.9	137.2	134.0	3.24	42.400		
900.0	899.7	891.3	891.0	1.9	1.8	-149.48	75.1	-112.7	147.5	143.8	3.67	40.203		
1,000.0	999.4	987.8	987.2	2.1	2.1	-152.16	75.1	-120.1	161.0	156.9	4.11	39.199		
1,100.0	1,098.9	1,085.5	1,084.5	2.3	2.3	-154.84	75.1	-128.7	177.5	173.0	4.55	38.984	SF	
1,200.0	1,198.4	1,183.6	1,182.3	2.6	2.6	-157.25	75.1	-137.5	195.2	190.2	5.00	39.045		
1,300.0	1,297.8	1,281.8	1,280.0	2.9	2.8	-159.26	75.1	-146.3	213.1	207.6	5.44	39.134		
1,400.0	1,397.3	1,379.9	1,377.8	3.2	3.1	-160.96	75.1	-155.0	231.2	225.3	5.89	39.235		
1,500.0	1,496.7	1,478.0	1,475.5	3.4	3.3	-162.41	75.1	-163.8	249.5	243.2	6.34	39.341		
1,600.0	1,596.2	1,576.2	1,573.2	3.7	3.6	-163.66	75.1	-172.5	268.0	261.2	6.79	39.441		
1,700.0	1,695.6	1,674.3	1,671.0	4.0	3.9	-164.75	75.2	-181.3	286.5	279.3	7.25	39.546		
1,800.0	1,795.1	1,772.4	1,768.7	4.3	4.1	-165.71	75.2	-190.1	305.1	297.5	7.70	39.644		
1,900.0	1,894.5	1,870.5	1,866.4	4.6	4.4	-166.55	75.2	-198.8	323.9	315.7	8.15	39.736		
2,000.0	1,994.0	1,968.7	1,964.2	4.9	4.7	-167.31	75.2	-207.6	342.6	334.0	8.60	39.822		
2,100.0	2,093.5	2,066.8	2,061.9	5.2	5.0	-167.99	75.2	-216.3	361.4	352.4	9.06	39.903		
2,200.0	2,192.9	2,164.9	2,159.6	5.5	5.2	-168.59	75.2	-225.1	380.3	370.8	9.51	39.978		
2,300.0	2,292.4	2,263.1	2,257.4	5.8	5.5	-169.15	75.2	-233.9	399.2	389.2	9.97	40.049		
2,400.0	2,391.8	2,361.2	2,355.1	6.1	5.8	-169.65	75.2	-242.6	418.2	407.7	10.42	40.114		
2,500.0	2,491.3	2,459.3	2,452.8	6.3	6.0	-170.11	75.3	-251.4	437.1	426.2	10.88	40.176		
2,600.0	2,590.7	2,557.4	2,550.6	6.6	6.3	-170.53	75.3	-260.1	456.1	444.8	11.34	40.233		
2,700.0	2,690.2	2,655.6	2,648.3	6.9	6.6	-170.92	75.3	-268.9	475.1	463.3	11.79	40.287		
2,800.0	2,789.6	2,753.7	2,746.1	7.2	6.9	-171.27	75.3	-277.7	494.1	481.9	12.25	40.337		
2,900.0	2,889.1	2,851.8	2,843.8	7.5	7.1	-171.60	75.3	-286.4	513.2	500.5	12.71	40.384		
3,000.0	2,988.6	2,949.9	2,941.5	7.8	7.4	-171.91	75.3	-295.2	532.2	519.1	13.17	40.428		
3,100.0	3,088.0	3,048.1	3,039.3	8.1	7.7	-172.20	75.3	-303.9	551.3	537.7	13.62	40.470		
3,200.0	3,187.5	3,146.2	3,137.0	8.4	8.0	-172.46	75.3	-312.7	570.4	556.3	14.08	40.509		
3,300.0	3,286.9	3,244.3	3,234.7	8.7	8.2	-172.71	75.4	-321.5	589.5	575.0	14.54	40.546		
3,400.0	3,386.4	3,342.5	3,332.5	9.0	8.5	-172.95	75.4	-330.2	608.6	593.6	15.00	40.581		
3,500.0	3,485.8	3,440.6	3,430.2	9.3	8.8	-173.17	75.4	-339.0	627.7	612.3	15.46	40.613		
3,600.0	3,585.3	3,538.7	3,527.9	9.6	9.1	-173.37	75.4	-347.7	646.9	631.0	15.92	40.644		
3,700.0	3,684.7	3,636.8	3,625.7	9.9	9.3	-173.57	75.4	-356.5	666.0	649.6	16.37	40.674		
3,800.0	3,784.2	3,735.0	3,723.4	10.2	9.6	-173.75	75.4	-365.3	685.1	668.3	16.83	40.702		
3,900.0	3,883.7	3,833.1	3,821.2	10.5	9.9	-173.92	75.4	-374.0	704.3	687.0	17.29	40.728		
4,000.0	3,983.1	3,931.2	3,918.9	10.8	10.2	-174.09	75.4	-382.8	723.4	705.7	17.75	40.754		
4,100.0	4,082.6	4,029.4	4,016.6	11.1	10.5	-174.25	75.5	-391.5	742.6	724.4	18.21	40.778		
4,200.0	4,182.0	4,127.5	4,114.4	11.4	10.7	-174.39	75.5	-400.3	761.8	743.1	18.67	40.800		
4,300.0	4,281.5	4,225.6	4,212.1	11.7	11.0	-174.53	75.5	-409.1	780.9	761.8	19.13	40.822		
4,400.0	4,380.9	4,323.7	4,309.8	12.0	11.3	-174.67	75.5	-417.8	800.1	780.5	19.59	40.843		
4,500.0	4,480.4	4,421.9	4,407.6	12.3	11.6	-174.80	75.5	-426.6	819.3	799.2	20.05	40.863		
4,600.0	4,579.8	4,520.0	4,505.3	12.6	11.8	-174.92	75.5	-435.3	838.5	818.0	20.51	40.882		
4,700.0	4,679.3	4,618.1	4,603.0	12.9	12.1	-175.04	75.5	-444.1	857.7	836.7	20.97	40.900		
4,800.0	4,778.8	4,716.2	4,700.8	13.2	12.4	-175.15	75.5	-452.9	876.8	855.4	21.43	40.917		
4,900.0	4,878.2	4,814.4	4,798.5	13.5	12.7	-175.25	75.6	-461.6	896.0	874.1	21.89	40.934		
5,000.0	4,977.7	4,912.5	4,896.2	13.8	12.9	-175.36	75.6	-470.4	915.2	892.9	22.35	40.950		
5,100.0	5,077.1	5,010.6	4,994.0	14.1	13.2	-175.45	75.6	-479.2	934.4	911.6	22.81	40.965		

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

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Project:	Weld County, CO	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12H-0113A - Hz - Plan #1													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		
5,200.0	5,176.6	5,108.8	5,091.7	14.4	13.5	-175.55	75.6	-487.9	953.6	930.3	23.27	40.980		
5,300.0	5,276.0	5,206.9	5,189.5	14.7	13.8	-175.64	75.6	-496.7	972.8	949.1	23.73	40.994		
5,400.0	5,375.5	5,303.6	5,285.8	15.0	14.0	-175.72	75.7	-505.3	992.0	967.8	24.19	41.017		
5,500.0	5,474.3	5,385.9	5,367.2	15.2	14.2	122.28	83.7	-512.6	1,012.9	988.3	24.52	41.313		
5,600.0	5,569.5	5,450.0	5,429.3	15.5	14.4	108.20	98.8	-518.2	1,037.4	1,012.6	24.84	41.762		
5,700.0	5,657.5	5,500.0	5,476.1	15.9	14.5	102.04	115.8	-522.4	1,067.5	1,042.2	25.24	42.285		
5,800.0	5,735.2	5,531.6	5,504.7	16.2	14.6	96.95	128.9	-524.9	1,104.1	1,078.3	25.83	42.741		
5,900.0	5,799.6	5,550.0	5,521.1	16.7	14.7	91.43	137.3	-526.4	1,147.3	1,120.7	26.61	43.107		
6,000.0	5,848.4	5,550.0	5,521.1	17.3	14.7	84.74	137.3	-526.4	1,195.3	1,167.9	27.35	43.707		
6,100.0	5,879.8	5,550.0	5,521.1	18.1	14.7	78.05	137.3	-526.4	1,246.2	1,218.5	27.72	44.960		
6,200.0	5,892.7	5,524.0	5,497.9	19.0	14.6	70.53	125.6	-524.3	1,297.3	1,270.0	27.34	47.460		
6,300.0	5,893.0	5,500.0	5,476.1	20.0	14.5	68.44	115.8	-522.4	1,349.4	1,321.5	27.94	48.301		
6,400.0	5,893.0	5,500.0	5,476.1	21.2	14.5	68.44	115.8	-522.4	1,406.1	1,376.9	29.17	48.195		
6,500.0	5,893.0	5,479.3	5,456.9	22.5	14.5	67.51	108.2	-520.6	1,466.9	1,436.7	30.27	48.469		
6,600.0	5,893.0	5,467.9	5,446.2	23.8	14.4	67.00	104.4	-519.7	1,531.7	1,500.2	31.52	48.588		

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Project:	Weld County, CO	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12H-0115A - Hz - Plan #1													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		
0.0	0.0	0.0	0.0	0.0	0.0	-41.38	75.0	-66.1	100.0					
100.0	100.0	100.0	100.0	0.1	0.1	-41.38	75.0	-66.1	100.0	99.8	0.19	534.812		
200.0	200.0	200.0	200.0	0.3	0.3	-41.38	75.0	-66.1	100.0	99.4	0.64	157.120		
300.0	300.0	300.0	300.0	0.5	0.5	-41.38	75.0	-66.1	100.0	98.9	1.09	92.087		
400.0	400.0	400.0	400.0	0.8	0.8	-41.38	75.0	-66.1	100.0	98.5	1.54	65.129		
500.0	500.0	500.0	500.0	1.0	1.0	-41.38	75.0	-66.1	100.0	98.0	1.99	50.381	CC, ES	
600.0	600.0	600.0	600.0	1.2	1.2	-132.10	75.0	-66.1	100.6	98.2	2.42	41.540		
700.0	700.0	700.0	700.0	1.4	1.4	-133.17	75.0	-66.1	102.4	99.5	2.85	35.899		
800.0	799.9	799.9	799.9	1.6	1.7	-134.88	75.0	-66.1	105.4	102.1	3.29	32.052		
900.0	899.7	899.7	899.7	1.9	1.9	-137.11	75.0	-66.1	109.8	106.1	3.73	29.429		
1,000.0	999.4	999.4	999.4	2.1	2.1	-139.71	75.0	-66.1	115.7	111.5	4.18	27.686		
1,100.0	1,098.9	1,098.9	1,098.9	2.3	2.3	-142.54	75.0	-66.1	123.2	118.5	4.63	26.604		
1,200.0	1,198.4	1,198.4	1,198.4	2.6	2.6	-145.30	75.0	-66.1	131.6	126.5	5.08	25.886		
1,300.0	1,297.8	1,297.8	1,297.8	2.9	2.8	-147.72	75.0	-66.1	140.3	134.8	5.54	25.331		
1,400.0	1,397.3	1,397.3	1,397.3	3.2	3.0	-149.86	75.0	-66.1	149.2	143.2	5.99	24.896		
1,500.0	1,496.7	1,496.7	1,496.7	3.4	3.2	-151.75	75.0	-66.1	158.3	151.9	6.45	24.551		
1,600.0	1,596.2	1,596.2	1,596.2	3.7	3.5	-153.43	75.0	-66.1	167.6	160.7	6.90	24.274		
1,700.0	1,695.6	1,695.6	1,695.6	4.0	3.7	-154.94	75.0	-66.1	177.0	169.6	7.36	24.049		
1,800.0	1,795.1	1,795.1	1,795.1	4.3	3.9	-156.29	75.0	-66.1	186.5	178.7	7.81	23.865		
1,900.0	1,894.5	1,894.5	1,894.5	4.6	4.1	-157.52	75.0	-66.1	196.1	187.8	8.27	23.712		
2,000.0	1,994.0	1,994.0	1,994.0	4.9	4.4	-158.63	75.0	-66.1	205.8	197.0	8.72	23.584		
2,100.0	2,093.5	2,093.5	2,093.5	5.2	4.6	-159.64	75.0	-66.1	215.5	206.3	9.18	23.477		
2,200.0	2,192.9	2,192.9	2,192.9	5.5	4.8	-160.56	75.0	-66.1	225.3	215.7	9.64	23.386		
2,300.0	2,292.4	2,292.4	2,292.4	5.8	5.0	-161.40	75.0	-66.1	235.2	225.1	10.09	23.308		
2,400.0	2,391.8	2,391.8	2,391.8	6.1	5.2	-162.18	75.0	-66.1	245.1	234.5	10.55	23.241		
2,500.0	2,491.3	2,491.3	2,491.3	6.3	5.5	-162.90	75.0	-66.1	255.0	244.0	11.00	23.184		
2,600.0	2,590.7	2,590.7	2,590.7	6.6	5.7	-163.56	75.0	-66.1	265.0	253.6	11.46	23.133		
2,700.0	2,690.2	2,690.2	2,690.2	6.9	5.9	-164.17	75.0	-66.1	275.0	263.1	11.91	23.090		
2,800.0	2,789.6	2,789.6	2,789.6	7.2	6.1	-164.74	75.0	-66.1	285.1	272.7	12.37	23.051		
2,900.0	2,889.1	2,889.1	2,889.1	7.5	6.4	-165.28	75.0	-66.1	295.2	282.3	12.82	23.017		
3,000.0	2,988.6	2,988.6	2,988.6	7.8	6.6	-165.77	75.0	-66.1	305.2	292.0	13.28	22.987		
3,100.0	3,088.0	3,088.0	3,088.0	8.1	6.8	-166.24	75.0	-66.1	315.4	301.6	13.73	22.961		
3,200.0	3,187.5	3,187.5	3,187.5	8.4	7.0	-166.67	75.0	-66.1	325.5	311.3	14.19	22.937		
3,300.0	3,286.9	3,286.9	3,286.9	8.7	7.3	-167.08	75.0	-66.1	335.7	321.0	14.65	22.916		
3,400.0	3,386.4	3,386.4	3,386.4	9.0	7.5	-167.47	75.0	-66.1	345.8	330.7	15.10	22.897		
3,500.0	3,485.8	3,485.8	3,485.8	9.3	7.7	-167.83	75.0	-66.1	356.0	340.4	15.56	22.880		
3,600.0	3,585.3	3,585.3	3,585.3	9.6	7.9	-168.18	75.0	-66.1	366.2	350.2	16.02	22.864		
3,700.0	3,684.7	3,684.7	3,684.7	9.9	8.2	-168.50	75.0	-66.1	376.4	359.9	16.47	22.850		
3,800.0	3,784.2	3,784.2	3,784.2	10.2	8.4	-168.81	75.0	-66.1	386.6	369.7	16.93	22.838		
3,900.0	3,883.7	3,883.7	3,883.7	10.5	8.6	-169.10	75.0	-66.1	396.9	379.5	17.39	22.826		
4,000.0	3,983.1	3,983.1	3,983.1	10.8	8.8	-169.38	75.0	-66.1	407.1	389.3	17.84	22.816		
4,100.0	4,082.6	4,096.3	4,096.3	11.1	9.1	-169.64	75.0	-64.5	416.0	397.7	18.32	22.712		
4,200.0	4,182.0	4,213.0	4,212.8	11.4	9.3	-169.78	75.0	-58.2	420.9	402.2	18.78	22.415		
4,300.0	4,281.5	4,326.2	4,325.5	11.7	9.5	-169.81	75.0	-47.7	422.0	402.8	19.24	21.933		
4,400.0	4,380.9	4,426.2	4,424.9	12.0	9.7	-169.80	74.9	-37.1	421.8	402.2	19.68	21.438		
4,500.0	4,480.4	4,526.2	4,524.3	12.3	10.0	-169.79	74.9	-26.5	421.7	401.5	20.11	20.963		
4,600.0	4,579.8	4,626.2	4,623.8	12.6	10.2	-169.79	74.8	-15.9	421.5	400.9	20.55	20.506		
4,700.0	4,679.3	4,726.2	4,723.2	12.9	10.4	-169.78	74.8	-5.3	421.3	400.3	21.00	20.067		
4,800.0	4,778.8	4,826.2	4,822.7	13.2	10.6	-169.77	74.7	5.3	421.2	399.7	21.44	19.644		
4,900.0	4,878.2	4,926.2	4,922.1	13.5	10.9	-169.77	74.7	15.9	421.0	399.1	21.88	19.238		
5,000.0	4,977.7	5,026.2	5,021.5	13.8	11.1	-169.76	74.6	26.5	420.8	398.5	22.33	18.846		
5,100.0	5,077.1	5,126.2	5,121.0	14.1	11.4	-169.75	74.6	37.1	420.6	397.9	22.78	18.469		

