

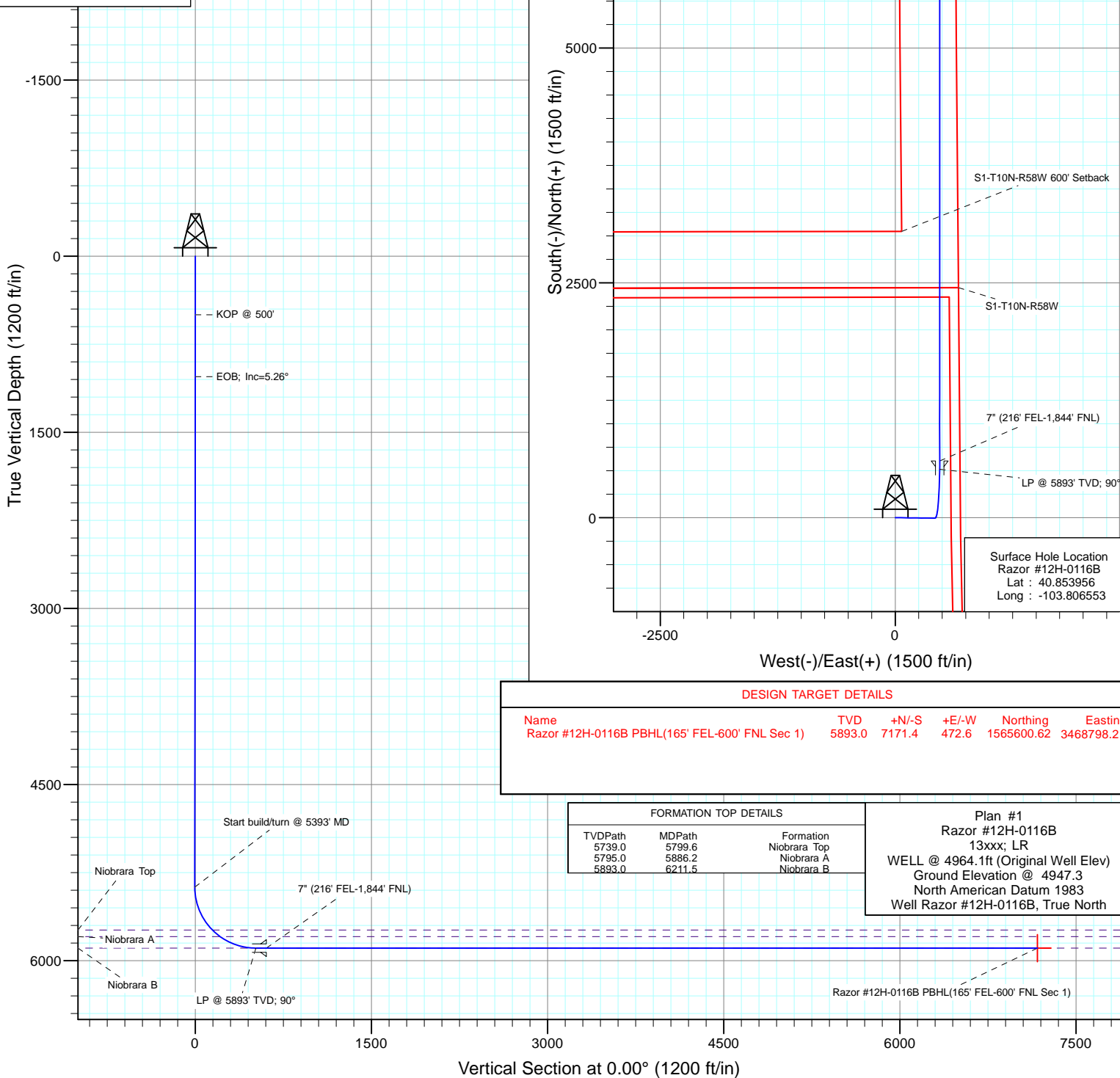
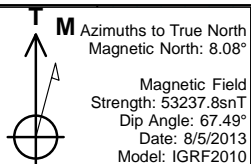


Project: Weld County, CO
Site: S12-T10N-R58W
Well: Razor #12H-0116B
Wellbore: Hz
Design: Plan #1



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.0	KOP @ 500'
3	1026.5	5.26	90.60	1025.7	-0.3	24.2	1.00	90.60	-0.3	EOB; Inc=5.26°
4	5393.0	5.26	90.60	5373.8	-4.4	424.8	0.00	0.00	-4.4	Start build/turn @ 5393' MD
5	6211.7	90.00	0.00	5893.0	516.4	472.6	11.00	-90.59	516.4	LP @ 5893' TVD; 90°
6	12866.7	90.00	0.00	5893.0	7171.4	472.6	0.00	0.00	7171.4	TD at 12866.7



DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
Razor #12H-0116B PBHL(165' FEL-600' FNL Sec 1)	5893.0	7171.4	472.6	1565600.62	3468798.21

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5739.0	5799.6	Niobrara Top
5795.0	5886.2	Niobrara A
5893.0	6211.5	Niobrara B

Plan #1
Razor #12H-0116B

13xxx; LR
WELL @ 4964.1ft (Original Well Elev)
Ground Elevation @ 4947.3
North American Datum 1983
Well Razor #12H-0116B, True North

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #12H-0116B
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 #12H-0116B	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 #12H-0116B					
Well Position	+N/-S	0.0 ft	Northing:	1,558,421.46 ft	Latitude:	40.853956
	+E/-W	0.0 ft	Easting:	3,468,462.59 ft	Longitude:	-103.806553
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	0.00

Plan Sections										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Dogleg Rate	Build Rate	Turn Rate	TFO	Target
(ft)	(°)	(°)	(ft)	(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	
1,026.5	5.26	90.60	1,025.7	-0.3	24.2	1.00	1.00	0.00	90.60	
5,393.0	5.26	90.60	5,373.8	-4.4	424.8	0.00	0.00	0.00	0.00	
6,211.7	90.00	0.00	5,893.0	516.4	472.6	11.00	10.35	-11.07	-90.59	
12,866.7	90.00	0.00	5,893.0	7,171.4	472.6	0.00	0.00	0.00	0.00	Razor #12H-0116B PI

Cathedral Energy Services

Planning Report

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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 #12H-0116B	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	90.60	600.0	0.0	0.9	0.0	1.00	1.00	
700.0	2.00	90.60	700.0	0.0	3.5	0.0	1.00	1.00	
800.0	3.00	90.60	799.9	-0.1	7.9	-0.1	1.00	1.00	
900.0	4.00	90.60	899.7	-0.1	14.0	-0.1	1.00	1.00	
1,000.0	5.00	90.60	999.4	-0.2	21.8	-0.2	1.00	1.00	
1,026.5	5.26	90.60	1,025.7	-0.3	24.2	-0.3	1.00	1.00	EOB; Inc=5.26°
1,100.0	5.26	90.60	1,098.9	-0.3	30.9	-0.3	0.00	0.00	
1,200.0	5.26	90.60	1,198.5	-0.4	40.1	-0.4	0.00	0.00	
1,300.0	5.26	90.60	1,298.1	-0.5	49.3	-0.5	0.00	0.00	
1,400.0	5.26	90.60	1,397.7	-0.6	58.4	-0.6	0.00	0.00	
1,500.0	5.26	90.60	1,497.3	-0.7	67.6	-0.7	0.00	0.00	
1,600.0	5.26	90.60	1,596.8	-0.8	76.8	-0.8	0.00	0.00	
1,700.0	5.26	90.60	1,696.4	-0.9	86.0	-0.9	0.00	0.00	
1,800.0	5.26	90.60	1,796.0	-1.0	95.1	-1.0	0.00	0.00	
1,900.0	5.26	90.60	1,895.6	-1.1	104.3	-1.1	0.00	0.00	
2,000.0	5.26	90.60	1,995.2	-1.2	113.5	-1.2	0.00	0.00	
2,100.0	5.26	90.60	2,094.7	-1.3	122.7	-1.3	0.00	0.00	
2,200.0	5.26	90.60	2,194.3	-1.4	131.8	-1.4	0.00	0.00	
2,300.0	5.26	90.60	2,293.9	-1.5	141.0	-1.5	0.00	0.00	
2,400.0	5.26	90.60	2,393.5	-1.6	150.2	-1.6	0.00	0.00	
2,500.0	5.26	90.60	2,493.0	-1.7	159.4	-1.7	0.00	0.00	
2,600.0	5.26	90.60	2,592.6	-1.8	168.5	-1.8	0.00	0.00	
2,700.0	5.26	90.60	2,692.2	-1.9	177.7	-1.9	0.00	0.00	
2,800.0	5.26	90.60	2,791.8	-1.9	186.9	-1.9	0.00	0.00	
2,900.0	5.26	90.60	2,891.4	-2.0	196.1	-2.0	0.00	0.00	
3,000.0	5.26	90.60	2,990.9	-2.1	205.2	-2.1	0.00	0.00	
3,100.0	5.26	90.60	3,090.5	-2.2	214.4	-2.2	0.00	0.00	
3,200.0	5.26	90.60	3,190.1	-2.3	223.6	-2.3	0.00	0.00	
3,300.0	5.26	90.60	3,289.7	-2.4	232.8	-2.4	0.00	0.00	
3,400.0	5.26	90.60	3,389.2	-2.5	241.9	-2.5	0.00	0.00	
3,500.0	5.26	90.60	3,488.8	-2.6	251.1	-2.6	0.00	0.00	
3,600.0	5.26	90.60	3,588.4	-2.7	260.3	-2.7	0.00	0.00	
3,700.0	5.26	90.60	3,688.0	-2.8	269.5	-2.8	0.00	0.00	
3,800.0	5.26	90.60	3,787.6	-2.9	278.6	-2.9	0.00	0.00	
3,900.0	5.26	90.60	3,887.1	-3.0	287.8	-3.0	0.00	0.00	
4,000.0	5.26	90.60	3,986.7	-3.1	297.0	-3.1	0.00	0.00	
4,100.0	5.26	90.60	4,086.3	-3.2	306.2	-3.2	0.00	0.00	
4,200.0	5.26	90.60	4,185.9	-3.3	315.4	-3.3	0.00	0.00	
4,300.0	5.26	90.60	4,285.4	-3.4	324.5	-3.4	0.00	0.00	
4,400.0	5.26	90.60	4,385.0	-3.5	333.7	-3.5	0.00	0.00	
4,500.0	5.26	90.60	4,484.6	-3.6	342.9	-3.6	0.00	0.00	
4,600.0	5.26	90.60	4,584.2	-3.7	352.1	-3.7	0.00	0.00	
4,700.0	5.26	90.60	4,683.8	-3.8	361.2	-3.8	0.00	0.00	
4,800.0	5.26	90.60	4,783.3	-3.9	370.4	-3.9	0.00	0.00	
4,900.0	5.26	90.60	4,882.9	-4.0	379.6	-4.0	0.00	0.00	
5,000.0	5.26	90.60	4,982.5	-4.0	388.8	-4.0	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #12H-0116B
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 #12H-0116B	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	5.26	90.60	5,082.1	-4.1	397.9	-4.1	0.00	0.00	
5,200.0	5.26	90.60	5,181.7	-4.2	407.1	-4.2	0.00	0.00	
5,300.0	5.26	90.60	5,281.2	-4.3	416.3	-4.3	0.00	0.00	
5,393.0	5.26	90.60	5,373.8	-4.4	424.8	-4.4	0.00	0.00	Start build/turn @ 5393' MD
5,400.0	5.31	82.24	5,380.8	-4.4	425.5	-4.4	11.00	0.69	
5,450.0	8.14	40.11	5,430.5	-1.4	430.0	-1.4	11.00	5.65	
5,500.0	12.83	23.87	5,479.6	6.4	434.6	6.4	11.00	9.38	
5,550.0	17.98	16.49	5,527.8	18.9	439.0	18.9	11.00	10.30	
5,600.0	23.29	12.36	5,574.6	36.0	443.3	36.0	11.00	10.61	
5,650.0	28.66	9.70	5,619.6	57.5	447.5	57.5	11.00	10.75	
5,700.0	34.08	7.83	5,662.2	83.2	451.4	83.2	11.00	10.83	
5,750.0	39.51	6.42	5,702.3	112.9	455.1	112.9	11.00	10.87	
5,799.6	44.92	5.30	5,739.0	146.1	458.5	146.1	11.00	10.90	Niobrara Top
5,800.0	44.96	5.29	5,739.3	146.3	458.5	146.3	11.00	10.91	
5,850.0	50.42	4.37	5,772.9	183.1	461.6	183.1	11.00	10.91	
5,886.2	54.37	3.79	5,795.0	211.8	463.6	211.8	11.00	10.93	Niobrara A
5,900.0	55.88	3.58	5,802.9	223.0	464.3	223.0	11.00	10.93	
5,950.0	61.35	2.89	5,828.9	265.6	466.7	265.6	11.00	10.94	
6,000.0	66.82	2.26	5,850.8	310.6	468.8	310.6	11.00	10.94	
6,050.0	72.29	1.69	5,868.2	357.4	470.4	357.4	11.00	10.95	
6,100.0	77.77	1.14	5,881.1	405.6	471.6	405.6	11.00	10.95	
6,150.0	83.24	0.63	5,889.4	454.9	472.3	454.9	11.00	10.95	
6,200.0	88.72	0.12	5,892.9	504.8	472.6	504.8	11.00	10.95	
6,211.5	89.98	0.00	5,893.0	516.2	472.6	516.2	11.00	10.95	Niobrara B
6,211.7	90.00	0.00	5,893.0	516.4	472.6	516.4	11.00	10.95	LP @ 5893' TVD; 90°
6,300.0	90.00	0.00	5,893.0	604.8	472.6	604.8	0.00	0.00	7" (216' FEL-1,844' FNL)
6,400.0	90.00	0.00	5,893.0	704.8	472.6	704.8	0.00	0.00	
6,500.0	90.00	0.00	5,893.0	804.8	472.6	804.8	0.00	0.00	
6,600.0	90.00	0.00	5,893.0	904.8	472.6	904.8	0.00	0.00	
6,700.0	90.00	0.00	5,893.0	1,004.8	472.6	1,004.8	0.00	0.00	
6,800.0	90.00	0.00	5,893.0	1,104.8	472.6	1,104.8	0.00	0.00	
6,900.0	90.00	0.00	5,893.0	1,204.8	472.6	1,204.8	0.00	0.00	
7,000.0	90.00	0.00	5,893.0	1,304.8	472.6	1,304.8	0.00	0.00	
7,100.0	90.00	0.00	5,893.0	1,404.8	472.6	1,404.8	0.00	0.00	
7,200.0	90.00	0.00	5,893.0	1,504.8	472.6	1,504.8	0.00	0.00	
7,300.0	90.00	0.00	5,893.0	1,604.8	472.6	1,604.8	0.00	0.00	
7,400.0	90.00	0.00	5,893.0	1,704.8	472.6	1,704.8	0.00	0.00	
7,500.0	90.00	0.00	5,893.0	1,804.8	472.6	1,804.8	0.00	0.00	
7,600.0	90.00	0.00	5,893.0	1,904.8	472.6	1,904.8	0.00	0.00	
7,700.0	90.00	0.00	5,893.0	2,004.8	472.6	2,004.8	0.00	0.00	
7,800.0	90.00	0.00	5,893.0	2,104.8	472.6	2,104.8	0.00	0.00	
7,900.0	90.00	0.00	5,893.0	2,204.8	472.6	2,204.8	0.00	0.00	
8,000.0	90.00	0.00	5,893.0	2,304.8	472.6	2,304.8	0.00	0.00	
8,100.0	90.00	0.00	5,893.0	2,404.8	472.6	2,404.8	0.00	0.00	
8,200.0	90.00	0.00	5,893.0	2,504.8	472.6	2,504.8	0.00	0.00	
8,300.0	90.00	0.00	5,893.0	2,604.8	472.6	2,604.8	0.00	0.00	
8,400.0	90.00	0.00	5,893.0	2,704.8	472.6	2,704.8	0.00	0.00	
8,500.0	90.00	0.00	5,893.0	2,804.8	472.6	2,804.8	0.00	0.00	
8,600.0	90.00	0.00	5,893.0	2,904.8	472.6	2,904.8	0.00	0.00	
8,700.0	90.00	0.00	5,893.0	3,004.8	472.6	3,004.8	0.00	0.00	
8,800.0	90.00	0.00	5,893.0	3,104.8	472.6	3,104.8	0.00	0.00	
8,900.0	90.00	0.00	5,893.0	3,204.8	472.6	3,204.8	0.00	0.00	

