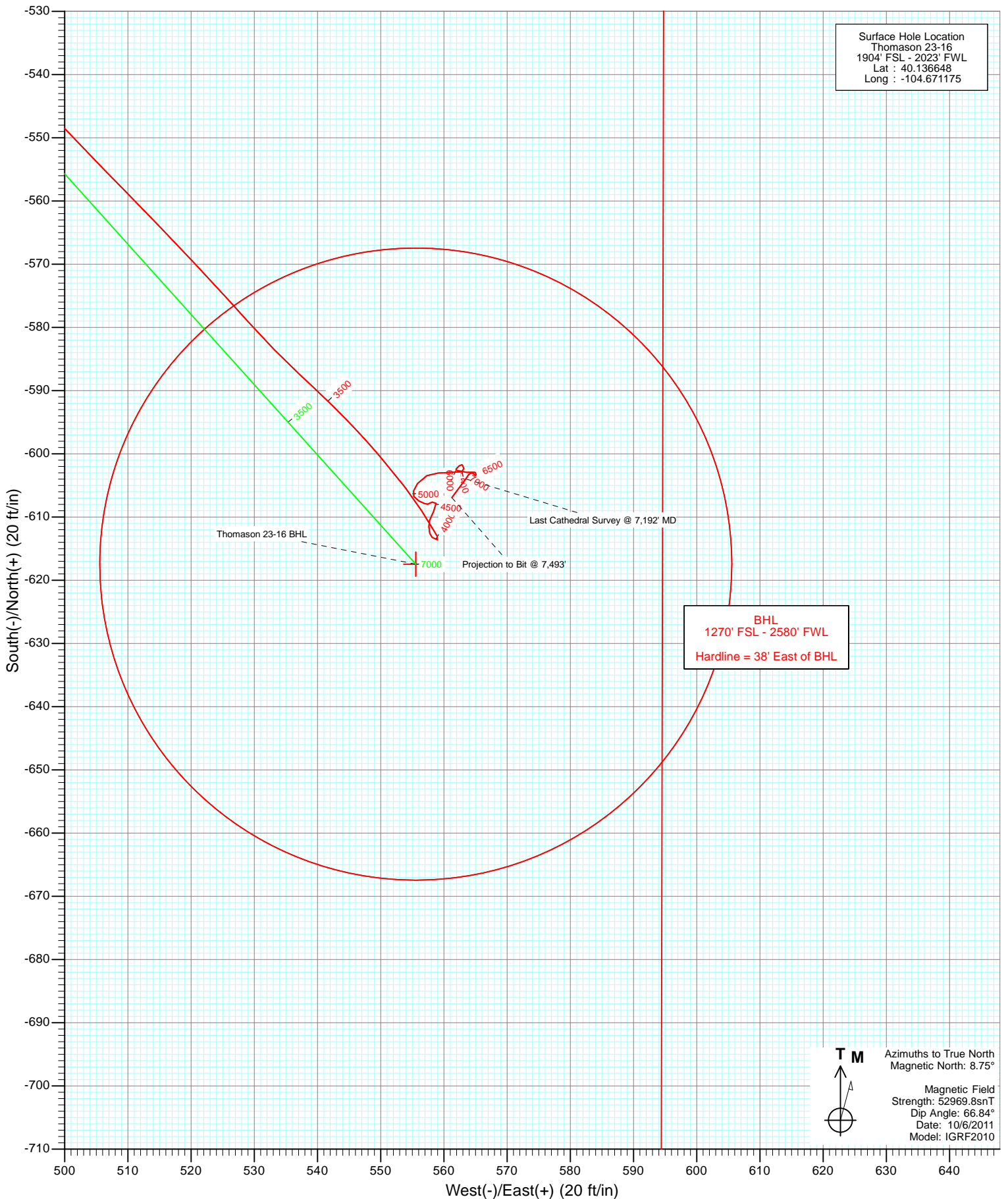


Azimuths to True North
Magnetic North: 8.75°

Magnetic Field
Strength: 52969.8snT
Dip Angle: 66.84°
Date: 10/6/2011
Model: IGRF2010

DD Thomason 23-16 115427; BH KBE @ 4907.0ft (Xtreme 14) North American Datum 1983 Well Thomason 23-16, True North						
Type Target	Target Thomason 23-16 BHL	Azimuth 138.02	Origin Type Slot	N/S 0.0	E/W 0.0	From TVD 0.0
Name Thomason 23-16 TGT	TVD 3915.0	+N/-S -617.4	+E/-W 555.6	Latitude 40.134953	Longitude -104.669188	
Thomason 23-16 BHL	7360.0	-617.4	555.6	40.134953	-104.669188	



Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Thomason 23-16
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4907.0ft (Xtreme 14)
Site:	S16-T2N-R65W (Thomason 6 pad)	MD Reference:	KBE @ 4907.0ft (Xtreme 14)
Well:	Thomason 23-16	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 23-16					
Well Position	+N/-S	0.0 ft	Northing:	1,293,710.06 ft	Latitude:	40.136648
	+E/-W	0.0 ft	Easting:	3,231,736.13 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	10/6/2011	8.75	66.84	52,970

