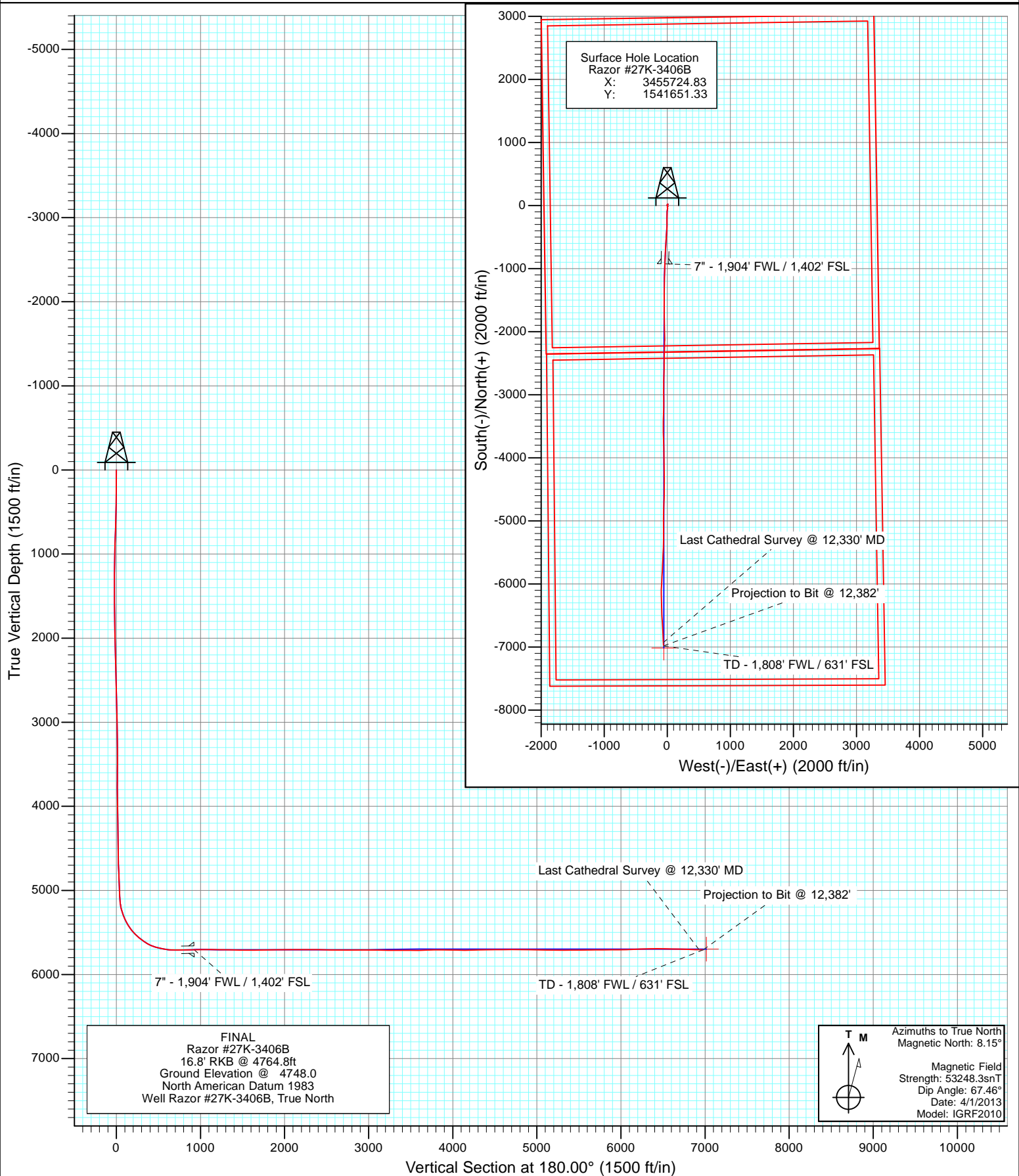


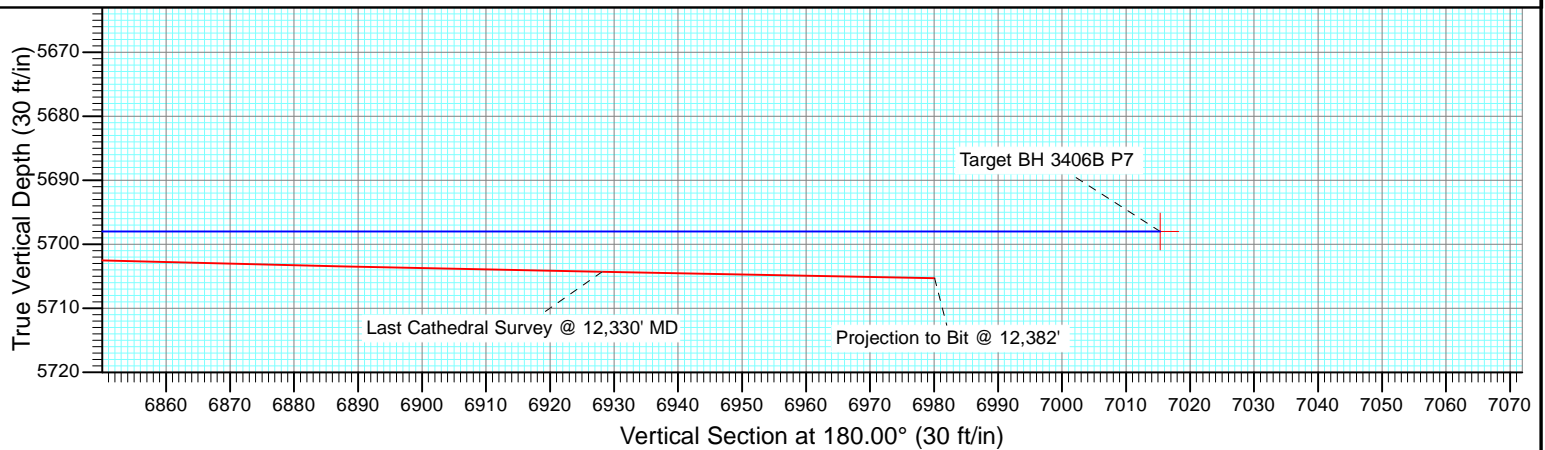
