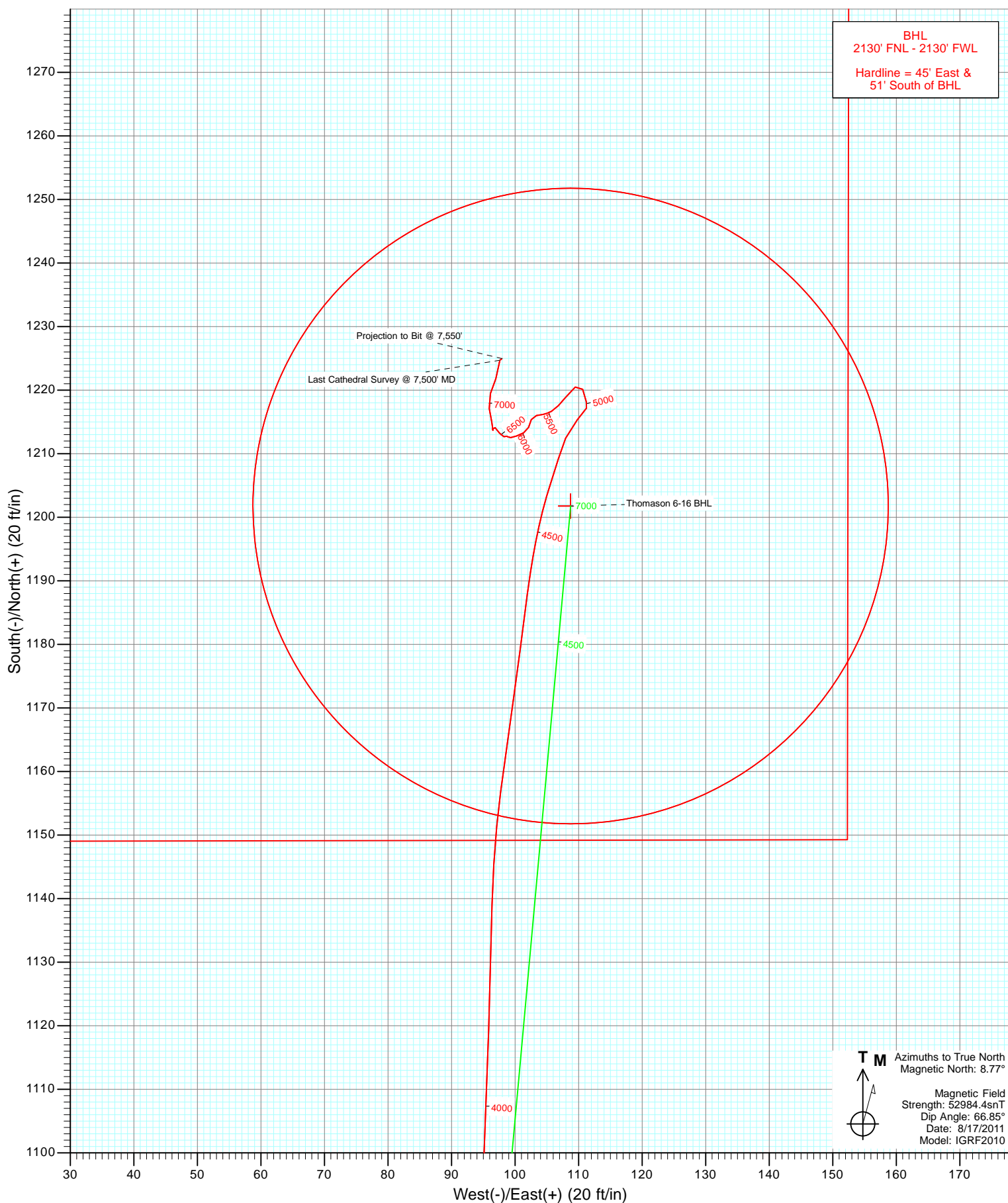


Azimuths to True North
Magnetic North: 8.77°

Magnetic Field
Strength: 52984.4snT
Dip Angle: 66.85°
Date: 8/17/2011
Model: IGRF2010

