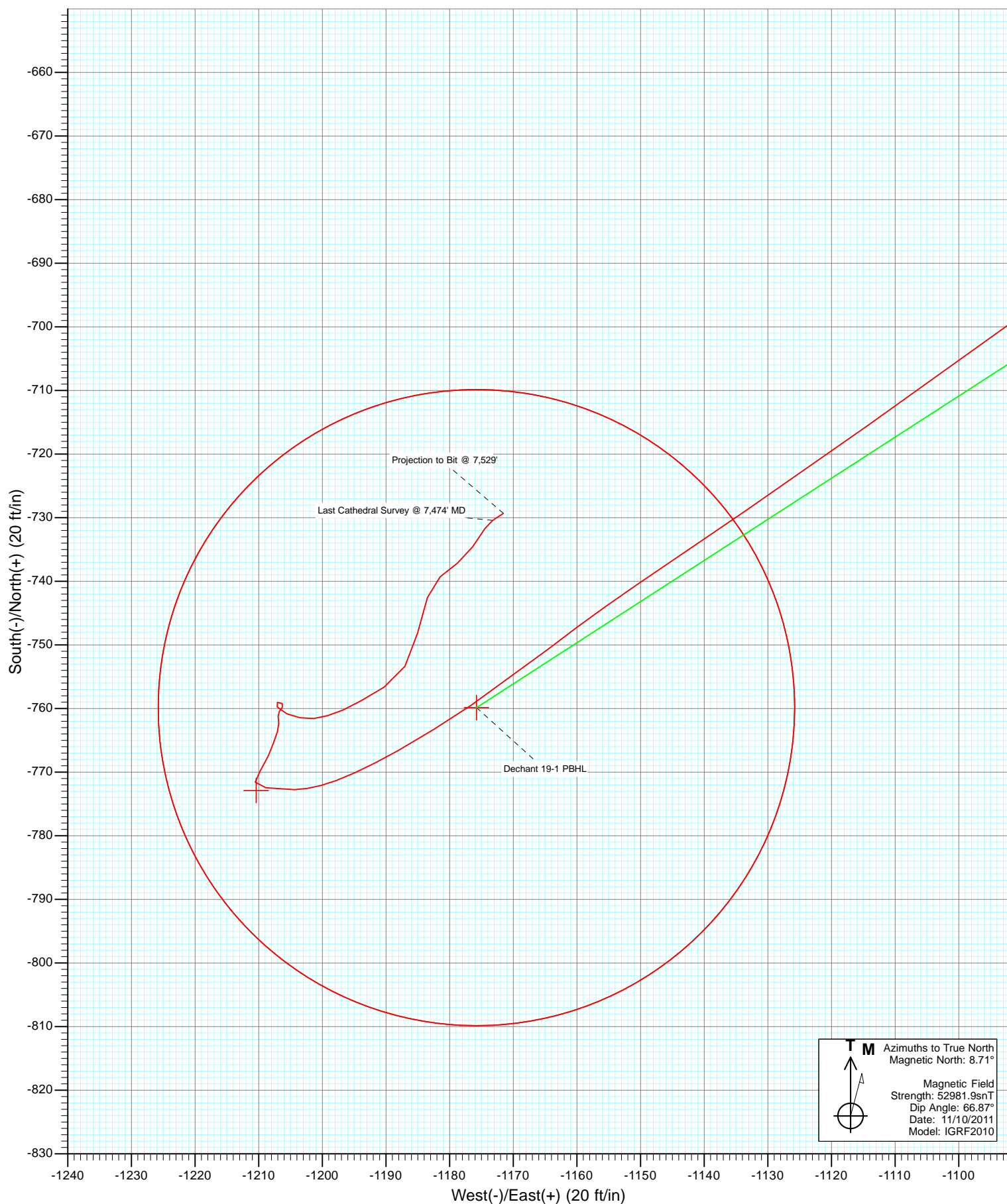


Azimuths to True North
Magnetic North: 8.71°

Magnetic Field
Strength: 52981.9snT
Dip Angle: 66.87°
Date: 11/10/2011
Model: IGRF2010