Cathedral Energy Services

Planning Report

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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 #12H-0116B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
9,000.0	90.00	0.00	5,893.0	3,304.8	472.6	3,304.8	0.00	0.00	
9,100.0	90.00	0.00	5,893.0	3,404.8	472.6	3,404.8	0.00	0.00	
9,200.0	90.00	0.00	5,893.0	3,504.8	472.6	3,504.8	0.00	0.00	
9,300.0	90.00	0.00	5,893.0	3,604.8	472.6	3,604.8	0.00	0.00	
9,400.0	90.00	0.00	5,893.0	3,704.8	472.6	3,704.8	0.00	0.00	
9,500.0	90.00	0.00	5,893.0	3,804.8	472.6	3,804.8	0.00	0.00	
9,600.0	90.00	0.00	5,893.0	3,904.8	472.6	3,904.8	0.00	0.00	
9,700.0	90.00	0.00	5,893.0	4,004.8	472.6	4,004.8	0.00	0.00	
9,800.0	90.00	0.00	5,893.0	4,104.8	472.6	4,104.8	0.00	0.00	
9,900.0	90.00	0.00	5,893.0	4,204.8	472.6	4,204.8	0.00	0.00	
10,000.0	90.00	0.00	5,893.0	4,304.8	472.6	4,304.8	0.00	0.00	
10,100.0	90.00	0.00	5,893.0	4,404.8	472.6	4,404.8	0.00	0.00	
10,200.0	90.00	0.00	5,893.0	4,504.8	472.6	4,504.8	0.00	0.00	
10,300.0	90.00	0.00	5,893.0	4,604.8	472.6	4,604.8	0.00	0.00	
10,400.0	90.00	0.00	5,893.0	4,704.8	472.6	4,704.8	0.00	0.00	
10,500.0	90.00	0.00	5,893.0	4,804.8	472.6	4,804.8	0.00	0.00	
10,600.0	90.00	0.00	5,893.0	4,904.8	472.6	4,904.8	0.00	0.00	
10,700.0	90.00	0.00	5,893.0	5,004.8	472.6	5,004.8	0.00	0.00	
10,800.0	90.00	0.00	5,893.0	5,104.8	472.6	5,104.8	0.00	0.00	
10,900.0	90.00	0.00	5,893.0	5,204.8	472.6	5,204.8	0.00	0.00	
11,000.0	90.00	0.00	5,893.0	5,304.8	472.6	5,304.8	0.00	0.00	
11,100.0	90.00	0.00	5,893.0	5,404.8	472.6	5,404.8	0.00	0.00	
11,200.0	90.00	0.00	5,893.0	5,504.8	472.6	5,504.8	0.00	0.00	
11,300.0	90.00	0.00	5,893.0	5,604.8	472.6	5,604.8	0.00	0.00	
11,400.0	90.00	0.00	5,893.0	5,704.8	472.6	5,704.8	0.00	0.00	
11,500.0	90.00	0.00	5,893.0	5,804.8	472.6	5,804.8	0.00	0.00	
11,600.0	90.00	0.00	5,893.0	5,904.8	472.6	5,904.8	0.00	0.00	
11,700.0	90.00	0.00	5,893.0	6,004.8	472.6	6,004.8	0.00	0.00	
11,800.0	90.00	0.00	5,893.0	6,104.8	472.6	6,104.8	0.00	0.00	
11,900.0	90.00	0.00	5,893.0	6,204.8	472.6	6,204.8	0.00	0.00	
12,000.0	90.00	0.00	5,893.0	6,304.8	472.6	6,304.8	0.00	0.00	
12,100.0	90.00	0.00	5,893.0	6,404.8	472.6	6,404.8	0.00	0.00	
12,200.0	90.00	0.00	5,893.0	6,504.8	472.6	6,504.8	0.00	0.00	
12,300.0	90.00	0.00	5,893.0	6,604.8	472.6	6,604.8	0.00	0.00	
12,400.0	90.00	0.00	5,893.0	6,704.8	472.6	6,704.8	0.00	0.00	
12,500.0	90.00	0.00	5,893.0	6,804.8	472.6	6,804.8	0.00	0.00	
12,600.0	90.00	0.00	5,893.0	6,904.8	472.6	6,904.8	0.00	0.00	
12,700.0	90.00	0.00	5,893.0	7,004.8	472.6	7,004.8	0.00	0.00	
12,800.0	90.00	0.00	5,893.0	7,104.8	472.6	7,104.8	0.00	0.00	
12,866.7	90.00	0.00	5,893.0	7,171.4	472.6	7,171.4	0.00	0.00	TD at 12866.7

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Razor #12H-0116B PBH	0.00	0.00	5,893.0	7,171.4	472.6	1,565,600.62	3,468,798.21	40.873639	-103.804844
- plan hits target center									
- Point									

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor #12H-0116B
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 #12H-0116B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
6,300.0	5,893.0	7" (216' FEL-1,844' FNL)	7.000	7.500

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,799.6	5,739.0	Niobrara Top		0.00	
5,886.2	5,795.0	Niobrara A		0.00	
6,211.5	5,893.0	Niobrara B		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
500.0	500.0	0.0	0.0	KOP @ 500'
1,026.5	1,025.7	-0.3	24.2	EOB; Inc=5.26°
5,393.0	5,373.8	-4.4	424.8	Start build/turn @ 5393' MD
6,211.7	5,893.0	516.4	472.6	LP @ 5893' TVD; 90°
12,866.7	5,893.0	7,171.4	472.6	TD at 12866.7

Whiting Petroleum Corporation

Weld County, CO

S12-T10N-R58W

Razor #12H-0116B

Hz

Plan #1

Anticollision Report

08 August, 2013

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #12H-0116B
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 #12H-0116B	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 500.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	8/7/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	12,866.7	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-0112B - Hz - Plan #1						Out of range
Razor #12H-0113A - Hz - Plan #1	500.0	500.0	66.1	64.1	33.307	CC, ES
Razor #12H-0113A - Hz - Plan #1	800.0	795.8	81.7	78.5	25.230	SF
Razor #12H-0115A - Hz - Plan #1	500.0	500.0	32.9	30.9	16.584	CC, ES
Razor #12H-0115A - Hz - Plan #1	12,866.7	12,751.3	344.7	78.9	1.297	Level 3, SF
RAZOR 12-0141H (EXISTING) - WHTING WELL - SURV	1,196.3	1,195.5	46.7	41.7	9.326	CC
RAZOR 12-0141H (EXISTING) - WHTING WELL - SURV	1,200.0	1,199.2	46.7	41.7	9.294	ES
RAZOR 12-0141H (EXISTING) - WHTING WELL - SURV	10,300.0	10,311.3	493.7	322.9	2.890	SF
Razor Federal #12H-1313A - Hz - Plan #1	500.0	500.0	100.0	98.1	50.393	CC, ES
Razor Federal #12H-1313A - Hz - Plan #1	1,600.0	1,594.5	161.8	154.9	23.397	SF
Razor Federal #12H-1314B - Hz - Plan #1	500.0	500.0	82.0	80.0	41.293	CC
Razor Federal #12H-1314B - Hz - Plan #1	600.0	600.0	82.3	79.9	33.991	ES
Razor Federal #12H-1314B - Hz - Plan #1	2,400.0	2,393.5	197.3	186.7	18.594	SF
Razor Federal #12H-1315A - Hz - Plan #1	594.7	594.6	75.1	72.7	31.299	CC
Razor Federal #12H-1315A - Hz - Plan #1	800.0	799.9	75.4	72.1	22.884	ES
Razor Federal #12H-1315A - Hz - Plan #1	5,300.0	5,298.7	162.1	137.6	6.628	SF
Razor Federal #12H-1316B - Hz - Plan #1	1,021.1	1,018.0	81.9	77.7	19.218	CC
Razor Federal #12H-1316B - Hz - Plan #1	1,300.0	1,296.5	83.1	77.4	14.662	ES
Razor Federal #12H-1316B - Hz - Plan #1	5,400.0	5,396.2	114.2	87.9	4.337	SF

