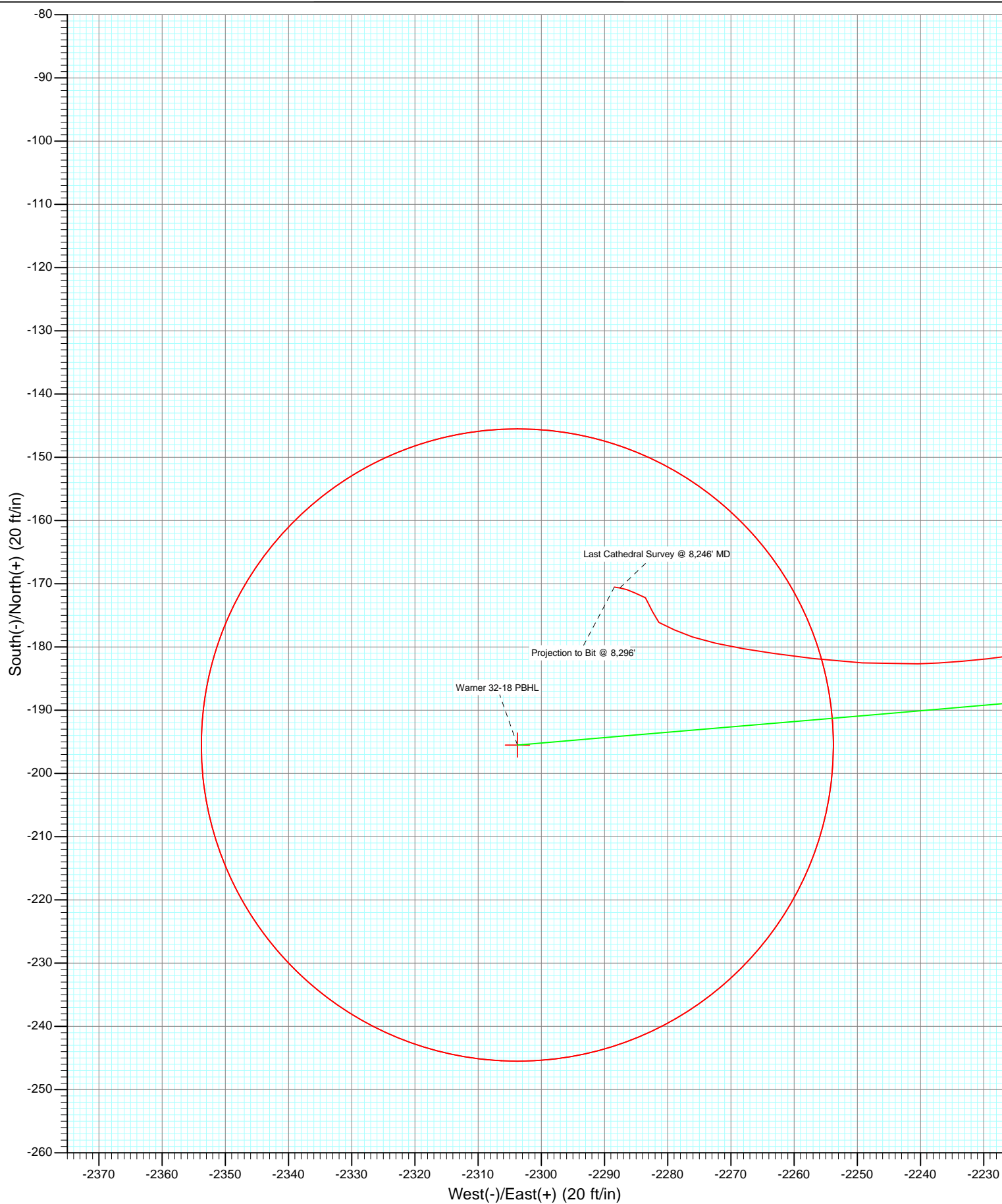


Type		Target	Warner 32-18 PBHL	Azimuth	265.15	Origin Type	Slot	N/S	0.0	E/W	0.0	From TVD	0.0
Name	Warner 32-18 PBHL	TVD	7969.0	+N/-S	-195.5	+E/-W	-2303.8	Latitude	40.138682	Longitude	-104.715748		



