



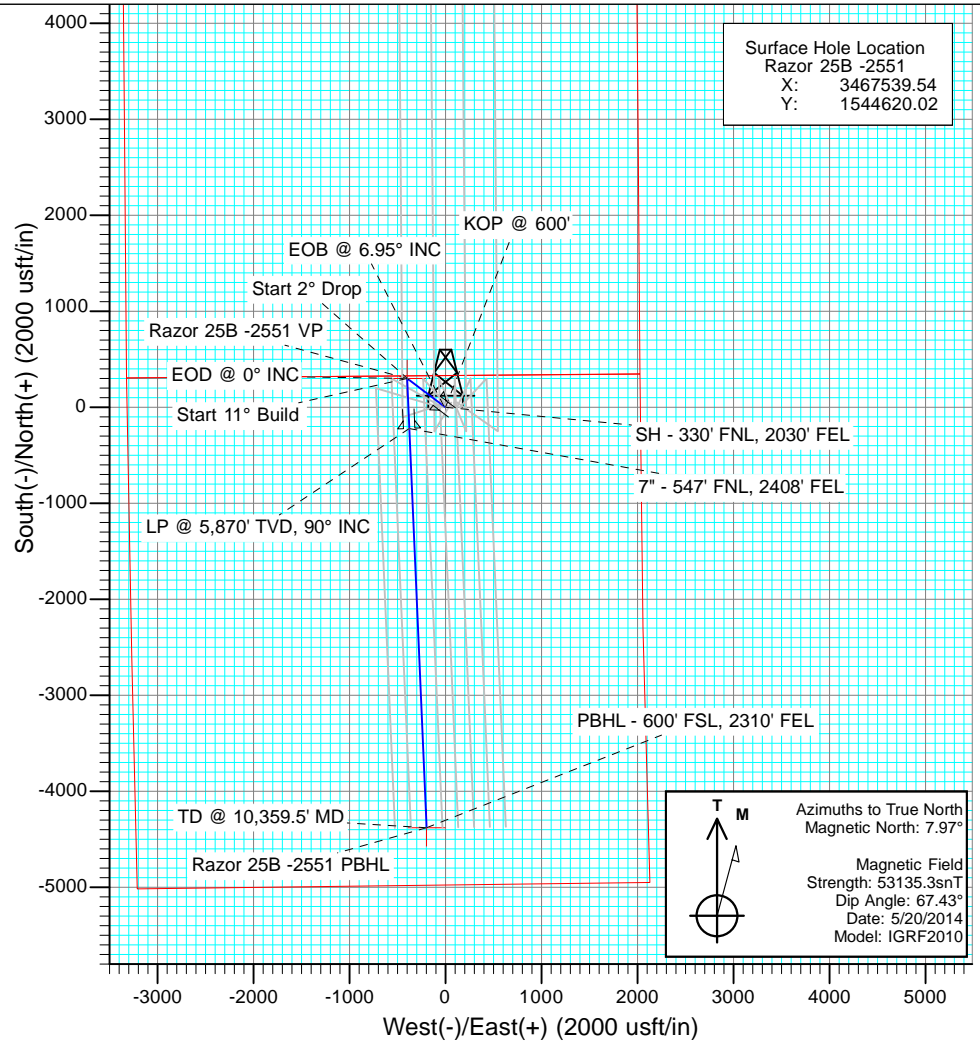
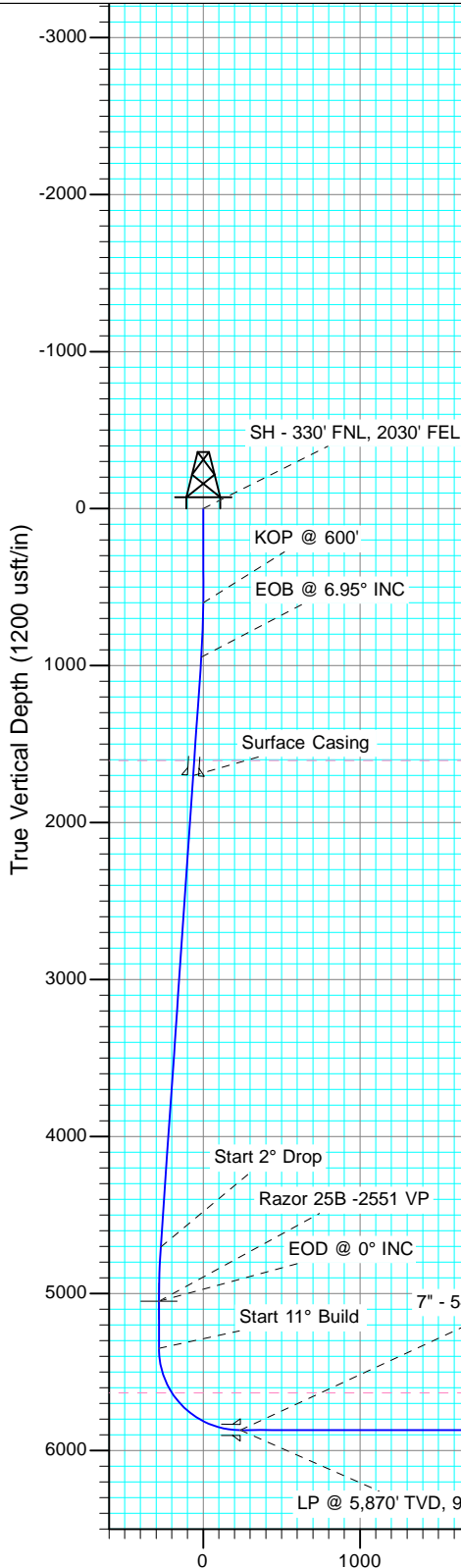
Project: Weld County, CO
 Site: S25-T10N-R58W
 Well: Razor 25B -2551
 Wellbore: HZ
 Design: Plan #1