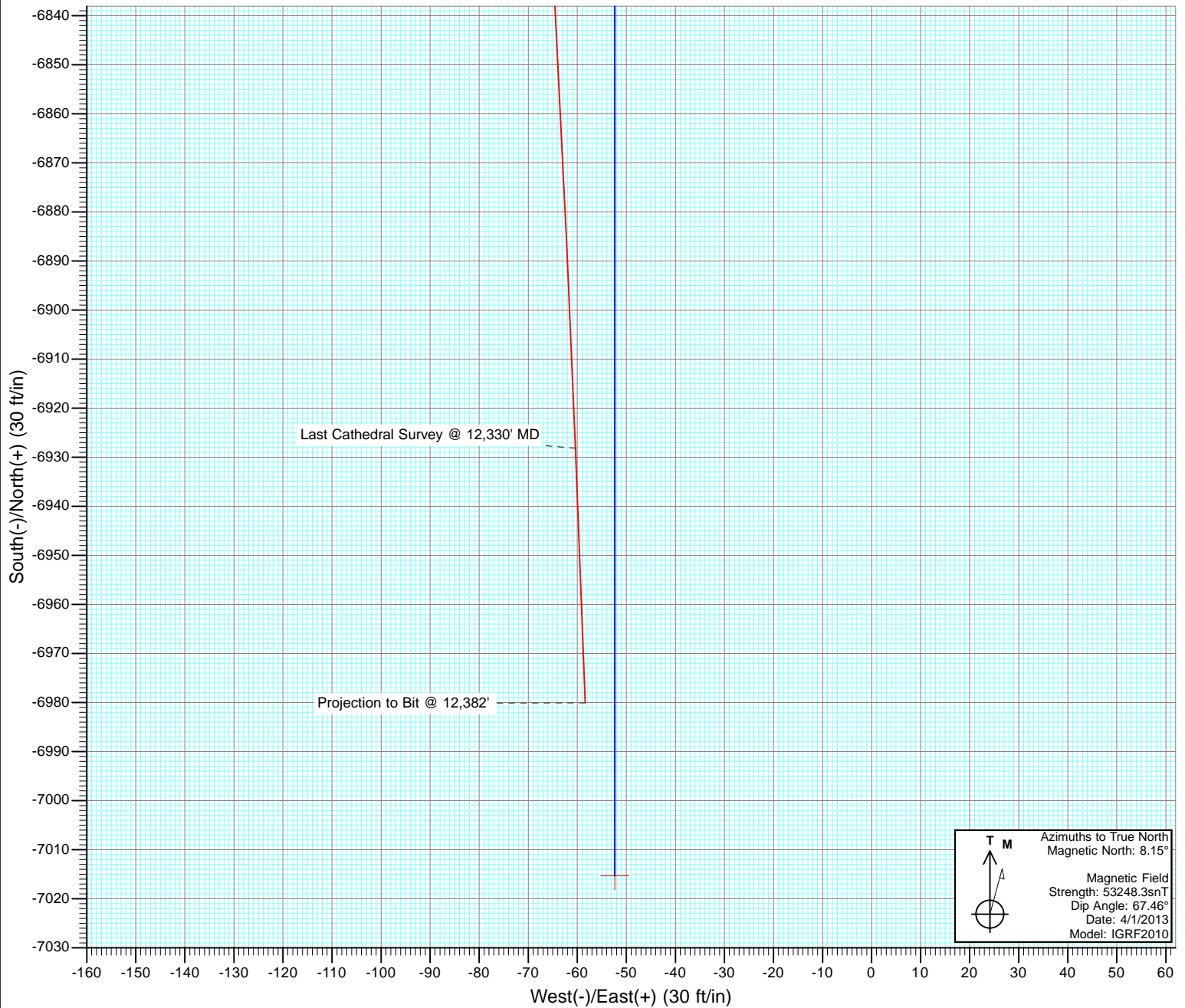


