

**DESIGN TARGET DETAILS**

No target data is available.

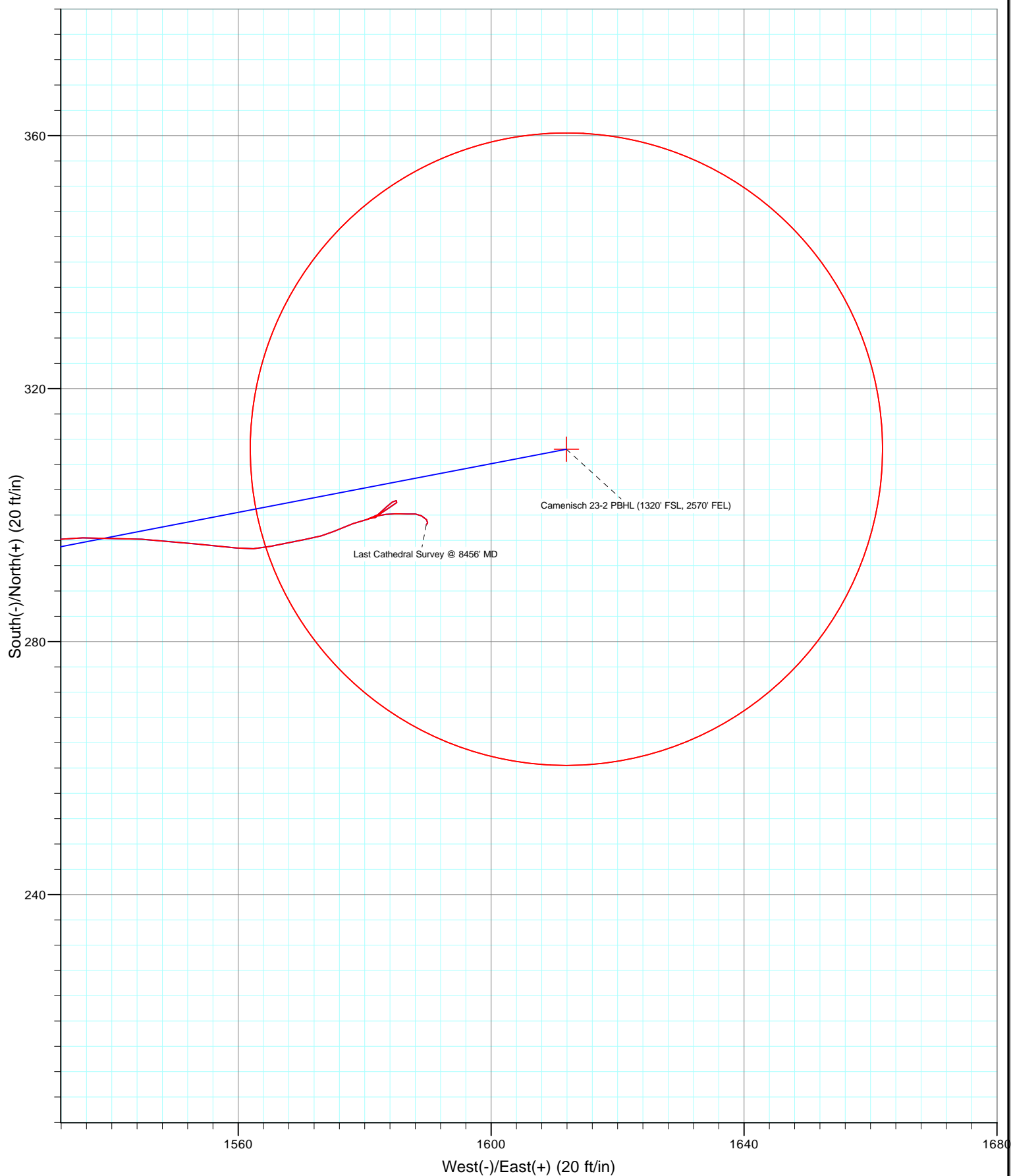
**CASING DETAILS**

No casing data is available

**FORMATION TOP DETAILS**

No formation data is available

**FINAL**  
Camenisch 23-2  
197555 125563; LR  
WELL @ 5046.0ft (Xtreme 11)  
Ground Elevation @ 5031.0  
North American Datum 1983  
Well Camenisch 23-2, True North