Plan #1
 Razor 25B -2551
 145XXX; SC
 KB=17' @ 4773.4usft (Cade #23)
 Ground Elevation @ 4756.4
 North American Datum 1983
 Well Razor 25B -2551, True North

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.0	
3	946.8	6.94	306.96	945.9	12.6	-16.8	2.00	306.96	-11.8	
4	4731.7	6.94	306.96	4703.2	287.4	-381.9	0.00	0.00	-270.0	
5	5078.5	0.00	0.00	5049.1	300.0	-398.7	2.00	180.00	-281.8	Razor 25B -2551 VP
6	5378.5	0.00	0.00	5349.1	300.0	-398.7	0.00	0.00	-281.8	
7	6196.7	90.00	177.53	5870.0	-220.4	-376.3	11.00	177.53	237.1	
8	10359.5	90.00	177.53	5870.0	-4379.3	-196.8	0.00	0.00	4383.8	Razor 25B -2551 PBHL



DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
Razor 25B -2551 VP	5049.1	300.0	-398.7	1544912.37	3467135.19
Razor 25B -2551 PBHL	5870.0	-4379.3	-196.8	1540237.73	3467426.15

Vertical Section at 182.57° (1200 usft/in)

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor 25B -2551
Company:	Whiting Petroleum Corporation	TVD Reference:	KB=17' @ 4773.4usft (Cade #23)
Project:	Weld County, CO	MD Reference:	KB=17' @ 4773.4usft (Cade #23)
Site:	S25-T10N-R58W	North Reference:	True
Well:	Razor 25B -2551	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		S25-T10N-R58W			
Site Position:		Northing:	1,544,670.15 usft	Latitude:	40.816275
From:	Lat/Long	Easting:	3,467,568.48 usft	Longitude:	-103.810706
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	1.09 °

Well	Razor 25B -2551					
Well Position	+N/-S	0.0 usft	Northing:	1,544,620.02 usft	Latitude:	40.816139
	+E/-W	0.0 usft	Easting:	3,467,539.54 usft	Longitude:	-103.810814
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	4,756.4 usft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	5/20/2014	7.97	67.43	53,135

