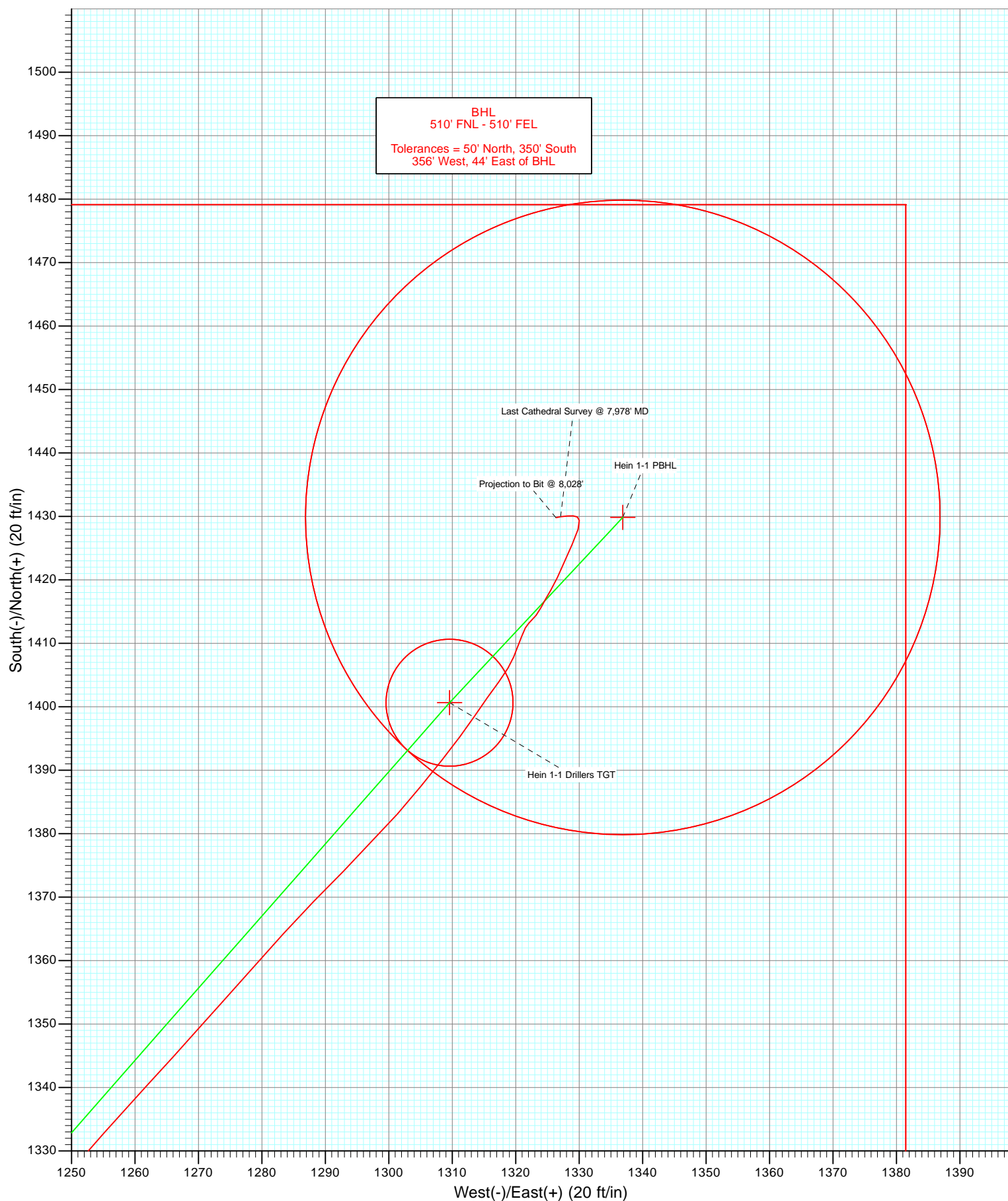


Azimuths to True North  
Magnetic North: 8.76°

Magnetic Field  
Strength: 52867.4snT  
Dip Angle: 66.75°  
Date: 4/16/2012  
Model: IGRF2010

DD Hein 1-1 125284 155455; LR KB=15° @ 4908.0ft (Xtreme 11) North American Datum 1983 Well Hein 1-1, True North						
Type	Target	Azimuth	Origin Type	N/S	E/W	From TVD
Target	Hein 1-1 PBHL	43.08	Slot	0.0	0.0	0.0
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	
Sec 1, Legal Box #1	-5000.0	1279.1	1181.5	40.085572	-104.832402	
Hein 1-1 Drillers TGT	6070.0	1400.6	1309.6	40.085906	-104.831945	
Hein 1-1 PBHL	7645.0	1429.8	1336.9	40.085986	-104.831847	