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #12H-0116B
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 #12H-0116B	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		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	-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	353.564		
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	598.8	598.8	1.2	1.2	179.40	0.0	-67.0	67.9	65.4	2.41	28.194		
700.0	700.0	697.5	697.4	1.4	1.4	179.42	0.0	-69.5	73.1	70.2	2.82	25.935		
800.0	799.9	795.8	795.6	1.6	1.6	179.46	0.0	-73.8	81.7	78.5	3.24	25.230 SF		
900.0	899.7	893.5	893.2	1.9	1.8	179.49	0.0	-79.6	93.8	90.1	3.67	25.576		
1,000.0	999.4	990.6	990.0	2.1	2.1	179.53	0.0	-87.1	109.3	105.2	4.10	26.655		
1,100.0	1,098.9	1,088.6	1,087.6	2.3	2.3	179.56	0.0	-95.8	127.2	122.7	4.54	28.040		
1,200.0	1,198.5	1,186.9	1,185.6	2.6	2.6	179.58	0.0	-104.6	145.3	140.3	4.97	29.202		
1,300.0	1,298.1	1,285.3	1,283.5	2.9	2.8	179.60	0.1	-113.4	163.3	157.9	5.42	30.155		
1,400.0	1,397.7	1,383.7	1,381.5	3.1	3.1	179.61	0.1	-122.2	181.3	175.5	5.86	30.949		
1,500.0	1,497.3	1,482.0	1,479.5	3.4	3.4	179.62	0.1	-130.9	199.4	193.1	6.30	31.619		
1,600.0	1,596.8	1,580.4	1,577.4	3.7	3.6	179.63	0.1	-139.7	217.4	210.6	6.75	32.188		
1,700.0	1,696.4	1,678.7	1,675.4	4.0	3.9	179.64	0.1	-148.5	235.4	228.2	7.20	32.685		
1,800.0	1,796.0	1,777.1	1,773.4	4.2	4.2	179.65	0.1	-157.3	253.4	245.8	7.65	33.115		
1,900.0	1,895.6	1,875.5	1,871.3	4.5	4.4	179.66	0.1	-166.1	271.5	263.4	8.11	33.494		
2,000.0	1,995.2	1,973.8	1,969.3	4.8	4.7	179.66	0.1	-174.8	289.5	280.9	8.56	33.828		
2,100.0	2,094.7	2,072.2	2,067.3	5.1	5.0	179.67	0.2	-183.6	307.5	298.5	9.01	34.127		
2,200.0	2,194.3	2,170.6	2,165.2	5.3	5.2	179.67	0.2	-192.4	325.6	316.1	9.47	34.394		
2,300.0	2,293.9	2,268.9	2,263.2	5.6	5.5	179.68	0.2	-201.2	343.6	333.7	9.92	34.635		
2,400.0	2,393.5	2,367.3	2,361.2	5.9	5.8	179.68	0.2	-210.0	361.6	351.2	10.38	34.853		
2,500.0	2,493.0	2,465.6	2,459.2	6.2	6.1	179.68	0.2	-218.8	379.6	368.8	10.83	35.051		
2,600.0	2,592.6	2,564.0	2,557.1	6.5	6.3	179.68	0.2	-227.5	397.7	386.4	11.29	35.232		
2,700.0	2,692.2	2,662.4	2,655.1	6.7	6.6	179.69	0.2	-236.3	415.7	404.0	11.74	35.398		
2,800.0	2,791.8	2,760.7	2,753.1	7.0	6.9	179.69	0.2	-245.1	433.7	421.5	12.20	35.551		
2,900.0	2,891.4	2,859.1	2,851.0	7.3	7.2	179.69	0.3	-253.9	451.8	439.1	12.66	35.692		
3,000.0	2,990.9	2,957.4	2,949.0	7.6	7.4	179.69	0.3	-262.7	469.8	456.7	13.11	35.823		
3,100.0	3,090.5	3,055.8	3,047.0	7.9	7.7	179.70	0.3	-271.4	487.8	474.2	13.57	35.944		

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #12H-0116B
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 #12H-0116B	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		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	-90.03	0.0	-32.9	32.9					
100.0	100.0	100.0	100.0	0.1	0.1	-90.03	0.0	-32.9	32.9	32.7	0.19	176.042		
200.0	200.0	200.0	200.0	0.3	0.3	-90.03	0.0	-32.9	32.9	32.3	0.64	51.719		
300.0	300.0	300.0	300.0	0.5	0.5	-90.03	0.0	-32.9	32.9	31.8	1.09	30.312		
400.0	400.0	400.0	400.0	0.8	0.8	-90.03	0.0	-32.9	32.9	31.4	1.54	21.438		
500.0	500.0	500.0	500.0	1.0	1.0	-90.03	0.0	-32.9	32.9	30.9	1.99	16.584 CC, ES		
600.0	600.0	600.0	600.0	1.2	1.2	179.39	0.0	-32.9	33.8	31.4	2.42	13.955		
700.0	700.0	700.0	700.0	1.4	1.4	179.44	0.0	-32.9	36.4	33.6	2.85	12.771		
800.0	799.9	799.9	799.9	1.6	1.7	179.50	0.0	-32.9	40.8	37.5	3.29	12.409		
900.0	899.7	899.7	899.7	1.9	1.9	179.56	0.0	-32.9	46.9	43.2	3.72	12.589		
1,000.0	999.4	999.4	999.4	2.1	2.1	179.62	0.0	-32.9	54.7	50.6	4.16	13.142		
1,100.0	1,098.9	1,098.9	1,098.9	2.3	2.3	179.68	0.0	-32.9	63.8	59.2	4.61	13.857		
1,200.0	1,198.5	1,198.5	1,198.5	2.6	2.6	179.72	0.0	-32.9	73.0	68.0	5.05	14.450		
1,300.0	1,298.1	1,298.1	1,298.1	2.9	2.8	179.75	0.0	-32.9	82.2	76.7	5.50	14.942		
1,400.0	1,397.7	1,397.7	1,397.7	3.1	3.0	179.77	0.0	-32.9	91.4	85.4	5.95	15.356		
1,500.0	1,497.3	1,497.3	1,497.3	3.4	3.2	179.79	0.0	-32.9	100.5	94.1	6.40	15.709		
1,600.0	1,596.8	1,596.8	1,596.8	3.7	3.5	179.81	0.0	-32.9	109.7	102.9	6.85	16.014		
1,700.0	1,696.4	1,696.4	1,696.4	4.0	3.7	179.83	0.0	-32.9	118.9	111.6	7.30	16.279		
1,800.0	1,796.0	1,796.0	1,796.0	4.2	3.9	179.84	0.0	-32.9	128.1	120.3	7.76	16.512		
1,900.0	1,895.6	1,895.6	1,895.6	4.5	4.1	179.85	0.0	-32.9	137.2	129.0	8.21	16.719		
2,000.0	1,995.2	1,995.2	1,995.2	4.8	4.4	179.86	0.0	-32.9	146.4	137.8	8.66	16.903		
2,100.0	2,094.7	2,094.7	2,094.7	5.1	4.6	179.87	0.0	-32.9	155.6	146.5	9.12	17.068		
2,200.0	2,194.3	2,194.3	2,194.3	5.3	4.8	179.87	0.0	-32.9	164.8	155.2	9.57	17.217		
2,300.0	2,293.9	2,293.9	2,293.9	5.6	5.0	179.88	0.0	-32.9	173.9	163.9	10.02	17.352		
2,400.0	2,393.5	2,393.5	2,393.5	5.9	5.2	179.89	0.0	-32.9	183.1	172.6	10.48	17.475		
2,500.0	2,493.0	2,493.0	2,493.0	6.2	5.5	179.89	0.0	-32.9	192.3	181.4	10.93	17.587		
2,600.0	2,592.6	2,592.6	2,592.6	6.5	5.7	179.90	0.0	-32.9	201.5	190.1	11.39	17.690		
2,700.0	2,692.2	2,692.2	2,692.2	6.7	5.9	179.90	0.0	-32.9	210.7	198.8	11.84	17.785		
2,800.0	2,791.8	2,791.8	2,791.8	7.0	6.1	179.91	0.0	-32.9	219.8	207.5	12.30	17.872		
2,900.0	2,891.4	2,891.4	2,891.4	7.3	6.4	179.91	0.0	-32.9	229.0	216.2	12.76	17.954		
3,000.0	2,990.9	2,990.9	2,990.9	7.6	6.6	179.91	0.0	-32.9	238.2	225.0	13.21	18.029		
3,100.0	3,090.5	3,090.5	3,090.5	7.9	6.8	179.92	0.0	-32.9	247.4	233.7	13.67	18.100		
3,200.0	3,190.1	3,190.1	3,190.1	8.1	7.0	179.92	0.0	-32.9	256.5	242.4	14.12	18.165		
3,300.0	3,289.7	3,289.7	3,289.7	8.4	7.3	179.92	0.0	-32.9	265.7	251.1	14.58	18.227		
3,400.0	3,389.2	3,389.2	3,389.2	8.7	7.5	179.92	0.0	-32.9	274.9	259.8	15.03	18.284		
3,500.0	3,488.8	3,488.8	3,488.8	9.0	7.7	179.93	0.0	-32.9	284.1	268.6	15.49	18.338		
3,600.0	3,588.4	3,588.4	3,588.4	9.3	7.9	179.93	0.0	-32.9	293.2	277.3	15.95	18.389		
3,700.0	3,688.0	3,688.0	3,688.0	9.6	8.2	179.93	0.0	-32.9	302.4	286.0	16.40	18.438		
3,800.0	3,787.6	3,787.6	3,787.6	9.8	8.4	179.93	0.0	-32.9	311.6	294.7	16.86	18.483		
3,900.0	3,887.1	3,887.1	3,887.1	10.1	8.6	179.94	0.0	-32.9	320.8	303.4	17.31	18.526		
4,000.0	3,986.7	3,986.7	3,986.7	10.4	8.8	179.94	0.0	-32.9	329.9	312.2	17.77	18.567		
4,100.0	4,086.3	4,097.8	4,097.8	10.7	9.1	179.94	0.0	-31.3	337.6	319.4	18.24	18.513		
4,200.0	4,185.9	4,211.2	4,211.0	11.0	9.3	179.95	0.0	-25.1	341.4	322.7	18.69	18.266		
4,300.0	4,285.4	4,322.3	4,321.6	11.2	9.5	179.96	-0.1	-14.9	341.3	322.2	19.15	17.828		
4,400.0	4,385.0	4,422.3	4,421.0	11.5	9.7	179.97	-0.1	-4.3	339.9	320.3	19.58	17.361		
4,500.0	4,484.6	4,522.3	4,520.5	11.8	10.0	179.98	-0.2	6.3	338.5	318.5	20.01	16.913		
4,600.0	4,584.2	4,622.3	4,619.9	12.1	10.2	179.99	-0.2	16.9	337.0	316.6	20.45	16.483		
4,700.0	4,683.8	4,722.3	4,719.3	12.4	10.4	-180.00	-0.3	27.5	335.6	314.7	20.89	16.069		
4,800.0	4,783.3	4,822.2	4,818.8	12.7	10.6	-179.99	-0.3	38.1	334.2	312.9	21.33	15.671		
4,900.0	4,882.9	4,922.2	4,918.2	12.9	10.9	-179.97	-0.4	48.7	332.8	311.0	21.77	15.289		
5,000.0	4,982.5	5,022.2	5,017.6	13.2	11.1	-179.96	-0.4	59.3	331.3	309.1	22.21	14.921		
5,100.0	5,082.1	5,122.2	5,117.0	13.5	11.3	-179.95	-0.4	69.9	329.9	307.3	22.65	14.566		