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.0	0.0	0.0	182.57

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.00	0.00	
946.8	6.94	306.96	945.9	12.6	-16.8	2.00	2.00	0.00	306.96	
4,731.7	6.94	306.96	4,703.2	287.4	-381.9	0.00	0.00	0.00	0.00	
5,078.5	0.00	0.00	5,049.1	300.0	-398.7	2.00	-2.00	0.00	180.00	Razor 25B -2551 VP
5,378.5	0.00	0.00	5,349.1	300.0	-398.7	0.00	0.00	0.00	0.00	
6,196.7	90.00	177.53	5,870.0	-220.4	-376.3	11.00	11.00	21.70	177.53	
10,359.5	90.00	177.53	5,870.0	-4,379.3	-196.8	0.00	0.00	0.00	0.00	Razor 25B -2551 PB

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor 25B -2551
Company:	Whiting Petroleum Corporation	TVD Reference:	KB=17' @ 4773.4usft (Cade #23)
Project:	Weld County, CO	MD Reference:	KB=17' @ 4773.4usft (Cade #23)
Site:	S25-T10N-R58W	North Reference:	True
Well:	Razor 25B -2551	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
0.5	0.00	0.00	0.5	0.0	0.0	0.0	0.00	0.00	SH - 330' FNL, 2030' FEL
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	KOP @ 600'
700.0	2.00	306.96	700.0	1.0	-1.4	-1.0	2.00	2.00	
800.0	4.00	306.96	799.8	4.2	-5.6	-3.9	2.00	2.00	
900.0	6.00	306.96	899.5	9.4	-12.5	-8.9	2.00	2.00	
946.8	6.94	306.96	946.0	12.6	-16.8	-11.8	2.00	2.00	EOB @ 6.95° INC
1,000.0	6.94	306.96	998.8	16.5	-21.9	-15.5	0.00	0.00	
1,100.0	6.94	306.96	1,098.0	23.7	-31.5	-22.3	0.00	0.00	
1,200.0	6.94	306.96	1,197.3	31.0	-41.2	-29.1	0.00	0.00	
1,300.0	6.94	306.96	1,296.6	38.2	-50.8	-35.9	0.00	0.00	
1,400.0	6.94	306.96	1,395.8	45.5	-60.5	-42.7	0.00	0.00	
1,500.0	6.94	306.96	1,495.1	52.8	-70.1	-49.6	0.00	0.00	
1,600.0	6.94	306.96	1,594.4	60.0	-79.8	-56.4	0.00	0.00	
1,609.7	6.94	306.96	1,604.0	60.7	-80.7	-57.0	0.00	0.00	Pierre
1,700.0	6.94	306.96	1,693.6	67.3	-89.4	-63.2	0.00	0.00	
1,706.4	6.94	306.96	1,700.0	67.8	-90.0	-63.6	0.00	0.00	Surface Casing
1,800.0	6.94	306.96	1,792.9	74.5	-99.1	-70.0	0.00	0.00	
1,900.0	6.94	306.96	1,892.2	81.8	-108.7	-76.8	0.00	0.00	
2,000.0	6.94	306.96	1,991.4	89.1	-118.4	-83.7	0.00	0.00	
2,100.0	6.94	306.96	2,090.7	96.3	-128.0	-90.5	0.00	0.00	
2,200.0	6.94	306.96	2,190.0	103.6	-137.7	-97.3	0.00	0.00	
2,300.0	6.94	306.96	2,289.3	110.9	-147.3	-104.1	0.00	0.00	
2,400.0	6.94	306.96	2,388.5	118.1	-157.0	-110.9	0.00	0.00	
2,500.0	6.94	306.96	2,487.8	125.4	-166.6	-117.8	0.00	0.00	
2,600.0	6.94	306.96	2,587.1	132.6	-176.3	-124.6	0.00	0.00	
2,700.0	6.94	306.96	2,686.3	139.9	-185.9	-131.4	0.00	0.00	