DD Dechant 19-1 125061; LR KBE @ 4853.0ft (Xtreme 14) North American Datum 1983 Well Dechant 19-1, True North									
Type	Target	Azimuth	Origin	Type	N/S	E/W	From	TVD	
Target	Dechant 19-1 PBHL	237.13	Slot		0.0	0.0	0.0		
Name	Dechant 19-1 800'x800' Legal Box	TVD	+N/-S	+E/-W	Latitude		Longitude		
	Dechant 19-1 PBHL	7293.0	-772.9	-1210.4	40.163859		-104.616813		
		7293.0	-759.9	-1175.8	40.163895		-104.616689		



Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Dechant 19-1
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4853.0ft (Xtreme 14)
Site:	NESW Sec1-T2N-R65W (Dechant 23-1)	MD Reference:	KBE @ 4853.0ft (Xtreme 14)
Well:	Dechant 19-1	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 19-1					
Well Position	+N/-S	0.0 ft	Northing:	1,304,553.79 ft	Latitude:	40.165981
	+E/-W	0.0 ft	Easting:	3,248,038.55 ft	Longitude:	-104.612482
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,838.0 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	237.13	

Survey Program	Date	1/25/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
90.0	7,529.0	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		
90.0	0.60	350.90	90.0	0.5	-0.1	-0.2	0.67	0.67		
184.0	0.70	229.00	184.0	0.6	-0.6	0.2	1.21	0.11		
277.0	1.80	247.00	277.0	-0.4	-2.4	2.2	1.24	1.18		
370.0	3.60	242.60	369.9	-2.3	-6.3	6.5	1.95	1.94		
460.0	7.00	237.00	459.5	-6.6	-13.4	14.8	3.82	3.78		
549.0	8.70	233.40	547.6	-13.5	-23.4	27.0	1.99	1.91		
639.0	10.40	231.30	636.4	-22.7	-35.2	41.8	1.93	1.89		
684.0	10.70	232.20	680.6	-27.8	-41.6	50.0	0.76	0.67		
771.0	10.10	230.10	766.2	-37.6	-53.9	65.7	0.82	-0.69		
876.0	11.30	233.60	869.4	-49.6	-69.2	85.1	1.30	1.14		
965.0	14.00	235.40	956.2	-60.9	-85.1	104.5	3.07	3.03		
1,052.0	15.50	239.90	1,040.3	-72.7	-103.8	126.7	2.17	1.72		

Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Dechant 19-1
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4853.0ft (Xtreme 14)
Site:	NESW Sec1-T2N-R65W (Dechant 23-1)	MD Reference:	KBE @ 4853.0ft (Xtreme 14)
Well:	Dechant 19-1	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
1,141.0	17.50	242.00	1,125.7	-85.0	-125.9	151.9	2.34	2.25	
1,229.0	20.00	240.00	1,209.0	-98.7	-150.6	180.1	2.93	2.84	
1,317.0	22.40	239.60	1,291.0	-114.7	-178.1	211.9	2.73	2.73	
1,405.0	24.50	238.60	1,371.8	-132.7	-208.2	246.9	2.43	2.39	
1,494.0	23.90	237.70	1,452.9	-152.0	-239.2	283.4	0.79	-0.67	
1,582.0	23.30	236.60	1,533.6	-171.1	-268.8	318.6	0.85	-0.68	
1,670.0	22.80	235.80	1,614.5	-190.2	-297.4	353.0	0.67	-0.57	
1,758.0	23.50	235.50	1,695.5	-209.8	-326.0	387.6	0.81	0.80	
1,847.0	21.40	234.10	1,777.7	-229.3	-353.7	421.6	2.43	-2.36	
1,935.0	22.70	235.00	1,859.3	-248.5	-380.7	454.6	1.53	1.48	
2,022.0	22.90	235.60	1,939.5	-267.7	-408.4	488.3	0.35	0.23	
2,110.0	22.50	237.10	2,020.7	-286.5	-436.6	522.2	0.80	-0.45	
2,199.0	21.80	237.80	2,103.1	-304.6	-464.9	555.8	0.84	-0.79	
2,287.0	21.40	238.70	2,184.9	-321.6	-492.5	588.2	0.59	-0.45	
2,376.0	20.60	240.90	2,268.0	-337.7	-520.0	620.0	1.26	-0.90	
2,466.0	20.70	243.70	2,352.2	-352.4	-548.1	651.6	1.10	0.11	
2,554.0	19.70	243.60	2,434.8	-365.9	-575.3	681.8	1.14	-1.14	
2,642.0	19.40	242.90	2,517.7	-379.1	-601.6	711.1	0.43	-0.34	
2,731.0	21.80	240.40	2,601.0	-394.0	-629.2	742.3	2.87	2.70	
2,819.0	25.10	236.10	2,681.8	-412.5	-658.9	777.3	4.22	3.75	
2,909.0	28.10	234.10	2,762.2	-435.6	-691.9	817.6	3.48	3.33	
2,998.0	26.30	234.00	2,841.4	-459.5	-724.8	858.2	2.02	-2.02	
3,086.0	23.50	233.70	2,921.2	-481.3	-754.8	895.2	3.19	-3.18	
3,174.0	23.60	235.60	3,001.9	-501.7	-783.4	930.3	0.87	0.11	
3,272.0	22.50	237.80	3,092.0	-522.8	-815.5	968.6	1.43	-1.12	
3,349.0	19.90	239.10	3,163.8	-537.3	-839.2	996.5	3.43	-3.38	
3,439.0	19.60	241.60	3,248.5	-552.4	-865.6	1,026.8	1.00	-0.33	
3,528.0	18.70	240.90	3,332.6	-566.4	-891.2	1,056.0	1.04	-1.01	
3,616.0	16.90	235.20	3,416.4	-580.6	-914.1	1,082.8	2.84	-2.05	
3,705.0	17.30	236.10	3,501.5	-595.4	-935.7	1,109.0	0.54	0.45	
3,793.0	16.90	239.20	3,585.6	-609.2	-957.5	1,134.9	1.13	-0.45	
3,881.0	15.80	238.50	3,670.0	-622.0	-978.7	1,159.6	1.27	-1.25	
3,970.0	16.30	237.80	3,755.5	-635.0	-999.6	1,184.2	0.60	0.56	
4,058.0	17.40	232.90	3,839.8	-649.5	-1,020.6	1,209.7	2.04	1.25	
4,147.0	20.20	236.10	3,924.0	-666.1	-1,043.9	1,238.3	3.35	3.15	
4,236.0	20.10	235.00	4,007.6	-683.5	-1,069.2	1,269.0	0.44	-0.11	
4,326.0	18.00	234.50	4,092.6	-700.4	-1,093.2	1,298.3	2.34	-2.33	
4,416.0	15.60	234.20	4,178.8	-715.6	-1,114.3	1,324.3	2.67	-2.67	
4,505.0	14.90	236.00	4,264.7	-729.0	-1,133.5	1,347.7	0.95	-0.79	
4,593.0	12.20	235.60	4,350.2	-740.5	-1,150.6	1,368.3	3.07	-3.07	
4,681.0	10.20	232.00	4,436.5	-750.6	-1,164.4	1,385.4	2.41	-2.27	
4,769.0	9.60	236.00	4,523.2	-759.5	-1,176.6	1,400.5	1.04	-0.68	
4,857.0	8.20	240.70	4,610.1	-766.7	-1,188.2	1,414.1	1.79	-1.59	
4,947.0	5.40	249.60	4,699.5	-771.3	-1,197.8	1,424.6	3.32	-3.11	
5,035.0	3.60	269.60	4,787.2	-772.7	-1,204.4	1,431.0	2.68	-2.05	
5,124.0	2.20	280.80	4,876.1	-772.4	-1,208.9	1,434.6	1.69	-1.57	
5,214.0	0.70	4.10	4,966.1	-771.6	-1,210.5	1,435.5	2.48	-1.67	
5,303.0	1.80	31.00	5,055.1	-769.8	-1,209.8	1,433.9	1.37	1.24	
5,391.0	1.80	25.30	5,143.0	-767.4	-1,208.5	1,431.5	0.20	0.00	
5,479.0	1.20	16.60	5,231.0	-765.3	-1,207.6	1,429.6	0.73	-0.68	
5,568.0	1.00	22.10	5,320.0	-763.7	-1,207.1	1,428.3	0.25	-0.22	
5,656.0	0.80	354.00	5,408.0	-762.3	-1,206.8	1,427.4	0.54	-0.23	
5,744.0	0.70	357.30	5,496.0	-761.2	-1,206.9	1,426.8	0.12	-0.11	

Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Dechant 19-1
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4853.0ft (Xtreme 14)
Site:	NESW Sec1-T2N-R65W (Dechant 23-1)	MD Reference:	KBE @ 4853.0ft (Xtreme 14)
Well:	Dechant 19-1	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
5,832.0	0.40	44.90	5,584.0	-760.4	-1,206.7	1,426.2	0.59	-0.34	
5,918.0	0.60	29.50	5,670.0	-759.8	-1,206.3	1,425.6	0.28	0.23	
6,006.0	0.40	313.90	5,758.0	-759.2	-1,206.3	1,425.2	0.72	-0.23	
6,095.0	0.70	265.60	5,847.0	-759.0	-1,207.1	1,425.8	0.59	0.34	
6,185.0	1.10	142.60	5,936.9	-759.8	-1,207.1	1,426.2	1.77	0.44	
6,274.0	1.40	111.00	6,025.9	-760.8	-1,205.5	1,425.5	0.83	0.34	
6,363.0	1.40	101.50	6,114.9	-761.4	-1,203.5	1,424.1	0.26	0.00	
6,451.0	1.40	85.00	6,202.9	-761.6	-1,201.3	1,422.3	0.46	0.00	
6,541.0	1.40	71.90	6,292.8	-761.1	-1,199.2	1,420.3	0.35	0.00	
6,630.0	1.90	68.40	6,381.8	-760.2	-1,196.8	1,417.8	0.57	0.56	
6,719.0	2.30	58.90	6,470.8	-758.8	-1,193.9	1,414.6	0.59	0.45	
6,808.0	3.10	59.60	6,559.7	-756.6	-1,190.3	1,410.4	0.90	0.90	
6,898.0	3.00	30.20	6,649.5	-753.4	-1,187.0	1,405.9	1.72	-0.11	
6,985.0	4.40	14.50	6,736.3	-748.2	-1,185.0	1,401.4	1.97	1.61	
7,075.0	3.00	16.40	6,826.2	-742.6	-1,183.5	1,397.0	1.56	-1.56	
7,164.0	2.20	52.30	6,915.1	-739.3	-1,181.5	1,393.6	1.99	-0.90	
7,253.0	2.30	51.20	7,004.0	-737.1	-1,178.7	1,390.1	0.12	0.11	
7,343.0	2.20	34.20	7,093.9	-734.6	-1,176.4	1,386.7	0.75	-0.11	
7,429.0	2.40	33.50	7,179.9	-731.7	-1,174.4	1,383.5	0.23	0.23	
7,474.0	2.20	55.00	7,224.8	-730.4	-1,173.2	1,381.8	1.96	-0.44	Last Cathedral Survey @ 7,474' MD
7,529.0	2.00	58.00	7,279.8	-729.3	-1,171.5	1,379.8	0.41	-0.36	Projection to Bit @ 7,529'

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Dechant 19-1 800'x800'	0.00	0.00	-7,293.0	-772.9	-1,210.4	1,303,768.82	3,246,835.96	40.163859	-104.616813
- actual wellpath misses target center by 7433.1ft at 0.0ft MD (0.0 TVD, 0.0 N, 0.0 E)									
- Rectangle (sides W800.0 H800.0 D0.0)									
Dechant 19-1 PBHL	0.00	0.00	7,293.0	-759.9	-1,175.8	1,303,782.21	3,246,870.44	40.163895	-104.616689
- actual wellpath misses target center by 33.5ft at 7529.0ft MD (7279.8 TVD, -729.3 N, -1171.5 E)									
- Circle (radius 50.0)									

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
7,474.0	7,224.8	-730.4	-1,173.2	Last Cathedral Survey @ 7,474' MD	
7,529.0	7,279.8	-729.3	-1,171.5	Projection to Bit @ 7,529'	

Checked By: _____ Approved By: _____ Date: _____