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Anadarko Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Warner 32-18
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KBE @ 4999.0ft (Xtreme 14)
<b>Site:</b>	SENW Sec18-T2N-R65W (Warner 25-18)	<b>MD Reference:</b>	KBE @ 4999.0ft (Xtreme 14)
<b>Well:</b>	Warner 32-18	<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		SENW Sec18-T2N-R65W (Warner 25-18)			
Site Position:		Northing:	1,294,539.44 ft	Latitude:	40.139180
From:	Lat/Long	Easting:	3,221,562.60 ft	Longitude:	-104.707534
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.51 °

Well	Warner 32-18					
Well Position	+N/-S	0.0 ft	Northing:	1,294,553.72 ft	Latitude:	40.139219
	+E/-W	0.0 ft	Easting:	3,221,569.74 ft	Longitude:	-104.707508
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,984.0 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	11/17/2011	8.75	66.83	52,954

<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	265.15	

<b>Survey Program</b>	<b>Date</b>	12/1/2011			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
119.0	8,296.0	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		
119.0	0.10	314.70	119.0	0.1	-0.1	0.1	0.08	0.08		
212.0	1.10	258.90	212.0	0.0	-1.0	1.0	1.13	1.08		
305.0	2.20	270.90	305.0	-0.2	-3.7	3.7	1.23	1.18		
414.0	3.30	255.50	413.8	-0.9	-8.8	8.8	1.21	1.01		
503.0	5.30	252.50	502.6	-2.8	-15.2	15.4	2.26	2.25		
591.0	7.50	254.10	590.0	-5.6	-24.6	25.0	2.51	2.50		
680.0	10.50	255.70	677.9	-9.2	-38.0	38.7	3.38	3.37		
767.0	11.30	260.60	763.3	-12.6	-54.1	55.0	1.41	0.92		
856.0	13.20	265.40	850.3	-14.8	-72.9	73.9	2.42	2.13		
882.0	13.30	264.40	875.6	-15.3	-78.8	79.8	0.96	0.38		
949.0	14.00	266.00	940.7	-16.6	-94.6	95.6	1.19	1.04		
1,038.0	14.70	262.10	1,027.0	-18.9	-116.5	117.7	1.34	0.79		

