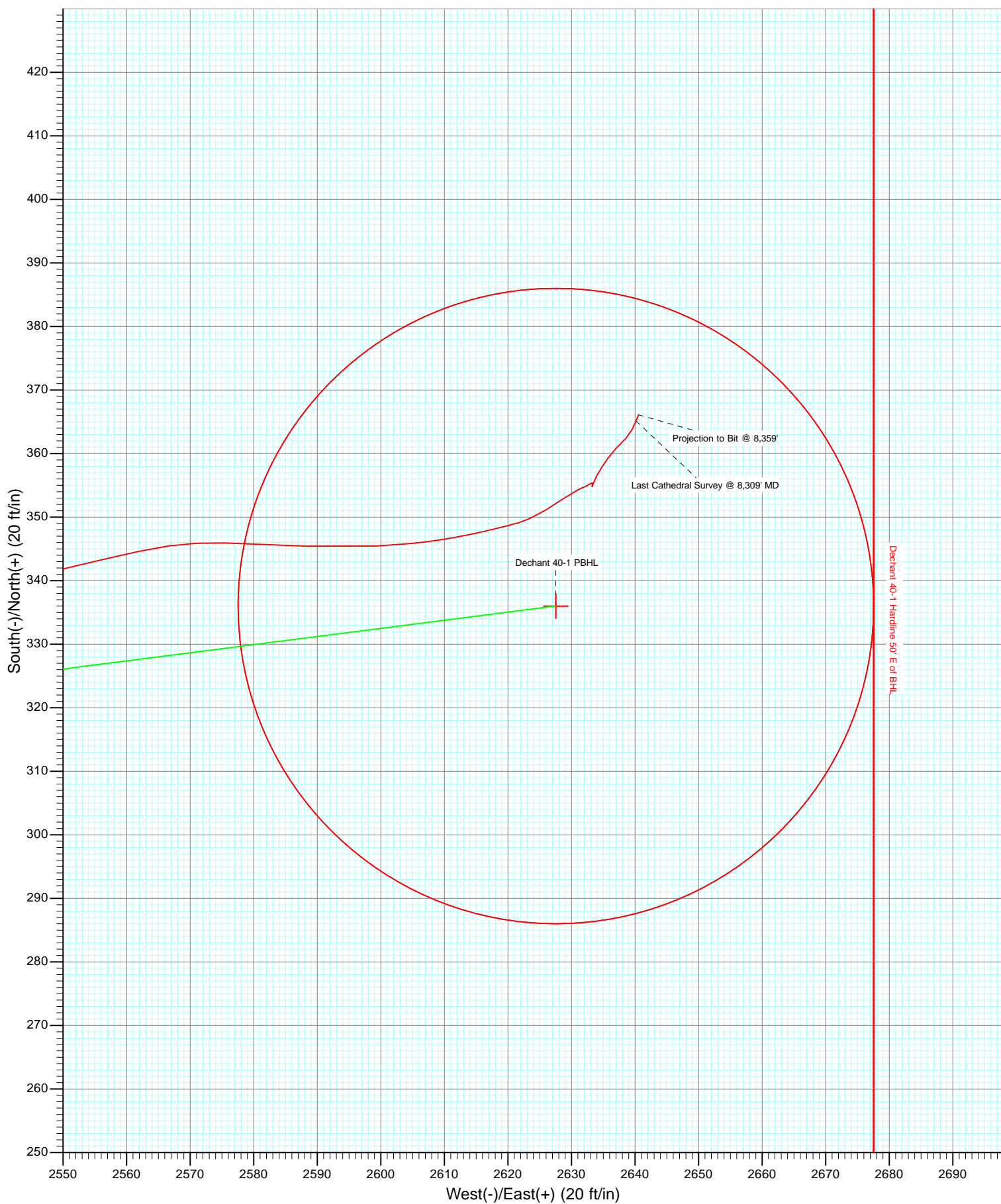


Azimuths to True North
Magnetic North: 8.71°

Magnetic Field
Strength: 52982.0snT
Dip Angle: 66.87°
Date: 11/10/2011
Model: IGRF2010

DD Dechant 40-1 125019/134555; LR KBE @ 4852.0ft (Xtreme 14) North American Datum 1983 Well Dechant 40-1, True North					
Type	Target	Azimuth	Origin	Type	N/S
Target	Dechant 40-1 PBHL	82.71	Slot		0.0
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
Dechant 40-1 Hardline 50' E of BHL	7712.0	336.0	2627.6	40.166985	-104.603080
Dechant 40-1 PBHL	7712.0	336.0	2627.6	40.166985	-104.603080



Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Dechant 40-1
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4852.0ft (Xtreme 14)
Site:	NESW Sec1-T2N-R65W (Dechant 23-1)	MD Reference:	KBE @ 4852.0ft (Xtreme 14)
Well:	Dechant 40-1	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		NESW Sec1-T2N-R65W (Dechant 23-1)			
Site Position:		Northing:	1,304,604.07 ft	Latitude:	40.166119
From:	Lat/Long	Easting:	3,248,038.33 ft	Longitude:	-104.612481
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.57 °

Well	Dechant 40-1					
Well Position	+N/-S	0.0 ft	Northing:	1,304,583.66 ft	Latitude:	40.166063
	+E/-W	0.0 ft	Easting:	3,248,038.26 ft	Longitude:	-104.612482
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,837.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/10/2011	8.71	66.87	52,982

Design	DD				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	82.71	

Survey Program	Date	1/11/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
121.0	8,359.0	Survey #1 (DD)	MWD	Geolink MWD	

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	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00		
121.0	0.10	348.90	121.0	0.1	0.0	0.0	0.08	0.08		
214.0	1.30	60.00	214.0	0.7	0.9	1.0	1.37	1.29		
308.0	2.80	75.70	307.9	1.8	4.0	4.2	1.69	1.60		
415.0	4.30	85.80	414.7	2.8	10.6	10.8	1.51	1.40		
501.0	6.50	79.60	500.3	3.9	18.6	18.9	2.64	2.56		
589.0	8.70	79.20	587.6	6.0	30.0	30.5	2.50	2.50		
676.0	11.20	86.50	673.2	7.8	44.9	45.5	3.21	2.87		
773.0	11.00	85.40	768.4	9.1	63.5	64.2	0.30	-0.21		
878.0	13.70	87.80	871.0	10.4	85.9	86.6	2.62	2.57		
964.0	16.70	86.70	954.0	11.5	108.5	109.0	3.50	3.49		
1,053.0	18.40	80.90	1,038.8	14.4	135.1	135.8	2.74	1.91		
1,142.0	20.40	83.60	1,122.8	18.4	164.4	165.4	2.46	2.25		

Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Dechant 40-1
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4852.0ft (Xtreme 14)
Site:	NESW Sec1-T2N-R65W (Dechant 23-1)	MD Reference:	KBE @ 4852.0ft (Xtreme 14)
Well:	Dechant 40-1	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
1,231.0	22.30	83.80	1,205.7	21.9	196.6	197.8	2.14	2.13	
1,320.0	23.80	84.60	1,287.6	25.4	231.3	232.6	1.72	1.69	
1,408.0	26.20	83.30	1,367.3	29.4	268.2	269.8	2.80	2.73	
1,497.0	28.30	82.00	1,446.4	34.6	308.6	310.5	2.45	2.36	
1,585.0	30.50	82.70	1,523.1	40.3	351.5	353.7	2.53	2.50	
1,670.0	32.60	81.60	1,595.5	46.4	395.5	398.2	2.56	2.47	
1,759.0	31.50	81.10	1,671.0	53.5	442.2	445.4	1.27	-1.24	
1,847.0	29.80	80.50	1,746.7	60.7	486.5	490.3	1.96	-1.93	
1,935.0	31.00	80.40	1,822.6	68.1	530.4	534.8	1.36	1.36	
2,026.0	31.90	81.80	1,900.2	75.4	577.3	582.2	1.27	0.99	
2,115.0	29.90	81.60	1,976.6	82.0	622.5	627.9	2.25	-2.25	
2,202.0	31.60	84.30	2,051.3	87.5	666.7	672.4	2.52	1.95	
2,290.0	29.10	84.90	2,127.3	91.6	710.9	716.8	2.86	-2.84	
2,380.0	30.90	85.80	2,205.2	95.3	755.8	761.8	2.06	2.00	
2,468.0	33.00	84.30	2,279.9	99.3	802.2	808.3	2.55	2.39	
2,557.0	33.40	83.90	2,354.3	104.3	850.6	857.0	0.51	0.45	
2,645.0	33.70	83.10	2,427.7	109.8	899.0	905.6	0.61	0.34	
2,733.0	34.10	83.20	2,500.7	115.7	947.7	954.7	0.46	0.45	
2,821.0	33.70	83.70	2,573.8	121.3	996.5	1,003.8	0.55	-0.45	
2,909.0	33.40	82.90	2,647.1	127.0	1,044.8	1,052.4	0.61	-0.34	
2,997.0	33.50	81.60	2,720.5	133.5	1,092.8	1,100.9	0.82	0.11	
3,085.0	35.20	80.90	2,793.2	141.1	1,141.9	1,150.6	1.98	1.93	
3,174.0	33.80	80.40	2,866.5	149.2	1,191.6	1,200.9	1.60	-1.57	
3,263.0	34.70	82.40	2,940.1	156.7	1,241.1	1,251.0	1.62	1.01	
3,353.0	33.30	82.50	3,014.7	163.3	1,291.0	1,301.3	1.56	-1.56	
3,440.0	33.60	82.70	3,087.3	169.5	1,338.6	1,349.3	0.37	0.34	
3,528.0	33.80	82.30	3,160.5	175.9	1,387.0	1,398.1	0.34	0.23	
3,616.0	34.40	83.10	3,233.4	182.2	1,435.9	1,447.4	0.85	0.68	
3,705.0	33.80	83.70	3,307.1	187.9	1,485.5	1,497.3	0.77	-0.67	
3,791.0	34.10	83.80	3,378.4	193.1	1,533.2	1,545.4	0.35	0.35	
3,881.0	33.50	83.80	3,453.2	198.5	1,583.0	1,595.4	0.67	-0.67	
3,970.0	33.00	82.00	3,527.6	204.6	1,631.4	1,644.2	1.24	-0.56	
4,060.0	31.90	80.90	3,603.6	211.7	1,679.2	1,692.5	1.39	-1.22	
4,148.0	31.20	80.90	3,678.6	219.0	1,724.7	1,738.5	0.80	-0.80	
4,237.0	31.30	82.90	3,754.7	225.5	1,770.4	1,784.7	1.17	0.11	
4,325.0	30.80	83.30	3,830.1	231.0	1,815.4	1,830.1	0.61	-0.57	
4,414.0	34.00	85.30	3,905.2	235.7	1,862.9	1,877.7	3.79	3.60	
4,502.0	35.60	85.70	3,977.5	239.6	1,912.9	1,927.9	1.84	1.82	
4,591.0	34.70	82.70	4,050.2	244.8	1,963.9	1,979.1	2.19	-1.01	
4,681.0	33.40	82.20	4,124.8	251.4	2,013.9	2,029.5	1.48	-1.44	
4,770.0	31.70	83.10	4,199.8	257.5	2,061.3	2,077.4	1.99	-1.91	
4,858.0	33.00	82.70	4,274.2	263.3	2,108.1	2,124.4	1.50	1.48	
4,948.0	32.80	81.30	4,349.7	270.1	2,156.5	2,173.3	0.87	-0.22	
5,037.0	31.20	80.80	4,425.2	277.5	2,203.1	2,220.5	1.82	-1.80	
5,125.0	30.00	80.70	4,500.9	284.7	2,247.3	2,265.2	1.36	-1.36	
5,213.0	28.90	80.10	4,577.6	291.9	2,289.9	2,308.5	1.29	-1.25	
5,302.0	26.80	78.70	4,656.3	299.5	2,330.8	2,350.0	2.47	-2.36	
5,390.0	23.40	77.00	4,735.9	307.3	2,367.3	2,387.2	3.95	-3.86	
5,479.0	21.70	80.00	4,818.1	314.2	2,400.7	2,421.2	2.31	-1.91	
5,568.0	18.90	78.60	4,901.6	319.9	2,431.1	2,452.0	3.19	-3.15	
5,656.0	17.40	79.40	4,985.2	325.1	2,458.0	2,479.4	1.73	-1.70	
5,744.0	16.90	80.90	5,069.3	329.6	2,483.5	2,505.3	0.76	-0.57	
5,831.0	14.90	81.00	5,153.0	333.3	2,507.1	2,529.1	2.30	-2.30	

Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Dechant 40-1
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4852.0ft (Xtreme 14)
Site:	NESW Sec1-T2N-R65W (Dechant 23-1)	MD Reference:	KBE @ 4852.0ft (Xtreme 14)
Well:	Dechant 40-1	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
5,919.0	13.40	78.90	5,238.3	337.0	2,528.3	2,550.6	1.80	-1.70	
6,008.0	11.20	76.30	5,325.2	341.1	2,546.8	2,569.5	2.55	-2.47	
6,098.0	9.00	77.60	5,413.8	344.7	2,562.1	2,585.2	2.46	-2.44	
6,187.0	8.40	92.00	5,501.8	345.9	2,575.4	2,598.5	2.53	-0.67	
6,277.0	8.00	92.40	5,590.9	345.4	2,588.3	2,611.2	0.45	-0.44	
6,366.0	6.20	86.80	5,679.2	345.4	2,599.3	2,622.1	2.16	-2.02	
6,452.0	5.10	82.60	5,764.8	346.2	2,607.7	2,630.5	1.37	-1.28	
6,540.0	3.90	76.90	5,852.5	347.4	2,614.5	2,637.4	1.45	-1.36	
6,629.0	3.00	77.00	5,941.4	348.6	2,619.7	2,642.7	1.01	-1.01	
6,718.0	2.00	65.60	6,030.3	349.8	2,623.4	2,646.5	1.25	-1.12	
6,807.0	1.90	58.60	6,119.2	351.2	2,626.0	2,649.4	0.29	-0.11	
6,896.0	1.40	53.60	6,208.2	352.6	2,628.2	2,651.7	0.58	-0.56	
6,982.0	1.20	64.90	6,294.2	353.6	2,629.8	2,653.5	0.38	-0.23	
7,070.0	0.50	45.60	6,382.2	354.2	2,631.0	2,654.6	0.85	-0.80	
7,159.0	0.40	82.60	6,471.2	354.6	2,631.5	2,655.3	0.34	-0.11	
7,247.0	0.50	60.40	6,559.2	354.8	2,632.2	2,655.9	0.23	0.11	
7,336.0	0.40	56.00	6,648.2	355.1	2,632.8	2,656.6	0.12	-0.11	
7,424.0	0.30	72.60	6,736.2	355.4	2,633.2	2,657.1	0.16	-0.11	
7,513.0	0.70	197.30	6,825.2	354.9	2,633.3	2,657.1	1.02	0.45	
7,601.0	0.50	16.30	6,913.2	354.8	2,633.3	2,657.0	1.36	-0.23	
7,690.0	0.50	25.30	7,002.2	355.5	2,633.5	2,657.4	0.09	0.00	
7,778.0	1.00	24.90	7,090.1	356.6	2,634.0	2,658.0	0.57	0.57	
7,867.0	0.90	37.20	7,179.1	357.8	2,634.8	2,658.9	0.25	-0.11	
7,957.0	1.30	31.90	7,269.1	359.3	2,635.7	2,660.0	0.46	0.44	
8,045.0	1.50	45.80	7,357.1	360.9	2,637.1	2,661.6	0.45	0.23	
8,135.0	1.20	42.40	7,447.1	362.4	2,638.6	2,663.2	0.34	-0.33	
8,221.0	0.90	27.90	7,533.1	363.7	2,639.5	2,664.3	0.46	-0.35	
8,309.0	1.20	22.60	7,621.0	365.1	2,640.2	2,665.2	0.36	0.34	Last Cathedral Survey @ 8,309' MD Projection to Bit @ 8,359'
8,359.0	1.20	22.60	7,671.0	366.1	2,640.6	2,665.7	0.00	0.00	

Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Dechant 40-1
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4852.0ft (Xtreme 14)
Site:	NESW Sec1-T2N-R65W (Dechant 23-1)	MD Reference:	KBE @ 4852.0ft (Xtreme 14)
Well:	Dechant 40-1	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	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)		
Dechant 40-1 Hardline 5	0.00	0.00	-7,712.0	336.0	2,627.6	1,304,945.96	3,250,662.32	40.166985	-104.603080
- actual wellpath misses target center by 8154.3ft at 0.0ft MD (0.0 TVD, 0.0 N, 0.0 E)									
- Polygon									
Point 1			-7,712.0	100.0	50.0	1,305,046.45	3,250,711.32		
Point 2			-7,712.0	-100.0	50.0	1,304,846.46	3,250,713.32		
Dechant 40-1 PBHL	0.00	0.00	7,712.0	336.0	2,627.6	1,304,945.96	3,250,662.32	40.166985	-104.603080
- actual wellpath misses target center by 52.5ft at 8359.0ft MD (7671.0 TVD, 366.1 N, 2640.6 E)									
- Circle (radius 50.0)									

Design Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	Comment	
8,309.0	7,621.0	365.1	2,640.2	Last Cathedral Survey @ 8,309' MD	
8,359.0	7,671.0	366.1	2,640.6	Projection to Bit @ 8,359'	

Checked By: _____ Approved By: _____ Date: _____