

#### CASING DETAILS

No casing data is available

#### FORMATION TOP DETAILS

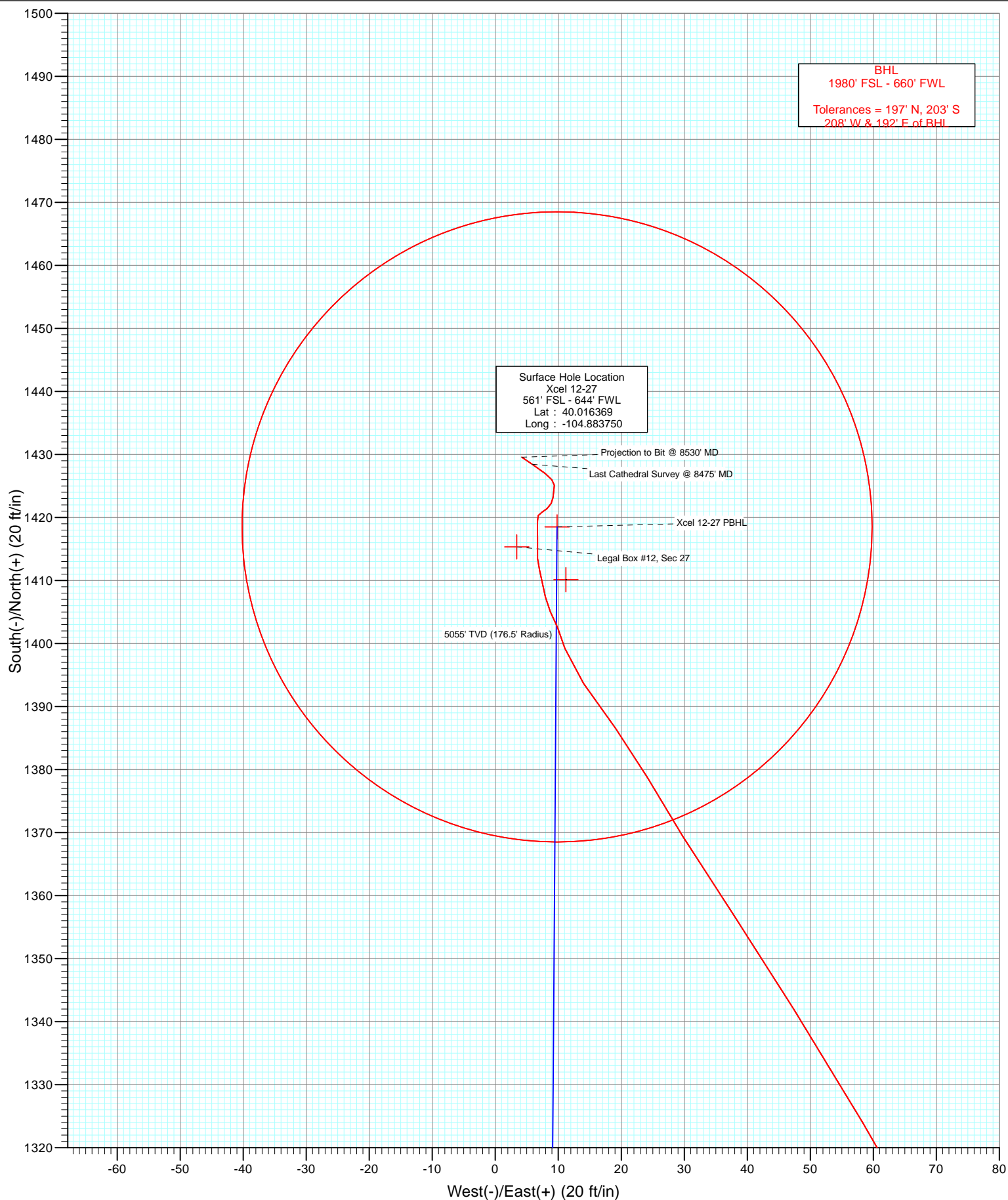
No formation data is available



Azimuths to True North  
Magnetic North: 8.71°

Magnetic Field  
Strength: 52767.9snT  
Dip Angle: 66.67°  
Date: 11/6/2012  
Model: IGRF2010

