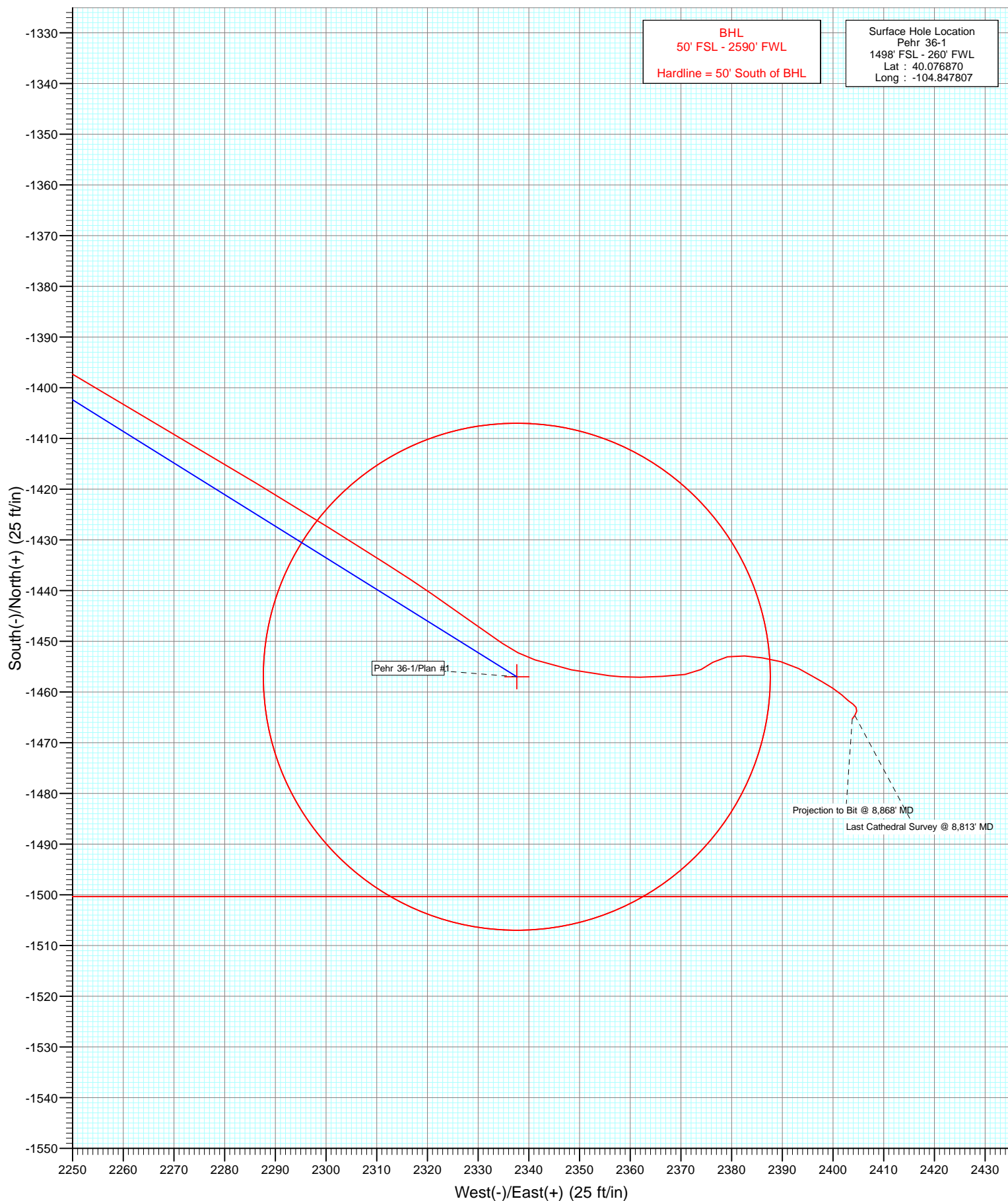


Azimuths to True North  
Magnetic North: 8.71°

Magnetic Field  
Strength: 52822.0nT  
Dip Angle: 66.73°  
Date: 9/6/2012  
Model: IGRF2010

Type	Target	Target	Azimuth	Origin	N/S	E/W	From
Target	Pehr 36-1 PBHL	121.93	Slot	0.0	0.0	0.0	
Pehr 36-1 PBHL	TVD	8102.0	+N/-S	-1457.0	+E/-W	2337.6	Latitude
							Longitude