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 #12H-0116B
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 #12H-0116B	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-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		
5,200.0	5,181.7	5,222.2	5,216.5	13.8	11.6	-179.94	-0.5	80.5	328.5	305.4	23.09	14.224		
5,300.0	5,281.2	5,321.8	5,315.5	14.1	11.8	-179.67	0.9	91.0	327.1	303.5	23.54	13.895		
5,393.7	5,374.6	5,412.3	5,404.2	14.3	12.1	-169.41	15.4	100.5	326.3	302.3	23.95	13.623		
5,400.0	5,380.8	5,418.1	5,409.7	14.4	12.1	-168.54	16.9	101.1	326.3	302.4	23.98	13.609		
5,500.0	5,479.6	5,509.3	5,494.9	14.6	12.3	-106.78	47.8	110.2	327.4	302.9	24.45	13.389		
5,600.0	5,574.6	5,600.0	5,573.1	14.9	12.6	-92.12	92.9	118.5	329.8	304.8	25.01	13.186		
5,700.0	5,662.2	5,682.8	5,636.6	15.1	12.9	-85.06	145.4	125.3	333.0	307.4	25.62	13.000		
5,800.0	5,739.3	5,766.3	5,691.5	15.4	13.2	-80.45	207.9	131.1	336.5	310.2	26.28	12.805		
5,900.0	5,802.9	5,850.0	5,735.9	15.8	13.7	-77.23	278.7	135.8	339.9	312.8	27.03	12.575		
6,000.0	5,850.8	5,929.0	5,766.9	16.3	14.4	-75.12	351.2	139.2	342.5	314.6	27.90	12.278		
6,100.0	5,881.1	6,009.1	5,786.9	17.0	15.1	-73.88	428.6	141.3	344.2	315.2	28.99	11.876		
6,200.0	5,892.9	6,088.9	5,794.9	17.9	16.0	-73.48	507.9	142.1	344.8	314.4	30.36	11.356		
6,273.1	5,893.9	6,158.9	5,795.0	18.7	16.8	-73.34	577.9	142.1	345.1	313.1	31.94	10.803		
6,300.0	5,893.0	6,185.8	5,795.0	19.0	17.1	-73.48	604.8	142.1	344.7	312.2	32.58	10.582		
6,400.0	5,893.0	6,285.8	5,795.0	20.2	18.4	-73.48	704.8	142.1	344.7	309.6	35.10	9.820		
6,500.0	5,893.0	6,385.8	5,795.0	21.5	19.8	-73.48	804.8	142.1	344.7	306.9	37.83	9.113		
6,600.0	5,893.0	6,485.8	5,795.0	22.9	21.3	-73.48	904.8	142.1	344.7	304.0	40.71	8.468		
6,700.0	5,893.0	6,585.8	5,795.0	24.4	22.9	-73.48	1,004.8	142.1	344.7	301.0	43.71	7.886		
6,800.0	5,893.0	6,685.8	5,795.0	25.9	24.5	-73.48	1,104.8	142.1	344.7	297.9	46.82	7.363		
6,900.0	5,893.0	6,785.8	5,795.0	27.5	26.1	-73.48	1,204.8	142.1	344.7	294.7	50.01	6.894		
7,000.0	5,893.0	6,885.8	5,795.0	29.1	27.8	-73.48	1,304.8	142.1	344.7	291.5	53.26	6.472		
7,100.0	5,893.0	6,985.8	5,795.0	30.8	29.5	-73.48	1,404.8	142.1	344.7	288.2	56.57	6.094		
7,200.0	5,893.0	7,085.8	5,795.0	32.5	31.2	-73.48	1,504.8	142.1	344.7	284.8	59.93	5.752		
7,300.0	5,893.0	7,185.8	5,795.0	34.2	33.0	-73.48	1,604.8	142.1	344.7	281.4	63.33	5.444		
7,400.0	5,893.0	7,285.8	5,795.0	35.9	34.8	-73.48	1,704.8	142.1	344.7	278.0	66.76	5.164		
7,500.0	5,893.0	7,385.8	5,795.0	37.7	36.6	-73.48	1,804.8	142.1	344.7	274.5	70.21	4.910		
7,600.0	5,893.0	7,485.8	5,795.0	39.5	38.4	-73.48	1,904.8	142.1	344.7	271.0	73.70	4.678		
7,700.0	5,893.0	7,585.8	5,795.0	41.2	40.2	-73.48	2,004.8	142.1	344.7	267.5	77.20	4.465		
7,800.0	5,893.0	7,685.8	5,795.0	43.0	42.0	-73.48	2,104.8	142.1	344.7	264.0	80.72	4.271		
7,900.0	5,893.0	7,785.8	5,795.0	44.8	43.8	-73.48	2,204.8	142.1	344.7	260.5	84.26	4.091		
8,000.0	5,893.0	7,885.8	5,795.0	46.6	45.7	-73.48	2,304.8	142.1	344.7	256.9	87.81	3.926		
8,100.0	5,893.0	7,985.8	5,795.0	48.5	47.5	-73.48	2,404.8	142.1	344.7	253.4	91.37	3.773		
8,200.0	5,893.0	8,085.8	5,795.0	50.3	49.4	-73.48	2,504.8	142.1	344.7	249.8	94.95	3.631		
8,300.0	5,893.0	8,185.8	5,795.0	52.1	51.2	-73.48	2,604.8	142.1	344.7	246.2	98.53	3.499		
8,400.0	5,893.0	8,285.8	5,795.0	54.0	53.1	-73.48	2,704.8	142.1	344.7	242.6	102.13	3.375		
8,500.0	5,893.0	8,385.8	5,795.0	55.8	55.0	-73.48	2,804.8	142.1	344.7	239.0	105.73	3.260		
8,600.0	5,893.0	8,485.8	5,795.0	57.7	56.8	-73.48	2,904.8	142.1	344.7	235.4	109.34	3.153		
8,700.0	5,893.0	8,585.8	5,795.0	59.5	58.7	-73.48	3,004.8	142.1	344.7	231.8	112.95	3.052		
8,800.0	5,893.0	8,685.8	5,795.0	61.4	60.6	-73.48	3,104.8	142.1	344.7	228.2	116.57	2.957		
8,900.0	5,893.0	8,785.8	5,795.0	63.3	62.4	-73.48	3,204.8	142.1	344.7	224.5	120.20	2.868		
9,000.0	5,893.0	8,885.8	5,795.0	65.1	64.3	-73.48	3,304.8	142.1	344.7	220.9	123.83	2.784		
9,100.0	5,893.0	8,985.8	5,795.0	67.0	66.2	-73.48	3,404.8	142.1	344.7	217.3	127.46	2.704		
9,200.0	5,893.0	9,085.8	5,795.0	68.9	68.1	-73.48	3,504.8	142.1	344.7	213.6	131.10	2.629		
9,300.0	5,893.0	9,185.8	5,795.0	70.7	70.0	-73.48	3,604.8	142.1	344.7	210.0	134.75	2.558		
9,400.0	5,893.0	9,285.8	5,795.0	72.6	71.9	-73.48	3,704.8	142.1	344.7	206.3	138.39	2.491		
9,500.0	5,893.0	9,385.8	5,795.0	74.5	73.8	-73.48	3,804.8	142.1	344.7	202.7	142.04	2.427		
9,600.0	5,893.0	9,485.8	5,795.0	76.4	75.7	-73.48	3,904.8	142.2	344.7	199.0	145.70	2.366		
9,700.0	5,893.0	9,585.8	5,795.0	78.3	77.6	-73.48	4,004.8	142.2	344.7	195.4	149.35	2.308		
9,800.0	5,893.0	9,685.8	5,795.0	80.2	79.4	-73.48	4,104.8	142.2	344.7	191.7	153.01	2.253		
9,900.0	5,893.0	9,785.8	5,795.0	82.0	81.3	-73.48	4,204.8	142.2	344.7	188.1	156.67	2.200		
10,000.0	5,893.0	9,885.8	5,795.0	83.9	83.2	-73.48	4,304.8	142.2	344.7	184.4	160.33	2.150		
10,100.0	5,893.0	9,985.8	5,795.0	85.8	85.1	-73.48	4,404.8	142.2	344.7	180.7	164.00	2.102		

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 #12H-0116B
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 #12H-0116B	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				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		
10,200.0	5,893.0	10,085.8	5,795.0	87.7	87.0	-73.48	4,504.8	142.2	344.7	177.1	167.66	2.056		
10,300.0	5,893.0	10,185.8	5,795.0	89.6	88.9	-73.48	4,604.8	142.2	344.7	173.4	171.33	2.012		
10,400.0	5,893.0	10,285.8	5,795.0	91.5	90.8	-73.48	4,704.8	142.2	344.7	169.7	175.00	1.970		
10,500.0	5,893.0	10,385.8	5,795.0	93.4	92.7	-73.48	4,804.8	142.2	344.7	166.1	178.67	1.929		
10,600.0	5,893.0	10,485.8	5,795.0	95.3	94.6	-73.48	4,904.8	142.2	344.7	162.4	182.34	1.891		
10,700.0	5,893.0	10,585.8	5,795.0	97.2	96.5	-73.48	5,004.8	142.2	344.7	158.7	186.02	1.853		
10,800.0	5,893.0	10,685.8	5,795.0	99.1	98.5	-73.48	5,104.8	142.2	344.7	155.0	189.69	1.817		
10,900.0	5,893.0	10,785.8	5,795.0	101.0	100.4	-73.48	5,204.8	142.2	344.7	151.4	193.37	1.783		
11,000.0	5,893.0	10,885.8	5,795.0	102.9	102.3	-73.48	5,304.8	142.2	344.7	147.7	197.05	1.749		
11,100.0	5,893.0	10,985.8	5,795.0	104.8	104.2	-73.48	5,404.8	142.2	344.7	144.0	200.73	1.717		
11,200.0	5,893.0	11,085.8	5,795.0	106.7	106.1	-73.48	5,504.8	142.2	344.7	140.3	204.41	1.686		
11,300.0	5,893.0	11,185.8	5,795.0	108.6	108.0	-73.48	5,604.8	142.2	344.7	136.6	208.09	1.657		
11,400.0	5,893.0	11,285.8	5,795.0	110.5	109.9	-73.48	5,704.8	142.2	344.7	133.0	211.77	1.628		
11,500.0	5,893.0	11,385.8	5,795.0	112.4	111.8	-73.48	5,804.8	142.2	344.7	129.3	215.45	1.600		
11,600.0	5,893.0	11,485.8	5,795.0	114.3	113.7	-73.48	5,904.8	142.2	344.7	125.6	219.14	1.573		
11,700.0	5,893.0	11,585.8	5,795.0	116.2	115.6	-73.48	6,004.8	142.2	344.7	121.9	222.82	1.547		
11,800.0	5,893.0	11,685.8	5,795.0	118.1	117.5	-73.48	6,104.8	142.2	344.7	118.2	226.51	1.522		
11,900.0	5,893.0	11,785.8	5,795.0	120.0	119.4	-73.48	6,204.8	142.2	344.7	114.5	230.19	1.498 Level 3		
12,000.0	5,893.0	11,885.8	5,795.0	121.9	121.4	-73.48	6,304.8	142.2	344.7	110.8	233.88	1.474 Level 3		
12,100.0	5,893.0	11,985.8	5,795.0	123.8	123.3	-73.48	6,404.8	142.2	344.7	107.2	237.57	1.451 Level 3		
12,200.0	5,893.0	12,085.8	5,795.0	125.7	125.2	-73.48	6,504.8	142.2	344.7	103.5	241.25	1.429 Level 3		
12,300.0	5,893.0	12,185.8	5,795.0	127.6	127.1	-73.48	6,604.8	142.2	344.7	99.8	244.94	1.407 Level 3		
12,400.0	5,893.0	12,285.8	5,795.0	129.6	129.0	-73.48	6,704.8	142.2	344.7	96.1	248.63	1.386 Level 3		
12,500.0	5,893.0	12,385.8	5,795.0	131.5	130.9	-73.48	6,804.8	142.2	344.7	92.4	252.32	1.366 Level 3		
12,600.0	5,893.0	12,485.8	5,795.0	133.4	132.8	-73.48	6,904.8	142.2	344.7	88.7	256.01	1.347 Level 3		
12,700.0	5,893.0	12,585.8	5,795.0	135.3	134.7	-73.48	7,004.8	142.2	344.7	85.0	259.70	1.327 Level 3		
12,800.0	5,893.0	12,685.8	5,795.0	137.2	136.6	-73.48	7,104.8	142.2	344.7	81.3	263.39	1.309 Level 3		
12,849.1	5,893.0	12,734.8	5,795.0	138.1	137.6	-73.48	7,153.9	142.2	344.7	79.5	265.20	1.300 Level 3		
12,866.7	5,893.0	12,751.3	5,795.0	138.5	137.9	-73.48	7,170.3	142.2	344.7	78.9	265.83	1.297 Level 3, SF		