DD Thomason 6-16 115XXX; BH KBE @ 4907.0ft (Original Well Elev) North American Datum 1983 Well Thomason 6-16, True North						
Type User	Target No Target (Freehand)	Azimuth 5.17	Origin Type Slot	N/S 0.0	E/W 0.0	From TVD 0.0
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	
Thomason 6-16 TGT	4850.0	1201.8	108.8	40.140123	-104.670786	
Thomason 6-16 BHL	7360.0	1201.8	108.8	40.140123	-104.670786	



Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Thomason 6-16
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4907.0ft (Original Well Elev)
Site:	S16-T2N-R65W (Thomason 6 pad)	MD Reference:	KBE @ 4907.0ft (Original Well Elev)
Well:	Thomason 6-16	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		S16-T2N-R65W (Thomason 6 pad)			
Site Position:		Northing:	1,293,758.15 ft	Latitude:	40.136780
From:	Lat/Long	Easting:	3,231,735.68 ft	Longitude:	-104.671175
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.54 °

Well	Thomason 6-16					
Well Position	+N/-S	0.0 ft	Northing:	1,293,774.17 ft	Latitude:	40.136824
	+E/-W	0.0 ft	Easting:	3,231,735.53 ft	Longitude:	-104.671175
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,885.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/17/2011	8.77	66.85	52,984

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	5.17	

Survey Program	Date	9/30/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
109.0	7,550.0	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		
109.0	0.40	17.50	109.0	0.4	0.1	0.4	0.37	0.37		
202.0	1.20	40.40	202.0	1.4	0.8	1.5	0.91	0.86		
296.0	0.90	15.90	296.0	2.9	1.7	3.0	0.57	-0.32		
403.0	1.80	0.50	402.9	5.4	1.9	5.5	0.90	0.84		
494.0	2.50	7.70	493.9	8.8	2.2	8.9	0.82	0.77		
581.0	3.70	357.20	580.8	13.4	2.3	13.6	1.52	1.38		
669.0	5.30	352.50	668.5	20.3	1.7	20.4	1.86	1.82		
759.0	6.20	352.70	758.0	29.3	0.5	29.2	1.00	1.00		
849.0	7.00	351.70	847.4	39.5	-0.9	39.3	0.90	0.89		
907.0	6.90	352.10	905.0	46.4	-1.9	46.1	0.19	-0.17		
966.0	7.30	351.80	963.5	53.7	-2.9	53.2	0.68	0.68		
1,054.0	9.20	4.60	1,050.6	66.2	-3.2	65.7	2.99	2.16		

Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Thomason 6-16
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4907.0ft (Original Well Elev)
Site:	S16-T2N-R65W (Thomason 6 pad)	MD Reference:	KBE @ 4907.0ft (Original Well Elev)
Well:	Thomason 6-16	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
1,142.0	11.20	5.80	1,137.2	81.7	-1.7	81.2	2.29	2.27	
1,230.0	13.20	4.40	1,223.3	100.3	-0.1	99.8	2.30	2.27	
1,320.0	15.20	6.20	1,310.5	122.2	2.0	121.9	2.28	2.22	
1,408.0	17.40	8.60	1,395.0	146.7	5.2	146.6	2.61	2.50	
1,496.0	19.00	9.40	1,478.6	173.9	9.5	174.0	1.84	1.82	
1,584.0	20.50	9.40	1,561.4	203.2	14.3	203.7	1.70	1.70	
1,673.0	22.00	5.60	1,644.3	235.2	18.5	235.9	2.29	1.69	
1,763.0	21.30	5.10	1,728.0	268.2	21.6	269.1	0.80	-0.78	
1,852.0	21.30	4.80	1,810.9	300.4	24.4	301.4	0.12	0.00	
1,941.0	19.70	4.10	1,894.3	331.5	26.8	332.6	1.82	-1.80	
2,030.0	21.70	2.20	1,977.5	362.9	28.5	364.0	2.37	2.25	
2,120.0	20.30	2.50	2,061.5	395.1	29.9	396.2	1.56	-1.56	
2,206.0	20.70	3.30	2,142.1	425.2	31.4	426.3	0.57	0.47	
2,294.0	20.60	3.50	2,224.4	456.2	33.2	457.3	0.14	-0.11	
2,384.0	20.10	4.50	2,308.8	487.4	35.4	488.6	0.68	-0.56	
2,472.0	20.50	5.00	2,391.3	517.8	37.9	519.1	0.50	0.45	
2,559.0	21.80	7.40	2,472.5	549.0	41.3	550.5	1.80	1.49	
2,647.0	19.80	7.10	2,554.7	580.0	45.3	581.8	2.28	-2.27	
2,735.0	20.40	9.90	2,637.4	609.9	49.8	611.9	1.29	0.68	
2,823.0	22.40	9.40	2,719.3	641.6	55.1	643.9	2.28	2.27	
2,911.0	22.50	8.50	2,800.6	674.8	60.4	677.5	0.41	0.11	
3,000.0	22.70	5.80	2,882.8	708.7	64.6	711.7	1.19	0.22	
3,088.0	21.90	5.60	2,964.2	741.9	67.9	745.0	0.91	-0.91	
3,176.0	22.60	3.20	3,045.7	775.2	70.5	778.4	1.30	0.80	
3,264.0	21.90	3.70	3,127.1	808.4	72.5	811.7	0.82	-0.80	
3,352.0	21.60	4.40	3,208.9	840.9	74.8	844.3	0.45	-0.34	
3,440.0	21.30	4.50	3,290.8	873.0	77.3	876.4	0.34	-0.34	
3,528.0	21.70	5.10	3,372.6	905.2	80.0	908.7	0.52	0.45	
3,617.0	20.90	6.80	3,455.6	937.3	83.3	941.0	1.14	-0.90	
3,705.0	20.00	4.50	3,538.0	967.9	86.4	971.8	1.37	-1.02	
3,795.0	18.90	3.30	3,622.9	997.8	88.4	1,001.7	1.30	-1.22	
3,884.0	17.20	4.00	3,707.5	1,025.3	90.2	1,029.3	1.93	-1.91	
3,974.0	17.10	4.40	3,793.5	1,051.8	92.1	1,055.8	0.17	-0.11	
4,063.0	15.60	3.60	3,878.9	1,076.8	93.9	1,080.9	1.70	-1.69	
4,152.0	13.40	2.80	3,965.1	1,099.0	95.1	1,103.1	2.48	-2.47	
4,239.0	13.40	1.40	4,049.7	1,119.2	95.9	1,123.3	0.37	0.00	
4,327.0	12.70	1.70	4,135.4	1,139.0	96.4	1,143.1	0.80	-0.80	
4,417.0	10.10	7.60	4,223.6	1,156.8	97.7	1,160.9	3.16	-2.89	
4,506.0	9.60	8.10	4,311.3	1,171.8	99.8	1,176.1	0.57	-0.56	
4,596.0	7.90	6.90	4,400.3	1,185.4	101.6	1,189.7	1.90	-1.89	
4,686.0	6.50	11.40	4,489.6	1,196.5	103.4	1,201.0	1.68	-1.56	
4,774.0	4.10	17.80	4,577.2	1,204.4	105.3	1,209.0	2.80	-2.73	
4,862.0	2.40	17.40	4,665.0	1,209.2	106.8	1,213.9	1.93	-1.93	
4,952.0	2.00	22.50	4,755.0	1,212.4	108.0	1,217.2	0.49	-0.44	
5,041.0	2.50	39.30	4,843.9	1,215.4	109.8	1,220.3	0.92	0.56	
5,130.0	0.50	35.60	4,932.9	1,217.2	111.3	1,222.3	2.25	-2.25	
5,217.0	1.00	339.00	5,019.9	1,218.2	111.2	1,223.3	0.96	0.57	
5,306.0	1.60	347.20	5,108.8	1,220.1	110.7	1,225.1	0.70	0.67	
5,394.0	1.60	226.50	5,196.8	1,220.5	109.5	1,225.4	3.16	0.00	
5,481.0	1.30	219.40	5,283.8	1,218.9	108.0	1,223.7	0.40	-0.34	
5,569.0	1.00	223.70	5,371.8	1,217.6	106.8	1,222.2	0.35	-0.34	
5,659.0	0.80	238.80	5,461.8	1,216.7	105.7	1,221.2	0.34	-0.22	
5,747.0	0.20	279.20	5,549.8	1,216.4	105.1	1,220.9	0.75	-0.68	

Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Thomason 6-16
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4907.0ft (Original Well Elev)
Site:	S16-T2N-R65W (Thomason 6 pad)	MD Reference:	KBE @ 4907.0ft (Original Well Elev)
Well:	Thomason 6-16	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
5,833.0	0.70	248.10	5,635.8	1,216.2	104.4	1,220.7	0.63	0.58	
5,922.0	0.70	271.50	5,724.7	1,216.0	103.4	1,220.4	0.32	0.00	
6,012.0	0.90	201.10	5,814.7	1,215.4	102.6	1,219.7	1.04	0.22	
6,101.0	0.80	199.00	5,903.7	1,214.1	102.1	1,218.4	0.12	-0.11	
6,189.0	0.80	246.20	5,991.7	1,213.3	101.4	1,217.5	0.73	0.00	
6,277.0	0.80	245.80	6,079.7	1,212.8	100.2	1,216.9	0.01	0.00	
6,364.0	0.50	268.60	6,166.7	1,212.5	99.3	1,216.6	0.45	-0.34	
6,453.0	0.20	331.40	6,255.7	1,212.7	98.8	1,216.6	0.50	-0.34	
6,543.0	0.10	228.50	6,345.7	1,212.8	98.7	1,216.7	0.27	-0.11	
6,633.0	0.50	268.60	6,435.7	1,212.7	98.3	1,216.6	0.48	0.44	
6,722.0	0.80	331.70	6,524.7	1,213.2	97.6	1,217.1	0.82	0.34	
6,810.0	0.70	310.40	6,612.7	1,214.1	96.9	1,217.9	0.33	-0.11	
6,897.0	0.80	179.80	6,699.7	1,213.9	96.5	1,217.6	1.57	0.11	
6,987.0	0.60	6.70	6,789.7	1,213.7	96.5	1,217.5	1.55	-0.22	
7,076.0	1.20	344.70	6,878.7	1,215.1	96.3	1,218.8	0.77	0.67	
7,165.0	1.50	352.80	6,967.7	1,217.1	95.9	1,220.8	0.40	0.34	
7,254.0	1.60	15.90	7,056.6	1,219.5	96.1	1,223.2	0.71	0.11	
7,341.0	1.70	23.50	7,143.6	1,221.8	97.0	1,225.6	0.28	0.11	
7,429.0	1.10	354.60	7,231.6	1,223.9	97.4	1,227.7	1.03	-0.68	
7,500.0	0.50	53.18	7,302.6	1,224.7	97.6	1,228.5	1.33	-0.85	Last Cathedral Survey @ 7,500' MD
7,550.0	0.50	53.20	7,352.6	1,225.0	98.0	1,228.8	0.00	0.00	Projection to Bit @ 7,550'

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Thomason 6-16 TGT	0.00	0.00	4,850.0	1,201.8	108.8	1,294,976.90	3,231,833.05	40.140123	-104.670786
- hit/miss target									
- survey misses target center by 13.8ft at 5046.8ft MD (4849.7 TVD, 1215.5 N, 110.0 E)									
- Point									
Thomason 6-16 BHL	0.00	0.00	7,360.0	1,201.8	108.8	1,294,976.90	3,231,833.05	40.140123	-104.670786
- survey misses target center by 26.7ft at 7550.0ft MD (7352.6 TVD, 1225.0 N, 98.0 E)									
- Circle (radius 50.0)									

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
7,500.0	7,302.6	1,224.7	97.6	Last Cathedral Survey @ 7,500' MD
7,550.0	7,352.6	1,225.0	98.0	Projection to Bit @ 7,550'

Checked By: _____ Approved By: _____ Date: _____