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Anadarko Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Camenisch 23-2
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5046.0ft (Xtreme 11)
<b>Site:</b>	S2-T1N-R67W (Camenisch 19-2-9F)	<b>MD Reference:</b>	WELL @ 5046.0ft (Xtreme 11)
<b>Well:</b>	Camenisch 23-2	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<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		S2-T1N-R67W (Camenisch 19-2-9F)			
Site Position:		Northing:	1,271,017.29 ft	Latitude:	40.075572
From:	Lat/Long	Easting:	3,178,075.18 ft	Longitude:	-104.863678
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.41 °

Well	Camenisch 23-2					
Well Position	+N/-S	0.0 ft	Northing:	1,271,002.35 ft	Latitude:	40.075531
	+E/-W	0.0 ft	Easting:	3,178,075.56 ft	Longitude:	-104.863677
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,031.0 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	10/10/2012	8.71	66.73	52,809

Design	FINAL			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	79.10

<b>Survey Program</b>	<b>Date</b>	10/18/2012			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
76.0	8,456.0	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	
76.0	1.30	207.60	76.0	-0.8	-0.4	-0.5	1.71	1.71	
164.0	2.00	173.90	164.0	-3.2	-0.7	-1.3	1.33	0.80	
252.0	1.40	101.80	251.9	-4.9	0.5	-0.4	2.34	-0.68	
339.0	3.50	80.30	338.8	-4.7	4.2	3.2	2.59	2.41	
416.0	5.60	74.50	415.6	-3.3	10.1	9.3	2.79	2.73	
507.0	7.10	73.00	506.0	-0.5	19.8	19.3	1.66	1.65	
598.0	8.90	76.00	596.1	2.9	32.0	31.9	2.03	1.98	
688.0	10.90	76.00	684.8	6.6	47.0	47.4	2.22	2.22	
779.0	13.10	77.30	773.8	11.0	65.4	66.3	2.44	2.42	
870.0	14.50	77.90	862.2	15.6	86.6	88.0	1.55	1.54	
910.0	14.40	79.40	900.9	17.6	96.4	98.0	0.97	-0.25	
990.0	15.20	79.50	978.3	21.3	116.5	118.4	1.00	1.00	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Anadarko Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Camenisch 23-2
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5046.0ft (Xtreme 11)
<b>Site:</b>	S2-T1N-R67W (Camenisch 19-2-9F)	<b>MD Reference:</b>	WELL @ 5046.0ft (Xtreme 11)
<b>Well:</b>	Camenisch 23-2	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<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
1,080.0	15.30	83.70	1,065.1	24.8	139.9	142.0	1.23	0.11	
1,171.0	18.00	79.70	1,152.3	28.6	165.7	168.1	3.22	2.97	
1,262.0	20.80	79.10	1,238.1	34.2	195.4	198.3	3.08	3.08	
1,352.0	20.00	78.60	1,322.5	40.3	226.1	229.7	0.91	-0.89	
1,444.0	19.80	76.60	1,409.0	47.0	256.7	261.0	0.77	-0.22	
1,534.0	20.30	78.30	1,493.5	53.7	286.8	291.8	0.85	0.56	
1,625.0	21.00	77.00	1,578.7	60.5	318.2	323.9	0.92	0.77	
1,716.0	20.70	78.40	1,663.7	67.5	349.8	356.3	0.64	-0.33	
