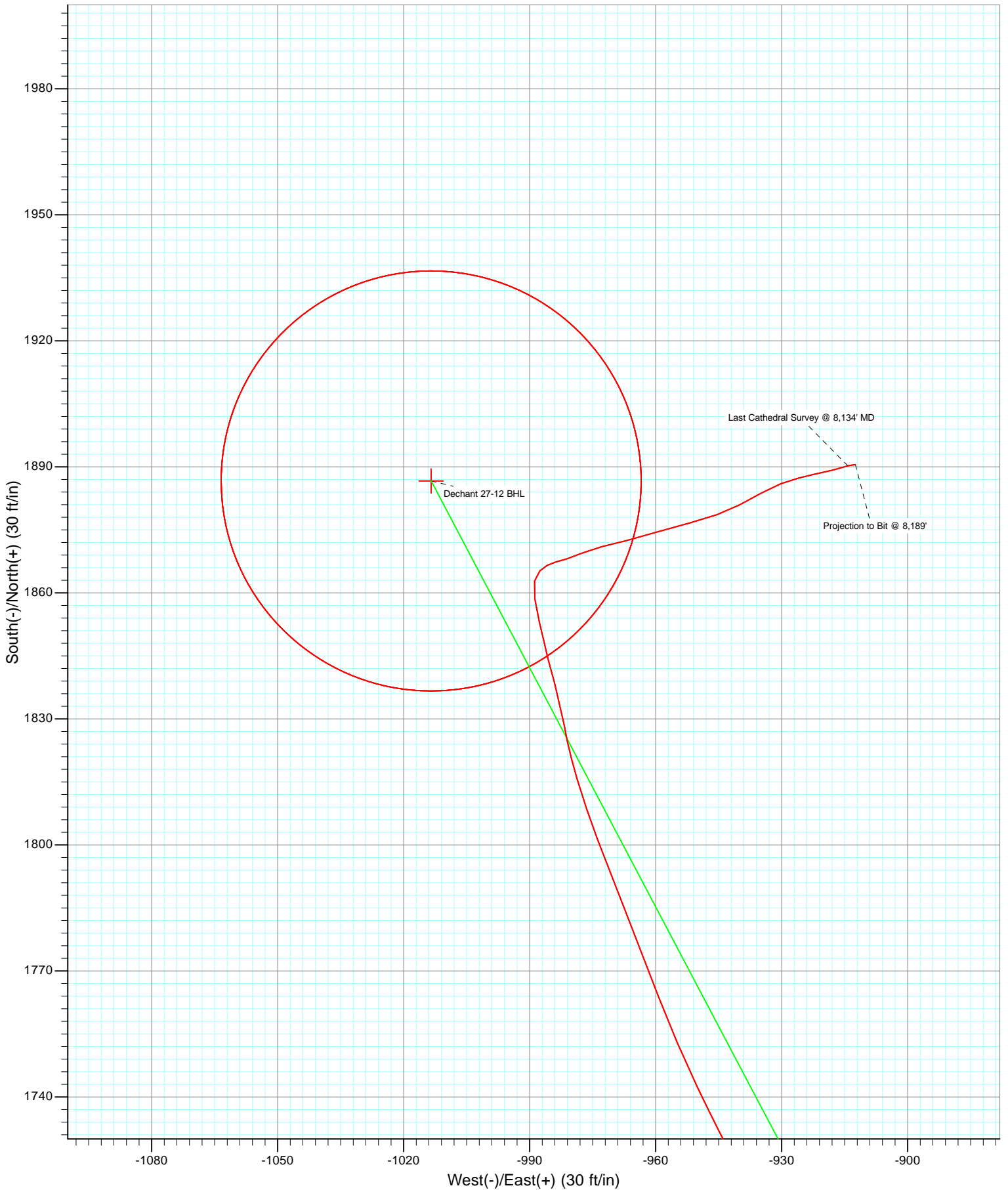


Azimuths to True North
Magnetic North: 8.71°

Magnetic Field
Strength: 52986.9snT
Dip Angle: 66.87°
Date: 10/5/2011
Model: IGRF2010