2,800.0	6.94	306.96	2,785.6	147.2	-195.6	-138.2	0.00	0.00	
2,900.0	6.94	306.96	2,884.9	154.4	-205.2	-145.0	0.00	0.00	
3,000.0	6.94	306.96	2,984.1	161.7	-214.9	-151.9	0.00	0.00	
3,100.0	6.94	306.96	3,083.4	168.9	-224.5	-158.7	0.00	0.00	
3,200.0	6.94	306.96	3,182.7	176.2	-234.2	-165.5	0.00	0.00	
3,300.0	6.94	306.96	3,281.9	183.5	-243.8	-172.3	0.00	0.00	
3,400.0	6.94	306.96	3,381.2	190.7	-253.5	-179.1	0.00	0.00	
3,500.0	6.94	306.96	3,480.5	198.0	-263.1	-186.0	0.00	0.00	
3,600.0	6.94	306.96	3,579.7	205.2	-272.8	-192.8	0.00	0.00	
3,700.0	6.94	306.96	3,679.0	212.5	-282.4	-199.6	0.00	0.00	
3,800.0	6.94	306.96	3,778.3	219.8	-292.1	-206.4	0.00	0.00	
3,900.0	6.94	306.96	3,877.5	227.0	-301.7	-213.2	0.00	0.00	
4,000.0	6.94	306.96	3,976.8	234.3	-311.3	-220.1	0.00	0.00	
4,100.0	6.94	306.96	4,076.1	241.5	-321.0	-226.9	0.00	0.00	
4,200.0	6.94	306.96	4,175.3	248.8	-330.6	-233.7	0.00	0.00	
4,300.0	6.94	306.96	4,274.6	256.1	-340.3	-240.5	0.00	0.00	
4,400.0	6.94	306.96	4,373.9	263.3	-349.9	-247.3	0.00	0.00	
4,500.0	6.94	306.96	4,473.2	270.6	-359.6	-254.2	0.00	0.00	
4,600.0	6.94	306.96	4,572.4	277.8	-369.2	-261.0	0.00	0.00	
4,700.0	6.94	306.96	4,671.7	285.1	-378.9	-267.8	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor 25B -2551
Company:	Whiting Petroleum Corporation	TVD Reference:	KB=17' @ 4773.4usft (Cade #23)
Project:	Weld County, CO	MD Reference:	KB=17' @ 4773.4usft (Cade #23)
Site:	S25-T10N-R58W	North Reference:	True
Well:	Razor 25B -2551	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
4,731.7	6.94	306.96	4,703.2	287.4	-381.9	-270.0	0.00	0.00	Start 2° Drop
4,800.0	5.57	306.96	4,771.1	291.9	-387.9	-274.2	2.00	-2.00	
4,900.0	3.57	306.96	4,870.7	296.7	-394.3	-278.7	2.00	-2.00	
5,000.0	1.57	306.96	4,970.6	299.4	-397.8	-281.2	2.00	-2.00	
5,078.5	0.00	0.00	5,049.1	300.0	-398.7	-281.8	2.00	-2.00	EOD @ 0° INC
5,100.0	0.00	0.00	5,070.6	300.0	-398.7	-281.8	0.00	0.00	
5,200.0	0.00	0.00	5,170.6	300.0	-398.7	-281.8	0.00	0.00	
5,300.0	0.00	0.00	5,270.6	300.0	-398.7	-281.8	0.00	0.00	
5,378.5	0.00	0.00	5,349.1	300.0	-398.7	-281.8	0.00	0.00	Start 11° Build
5,400.0	2.37	177.53	5,370.6	299.6	-398.7	-281.4	11.01	11.01	
5,450.0	7.87	177.53	5,420.4	295.1	-398.5	-276.9	11.00	11.00	
5,500.0	13.37	177.53	5,469.5	285.9	-398.1	-267.7	11.00	11.00	
5,550.0	18.87	177.53	5,517.5	272.0	-397.5	-253.9	11.00	11.00	
5,600.0	24.37	177.53	5,564.0	253.6	-396.7	-235.6	11.00	11.00	