Project: Weld County, CO  
Site: S27-T10N-R58W  
Well: Razor #27K-3406B  
Wellbore: HZ  
Design: FINAL





Project: Weld County, CO  
Site: S27-T10N-R58W  
Well: Razor #27K-3406B  
Wellbore: HZ  
Design: FINAL



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #27K-3406B
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	16.8' RKB @ 4764.8ft
<b>Site:</b>	S27-T10N-R58W	<b>MD Reference:</b>	16.8' RKB @ 4764.8ft
<b>Well:</b>	Razor #27K-3406B	<b>North Reference:</b>	True
<b>Wellbore:</b>	HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

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

Site		S27-T10N-R58W			
Site Position:		Northing:	1,541,650.73 ft	Latitude:	40.808594
From:	Lat/Long	Easting:	3,455,691.89 ft	Longitude:	-103.853833
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	1.06 °

Well		Razor #27K-3406B				
Well Position	+N/-S	0.0 ft	Northing:	1,541,651.33 ft	Latitude:	40.808594
	+E/-W	0.0 ft	Easting:	3,455,724.83 ft	Longitude:	-103.853714
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,748.0 ft

<b>Wellbore</b>	HZ				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	4/1/2013	8.15	67.46	53,248

<b>Design</b>	FINAL				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	180.00	