Type	Target	Azimuth	Origin Type	N/S	E/W	From TVD
Target	Dechant 27-12 BHL	331.76	Slot	0.0	0.0	0.0
Name	Dechant 27-12 BHL	TVD	+N/-S	Latitude	Longitude	
		7747.0	1886.7	40.159866	-104.607636	



Cathedral Energy Services

Survey Report

Company: Anadarko Petroleum Corporation	Local Co-ordinate Reference: Well Dechant 27-12
Project: DJ Wattenberg	TVD Reference: KBE @ 4907.0ft (Original Well Elev)
Site: SENE Sec12-T2N-R65W (Dechant)	MD Reference: KBE @ 4907.0ft (Original Well Elev)
Well: Dechant 27-12	North Reference: True
Wellbore: DD	Survey Calculation Method: Minimum Curvature
Design: DD	Database: USA EDM 5000 Multi Users DB

Project DJ Wattenberg		
Map System: US State Plane 1983	System Datum: Mean Sea Level	
Geo Datum: North American Datum 1983		
Map Zone: Colorado Northern Zone		

Site SENE Sec12-T2N-R65W (Dechant)				
Site Position:	Northing: 1,300,478.96 ft	Latitude: 40.154729		
From: Lat/Long	Easting: 3,250,451.17 ft	Longitude: -104.603997		
Position Uncertainty: 0.0 ft	Slot Radius: 13.200 in	Grid Convergence: 0.58 °		

Well Dechant 27-12				
Well Position	+N/-S 0.0 ft	Northing: 1,300,463.61 ft	Latitude: 40.154687	
	+E/-W 0.0 ft	Easting: 3,250,447.69 ft	Longitude: -104.604010	
Position Uncertainty	0.0 ft	Wellhead Elevation: ft	Ground Level: 4,897.0 ft	

Wellbore DD					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/5/2011	8.72	66.87	52,987

Design DD				
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	331.76

Survey Program		Date 10/31/2011
From (ft)	To (ft)	Survey (Wellbore)
168.0	8,189.0	Survey #1 (DD)
		Tool Name MWD
		Description Geolink MWD

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
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
168.0	0.40	33.10	168.0	0.5	0.3	0.3	0.24	0.24	
262.0	0.50	318.70	262.0	1.1	0.2	0.8	0.59	0.11	
356.0	1.20	9.70	356.0	2.4	0.1	2.0	1.03	0.74	
447.0	2.50	340.50	446.9	5.2	-0.4	4.7	1.72	1.43	
535.0	3.60	333.30	534.8	9.4	-2.3	9.4	1.32	1.25	
623.0	4.60	323.90	622.6	14.8	-5.6	15.6	1.37	1.14	
711.0	5.80	324.20	710.2	21.2	-10.3	23.5	1.36	1.36	
793.0	7.30	319.80	791.7	28.6	-16.0	32.8	1.93	1.83	
853.0	7.30	322.10	851.2	34.5	-20.8	40.2	0.49	0.00	
936.0	8.90	325.10	933.4	43.9	-27.8	51.8	1.99	1.93	
1,025.0	11.20	334.90	1,021.0	57.4	-35.4	67.3	3.21	2.58	
1,114.0	13.00	335.80	1,108.0	74.3	-43.1	85.9	2.03	2.02	

Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Dechant 27-12
Project:	DJ Wattenberg	TD Reference:	KBE @ 4907.0ft (Original Well Elev)
Site:	SENE Sec12-T2N-R65W (Dechant)	MVD Reference:	KBE @ 4907.0ft (Original Well Elev)
Well:	Dechant 27-12	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	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
1,201.0	14.40	336.30	1,192.5	93.2	-51.5	106.5	1.61	1.61	
1,288.0	16.10	337.60	1,276.5	114.2	-60.4	129.2	1.99	1.95	
1,377.0	18.10	335.70	1,361.5	138.2	-70.8	155.3	2.33	2.25	
1,465.0	20.00	332.00	1,444.7	164.0	-83.5	184.0	2.56	2.16	
1,555.0	21.50	329.20	1,528.9	191.8	-99.2	215.9	2.00	1.67	
1,641.0	21.90	331.40	1,608.8	219.4	-115.0	247.7	1.05	0.47	
1,731.0	23.40	331.70	1,691.9	249.8	-131.5	282.3	1.67	1.67	
1,818.0	24.70	332.90	1,771.3	281.2	-147.9	317.8	1.60	1.49	
1,908.0	24.80	330.90	1,853.0	314.5	-165.7	355.4	0.94	0.11	
1,998.0	26.90	331.40	1,934.0	348.8	-184.6	394.7	2.35	2.33	
2,087.0	26.60	330.90	2,013.5	383.9	-203.9	434.7	0.42	-0.34	
2,175.0	26.00	329.10	2,092.4	417.7	-223.4	473.7	1.13	-0.68	
2,263.0	25.50	330.40	2,171.7	450.7	-242.7	511.9	0.86	-0.57	
2,351.0	24.00	330.10	2,251.6	482.7	-261.0	548.7	1.71	-1.70	
2,440.0	25.40	332.10	2,332.4	515.3	-278.9	585.9	1.83	1.57	
2,526.0	28.20	331.70	2,409.2	549.5	-297.2	624.7	3.26	3.26	
2,614.0	27.60	331.70	2,486.9	585.7	-316.7	665.9	0.68	-0.68	
2,704.0	27.20	331.30	2,566.9	622.1	-336.5	707.3	0.49	-0.44	
2,792.0	26.80	330.70	2,645.3	657.1	-355.8	747.2	0.55	-0.45	
2,880.0	27.00	329.10	2,723.7	691.5	-375.8	787.0	0.85	0.23	
2,969.0	27.90	331.90	2,802.7	727.2	-396.0	828.0	1.77	1.01	
3,058.0	29.10	332.90	2,880.9	764.8	-415.7	870.5	1.45	1.35	
3,146.0	27.10	331.60	2,958.6	801.5	-434.9	911.9	2.38	-2.27	
3,234.0	28.70	335.40	3,036.3	838.4	-453.3	953.1	2.72	1.82	
3,324.0	26.10	333.90	3,116.2	875.8	-471.0	994.4	2.99	-2.89	
3,413.0	23.90	333.20	3,196.9	909.5	-487.7	1,032.0	2.49	-2.47	
3,499.0	23.80	330.30	3,275.5	940.1	-504.2	1,066.8	1.37	-0.12	
3,589.0	21.90	328.30	3,358.5	970.2	-522.0	1,101.7	2.28	-2.11	
3,676.0	20.10	330.90	3,439.7	997.0	-537.8	1,132.8	2.33	-2.07	
3,762.0	19.90	328.30	3,520.5	1,022.4	-552.7	1,162.2	1.06	-0.23	
3,853.0	20.30	329.70	3,606.0	1,049.2	-568.8	1,193.5	0.69	0.44	
3,942.0	21.30	335.00	3,689.2	1,077.2	-583.4	1,225.0	2.39	1.12	
4,032.0	21.40	337.70	3,773.0	1,107.2	-596.5	1,257.7	1.10	0.11	
4,120.0	24.70	336.40	3,854.0	1,138.9	-610.0	1,292.0	3.79	3.75	
4,207.0	28.60	336.50	3,931.7	1,174.7	-625.6	1,330.9	4.48	4.48	
4,297.0	31.30	336.50	4,009.7	1,215.9	-643.5	1,375.6	3.00	3.00	
4,387.0	32.20	334.90	4,086.2	1,259.0	-663.0	1,422.9	1.37	1.00	
4,476.0	29.00	333.20	4,162.8	1,299.8	-682.8	1,468.1	3.72	-3.60	
4,565.0	29.60	332.90	4,240.4	1,338.6	-702.5	1,511.7	0.69	0.67	
4,653.0	29.30	331.80	4,317.1	1,376.9	-722.6	1,554.9	0.70	-0.34	
4,741.0	27.20	327.70	4,394.6	1,412.9	-743.5	1,596.6	3.25	-2.39	
4,831.0	27.30	326.40	4,474.6	1,447.5	-765.9	1,637.6	0.67	0.11	
4,919.0	27.30	322.60	4,552.8	1,480.3	-789.4	1,677.6	1.98	0.00	
5,009.0	28.40	324.30	4,632.4	1,514.1	-814.4	1,719.2	1.51	1.22	
5,098.0	25.30	325.50	4,711.8	1,547.0	-837.5	1,759.1	3.54	-3.48	
5,186.0	22.70	322.20	4,792.2	1,575.9	-858.6	1,794.6	3.32	-2.95	
5,276.0	22.60	327.60	4,875.2	1,604.2	-878.5	1,829.0	2.31	-0.11	
5,364.0	23.70	334.20	4,956.1	1,634.4	-895.3	1,863.5	3.20	1.25	
5,451.0	22.70	333.40	5,036.1	1,665.2	-910.4	1,897.7	1.21	-1.15	
5,537.0	20.30	332.40	5,116.1	1,693.2	-924.7	1,929.3	2.82	-2.79	
5,627.0	18.30	332.10	5,201.1	1,719.6	-938.6	1,959.0	2.22	-2.22	
5,716.0	15.20	334.50	5,286.3	1,742.5	-950.1	1,984.6	3.57	-3.48	
5,805.0	15.20	339.10	5,372.2	1,763.9	-959.3	2,007.9	1.35	0.00	

Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Dechant 27-12
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4907.0ft (Original Well Elev)
Site:	SENE Sec12-T2N-R65W (Dechant)	MD Reference:	KBE @ 4907.0ft (Original Well Elev)
Well:	Dechant 27-12	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	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
5,893.0	13.40	338.40	5,457.4	1,784.2	-967.2	2,029.4	2.05	-2.05	
5,983.0	10.40	339.30	5,545.5	1,801.5	-973.9	2,047.8	3.34	-3.33	
6,072.0	9.40	343.70	5,633.2	1,815.9	-978.8	2,062.9	1.41	-1.12	
6,162.0	7.00	350.30	5,722.2	1,828.4	-981.8	2,075.3	2.86	-2.67	
6,250.0	6.60	344.00	5,809.6	1,838.6	-984.1	2,085.3	0.96	-0.45	
6,339.0	4.60	347.10	5,898.2	1,846.9	-986.3	2,093.8	2.27	-2.25	
6,427.0	3.60	346.50	5,986.0	1,853.1	-987.7	2,099.9	1.14	-1.14	
6,518.0	3.50	351.70	6,076.8	1,858.6	-988.8	2,105.2	0.37	-0.11	
6,606.0	2.10	11.90	6,164.7	1,862.8	-988.8	2,109.0	1.92	-1.59	
6,696.0	1.60	49.10	6,254.6	1,865.3	-987.5	2,110.5	1.41	-0.56	
6,783.0	1.30	58.60	6,341.6	1,866.6	-985.8	2,110.8	0.44	-0.34	
6,871.0	1.50	77.20	6,429.6	1,867.4	-983.8	2,110.6	0.56	0.23	
6,961.0	2.00	72.40	6,519.5	1,868.1	-981.2	2,110.0	0.58	0.56	
7,049.0	3.10	67.20	6,607.5	1,869.5	-977.5	2,109.5	1.28	1.25	
7,136.0	3.40	76.30	6,694.3	1,871.0	-972.8	2,108.6	0.68	0.34	
7,226.0	4.20	75.90	6,784.1	1,872.4	-967.0	2,107.1	0.89	0.89	
7,315.0	5.70	73.40	6,872.8	1,874.5	-959.6	2,105.4	1.70	1.69	
7,402.0	4.80	75.90	6,959.4	1,876.6	-952.0	2,103.7	1.07	-1.03	
7,492.0	4.00	69.70	7,049.2	1,878.6	-945.4	2,102.3	1.03	-0.89	
7,580.0	3.70	63.30	7,137.0	1,881.0	-940.0	2,101.8	0.60	-0.34	
7,668.0	3.60	59.20	7,224.8	1,883.7	-935.0	2,101.9	0.32	-0.11	
7,756.0	3.40	69.50	7,312.6	1,886.0	-930.2	2,101.6	0.75	-0.23	
7,846.0	2.40	76.50	7,402.5	1,887.4	-925.9	2,100.8	1.18	-1.11	
7,935.0	2.80	76.30	7,491.4	1,888.3	-922.0	2,099.8	0.45	0.45	
8,025.0	2.20	78.40	7,581.3	1,889.2	-918.1	2,098.7	0.67	-0.67	
8,113.0	2.10	70.60	7,669.3	1,890.0	-915.0	2,098.0	0.35	-0.11	
8,134.0	1.90	80.50	7,690.2	1,890.2	-914.3	2,097.8	1.90	-0.95	Last Cathedral Survey @ 8,134' MD
8,189.0	1.90	80.50	7,745.2	1,890.5	-912.5	2,097.3	0.00	0.00	Projection to Bit @ 8,189'