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Anadarko Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Hein 1-1
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=15' @ 4908.0ft (Xtreme 11)
<b>Site:</b>	SWNE Sec1-T1N-R67W (Hein 2-1)	<b>MD Reference:</b>	KB=15' @ 4908.0ft (Xtreme 11)
<b>Well:</b>	Hein 1-1	<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		SWNE Sec1-T1N-R67W (Hein 2-1)			
Site Position:		Northing:	1,273,436.50 ft	Latitude:	40.082061
From:	Lat/Long	Easting:	3,185,627.90 ft	Longitude:	-104.836625
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.43 °

Well	Hein 1-1					
Well Position	+N/-S	0.0 ft	Northing:	1,273,436.48 ft	Latitude:	40.082061
	+E/-W	0.0 ft	Easting:	3,185,627.90 ft	Longitude:	-104.836625
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,893.0 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	4/16/2012	8.76	66.75	52,867

<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</b>	<b>+E/-W</b>	<b>Direction</b>	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	43.08	

<b>Survey Program</b>	<b>Date</b>	4/25/2012			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
115.0	8,028.0	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		
115.0	1.40	19.50	115.0	1.3	0.5	1.3	1.22	1.22		
174.0	1.60	27.60	174.0	2.7	1.1	2.7	0.49	0.34		
233.0	2.50	35.90	232.9	4.5	2.2	4.8	1.60	1.53		
322.0	3.70	42.30	321.8	8.2	5.3	9.6	1.40	1.35		
399.0	4.50	48.80	398.6	12.0	9.2	15.1	1.20	1.04		
490.0	5.60	60.20	489.2	16.6	15.8	22.9	1.63	1.21		
581.0	7.50	60.60	579.7	21.7	24.8	32.8	2.09	2.09		
672.0	9.40	57.50	669.7	28.6	36.3	45.7	2.15	2.09		
762.0	11.30	53.30	758.2	37.8	49.5	61.5	2.27	2.11		
885.0	13.50	53.90	878.3	53.5	70.8	87.4	1.79	1.79		
987.0	12.60	55.20	977.7	66.9	89.5	110.0	0.93	-0.88		
1,077.0	14.50	54.20	1,065.2	79.1	106.7	130.7	2.13	2.11		