<b>Survey Program</b>	<b>Date</b>	8/27/2013			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
260.0	12,382.0	Survey #1 (HZ)	ISCWSA MWD	MWD - ISCWSA	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Formations / Comments</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00		
260.0	0.70	301.20	260.0	0.8	-1.4	-0.8	0.27	0.27		
718.0	2.30	20.40	717.9	10.9	-0.5	-10.9	0.50	0.35		
991.0	1.60	42.30	990.7	18.8	3.9	-18.8	0.37	-0.26		
1,173.0	1.90	56.80	1,172.6	22.4	8.2	-22.4	0.29	0.16		
1,265.0	1.40	57.90	1,264.6	23.8	10.4	-23.8	0.54	-0.54		
1,538.0	1.00	174.70	1,537.5	23.2	13.4	-23.2	0.75	-0.15		
1,667.0	1.40	188.90	1,666.5	20.5	13.3	-20.5	0.38	0.31		
1,758.0	1.20	235.70	1,757.5	18.9	12.3	-18.9	1.15	-0.22		
1,849.0	0.70	190.10	1,848.5	17.8	11.5	-17.8	0.95	-0.55		
1,940.0	0.90	218.60	1,939.5	16.7	10.9	-16.7	0.48	0.22		
2,031.0	0.80	241.70	2,030.5	15.8	9.9	-15.8	0.39	-0.11		
2,122.0	2.00	210.60	2,121.4	14.2	8.5	-14.2	1.51	1.32		

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #27K-3406B
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	16.8' RKB @ 4764.8ft
<b>Site:</b>	S27-T10N-R58W	<b>MD Reference:</b>	16.8' RKB @ 4764.8ft
<b>Well:</b>	Razor #27K-3406B	<b>North Reference:</b>	True
<b>Wellbore:</b>	HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

### Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
2,214.0	1.60	206.70	2,213.4	11.6	7.1	-11.6	0.45	-0.43	
2,304.0	2.90	210.50	2,303.3	8.6	5.4	-8.6	1.45	1.44	
2,396.0	1.30	204.10	2,395.3	5.6	3.8	-5.6	1.76	-1.74	
2,487.0	1.60	198.60	2,486.2	3.5	3.0	-3.5	0.36	0.33	
2,578.0	1.30	135.40	2,577.2	1.5	3.3	-1.5	1.69	-0.33	
2,670.0	1.60	157.20	2,669.2	-0.4	4.5	0.4	0.68	0.33	
2,761.0	1.30	157.90	2,760.1	-2.5	5.4	2.5	0.33	-0.33	
2,853.0	1.50	139.30	2,852.1	-4.4	6.6	4.4	0.54	0.22	
2,945.0	0.90	197.80	2,944.1	-6.0	7.2	6.0	1.40	-0.65	
3,036.0	1.60	172.10	3,035.1	-8.0	7.1	8.0	0.97	0.77	
3,128.0	1.60	220.10	3,127.0	-10.2	6.5	10.2	1.41	0.00	
3,220.0	2.10	200.30	3,219.0	-12.8	5.1	12.8	0.87	0.54	
3,312.0	1.60	148.30	3,311.0	-15.5	5.1	15.5	1.83	-0.54	
3,403.0	1.50	41.30	3,401.9	-15.6	6.6	15.6	2.74	-0.11	
3,495.0	1.60	37.10	3,493.9	-13.7	8.2	13.7	0.16	0.11	
3,587.0	0.50	42.60	3,585.9	-12.4	9.2	12.4	1.20	-1.20	
3,679.0	1.10	58.10	3,677.9	-11.6	10.2	11.6	0.69	0.65	
3,770.0	0.80	88.40	3,768.9	-11.1	11.6	11.1	0.63	-0.33	
3,862.0	1.20	218.80	3,860.9	-11.9	11.6	11.9	1.98	0.43	
3,953.0	1.40	214.20	3,951.8	-13.5	10.4	13.5	0.25	0.22	
4,045.0	1.20	220.80	4,043.8	-15.2	9.2	15.2	0.27	-0.22	
4,137.0	1.30	231.20	4,135.8	-16.6	7.7	16.6	0.27	0.11	
4,229.0	1.20	194.10	4,227.8	-18.2	6.7	18.2	0.87	-0.11	
4,319.0	1.00	242.60	4,317.8	-19.4	5.7	19.4	1.02	-0.22	
4,411.0	1.00	217.40	4,409.7	-20.5	4.5	20.5	0.47	0.00	
4,502.0	0.60	213.60	4,500.7	-21.5	3.8	21.5	0.44	-0.44	
4,593.0	0.80	218.60	4,591.7	-22.4	3.1	22.4	0.23	0.22	
4,685.0	2.50	173.60	4,683.7	-24.9	3.0	24.9	2.19	1.85	
4,777.0	2.30	177.50	4,775.6	-28.7	3.3	28.7	0.28	-0.22	
4,869.0	2.20	167.10	4,867.5	-32.3	3.7	32.3	0.46	-0.11	
4,961.0	2.00	161.70	4,959.5	-35.5	4.6	35.5	0.31	-0.22	
5,052.0	2.00	161.00	5,050.4	-38.5	5.7	38.5	0.03	0.00	
5,144.0	6.30	178.40	5,142.2	-45.1	6.3	45.1	4.82	4.67	
5,175.0	9.40	187.10	5,172.9	-49.3	6.1	49.3	10.68	10.00	
5,205.0	12.60	191.80	5,202.3	-54.9	5.1	54.9	11.07	10.67	
5,236.0	15.30	193.30	5,232.4	-62.2	3.5	62.2	8.79	8.71	
5,266.0	18.10	190.20	5,261.1	-70.7	1.7	70.7	9.79	9.33	
5,296.0	20.80	186.50	5,289.4	-80.6	0.3	80.6	9.89	9.00	
5,327.0	22.00	184.50	5,318.3	-91.8	-0.8	91.8	4.53	3.87	
5,357.0	24.70	181.70	5,345.8	-103.7	-1.4	103.7	9.73	9.00	
5,388.0	27.70	181.00	5,373.6	-117.4	-1.7	117.4	9.73	9.68	
5,418.0	30.50	180.90	5,399.8	-132.0	-2.0	132.0	9.33	9.33	
5,449.0	33.40	181.60	5,426.1	-148.4	-2.3	148.4	9.43	9.35	
5,479.0	35.10	182.10	5,450.9	-165.2	-2.9	165.2	5.74	5.67	
5,510.0	38.00	181.50	5,475.8	-183.7	-3.5	183.7	9.43	9.35	
5,540.0	41.90	180.70	5,498.8	-202.9	-3.8	202.9	13.11	13.00	
5,571.0	45.30	179.60	5,521.3	-224.3	-3.9	224.3	11.24	10.97	
5,601.0	48.50	177.80	5,541.8	-246.2	-3.4	246.2	11.53	10.67	
5,631.0	50.60	178.10	5,561.2	-269.0	-2.6	269.0	7.04	7.00	
5,662.0	52.00	179.90	5,580.6	-293.2	-2.1	293.2	6.40	4.52	
5,692.0	54.50	181.00	5,598.6	-317.2	-2.3	317.2	8.84	8.33	
5,723.0	56.80	182.60	5,616.1	-342.8	-3.1	342.8	8.56	7.42	
5,753.0	59.70	183.60	5,631.8	-368.3	-4.5	368.3	10.07	9.67	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #27K-3406B
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	16.8' RKB @ 4764.8ft
<b>Site:</b>	S27-T10N-R58W	<b>MD Reference:</b>	16.8' RKB @ 4764.8ft
<b>Well:</b>	Razor #27K-3406B	<b>North Reference:</b>	True
<b>Wellbore:</b>	HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
5,784.0	63.10	184.20	5,646.7	-395.4	-6.4	395.4	11.10	10.97	
5,814.0	67.80	184.40	5,659.1	-422.6	-8.4	422.6	15.68	15.67	
5,844.0	71.90	183.80	5,669.5	-450.7	-10.4	450.7	13.79	13.67	