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Anadarko Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Pehr 36-1
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=15' @ 4959.0ft (Xtreme 11)
<b>Site:</b>	NWSW Sec1-T1N-R67W (Pehr 33-1)	<b>MD Reference:</b>	KB=15' @ 4959.0ft (Xtreme 11)
<b>Well:</b>	Pehr 36-1	<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		NWSW Sec1-T1N-R67W (Pehr 33-1)			
Site Position:		Northing:	1,271,518.81 ft	Latitude:	40.076861
From:	Lat/Long	Easting:	3,182,472.99 ft	Longitude:	-104.847950
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.42 °

Well	Pehr 36-1					
Well Position	+N/-S	0.0 ft	Northing:	1,271,522.36 ft	Latitude:	40.076870
	+E/-W	0.0 ft	Easting:	3,182,512.98 ft	Longitude:	-104.847807
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,944.0 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	9/6/2012	8.72	66.73	52,822

<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	121.93	

<b>Survey Program</b>	<b>Date</b>	9/12/2012			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
77.0	8,868.0	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		
77.0	0.40	60.10	77.0	0.1	0.2	0.1	0.52	0.52		
165.0	0.30	113.60	165.0	0.2	0.7	0.5	0.37	-0.11		
253.0	1.90	127.70	253.0	-0.8	2.1	2.2	1.83	1.82		
341.0	3.70	120.90	340.9	-3.1	5.7	6.5	2.08	2.05		
417.0	4.90	122.70	416.7	-6.2	10.5	12.2	1.59	1.58		
508.0	6.60	127.70	507.2	-11.5	17.9	21.3	1.95	1.87		
599.0	8.30	127.90	597.4	-18.7	27.2	33.0	1.87	1.87		
690.0	10.30	123.60	687.2	-27.2	39.2	47.7	2.33	2.20		
780.0	12.60	122.90	775.4	-37.0	54.1	65.5	2.56	2.56		
888.0	14.80	117.60	880.4	-49.8	76.3	91.1	2.34	2.04		
1,022.0	14.00	119.30	1,010.1	-65.7	105.6	124.3	0.68	-0.60		
1,112.0	15.90	125.00	1,097.1	-78.1	125.2	147.5	2.67	2.11		