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

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Project:	Weld County, CO	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12H-0115A - Hz - Plan #1											Offset Site Error:		0.0 ft	
Survey Program: 0-ISWWSA 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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,176.6	5,226.2	5,220.4	14.4	11.6	-169.75	74.6	47.7	420.5	397.3	23.22	18.106		
5,259.9	5,236.2	5,285.7	5,279.6	14.5	11.7	-169.74	74.5	54.0	420.4	396.9	23.49	17.895		
5,300.0	5,276.0	5,320.5	5,314.2	14.7	11.8	-169.56	75.9	57.7	420.6	396.9	23.67	17.771		
5,400.0	5,375.5	5,405.3	5,397.5	15.0	12.0	-167.83	88.8	66.6	423.6	399.5	24.13	17.556 SF		
5,500.0	5,474.3	5,480.8	5,468.9	15.2	12.2	134.38	111.6	74.2	433.9	409.4	24.48	17.727		
5,600.0	5,569.5	5,537.6	5,520.1	15.5	12.4	123.37	135.4	79.7	458.7	434.0	24.63	18.621		
5,700.0	5,657.5	5,574.2	5,551.7	15.9	12.5	117.56	153.8	83.0	501.3	476.6	24.69	20.309		
5,800.0	5,735.2	5,600.0	5,573.1	16.2	12.6	110.55	168.0	85.3	560.8	535.7	25.07	22.366		
5,900.0	5,799.6	5,600.0	5,573.1	16.7	12.6	98.02	168.0	85.3	632.4	606.3	26.15	24.185		
6,000.0	5,848.4	5,600.0	5,573.1	17.3	12.6	83.39	168.0	85.3	711.0	684.1	26.94	26.395		
6,100.0	5,879.8	5,583.0	5,559.1	18.1	12.5	67.04	158.5	83.8	791.6	766.0	25.63	30.889		
6,200.0	5,892.7	5,565.6	5,544.4	19.0	12.5	53.96	149.3	82.2	870.7	848.0	22.66	38.427		
6,300.0	5,893.0	5,550.0	5,531.0	20.0	12.4	51.29	141.4	80.8	948.2	925.6	22.65	41.868		
6,400.0	5,893.0	5,528.9	5,512.5	21.2	12.4	50.02	131.5	78.8	1,028.6	1,005.4	23.27	44.208		
6,500.0	5,893.0	5,500.0	5,486.5	22.5	12.3	48.32	119.0	76.1	1,111.8	1,088.0	23.77	46.766		
6,600.0	5,893.0	5,500.0	5,486.5	23.8	12.3	48.32	119.0	76.1	1,196.6	1,171.6	25.03	47.812		
6,700.0	5,893.0	5,500.0	5,486.5	25.3	12.3	48.32	119.0	76.1	1,283.6	1,257.3	26.33	48.746		
6,800.0	5,893.0	5,477.1	5,465.5	26.8	12.2	47.03	110.2	73.8	1,371.7	1,344.6	27.09	50.642		
6,900.0	5,893.0	5,450.0	5,440.2	28.3	12.2	45.55	101.0	71.1	1,461.6	1,433.8	27.73	52.701		
7,000.0	5,893.0	5,450.0	5,440.2	29.9	12.2	45.55	101.0	71.1	1,551.9	1,522.8	29.09	53.339		

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Project:	Weld County, CO	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12H-0116B - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSA 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			
0.0	0.0	0.0	0.0	0.0	0.0	-23.86	75.1	-33.2	82.1					
100.0	100.0	100.0	100.0	0.1	0.1	-23.86	75.1	-33.2	82.1	81.9	0.19		438.860	
200.0	200.0	200.0	200.0	0.3	0.3	-23.86	75.1	-33.2	82.1	81.4	0.64		128.931	
300.0	300.0	300.0	300.0	0.5	0.5	-23.86	75.1	-33.2	82.1	81.0	1.09		75.565	
400.0	400.0	400.0	400.0	0.8	0.8	-23.86	75.1	-33.2	82.1	80.5	1.54		53.444	
500.0	500.0	500.0	500.0	1.0	1.0	-23.86	75.1	-33.2	82.1	80.1	1.99		41.342	
600.0	600.0	600.6	600.6	1.2	1.2	-114.21	75.0	-32.3	82.1	79.7	2.41		34.055	
700.0	700.0	701.2	701.2	1.4	1.4	-114.20	75.0	-29.7	82.0	79.2	2.82		29.071	
800.0	799.9	801.8	801.6	1.6	1.6	-114.19	75.0	-25.3	82.0	78.8	3.25		25.217	
900.0	899.7	902.4	902.1	1.9	1.9	-114.17	74.9	-19.1	82.0	78.3	3.70		22.150	
1,000.0	999.4	1,003.0	1,002.3	2.1	2.1	-114.15	74.8	-11.1	81.9	77.8	4.17		19.643	
1,027.0	1,026.3	1,030.1	1,029.4	2.2	2.2	-114.15	74.8	-8.7	81.9	77.6	4.30		19.035 CC	
1,100.0	1,098.9	1,103.1	1,102.1	2.3	2.4	-114.46	74.7	-2.0	82.1	77.4	4.66		17.605	
1,200.0	1,198.4	1,203.1	1,201.6	2.6	2.6	-115.26	74.6	7.2	82.6	77.4	5.17		15.978	
1,300.0	1,297.8	1,303.1	1,301.2	2.9	2.9	-116.05	74.5	16.4	83.1	77.4	5.68		14.623 ES	
1,400.0	1,397.3	1,403.1	1,400.8	3.2	3.1	-116.83	74.4	25.5	83.6	77.4	6.20		13.483	
1,500.0	1,496.7	1,503.1	1,500.3	3.4	3.4	-117.61	74.3	34.7	84.1	77.4	6.72		12.516	
1,600.0	1,596.2	1,603.1	1,599.9	3.7	3.7	-118.37	74.3	43.9	84.7	77.4	7.25		11.687	
1,700.0	1,695.6	1,703.1	1,699.5	4.0	4.0	-119.12	74.2	53.1	85.3	77.5	7.77		10.970	
1,800.0	1,795.1	1,803.1	1,799.0	4.3	4.2	-119.87	74.1	62.2	85.8	77.5	8.30		10.345	
1,900.0	1,894.5	1,903.1	1,898.6	4.6	4.5	-120.60	74.0	71.4	86.4	77.6	8.82		9.796	
2,000.0	1,994.0	2,003.0	1,998.2	4.9	4.8	-121.32	73.9	80.6	87.0	77.7	9.35		9.311	
2,100.0	2,093.5	2,103.0	2,097.8	5.2	5.1	-122.04	73.8	89.8	87.7	77.8	9.87		8.880	
2,200.0	2,192.9	2,203.0	2,197.3	5.5	5.3	-122.74	73.7	98.9	88.3	77.9	10.40		8.494	
2,300.0	2,292.4	2,303.0	2,296.9	5.8	5.6	-123.43	73.6	108.1	89.0	78.0	10.92		8.148	
2,400.0	2,391.8	2,403.0	2,396.5	6.1	5.9	-124.11	73.5	117.3	89.6	78.2	11.44		7.835	
2,500.0	2,491.3	2,503.0	2,496.0	6.3	6.2	-124.78	73.4	126.4	90.3	78.3	11.96		7.551	
2,600.0	2,590.7	2,603.0	2,595.6	6.6	6.5	-125.45	73.3	135.6	91.0	78.5	12.48		7.293	
2,700.0	2,690.2	2,703.0	2,695.2	6.9	6.7	-126.10	73.2	144.8	91.7	78.7	12.99		7.057	
2,800.0	2,789.6	2,803.0	2,794.7	7.2	7.0	-126.74	73.1	154.0	92.4	78.9	13.51		6.841	
2,900.0	2,889.1	2,903.0	2,894.3	7.5	7.3	-127.37	73.0	163.1	93.1	79.1	14.02		6.643	
3,000.0	2,988.6	3,003.0	2,993.9	7.8	7.6	-128.00	72.9	172.3	93.9	79.3	14.53		6.460	
3,100.0	3,088.0	3,103.0	3,093.5	8.1	7.9	-128.61	72.8	181.5	94.6	79.6	15.04		6.290	
3,200.0	3,187.5	3,203.0	3,193.0	8.4	8.1	-129.21	72.7	190.7	95.4	79.8	15.55		6.134	
3,300.0	3,286.9	3,302.9	3,292.6	8.7	8.4	-129.80	72.6	199.8	96.1	80.1	16.05		5.988	
3,400.0	3,386.4	3,402.9	3,392.2	9.0	8.7	-130.39	72.5	209.0	96.9	80.3	16.56		5.853	
3,500.0	3,485.8	3,502.9	3,491.7	9.3	9.0	-130.96	72.4	218.2	97.7	80.6	17.06		5.726	
3,600.0	3,585.3	3,602.9	3,591.3	9.6	9.3	-131.53	72.3	227.4	98.5	80.9	17.56		5.608	
3,700.0	3,684.7	3,702.9	3,690.9	9.9	9.6	-132.08	72.2	236.5	99.3	81.2	18.06		5.498	
3,800.0	3,784.2	3,802.9	3,790.5	10.2	9.8	-132.63	72.1	245.7	100.1	81.5	18.56		5.394	
3,900.0	3,883.7	3,902.9	3,890.0	10.5	10.1	-133.17	72.1	254.9	100.9	81.9	19.05		5.297	
4,000.0	3,983.1	4,002.9	3,989.6	10.8	10.4	-133.70	72.0	264.1	101.8	82.2	19.55		5.205	
4,100.0	4,082.6	4,102.9	4,089.2	11.1	10.7	-134.22	71.9	273.2	102.6	82.6	20.04		5.119	
4,200.0	4,182.0	4,202.9	4,188.7	11.4	11.0	-134.73	71.8	282.4	103.4	82.9	20.53		5.038	
4,300.0	4,281.5	4,302.9	4,288.3	11.7	11.3	-135.24	71.7	291.6	104.3	83.3	21.02		4.961	
4,400.0	4,380.9	4,402.9	4,387.9	12.0	11.5	-135.73	71.6	300.8	105.2	83.7	21.51		4.888	
4,500.0	4,480.4	4,502.8	4,487.4	12.3	11.8	-136.22	71.5	309.9	106.0	84.0	22.00		4.819	
4,600.0	4,579.8	4,602.8	4,587.0	12.6	12.1	-136.70	71.4	319.1	106.9	84.4	22.49		4.754	
4,700.0	4,679.3	4,702.8	4,686.6	12.9	12.4	-137.17	71.3	328.3	107.8	84.8	22.98		4.692	
4,800.0	4,778.8	4,802.8	4,786.2	13.2	12.7	-137.64	71.2	337.5	108.7	85.2	23.46		4.633	
4,900.0	4,878.2	4,902.8	4,885.7	13.5	13.0	-138.09	71.1	346.6	109.6	85.7	23.94		4.578	
5,000.0	4,977.7	5,002.8	4,985.3	13.8	13.2	-138.54	71.0	355.8	110.5	86.1	24.43		4.524	

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

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Project:	Weld County, CO	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor #12H-0116B - Hz - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-ISWWSA MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)				
5,100.0	5,077.1	5,102.8	5,084.9	14.1	13.5	-138.98	70.9	365.0	111.4	86.5	24.91	4.474	4.338 SF	
5,200.0	5,176.6	5,202.8	5,184.4	14.4	13.8	-139.42	70.8	374.2	112.4	87.0	25.39	4.425		
5,300.0	5,276.0	5,302.8	5,284.0	14.7	14.1	-139.85	70.7	383.3	113.3	87.4	25.87	4.379		
5,400.0	5,375.5	5,400.0	5,380.8	15.0	14.4	-140.24	70.7	392.3	114.3	87.9	26.34	4.338 SF		
5,500.0	5,474.3	5,486.2	5,466.1	15.2	14.6	163.44	78.9	400.1	128.4	101.6	26.81	4.789		
5,600.0	5,569.5	5,556.3	5,533.8	15.5	14.7	156.93	95.9	406.4	169.6	143.0	26.64	6.366		
5,700.0	5,657.5	5,600.0	5,574.6	15.9	14.9	153.47	111.0	410.1	236.7	211.4	25.26	9.369		
5,800.0	5,735.2	5,635.4	5,606.6	16.2	14.9	147.39	125.8	413.1	321.3	297.8	23.53	13.654		
5,900.0	5,799.6	5,650.0	5,619.6	16.7	15.0	126.21	132.5	414.3	415.6	391.1	24.52	16.954		
6,000.0	5,848.4	5,650.0	5,619.6	17.3	15.0	73.42	132.5	414.3	513.6	486.8	26.76	19.191		
6,100.0	5,879.8	5,650.0	5,619.6	18.1	15.0	38.05	132.5	414.3	610.9	592.6	18.35	33.293		
6,200.0	5,892.7	5,627.7	5,599.8	19.0	14.9	23.48	122.4	412.4	704.3	692.4	11.89	59.226		
6,300.0	5,893.0	5,600.0	5,574.6	20.0	14.9	21.07	111.0	410.1	794.7	783.3	11.44	69.457		
6,400.0	5,893.0	5,600.0	5,574.6	21.2	14.9	21.07	111.0	410.1	886.1	873.9	12.16	72.867		
6,500.0	5,893.0	5,582.4	5,558.3	22.5	14.8	20.36	104.5	408.6	978.7	966.0	12.68	77.186		
6,600.0	5,893.0	5,570.8	5,547.5	23.8	14.8	19.92	100.5	407.6	1,072.2	1,058.9	13.32	80.474		
6,700.0	5,893.0	5,550.0	5,527.8	25.3	14.7	19.19	94.0	405.8	1,166.7	1,152.8	13.88	84.043		
6,800.0	5,893.0	5,550.0	5,527.8	26.8	14.7	19.19	94.0	405.8	1,261.4	1,246.7	14.72	85.701		
6,900.0	5,893.0	5,550.0	5,527.8	28.3	14.7	19.19	94.0	405.8	1,357.0	1,341.4	15.57	87.139		
7,000.0	5,893.0	5,550.0	5,527.8	29.9	14.7	19.19	94.0	405.8	1,453.1	1,436.7	16.44	88.396		
7,100.0	5,893.0	5,528.8	5,507.5	31.6	14.7	18.51	88.1	403.9	1,549.2	1,532.1	17.03	90.972		