5,875.0	75.30	184.00	5,678.2	-480.4	-12.5	480.4	10.99	10.97	
5,905.0	77.20	184.00	5,685.4	-509.5	-14.5	509.5	6.33	6.33	
5,936.0	78.40	184.30	5,691.9	-539.7	-16.7	539.7	3.98	3.87	
5,966.0	79.70	183.70	5,697.6	-569.1	-18.7	569.1	4.76	4.33	
5,997.0	81.80	183.30	5,702.6	-599.6	-20.6	599.6	6.89	6.77	
6,028.0	84.10	183.40	5,706.4	-630.3	-22.4	630.3	7.43	7.42	
6,058.0	86.70	183.10	5,708.8	-660.2	-24.1	660.2	8.72	8.67	
6,153.0	92.10	183.30	5,709.8	-755.0	-29.4	755.0	5.69	5.68	
6,184.0	92.60	182.60	5,708.5	-785.9	-31.0	785.9	2.77	1.61	
6,216.0	91.90	182.50	5,707.3	-817.8	-32.4	817.8	2.21	-2.19	
6,248.0	91.60	182.70	5,706.3	-849.8	-33.9	849.8	1.13	-0.94	
6,288.0	92.00	181.80	5,705.0	-889.7	-35.4	889.7	2.46	1.00	
6,394.0	90.10	182.00	5,703.1	-995.7	-38.9	995.7	1.80	-1.79	
6,489.0	89.80	181.40	5,703.2	-1,090.6	-41.8	1,090.6	0.71	-0.32	
6,584.0	89.40	181.00	5,703.8	-1,185.6	-43.8	1,185.6	0.60	-0.42	
6,678.0	89.10	180.80	5,705.1	-1,279.6	-45.2	1,279.6	0.38	-0.32	
6,773.0	89.20	180.30	5,706.5	-1,374.6	-46.1	1,374.6	0.54	0.11	
6,868.0	88.10	180.90	5,708.7	-1,469.5	-47.1	1,469.5	1.32	-1.16	
6,900.0	87.90	180.90	5,709.8	-1,501.5	-47.6	1,501.5	0.62	-0.62	
6,963.0	89.70	180.80	5,711.1	-1,564.5	-48.6	1,564.5	2.86	2.86	
7,058.0	91.10	179.10	5,710.5	-1,659.5	-48.5	1,659.5	2.32	1.47	
7,152.0	91.30	179.40	5,708.5	-1,753.4	-47.3	1,753.4	0.38	0.21	
7,247.0	90.80	177.30	5,706.8	-1,848.4	-44.5	1,848.4	2.27	-0.53	
7,342.0	91.20	179.00	5,705.1	-1,943.3	-41.5	1,943.3	1.84	0.42	
7,437.0	90.70	179.50	5,703.5	-2,038.3	-40.2	2,038.3	0.74	-0.53	
7,532.0	88.90	180.10	5,703.9	-2,133.3	-39.9	2,133.3	2.00	-1.89	
7,624.0	90.50	181.70	5,704.4	-2,225.3	-41.3	2,225.3	2.46	1.74	
7,715.0	90.20	181.70	5,703.8	-2,316.2	-44.0	2,316.2	0.33	-0.33	
7,807.0	89.50	181.60	5,704.0	-2,408.2	-46.7	2,408.2	0.77	-0.76	
7,898.0	88.30	180.60	5,705.8	-2,499.2	-48.4	2,499.2	1.72	-1.32	
7,989.0	88.40	180.70	5,708.4	-2,590.1	-49.5	2,590.1	0.16	0.11	
8,081.0	89.50	181.60	5,710.1	-2,682.1	-51.3	2,682.1	1.54	1.20	
8,172.0	90.30	181.80	5,710.3	-2,773.1	-54.0	2,773.1	0.91	0.88	
8,263.0	90.90	180.60	5,709.3	-2,864.0	-55.9	2,864.0	1.47	0.66	
8,354.0	90.60	179.60	5,708.1	-2,955.0	-56.1	2,955.0	1.15	-0.33	
8,445.0	89.30	179.40	5,708.2	-3,046.0	-55.3	3,046.0	1.45	-1.43	
8,536.0	89.20	179.40	5,709.4	-3,137.0	-54.3	3,137.0	0.11	-0.11	
8,628.0	89.00	182.00	5,710.8	-3,229.0	-55.4	3,229.0	2.83	-0.22	
8,719.0	90.00	181.70	5,711.6	-3,319.9	-58.4	3,319.9	1.15	1.10	
8,810.0	90.50	181.10	5,711.2	-3,410.9	-60.6	3,410.9	0.86	0.55	
8,902.0	89.20	180.40	5,711.5	-3,502.9	-61.8	3,502.9	1.60	-1.41	
8,993.0	89.80	179.10	5,712.3	-3,593.9	-61.4	3,593.9	1.57	0.66	
9,085.0	92.40	178.40	5,710.5	-3,685.8	-59.4	3,685.8	2.93	2.83	
9,176.0	92.10	178.00	5,706.9	-3,776.7	-56.6	3,776.7	0.55	-0.33	
9,267.0	88.80	178.40	5,706.2	-3,867.7	-53.7	3,867.7	3.65	-3.63	
9,359.0	88.50	178.40	5,708.4	-3,959.6	-51.1	3,959.6	0.33	-0.33	
9,451.0	89.20	178.80	5,710.2	-4,051.5	-48.9	4,051.5	0.88	0.76	
9,542.0	90.00	179.40	5,710.9	-4,142.5	-47.4	4,142.5	1.10	0.88	
9,634.0	91.40	179.90	5,709.7	-4,234.5	-46.9	4,234.5	1.62	1.52	
9,726.0	91.60	179.40	5,707.3	-4,326.5	-46.3	4,326.5	0.59	0.22	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #27K-3406B
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	16.8' RKB @ 4764.8ft
<b>Site:</b>	S27-T10N-R58W	<b>MD Reference:</b>	16.8' RKB @ 4764.8ft
<b>Well:</b>	Razor #27K-3406B	<b>North Reference:</b>	True
<b>Wellbore:</b>	HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

### Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
9,818.0	91.10	180.90	5,705.2	-4,418.5	-46.6	4,418.5	1.72	-0.54	
9,909.0	90.00	179.20	5,704.3	-4,509.4	-46.6	4,509.4	2.23	-1.21	
10,001.0	89.80	181.60	5,704.4	-4,601.4	-47.3	4,601.4	2.62	-0.22	
10,093.0	90.50	182.70	5,704.2	-4,693.4	-50.7	4,693.4	1.42	0.76	
10,184.0	90.50	183.40	5,703.4	-4,784.2	-55.6	4,784.2	0.77	0.00	
10,276.0	89.80	180.20	5,703.2	-4,876.2	-58.5	4,876.2	3.56	-0.76	
10,367.0	88.50	179.30	5,704.5	-4,967.2	-58.1	4,967.2	1.74	-1.43	
10,459.0	88.40	179.40	5,707.0	-5,059.1	-57.0	5,059.1	0.15	-0.11	
10,551.0	89.00	180.30	5,709.1	-5,151.1	-56.8	5,151.1	1.18	0.65	
10,643.0	89.30	180.10	5,710.5	-5,243.1	-57.1	5,243.1	0.39	0.33	
10,734.0	90.30	182.30	5,710.8	-5,334.0	-59.0	5,334.0	2.66	1.10	
10,825.0	90.50	181.90	5,710.1	-5,425.0	-62.3	5,425.0	0.49	0.22	
10,916.0	90.90	182.30	5,709.0	-5,515.9	-65.7	5,515.9	0.62	0.44	
11,008.0	90.50	182.30	5,707.9	-5,607.8	-69.4	5,607.8	0.43	-0.43	
11,099.0	90.50	182.40	5,707.1	-5,698.8	-73.1	5,698.8	0.11	0.00	
11,191.0	90.60	182.80	5,706.2	-5,790.7	-77.3	5,790.7	0.45	0.11	
11,283.0	90.10	183.30	5,705.7	-5,882.5	-82.2	5,882.5	0.77	-0.54	
11,375.0	90.50	183.10	5,705.2	-5,974.4	-87.3	5,974.4	0.49	0.43	
11,466.0	91.20	182.50	5,703.8	-6,065.3	-91.8	6,065.3	1.01	0.77	
11,558.0	93.50	179.20	5,700.1	-6,157.1	-93.1	6,157.1	4.37	2.50	
11,650.0	91.20	179.00	5,696.3	-6,249.1	-91.7	6,249.1	2.51	-2.50	
11,741.0	91.30	178.20	5,694.3	-6,340.0	-89.5	6,340.0	0.89	0.11	
11,832.0	89.50	177.80	5,693.7	-6,430.9	-86.3	6,430.9	2.03	-1.98	
11,924.0	89.50	177.40	5,694.5	-6,522.9	-82.4	6,522.9	0.43	0.00	
12,015.0	88.70	176.40	5,695.9	-6,613.7	-77.5	6,613.7	1.41	-0.88	
12,106.0	88.10	176.40	5,698.4	-6,704.5	-71.8	6,704.5	0.66	-0.66	
12,198.0	88.40	177.10	5,701.2	-6,796.3	-66.6	6,796.3	0.83	0.33	
12,289.0	88.80	177.30	5,703.5	-6,887.2	-62.1	6,887.2	0.49	0.44	
12,330.0	88.90	177.80	5,704.3	-6,928.1	-60.4	6,928.1	1.24	0.24	Last Cathedral Survey @ 12,330' MD
12,382.0	88.90	177.80	5,705.3	-6,980.1	-58.4	6,980.1	0.00	0.00	Projection to Bit @ 12,382'