Type	Target	Azimuth	Origin Type	N/S	E/W	From TVD
DD	Xcel 12-27	0.40	Slot	0.0	0.0	0.0
201555	125604; LR					
KB=15	@ 5040.0ft (Xtreme 11)					
GL	@ 5025.0					
North American Datum 1983						
Well Xcel 12-27, True North						
TVD	+N/-S	+E/-W	Latitude	Longitude		
Legal Box #12, Sec 27	-5000.0	1415.3	3.4	40.020254	-104.883738	
Xcel 12-27 PBHL	8470.0	1415.3	3.4	40.020254	-104.883738	



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Anadarko Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Xcel 12-27
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=15' @ 5040.0ft (Xtreme 11)
<b>Site:</b>	SWSW Sec27-T1N-R67W (Xcel 13-27)	<b>MD Reference:</b>	KB=15' @ 5040.0ft (Xtreme 11)
<b>Well:</b>	Xcel 12-27	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB

<b>Project</b>	DJ Wattenberg		
<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		SWSW Sec27-T1N-R67W (Xcel 13-27)			
Site Position:		Northing:	1,249,558.43 ft	Latitude:	40.016771
From:	Lat/Long	Easting:	3,172,622.55 ft	Longitude:	-104.883695
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.40 °

Well	Xcel 12-27					
Well Position	+N/-S	0.0 ft	Northing:	1,249,411.86 ft	Latitude:	40.016369
	+E/-W	0.0 ft	Easting:	3,172,608.17 ft	Longitude:	-104.883750
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,025.0 ft

<b>Wellbore</b>	DD				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	11/6/2012	8.71	66.67	52,768

<b>Design</b>	DD				
<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 (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	0.40	

<b>Survey Program</b>	<b>Date</b>	11/27/2012			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
77.0	8,530.0	Survey #1 (DD)	MWD	Geolink MWD	

<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		
77.0	1.20	267.80	77.0	0.0	-0.8	0.0	1.56	1.56		
165.0	1.10	280.40	165.0	0.1	-2.6	0.1	0.31	-0.11		
253.0	0.60	330.10	253.0	0.6	-3.6	0.6	0.96	-0.57		
340.0	1.20	55.80	340.0	1.5	-3.1	1.5	1.50	0.69		
417.0	1.70	21.20	416.9	3.1	-2.0	3.0	1.28	0.65		
508.0	2.90	10.00	507.9	6.6	-1.1	6.6	1.40	1.32		
599.0	4.20	9.00	598.7	12.1	-0.2	12.1	1.43	1.43		
689.0	5.70	1.40	688.3	19.9	0.4	19.9	1.82	1.67		
780.0	7.30	355.90	778.8	30.2	0.1	30.2	1.88	1.76		
871.0	9.80	359.80	868.7	43.7	-0.3	43.7	2.82	2.75		
961.0	12.20	3.60	957.1	60.8	0.2	60.8	2.78	2.67		
1,052.0	14.20	3.30	1,045.7	81.6	1.5	81.6	2.20	2.20		