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #12H-0116B
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 #12H-0116B	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		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.3	0.3	0.0	0.0	28.15	60.5	32.4	68.6					
100.0	100.0	101.0	101.0	0.1	0.1	28.16	60.0	32.1	68.1	67.9	0.19	357.585		
200.0	200.0	201.0	201.0	0.3	0.3	28.29	59.1	31.8	67.1	66.5	0.62	108.117		
300.0	300.0	301.2	301.2	0.5	0.5	28.64	57.8	31.6	65.9	64.8	1.07	61.861		
400.0	400.0	401.2	401.1	0.8	0.7	29.19	56.4	31.5	64.7	63.1	1.51	42.839		
500.0	500.0	501.4	501.3	1.0	1.0	29.99	54.7	31.6	63.2	61.2	1.96	32.298		
600.0	600.0	601.3	601.2	1.2	1.2	-60.22	52.7	31.8	61.1	58.7	2.38	25.641		
700.0	700.0	700.8	700.7	1.4	1.4	-61.13	51.0	32.3	58.6	55.8	2.80	20.965		
800.0	799.9	800.4	800.3	1.6	1.6	-63.49	49.8	33.5	56.1	52.9	3.22	17.445		
900.0	899.7	900.4	900.3	1.9	1.8	-67.39	48.7	35.0	53.1	49.5	3.66	14.517		
1,000.0	999.4	1,000.1	1,000.0	2.1	2.0	-73.38	47.2	36.6	49.7	45.6	4.11	12.083		
1,100.0	1,098.9	1,099.5	1,099.3	2.3	2.2	-82.80	46.7	37.4	47.4	42.9	4.57	10.390		
1,196.3	1,194.9	1,195.5	1,195.4	2.6	2.4	-92.89	46.3	37.9	46.7	41.7	5.01	9.326 CC		
1,200.0	1,198.5	1,199.2	1,199.0	2.6	2.4	-93.28	46.3	37.9	46.7	41.7	5.03	9.294 ES		
1,300.0	1,298.1	1,298.9	1,298.7	2.9	2.7	-103.55	45.8	38.6	47.6	42.1	5.49	8.662		
1,400.0	1,397.7	1,398.8	1,398.6	3.1	2.9	-112.56	45.3	39.9	49.5	43.6	5.95	8.322		
1,500.0	1,497.3	1,498.4	1,498.2	3.4	3.1	-120.45	44.7	41.5	52.3	45.9	6.39	8.187		
1,600.0	1,596.8	1,597.9	1,597.7	3.7	3.3	-127.61	44.2	42.8	56.4	49.6	6.82	8.271		
1,700.0	1,696.4	1,697.5	1,697.3	4.0	3.5	-133.99	43.7	43.7	61.4	54.2	7.23	8.487		
1,800.0	1,796.0	1,797.5	1,797.3	4.2	3.7	-139.44	43.0	44.7	66.9	59.3	7.66	8.734		
1,900.0	1,895.6	1,896.4	1,896.2	4.5	3.9	-144.02	42.3	45.7	72.9	64.9	8.08	9.028		
2,000.0	1,995.2	1,996.2	1,996.0	4.8	4.1	-148.66	41.1	45.4	80.2	71.7	8.50	9.434		
2,100.0	2,094.7	2,094.6	2,094.4	5.1	4.3	-153.26	39.0	44.5	88.0	79.0	8.92	9.865		
2,200.0	2,194.3	2,194.0	2,193.8	5.3	4.5	-157.31	36.8	42.6	97.1	87.7	9.33	10.402		
2,300.0	2,293.9	2,293.0	2,292.8	5.6	4.7	-159.23	37.2	41.5	106.8	97.0	9.76	10.938		
2,400.0	2,393.5	2,393.7	2,393.4	5.9	4.9	-159.39	40.3	41.9	116.1	105.9	10.20	11.379		
2,500.0	2,493.0	2,492.4	2,491.9	6.2	5.1	-158.97	44.5	42.4	125.8	115.1	10.64	11.819		
2,600.0	2,592.6	2,593.6	2,593.1	6.5	5.3	-159.58	46.2	43.1	134.3	123.2	11.08	12.121		
2,700.0	2,692.2	2,691.0	2,690.6	6.7	5.5	-159.86	48.8	43.2	143.7	132.2	11.52	12.482		
2,800.0	2,791.8	2,791.9	2,791.3	7.0	5.7	-159.96	52.0	43.1	153.6	141.6	11.96	12.844		
2,900.0	2,891.4	2,893.1	2,892.5	7.3	5.9	-160.83	52.5	43.7	161.8	149.4	12.40	13.053		
3,000.0	2,990.9	2,992.7	2,992.1	7.6	6.2	-161.36	53.8	44.5	170.2	157.3	12.84	13.256		
3,100.0	3,090.5	3,092.3	3,091.7	7.9	6.4	-161.84	54.9	45.6	178.2	164.9	13.28	13.422		
3,200.0	3,190.1	3,192.3	3,191.7	8.1	6.6	-162.22	56.3	46.5	186.5	172.8	13.72	13.597		
3,300.0	3,289.7	3,293.4	3,292.8	8.4	6.8	-162.81	56.7	47.9	194.2	180.0	14.16	13.712		
3,400.0	3,389.2	3,392.3	3,391.6	8.7	7.0	-163.96	55.0	48.8	201.6	187.0	14.59	13.813		
3,500.0	3,488.8	3,492.2	3,491.6	9.0	7.2	-165.05	53.4	49.3	209.4	194.4	15.03	13.938		
3,600.0	3,588.4	3,591.7	3,591.1	9.3	7.4	-166.13	51.4	50.0	217.1	201.7	15.46	14.044		
3,700.0	3,688.0	3,688.7	3,688.0	9.6	7.6	-167.27	49.0	50.0	225.5	209.6	15.89	14.192		
3,800.0	3,787.6	3,780.6	3,779.9	9.8	7.8	-168.47	46.3	47.9	236.1	219.8	16.31	14.478		
3,900.0	3,887.1	3,877.7	3,876.8	10.1	8.0	-169.65	43.9	43.4	249.2	232.4	16.73	14.889		
4,000.0	3,986.7	3,981.3	3,980.3	10.4	8.2	-170.32	43.3	39.5	261.7	244.6	17.18	15.239		
4,100.0	4,086.3	4,082.9	4,081.9	10.7	8.4	-170.52	44.3	37.5	272.9	255.3	17.62	15.487		
4,200.0	4,185.9	4,180.4	4,179.4	11.0	8.6	-171.00	43.8	35.4	284.0	265.9	18.06	15.728		
4,300.0	4,285.4	4,278.9	4,277.8	11.2	8.8	-171.48	43.2	32.7	295.6	277.1	18.49	15.986		
4,400.0	4,385.0	4,379.3	4,378.2	11.5	9.0	-171.70	43.7	30.3	307.1	288.2	18.93	16.225		
4,500.0	4,484.6	4,478.6	4,477.5	11.8	9.3	-171.65	45.7	28.3	318.5	299.2	19.37	16.446		
4,600.0	4,584.2	4,578.1	4,577.0	12.1	9.5	-171.67	47.2	26.2	329.9	310.1	19.81	16.655		
4,700.0	4,683.8	4,678.6	4,677.4	12.4	9.7	-171.78	48.2	24.1	341.2	320.9	20.25	16.846		
4,800.0	4,783.3	4,780.8	4,779.6	12.7	9.9	-171.94	48.8	22.6	351.8	331.1	20.70	16.994		
4,900.0	4,882.9	4,881.4	4,880.2	12.9	10.1	-172.23	48.5	21.6	361.8	340.6	21.14	17.110		
5,000.0	4,982.5	4,981.9	4,980.7	13.2	10.3	-172.58	47.6	20.7	371.7	350.1	21.59	17.217		

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 #12H-0116B
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 #12H-0116B	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	5,082.1	5,086.7	5,085.4	13.5	10.5	-172.96	46.3	20.5	380.8	358.8	22.04	17.276		
5,200.0	5,181.7	5,200.5	5,199.2	13.8	10.8	-173.29	45.0	23.0	387.6	365.1	22.51	17.217		
5,300.0	5,281.2	5,301.9	5,300.5	14.1	11.0	-173.22	45.9	28.3	391.7	368.7	22.96	17.061		
5,400.0	5,380.8	5,387.3	5,385.7	14.4	11.2	-164.46	49.1	31.6	397.5	374.1	23.37	17.008		
5,500.0	5,479.6	5,476.4	5,474.3	14.6	11.4	-105.97	58.1	33.1	404.8	381.0	23.80	17.010		
5,600.0	5,574.6	5,600.4	5,597.0	14.9	11.6	-97.46	75.6	36.8	409.0	384.7	24.29	16.839		
5,640.4	5,611.1	5,638.0	5,633.9	15.0	11.7	-96.83	82.1	39.4	408.9	384.5	24.48	16.708		
5,700.0	5,662.2	5,689.5	5,683.5	15.1	11.8	-96.68	95.7	42.7	409.4	384.7	24.75	16.544		
5,800.0	5,739.3	5,777.0	5,763.1	15.4	12.0	-97.54	131.4	47.2	412.2	386.9	25.30	16.295		
5,900.0	5,802.9	5,872.0	5,841.4	15.8	12.4	-99.32	184.9	49.4	418.4	392.4	26.02	16.079		
6,000.0	5,850.8	5,996.0	5,922.9	16.3	13.0	-101.60	276.5	48.3	427.9	400.8	27.15	15.762		
6,100.0	5,881.1	6,096.0	5,957.0	17.0	13.7	-101.07	370.4	46.1	433.6	404.8	28.79	15.061		
6,200.0	5,892.9	6,203.7	5,974.1	17.9	14.8	-100.71	476.4	41.0	440.0	409.1	30.92	14.231		
6,300.0	5,893.0	6,304.2	5,975.2	19.0	15.9	-100.59	576.6	34.6	446.5	413.3	33.24	13.433		
6,400.0	5,893.0	6,395.9	5,970.1	20.2	17.0	-99.77	667.9	26.7	454.0	418.2	35.73	12.705		
6,500.0	5,893.0	6,505.5	5,960.3	21.5	18.4	-98.36	776.6	16.9	461.5	422.9	38.59	11.958		
6,600.0	5,893.0	6,610.9	5,953.1	22.9	19.8	-97.38	881.5	11.0	466.1	424.6	41.45	11.245		
6,700.0	5,893.0	6,735.9	5,945.6	24.4	21.5	-96.40	1,006.2	6.8	468.8	424.0	44.78	10.469		
6,800.0	5,893.0	6,841.1	5,942.1	25.9	23.0	-95.98	1,111.3	6.6	468.7	420.8	47.87	9.791		
6,900.0	5,893.0	6,967.9	5,943.0	27.5	24.9	-96.18	1,237.9	13.3	463.2	411.8	51.33	9.023		
7,000.0	5,893.0	7,072.4	5,944.2	29.1	26.5	-96.44	1,342.1	21.3	455.8	401.1	54.61	8.346		
7,100.0	5,893.0	7,158.4	5,944.3	30.8	27.8	-96.53	1,427.9	27.4	448.8	391.2	57.62	7.789		
7,200.0	5,893.0	7,238.2	5,946.8	32.5	29.0	-96.89	1,507.5	29.6	446.3	385.7	60.53	7.373		
7,300.0	5,893.0	7,342.9	5,948.3	34.2	30.7	-97.11	1,612.2	31.7	444.4	380.5	63.94	6.951		
7,400.0	5,893.0	7,453.8	5,948.4	35.9	32.5	-97.19	1,723.0	35.8	440.6	373.2	67.45	6.533		
7,500.0	5,893.0	7,570.1	5,946.7	37.7	34.4	-97.08	1,839.1	43.3	434.0	362.9	71.09	6.104		
7,600.0	5,893.0	7,667.2	5,944.6	39.5	36.0	-96.92	1,935.9	50.1	426.8	352.3	74.47	5.731		
7,700.0	5,893.0	7,747.4	5,943.9	41.2	37.3	-96.89	2,016.0	53.7	422.2	344.6	77.57	5.443		
7,746.6	5,893.0	7,782.8	5,944.4	42.1	37.8	-96.97	2,051.4	54.3	421.5	342.5	78.98	5.337		
7,800.0	5,893.0	7,824.9	5,945.4	43.0	38.6	-97.09	2,093.5	53.7	422.3	341.7	80.64	5.238		
7,900.0	5,893.0	7,915.3	5,946.1	44.8	40.2	-97.12	2,183.8	50.2	426.2	342.2	84.04	5.072		
8,000.0	5,893.0	8,021.2	5,945.9	46.6	42.0	-97.04	2,289.7	46.1	430.0	342.3	87.68	4.904		
8,100.0	5,893.0	8,127.7	5,944.1	48.5	43.8	-96.73	2,396.1	42.7	433.1	341.7	91.40	4.738		
8,200.0	5,893.0	8,233.7	5,940.0	50.3	45.7	-96.17	2,502.0	40.5	434.6	339.5	95.14	4.569		
8,300.0	5,893.0	8,356.1	5,937.3	52.1	47.7	-95.83	2,624.3	42.2	433.1	334.0	99.07	4.372		
8,400.0	5,893.0	8,449.0	5,939.7	54.0	49.3	-96.21	2,717.0	46.4	428.9	326.5	102.42	4.188		
8,500.0	5,893.0	8,539.1	5,942.0	55.8	50.9	-96.55	2,807.1	47.8	427.6	321.8	105.80	4.042		
8,552.2	5,893.0	8,588.9	5,943.0	56.8	51.7	-96.67	2,856.9	48.1	427.4	319.8	107.62	3.971		
8,600.0	5,893.0	8,634.0	5,943.3	57.7	52.6	-96.72	2,902.0	48.0	427.6	318.3	109.30	3.912		
8,700.0	5,893.0	8,725.2	5,942.6	59.5	54.2	-96.59	2,993.2	46.0	429.6	316.8	112.79	3.809		
8,800.0	5,893.0	8,821.5	5,942.8	61.4	55.9	-96.56	3,089.4	42.7	433.0	316.7	116.34	3.722		
8,900.0	5,893.0	8,916.4	5,942.5	63.3	57.6	-96.47	3,184.3	38.7	437.2	317.3	119.94	3.645		
9,000.0	5,893.0	9,012.1	5,942.1	65.1	59.3	-96.35	3,279.8	34.3	441.8	318.3	123.50	3.577		
9,100.0	5,893.0	9,105.2	5,942.1	67.0	60.9	-96.26	3,372.7	28.0	448.4	321.4	127.05	3.530		
9,200.0	5,893.0	9,217.6	5,942.1	68.9	62.9	-96.17	3,484.9	21.8	453.9	323.0	130.92	3.467		
9,300.0	5,893.0	9,316.4	5,942.2	70.7	64.7	-96.14	3,583.6	17.7	458.1	323.5	134.55	3.405		
9,400.0	5,893.0	9,419.2	5,940.7	72.6	66.6	-95.88	3,686.2	12.5	462.9	324.6	138.34	3.346		
9,500.0	5,893.0	9,524.4	5,940.2	74.5	68.4	-95.78	3,791.4	8.7	466.5	324.4	142.07	3.284		
9,600.0	5,893.0	9,633.1	5,939.9	76.4	70.3	-95.71	3,900.1	6.8	468.2	322.4	145.83	3.211		
9,700.0	5,893.0	9,730.9	5,940.3	78.3	72.0	-95.75	3,997.9	5.7	469.3	319.9	149.45	3.140		
9,800.0	5,893.0	9,824.3	5,941.8	80.2	73.6	-95.91	4,091.3	4.0	471.3	318.5	152.89	3.083		
9,900.0	5,893.0	9,924.1	5,944.5	82.0	75.4	-96.20	4,191.0	1.2	474.4	317.9	156.46	3.032		