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Project:	Weld County, CO	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - RAZOR 12-0141H (EXISTING) - WHITING WELL - SURVEYS													Offset Site Error:	0.0 ft
Survey Program: 109-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		
0.0	0.0	0.3	0.3	0.0	0.0	-0.35	135.5	-0.8	135.5					
100.0	100.0	101.5	101.5	0.1	0.1	-0.45	135.1	-1.1	135.1	134.9	0.19	705.810		
200.0	200.0	201.7	201.7	0.3	0.3	-0.60	134.1	-1.4	134.1	133.5	0.62	215.672		
300.0	300.0	302.2	302.1	0.5	0.5	-0.70	132.9	-1.6	132.9	131.8	1.07	124.510		
400.0	400.0	402.3	402.3	0.8	0.7	-0.73	131.5	-1.7	131.5	130.0	1.51	86.988		
500.0	500.0	502.9	502.8	1.0	1.0	-0.72	129.7	-1.6	129.7	127.8	1.96	66.227		
600.0	600.0	602.8	602.8	1.2	1.2	-91.40	127.7	-1.4	127.7	125.4	2.38	53.600		
700.0	700.0	702.1	702.1	1.4	1.4	-92.34	126.0	-0.8	126.1	123.3	2.79	45.126		
800.0	799.9	801.7	801.6	1.6	1.6	-93.85	124.9	0.3	125.2	122.0	3.22	38.924		
900.0	899.7	902.0	901.9	1.9	1.8	-96.01	123.7	1.8	124.4	120.7	3.66	33.984		
995.3	994.7	996.7	996.6	2.1	2.0	-98.77	122.3	3.3	123.8	119.7	4.09	30.269 CC		
1,000.0	999.4	1,001.4	1,001.2	2.1	2.0	-98.93	122.3	3.4	123.8	119.7	4.11	30.118 ES		
1,100.0	1,098.9	1,099.8	1,099.7	2.3	2.2	-102.88	121.7	4.2	124.9	120.4	4.56	27.396		
1,200.0	1,198.4	1,199.5	1,199.4	2.6	2.4	-107.26	121.3	4.7	127.1	122.1	5.02	25.298		
1,300.0	1,297.8	1,299.2	1,299.1	2.9	2.7	-111.41	120.9	5.4	129.9	124.4	5.49	23.649		
1,400.0	1,397.3	1,399.5	1,399.3	3.2	2.9	-115.16	120.4	6.7	133.1	127.1	5.97	22.289		
1,500.0	1,496.7	1,498.8	1,498.6	3.4	3.1	-118.59	119.7	8.3	136.5	130.1	6.43	21.218		
1,600.0	1,596.2	1,598.0	1,597.8	3.7	3.3	-121.94	119.2	9.6	140.7	133.8	6.88	20.444		
1,700.0	1,695.6	1,697.5	1,697.4	4.0	3.5	-125.21	118.7	10.5	145.6	138.2	7.33	19.859		
1,800.0	1,795.1	1,797.7	1,797.5	4.3	3.7	-128.29	118.0	11.5	150.7	142.9	7.78	19.357		
1,900.0	1,894.5	1,895.9	1,895.7	4.6	3.9	-131.13	117.3	12.5	156.2	148.0	8.23	18.990		
2,000.0	1,994.0	1,996.2	1,996.0	4.9	4.1	-134.25	116.2	12.2	162.6	154.0	8.67	18.766		
2,100.0	2,093.5	2,094.2	2,094.0	5.2	4.3	-137.47	114.0	11.3	169.3	160.2	9.10	18.605		
2,200.0	2,192.9	2,193.1	2,192.8	5.5	4.5	-140.64	111.9	9.4	177.2	167.6	9.52	18.602 SF		
2,300.0	2,292.4	2,289.6	2,289.3	5.8	4.7	-142.75	112.2	8.4	186.4	176.5	9.95	18.731		
2,400.0	2,391.8	2,390.2	2,389.8	6.1	4.9	-143.85	115.2	8.7	196.3	185.9	10.40	18.877		
2,500.0	2,491.3	2,487.5	2,487.1	6.3	5.1	-144.51	119.3	9.2	206.9	196.0	10.84	19.078		
2,600.0	2,590.7	2,591.3	2,590.8	6.6	5.3	-145.66	121.3	9.9	215.9	204.6	11.29	19.119		
2,700.0	2,690.2	2,686.5	2,686.0	6.9	5.5	-146.56	123.7	10.0	225.9	214.1	11.73	19.261		
2,800.0	2,789.6	2,788.1	2,787.6	7.2	5.7	-147.34	127.0	9.9	236.5	224.3	12.17	19.426		
2,900.0	2,889.1	2,890.9	2,890.3	7.5	5.9	-148.50	127.5	10.5	245.1	232.5	12.62	19.426		
3,000.0	2,988.6	2,989.9	2,989.3	7.8	6.1	-149.39	128.8	11.3	254.0	240.9	13.06	19.452		
3,100.0	3,088.0	3,089.4	3,088.8	8.1	6.4	-150.21	129.9	12.4	262.6	249.1	13.50	19.454		
3,200.0	3,187.5	3,189.4	3,188.8	8.4	6.6	-150.95	131.3	13.3	271.6	257.7	13.94	19.481		
3,300.0	3,286.9	3,292.1	3,291.5	8.7	6.8	-151.80	131.8	14.6	279.9	265.5	14.39	19.449		
3,400.0	3,386.4	3,391.0	3,390.4	9.0	7.0	-152.98	130.1	15.6	287.5	272.7	14.82	19.398		
3,500.0	3,485.8	3,491.0	3,490.4	9.3	7.2	-154.14	128.4	16.1	295.6	280.4	15.25	19.382		
3,600.0	3,585.3	3,590.6	3,589.9	9.6	7.4	-155.28	126.4	16.8	303.6	287.9	15.68	19.354		
3,700.0	3,684.7	3,687.1	3,686.4	9.9	7.6	-156.45	124.1	16.8	312.1	296.0	16.11	19.374		
3,800.0	3,784.2	3,777.0	3,776.2	10.2	7.8	-157.68	121.5	14.8	322.6	306.1	16.51	19.533		
3,900.0	3,883.7	3,872.7	3,871.8	10.5	8.0	-159.01	119.1	10.4	335.6	318.7	16.93	19.824		
4,000.0	3,983.1	3,974.7	3,973.7	10.8	8.2	-160.00	118.3	6.5	348.7	331.4	17.36	20.084		
4,100.0	4,082.6	4,077.7	4,076.7	11.1	8.4	-160.54	119.3	4.4	360.8	343.0	17.81	20.259		
4,200.0	4,182.0	4,175.5	4,174.5	11.4	8.6	-161.24	118.9	2.3	372.5	354.2	18.24	20.420		
4,300.0	4,281.5	4,273.0	4,271.9	11.7	8.8	-161.95	118.2	-0.3	384.7	366.0	18.67	20.604		
4,400.0	4,380.9	4,372.7	4,371.6	12.0	9.0	-162.47	118.7	-2.8	397.1	378.0	19.11	20.783		
4,500.0	4,480.4	4,471.2	4,470.0	12.3	9.2	-162.74	120.6	-4.8	409.5	390.0	19.54	20.955		
4,600.0	4,579.8	4,571.3	4,570.1	12.6	9.4	-163.04	122.2	-6.9	422.0	402.0	19.99	21.114		
4,700.0	4,679.3	4,671.8	4,670.6	12.9	9.7	-163.39	123.2	-9.0	434.2	413.8	20.43	21.256		
4,800.0	4,778.8	4,775.0	4,773.7	13.2	9.9	-163.77	123.9	-10.5	445.8	425.0	20.88	21.355		
4,900.0	4,878.2	4,876.4	4,875.2	13.5	10.1	-164.22	123.6	-11.5	456.7	435.4	21.32	21.420		
5,000.0	4,977.7	4,977.1	4,975.9	13.8	10.3	-164.71	122.7	-12.5	467.5	445.7	21.76	21.477		

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

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Project:	Weld County, CO	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - RAZOR 12-0141H (EXISTING) - WHTING WELL - SURVEYS													Offset Site Error: 0.0 ft	
Survey Program: 109-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		
5,100.0	5,077.1	5,083.0	5,081.7	14.1	10.5	-165.21	121.4	-12.7	477.4	455.2	22.22	21.489		
5,200.0	5,176.6	5,199.2	5,197.9	14.4	10.8	-165.66	120.1	-10.3	485.2	462.5	22.69	21.382		
5,300.0	5,276.0	5,299.7	5,298.3	14.7	11.0	-165.71	120.9	-5.0	490.5	467.4	23.14	21.198		
5,400.0	5,375.5	5,380.0	5,378.5	15.0	11.2	-165.53	123.8	-1.7	497.7	474.1	23.55	21.135		
5,500.0	5,474.3	5,461.2	5,459.3	15.2	11.3	133.95	131.3	-0.2	511.0	487.2	23.82	21.455		
5,600.0	5,569.5	5,577.4	5,574.3	15.5	11.6	123.61	147.4	2.1	532.5	508.5	24.04	22.151		
5,700.0	5,657.5	5,642.5	5,638.3	15.9	11.7	119.78	158.1	6.5	560.2	536.1	24.04	23.302		
5,800.0	5,735.2	5,683.0	5,677.3	16.2	11.8	115.83	168.7	9.1	603.2	579.0	24.18	24.947		
5,900.0	5,799.6	5,696.8	5,690.4	16.7	11.8	108.36	173.1	9.9	660.9	635.9	25.01	26.424		
6,000.0	5,848.4	5,704.7	5,697.8	17.3	11.8	98.07	175.8	10.4	729.8	703.4	26.41	27.632		
6,100.0	5,879.8	5,703.1	5,696.3	18.1	11.8	84.83	175.3	10.3	805.4	778.1	27.32	29.478		
6,200.0	5,892.7	5,694.7	5,688.4	19.0	11.8	70.77	172.4	9.8	883.6	857.1	26.48	33.366		
6,300.0	5,893.0	5,683.0	5,677.3	20.0	11.8	67.57	168.7	9.1	962.8	935.9	26.90	35.793		
6,400.0	5,893.0	5,683.0	5,677.3	21.2	11.8	67.57	168.7	9.1	1,045.4	1,017.2	28.21	37.057		
6,500.0	5,893.0	5,665.0	5,660.1	22.5	11.8	66.02	163.6	8.0	1,130.3	1,101.1	29.20	38.703		
6,600.0	5,893.0	5,651.0	5,646.6	23.8	11.7	64.84	160.0	7.1	1,217.5	1,187.1	30.33	40.140		
6,700.0	5,893.0	5,651.0	5,646.6	25.3	11.7	64.84	160.0	7.1	1,306.3	1,274.4	31.84	41.021		
6,800.0	5,893.0	5,651.0	5,646.6	26.8	11.7	64.84	160.0	7.1	1,396.6	1,363.1	33.40	41.807		
6,900.0	5,893.0	5,651.0	5,646.6	28.3	11.7	64.84	160.0	7.1	1,488.1	1,453.1	35.00	42.511		

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Project:	Weld County, CO	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12H-1313A - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA 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	-90.01	0.0	-99.3	99.3					
100.0	100.0	100.0	100.0	0.1	0.1	-90.01	0.0	-99.3	99.3	99.1	0.19	531.087		
200.0	200.0	200.0	200.0	0.3	0.3	-90.01	0.0	-99.3	99.3	98.7	0.64	156.026		
300.0	300.0	300.0	300.0	0.5	0.5	-90.01	0.0	-99.3	99.3	98.2	1.09	91.445		
400.0	400.0	400.0	400.0	0.8	0.8	-90.01	0.0	-99.3	99.3	97.8	1.54	64.676		
500.0	500.0	500.0	500.0	1.0	1.0	-90.01	0.0	-99.3	99.3	97.3	1.99	50.030 CC, ES		
600.0	600.0	600.0	600.0	1.2	1.2	179.65	0.0	-99.3	100.2	97.8	2.42	41.371		
700.0	700.0	700.0	700.0	1.4	1.4	179.65	0.0	-99.3	102.8	100.0	2.85	36.057		
800.0	799.9	799.9	799.9	1.6	1.7	179.67	0.0	-99.3	107.2	103.9	3.29	32.614		
900.0	899.7	899.7	899.7	1.9	1.9	179.69	0.0	-99.3	113.3	109.5	3.72	30.418		
1,000.0	999.4	999.4	999.4	2.1	2.1	179.71	0.0	-99.3	121.1	117.0	4.16	29.086		
1,100.0	1,098.9	1,098.9	1,098.9	2.3	2.3	179.73	0.0	-99.3	130.7	126.1	4.61	28.377		
1,200.0	1,198.4	1,198.4	1,198.4	2.6	2.6	179.75	0.0	-99.3	141.1	136.1	5.05	27.935		
1,300.0	1,297.8	1,297.8	1,297.8	2.9	2.8	179.76	0.0	-99.3	151.5	146.0	5.50	27.553		
1,400.0	1,397.3	1,397.3	1,397.3	3.2	3.0	179.78	0.0	-99.3	162.0	156.0	5.95	27.221		
1,500.0	1,496.7	1,496.7	1,496.7	3.4	3.2	179.79	0.0	-99.3	172.4	166.0	6.40	26.930		
1,600.0	1,596.2	1,593.2	1,593.2	3.7	3.4	179.80	0.0	-100.1	183.6	176.8	6.83	26.861		
1,700.0	1,695.6	1,689.2	1,689.2	4.0	3.6	179.80	0.0	-102.4	196.5	189.2	7.26	27.067		
1,800.0	1,795.1	1,784.7	1,784.6	4.3	3.8	179.80	-0.1	-106.4	211.0	203.3	7.68	27.461		
1,900.0	1,894.5	1,879.8	1,879.5	4.6	4.0	179.80	-0.1	-111.9	227.2	219.0	8.11	28.010		
2,000.0	1,994.0	1,977.4	1,976.9	4.9	4.2	179.79	-0.2	-118.7	244.5	235.9	8.54	28.618		
2,100.0	2,093.5	2,075.9	2,075.1	5.2	4.5	179.78	-0.2	-125.6	261.8	252.9	8.98	29.165		
2,200.0	2,192.9	2,174.4	2,173.4	5.5	4.7	179.77	-0.3	-132.5	279.2	269.8	9.42	29.655		
2,300.0	2,292.4	2,272.8	2,271.6	5.8	4.9	179.77	-0.3	-139.4	296.6	286.7	9.86	30.094		
2,400.0	2,391.8	2,371.3	2,369.8	6.1	5.1	179.76	-0.4	-146.3	313.9	303.6	10.30	30.491		
2,500.0	2,491.3	2,469.8	2,468.1	6.3	5.4	179.76	-0.5	-153.2	331.3	320.6	10.74	30.851		
2,600.0	2,590.7	2,568.3	2,566.3	6.6	5.6	179.75	-0.5	-160.1	348.7	337.5	11.18	31.179		
2,700.0	2,690.2	2,666.8	2,664.5	6.9	5.8	179.75	-0.6	-167.0	366.0	354.4	11.63	31.478		
2,800.0	2,789.6	2,765.2	2,762.8	7.2	6.1	179.75	-0.6	-173.9	383.4	371.3	12.07	31.752		
2,900.0	2,889.1	2,863.7	2,861.0	7.5	6.3	179.74	-0.7	-180.8	400.8	388.2	12.52	32.004		
3,000.0	2,988.6	2,962.2	2,959.3	7.8	6.6	179.74	-0.7	-187.7	418.1	405.1	12.97	32.237		
3,100.0	3,088.0	3,060.7	3,057.5	8.1	6.8	179.74	-0.8	-194.6	435.5	422.1	13.42	32.452		
3,200.0	3,187.5	3,159.2	3,155.7	8.4	7.0	179.73	-0.8	-201.5	452.8	439.0	13.87	32.651		
3,300.0	3,286.9	3,257.6	3,254.0	8.7	7.3	179.73	-0.9	-208.4	470.2	455.9	14.32	32.837		
3,400.0	3,386.4	3,356.1	3,352.2	9.0	7.5	179.73	-1.0	-215.3	487.6	472.8	14.77	33.009		
3,500.0	3,485.8	3,454.6	3,450.5	9.3	7.8	179.73	-1.0	-222.2	504.9	489.7	15.22	33.171		
3,600.0	3,585.3	3,553.1	3,548.7	9.6	8.0	179.73	-1.1	-229.1	522.3	506.6	15.67	33.322		
3,700.0	3,684.7	3,651.6	3,646.9	9.9	8.3	179.72	-1.1	-236.0	539.7	523.5	16.13	33.463		
3,800.0	3,784.2	3,750.0	3,745.2	10.2	8.5	179.72	-1.2	-242.9	557.0	540.5	16.58	33.596		
3,900.0	3,883.7	3,848.5	3,843.4	10.5	8.8	179.72	-1.2	-249.8	574.4	557.4	17.03	33.721		
4,000.0	3,983.1	3,947.0	3,941.7	10.8	9.0	179.72	-1.3	-256.7	591.8	574.3	17.49	33.839		
4,100.0	4,082.6	4,045.5	4,039.9	11.1	9.3	179.72	-1.3	-263.6	609.1	591.2	17.94	33.951		
4,200.0	4,182.0	4,144.0	4,138.1	11.4	9.5	179.72	-1.4	-270.5	626.5	608.1	18.40	34.056		
4,300.0	4,281.5	4,242.5	4,236.4	11.7	9.8	179.72	-1.5	-277.4	643.9	625.0	18.85	34.156		
4,400.0	4,380.9	4,340.9	4,334.6	12.0	10.0	179.71	-1.5	-284.3	661.2	641.9	19.31	34.250		
4,500.0	4,480.4	4,439.4	4,432.8	12.3	10.3	179.71	-1.6	-291.2	678.6	658.8	19.76	34.340		
4,600.0	4,579.8	4,537.9	4,531.1	12.6	10.5	179.71	-1.6	-298.1	695.9	675.7	20.22	34.425		
4,700.0	4,679.3	4,636.4	4,629.3	12.9	10.8	179.71	-1.7	-305.0	713.3	692.6	20.67	34.506		
4,800.0	4,778.8	4,734.9	4,727.6	13.2	11.0	179.71	-1.7	-311.9	730.7	709.5	21.13	34.584		
4,900.0	4,878.2	4,833.3	4,825.8	13.5	11.3	179.71	-1.8	-318.8	748.0	726.5	21.58	34.658		
5,000.0	4,977.7	4,931.8	4,924.0	13.8	11.5	179.71	-1.9	-325.7	765.4	743.4	22.04	34.728		
5,100.0	5,077.1	5,030.3	5,022.3	14.1	11.8	179.71	-1.9	-332.6	782.8	760.3	22.50	34.795		