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Anadarko Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Warner 32-18
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KBE @ 4999.0ft (Xtreme 14)
<b>Site:</b>	SENW Sec18-T2N-R65W (Warner 25-18)	<b>MD Reference:</b>	KBE @ 4999.0ft (Xtreme 14)
<b>Well:</b>	Warner 32-18	<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
1,127.0	17.20	262.70	1,112.5	-22.2	-140.7	142.1	2.82	2.81	
1,216.0	19.80	263.90	1,196.9	-25.4	-168.8	170.3	2.95	2.92	
1,304.0	21.50	266.60	1,279.3	-28.0	-199.7	201.3	2.21	1.93	
1,394.0	22.40	267.30	1,362.7	-29.8	-233.3	235.0	1.04	1.00	
1,483.0	23.20	269.10	1,444.8	-30.8	-267.8	269.4	1.19	0.90	
1,569.0	25.50	268.90	1,523.1	-31.5	-303.2	304.8	2.68	2.67	
1,658.0	25.20	268.80	1,603.6	-32.2	-341.3	342.8	0.34	-0.34	
1,746.0	25.00	268.60	1,683.2	-33.1	-378.6	380.1	0.25	-0.23	
1,836.0	26.30	268.50	1,764.4	-34.1	-417.6	419.0	1.45	1.44	
1,924.0	26.10	264.90	1,843.3	-36.3	-456.3	457.8	1.82	-0.23	
2,012.0	24.90	264.60	1,922.8	-39.8	-494.1	495.7	1.37	-1.36	
2,101.0	23.70	264.00	2,003.9	-43.4	-530.5	532.3	1.38	-1.35	
2,189.0	23.80	263.00	2,084.4	-47.4	-565.7	567.7	0.47	0.11	
2,279.0	23.50	265.20	2,166.9	-51.1	-601.6	603.8	1.04	-0.33	
2,368.0	21.80	264.50	2,249.0	-54.2	-635.8	638.1	1.93	-1.91	
2,456.0	21.80	267.00	2,330.7	-56.6	-668.3	670.7	1.05	0.00	
2,546.0	22.40	268.90	2,414.1	-57.8	-702.2	704.6	1.04	0.67	
2,635.0	23.70	268.50	2,496.0	-58.6	-737.0	739.3	1.47	1.46	
2,722.0	24.30	264.50	2,575.5	-60.8	-772.3	774.7	1.99	0.69	
2,812.0	24.90	264.40	2,657.3	-64.4	-809.6	812.2	0.67	0.67	
2,900.0	22.70	264.10	2,737.8	-68.0	-844.9	847.7	2.50	-2.50	
2,989.0	23.30	265.70	2,819.7	-71.0	-879.6	882.4	0.97	0.67	
3,078.0	25.40	265.60	2,900.8	-73.8	-916.2	919.1	2.36	2.36	
3,166.0	24.90	265.70	2,980.5	-76.7	-953.5	956.5	0.57	-0.57	
3,256.0	25.70	265.30	3,061.8	-79.7	-991.8	995.0	0.91	0.89	
3,345.0	24.40	265.50	3,142.5	-82.7	-1,029.4	1,032.7	1.46	-1.46	
3,434.0	24.10	265.20	3,223.6	-85.7	-1,065.8	1,069.2	0.36	-0.34	
3,521.0	24.30	265.40	3,303.0	-88.6	-1,101.3	1,104.9	0.25	0.23	
3,611.0	25.10	266.40	3,384.7	-91.3	-1,138.8	1,142.5	1.00	0.89	
3,701.0	23.70	266.30	3,466.7	-93.6	-1,175.9	1,179.7	1.56	-1.56	
3,789.0	23.30	263.90	3,547.4	-96.6	-1,210.9	1,214.7	1.18	-0.45	
3,875.0	22.00	267.60	3,626.8	-99.1	-1,243.9	1,247.8	2.24	-1.51	
3,964.0	22.00	263.30	3,709.3	-101.8	-1,277.1	1,281.2	1.81	0.00	
4,054.0	21.60	261.70	3,792.9	-106.1	-1,310.3	1,314.5	0.80	-0.44	
4,141.0	21.20	263.20	3,873.9	-110.3	-1,341.7	1,346.2	0.78	-0.46	
4,228.0	20.30	263.50	3,955.2	-113.9	-1,372.3	1,377.1	1.04	-1.03	
4,317.0	21.30	264.50	4,038.4	-117.2	-1,403.8	1,408.7	1.19	1.12	
4,405.0	22.50	266.90	4,120.1	-119.6	-1,436.5	1,441.5	1.70	1.36	
4,493.0	24.10	267.40	4,200.9	-121.3	-1,471.3	1,476.2	1.83	1.82	
4,582.0	23.90	268.30	4,282.2	-122.7	-1,507.4	1,512.4	0.47	-0.22	
4,670.0	22.40	268.90	4,363.1	-123.5	-1,542.0	1,546.9	1.73	-1.70	
4,756.0	21.10	270.20	4,443.0	-123.8	-1,573.9	1,578.7	1.61	-1.51	
4,846.0	21.80	268.60	4,526.8	-124.2	-1,606.8	1,611.5	1.01	0.78	
4,932.0	20.80	269.20	4,606.9	-124.8	-1,638.0	1,642.7	1.19	-1.16	
5,022.0	20.30	268.00	4,691.1	-125.5	-1,669.6	1,674.2	0.73	-0.56	
5,110.0	20.20	266.20	4,773.7	-127.1	-1,700.0	1,704.7	0.72	-0.11	
5,198.0	19.90	263.30	4,856.4	-129.8	-1,730.1	1,734.8	1.18	-0.34	