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 #12H-0116B
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 #12H-0116B	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	
10,000.0	5,893.0	10,026.0	5,943.4	83.9	77.2	-96.03	4,292.8	-1.5	476.9	316.7	160.21	2.977	
10,100.0	5,893.0	10,114.0	5,942.8	85.8	78.7	-95.93	4,380.8	-4.4	480.2	316.6	163.65	2.935	
10,200.0	5,893.0	10,202.5	5,945.8	87.7	80.3	-96.21	4,469.0	-9.9	486.8	319.8	167.00	2.915	
10,300.0	5,893.0	10,311.3	5,946.3	89.6	82.2	-96.18	4,577.6	-17.4	493.7	322.9	170.84	2.890 SF	

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #12H-0116B
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 #12H-0116B	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-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	Separation		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-138.63	-75.1	-66.1	100.0					
100.0	100.0	100.0	100.0	0.1	0.1	-138.63	-75.1	-66.1	100.0	99.8	0.19	534.938		
200.0	200.0	200.0	200.0	0.3	0.3	-138.63	-75.1	-66.1	100.0	99.4	0.64	157.157		
300.0	300.0	300.0	300.0	0.5	0.5	-138.63	-75.1	-66.1	100.0	99.0	1.09	92.109		
400.0	400.0	400.0	400.0	0.8	0.8	-138.63	-75.1	-66.1	100.0	98.5	1.54	65.145		
500.0	500.0	500.0	500.0	1.0	1.0	-138.63	-75.1	-66.1	100.0	98.1	1.99	50.393 CC, ES		
600.0	600.0	600.0	600.0	1.2	1.2	131.15	-75.1	-66.1	100.6	98.2	2.42	41.544		
700.0	700.0	700.0	700.0	1.4	1.4	132.24	-75.1	-66.1	102.4	99.5	2.85	35.883		
800.0	799.9	799.9	799.9	1.6	1.7	133.97	-75.1	-66.1	105.3	102.0	3.29	32.006		
900.0	899.7	899.7	899.7	1.9	1.9	136.24	-75.1	-66.1	109.7	105.9	3.74	29.348		
1,000.0	999.4	999.4	999.4	2.1	2.1	138.89	-75.1	-66.1	115.5	111.3	4.19	27.567		
1,100.0	1,098.9	1,098.9	1,098.9	2.3	2.3	141.68	-75.1	-66.1	122.5	117.8	4.64	26.371		
1,200.0	1,198.5	1,198.5	1,198.5	2.6	2.6	144.19	-75.1	-66.1	129.8	124.7	5.10	25.444		
1,300.0	1,298.1	1,298.1	1,298.1	2.9	2.8	146.42	-75.1	-66.1	137.4	131.8	5.56	24.709		
1,400.0	1,397.7	1,397.7	1,397.7	3.1	3.0	148.42	-75.1	-66.1	145.1	139.1	6.02	24.118		
1,500.0	1,497.3	1,497.3	1,497.3	3.4	3.2	150.22	-75.1	-66.1	153.0	146.5	6.47	23.633		
1,600.0	1,596.8	1,594.5	1,594.5	3.7	3.4	151.93	-75.1	-66.9	161.8	154.9	6.91	23.397 SF		
1,700.0	1,696.4	1,691.2	1,691.2	4.0	3.6	153.70	-75.1	-69.3	172.2	164.8	7.34	23.454		
1,800.0	1,796.0	1,787.6	1,787.5	4.2	3.8	155.46	-75.1	-73.3	184.3	176.5	7.77	23.722		
1,900.0	1,895.6	1,883.5	1,883.2	4.5	4.0	157.18	-75.2	-79.0	198.1	189.9	8.19	24.169		
2,000.0	1,995.2	1,981.6	1,981.1	4.8	4.2	158.81	-75.2	-85.8	213.1	204.4	8.63	24.698		
2,100.0	2,094.7	2,080.3	2,079.6	5.1	4.5	160.24	-75.3	-92.7	228.2	219.2	9.06	25.191		
2,200.0	2,194.3	2,179.0	2,178.0	5.3	4.7	161.50	-75.3	-99.6	243.5	234.0	9.50	25.648		
2,300.0	2,293.9	2,277.7	2,276.5	5.6	4.9	162.60	-75.4	-106.5	258.9	249.0	9.93	26.069		
2,400.0	2,393.5	2,376.4	2,374.9	5.9	5.2	163.58	-75.5	-113.5	274.4	264.1	10.37	26.459		
2,500.0	2,493.0	2,475.1	2,473.4	6.2	5.4	164.46	-75.5	-120.4	290.0	279.2	10.81	26.821		
2,600.0	2,592.6	2,573.8	2,571.8	6.5	5.6	165.24	-75.6	-127.3	305.6	294.4	11.25	27.156		
2,700.0	2,692.2	2,672.5	2,670.3	6.7	5.9	165.95	-75.6	-134.2	321.3	309.6	11.70	27.468		
2,800.0	2,791.8	2,771.2	2,768.7	7.0	6.1	166.60	-75.7	-141.1	337.0	324.8	12.14	27.758		
2,900.0	2,891.4	2,869.9	2,867.1	7.3	6.3	167.18	-75.7	-148.0	352.7	340.1	12.58	28.029		
3,000.0	2,990.9	2,968.5	2,965.6	7.6	6.6	167.72	-75.8	-154.9	368.5	355.5	13.03	28.281		
3,100.0	3,090.5	3,067.2	3,064.0	7.9	6.8	168.21	-75.8	-161.8	384.3	370.8	13.48	28.518		
3,200.0	3,190.1	3,165.9	3,162.5	8.1	7.1	168.66	-75.9	-168.8	400.2	386.2	13.92	28.739		
3,300.0	3,289.7	3,264.6	3,260.9	8.4	7.3	169.08	-76.0	-175.7	416.0	401.6	14.37	28.947		
3,400.0	3,389.2	3,363.3	3,359.4	8.7	7.6	169.47	-76.0	-182.6	431.9	417.1	14.82	29.143		
3,500.0	3,488.8	3,462.0	3,457.8	9.0	7.8	169.83	-76.1	-189.5	447.8	432.5	15.27	29.327		
3,600.0	3,588.4	3,560.7	3,556.3	9.3	8.0	170.17	-76.1	-196.4	463.7	448.0	15.72	29.501		
3,700.0	3,688.0	3,659.4	3,654.7	9.6	8.3	170.48	-76.2	-203.3	479.6	463.5	16.17	29.665		
3,800.0	3,787.6	3,758.1	3,753.2	9.8	8.5	170.78	-76.2	-210.2	495.6	478.9	16.62	29.820		