5,650.0	29.87	177.53	5,608.5	230.9	-395.7	-212.9	11.00	11.00	
5,678.7	33.03	177.53	5,633.0	215.9	-395.1	-198.0	11.00	11.00	Niobrara
5,700.0	35.37	177.53	5,650.6	204.0	-394.6	-186.0	11.00	11.00	
5,750.0	40.87	177.53	5,689.9	173.1	-393.2	-155.3	11.00	11.00	
5,800.0	46.37	177.53	5,726.1	138.7	-391.7	-121.0	11.00	11.00	
5,850.0	51.87	177.53	5,758.8	101.0	-390.1	-83.3	11.00	11.00	
5,900.0	57.37	177.53	5,787.7	60.2	-388.4	-42.7	11.00	11.00	
5,950.0	62.87	177.53	5,812.6	16.9	-386.5	0.4	11.00	11.00	
6,000.0	68.37	177.53	5,833.3	-28.5	-384.5	45.8	11.00	11.00	
6,050.0	73.87	177.53	5,849.5	-75.8	-382.5	92.9	11.00	11.00	
6,100.0	79.37	177.53	5,861.0	-124.4	-380.4	141.3	11.00	11.00	
6,150.0	84.87	177.53	5,867.9	-173.8	-378.3	190.6	11.00	11.00	
6,196.7	90.00	177.53	5,870.0	-220.4	-376.2	237.1	10.99	10.99	7" - 547' FNL, 2408' FEL - LP @ 5,870' TVD, 9C
6,200.0	90.00	177.53	5,870.0	-223.7	-376.1	240.4	0.00	0.00	
6,300.0	90.00	177.53	5,870.0	-323.6	-371.8	340.0	0.00	0.00	
6,400.0	90.00	177.53	5,870.0	-423.5	-367.5	439.6	0.00	0.00	
6,500.0	90.00	177.53	5,870.0	-523.4	-363.2	539.2	0.00	0.00	
6,600.0	90.00	177.53	5,870.0	-623.3	-358.9	638.8	0.00	0.00	
6,700.0	90.00	177.53	5,870.0	-723.2	-354.6	738.4	0.00	0.00	
6,800.0	90.00	177.53	5,870.0	-823.2	-350.2	838.1	0.00	0.00	
6,900.0	90.00	177.53	5,870.0	-923.1	-345.9	937.7	0.00	0.00	
7,000.0	90.00	177.53	5,870.0	-1,023.0	-341.6	1,037.3	0.00	0.00	
7,100.0	90.00	177.53	5,870.0	-1,122.9	-337.3	1,136.9	0.00	0.00	
7,200.0	90.00	177.53	5,870.0	-1,222.8	-333.0	1,236.5	0.00	0.00	
7,300.0	90.00	177.53	5,870.0	-1,322.7	-328.7	1,336.1	0.00	0.00	
7,400.0	90.00	177.53	5,870.0	-1,422.6	-324.4	1,435.7	0.00	0.00	
7,500.0	90.00	177.53	5,870.0	-1,522.5	-320.1	1,535.3	0.00	0.00	
7,600.0	90.00	177.53	5,870.0	-1,622.4	-315.8	1,635.0	0.00	0.00	
7,700.0	90.00	177.53	5,870.0	-1,722.3	-311.5	1,734.6	0.00	0.00	
7,800.0	90.00	177.53	5,870.0	-1,822.2	-307.2	1,834.2	0.00	0.00	
7,900.0	90.00	177.53	5,870.0	-1,922.1	-302.8	1,933.8	0.00	0.00	
8,000.0	90.00	177.53	5,870.0	-2,022.0	-298.5	2,033.4	0.00	0.00	
8,100.0	90.00	177.53	5,870.0	-2,121.9	-294.2	2,133.0	0.00	0.00	
8,200.0	90.00	177.53	5,870.0	-2,221.9	-289.9	2,232.6	0.00	0.00	
8,300.0	90.00	177.53	5,870.0	-2,321.8	-285.6	2,332.2	0.00	0.00	
8,400.0	90.00	177.53	5,870.0	-2,421.7	-281.3	2,431.9	0.00	0.00	
8,500.0	90.00	177.53	5,870.0	-2,521.6	-277.0	2,531.5	0.00	0.00	
8,600.0	90.00	177.53	5,870.0	-2,621.5	-272.7	2,631.1	0.00	0.00	