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

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Project:	Weld County, CO	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12H-1313A - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA 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	5,176.6	5,128.8	5,120.5	14.4	12.0	179.71	-2.0	-339.5	800.1	777.2	22.95	34.860		
5,300.0	5,276.0	5,227.3	5,218.8	14.7	12.3	179.71	-2.0	-346.4	817.5	794.1	23.41	34.922		
5,400.0	5,375.5	5,325.7	5,316.9	15.0	12.5	179.59	-3.7	-353.3	834.9	811.0	23.86	34.996		
5,500.0	5,474.3	5,423.1	5,412.4	15.2	12.8	116.64	-20.5	-360.0	852.2	827.9	24.29	35.088		
5,600.0	5,569.5	5,519.2	5,502.1	15.5	13.0	101.28	-54.3	-366.3	869.2	844.4	24.78	35.075		
5,700.0	5,657.5	5,614.6	5,583.4	15.9	13.3	94.46	-103.5	-372.0	885.1	859.7	25.38	34.867		
5,800.0	5,735.2	5,709.3	5,654.1	16.2	13.7	90.33	-166.2	-376.9	899.3	873.1	26.16	34.376		
5,900.0	5,799.6	5,803.7	5,712.0	16.7	14.2	87.55	-240.5	-381.0	911.3	884.1	27.18	33.533		
6,000.0	5,848.4	5,897.9	5,755.5	17.3	14.8	85.66	-323.8	-384.1	920.6	892.1	28.50	32.308		
6,100.0	5,879.8	5,991.9	5,783.4	18.1	15.6	84.49	-413.4	-386.0	927.0	896.8	30.15	30.744		
6,200.0	5,892.7	6,086.0	5,794.7	19.0	16.6	83.98	-506.7	-386.8	930.1	898.0	32.12	28.955		
6,300.0	5,893.0	6,184.9	5,795.0	20.0	17.7	83.96	-605.6	-386.8	931.0	896.5	34.51	26.977		
6,400.0	5,893.0	6,284.9	5,795.0	21.2	19.0	83.96	-705.6	-386.8	931.9	894.7	37.17	25.074		
6,500.0	5,893.0	6,384.9	5,795.0	22.5	20.4	83.97	-805.6	-386.8	932.8	892.8	40.01	23.313		
6,600.0	5,893.0	6,484.9	5,795.0	23.8	21.9	83.97	-905.6	-386.8	933.6	890.6	43.01	21.708		
6,700.0	5,893.0	6,584.9	5,795.0	25.3	23.5	83.98	-1,005.6	-386.8	934.5	888.4	46.13	20.258		
6,800.0	5,893.0	6,684.9	5,795.0	26.8	25.0	83.99	-1,105.6	-386.8	935.4	886.0	49.35	18.954		
6,900.0	5,893.0	6,784.9	5,795.0	28.3	26.7	83.99	-1,205.6	-386.9	936.2	883.6	52.65	17.782		
7,000.0	5,893.0	6,884.9	5,795.0	29.9	28.4	84.00	-1,305.6	-386.9	937.1	881.1	56.02	16.728		
7,100.0	5,893.0	6,984.9	5,795.0	31.6	30.1	84.00	-1,405.6	-386.9	938.0	878.5	59.45	15.779		
7,200.0	5,893.0	7,084.9	5,795.0	33.2	31.8	84.01	-1,505.6	-386.9	938.9	875.9	62.92	14.922		
7,300.0	5,893.0	7,184.9	5,795.0	34.9	33.5	84.01	-1,605.6	-386.9	939.7	873.3	66.43	14.147		
7,400.0	5,893.0	7,284.9	5,795.0	36.7	35.3	84.02	-1,705.6	-386.9	940.6	870.6	69.97	13.443		
7,500.0	5,893.0	7,384.9	5,795.0	38.4	37.1	84.02	-1,805.6	-386.9	941.5	867.9	73.54	12.802		
7,600.0	5,893.0	7,484.9	5,795.0	40.1	38.9	84.03	-1,905.6	-386.9	942.3	865.2	77.14	12.216		
7,700.0	5,893.0	7,584.9	5,795.0	41.9	40.7	84.04	-2,005.6	-386.9	943.2	862.4	80.76	11.679		
7,800.0	5,893.0	7,684.9	5,795.0	43.7	42.5	84.04	-2,105.6	-386.9	944.1	859.7	84.39	11.186		
7,900.0	5,893.0	7,784.9	5,795.0	45.5	44.3	84.05	-2,205.6	-386.9	944.9	856.9	88.05	10.732		
8,000.0	5,893.0	7,884.9	5,795.0	47.3	46.2	84.05	-2,305.6	-386.9	945.8	854.1	91.71	10.312		
8,100.0	5,893.0	7,984.9	5,795.0	49.1	48.0	84.06	-2,405.6	-386.9	946.7	851.3	95.39	9.924		
8,200.0	5,893.0	8,084.9	5,795.0	50.9	49.8	84.06	-2,505.6	-386.9	947.5	848.4	99.09	9.563		
8,300.0	5,893.0	8,184.9	5,795.0	52.7	51.7	84.07	-2,605.5	-386.9	948.4	845.6	102.79	9.227		
8,400.0	5,893.0	8,284.9	5,795.0	54.6	53.6	84.07	-2,705.5	-386.9	949.3	842.8	106.50	8.914		
8,500.0	5,893.0	8,384.8	5,795.0	56.4	55.4	84.08	-2,805.5	-386.9	950.1	839.9	110.22	8.621		
8,600.0	5,893.0	8,484.8	5,795.0	58.3	57.3	84.09	-2,905.5	-386.9	951.0	837.1	113.94	8.346		
8,700.0	5,893.0	8,584.8	5,795.0	60.1	59.1	84.09	-3,005.5	-386.9	951.9	834.2	117.67	8.089		
8,800.0	5,893.0	8,684.8	5,795.0	62.0	61.0	84.10	-3,105.5	-386.9	952.7	831.3	121.41	7.847		
8,900.0	5,893.0	8,784.8	5,795.0	63.8	62.9	84.10	-3,205.5	-386.9	953.6	828.5	125.16	7.619		
9,000.0	5,893.0	8,884.8	5,795.0	65.7	64.8	84.11	-3,305.5	-386.9	954.5	825.6	128.91	7.404		
9,100.0	5,893.0	8,984.8	5,795.0	67.6	66.7	84.11	-3,405.5	-386.9	955.4	822.7	132.66	7.201		
9,200.0	5,893.0	9,084.8	5,795.0	69.4	68.5	84.12	-3,505.5	-386.9	956.2	819.8	136.42	7.009		
9,300.0	5,893.0	9,184.8	5,795.0	71.3	70.4	84.12	-3,605.5	-386.9	957.1	816.9	140.18	6.828		
9,400.0	5,893.0	9,284.8	5,795.0	73.2	72.3	84.13	-3,705.5	-386.9	958.0	814.0	143.95	6.655		
9,500.0	5,893.0	9,384.8	5,795.0	75.1	74.2	84.13	-3,805.5	-386.9	958.8	811.1	147.71	6.491		
9,600.0	5,893.0	9,484.8	5,795.0	76.9	76.1	84.14	-3,905.5	-386.9	959.7	808.2	151.49	6.335		
9,700.0	5,893.0	9,584.8	5,795.0	78.8	78.0	84.14	-4,005.5	-386.9	960.6	805.3	155.26	6.187		
9,800.0	5,893.0	9,684.8	5,795.0	80.7	79.9	84.15	-4,105.5	-386.9	961.4	802.4	159.04	6.045		
9,900.0	5,893.0	9,784.8	5,795.0	82.6	81.8	84.15	-4,205.5	-386.9	962.3	799.5	162.82	5.910		
10,000.0	5,893.0	9,884.8	5,795.0	84.5	83.7	84.16	-4,305.5	-386.9	963.2	796.6	166.60	5.781		
10,100.0	5,893.0	9,984.8	5,795.0	86.4	85.6	84.17	-4,405.5	-386.9	964.0	793.7	170.39	5.658		
10,200.0	5,893.0	10,084.8	5,795.0	88.2	87.5	84.17	-4,505.5	-386.9	964.9	790.7	174.17	5.540		
10,300.0	5,893.0	10,184.8	5,795.0	90.1	89.4	84.18	-4,605.5	-386.9	965.8	787.8	177.96	5.427		

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

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Project:	Weld County, CO	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12H-1313A - Hz - Plan #1													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		
10,400.0	5,893.0	10,284.8	5,795.0	92.0	91.3	84.18	-4,705.5	-386.9	966.6	784.9	181.75	5.319		
10,500.0	5,893.0	10,384.8	5,795.0	93.9	93.2	84.19	-4,805.5	-386.9	967.5	782.0	185.54	5.215		
10,600.0	5,893.0	10,484.8	5,795.0	95.8	95.1	84.19	-4,905.5	-386.9	968.4	779.0	189.34	5.115		
10,700.0	5,893.0	10,584.8	5,795.0	97.7	97.0	84.20	-5,005.5	-386.9	969.2	776.1	193.13	5.019		
10,800.0	5,893.0	10,684.8	5,795.0	99.6	98.9	84.20	-5,105.5	-386.9	970.1	773.2	196.93	4.926		
10,900.0	5,893.0	10,784.8	5,795.0	101.5	100.8	84.21	-5,205.5	-386.9	971.0	770.3	200.72	4.837		
11,000.0	5,893.0	10,884.8	5,795.0	103.4	102.7	84.21	-5,305.4	-386.9	971.9	767.3	204.52	4.752		
11,100.0	5,893.0	10,984.7	5,795.0	105.3	104.6	84.22	-5,405.4	-386.9	972.7	764.4	208.32	4.669		
11,200.0	5,893.0	11,084.7	5,795.0	107.2	106.5	84.22	-5,505.4	-386.9	973.6	761.5	212.12	4.590		
11,300.0	5,893.0	11,184.7	5,795.0	109.1	108.4	84.23	-5,605.4	-386.9	974.5	758.5	215.93	4.513		
11,400.0	5,893.0	11,284.7	5,795.0	111.0	110.3	84.23	-5,705.4	-386.9	975.3	755.6	219.73	4.439		
11,500.0	5,893.0	11,384.7	5,795.0	112.9	112.2	84.24	-5,805.4	-386.9	976.2	752.7	223.53	4.367		
11,600.0	5,893.0	11,484.7	5,795.0	114.8	114.1	84.24	-5,905.4	-386.9	977.1	749.7	227.34	4.298		
11,700.0	5,893.0	11,584.7	5,795.0	116.7	116.0	84.25	-6,005.4	-386.9	977.9	746.8	231.15	4.231		
11,800.0	5,893.0	11,684.7	5,795.0	118.6	117.9	84.25	-6,105.4	-386.9	978.8	743.8	234.95	4.166		
11,900.0	5,893.0	11,784.7	5,795.0	120.5	119.8	84.26	-6,205.4	-386.9	979.7	740.9	238.76	4.103		
12,000.0	5,893.0	11,884.7	5,795.0	122.5	121.7	84.26	-6,305.4	-386.9	980.5	738.0	242.57	4.042		
12,100.0	5,893.0	11,984.7	5,795.0	124.4	123.7	84.27	-6,405.4	-386.9	981.4	735.0	246.38	3.983		
12,200.0	5,893.0	12,084.7	5,795.0	126.3	125.6	84.27	-6,505.4	-386.9	982.3	732.1	250.19	3.926		
12,300.0	5,893.0	12,184.7	5,795.0	128.2	127.5	84.28	-6,605.4	-386.9	983.1	729.1	254.00	3.871		
12,400.0	5,893.0	12,284.7	5,795.0	130.1	129.4	84.28	-6,705.4	-386.9	984.0	726.2	257.81	3.817		
12,500.0	5,893.0	12,384.7	5,795.0	132.0	131.3	84.29	-6,805.4	-386.9	984.9	723.3	261.62	3.765		
12,600.0	5,893.0	12,484.7	5,795.0	133.9	133.2	84.29	-6,905.4	-386.9	985.8	720.3	265.43	3.714		
12,700.0	5,893.0	12,584.7	5,795.0	135.8	135.1	84.30	-7,005.4	-386.9	986.6	717.4	269.25	3.664		
12,800.0	5,893.0	12,684.7	5,795.0	137.7	137.0	84.30	-7,105.4	-386.9	987.5	714.4	273.06	3.616		
12,900.0	5,893.0	12,784.7	5,795.0	139.6	138.9	84.31	-7,205.4	-386.9	988.4	711.5	276.88	3.570		
13,000.0	5,893.0	12,884.7	5,795.0	141.5	140.9	84.31	-7,305.4	-386.9	989.2	708.5	280.69	3.524		
13,100.0	5,893.0	12,984.7	5,795.0	143.5	142.8	84.32	-7,405.4	-386.9	990.1	705.6	284.50	3.480		
13,200.0	5,893.0	13,084.7	5,795.0	145.4	144.7	84.32	-7,505.4	-386.9	991.0	702.6	288.32	3.437		
13,300.0	5,893.0	13,184.7	5,795.0	147.3	146.6	84.33	-7,605.4	-386.9	991.8	699.7	292.14	3.395		
13,400.0	5,893.0	13,284.7	5,795.0	149.2	148.5	84.33	-7,705.4	-386.9	992.7	696.7	295.95	3.354		
13,500.0	5,893.0	13,384.7	5,795.0	151.1	150.4	84.34	-7,805.4	-386.9	993.6	693.8	299.77	3.314		
13,600.0	5,893.0	13,484.7	5,795.0	153.0	152.3	84.34	-7,905.3	-386.9	994.4	690.9	303.59	3.276		
13,664.7	5,893.0	13,549.3	5,795.0	154.3	153.6	84.35	-7,970.0	-386.9	995.0	688.9	306.06	3.251 SF		