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #12H-0116B
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 #12H-0116B	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	-156.32	-75.1	-32.9	82.0					
100.0	100.0	100.0	100.0	0.1	0.1	-156.32	-75.1	-32.9	82.0	81.8	0.19	438.340		
200.0	200.0	200.0	200.0	0.3	0.3	-156.32	-75.1	-32.9	82.0	81.3	0.64	128.778		
300.0	300.0	300.0	300.0	0.5	0.5	-156.32	-75.1	-32.9	82.0	80.9	1.09	75.476		
400.0	400.0	400.0	400.0	0.8	0.8	-156.32	-75.1	-32.9	82.0	80.4	1.54	53.381		
500.0	500.0	500.0	500.0	1.0	1.0	-156.32	-75.1	-32.9	82.0	80.0	1.99	41.293 CC		
600.0	600.0	600.0	600.0	1.2	1.2	113.64	-75.1	-32.9	82.3	79.9	2.42	33.991 ES		
700.0	700.0	700.0	700.0	1.4	1.4	115.28	-75.1	-32.9	83.4	80.5	2.85	29.234		
800.0	799.9	799.9	799.9	1.6	1.7	117.90	-75.1	-32.9	85.4	82.1	3.29	25.918		
900.0	899.7	899.7	899.7	1.9	1.9	121.37	-75.1	-32.9	88.4	84.6	3.74	23.614		
1,000.0	999.4	999.4	999.4	2.1	2.1	125.47	-75.1	-32.9	92.7	88.5	4.20	22.074		
1,100.0	1,098.9	1,098.9	1,098.9	2.3	2.3	129.78	-75.1	-32.9	98.3	93.6	4.66	21.078		
1,200.0	1,198.5	1,198.5	1,198.5	2.6	2.6	133.65	-75.1	-32.9	104.4	99.3	5.13	20.368		
1,300.0	1,298.1	1,298.1	1,298.1	2.9	2.8	137.07	-75.1	-32.9	111.0	105.4	5.59	19.855		
1,400.0	1,397.7	1,397.7	1,397.7	3.1	3.0	140.10	-75.1	-32.9	117.9	111.8	6.05	19.483		
1,500.0	1,497.3	1,497.3	1,497.3	3.4	3.2	142.80	-75.1	-32.9	125.1	118.5	6.51	19.215		
1,600.0	1,596.8	1,596.8	1,596.8	3.7	3.5	145.19	-75.1	-32.9	132.5	125.5	6.97	19.022		
1,700.0	1,696.4	1,696.4	1,696.4	4.0	3.7	147.33	-75.1	-32.9	140.1	132.7	7.42	18.881		
1,800.0	1,796.0	1,796.0	1,796.0	4.2	3.9	149.25	-75.1	-32.9	147.9	140.1	7.88	18.777		
1,900.0	1,895.6	1,895.6	1,895.6	4.5	4.1	150.97	-75.1	-32.9	155.9	147.6	8.34	18.705		
2,000.0	1,995.2	1,995.2	1,995.2	4.8	4.4	152.53	-75.1	-32.9	164.0	155.2	8.79	18.655		
2,100.0	2,094.7	2,094.7	2,094.7	5.1	4.6	153.93	-75.1	-32.9	172.2	163.0	9.25	18.623		
2,200.0	2,194.3	2,194.3	2,194.3	5.3	4.8	155.21	-75.1	-32.9	180.5	170.8	9.70	18.604		
2,300.0	2,293.9	2,293.9	2,293.9	5.6	5.0	156.38	-75.1	-32.9	188.9	178.7	10.16	18.595		
2,400.0	2,393.5	2,393.5	2,393.5	5.9	5.2	157.45	-75.1	-32.9	197.3	186.7	10.61	18.594 SF		
2,500.0	2,493.0	2,493.0	2,493.0	6.2	5.5	158.43	-75.1	-32.9	205.8	194.8	11.07	18.599		
2,600.0	2,592.6	2,592.6	2,592.6	6.5	5.7	159.33	-75.1	-32.9	214.4	202.9	11.52	18.608		
2,700.0	2,692.2	2,692.2	2,692.2	6.7	5.9	160.16	-75.1	-32.9	223.0	211.0	11.98	18.621		
2,800.0	2,791.8	2,791.8	2,791.8	7.0	6.1	160.93	-75.1	-32.9	231.7	219.2	12.43	18.636		
2,900.0	2,891.4	2,891.4	2,891.4	7.3	6.4	161.64	-75.1	-32.9	240.4	227.5	12.89	18.653		
3,000.0	2,990.9	2,990.9	2,990.9	7.6	6.6	162.31	-75.1	-32.9	249.1	235.7	13.34	18.672		
3,100.0	3,090.5	3,090.5	3,090.5	7.9	6.8	162.93	-75.1	-32.9	257.8	244.1	13.79	18.691		
3,200.0	3,190.1	3,190.1	3,190.1	8.1	7.0	163.51	-75.1	-32.9	266.6	252.4	14.25	18.712		
3,300.0	3,289.7	3,289.7	3,289.7	8.4	7.3	164.05	-75.1	-32.9	275.4	260.7	14.70	18.732		
3,400.0	3,389.2	3,389.2	3,389.2	8.7	7.5	164.56	-75.1	-32.9	284.3	269.1	15.16	18.753		
3,500.0	3,488.8	3,488.8	3,488.8	9.0	7.7	165.03	-75.1	-32.9	293.1	277.5	15.61	18.774		
3,600.0	3,588.4	3,588.4	3,588.4	9.3	7.9	165.48	-75.1	-32.9	302.0	285.9	16.07	18.795		
3,700.0	3,688.0	3,688.0	3,688.0	9.6	8.2	165.91	-75.1	-32.9	310.9	294.4	16.52	18.816		
3,800.0	3,787.6	3,787.6	3,787.6	9.8	8.4	166.31	-75.1	-32.9	319.8	302.8	16.98	18.836		
3,900.0	3,887.1	3,887.1	3,887.1	10.1	8.6	166.68	-75.1	-32.9	328.7	311.3	17.43	18.856		
4,000.0	3,986.7	3,986.7	3,986.7	10.4	8.8	167.04	-75.1	-32.9	337.7	319.8	17.89	18.876		
4,100.0	4,086.3	4,086.3	4,086.3	10.7	9.1	167.38	-75.1	-32.9	346.6	328.3	18.34	18.896		
4,200.0	4,185.9	4,185.9	4,185.9	11.0	9.3	167.71	-75.1	-32.9	355.6	336.8	18.80	18.915		
4,300.0	4,285.4	4,285.4	4,285.4	11.2	9.5	168.01	-75.1	-32.9	364.6	345.3	19.26	18.933		
4,400.0	4,385.0	4,385.0	4,385.0	11.5	9.7	168.31	-75.1	-32.9	373.5	353.8	19.71	18.952		
4,500.0	4,484.6	4,484.6	4,484.6	11.8	9.9	168.58	-75.1	-32.9	382.5	362.4	20.17	18.970		
4,600.0	4,584.2	4,584.2	4,584.2	12.1	10.2	168.85	-75.1	-32.9	391.5	370.9	20.62	18.987		
4,700.0	4,683.8	4,683.8	4,683.8	12.4	10.4	169.10	-75.1	-32.9	400.5	379.5	21.08	19.004		
4,800.0	4,783.3	4,783.3	4,783.3	12.7	10.6	169.35	-75.1	-32.9	409.6	388.0	21.53	19.021		
4,900.0	4,882.9	4,882.9	4,882.9	12.9	10.8	169.58	-75.1	-32.9	418.6	396.6	21.99	19.037		
5,000.0	4,982.5	4,982.5	4,982.5	13.2	11.1	169.80	-75.1	-32.9	427.6	405.2	22.44	19.053		
5,100.0	5,082.1	5,082.1	5,082.1	13.5	11.3	170.01	-75.1	-32.9	436.6	413.7	22.90	19.068		

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 #12H-0116B
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 #12H-0116B	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										
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre +N/-S	+E/-W	Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor	Warning				
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)							
5,200.0	5,181.7	5,181.7	5,181.7	13.8	11.5	170.22	-75.1	-32.9	445.7	422.3	23.36	19.083					
5,300.0	5,281.2	5,281.2	5,281.2	14.1	11.7	170.41	-75.1	-32.9	454.7	430.9	23.81	19.098					
5,400.0	5,380.8	5,379.8	5,379.8	14.4	12.0	178.98	-75.1	-32.9	463.8	439.5	24.26	19.120					
5,500.0	5,479.6	5,464.2	5,463.7	14.6	12.1	-123.69	-83.2	-32.9	476.3	451.7	24.55	19.396					
5,600.0	5,574.6	5,533.8	5,531.2	14.9	12.2	-114.47	-100.0	-32.9	497.1	472.4	24.77	20.073					

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #12H-0116B
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 #12H-0116B	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	-180.00	-75.1	0.0	75.1					
100.0	100.0	100.0	100.0	0.1	0.1	-180.00	-75.1	0.0	75.1	74.9	0.19	401.437		
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-75.1	0.0	75.1	74.4	0.64	117.936		
300.0	300.0	300.0	300.0	0.5	0.5	-180.00	-75.1	0.0	75.1	74.0	1.09	69.122		
400.0	400.0	400.0	400.0	0.8	0.8	-180.00	-75.1	0.0	75.1	73.5	1.54	48.887		
500.0	500.0	500.0	500.0	1.0	1.0	-180.00	-75.1	0.0	75.1	73.1	1.99	37.817		
594.7	594.6	594.6	594.6	1.2	1.2	90.00	-75.1	0.0	75.1	72.7	2.40	31.299 CC		
600.0	600.0	600.0	600.0	1.2	1.2	90.07	-75.1	0.0	75.1	72.6	2.42	30.997		
700.0	700.0	700.0	700.0	1.4	1.4	92.07	-75.1	0.0	75.1	72.3	2.85	26.327		
800.0	799.9	799.9	799.9	1.6	1.7	95.37	-75.1	0.0	75.4	72.1	3.29	22.884 ES		
900.0	899.7	899.7	899.7	1.9	1.9	99.93	-75.1	0.0	76.2	72.5	3.75	20.336		
1,000.0	999.4	999.4	999.4	2.1	2.1	105.59	-75.1	0.0	78.0	73.7	4.21	18.505		
1,100.0	1,098.9	1,098.9	1,098.9	2.3	2.3	111.79	-75.1	0.0	80.9	76.2	4.69	17.262		
1,200.0	1,198.5	1,198.5	1,198.5	2.6	2.6	117.54	-75.1	0.0	84.7	79.6	5.16	16.423		
1,300.0	1,298.1	1,298.9	1,298.9	2.9	2.8	122.33	-75.1	0.9	88.9	83.3	5.62	15.819		
1,400.0	1,397.7	1,399.6	1,399.6	3.1	3.0	125.81	-75.1	3.5	92.6	86.5	6.07	15.250		
1,500.0	1,497.3	1,500.5	1,500.4	3.4	3.2	128.19	-75.1	7.9	95.4	88.9	6.53	14.622		
1,600.0	1,596.8	1,601.5	1,601.2	3.7	3.4	129.65	-75.1	14.1	97.3	90.3	6.99	13.917		
1,700.0	1,696.4	1,701.5	1,700.9	4.0	3.6	130.67	-75.1	21.0	98.7	91.3	7.46	13.225		
1,800.0	1,796.0	1,801.5	1,800.7	4.2	3.9	131.67	-75.1	28.0	100.1	92.2	7.94	12.615		
1,900.0	1,895.6	1,901.5	1,900.4	4.5	4.1	132.63	-75.1	34.9	101.6	93.2	8.41	12.074		
2,000.0	1,995.2	2,001.4	2,000.1	4.8	4.3	133.57	-75.1	41.8	103.1	94.2	8.89	11.592		
2,100.0	2,094.7	2,101.4	2,099.9	5.1	4.6	134.49	-75.1	48.8	104.6	95.2	9.37	11.162		
2,200.0	2,194.3	2,201.4	2,199.6	5.3	4.8	135.37	-75.1	55.7	106.1	96.3	9.85	10.775		
2,300.0	2,293.9	2,301.4	2,299.3	5.6	5.0	136.24	-75.1	62.7	107.7	97.3	10.33	10.426		
2,400.0	2,393.5	2,401.3	2,399.1	5.9	5.3	137.07	-75.1	69.6	109.3	98.4	10.81	10.110		
2,500.0	2,493.0	2,501.3	2,498.8	6.2	5.5	137.89	-75.1	76.6	110.9	99.6	11.28	9.824		
2,600.0	2,592.6	2,601.3	2,598.5	6.5	5.8	138.67	-75.1	83.5	112.5	100.7	11.76	9.563		
2,700.0	2,692.2	2,701.3	2,698.3	6.7	6.0	139.44	-75.1	90.5	114.1	101.9	12.24	9.324		
2,800.0	2,791.8	2,801.2	2,798.0	7.0	6.3	140.19	-75.1	97.4	115.8	103.1	12.72	9.105		
2,900.0	2,891.4	2,901.2	2,897.7	7.3	6.5	140.91	-75.2	104.3	117.5	104.3	13.19	8.905		
3,000.0	2,990.9	3,001.2	2,997.5	7.6	6.8	141.61	-75.2	111.3	119.2	105.5	13.67	8.719		
3,100.0	3,090.5	3,101.2	3,097.2	7.9	7.0	142.30	-75.2	118.2	120.9	106.8	14.14	8.548		
3,200.0	3,190.1	3,201.1	3,196.9	8.1	7.3	142.96	-75.2	125.2	122.6	108.0	14.62	8.390		
3,300.0	3,289.7	3,301.1	3,296.7	8.4	7.5	143.61	-75.2	132.1	124.4	109.3	15.09	8.243		
3,400.0	3,389.2	3,401.1	3,396.4	8.7	7.8	144.23	-75.2	139.1	126.2	110.6	15.56	8.107		
3,500.0	3,488.8	3,501.1	3,496.1	9.0	8.0	144.84	-75.2	146.0	127.9	111.9	16.03	7.979		
3,600.0	3,588.4	3,601.0	3,595.9	9.3	8.3	145.43	-75.2	152.9	129.7	113.2	16.51	7.860		
3,700.0	3,688.0	3,701.0	3,695.6	9.6	8.5	146.01	-75.2	159.9	131.6	114.6	16.98	7.749		
3,800.0	3,787.6	3,801.0	3,795.3	9.8	8.8	146.57	-75.2	166.8	133.4	115.9	17.45	7.645		
3,900.0	3,887.1	3,901.0	3,895.1	10.1	9.0	147.12	-75.2	173.8	135.2	117.3	17.92	7.546		
4,000.0	3,986.7	4,000.9	3,994.8	10.4	9.3	147.65	-75.2	180.7	137.1	118.7	18.39	7.454		
4,100.0	4,086.3	4,100.9	4,094.5	10.7	9.5	148.17	-75.2	187.7	138.9	120.1	18.86	7.367		
4,200.0	4,185.9	4,200.9	4,194.3	11.0	9.8	148.67	-75.2	194.6	140.8	121.5	19.33	7.285		
4,300.0	4,285.4	4,300.9	4,294.0	11.2	10.1	149.16	-75.2	201.6	142.7	122.9	19.80	7.208		
4,400.0	4,385.0	4,400.8	4,393.7	11.5	10.3	149.64	-75.2	208.5	144.6	124.3	20.26	7.135		
4,500.0	4,484.6	4,500.8	4,493.5	11.8	10.6	150.10	-75.2	215.4	146.5	125.7	20.73	7.065		
4,600.0	4,584.2	4,600.8	4,593.2	12.1	10.8	150.55	-75.3	222.4	148.4	127.2	21.20	7.000		
4,700.0	4,683.8	4,700.8	4,692.9	12.4	11.1	151.00	-75.3	229.3	150.3	128.6	21.67	6.938		
4,800.0	4,783.3	4,800.7	4,792.7	12.7	11.3	151.43	-75.3	236.3	152.2	130.1	22.13	6.879		
4,900.0	4,882.9	4,900.7	4,892.4	12.9	11.6	151.85	-75.3	243.2	154.2	131.6	22.60	6.822		
5,000.0	4,982.5	5,000.7	4,992.1	13.2	11.9	152.25	-75.3	250.2	156.1	133.1	23.06	6.769		