Cathedral Energy Services

Survey Report

Company: Anadarko Petroleum Corporation	Local Co-ordinate Reference: Well Dechant 27-12
Project: DJ Wattenberg	TVD Reference: KBE @ 4907.0ft (Original Well Elev)
Site: SENE Sec12-T2N-R65W (Dechant)	MD Reference: KBE @ 4907.0ft (Original Well Elev)
Well: Dechant 27-12	North Reference: True
Wellbore: DD	Survey Calculation Method: Minimum Curvature
Design: DD	Database: USA EDM 5000 Multi Users DB

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
Dechant 27-12 PBHL	0.00	0.00	7,747.0	1,886.7	-1,013.5	1,302,339.92	3,249,415.23	40.159866	-104.607636
- survey misses target center by 101.1ft at 8187.5ft MD (7743.7 TVD, 1890.5 N, -912.5 E)									
- Circle (radius 50.0)									
Dechant 17-12 800'x800	0.00	360.00	8,007.0	616.0	-1,014.9	1,301,069.36	3,249,426.61	40.156378	-104.607641
- survey misses target center by 1305.1ft at 8189.0ft MD (7745.2 TVD, 1890.5 N, -912.5 E)									
- Polygon									
Point 1			8,007.0	389.0	396.6	1,301,458.37	3,249,823.20		
Point 2			8,007.0	-411.5	403.7	1,300,657.87	3,249,830.33		
Point 3			8,007.0	-389.0	-396.6	1,300,680.34	3,249,030.03		
Point 4			8,007.0	411.5	-403.7	1,301,480.84	3,249,022.90		
Dechant 17-12 PBHL	0.00	360.00	8,007.0	616.0	-1,014.9	1,301,069.36	3,249,426.61	40.156378	-104.607641
- survey misses target center by 1305.1ft at 8189.0ft MD (7745.2 TVD, 1890.5 N, -912.5 E)									
- Circle (radius 50.0)									
Dechant 27-12 BHL	0.00	0.00	7,747.0	1,886.7	-1,013.5	1,302,339.92	3,249,415.23	40.159866	-104.607636
- survey misses target center by 101.1ft at 8187.5ft MD (7743.7 TVD, 1890.5 N, -912.5 E)									
- Circle (radius 50.0)									

Survey Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S	+E/-W		
		(ft)	(ft)		
8,134.0	7,690.2	1,890.2	-914.3	Last Cathedral Survey @ 8,134' MD	
8,189.0	7,745.2	1,890.5	-912.5	Projection to Bit @ 8,189'	

Checked By: _____ Approved By: _____ Date: _____