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Anadarko Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Xcel 12-27
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=15' @ 5040.0ft (Xtreme 11)
<b>Site:</b>	SWSW Sec27-T1N-R67W (Xcel 13-27)	<b>MD Reference:</b>	KB=15' @ 5040.0ft (Xtreme 11)
<b>Well:</b>	Xcel 12-27	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	DD	<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
1,131.0	16.20	3.20	1,121.9	102.2	2.7	102.3	2.53	2.53	
1,218.0	15.60	2.40	1,205.6	126.0	3.8	126.1	0.73	-0.69	
1,308.0	18.50	2.60	1,291.6	152.4	5.0	152.4	3.22	3.22	
1,445.0	19.40	4.10	1,421.2	196.8	7.6	196.9	0.75	0.66	
1,581.0	20.00	358.90	1,549.2	242.6	8.8	242.7	1.36	0.44	
1,672.0	18.20	356.10	1,635.2	272.3	7.5	272.4	2.22	-1.98	
1,762.0	16.70	356.90	1,721.1	299.3	5.9	299.3	1.69	-1.67	
1,853.0	14.50	357.60	1,808.7	323.7	4.7	323.7	2.43	-2.42	
1,944.0	11.90	355.70	1,897.3	344.5	3.5	344.5	2.90	-2.86	
2,035.0	12.90	7.00	1,986.2	363.9	4.0	363.9	2.88	1.10	
2,125.0	13.40	4.50	2,073.8	384.3	6.1	384.3	0.84	0.56	
2,216.0	15.30	1.70	2,162.0	406.8	7.2	406.8	2.22	2.09	
2,307.0	16.00	358.30	2,249.6	431.3	7.2	431.4	1.27	0.77	
2,397.0	14.30	358.20	2,336.5	454.8	6.5	454.9	1.89	-1.89	
2,488.0	15.00	9.40	2,424.6	477.7	8.1	477.7	3.20	0.77	
2,579.0	14.90	3.10	2,512.5	501.0	10.6	501.1	1.79	-0.11	
2,670.0	14.90	359.40	2,600.4	524.4	11.2	524.4	1.05	0.00	
2,760.0	13.40	358.20	2,687.7	546.4	10.7	546.4	1.70	-1.67	
2,851.0	14.10	357.50	2,776.1	568.0	9.9	568.0	0.79	0.77	
2,942.0	14.30	358.40	2,864.3	590.3	9.1	590.3	0.33	0.22	
3,032.0	14.80	355.20	2,951.4	612.9	7.8	612.9	1.05	0.56	
3,123.0	13.00	353.00	3,039.8	634.6	5.6	634.6	2.06	-1.98	
3,214.0	13.80	1.00	3,128.3	655.6	4.5	655.6	2.22	0.88	
3,305.0	14.70	4.10	3,216.5	678.0	5.6	678.0	1.30	0.99	
3,395.0	12.50	1.90	3,304.0	699.1	6.7	699.1	2.51	-2.44	
3,486.0	14.40	5.60	3,392.5	720.2	8.1	720.3	2.29	2.09	
3,577.0	14.20	5.90	3,480.6	742.6	10.4	742.6	0.23	-0.22	
3,668.0	15.60	4.80	3,568.6	765.9	12.5	765.9	1.57	1.54	
3,758.0	14.50	358.50	3,655.5	789.2	13.3	789.3	2.19	-1.22	
3,849.0	13.10	355.10	3,743.9	810.9	12.1	810.9	1.78	-1.54	
3,940.0	14.30	359.70	3,832.3	832.4	11.1	832.4	1.78	1.32	
4,030.0	14.90	359.40	3,919.4	855.1	11.0	855.1	0.67	0.67	
4,121.0	14.80	356.80	4,007.3	878.4	10.2	878.4	0.74	-0.11	
4,212.0	15.50	358.20	4,095.2	902.1	9.2	902.2	0.87	0.77	
4,303.0	15.30	1.40	4,182.9	926.3	9.1	926.3	0.96	-0.22	
4,393.0	14.30	359.30	4,269.9	949.3	9.2	949.3	1.26	-1.11	
4,484.0	12.30	356.10	4,358.5	970.2	8.4	970.2	2.34	-2.20	
4,575.0	10.00	348.30	4,447.8	987.6	6.2	987.6	3.02	-2.53	
4,666.0	10.80	0.60	4,537.3	1,003.9	4.7	1,003.9	2.59	0.88	
4,756.0	9.80	359.10	4,625.8	1,019.9	4.6	1,020.0	1.15	-1.11	
4,847.0	11.10	13.10	4,715.3	1,036.2	6.5	1,036.2	3.12	1.43	
4,938.0	12.30	32.40	4,804.5	1,052.9	13.7	1,053.0	4.47	1.32	
5,029.0	13.30	38.20	4,893.2	1,069.4	25.3	1,069.5	1.79	1.10	
5,120.0	16.00	30.90	4,981.3	1,088.4	38.3	1,088.6	3.59	2.97	
5,210.0	16.90	30.30	5,067.6	1,110.3	51.2	1,110.6	1.02	1.00	
5,301.0	15.60	24.30	5,154.9	1,132.9	62.9	1,133.3	2.33	-1.43	
5,392.0	15.40	12.90	5,242.6	1,155.8	70.7	1,156.3	3.35	-0.22	
5,483.0	15.50	9.90	5,330.4	1,179.6	75.5	1,180.1	0.88	0.11	
5,574.0	15.80	8.80	5,418.0	1,203.8	79.4	1,204.3	0.46	0.33	