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	138.02	

Survey Program	Date	10/11/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
94.0	7,493.0	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		
94.0	0.60	343.20	94.0	0.5	-0.1	-0.4	0.64	0.64		
188.0	0.40	98.80	188.0	0.9	0.0	-0.6	0.91	-0.21		
281.0	1.20	118.50	281.0	0.4	1.2	0.5	0.90	0.86		
374.0	1.20	160.20	374.0	-1.0	2.4	2.4	0.92	0.00		
462.0	2.30	145.60	461.9	-3.3	3.7	5.0	1.34	1.25		
551.0	4.40	151.80	550.8	-7.8	6.3	10.0	2.39	2.36		
639.0	6.20	139.40	638.4	-14.4	11.0	18.1	2.41	2.05		
727.0	7.90	135.20	725.7	-22.3	18.4	28.9	2.02	1.93		
816.0	9.20	137.90	813.7	-31.9	27.5	42.1	1.53	1.46		
911.0	10.20	134.90	907.4	-43.5	38.5	58.1	1.18	1.05		
997.0	10.30	134.80	992.0	-54.3	49.4	73.4	0.12	0.12		
1,085.0	11.50	134.90	1,078.4	-66.0	61.2	90.0	1.36	1.36		

Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Thomason 23-16
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4907.0ft (Xtreme 14)
Site:	S16-T2N-R65W (Thomason 6 pad)	MD Reference:	KBE @ 4907.0ft (Xtreme 14)
Well:	Thomason 23-16	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
1,174.0	14.00	138.80	1,165.2	-80.4	74.5	109.6	2.97	2.81	
1,261.0	15.70	137.90	1,249.3	-97.0	89.4	131.9	1.97	1.95	
1,350.0	17.80	141.60	1,334.5	-116.6	105.9	157.5	2.65	2.36	
1,439.0	19.20	142.10	1,418.9	-138.8	123.3	185.7	1.58	1.57	
1,529.0	19.20	139.70	1,503.9	-161.8	142.0	215.3	0.88	0.00	
1,617.0	18.90	139.20	1,587.1	-183.6	160.7	244.0	0.39	-0.34	
1,706.0	19.00	137.80	1,671.3	-205.3	179.8	272.9	0.52	0.11	
1,794.0	18.50	137.90	1,754.6	-226.2	198.8	301.2	0.57	-0.57	
1,882.0	17.40	137.50	1,838.3	-246.3	217.0	328.3	1.26	-1.25	
1,971.0	17.80	136.20	1,923.2	-265.9	235.4	355.2	0.63	0.45	
2,060.0	19.20	135.80	2,007.6	-286.2	255.1	383.4	1.58	1.57	
2,147.0	17.80	135.10	2,090.1	-305.9	274.4	411.0	1.63	-1.61	
2,234.0	18.20	135.60	2,172.8	-325.1	293.3	437.8	0.49	0.46	
2,324.0	19.00	134.00	2,258.1	-345.3	313.7	466.5	1.05	0.89	
2,410.0	18.00	137.60	2,339.7	-364.8	332.7	493.7	1.76	-1.16	
2,498.0	19.00	138.90	2,423.1	-385.6	351.3	521.7	1.23	1.14	
2,587.0	17.10	138.40	2,507.7	-406.3	369.5	549.2	2.14	-2.13	
2,677.0	18.00	136.60	2,593.5	-426.3	387.9	576.4	1.17	1.00	
2,765.0	18.00	135.70	2,677.2	-446.0	406.7	603.5	0.32	0.00	
2,855.0	18.50	139.70	2,762.7	-466.8	425.6	631.7	1.50	0.56	
2,944.0	17.50	137.50	2,847.4	-487.4	443.8	659.2	1.36	-1.12	
3,032.0	16.70	137.50	2,931.5	-506.5	461.3	685.1	0.91	-0.91	
3,122.0	15.20	137.20	3,018.0	-524.7	478.1	709.8	1.67	-1.67	
3,210.0	13.40	137.80	3,103.3	-540.7	492.7	731.5	2.05	-2.05	
3,299.0	12.10	135.40	3,190.1	-555.0	506.2	751.2	1.58	-1.46	
3,387.0	11.00	136.50	3,276.3	-567.7	518.5	768.8	1.27	-1.25	
3,477.0	8.60	138.20	3,365.0	-578.9	528.9	784.1	2.69	-2.67	
3,565.0	7.30	132.70	3,452.1	-587.6	537.4	796.2	1.71	-1.48	
3,652.0	6.30	135.80	3,538.5	-594.8	544.8	806.5	1.22	-1.15	
3,738.0	4.30	140.70	3,624.1	-600.7	550.1	814.5	2.38	-2.33	
3,828.0	3.20	141.10	3,713.9	-605.2	553.8	820.3	1.22	-1.22	
3,917.0	2.70	149.10	3,802.8	-609.0	556.4	824.9	0.73	-0.56	
4,006.0	2.40	147.40	3,891.7	-612.3	558.5	828.8	0.35	-0.34	
4,095.0	0.80	298.60	3,980.7	-613.6	559.0	830.0	3.51	-1.80	
4,183.0	0.40	287.00	4,068.7	-613.2	558.2	829.2	0.47	-0.45	
4,270.0	0.70	353.00	4,155.7	-612.6	557.8	828.5	0.75	0.34	
4,360.0	0.70	349.30	4,245.7	-611.5	557.6	827.6	0.05	0.00	
4,448.0	0.70	24.90	4,333.7	-610.5	557.8	826.9	0.49	0.00	
4,537.0	1.20	24.60	4,422.7	-609.2	558.4	826.3	0.56	0.56	
4,627.0	0.60	1.30	4,512.7	-607.8	558.8	825.6	0.77	-0.67	
4,716.0	0.90	246.80	4,601.7	-607.6	558.1	825.0	1.43	0.34	
4,805.0	0.10	227.50	4,690.7	-608.0	557.4	824.8	0.91	-0.90	
4,893.0	0.60	287.90	4,778.7	-607.9	556.9	824.4	0.63	0.57	
4,981.0	0.70	302.90	4,866.7	-607.4	556.1	823.5	0.22	0.11	
5,069.0	0.70	319.20	4,954.7	-606.7	555.3	822.4	0.23	0.00	
5,159.0	0.70	34.20	5,044.6	-605.9	555.2	821.8	0.95	0.00	
5,240.0	1.20	23.70	5,125.6	-604.7	555.8	821.3	0.65	0.62	
5,338.0	1.30	74.40	5,223.6	-603.4	557.3	821.4	1.10	0.10	
5,427.0	1.10	80.60	5,312.6	-603.0	559.1	822.3	0.27	-0.22	
5,515.0	1.50	92.10	5,400.6	-602.9	561.1	823.5	0.54	0.45	
5,605.0	0.70	73.60	5,490.6	-602.8	562.8	824.6	0.96	-0.89	
5,693.0	0.50	336.10	5,578.6	-602.3	563.2	824.4	1.04	-0.23	
5,781.0	0.20	346.70	5,666.6	-601.8	563.0	823.9	0.35	-0.34	

Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Thomason 23-16
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4907.0ft (Xtreme 14)
Site:	S16-T2N-R65W (Thomason 6 pad)	MD Reference:	KBE @ 4907.0ft (Xtreme 14)
Well:	Thomason 23-16	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
5,868.0	0.10	248.20	5,753.6	-601.7	562.9	823.8	0.27	-0.11	
5,956.0	0.60	243.60	5,841.5	-601.9	562.4	823.6	0.57	0.57	
6,046.0	0.30	180.60	5,931.5	-602.4	562.0	823.7	0.59	-0.33	
6,134.0	0.10	327.30	6,019.5	-602.5	561.9	823.8	0.44	-0.23	
6,223.0	0.40	121.00	6,108.5	-602.6	562.1	824.0	0.55	0.34	
6,311.0	0.70	89.00	6,196.5	-602.8	562.9	824.6	0.48	0.34	
6,399.0	0.30	126.30	6,284.5	-602.9	563.7	825.2	0.56	-0.45	
6,488.0	0.60	70.60	6,373.5	-602.9	564.3	825.6	0.56	0.34	
6,575.0	0.40	125.30	6,460.5	-602.9	565.0	826.1	0.57	-0.23	
6,662.0	0.30	207.50	6,547.5	-603.3	565.1	826.5	0.54	-0.11	
6,751.0	0.10	343.30	6,636.5	-603.4	565.0	826.5	0.42	-0.22	
6,839.0	0.30	304.90	6,724.5	-603.2	564.8	826.2	0.26	0.23	
6,927.0	0.10	105.10	6,812.5	-603.1	564.7	826.0	0.45	-0.23	
7,016.0	0.40	296.70	6,901.5	-603.0	564.5	825.8	0.56	0.34	
7,102.0	0.50	211.10	6,987.5	-603.2	564.0	825.6	0.72	0.12	
7,192.0	0.70	216.50	7,077.5	-604.0	563.5	825.9	0.23	0.22	Last Cathedral Survey @ 7,192' MD Projection to Bit @ 7,493'
7,493.0	0.70	216.50	7,378.5	-606.9	561.3	826.6	0.00	0.00	

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Thomason 23-16 TGT	0.00	0.00	3,915.0	-617.4	555.6	1,293,097.83	3,232,297.44	40.134953	-104.669188
- hit/miss target									
- survey misses target center by 5.6ft at 4029.3ft MD (3915.0 TVD, -613.0 N, 558.9 E)									
- Point									
Thomason 23-16 BHL	0.00	0.00	7,360.0	-617.4	555.6	1,293,097.83	3,232,297.44	40.134953	-104.669188
- survey misses target center by 12.2ft at 7474.7ft MD (7360.1 TVD, -606.7 N, 561.4 E)									
- Circle (radius 50.0)									

Survey Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
7,192.0	7,077.5	-604.0	563.5	Last Cathedral Survey @ 7,192' MD	
7,493.0	7,378.5	-606.9	561.3	Projection to Bit @ 7,493'	

Checked By: _____ Approved By: _____ Date: _____