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Whiting Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Razor #27K-3406B
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	16.8' RKB @ 4764.8ft
<b>Site:</b>	S27-T10N-R58W	<b>MD Reference:</b>	16.8' RKB @ 4764.8ft
<b>Well:</b>	Razor #27K-3406B	<b>North Reference:</b>	True
<b>Wellbore:</b>	HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

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)		
PBHL 3406B	0.00	1.07	5,753.3	-7,515.2	-46.8	1,534,136.56	3,455,817.55	40.787967	-103.853883
- actual wellpath misses target center by 537.4ft at 12382.0ft MD (5705.3 TVD, -6980.1 N, -58.4 E)									
- Point									
Target BH 3406B P7	0.00	1.07	5,698.0	-7,015.3	-52.3	1,534,636.24	3,455,802.74	40.789339	-103.853903
- actual wellpath misses target center by 36.5ft at 12382.0ft MD (5705.3 TVD, -6980.1 N, -58.4 E)									
- Point									
Waypoint #3	0.00	0.00	5,698.0	-3,500.0	-52.3	1,538,150.96	3,455,737.51	40.798988	-103.853903
- actual wellpath misses target center by 16.4ft at 8899.0ft MD (5711.4 TVD, -3499.8 N, -61.8 E)									
- Point									
Target BH 3406B P6	0.00	1.07	5,715.0	-7,015.3	-52.3	1,534,636.24	3,455,802.74	40.789339	-103.853903
- actual wellpath misses target center by 37.1ft at 12382.0ft MD (5705.3 TVD, -6980.1 N, -58.4 E)									
- Point									
Waypoint #2	0.00	0.00	5,705.0	-3,000.0	-52.3	1,538,650.88	3,455,728.23	40.800360	-103.853903
- actual wellpath misses target center by 4.5ft at 8399.0ft MD (5707.9 TVD, -3000.0 N, -55.7 E)									
- Point									
Target BH 3406B	0.00	1.07	5,753.3	-7,015.3	-52.3	1,534,636.24	3,455,802.74	40.789339	-103.853903
- actual wellpath misses target center by 59.9ft at 12382.0ft MD (5705.3 TVD, -6980.1 N, -58.4 E)									
- Point									
Target BH 3406B P5	0.00	1.07	5,697.0	-7,015.3	-52.3	1,534,636.24	3,455,802.74	40.789339	-103.853903
- actual wellpath misses target center by 36.7ft at 12382.0ft MD (5705.3 TVD, -6980.1 N, -58.4 E)									
- Point									
Waypoint #1	0.00	0.00	5,705.0	-1,200.0	-47.3	1,540,450.66	3,455,699.82	40.805300	-103.853885
- actual wellpath misses target center by 3.4ft at 6598.5ft MD (5704.0 TVD, -1200.1 N, -44.0 E)									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name		Casing Diameter (in)	Hole Diameter (in)
6,323.0	5,704.0	7"		0.000	0.000

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
12,330.0	5,704.3	-6,928.1	-60.4	Last Cathedral Survey @ 12,330' MD	
12,382.0	5,705.3	-6,980.1	-58.4	Projection to Bit @ 12,382'	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_