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Anadarko Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Pehr 36-1
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=15' @ 4959.0ft (Xtreme 11)
<b>Site:</b>	NWSW Sec1-T1N-R67W (Pehr 33-1)	<b>MD Reference:</b>	KB=15' @ 4959.0ft (Xtreme 11)
<b>Well:</b>	Pehr 36-1	<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
1,203.0	17.10	126.40	1,184.3	-93.2	146.1	173.3	1.39	1.32	
1,294.0	18.50	125.60	1,271.0	-109.5	168.6	201.0	1.56	1.54	
1,385.0	20.30	119.60	1,356.8	-125.7	194.1	231.2	2.95	1.98	
1,475.0	22.00	120.60	1,440.8	-142.0	222.2	263.7	1.93	1.89	
1,566.0	23.90	124.70	1,524.6	-161.2	252.0	299.1	2.73	2.09	
1,657.0	26.20	124.30	1,607.0	-183.0	283.8	337.6	2.53	2.53	
1,748.0	27.90	121.50	1,688.0	-205.4	318.5	379.0	2.33	1.87	
1,838.0	29.00	119.60	1,767.2	-227.2	355.5	421.8	1.58	1.22	
1,929.0	30.70	116.90	1,846.1	-248.6	395.4	467.0	2.38	1.87	
2,020.0	31.70	120.30	1,923.9	-271.2	436.7	514.1	2.23	1.10	
2,111.0	33.40	121.30	2,000.6	-296.3	478.8	563.0	1.96	1.87	
2,202.0	33.50	120.40	2,076.6	-322.0	521.8	613.2	0.56	0.11	
2,292.0	33.20	120.10	2,151.8	-346.9	564.6	662.6	0.38	-0.33	
2,383.0	32.90	119.60	2,228.0	-371.6	607.6	712.2	0.45	-0.33	
2,474.0	32.30	119.40	2,304.7	-395.8	650.3	761.2	0.67	-0.66	
2,565.0	32.30	121.00	2,381.6	-420.2	692.3	809.8	0.94	0.00	
2,656.0	32.30	122.70	2,458.5	-445.9	733.6	858.4	1.00	0.00	
2,746.0	32.10	123.40	2,534.7	-472.0	773.8	906.4	0.47	-0.22	
2,837.0	32.70	122.20	2,611.5	-498.4	814.8	955.1	0.97	0.66	
2,928.0	32.60	125.80	2,688.2	-525.9	855.5	1,004.2	2.14	-0.11	
3,019.0	32.80	123.00	2,764.7	-553.6	896.0	1,053.3	1.68	0.22	
3,110.0	33.90	121.80	2,840.7	-580.4	938.3	1,103.3	1.41	1.21	
3,200.0	35.00	120.90	2,915.0	-606.9	981.8	1,154.2	1.35	1.22	
3,291.0	34.80	120.90	2,989.6	-633.7	1,026.4	1,206.3	0.22	-0.22	
3,382.0	33.30	120.70	3,065.0	-659.8	1,070.2	1,257.2	1.65	-1.65	
3,473.0	31.30	121.00	3,141.9	-684.7	1,112.0	1,305.8	2.20	-2.20	
3,563.0	30.50	121.30	3,219.1	-708.6	1,151.5	1,352.0	0.91	-0.89	
3,654.0	31.20	122.20	3,297.3	-733.2	1,191.2	1,398.7	0.92	0.77	
3,744.0	31.10	121.70	3,374.3	-757.8	1,230.7	1,445.3	0.31	-0.11	
3,835.0	31.20	122.90	3,452.2	-782.9	1,270.5	1,492.3	0.69	0.11	
3,926.0	31.20	125.40	3,530.0	-809.4	1,309.5	1,539.4	1.42	0.00	
4,017.0	31.70	122.70	3,607.6	-836.0	1,348.8	1,586.9	1.64	0.55	
4,108.0	33.10	122.50	3,684.5	-862.2	1,389.9	1,635.6	1.54	1.54	
4,199.0	33.00	123.30	3,760.7	-889.2	1,431.6	1,685.2	0.49	-0.11	
4,289.0	32.40	121.90	3,836.5	-915.4	1,472.5	1,733.9	1.07	-0.67	
4,380.0	31.50	120.50	3,913.7	-940.3	1,513.7	1,782.0	1.28	-0.99	
4,471.0	31.80	121.20	3,991.2	-964.8	1,554.7	1,829.7	0.52	0.33	
4,562.0	31.00	122.50	4,068.8	-989.8	1,595.0	1,877.1	1.15	-0.88	
4,652.0	31.60	121.80	4,145.7	-1,014.7	1,634.6	1,923.9	0.78	0.67	
4,744.0	31.80	122.60	4,224.0	-1,040.5	1,675.5	1,972.2	0.51	0.22	
4,834.0	31.20	121.60	4,300.8	-1,065.5	1,715.3	2,019.3	0.88	-0.67	
4,925.0	30.50	121.30	4,378.9	-1,089.8	1,755.1	2,065.9	0.79	-0.77	
5,016.0	32.00	118.40	4,456.7	-1,113.3	1,796.0	2,113.1	2.33	1.65	
5,107.0	31.60	120.40	4,534.0	-1,136.8	1,837.8	2,161.0	1.24	-0.44	
5,197.0	32.60	120.60	4,610.3	-1,161.1	1,879.0	2,208.8	1.12	1.11	
5,288.0	31.50	122.00	4,687.4	-1,186.2	1,920.3	2,257.1	1.46	-1.21	
5,379.0	32.20	123.60	4,764.7	-1,212.2	1,960.6	2,305.1	1.21	0.77	
5,470.0	30.20	123.30	4,842.5	-1,238.2	2,000.0	2,352.2	2.20	-2.20	
5,561.0	29.80	123.90	4,921.3	-1,263.4	2,037.9	2,397.7	0.55	-0.44	
5,651.0	26.60	124.30	5,000.6	-1,287.2	2,073.1	2,440.2	3.56	-3.56	
5,742.0	26.60	122.20	5,082.0	-1,309.5	2,107.2	2,480.9	1.03	0.00	
5,833.0	25.30	121.10	5,163.8	-1,330.4	2,141.1	2,520.7	1.52	-1.43	