1,806.0	20.00	77.50	1,748.1	74.0	380.4	387.6	0.85	-0.78	
1,897.0	19.40	76.00	1,833.8	81.0	410.3	418.2	0.86	-0.66	
1,988.0	18.60	76.90	1,919.8	88.0	439.1	447.8	0.94	-0.88	
2,079.0	17.20	76.10	2,006.4	94.5	466.3	475.7	1.56	-1.54	
2,169.0	15.30	79.50	2,092.8	99.8	490.9	500.9	2.36	-2.11	
2,260.0	17.00	75.90	2,180.2	105.3	515.6	526.2	2.17	1.87	
2,351.0	16.60	78.10	2,267.3	111.2	541.2	552.5	0.83	-0.44	
2,441.0	16.40	85.10	2,353.6	114.9	566.5	578.0	2.22	-0.22	
2,532.0	15.90	86.30	2,441.0	116.8	591.7	603.1	0.66	-0.55	
2,623.0	18.10	86.20	2,528.0	118.6	618.2	629.5	2.42	2.42	
2,714.0	19.60	84.60	2,614.2	120.9	647.5	658.7	1.74	1.65	
2,804.0	20.70	83.30	2,698.7	124.2	678.4	689.6	1.32	1.22	
2,895.0	19.20	80.60	2,784.2	128.5	709.1	720.6	1.93	-1.65	
2,986.0	18.40	75.70	2,870.3	134.5	737.8	749.9	1.94	-0.88	
3,076.0	17.60	74.80	2,955.9	141.6	764.7	777.7	0.94	-0.89	
3,167.0	17.10	77.10	3,042.8	148.2	791.0	804.8	0.93	-0.55	
3,258.0	17.60	79.90	3,129.7	153.6	817.6	831.9	1.07	0.55	
3,348.0	19.50	78.60	3,215.0	159.0	845.7	860.5	2.16	2.11	
3,439.0	19.10	80.90	3,300.9	164.3	875.3	890.6	0.94	-0.44	
3,530.0	19.20	75.60	3,386.8	170.4	904.5	920.4	1.91	0.11	
3,621.0	19.00	75.10	3,472.8	177.9	933.3	950.1	0.28	-0.22	
3,712.0	17.90	79.40	3,559.2	184.3	961.4	978.9	1.92	-1.21	
3,803.0	19.00	75.10	3,645.5	190.7	989.4	1,007.6	1.92	1.21	
3,893.0	19.20	75.40	3,730.5	198.2	1,017.9	1,037.0	0.25	0.22	
3,984.0	18.90	79.80	3,816.5	204.6	1,046.9	1,066.7	1.61	-0.33	
4,075.0	19.10	80.00	3,902.6	209.8	1,076.1	1,096.3	0.23	0.22	
4,166.0	18.00	81.20	3,988.9	214.5	1,104.6	1,125.3	1.28	-1.21	
4,256.0	18.50	81.70	4,074.3	218.7	1,132.5	1,153.4	0.58	0.56	
4,347.0	18.50	81.30	4,160.6	222.9	1,161.1	1,182.3	0.14	0.00	
4,438.0	18.30	79.90	4,247.0	227.6	1,189.4	1,211.0	0.53	-0.22	
4,529.0	18.40	74.90	4,333.4	233.9	1,217.3	1,239.6	1.73	0.11	
4,619.0	16.00	75.70	4,419.3	240.6	1,243.1	1,266.1	2.68	-2.67	
4,710.0	14.80	79.50	4,507.1	245.9	1,266.6	1,290.3	1.72	-1.32	
4,801.0	15.00	77.70	4,595.0	250.5	1,289.6	1,313.7	0.55	0.22	
4,892.0	15.90	80.00	4,682.7	255.2	1,313.4	1,337.9	1.20	0.99	
4,983.0	15.60	81.30	4,770.3	259.2	1,337.7	1,362.6	0.51	-0.33	
5,074.0	17.40	78.10	4,857.5	263.8	1,363.1	1,388.4	2.22	1.98	
5,164.0	18.90	77.90	4,943.1	269.7	1,390.6	1,416.5	1.67	1.67	
5,255.0	15.70	78.10	5,029.9	275.3	1,417.0	1,443.5	3.52	-3.52	
5,346.0	15.00	79.10	5,117.7	280.1	1,440.6	1,467.6	0.82	-0.77	
5,437.0	12.10	79.60	5,206.1	284.0	1,461.6	1,488.9	3.19	-3.19	
5,527.0	10.90	77.80	5,294.3	287.5	1,479.2	1,506.9	1.39	-1.33	
5,618.0	8.30	80.00	5,384.1	290.5	1,494.1	1,522.0	2.88	-2.86	
5,709.0	6.80	79.30	5,474.3	292.6	1,505.8	1,534.0	1.65	-1.65	