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Project:	Weld County, CO	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12H-1314B - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA 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	-90.01	0.0	-66.1	66.1					
100.0	100.0	100.0	100.0	0.1	0.1	-90.01	0.0	-66.1	66.1	65.9	0.19	353.565		
200.0	200.0	200.0	200.0	0.3	0.3	-90.01	0.0	-66.1	66.1	65.5	0.64	103.872		
300.0	300.0	300.0	300.0	0.5	0.5	-90.01	0.0	-66.1	66.1	65.0	1.09	60.879		
400.0	400.0	400.0	400.0	0.8	0.8	-90.01	0.0	-66.1	66.1	64.6	1.54	43.057		
500.0	500.0	500.0	500.0	1.0	1.0	-90.01	0.0	-66.1	66.1	64.1	1.99	33.307 CC, ES		
600.0	600.0	600.0	600.0	1.2	1.2	179.64	0.0	-66.1	67.0	64.6	2.42	27.663		
700.0	700.0	700.0	700.0	1.4	1.4	179.66	0.0	-66.1	69.6	66.8	2.85	24.414		
800.0	799.9	799.9	799.9	1.6	1.7	179.68	0.0	-66.1	74.0	70.7	3.29	22.511		
900.0	899.7	899.7	899.7	1.9	1.9	179.70	0.0	-66.1	80.1	76.4	3.72	21.503		
1,000.0	999.4	999.4	999.4	2.1	2.1	179.73	0.0	-66.1	87.9	83.8	4.16	21.114		
1,100.0	1,098.9	1,098.9	1,098.9	2.3	2.3	179.75	0.0	-66.1	97.5	92.9	4.61	21.170		
1,200.0	1,198.4	1,198.4	1,198.4	2.6	2.6	179.78	0.0	-66.1	107.9	102.9	5.05	21.363		
1,300.0	1,297.8	1,297.8	1,297.8	2.9	2.8	179.80	0.0	-66.1	118.3	112.8	5.50	21.517		
1,400.0	1,397.3	1,397.3	1,397.3	3.2	3.0	179.81	0.0	-66.1	128.8	122.8	5.95	21.642		
1,500.0	1,496.7	1,496.7	1,496.7	3.4	3.2	179.83	0.0	-66.1	139.2	132.8	6.40	21.744		
1,600.0	1,596.2	1,596.2	1,596.2	3.7	3.5	179.84	0.0	-66.1	149.6	142.8	6.85	21.830		
1,700.0	1,695.6	1,695.6	1,695.6	4.0	3.7	179.85	0.0	-66.1	160.0	152.7	7.31	21.902		
1,800.0	1,795.1	1,795.1	1,795.1	4.3	3.9	179.86	0.0	-66.1	170.5	162.7	7.76	21.964		
1,900.0	1,894.5	1,894.5	1,894.5	4.6	4.1	179.87	0.0	-66.1	180.9	172.7	8.22	22.017		
2,000.0	1,994.0	1,994.0	1,994.0	4.9	4.4	179.87	0.0	-66.1	191.3	182.6	8.67	22.064		
2,100.0	2,093.5	2,093.5	2,093.5	5.2	4.6	179.88	0.0	-66.1	201.7	192.6	9.13	22.105		
2,200.0	2,192.9	2,192.9	2,192.9	5.5	4.8	179.89	0.0	-66.1	212.1	202.6	9.58	22.141		
2,300.0	2,292.4	2,292.4	2,292.4	5.8	5.0	179.89	0.0	-66.1	222.6	212.5	10.04	22.173		
2,400.0	2,391.8	2,391.8	2,391.8	6.1	5.2	179.90	0.0	-66.1	233.0	222.5	10.49	22.202		
2,500.0	2,491.3	2,491.3	2,491.3	6.3	5.5	179.90	0.0	-66.1	243.4	232.5	10.95	22.228		
2,600.0	2,590.7	2,590.7	2,590.7	6.6	5.7	179.91	0.0	-66.1	253.8	242.4	11.41	22.252		
2,700.0	2,690.2	2,690.2	2,690.2	6.9	5.9	179.91	0.0	-66.1	264.3	252.4	11.86	22.273		
2,800.0	2,789.6	2,789.6	2,789.6	7.2	6.1	179.91	0.0	-66.1	274.7	262.4	12.32	22.293		
2,900.0	2,889.1	2,889.1	2,889.1	7.5	6.4	179.92	0.0	-66.1	285.1	272.3	12.78	22.311		
3,000.0	2,988.6	2,988.6	2,988.6	7.8	6.6	179.92	0.0	-66.1	295.5	282.3	13.24	22.327		
3,100.0	3,088.0	3,088.0	3,088.0	8.1	6.8	179.92	0.0	-66.1	305.9	292.3	13.69	22.342		
3,200.0	3,187.5	3,187.5	3,187.5	8.4	7.0	179.92	0.0	-66.1	316.4	302.2	14.15	22.356		
3,300.0	3,286.9	3,286.9	3,286.9	8.7	7.3	179.93	0.0	-66.1	326.8	312.2	14.61	22.369		
3,400.0	3,386.4	3,386.4	3,386.4	9.0	7.5	179.93	0.0	-66.1	337.2	322.1	15.07	22.381		
3,500.0	3,485.8	3,485.8	3,485.8	9.3	7.7	179.93	0.0	-66.1	347.6	332.1	15.52	22.392		
3,600.0	3,585.3	3,585.3	3,585.3	9.6	7.9	179.93	0.0	-66.1	358.1	342.1	15.98	22.403		
3,700.0	3,684.7	3,684.7	3,684.7	9.9	8.2	179.93	0.0	-66.1	368.5	352.0	16.44	22.413		
3,800.0	3,784.2	3,784.2	3,784.2	10.2	8.4	179.94	0.0	-66.1	378.9	362.0	16.90	22.422		
3,900.0	3,883.7	3,883.7	3,883.7	10.5	8.6	179.94	0.0	-66.1	389.3	372.0	17.36	22.431		
4,000.0	3,983.1	3,983.1	3,983.1	10.8	8.8	179.94	0.0	-66.1	399.7	381.9	17.82	22.439		
4,100.0	4,082.6	4,082.6	4,082.6	11.1	9.0	179.94	0.0	-66.1	410.2	391.9	18.27	22.446		
4,200.0	4,182.0	4,182.0	4,182.0	11.4	9.3	179.94	0.0	-66.1	420.6	401.9	18.73	22.454		
4,300.0	4,281.5	4,281.5	4,281.5	11.7	9.5	179.94	0.0	-66.1	431.0	411.8	19.19	22.461		
4,400.0	4,380.9	4,380.9	4,380.9	12.0	9.7	179.95	0.0	-66.1	441.4	421.8	19.65	22.467		
4,500.0	4,480.4	4,480.4	4,480.4	12.3	9.9	179.95	0.0	-66.1	451.9	431.8	20.11	22.473		
4,600.0	4,579.8	4,579.8	4,579.8	12.6	10.2	179.95	0.0	-66.1	462.3	441.7	20.56	22.479		
4,700.0	4,679.3	4,679.3	4,679.3	12.9	10.4	179.95	0.0	-66.1	472.7	451.7	21.02	22.485		
4,800.0	4,778.8	4,778.8	4,778.8	13.2	10.6	179.95	0.0	-66.1	483.1	461.6	21.48	22.490		
4,900.0	4,878.2	4,878.2	4,878.2	13.5	10.8	179.95	0.0	-66.1	493.5	471.6	21.94	22.495		
5,000.0	4,977.7	4,977.7	4,977.7	13.8	11.1	179.95	0.0	-66.1	504.0	481.6	22.40	22.500		
5,100.0	5,077.1	5,077.1	5,077.1	14.1	11.3	179.95	0.0	-66.1	514.4	491.5	22.86	22.504		

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

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Project:	Weld County, CO	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12H-1314B - Hz - Plan #1													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	5,176.6	5,176.6	5,176.6	14.4	11.5	179.95	0.0	-66.1	524.8	501.5	23.32	22.509		
5,300.0	5,276.0	5,276.0	5,276.0	14.7	11.7	179.96	0.0	-66.1	535.2	511.5	23.77	22.513		
5,400.0	5,375.5	5,375.5	5,375.5	15.0	12.0	179.95	0.0	-66.1	545.7	521.4	24.23	22.518		
5,500.0	5,474.3	5,475.6	5,474.9	15.2	12.1	118.23	-10.3	-66.1	556.1	531.5	24.63	22.581		
5,600.0	5,569.5	5,575.6	5,570.4	15.5	12.3	103.99	-39.2	-66.1	566.3	541.2	25.05	22.609		
5,700.0	5,657.5	5,675.5	5,658.7	15.9	12.5	98.17	-85.9	-66.0	575.8	550.3	25.58	22.514		
5,800.0	5,735.2	5,775.5	5,736.4	16.2	12.8	94.88	-148.6	-65.9	584.4	558.1	26.31	22.214		
5,900.0	5,799.6	5,875.6	5,800.8	16.7	13.3	92.76	-224.9	-65.9	591.8	564.4	27.33	21.652		
6,000.0	5,848.4	5,975.6	5,849.4	17.3	13.9	91.35	-312.2	-65.8	597.5	568.8	28.70	20.822		
6,100.0	5,879.8	6,075.7	5,880.4	18.1	14.8	90.46	-407.2	-65.7	601.6	571.1	30.42	19.776		
6,200.0	5,892.7	6,175.7	5,892.8	19.0	15.8	90.03	-506.3	-65.5	603.7	571.2	32.45	18.605		
6,300.0	5,893.0	6,275.7	5,893.0	20.0	17.1	90.00	-606.3	-65.4	604.4	569.6	34.84	17.351		
6,400.0	5,893.0	6,375.7	5,893.0	21.2	18.4	90.00	-706.3	-65.3	605.2	567.7	37.48	16.149		
6,500.0	5,893.0	6,475.7	5,893.0	22.5	19.8	90.00	-806.3	-65.2	606.0	565.6	40.31	15.032		
6,600.0	5,893.0	6,575.7	5,893.0	23.8	21.3	90.00	-906.3	-65.1	606.7	563.4	43.30	14.011		
6,700.0	5,893.0	6,675.7	5,893.0	25.3	22.8	90.00	-1,006.3	-65.0	607.5	561.1	46.42	13.086		
6,800.0	5,893.0	6,775.7	5,893.0	26.8	24.5	90.00	-1,106.3	-64.9	608.2	558.6	49.64	12.252		
6,900.0	5,893.0	6,875.7	5,893.0	28.3	26.1	90.00	-1,206.3	-64.7	609.0	556.0	52.95	11.502		
7,000.0	5,893.0	6,975.7	5,893.0	29.9	27.8	90.00	-1,306.3	-64.6	609.8	553.4	56.32	10.827		
7,100.0	5,893.0	7,075.7	5,893.0	31.6	29.5	90.00	-1,406.3	-64.5	610.5	550.8	59.75	10.218		
7,200.0	5,893.0	7,175.7	5,893.0	33.2	31.3	90.00	-1,506.3	-64.4	611.3	548.0	63.23	9.668		
7,300.0	5,893.0	7,275.7	5,893.0	34.9	33.0	90.00	-1,606.3	-64.3	612.0	545.3	66.75	9.170		
7,400.0	5,893.0	7,375.7	5,893.0	36.7	34.8	90.00	-1,706.3	-64.2	612.8	542.5	70.30	8.717		
7,500.0	5,893.0	7,475.7	5,893.0	38.4	36.6	90.00	-1,806.3	-64.1	613.5	539.7	73.88	8.305		
7,600.0	5,893.0	7,575.7	5,893.0	40.1	38.4	90.00	-1,906.3	-63.9	614.3	536.8	77.49	7.928		
7,700.0	5,893.0	7,675.7	5,893.0	41.9	40.2	90.00	-2,006.3	-63.8	615.1	533.9	81.12	7.582		
7,800.0	5,893.0	7,775.7	5,893.0	43.7	42.0	90.00	-2,106.3	-63.7	615.8	531.1	84.76	7.265		
7,900.0	5,893.0	7,875.7	5,893.0	45.5	43.9	90.00	-2,206.3	-63.6	616.6	528.1	88.43	6.973		
8,000.0	5,893.0	7,975.7	5,893.0	47.3	45.7	90.00	-2,306.3	-63.5	617.3	525.2	92.11	6.702		
8,100.0	5,893.0	8,075.7	5,893.0	49.1	47.6	90.00	-2,406.3	-63.4	618.1	522.3	95.80	6.452		
8,200.0	5,893.0	8,175.7	5,893.0	50.9	49.4	90.00	-2,506.3	-63.3	618.9	519.3	99.51	6.219		
8,300.0	5,893.0	8,275.7	5,893.0	52.7	51.3	90.00	-2,606.3	-63.1	619.6	516.4	103.22	6.003		
8,400.0	5,893.0	8,375.7	5,893.0	54.6	53.1	90.00	-2,706.3	-63.0	620.4	513.4	106.94	5.801		
8,500.0	5,893.0	8,475.7	5,893.0	56.4	55.0	90.00	-2,806.3	-62.9	621.1	510.5	110.68	5.612		
8,600.0	5,893.0	8,575.7	5,893.0	58.3	56.9	90.00	-2,906.3	-62.8	621.9	507.5	114.42	5.435		
8,700.0	5,893.0	8,675.7	5,893.0	60.1	58.7	90.00	-3,006.2	-62.7	622.6	504.5	118.16	5.269		
8,800.0	5,893.0	8,775.7	5,893.0	62.0	60.6	90.00	-3,106.2	-62.6	623.4	501.5	121.92	5.113		
8,900.0	5,893.0	8,875.7	5,893.0	63.8	62.5	90.00	-3,206.2	-62.5	624.2	498.5	125.67	4.966		
9,000.0	5,893.0	8,975.7	5,893.0	65.7	64.4	90.00	-3,306.2	-62.3	624.9	495.5	129.44	4.828		
9,100.0	5,893.0	9,075.7	5,893.0	67.6	66.3	90.00	-3,406.2	-62.2	625.7	492.5	133.21	4.697		
9,200.0	5,893.0	9,175.7	5,893.0	69.4	68.2	90.00	-3,506.2	-62.1	626.4	489.5	136.98	4.573		
9,300.0	5,893.0	9,275.7	5,893.0	71.3	70.0	90.00	-3,606.2	-62.0	627.2	486.4	140.76	4.456		
9,400.0	5,893.0	9,375.7	5,893.0	73.2	71.9	90.00	-3,706.2	-61.9	628.0	483.4	144.54	4.345		
9,500.0	5,893.0	9,475.7	5,893.0	75.1	73.8	90.00	-3,806.2	-61.8	628.7	480.4	148.32	4.239		
9,600.0	5,893.0	9,575.7	5,893.0	76.9	75.7	90.00	-3,906.2	-61.7	629.5	477.4	152.11	4.138		
9,700.0	5,893.0	9,675.6	5,893.0	78.8	77.6	90.00	-4,006.2	-61.5	630.2	474.3	155.89	4.043		
9,800.0	5,893.0	9,775.6	5,893.0	80.7	79.5	90.00	-4,106.2	-61.4	631.0	471.3	159.69	3.951		
9,900.0	5,893.0	9,875.6	5,893.0	82.6	81.4	90.00	-4,206.2	-61.3	631.7	468.3	163.48	3.864		
10,000.0	5,893.0	9,975.6	5,893.0	84.5	83.3	90.00	-4,306.2	-61.2	632.5	465.2	167.28	3.781		
10,100.0	5,893.0	10,075.6	5,893.0	86.4	85.2	90.00	-4,406.2	-61.1	633.3	462.2	171.08	3.702		
10,200.0	5,893.0	10,175.6	5,893.0	88.2	87.1	90.00	-4,506.2	-61.0	634.0	459.1	174.88	3.625		
10,300.0	5,893.0	10,275.6	5,893.0	90.1	89.0	90.00	-4,606.2	-60.9	634.8	456.1	178.68	3.553		