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Anadarko Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Hein 1-1
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=15' @ 4908.0ft (Xtreme 11)
<b>Site:</b>	SWNE Sec1-T1N-R67W (Hein 2-1)	<b>MD Reference:</b>	KB=15' @ 4908.0ft (Xtreme 11)
<b>Well:</b>	Hein 1-1	<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
1,168.0	16.60	56.40	1,152.8	92.9	126.8	154.5	2.40	2.31	
1,259.0	17.70	50.70	1,239.8	108.9	148.3	180.8	2.21	1.21	
1,350.0	19.50	48.80	1,326.0	127.6	170.5	209.7	2.09	1.98	
1,440.0	21.20	50.90	1,410.4	147.8	194.4	240.7	2.06	1.89	
1,531.0	23.60	50.50	1,494.5	169.8	221.2	275.1	2.64	2.64	
1,622.0	24.10	47.00	1,577.8	194.0	248.9	311.7	1.65	0.55	
1,713.0	23.10	41.80	1,661.2	220.0	274.4	348.1	2.54	-1.10	
1,804.0	22.70	40.00	1,745.0	246.8	297.6	383.5	0.89	-0.44	
1,894.0	21.70	41.70	1,828.3	272.5	319.8	417.5	1.32	-1.11	
1,985.0	22.20	39.30	1,912.7	298.4	341.9	451.4	1.13	0.55	
2,076.0	23.30	39.40	1,996.7	325.6	364.2	486.5	1.21	1.21	
2,167.0	22.90	39.10	2,080.4	353.2	386.8	522.2	0.46	-0.44	
2,257.0	22.90	38.60	2,163.3	380.5	408.7	557.1	0.22	0.00	
2,348.0	23.40	39.00	2,246.9	408.4	431.2	592.8	0.58	0.55	
2,439.0	23.60	38.60	2,330.4	436.7	453.9	629.0	0.28	0.22	
2,530.0	23.30	38.60	2,413.9	465.0	476.5	665.1	0.33	-0.33	
2,620.0	22.90	42.20	2,496.7	491.8	499.4	700.3	1.63	-0.44	
2,711.0	22.90	40.10	2,580.5	518.5	522.7	735.7	0.90	0.00	
2,802.0	22.90	42.00	2,664.3	545.2	545.9	771.1	0.81	0.00	
2,893.0	21.80	38.00	2,748.5	571.7	568.2	805.6	2.06	-1.21	
2,984.0	22.50	40.00	2,832.8	598.3	589.8	839.8	1.13	0.77	
3,074.0	25.40	44.00	2,915.0	625.4	614.2	876.3	3.69	3.22	
3,165.0	22.50	42.40	2,998.2	652.3	639.5	913.3	3.27	-3.19	
3,256.0	22.30	44.90	3,082.3	677.4	663.5	947.9	1.07	-0.22	
3,347.0	21.10	44.20	3,166.9	701.4	687.1	981.6	1.35	-1.32	
3,438.0	22.00	43.70	3,251.5	725.4	710.3	1,015.0	1.01	0.99	
3,529.0	24.10	47.00	3,335.2	750.4	735.6	1,050.6	2.71	2.31	
3,619.0	22.80	46.60	3,417.8	775.0	761.8	1,086.3	1.46	-1.44	
3,710.0	21.90	43.10	3,502.0	799.5	786.2	1,120.9	1.77	-0.99	
3,801.0	22.90	40.40	3,586.1	825.3	809.2	1,155.6	1.58	1.10	
3,892.0	23.40	40.00	3,669.8	852.7	832.3	1,191.3	0.58	0.55	
3,982.0	24.20	40.60	3,752.1	880.4	855.8	1,227.6	0.93	0.89	
4,073.0	22.10	41.60	3,835.8	907.3	879.3	1,263.3	2.35	-2.31	
4,164.0	22.80	40.30	3,919.9	933.6	902.1	1,298.0	0.94	0.77	
4,255.0	23.60	40.40	4,003.5	960.9	925.3	1,333.8	0.88	0.88	
4,346.0	21.80	39.90	4,087.5	987.7	948.0	1,368.9	1.99	-1.98	
4,436.0	22.40	40.80	4,170.9	1,013.5	969.9	1,402.7	0.77	0.67	
4,527.0	20.60	39.00	4,255.5	1,039.1	991.3	1,436.0	2.11	-1.98	
4,618.0	18.10	42.50	4,341.4	1,062.0	1,010.9	1,466.1	3.03	-2.75	
4,709.0	15.60	45.90	4,428.5	1,080.9	1,029.3	1,492.5	2.95	-2.75	
4,800.0	16.10	42.00	4,516.0	1,098.8	1,046.5	1,517.3	1.29	0.55	
4,891.0	17.20	41.00	4,603.2	1,118.3	1,063.8	1,543.4	1.25	1.21	
4,981.0	18.00	40.90	4,689.0	1,138.9	1,081.6	1,570.6	0.89	0.89	
5,072.0	17.20	45.90	4,775.7	1,158.9	1,100.5	1,598.1	1.88	-0.88	
5,163.0	17.50	45.00	4,862.6	1,177.9	1,119.8	1,625.2	0.44	0.33	
5,254.0	18.20	41.30	4,949.2	1,198.3	1,138.9	1,653.1	1.46	0.77	
5,345.0	18.90	38.10	5,035.5	1,220.6	1,157.3	1,682.0	1.36	0.77	
5,435.0	18.20	40.80	5,120.8	1,242.7	1,175.5	1,710.5	1.23	-0.78	
5,526.0	17.70	43.80	5,207.4	1,263.4	1,194.4	1,738.6	1.15	-0.55	
5,617.0	19.50	40.40	5,293.6	1,285.0	1,213.8	1,767.6	2.31	1.98	
5,708.0	17.10	40.90	5,380.0	1,306.6	1,232.4	1,796.1	2.64	-2.64	
5,799.0	13.70	40.80	5,467.7	1,324.9	1,248.2	1,820.3	3.74	-3.74	
5,890.0	12.40	42.60	5,556.4	1,340.3	1,261.9	1,840.8	1.50	-1.43	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Anadarko Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Hein 1-1
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=15' @ 4908.0ft (Xtreme 11)
<b>Site:</b>	SWNE Sec1-T1N-R67W (Hein 2-1)	<b>MD Reference:</b>	KB=15' @ 4908.0ft (Xtreme 11)
<b>Well:</b>	Hein 1-1	<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
5,980.0	9.70	41.30	5,644.7	1,353.1	1,273.4	1,858.0	3.01	-3.00	
6,071.0	9.20	42.50	5,734.5	1,364.2	1,283.4	1,873.0	0.59	-0.55	
6,162.0	8.20	45.30	5,824.4	1,374.1	1,292.9	1,886.7	1.19	-1.10	
6,253.0	7.40	41.10	5,914.6	1,383.1	1,301.4	1,899.1	1.08	-0.88	
6,344.0	6.40	37.90	6,004.9	1,391.5	1,308.3	1,910.0	1.18	-1.10	
6,435.0	4.70	34.60	6,095.5	1,398.6	1,313.6	1,918.7	1.90	-1.87	
6,525.0	3.60	36.30	6,185.3	1,403.9	1,317.3	1,925.2	1.23	-1.22	
6,616.0	2.20	22.30	6,276.1	1,407.8	1,319.7	1,929.7	1.71	-1.54	
6,707.0	2.20	19.90	6,367.1	1,411.1	1,320.9	1,932.9	0.10	0.00	
6,798.0	0.90	49.40	6,458.0	1,413.2	1,322.1	1,935.2	1.63	-1.43	
6,889.0	1.20	37.30	6,549.0	1,414.4	1,323.2	1,936.9	0.41	0.33	
6,979.0	0.70	25.20	6,639.0	1,415.7	1,324.0	1,938.3	0.60	-0.56	
7,070.0	1.00	30.70	6,730.0	1,416.9	1,324.7	1,939.6	0.34	0.33	
7,160.0	1.30	29.40	6,820.0	1,418.4	1,325.6	1,941.4	0.33	0.33	
7,251.0	1.50	26.50	6,911.0	1,420.4	1,326.6	1,943.5	0.23	0.22	
7,342.0	1.80	21.80	7,001.9	1,422.8	1,327.7	1,946.0	0.36	0.33	
7,433.0	2.00	26.00	7,092.9	1,425.5	1,328.9	1,948.9	0.27	0.22	
7,524.0	1.30	14.00	7,183.8	1,428.0	1,329.8	1,951.3	0.85	-0.77	
7,615.0	0.50	354.00	7,274.8	1,429.4	1,330.0	1,952.4	0.93	-0.88	
7,706.0	0.40	301.60	7,365.8	1,429.9	1,329.7	1,952.6	0.45	-0.11	
7,796.0	0.50	270.20	7,455.8	1,430.1	1,329.1	1,952.3	0.29	0.11	
7,887.0	0.60	267.70	7,546.8	1,430.1	1,328.2	1,951.7	0.11	0.11	
7,978.0	0.80	261.40	7,637.8	1,430.0	1,327.1	1,950.9	0.24	0.22	Last Cathedral Survey @ 7,978' MD Projection to Bit @ 8,028'
8,028.0	0.91	257.94	7,687.8	1,429.8	1,326.4	1,950.3	0.24	0.22	