5,800.0	6.70	79.80	5,564.6	294.6	1,516.4	1,544.7	0.13	-0.11	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Anadarko Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Camenisch 23-2
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5046.0ft (Xtreme 11)
<b>Site:</b>	S2-T1N-R67W (Camenisch 19-2-9F)	<b>MD Reference:</b>	WELL @ 5046.0ft (Xtreme 11)
<b>Well:</b>	Camenisch 23-2	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<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
5,890.0	5.80	85.70	5,654.1	295.8	1,526.1	1,554.5	1.23	-1.00	
5,981.0	6.00	87.10	5,744.6	296.4	1,535.4	1,563.7	0.27	0.22	
6,072.0	5.80	95.80	5,835.1	296.2	1,544.7	1,572.9	1.01	-0.22	
6,163.0	4.90	94.10	5,925.7	295.4	1,553.2	1,581.0	1.00	-0.99	
6,254.0	3.40	97.80	6,016.5	294.8	1,559.7	1,587.3	1.67	-1.65	
6,344.0	3.60	77.20	6,106.3	295.1	1,565.1	1,592.7	1.41	0.22	
6,435.0	3.50	80.00	6,197.2	296.2	1,570.6	1,598.3	0.22	-0.11	
6,526.0	2.30	65.80	6,288.0	297.4	1,575.0	1,602.9	1.53	-1.32	
6,617.0	1.90	70.60	6,379.0	298.7	1,578.1	1,606.1	0.48	-0.44	
6,708.0	1.20	78.70	6,470.0	299.3	1,580.5	1,608.6	0.80	-0.77	
6,798.0	1.10	51.40	6,559.9	300.1	1,582.1	1,610.3	0.61	-0.11	
6,889.0	1.20	44.00	6,650.9	301.3	1,583.4	1,611.8	0.20	0.11	
6,980.0	0.40	70.40	6,741.9	302.1	1,584.4	1,612.9	0.95	-0.88	
7,070.0	0.40	72.30	6,831.9	302.3	1,585.0	1,613.6	0.01	0.00	
7,161.0	0.60	211.40	6,922.9	302.0	1,585.0	1,613.5	1.03	0.22	
7,251.0	1.30	246.40	7,012.9	301.2	1,583.9	1,612.2	0.98	0.78	
7,342.0	0.80	218.40	7,103.9	300.3	1,582.5	1,610.7	0.77	-0.55	
7,433.0	0.60	253.30	7,194.9	299.6	1,581.7	1,609.8	0.51	-0.22	
7,524.0	0.40	271.60	7,285.9	299.5	1,580.9	1,609.0	0.28	-0.22	
7,614.0	0.10	194.40	7,375.9	299.4	1,580.6	1,608.7	0.43	-0.33	
7,705.0	0.60	65.80	7,466.9	299.6	1,581.0	1,609.1	0.73	0.55	
7,796.0	0.80	77.20	7,557.9	299.9	1,582.0	1,610.2	0.27	0.22	
7,886.0	0.90	81.70	7,647.8	300.1	1,583.3	1,611.5	0.13	0.11	
7,977.0	1.10	92.00	7,738.8	300.2	1,584.9	1,613.1	0.29	0.22	
8,068.0	1.10	90.40	7,829.8	300.2	1,586.7	1,614.8	0.03	0.00	
8,159.0	0.60	88.10	7,920.8	300.2	1,588.0	1,616.1	0.55	-0.55	
8,250.0	0.70	122.60	8,011.8	299.9	1,589.0	1,617.0	0.44	0.11	
8,340.0	0.60	134.80	8,101.8	299.3	1,589.8	1,617.7	0.19	-0.11	
8,401.0	0.50	192.90	8,162.8	298.8	1,589.9	1,617.7	0.89	-0.16	
8,456.0	0.40	240.29	8,217.8	298.4	1,589.7	1,617.5	0.68	-0.18	

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									
Camenisch 23-2 PBHL (	0.00	0.00	8,201.0	310.4	1,611.9	1,271,324.33	3,179,685.17	40.076383	-104.857917
- survey misses target center by 25.1ft at 8439.1ft MD (8200.8 TVD, 298.5 N, 1589.8 E)									
- Circle (radius 50.0)									

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
8,456.0	8,217.8	298.4	1,589.7	Last Cathedral Survey @ 8456' MD

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