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

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Project:	Weld County, CO	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12H-1314B - Hz - Plan #1													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		
10,400.0	5,893.0	10,375.6	5,893.0	92.0	90.9	90.00	-4,706.2	-60.7	635.5	453.1	182.49	3.483		
10,500.0	5,893.0	10,475.6	5,893.0	93.9	92.8	90.00	-4,806.2	-60.6	636.3	450.0	186.29	3.416		
10,600.0	5,893.0	10,575.6	5,893.0	95.8	94.7	90.00	-4,906.2	-60.5	637.1	447.0	190.10	3.351		
10,700.0	5,893.0	10,675.6	5,893.0	97.7	96.6	90.00	-5,006.2	-60.4	637.8	443.9	193.91	3.289		
10,800.0	5,893.0	10,775.6	5,893.0	99.6	98.5	90.00	-5,106.2	-60.3	638.6	440.8	197.72	3.230		
10,900.0	5,893.0	10,875.6	5,893.0	101.5	100.4	90.00	-5,206.2	-60.2	639.3	437.8	201.53	3.172		
11,000.0	5,893.0	10,975.6	5,893.0	103.4	102.3	90.00	-5,306.2	-60.1	640.1	434.7	205.35	3.117		
11,100.0	5,893.0	11,075.6	5,893.0	105.3	104.2	90.00	-5,406.2	-59.9	640.8	431.7	209.16	3.064		
11,200.0	5,893.0	11,175.6	5,893.0	107.2	106.2	90.00	-5,506.2	-59.8	641.6	428.6	212.98	3.013		
11,300.0	5,893.0	11,275.6	5,893.0	109.1	108.1	90.00	-5,606.2	-59.7	642.4	425.6	216.80	2.963		
11,400.0	5,893.0	11,375.6	5,893.0	111.0	110.0	90.00	-5,706.2	-59.6	643.1	422.5	220.61	2.915		
11,500.0	5,893.0	11,475.6	5,893.0	112.9	111.9	90.00	-5,806.2	-59.5	643.9	419.4	224.43	2.869		
11,600.0	5,893.0	11,575.6	5,893.0	114.8	113.8	90.00	-5,906.2	-59.4	644.6	416.4	228.25	2.824		
11,700.0	5,893.0	11,675.6	5,893.0	116.7	115.7	90.00	-6,006.2	-59.3	645.4	413.3	232.07	2.781		
11,800.0	5,893.0	11,775.6	5,893.0	118.6	117.6	90.00	-6,106.2	-59.1	646.2	410.3	235.89	2.739		
11,900.0	5,893.0	11,875.6	5,893.0	120.5	119.5	90.00	-6,206.2	-59.0	646.9	407.2	239.72	2.699		
12,000.0	5,893.0	11,975.6	5,893.0	122.5	121.4	90.00	-6,306.2	-58.9	647.7	404.1	243.54	2.659		
12,100.0	5,893.0	12,075.6	5,893.0	124.4	123.3	90.00	-6,406.1	-58.8	648.4	401.1	247.36	2.621		
12,200.0	5,893.0	12,175.6	5,893.0	126.3	125.3	90.00	-6,506.1	-58.7	649.2	398.0	251.19	2.584		
12,300.0	5,893.0	12,275.6	5,893.0	128.2	127.2	90.00	-6,606.1	-58.6	649.9	394.9	255.01	2.549		
12,400.0	5,893.0	12,375.6	5,893.0	130.1	129.1	90.00	-6,706.1	-58.5	650.7	391.9	258.84	2.514		
12,500.0	5,893.0	12,475.6	5,893.0	132.0	131.0	90.00	-6,806.1	-58.3	651.5	388.8	262.66	2.480		
12,600.0	5,893.0	12,575.6	5,893.0	133.9	132.9	90.00	-6,906.1	-58.2	652.2	385.7	266.49	2.447		
12,700.0	5,893.0	12,675.6	5,893.0	135.8	134.8	90.00	-7,006.1	-58.1	653.0	382.7	270.32	2.416		
12,800.0	5,893.0	12,775.6	5,893.0	137.7	136.7	90.00	-7,106.1	-58.0	653.7	379.6	274.15	2.385		
12,900.0	5,893.0	12,875.6	5,893.0	139.6	138.6	90.00	-7,206.1	-57.9	654.5	376.5	277.97	2.355		
13,000.0	5,893.0	12,975.6	5,893.0	141.5	140.6	90.00	-7,306.1	-57.8	655.3	373.5	281.80	2.325		
13,100.0	5,893.0	13,075.6	5,893.0	143.5	142.5	90.00	-7,406.1	-57.7	656.0	370.4	285.63	2.297		
13,200.0	5,893.0	13,175.6	5,893.0	145.4	144.4	90.00	-7,506.1	-57.5	656.8	367.3	289.46	2.269		
13,300.0	5,893.0	13,275.6	5,893.0	147.3	146.3	90.00	-7,606.1	-57.4	657.5	364.2	293.29	2.242		
13,400.0	5,893.0	13,375.6	5,893.0	149.2	148.2	90.00	-7,706.1	-57.3	658.3	361.2	297.12	2.216		
13,500.0	5,893.0	13,475.6	5,893.0	151.1	150.1	90.00	-7,806.1	-57.2	659.0	358.1	300.95	2.190		
13,600.0	5,893.0	13,575.6	5,893.0	153.0	152.0	90.00	-7,906.1	-57.1	659.8	355.0	304.78	2.165		
13,664.7	5,893.0	13,640.2	5,893.0	154.3	153.3	90.00	-7,970.8	-57.0	660.3	353.0	307.26	2.149 SF		

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Project:	Weld County, CO	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12H-1315A - Hz - Plan #1													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		
0.0	0.0	0.0	0.0	0.0	0.0	-90.03	0.0	-33.2	33.2					
100.0	100.0	100.0	100.0	0.1	0.1	-90.03	0.0	-33.2	33.2	33.0	0.19	177.522		
200.0	200.0	200.0	200.0	0.3	0.3	-90.03	0.0	-33.2	33.2	32.6	0.64	52.153		
300.0	300.0	300.0	300.0	0.5	0.5	-90.03	0.0	-33.2	33.2	32.1	1.09	30.567		
400.0	400.0	400.0	400.0	0.8	0.8	-90.03	0.0	-33.2	33.2	31.7	1.54	21.619		
500.0	500.0	500.0	500.0	1.0	1.0	-90.03	0.0	-33.2	33.2	31.2	1.99	16.723	CC, ES	
600.0	600.0	600.0	600.0	1.2	1.2	179.63	0.0	-33.2	34.1	31.6	2.42	14.069		
700.0	700.0	700.0	700.0	1.4	1.4	179.66	0.0	-33.2	36.7	33.8	2.85	12.868		
800.0	799.9	799.9	799.9	1.6	1.7	179.70	0.0	-33.2	41.0	37.8	3.29	12.493		
900.0	899.7	899.7	899.7	1.9	1.9	179.74	0.0	-33.2	47.2	43.4	3.72	12.663		
1,000.0	999.4	999.4	999.4	2.1	2.1	179.77	0.0	-33.2	55.0	50.8	4.16	13.208		
1,100.0	1,098.9	1,098.9	1,098.9	2.3	2.3	179.81	0.0	-33.2	64.6	60.0	4.61	14.022		
1,200.0	1,198.4	1,198.4	1,198.4	2.6	2.6	179.83	0.0	-33.2	75.0	70.0	5.05	14.847		
1,300.0	1,297.8	1,299.3	1,299.3	2.9	2.8	179.86	0.0	-32.3	84.6	79.1	5.49	15.412		
1,400.0	1,397.3	1,400.5	1,400.5	3.2	3.0	179.88	0.0	-29.7	92.4	86.5	5.91	15.622		
1,500.0	1,496.7	1,502.1	1,501.9	3.4	3.2	179.90	0.0	-25.2	98.4	92.1	6.35	15.509		
1,600.0	1,596.2	1,603.7	1,603.3	3.7	3.4	179.92	0.0	-19.0	102.7	95.9	6.79	15.139		
1,700.0	1,695.6	1,703.6	1,703.0	4.0	3.6	179.94	0.0	-12.0	106.2	99.0	7.23	14.700		
1,800.0	1,795.1	1,803.5	1,802.7	4.3	3.9	179.96	0.0	-5.1	109.7	102.0	7.67	14.305		
1,900.0	1,894.5	1,903.5	1,902.4	4.6	4.1	179.98	0.0	1.8	113.2	105.1	8.11	13.950		
2,000.0	1,994.0	2,003.4	2,002.1	4.9	4.3	-180.00	0.0	8.8	116.7	108.1	8.56	13.627		
2,100.0	2,093.5	2,103.3	2,101.8	5.2	4.6	-179.98	-0.1	15.7	120.2	111.2	9.01	13.334		
2,200.0	2,192.9	2,203.3	2,201.5	5.5	4.8	-179.96	-0.1	22.7	123.7	114.2	9.46	13.067		
2,300.0	2,292.4	2,303.2	2,301.2	5.8	5.0	-179.95	-0.1	29.6	127.2	117.2	9.92	12.822		
2,400.0	2,391.8	2,403.2	2,400.9	6.1	5.3	-179.93	-0.1	36.5	130.6	120.3	10.37	12.597		
2,500.0	2,491.3	2,503.1	2,500.6	6.3	5.5	-179.92	-0.1	43.5	134.1	123.3	10.83	12.390		
2,600.0	2,590.7	2,603.0	2,600.3	6.6	5.8	-179.91	-0.1	50.4	137.6	126.3	11.28	12.198		
2,700.0	2,690.2	2,703.0	2,700.0	6.9	6.0	-179.89	-0.1	57.4	141.1	129.4	11.74	12.021		
2,800.0	2,789.6	2,802.9	2,799.7	7.2	6.3	-179.88	-0.1	64.3	144.6	132.4	12.20	11.856		
2,900.0	2,889.1	2,902.9	2,899.4	7.5	6.5	-179.87	-0.1	71.3	148.1	135.4	12.65	11.702		
3,000.0	2,988.6	3,002.8	2,999.1	7.8	6.8	-179.86	-0.1	78.2	151.6	138.5	13.11	11.559		
3,100.0	3,088.0	3,102.7	3,098.8	8.1	7.0	-179.85	-0.1	85.1	155.1	141.5	13.57	11.425		
3,200.0	3,187.5	3,202.7	3,198.5	8.4	7.3	-179.84	-0.1	92.1	158.6	144.5	14.03	11.299		
3,300.0	3,286.9	3,302.6	3,298.2	8.7	7.5	-179.83	-0.1	99.0	162.0	147.6	14.49	11.181		
3,400.0	3,386.4	3,402.6	3,397.9	9.0	7.8	-179.82	-0.1	106.0	165.5	150.6	14.95	11.070		
3,500.0	3,485.8	3,502.5	3,497.6	9.3	8.0	-179.81	-0.1	112.9	169.0	153.6	15.41	10.965		
3,600.0	3,585.3	3,602.4	3,597.3	9.6	8.3	-179.80	-0.1	119.8	172.5	156.6	15.88	10.867		
3,700.0	3,684.7	3,702.4	3,697.0	9.9	8.5	-179.80	-0.1	126.8	176.0	159.7	16.34	10.773		
3,800.0	3,784.2	3,802.3	3,796.7	10.2	8.8	-179.79	-0.2	133.7	179.5	162.7	16.80	10.685		
3,900.0	3,883.7	3,902.3	3,896.4	10.5	9.0	-179.78	-0.2	140.7	183.0	165.7	17.26	10.601		
4,000.0	3,983.1	4,002.2	3,996.1	10.8	9.3	-179.77	-0.2	147.6	186.5	168.7	17.72	10.521		
4,100.0	4,082.6	4,102.1	4,095.8	11.1	9.6	-179.77	-0.2	154.6	190.0	171.8	18.19	10.445		
4,200.0	4,182.0	4,202.1	4,195.5	11.4	9.8	-179.76	-0.2	161.5	193.4	174.8	18.65	10.373		
4,300.0	4,281.5	4,302.0	4,295.2	11.7	10.1	-179.75	-0.2	168.4	196.9	177.8	19.11	10.305		
4,400.0	4,380.9	4,401.9	4,394.9	12.0	10.3	-179.75	-0.2	175.4	200.4	180.8	19.57	10.239		
4,500.0	4,480.4	4,501.9	4,494.6	12.3	10.6	-179.74	-0.2	182.3	203.9	183.9	20.04	10.176		
4,600.0	4,579.8	4,601.8	4,594.2	12.6	10.8	-179.74	-0.2	189.3	207.4	186.9	20.50	10.117		
4,700.0	4,679.3	4,701.8	4,693.9	12.9	11.1	-179.73	-0.2	196.2	210.9	189.9	20.96	10.059		
4,800.0	4,778.8	4,801.7	4,793.6	13.2	11.3	-179.73	-0.2	203.2	214.4	193.0	21.43	10.005		
4,900.0	4,878.2	4,901.6	4,893.3	13.5	11.6	-179.72	-0.2	210.1	217.9	196.0	21.89	9.952		
5,000.0	4,977.7	5,001.6	4,993.0	13.8	11.9	-179.72	-0.2	217.0	221.4	199.0	22.36	9.902		
5,100.0	5,077.1	5,101.5	5,092.7	14.1	12.1	-179.71	-0.2	224.0	224.8	202.0	22.82	9.853		