Targets									
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	
- Shape									Latitude Longitude
Hein 1-1 Drillers TGT		0.00	0.00	6,070.0	1,400.6	1,309.6	1,274,846.88	3,186,926.97	40.085906 -104.831945
- actual wellpath misses target center by 4.7ft at 6409.5ft MD (6070.1 TVD, 1396.8 N, 1312.3 E)									
- Circle (radius 10.0)									
Sec 1, Legal Box #1		0.00	0.00	-5,000.0	1,279.1	1,181.5	1,274,724.41	3,186,799.78	40.085572 -104.832402
- actual wellpath misses target center by 5294.5ft at 0.0ft MD (0.0 TVD, 0.0 N, 0.0 E)									
- Rectangle (sides W400.0 H400.0 D0.0)									
Hein 1-1 PBHL		0.00	0.00	7,645.0	1,429.8	1,336.9	1,274,876.29	3,186,954.06	40.085986 -104.831847
- actual wellpath misses target center by 12.2ft at 7978.0ft MD (7637.8 TVD, 1430.0 N, 1327.1 E)									
- Circle (radius 50.0)									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
7,978.0	7,637.8	1,430.0	1,327.1	Last Cathedral Survey @ 7,978' MD
8,028.0	7,687.8	1,429.8	1,326.4	Projection to Bit @ 8,028'

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