Cathedral Energy Services

Planning Report

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Company:	Whiting Petroleum Corporation	TVD Reference:	KB=17' @ 4773.4usft (Cade #23)
Project:	Weld County, CO	MD Reference:	KB=17' @ 4773.4usft (Cade #23)
Site:	S25-T10N-R58W	North Reference:	True
Well:	Razor 25B -2551	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
8,700.0	90.00	177.53	5,870.0	-2,721.4	-268.4	2,730.7	0.00	0.00	
8,800.0	90.00	177.53	5,870.0	-2,821.3	-264.1	2,830.3	0.00	0.00	
8,900.0	90.00	177.53	5,870.0	-2,921.2	-259.7	2,929.9	0.00	0.00	
9,000.0	90.00	177.53	5,870.0	-3,021.1	-255.4	3,029.5	0.00	0.00	
9,100.0	90.00	177.53	5,870.0	-3,121.0	-251.1	3,129.1	0.00	0.00	
9,200.0	90.00	177.53	5,870.0	-3,220.9	-246.8	3,228.8	0.00	0.00	
9,300.0	90.00	177.53	5,870.0	-3,320.8	-242.5	3,328.4	0.00	0.00	
9,400.0	90.00	177.53	5,870.0	-3,420.7	-238.2	3,428.0	0.00	0.00	
9,500.0	90.00	177.53	5,870.0	-3,520.6	-233.9	3,527.6	0.00	0.00	
9,600.0	90.00	177.53	5,870.0	-3,620.6	-229.6	3,627.2	0.00	0.00	
9,700.0	90.00	177.53	5,870.0	-3,720.5	-225.3	3,726.8	0.00	0.00	
9,800.0	90.00	177.53	5,870.0	-3,820.4	-221.0	3,826.4	0.00	0.00	
9,900.0	90.00	177.53	5,870.0	-3,920.3	-216.6	3,926.1	0.00	0.00	
10,000.0	90.00	177.53	5,870.0	-4,020.2	-212.3	4,025.7	0.00	0.00	
10,100.0	90.00	177.53	5,870.0	-4,120.1	-208.0	4,125.3	0.00	0.00	
10,200.0	90.00	177.53	5,870.0	-4,220.0	-203.7	4,224.9	0.00	0.00	
10,300.0	90.00	177.53	5,870.0	-4,319.9	-199.4	4,324.5	0.00	0.00	
10,358.5	90.00	177.53	5,870.0	-4,378.4	-196.9	4,382.8	0.00	0.00	PBHL - 600' FSL, 2310' FEL - TD @ 10,359.5' M
10,359.5	90.00	177.53	5,870.0	-4,379.3	-196.8	4,383.8	0.00	0.00	

Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Razor 25B -2551 VP - plan hits target center - Point	0.00	0.00	5,049.1	300.0	-398.7	1,544,912.37	3,467,135.19	40.816962	-103.812254
Razor 25B -2551 PBHL - plan hits target center - Point	0.00	0.00	5,870.0	-4,379.3	-196.8	1,540,237.73	3,467,426.15	40.804119	-103.811525

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
6,196.7	5,870.0	7"	0	0	
1,706.4	1,700.0	Surface Casing	0	0	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,609.7	1,604.0	Pierre			
5,678.7	5,633.0	Niobrara			

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Razor 25B -2551
Company:	Whiting Petroleum Corporation	TVD Reference:	KB=17' @ 4773.4usft (Cade #23)
Project:	Weld County, CO	MD Reference:	KB=17' @ 4773.4usft (Cade #23)
Site:	S25-T10N-R58W	North Reference:	True
Well:	Razor 25B -2551	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.5	0.5	0.0	0.0	SH - 330' FNL, 2030' FEL
600.0	600.0	0.0	0.0	KOP @ 600'
946.8	946.0	12.6	-16.8	EOB @ 6.95° INC
4,731.7	4,703.2	287.4	-381.9	Start 2° Drop
5,078.5	5,049.1	300.0	-398.7	EOD @ 0° INC
5,378.5	5,349.1	300.0	-398.7	Start 11° Build
6,196.7	5,870.0	-220.4	-376.3	7" - 547' FNL, 2408' FEL
6,196.7	5,870.0	-220.4	-376.2	LP @ 5,870' TVD, 90° INC
10,358.5	5,870.0	-4,378.4	-196.9	PBHL - 600' FSL, 2310' FEL
10,358.5	5,870.0	-4,378.4	-196.9	TD @ 10,359.5' MD