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 #12H-0116B
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 #12H-0116B	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-ISWWSA 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				
5,100.0	5,082.1	5,100.7	5,091.9	13.5	12.1	152.65	-75.3	257.1	158.1	134.5	23.53	6.718					
5,200.0	5,181.7	5,200.6	5,191.6	13.8	12.4	153.04	-75.3	264.1	160.0	136.0	23.99	6.670					
5,300.0	5,281.2	5,298.7	5,289.4	14.1	12.6	153.36	-75.5	270.9	162.1	137.6	24.46	6.628 SF					
5,400.0	5,380.8	5,385.4	5,375.3	14.4	12.8	159.13	-85.0	276.8	169.2	144.1	25.03	6.759					
5,500.0	5,479.6	5,463.3	5,450.1	14.6	13.0	-148.49	-105.6	282.1	191.5	166.0	25.50	7.511					
5,600.0	5,574.6	5,522.5	5,504.5	14.9	13.2	-141.85	-128.7	285.8	238.4	213.0	25.38	9.393					
5,700.0	5,662.2	5,560.9	5,538.3	15.1	13.3	-136.59	-146.9	288.2	308.1	283.4	24.66	12.492					
5,800.0	5,739.3	5,581.5	5,555.8	15.4	13.4	-124.25	-157.6	289.4	393.2	368.7	24.52	16.039					
5,900.0	5,802.9	5,588.1	5,561.3	15.8	13.4	-98.03	-161.2	289.8	486.3	460.2	26.09	18.639					

Anticollision Report

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well Razor #12H-0116B
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 #12H-0116B	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-1316B - 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	156.14	-75.1	33.2	82.1					
100.0	100.0	100.0	100.0	0.1	0.1	156.14	-75.1	33.2	82.1	81.9	0.19	438.860		
200.0	200.0	200.0	200.0	0.3	0.3	156.14	-75.1	33.2	82.1	81.4	0.64	128.931		
300.0	300.0	300.0	300.0	0.5	0.5	156.14	-75.1	33.2	82.1	81.0	1.09	75.565		
400.0	400.0	400.0	400.0	0.8	0.8	156.14	-75.1	33.2	82.1	80.5	1.54	53.444		
500.0	500.0	500.0	500.0	1.0	1.0	156.14	-75.1	33.2	82.1	80.1	1.99	41.342		
600.0	600.0	599.4	599.4	1.2	1.2	65.55	-75.1	34.1	82.1	79.7	2.41	34.090		
700.0	700.0	698.8	698.8	1.4	1.4	65.55	-75.1	36.6	82.0	79.2	2.82	29.122		
800.0	799.9	798.2	798.1	1.6	1.6	65.56	-75.1	41.0	82.0	78.8	3.24	25.278		
900.0	899.7	897.7	897.3	1.9	1.8	65.58	-75.1	47.0	82.0	78.3	3.69	22.216		
1,000.0	999.4	997.1	996.5	2.1	2.1	65.60	-75.2	54.7	81.9	77.8	4.16	19.710		
1,021.1	1,020.4	1,018.0	1,017.3	2.1	2.1	65.58	-75.2	56.6	81.9	77.7	4.26	19.218 CC		
1,100.0	1,098.9	1,096.5	1,095.4	2.3	2.3	65.32	-75.2	64.2	82.1	77.4	4.65	17.662		
1,200.0	1,198.5	1,196.5	1,194.9	2.6	2.6	64.52	-75.3	74.6	82.6	77.4	5.15	16.025		
1,300.0	1,298.1	1,296.5	1,294.3	2.9	2.9	63.73	-75.4	85.1	83.1	77.4	5.67	14.662 ES		
1,400.0	1,397.7	1,396.5	1,393.8	3.1	3.2	62.94	-75.4	95.5	83.6	77.4	6.18	13.517		
1,500.0	1,497.3	1,496.5	1,493.2	3.4	3.4	62.17	-75.5	105.9	84.1	77.4	6.71	12.544		
1,600.0	1,596.8	1,596.4	1,592.6	3.7	3.7	61.41	-75.6	116.3	84.7	77.4	7.23	11.711		
1,700.0	1,696.4	1,696.4	1,692.1	4.0	4.0	60.65	-75.6	126.7	85.2	77.5	7.76	10.991		
1,800.0	1,796.0	1,796.4	1,791.5	4.2	4.3	59.91	-75.7	137.2	85.8	77.5	8.28	10.363		
1,900.0	1,895.6	1,896.4	1,891.0	4.5	4.6	59.18	-75.7	147.6	86.4	77.6	8.81	9.812		
2,000.0	1,995.2	1,996.4	1,990.4	4.8	4.9	58.45	-75.8	158.0	87.0	77.7	9.33	9.326		
2,100.0	2,094.7	2,096.4	2,089.9	5.1	5.2	57.74	-75.9	168.4	87.6	77.8	9.86	8.893		
2,200.0	2,194.3	2,196.4	2,189.3	5.3	5.5	57.04	-75.9	178.9	88.3	77.9	10.38	8.506		
2,300.0	2,293.9	2,296.4	2,288.8	5.6	5.8	56.34	-76.0	189.3	88.9	78.0	10.90	8.158		
2,400.0	2,393.5	2,396.4	2,388.2	5.9	6.0	55.66	-76.1	199.7	89.6	78.2	11.42	7.844		
2,500.0	2,493.0	2,496.4	2,487.7	6.2	6.3	54.99	-76.1	210.1	90.3	78.3	11.94	7.560		
2,600.0	2,592.6	2,596.4	2,587.1	6.5	6.6	54.33	-76.2	220.5	91.0	78.5	12.46	7.301		
2,700.0	2,692.2	2,696.4	2,686.6	6.7	6.9	53.67	-76.3	231.0	91.7	78.7	12.98	7.064		
2,800.0	2,791.8	2,796.4	2,786.0	7.0	7.2	53.03	-76.3	241.4	92.4	78.9	13.49	6.848		
2,900.0	2,891.4	2,896.3	2,885.5	7.3	7.5	52.40	-76.4	251.8	93.1	79.1	14.00	6.648		
3,000.0	2,990.9	2,996.3	2,984.9	7.6	7.8	51.78	-76.4	262.2	93.8	79.3	14.51	6.465		
3,100.0	3,090.5	3,096.3	3,084.4	7.9	8.1	51.16	-76.5	272.6	94.6	79.6	15.02	6.295		
3,200.0	3,190.1	3,196.3	3,183.8	8.1	8.4	50.56	-76.6	283.1	95.3	79.8	15.53	6.138		
3,300.0	3,289.7	3,296.3	3,283.3	8.4	8.7	49.97	-76.6	293.5	96.1	80.1	16.04	5.992		
3,400.0	3,389.2	3,396.3	3,382.7	8.7	9.0	49.38	-76.7	303.9	96.9	80.3	16.54	5.856		
3,500.0	3,488.8	3,496.3	3,482.2	9.0	9.3	48.81	-76.8	314.3	97.7	80.6	17.04	5.730		
3,600.0	3,588.4	3,596.3	3,581.6	9.3	9.6	48.24	-76.8	324.7	98.5	80.9	17.54	5.611		
3,700.0	3,688.0	3,696.3	3,681.0	9.6	9.9	47.69	-76.9	335.2	99.3	81.2	18.04	5.501		
3,800.0	3,787.6	3,796.3	3,780.5	9.8	10.2	47.14	-77.0	345.6	100.1	81.5	18.54	5.397		
3,900.0	3,887.1	3,896.3	3,879.9	10.1	10.5	46.60	-77.0	356.0	100.9	81.9	19.04	5.299		
4,000.0	3,986.7	3,996.3	3,979.4	10.4	10.8	46.07	-77.1	366.4	101.7	82.2	19.53	5.208		
4,100.0	4,086.3	4,096.3	4,078.8	10.7	11.1	45.55	-77.1	376.9	102.6	82.5	20.03	5.121		
4,200.0	4,185.9	4,196.2	4,178.3	11.0	11.4	45.04	-77.2	387.3	103.4	82.9	20.52	5.040		
4,300.0	4,285.4	4,296.2	4,277.7	11.2	11.7	44.53	-77.3	397.7	104.3	83.3	21.01	4.963		
4,400.0	4,385.0	4,396.2	4,377.2	11.5	12.0	44.03	-77.3	408.1	105.1	83.6	21.50	4.890		
4,500.0	4,484.6	4,496.2	4,476.6	11.8	12.3	43.55	-77.4	418.5	106.0	84.0	21.99	4.821		
4,600.0	4,584.2	4,596.2	4,576.1	12.1	12.6	43.07	-77.5	429.0	106.9	84.4	22.48	4.756		
4,700.0	4,683.8	4,696.2	4,675.5	12.4	12.9	42.59	-77.5	439.4	107.8	84.8	22.96	4.694		
4,800.0	4,783.3	4,796.2	4,775.0	12.7	13.2	42.13	-77.6	449.8	108.7	85.2	23.45	4.635		
4,900.0	4,882.9	4,896.2	4,874.4	12.9	13.5	41.67	-77.6	460.2	109.6	85.6	23.93	4.579		
5,000.0	4,982.5	4,996.2	4,973.9	13.2	13.8	41.22	-77.7	470.6	110.5	86.1	24.41	4.526		

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 #12H-0116B
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 #12H-0116B	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-1316B - 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										
Measured Depth	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore	Centre	Between	Between	Total	Separation	Warning				
Depth	Depth	Depth	Depth			Toolface	+N/-S	+E/-W	Centres	Ellipses	Uncertainty	Factor					
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)	Axis						
5,100.0	5,082.1	5,096.2	5,073.3	13.5	14.1	40.78	-77.8	481.1	111.4	86.5	24.89	4.475					
5,200.0	5,181.7	5,196.2	5,172.8	13.8	14.4	40.35	-77.8	491.5	112.3	86.9	25.37	4.427					
5,300.0	5,281.2	5,296.2	5,272.2	14.1	14.7	39.92	-77.9	501.9	113.2	87.4	25.85	4.380					
5,400.0	5,380.8	5,396.2	5,371.7	14.4	15.0	47.83	-78.0	512.3	114.2	87.9	26.33	4.337 SF					
5,500.0	5,479.6	5,481.4	5,456.1	14.6	15.2	109.68	-84.3	521.2	127.7	100.9	26.82	4.761					
5,600.0	5,574.6	5,550.0	5,522.6	14.9	15.4	126.93	-99.4	528.3	168.1	141.4	26.74	6.288					
5,700.0	5,662.2	5,600.0	5,569.5	15.1	15.5	133.32	-115.9	533.4	234.4	208.8	25.64	9.145					
5,800.0	5,739.3	5,632.0	5,598.6	15.4	15.6	130.91	-128.8	536.6	318.7	294.4	24.26	13.137					
5,900.0	5,802.9	5,650.0	5,614.6	15.8	15.7	114.08	-136.8	538.3	412.8	387.8	25.05	16.481					

Anticollision Report

Company: Whiting Petroleum Corporation
Project: Weld County, CO
Reference Site: S12-T10N-R58W
Site Error: 0.0ft
Reference Well: Razor #12H-0116B
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #1

Local Co-ordinate Reference: Well Razor #12H-0116B
TVD Reference: WELL @ 4964.1ft (Original Well Elev)
MD Reference: WELL @ 4964.1ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Reference Depths are relative to WELL @ 4964.1ft (Original Well Elev)
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000 °

Coordinates are relative to: Razor #12H-0116B
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 1.09°