5,287.0	18.20	261.90	4,940.5	-133.5	-1,758.9	1,763.9	1.98	-1.91	
5,376.0	19.20	264.50	5,024.8	-136.9	-1,787.2	1,792.4	1.46	1.12	
5,464.0	18.40	263.50	5,108.1	-139.9	-1,815.4	1,820.7	0.98	-0.91	
5,551.0	18.00	262.10	5,190.8	-143.3	-1,842.3	1,847.9	0.68	-0.46	
5,640.0	17.90	260.30	5,275.4	-147.5	-1,869.5	1,875.2	0.63	-0.11	
5,730.0	16.80	259.50	5,361.3	-152.2	-1,895.9	1,902.0	1.25	-1.22	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Anadarko Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Warner 32-18
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KBE @ 4999.0ft (Xtreme 14)
<b>Site:</b>	SENW Sec18-T2N-R65W (Warner 25-18)	<b>MD Reference:</b>	KBE @ 4999.0ft (Xtreme 14)
<b>Well:</b>	Warner 32-18	<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
5,818.0	17.00	263.00	5,445.5	-156.0	-1,921.1	1,927.5	1.18	0.23	
5,906.0	17.80	269.10	5,529.5	-157.8	-1,947.4	1,953.7	2.26	0.91	
5,996.0	17.10	270.10	5,615.4	-158.0	-1,974.4	1,980.6	0.85	-0.78	
6,086.0	16.70	267.80	5,701.5	-158.5	-2,000.5	2,006.7	0.87	-0.44	
6,175.0	15.60	268.00	5,787.0	-159.4	-2,025.2	2,031.5	1.24	-1.24	
6,263.0	15.10	261.60	5,871.8	-161.5	-2,048.4	2,054.7	2.01	-0.57	
6,351.0	15.70	263.20	5,956.7	-164.6	-2,071.6	2,078.1	0.84	0.68	
6,440.0	19.00	267.70	6,041.6	-166.6	-2,098.0	2,104.6	4.00	3.71	
6,528.0	17.80	265.90	6,125.1	-168.1	-2,125.7	2,132.4	1.51	-1.36	
6,617.0	16.40	264.20	6,210.2	-170.4	-2,151.8	2,158.5	1.67	-1.57	
6,707.0	14.90	263.20	6,296.8	-173.0	-2,175.9	2,182.8	1.69	-1.67	
6,795.0	12.60	258.20	6,382.3	-176.3	-2,196.6	2,203.6	2.94	-2.61	
6,883.0	11.30	260.30	6,468.4	-179.7	-2,214.5	2,221.7	1.56	-1.48	
6,971.0	8.40	263.90	6,555.1	-181.9	-2,229.4	2,236.8	3.37	-3.30	
7,060.0	5.90	268.60	6,643.4	-182.7	-2,240.4	2,247.8	2.88	-2.81	
7,148.0	5.60	273.50	6,731.0	-182.5	-2,249.2	2,256.6	0.65	-0.34	
7,236.0	4.70	277.20	6,818.6	-181.8	-2,257.1	2,264.4	1.09	-1.02	
7,323.0	3.50	277.50	6,905.4	-181.0	-2,263.2	2,270.4	1.38	-1.38	
7,411.0	3.00	280.50	6,993.2	-180.2	-2,268.2	2,275.3	0.60	-0.57	
7,500.0	2.60	282.10	7,082.1	-179.4	-2,272.4	2,279.5	0.46	-0.45	
7,590.0	2.20	289.10	7,172.1	-178.4	-2,276.1	2,283.0	0.55	-0.44	
7,676.0	1.90	293.30	7,258.0	-177.3	-2,278.9	2,285.8	0.39	-0.35	
7,765.0	1.60	298.60	7,347.0	-176.1	-2,281.4	2,288.1	0.38	-0.34	
7,855.0	1.40	5.30	7,436.9	-174.4	-2,282.4	2,289.0	1.84	-0.22	
7,989.0	1.20	294.60	7,570.9	-172.2	-2,283.5	2,289.9	1.13	-0.15	
8,079.0	1.10	293.40	7,660.9	-171.5	-2,285.2	2,291.5	0.11	-0.11	
8,168.0	0.70	291.00	7,749.9	-170.9	-2,286.5	2,292.7	0.45	-0.45	
8,246.0	1.00	278.80	7,827.9	-170.7	-2,287.6	2,293.8	0.45	0.38	Last Cathedral Survey @ 8,246' MD Projection to Bit @ 8,296'
8,296.0	1.00	278.80	7,877.9	-170.5	-2,288.4	2,294.7	0.00	0.00	

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Warner 32-18 PBHL	0.00	0.00	7,969.0	-195.5	-2,303.8	1,294,337.63	3,219,267.80	40.138682	-104.715748
- actual wellpath misses target center by 95.7ft at 8296.0ft MD (7877.9 TVD, -170.5 N, -2288.4 E)									
- Circle (radius 50.0)									

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
8,246.0	7,827.9	-170.7	-2,287.6	Last Cathedral Survey @ 8,246' MD	
8,296.0	7,877.9	-170.5	-2,288.4	Projection to Bit @ 8,296'	

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