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

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Project:	Weld County, CO	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12H-1315A - Hz - Plan #1													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		
5,200.0	5,176.6	5,201.5	5,192.4	14.4	12.4	-179.71	-0.2	230.9	228.3	205.1	23.28	9.807		
5,300.0	5,276.0	5,301.5	5,292.2	14.7	12.6	-179.77	-0.5	237.9	231.8	208.1	23.75	9.763		
5,400.0	5,375.5	5,400.0	5,389.6	15.0	12.9	177.20	-13.0	244.6	235.5	211.3	24.22	9.726		
5,500.0	5,474.3	5,493.8	5,478.5	15.2	13.1	111.34	-41.7	250.8	240.9	216.1	24.80	9.716		
5,600.0	5,569.5	5,584.5	5,558.3	15.5	13.4	93.46	-84.2	256.4	247.9	222.4	25.50	9.720		
5,700.0	5,657.5	5,672.5	5,627.6	15.9	13.7	84.58	-138.1	261.2	255.6	229.3	26.24	9.739		
5,800.0	5,735.2	5,758.5	5,685.6	16.2	14.1	78.84	-201.3	265.3	263.3	236.4	26.94	9.775		
5,900.0	5,799.6	5,842.8	5,731.6	16.7	14.6	74.85	-271.8	268.5	270.4	242.8	27.57	9.806		
6,000.0	5,848.4	5,925.9	5,765.3	17.3	15.2	72.14	-347.6	270.8	276.2	248.0	28.21	9.792		
6,100.0	5,879.8	6,008.3	5,786.5	18.1	16.0	70.48	-427.1	272.3	280.4	251.5	28.95	9.687		
6,200.0	5,892.7	6,090.1	5,794.8	19.0	16.8	69.76	-508.5	272.9	282.7	252.8	29.93	9.448		
6,300.0	5,893.0	6,187.3	5,795.0	20.0	18.0	69.78	-605.6	272.9	283.6	251.6	32.05	8.848		
6,400.0	5,893.0	6,287.3	5,795.0	21.2	19.2	69.85	-705.6	272.9	284.4	249.8	34.59	8.222		
6,500.0	5,893.0	6,387.3	5,795.0	22.5	20.6	69.91	-805.6	272.9	285.3	247.9	37.32	7.643		
6,600.0	5,893.0	6,487.3	5,795.0	23.8	22.1	69.97	-905.6	272.9	286.1	245.9	40.20	7.117		
6,700.0	5,893.0	6,587.3	5,795.0	25.3	23.6	70.03	-1,005.6	272.9	286.9	243.7	43.19	6.642		
6,800.0	5,893.0	6,687.3	5,795.0	26.8	25.2	70.08	-1,105.6	272.9	287.7	241.4	46.29	6.216		
6,900.0	5,893.0	6,787.3	5,795.0	28.3	26.9	70.14	-1,205.6	272.9	288.5	239.1	49.46	5.833		
7,000.0	5,893.0	6,887.3	5,795.0	29.9	28.5	70.20	-1,305.6	272.9	289.4	236.7	52.70	5.490		
7,100.0	5,893.0	6,987.3	5,795.0	31.6	30.2	70.26	-1,405.6	272.9	290.2	234.2	56.00	5.182		
7,200.0	5,893.0	7,087.3	5,795.0	33.2	32.0	70.32	-1,505.6	272.9	291.0	231.7	59.34	4.904		
7,300.0	5,893.0	7,187.3	5,795.0	34.9	33.7	70.38	-1,605.6	272.9	291.8	229.1	62.72	4.653		
7,400.0	5,893.0	7,287.3	5,795.0	36.7	35.5	70.43	-1,705.6	272.9	292.6	226.5	66.13	4.425		
7,500.0	5,893.0	7,387.3	5,795.0	38.4	37.2	70.49	-1,805.6	272.9	293.5	223.9	69.57	4.218		
7,600.0	5,893.0	7,487.3	5,795.0	40.1	39.0	70.55	-1,905.6	272.9	294.3	221.3	73.04	4.029		
7,700.0	5,893.0	7,587.3	5,795.0	41.9	40.8	70.60	-2,005.6	272.9	295.1	218.6	76.52	3.856		
7,800.0	5,893.0	7,687.3	5,795.0	43.7	42.7	70.66	-2,105.6	272.9	295.9	215.9	80.03	3.698		
7,900.0	5,893.0	7,787.3	5,795.0	45.5	44.5	70.72	-2,205.6	272.9	296.8	213.2	83.55	3.552		
8,000.0	5,893.0	7,887.3	5,795.0	47.3	46.3	70.77	-2,305.6	272.9	297.6	210.5	87.09	3.417		
8,100.0	5,893.0	7,987.2	5,795.0	49.1	48.2	70.83	-2,405.6	272.9	298.4	207.8	90.65	3.292		
8,200.0	5,893.0	8,087.2	5,795.0	50.9	50.0	70.88	-2,505.6	272.9	299.2	205.0	94.21	3.176		
8,300.0	5,893.0	8,187.2	5,795.0	52.7	51.8	70.94	-2,605.6	272.9	300.1	202.3	97.79	3.068		
8,400.0	5,893.0	8,287.2	5,795.0	54.6	53.7	70.99	-2,705.5	272.9	300.9	199.5	101.37	2.968		
8,500.0	5,893.0	8,387.2	5,795.0	56.4	55.6	71.04	-2,805.5	272.9	301.7	196.7	104.97	2.874		
8,600.0	5,893.0	8,487.2	5,795.0	58.3	57.4	71.10	-2,905.5	272.9	302.5	194.0	108.57	2.786		
8,700.0	5,893.0	8,587.2	5,795.0	60.1	59.3	71.15	-3,005.5	272.9	303.4	191.2	112.19	2.704		
8,800.0	5,893.0	8,687.2	5,795.0	62.0	61.2	71.20	-3,105.5	272.9	304.2	188.4	115.80	2.627		
8,900.0	5,893.0	8,787.2	5,795.0	63.8	63.0	71.26	-3,205.5	272.9	305.0	185.6	119.43	2.554		
9,000.0	5,893.0	8,887.2	5,795.0	65.7	64.9	71.31	-3,305.5	272.9	305.8	182.8	123.06	2.485		
9,100.0	5,893.0	8,987.2	5,795.0	67.6	66.8	71.36	-3,405.5	272.9	306.7	180.0	126.70	2.420		
9,200.0	5,893.0	9,087.2	5,795.0	69.4	68.7	71.41	-3,505.5	272.9	307.5	177.1	130.34	2.359		
9,300.0	5,893.0	9,187.2	5,795.0	71.3	70.6	71.47	-3,605.5	272.9	308.3	174.3	133.99	2.301		
9,400.0	5,893.0	9,287.2	5,795.0	73.2	72.4	71.52	-3,705.5	272.9	309.1	171.5	137.65	2.246		
9,500.0	5,893.0	9,387.2	5,795.0	75.1	74.3	71.57	-3,805.5	272.9	310.0	168.7	141.30	2.194		
9,600.0	5,893.0	9,487.2	5,795.0	76.9	76.2	71.62	-3,905.5	272.9	310.8	165.8	144.97	2.144		
9,700.0	5,893.0	9,587.2	5,795.0	78.8	78.1	71.67	-4,005.5	272.9	311.6	163.0	148.63	2.097		
9,800.0	5,893.0	9,687.2	5,795.0	80.7	80.0	71.72	-4,105.5	272.9	312.5	160.2	152.30	2.052		
9,900.0	5,893.0	9,787.2	5,795.0	82.6	81.9	71.77	-4,205.5	272.9	313.3	157.3	155.98	2.009		
10,000.0	5,893.0	9,887.2	5,795.0	84.5	83.8	71.82	-4,305.5	272.9	314.1	154.5	159.65	1.967		
10,100.0	5,893.0	9,987.2	5,795.0	86.4	85.7	71.87	-4,405.5	272.9	314.9	151.6	163.34	1.928		
10,200.0	5,893.0	10,087.2	5,795.0	88.2	87.6	71.92	-4,505.5	272.9	315.8	148.7	167.03	1.891		
10,300.0	5,893.0	10,187.2	5,795.0	90.1	89.5	71.97	-4,605.5	272.9	316.6	145.9	170.72	1.855		

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

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Project:	Weld County, CO	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S12-T10N-R58W - Razor Federal #12H-1315A - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-ISCSWA 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)	
10,400.0	5,893.0	10,287.2	5,795.0	92.0	91.4	72.02	-4,705.5	272.9	317.4	143.0	174.41	1.820		
10,500.0	5,893.0	10,387.2	5,795.0	93.9	93.3	72.07	-4,805.5	272.9	318.3	140.2	178.11	1.787		
10,600.0	5,893.0	10,487.2	5,795.0	95.8	95.2	72.11	-4,905.5	272.9	319.1	137.3	181.81	1.755		
10,700.0	5,893.0	10,587.1	5,795.0	97.7	97.1	72.16	-5,005.5	272.9	319.9	134.4	185.51	1.725		
10,800.0	5,893.0	10,687.1	5,795.0	99.6	99.0	72.21	-5,105.5	272.9	320.8	131.5	189.22	1.695		
10,900.0	5,893.0	10,787.1	5,795.0	101.5	100.9	72.26	-5,205.5	272.9	321.6	128.7	192.93	1.667		
11,000.0	5,893.0	10,887.1	5,795.0	103.4	102.8	72.30	-5,305.4	272.9	322.4	125.8	196.64	1.640		
11,100.0	5,893.0	10,987.1	5,795.0	105.3	104.7	72.35	-5,405.4	272.9	323.3	122.9	200.35	1.613		
11,200.0	5,893.0	11,087.1	5,795.0	107.2	106.6	72.40	-5,505.4	272.9	324.1	120.0	204.06	1.588		
11,300.0	5,893.0	11,187.1	5,795.0	109.1	108.5	72.44	-5,605.4	272.9	324.9	117.1	207.78	1.564		
11,400.0	5,893.0	11,287.1	5,795.0	111.0	110.4	72.49	-5,705.4	272.9	325.7	114.2	211.50	1.540		
11,500.0	5,893.0	11,387.1	5,795.0	112.9	112.3	72.54	-5,805.4	272.9	326.6	111.4	215.22	1.517		
11,600.0	5,893.0	11,487.1	5,795.0	114.8	114.2	72.58	-5,905.4	272.9	327.4	108.5	218.94	1.495 Level 3		
11,700.0	5,893.0	11,587.1	5,795.0	116.7	116.1	72.63	-6,005.4	272.9	328.2	105.6	222.67	1.474 Level 3		
11,800.0	5,893.0	11,687.1	5,795.0	118.6	118.1	72.67	-6,105.4	272.9	329.1	102.7	226.40	1.454 Level 3		
11,900.0	5,893.0	11,787.1	5,795.0	120.5	120.0	72.72	-6,205.4	272.9	329.9	99.8	230.12	1.434 Level 3		
12,000.0	5,893.0	11,887.1	5,795.0	122.5	121.9	72.76	-6,305.4	272.9	330.7	96.9	233.86	1.414 Level 3		
12,100.0	5,893.0	11,987.1	5,795.0	124.4	123.8	72.81	-6,405.4	272.9	331.6	94.0	237.59	1.396 Level 3		
12,200.0	5,893.0	12,087.1	5,795.0	126.3	125.7	72.85	-6,505.4	272.9	332.4	91.1	241.32	1.377 Level 3		
12,300.0	5,893.0	12,187.1	5,795.0	128.2	127.6	72.90	-6,605.4	272.9	333.2	88.2	245.06	1.360 Level 3		
12,400.0	5,893.0	12,287.1	5,795.0	130.1	129.5	72.94	-6,705.4	272.9	334.1	85.3	248.80	1.343 Level 3		
12,500.0	5,893.0	12,387.1	5,795.0	132.0	131.4	72.99	-6,805.4	272.9	334.9	82.4	252.53	1.326 Level 3		
12,600.0	5,893.0	12,487.1	5,795.0	133.9	133.3	73.03	-6,905.4	272.9	335.8	79.5	256.28	1.310 Level 3		
12,700.0	5,893.0	12,587.1	5,795.0	135.8	135.2	73.07	-7,005.4	272.9	336.6	76.6	260.02	1.294 Level 3		
12,800.0	5,893.0	12,687.1	5,795.0	137.7	137.2	73.12	-7,105.4	272.9	337.4	73.7	263.76	1.279 Level 3		
12,900.0	5,893.0	12,787.1	5,795.0	139.6	139.1	73.16	-7,205.4	272.9	338.3	70.8	267.51	1.264 Level 3		
13,000.0	5,893.0	12,887.1	5,795.0	141.5	141.0	73.20	-7,305.4	272.9	339.1	67.8	271.25	1.250 Level 3		
13,100.0	5,893.0	12,987.1	5,795.0	143.5	142.9	73.24	-7,405.4	272.9	339.9	64.9	275.00	1.236 Level 2		
13,200.0	5,893.0	13,087.1	5,795.0	145.4	144.8	73.29	-7,505.4	272.9	340.8	62.0	278.75	1.222 Level 2		
13,300.0	5,893.0	13,187.1	5,795.0	147.3	146.7	73.33	-7,605.4	272.9	341.6	59.1	282.50	1.209 Level 2		
13,400.0	5,893.0	13,287.0	5,795.0	149.2	148.6	73.37	-7,705.4	272.9	342.4	56.2	286.25	1.196 Level 2		
13,500.0	5,893.0	13,387.0	5,795.0	151.1	150.5	73.41	-7,805.4	272.9	343.3	53.3	290.01	1.184 Level 2		
13,600.0	5,893.0	13,487.0	5,795.0	153.0	152.5	73.45	-7,905.4	272.9	344.1	50.3	293.76	1.171 Level 2		
13,664.7	5,893.0	13,551.7	5,795.0	154.3	153.7	73.48	-7,970.0	272.9	344.7	48.5	296.19	1.164 Level 2, SF		