5,665.0	14.00	11.50	5,505.9	1,226.8	83.5	1,227.4	2.12	-1.98	
5,755.0	17.70	356.10	5,592.5	1,251.1	84.8	1,251.7	6.19	4.11	
5,846.0	18.20	343.90	5,679.1	1,278.6	79.9	1,279.1	4.16	0.55	
5,937.0	15.90	332.10	5,766.1	1,303.3	70.1	1,303.7	4.55	-2.53	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Anadarko Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Xcel 12-27
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=15' @ 5040.0ft (Xtreme 11)
<b>Site:</b>	SWSW Sec27-T1N-R67W (Xcel 13-27)	<b>MD Reference:</b>	KB=15' @ 5040.0ft (Xtreme 11)
<b>Well:</b>	Xcel 12-27	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	DD	<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
6,028.0	14.50	328.40	5,854.0	1,324.0	58.3	1,324.4	1.87	-1.54	
6,118.0	12.50	329.00	5,941.5	1,342.0	47.4	1,342.3	2.23	-2.22	
6,209.0	10.50	325.50	6,030.6	1,357.2	37.6	1,357.5	2.33	-2.20	
6,300.0	7.80	329.30	6,120.5	1,369.4	29.8	1,369.6	3.04	-2.97	
6,391.0	6.20	328.60	6,210.8	1,378.9	24.1	1,379.0	1.76	-1.76	
6,481.0	5.50	325.20	6,300.3	1,386.6	19.1	1,386.7	0.87	-0.78	
6,572.0	5.50	323.90	6,390.9	1,393.7	14.0	1,393.7	0.14	0.00	
6,663.0	2.60	348.60	6,481.7	1,399.2	11.0	1,399.3	3.65	-3.19	
6,753.0	1.90	330.00	6,571.6	1,402.5	9.9	1,402.6	1.11	-0.78	
6,844.0	1.60	341.80	6,662.6	1,405.0	8.7	1,405.1	0.51	-0.33	
6,935.0	1.50	341.60	6,753.5	1,407.4	8.0	1,407.4	0.11	-0.11	
7,026.0	1.40	354.30	6,844.5	1,409.6	7.5	1,409.6	0.37	-0.11	
7,116.0	1.20	340.10	6,934.5	1,411.6	7.0	1,411.6	0.42	-0.22	
7,207.0	1.30	359.70	7,025.5	1,413.5	6.7	1,413.5	0.48	0.11	
7,298.0	1.10	0.90	7,116.4	1,415.4	6.7	1,415.4	0.22	-0.22	
7,388.0	0.70	357.50	7,206.4	1,416.8	6.7	1,416.8	0.45	-0.44	
7,479.0	0.90	0.30	7,297.4	1,418.1	6.7	1,418.1	0.22	0.22	
7,570.0	0.80	2.10	7,388.4	1,419.5	6.7	1,419.5	0.11	-0.11	
7,660.0	0.30	19.30	7,478.4	1,420.3	6.8	1,420.3	0.58	-0.56	
7,751.0	0.70	59.30	7,569.4	1,420.8	7.4	1,420.8	0.56	0.44	
7,842.0	0.60	48.60	7,660.4	1,421.4	8.2	1,421.4	0.17	-0.11	
7,933.0	0.70	31.80	7,751.4	1,422.2	8.9	1,422.2	0.24	0.11	
8,023.0	0.60	0.70	7,841.4	1,423.1	9.2	1,423.2	0.40	-0.11	
8,114.0	0.70	11.30	7,932.4	1,424.2	9.3	1,424.2	0.17	0.11	
8,205.0	0.50	0.20	8,023.4	1,425.1	9.4	1,425.1	0.25	-0.22	
8,296.0	0.80	320.90	8,114.4	1,426.0	9.0	1,426.0	0.57	0.33	
8,386.0	1.10	307.10	8,204.3	1,427.0	7.9	1,427.0	0.42	0.33	
8,475.0	2.10	304.30	8,293.3	1,428.4	5.9	1,428.4	1.13	1.12	Last Cathedral Survey @ 8475' MD Projection to Bit @ 8530' MD
8,530.0	2.10	304.30	8,348.3	1,429.6	4.2	1,429.6	0.00	0.00	

Targets									
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	
Legal Box #12, Sec 27		0.00	0.00	-5,000.0	1,415.3	3.4	1,250,827.18	3,172,601.75	40.020254 -104.883738
- survey misses target center by 5196.5ft at 0.0ft MD (0.0 TVD, 0.0 N, 0.0 E)									
- Rectangle (sides W400.0 H400.0 D0.0)									
Xcel 12-27 PBHL		0.00	0.00	8,300.0	1,418.5	9.8	1,250,830.41	3,172,608.11	40.020263 -104.883715
- survey misses target center by 12.6ft at 8475.0ft MD (8293.3 TVD, 1428.4 N, 5.9 E)									
- Circle (radius 50.0)									

Survey Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
8,475.0	8,293.3	1,428.4	5.9	Last Cathedral Survey @ 8475' MD	
8,530.0	8,348.3	1,429.6	4.2	Projection to Bit @ 8530' MD	

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