5,923.0	22.90	121.70	5,246.0	-1,349.6	2,172.4	2,557.5	2.68	-2.67	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Anadarko Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Pehr 36-1
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=15' @ 4959.0ft (Xtreme 11)
<b>Site:</b>	NWSW Sec1-T1N-R67W (Pehr 33-1)	<b>MD Reference:</b>	KB=15' @ 4959.0ft (Xtreme 11)
<b>Well:</b>	Pehr 36-1	<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
6,014.0	20.50	121.80	5,330.5	-1,367.3	2,201.0	2,591.1	2.64	-2.64	
6,105.0	18.00	121.70	5,416.4	-1,383.1	2,226.5	2,621.1	2.75	-2.75	
6,195.0	15.80	121.00	5,502.5	-1,396.7	2,248.9	2,647.3	2.45	-2.44	
6,286.0	13.70	120.30	5,590.5	-1,408.5	2,268.8	2,670.5	2.32	-2.31	
6,377.0	11.80	121.10	5,679.3	-1,418.7	2,286.1	2,690.5	2.10	-2.09	
6,468.0	9.50	122.00	5,768.7	-1,427.5	2,300.4	2,707.3	2.53	-2.53	
6,558.0	7.60	122.30	5,857.7	-1,434.6	2,311.7	2,720.7	2.11	-2.11	
6,649.0	6.30	124.90	5,948.0	-1,440.7	2,320.9	2,731.7	1.47	-1.43	
6,740.0	5.30	124.90	6,038.6	-1,446.0	2,328.5	2,740.9	1.10	-1.10	
6,830.0	4.50	125.20	6,128.2	-1,450.4	2,334.8	2,748.6	0.89	-0.89	
6,921.0	4.70	109.10	6,219.0	-1,453.7	2,341.2	2,755.8	1.43	0.22	
7,012.0	4.70	101.40	6,309.6	-1,455.6	2,348.4	2,762.9	0.69	0.00	
7,103.0	4.90	96.20	6,400.3	-1,456.8	2,355.9	2,769.9	0.53	0.22	
7,193.0	2.80	87.10	6,490.1	-1,457.1	2,361.9	2,775.2	2.42	-2.33	
7,284.0	2.80	88.70	6,581.0	-1,456.9	2,366.4	2,778.9	0.09	0.00	
7,375.0	2.80	81.20	6,671.9	-1,456.5	2,370.8	2,782.4	0.40	0.00	
7,466.0	1.50	58.30	6,762.8	-1,455.6	2,374.0	2,784.6	1.69	-1.43	
7,557.0	1.90	58.20	6,853.8	-1,454.1	2,376.3	2,785.8	0.44	0.44	
7,647.0	2.10	79.90	6,943.7	-1,453.1	2,379.2	2,787.7	0.86	0.22	
7,738.0	2.20	93.80	7,034.7	-1,452.9	2,382.6	2,790.5	0.58	0.11	
7,829.0	2.20	98.60	7,125.6	-1,453.3	2,386.0	2,793.6	0.20	0.00	
7,920.0	2.50	104.40	7,216.5	-1,454.0	2,389.7	2,797.1	0.42	0.33	
8,011.0	2.30	117.70	7,307.5	-1,455.4	2,393.2	2,800.8	0.65	-0.22	
8,102.0	1.40	122.10	7,398.4	-1,456.8	2,395.8	2,803.8	1.00	-0.99	
8,192.0	1.60	117.70	7,488.4	-1,458.0	2,397.8	2,806.1	0.26	0.22	
8,283.0	1.50	123.70	7,579.3	-1,459.2	2,399.9	2,808.6	0.21	-0.11	
8,374.0	1.30	131.40	7,670.3	-1,460.6	2,401.7	2,810.8	0.30	-0.22	
8,465.0	0.90	130.50	7,761.3	-1,461.7	2,403.0	2,812.5	0.44	-0.44	
8,555.0	0.60	122.00	7,851.3	-1,462.4	2,404.0	2,813.7	0.35	-0.33	
8,646.0	0.50	154.60	7,942.3	-1,463.0	2,404.5	2,814.5	0.36	-0.11	
8,737.0	0.50	186.40	8,033.3	-1,463.8	2,404.7	2,815.0	0.30	0.00	
8,806.0	0.86	213.42	8,102.3	-1,464.5	2,404.3	2,815.1	0.68	0.52	Pehr 36-1 PBHL
8,813.0	0.90	214.90	8,109.3	-1,464.6	2,404.3	2,815.1	0.68	0.60	Last Cathedral Survey @ 8,813' MD
8,868.0	0.90	214.90	8,164.3	-1,465.3	2,403.8	2,815.1	0.00	0.00	Projection to Bit @ 8,868' MD

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Anadarko Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Pehr 36-1
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=15' @ 4959.0ft (Xtreme 11)
<b>Site:</b>	NWSW Sec1-T1N-R67W (Pehr 33-1)	<b>MD Reference:</b>	KB=15' @ 4959.0ft (Xtreme 11)
<b>Well:</b>	Pehr 36-1	<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

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									
Pehr 36-1 PBHL	0.00	0.00	8,102.0	-1,457.0	2,337.6	1,270,082.61	3,184,861.26	40.072870	-104.839454
- actual wellpath misses target center by 67.1ft at 8806.2ft MD (8102.5 TVD, -1464.5 N, 2404.3 E)									
- Circle (radius 50.0)									

Design Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	Comment	
8,813.0	8,109.3	-1,464.6	2,404.3	Last Cathedral Survey @ 8,813' MD	
8,868.0	8,164.3	-1,465.3	2,403.8	Projection to Bit @ 8,868' MD	

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