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Project:	Weld County, CO	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S18-T10N-R57W - HORSETAIL #18-0713H - HZ - FINAL												Offset Site Error:	0.0 ft
Survey Program: 158-ISCWSA 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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
4,800.0	4,778.8	12,435.0	5,689.9	13.2	126.3	44.34	-761.8	1,296.7	1,556.2	1,449.2	107.08	14.534	
4,900.0	4,878.2	12,435.0	5,689.9	13.5	126.3	44.34	-761.8	1,296.7	1,485.8	1,378.4	107.35	13.841	
5,000.0	4,977.7	12,435.0	5,689.9	13.8	126.3	44.34	-761.8	1,296.7	1,418.9	1,311.2	107.61	13.185	
5,100.0	5,077.1	12,435.0	5,689.9	14.1	126.3	44.34	-761.8	1,296.7	1,356.0	1,248.2	107.88	12.569	
5,200.0	5,176.6	12,435.0	5,689.9	14.4	126.3	44.34	-761.8	1,296.7	1,297.9	1,189.7	108.15	12.000	
5,300.0	5,276.0	12,435.0	5,689.9	14.7	126.3	44.34	-761.8	1,296.7	1,245.0	1,136.6	108.42	11.483	
5,400.0	5,375.5	12,435.0	5,689.9	15.0	126.3	44.34	-761.8	1,296.7	1,198.2	1,089.6	108.69	11.024	
5,500.0	5,474.3	12,435.0	5,689.9	15.2	126.3	-20.33	-761.8	1,296.7	1,152.2	1,038.5	113.62	10.140	
5,600.0	5,569.5	12,435.0	5,689.9	15.5	126.3	-38.42	-761.8	1,296.7	1,101.7	982.3	119.43	9.225	
5,700.0	5,657.5	12,435.0	5,689.9	15.9	126.3	-48.95	-761.8	1,296.7	1,048.3	922.6	125.70	8.340	
5,800.0	5,735.2	12,435.0	5,689.9	16.2	126.3	-57.68	-761.8	1,296.7	993.5	861.5	131.98	7.527	
5,900.0	5,799.6	12,435.0	5,689.9	16.7	126.3	-65.60	-761.8	1,296.7	939.3	801.5	137.77	6.818	
6,000.0	5,848.4	12,435.0	5,689.9	17.3	126.3	-72.73	-761.8	1,296.7	888.0	745.4	142.57	6.228	
6,100.0	5,879.8	12,435.0	5,689.9	18.1	126.3	-78.76	-761.8	1,296.7	842.1	696.0	146.13	5.763	
6,200.0	5,892.7	12,435.0	5,689.9	19.0	126.3	-83.38	-761.8	1,296.7	804.5	655.9	148.54	5.416	
6,300.0	5,893.0	12,435.0	5,689.9	20.0	126.3	-84.03	-761.8	1,296.7	777.6	627.8	149.80	5.191	
6,400.0	5,893.0	12,435.0	5,689.9	21.2	126.3	-84.03	-761.8	1,296.7	763.0	611.9	151.04	5.051	
6,462.7	5,893.0	12,435.0	5,689.9	22.0	126.3	-84.03	-761.8	1,296.7	760.4	608.5	151.84	5.008 CC, ES	
6,500.0	5,893.0	12,435.0	5,689.9	22.5	126.3	-84.03	-761.8	1,296.7	761.3	608.9	152.37	4.996 SF	
6,600.0	5,893.0	12,342.8	5,696.9	23.8	124.6	-84.60	-853.5	1,303.8	767.4	615.3	152.10	5.045	
6,700.0	5,893.0	12,234.5	5,705.4	25.3	122.7	-85.27	-961.2	1,311.5	772.9	621.2	151.63	5.097	
6,800.0	5,893.0	12,123.4	5,712.1	26.8	120.7	-85.80	-1,071.9	1,317.6	777.0	625.9	151.13	5.141	
6,900.0	5,893.0	12,025.9	5,716.4	28.3	119.0	-86.14	-1,169.1	1,322.1	780.4	629.6	150.87	5.173	
7,000.0	5,893.0	11,930.9	5,717.9	29.9	117.3	-86.26	-1,264.0	1,326.9	784.6	633.9	150.68	5.207	
7,100.0	5,893.0	11,826.4	5,717.2	31.6	115.4	-86.23	-1,368.4	1,332.3	788.8	638.5	150.31	5.248	
7,200.0	5,893.0	11,713.8	5,715.9	33.2	113.3	-86.15	-1,480.9	1,336.6	791.9	642.1	149.78	5.287	
7,300.0	5,893.0	11,608.8	5,715.9	34.9	111.4	-86.16	-1,585.8	1,339.6	793.8	644.4	149.44	5.312	
7,400.0	5,893.0	11,503.5	5,716.8	36.7	109.5	-86.24	-1,691.1	1,341.8	795.0	645.9	149.14	5.331	
7,500.0	5,893.0	11,400.1	5,716.2	38.4	107.7	-86.20	-1,794.5	1,343.5	795.8	647.0	148.87	5.346	
7,600.0	5,893.0	11,312.2	5,715.4	40.1	106.1	-86.14	-1,882.4	1,344.9	796.7	647.8	148.90	5.351	
7,700.0	5,893.0	11,223.9	5,713.1	41.9	104.5	-85.99	-1,970.6	1,348.4	799.9	651.0	148.91	5.372	
7,800.0	5,893.0	11,124.7	5,710.3	43.7	102.7	-85.81	-2,069.7	1,352.5	803.3	654.6	148.71	5.402	
7,900.0	5,893.0	11,014.3	5,706.3	45.5	100.7	-85.54	-2,179.9	1,356.7	806.6	658.3	148.30	5.439	
8,000.0	5,893.0	10,873.2	5,704.3	47.3	98.2	-85.39	-2,321.0	1,357.0	805.9	658.5	147.41	5.467	
8,100.0	5,893.0	10,772.1	5,704.1	49.1	96.4	-85.36	-2,422.0	1,354.9	803.0	655.7	147.32	5.451	
8,200.0	5,893.0	10,675.2	5,705.2	50.9	94.7	-85.43	-2,518.9	1,353.1	800.2	652.9	147.32	5.432	
8,300.0	5,893.0	10,577.6	5,706.2	52.7	93.0	-85.49	-2,616.5	1,351.8	797.9	650.6	147.33	5.416	
8,400.0	5,893.0	10,482.8	5,707.2	54.6	91.3	-85.54	-2,711.2	1,350.8	795.8	648.4	147.40	5.399	
8,500.0	5,893.0	10,390.6	5,709.2	56.4	89.7	-85.68	-2,803.5	1,350.8	794.8	647.3	147.48	5.389	
8,556.4	5,893.0	10,339.0	5,710.1	57.5	88.8	-85.75	-2,855.1	1,351.1	794.6	647.1	147.49	5.387	
8,600.0	5,893.0	10,301.7	5,710.7	58.3	88.1	-85.80	-2,892.3	1,351.6	794.8	647.1	147.62	5.384	
8,700.0	5,893.0	10,214.3	5,712.0	60.1	86.6	-85.89	-2,979.7	1,353.9	796.4	648.6	147.80	5.389	
8,800.0	5,893.0	10,114.7	5,713.2	62.0	84.8	-85.99	-3,079.2	1,357.6	799.1	651.4	147.72	5.410	
8,900.0	5,893.0	10,020.9	5,713.9	63.8	83.1	-86.05	-3,173.0	1,360.8	801.6	653.9	147.73	5.426	
9,000.0	5,893.0	9,928.0	5,713.2	65.7	81.4	-86.02	-3,265.8	1,365.1	805.4	657.7	147.73	5.452	
9,100.0	5,893.0	9,807.1	5,711.6	67.6	79.3	-85.93	-3,386.5	1,369.8	808.7	661.4	147.23	5.492	
9,200.0	5,893.0	9,693.6	5,710.8	69.4	77.2	-85.87	-3,500.0	1,371.4	809.2	662.3	146.91	5.508	
9,297.0	5,893.0	9,598.2	5,710.0	71.2	75.5	-85.82	-3,595.4	1,371.8	808.8	661.9	146.87	5.507	
9,300.0	5,893.0	9,595.7	5,710.0	71.3	75.5	-85.82	-3,597.9	1,371.8	808.8	661.9	146.88	5.506	
9,400.0	5,893.0	9,511.9	5,709.6	73.2	74.0	-85.79	-3,681.8	1,373.5	810.0	662.9	147.15	5.505	
9,500.0	5,893.0	9,415.6	5,709.0	75.1	72.3	-85.76	-3,777.9	1,376.6	812.3	665.2	147.15	5.520	
9,600.0	5,893.0	9,312.2	5,706.6	76.9	70.5	-85.61	-3,881.3	1,379.9	814.9	667.9	146.96	5.545	

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

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Project:	Weld County, CO	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S18-T10N-R57W - HORSETAIL #18-0713H - HZ - FINAL													Offset Site Error:	0.0 ft
Survey Program: 158-ISCWSA MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total		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	Separation Factor		
9,700.0	5,893.0	9,195.9	5,704.2	78.8	68.4	-85.45	-3,997.6	1,382.1	816.0	669.5	146.54	5.569		
9,800.0	5,893.0	9,081.1	5,703.9	80.7	66.3	-85.42	-4,112.4	1,382.1	815.2	668.9	146.23	5.574		
9,900.0	5,893.0	8,978.0	5,704.5	82.6	64.6	-85.45	-4,215.4	1,381.0	813.2	666.9	146.35	5.557		
10,000.0	5,893.0	8,876.5	5,705.8	84.5	62.8	-85.53	-4,316.9	1,379.8	811.0	664.5	146.48	5.537		
10,100.0	5,893.0	8,778.0	5,709.2	86.4	61.0	-85.76	-4,415.3	1,378.6	808.7	662.0	146.67	5.514		
10,200.0	5,893.0	8,691.2	5,710.9	88.2	59.5	-85.88	-4,502.1	1,378.2	807.3	660.3	147.03	5.491		
10,215.8	5,893.0	8,679.1	5,711.0	88.5	59.3	-85.88	-4,514.2	1,378.3	807.3	660.1	147.12	5.487		
10,300.0	5,893.0	8,613.7	5,710.8	90.1	58.1	-85.87	-4,579.6	1,379.7	808.3	660.7	147.57	5.477		
10,400.0	5,893.0	8,507.4	5,709.1	92.0	56.2	-85.76	-4,685.8	1,382.7	810.3	662.7	147.58	5.491		
10,500.0	5,893.0	8,395.9	5,708.2	93.9	54.3	-85.70	-4,797.4	1,384.3	810.9	663.4	147.50	5.498		
10,600.0	5,893.0	8,299.4	5,707.5	95.8	52.6	-85.65	-4,893.8	1,385.2	811.1	663.4	147.69	5.492		
10,700.0	5,893.0	8,215.0	5,704.7	97.7	51.1	-85.46	-4,978.1	1,386.8	812.4	664.4	148.07	5.487		
10,800.0	5,893.0	8,126.5	5,700.1	99.6	49.5	-85.15	-5,066.5	1,390.6	816.1	667.8	148.35	5.501		
10,900.0	5,893.0	8,017.9	5,695.3	101.5	47.6	-84.84	-5,174.9	1,394.6	819.3	671.0	148.30	5.525		
11,000.0	5,893.0	7,888.7	5,692.5	103.4	45.4	-84.66	-5,304.0	1,397.5	821.0	673.1	147.97	5.549		
11,100.0	5,893.0	7,789.3	5,693.5	105.3	43.7	-84.72	-5,403.4	1,397.8	820.4	672.1	148.27	5.533		
11,200.0	5,893.0	7,690.5	5,694.8	107.2	42.1	-84.81	-5,502.2	1,398.2	819.8	671.2	148.58	5.518		
11,300.0	5,893.0	7,593.9	5,696.4	109.1	40.5	-84.91	-5,598.8	1,398.8	819.4	670.5	148.85	5.505		
11,302.8	5,893.0	7,591.5	5,696.4	109.2	40.4	-84.92	-5,601.1	1,398.8	819.4	670.5	148.87	5.504		
11,400.0	5,893.0	7,505.6	5,697.1	111.0	38.9	-84.97	-5,687.0	1,400.4	820.2	671.0	149.23	5.496		
11,500.0	5,893.0	7,402.8	5,697.7	112.9	37.2	-85.02	-5,789.8	1,402.3	821.2	671.8	149.36	5.498		
11,600.0	5,893.0	7,314.3	5,697.2	114.8	35.7	-85.00	-5,878.3	1,404.6	822.9	673.1	149.76	5.495		
11,700.0	5,893.0	7,227.4	5,696.3	116.7	34.2	-84.95	-5,965.2	1,408.0	826.1	675.9	150.21	5.500		
11,800.0	5,893.0	7,137.6	5,694.7	118.6	32.7	-84.86	-6,054.7	1,413.1	831.0	680.4	150.58	5.518		
11,900.0	5,893.0	7,022.5	5,692.8	120.5	30.8	-84.76	-6,169.7	1,418.8	835.2	684.6	150.56	5.547		
12,000.0	5,893.0	6,910.8	5,692.0	122.5	28.9	-84.73	-6,281.3	1,422.8	838.0	687.3	150.64	5.563		
12,100.0	5,893.0	6,802.4	5,692.0	124.4	27.2	-84.74	-6,389.7	1,425.3	839.3	688.5	150.83	5.565		
12,200.0	5,893.0	6,680.3	5,692.4	126.3	25.3	-84.76	-6,511.8	1,426.3	839.3	688.4	150.88	5.562		
12,300.0	5,893.0	6,554.6	5,696.0	128.2	23.6	-84.98	-6,637.4	1,423.3	835.7	684.6	151.11	5.530		
12,400.0	5,893.0	6,455.0	5,701.5	130.1	22.3	-85.33	-6,736.8	1,419.8	830.9	679.1	151.73	5.476		
12,500.0	5,893.0	6,365.3	5,708.1	132.0	21.0	-85.77	-6,826.2	1,417.4	826.7	674.3	152.40	5.425		
12,600.0	5,893.0	6,281.1	5,712.0	133.9	19.7	-86.04	-6,910.3	1,416.3	824.3	671.2	153.09	5.384		
12,672.2	5,893.0	6,221.0	5,713.9	135.3	18.8	-86.16	-6,970.4	1,416.5	823.8	670.2	153.62	5.362		
12,700.0	5,893.0	6,197.8	5,714.5	135.8	18.5	-86.21	-6,993.6	1,416.8	823.9	670.0	153.82	5.356		
12,800.0	5,893.0	6,112.0	5,714.2	137.7	17.3	-86.19	-7,079.3	1,418.9	825.4	670.9	154.50	5.343		
12,900.0	5,893.0	6,004.7	5,708.3	139.6	15.8	-85.79	-7,186.4	1,421.6	827.5	672.5	154.93	5.341		
13,000.0	5,893.0	5,886.0	5,687.4	141.5	14.4	-84.34	-7,302.9	1,421.5	828.1	672.9	155.15	5.337		
13,059.5	5,893.0	5,827.0	5,665.5	142.7	13.8	-82.82	-7,357.6	1,419.3	827.8	672.5	155.31	5.330		
13,100.0	5,893.0	5,790.0	5,648.9	143.5	13.4	-81.66	-7,390.6	1,417.4	827.9	672.6	155.40	5.328		
13,200.0	5,893.0	5,724.7	5,617.2	145.4	12.9	-79.46	-7,447.6	1,414.5	831.3	675.4	155.94	5.331		
13,300.0	5,893.0	5,669.0	5,586.9	147.3	12.4	-77.40	-7,494.3	1,413.4	840.7	684.3	156.48	5.373		
13,400.0	5,893.0	5,638.0	5,568.1	149.2	12.2	-76.13	-7,518.9	1,413.4	857.4	699.9	157.49	5.444		
13,500.0	5,893.0	5,598.4	5,541.8	151.1	12.0	-74.42	-7,548.5	1,414.3	881.8	723.7	158.12	5.577		
13,600.0	5,893.0	5,558.5	5,514.0	153.0	11.8	-72.65	-7,577.0	1,416.2	913.5	754.9	158.59	5.760		
13,664.7	5,893.0	5,533.4	5,495.7	154.3	11.7	-71.52	-7,594.3	1,417.8	937.7	778.8	158.84	5.903		

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor Federal #12H-1316B
Project:	Weld County, CO	TVD Reference:	WELL @ 4964.1ft (Original Well Elev)
Reference Site:	S12-T10N-R58W	MD Reference:	WELL @ 4964.1ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Razor Federal #12H-1316B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4964.1ft (Original Well Elev)

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Razor Federal #12H-1316B

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 1.09°

