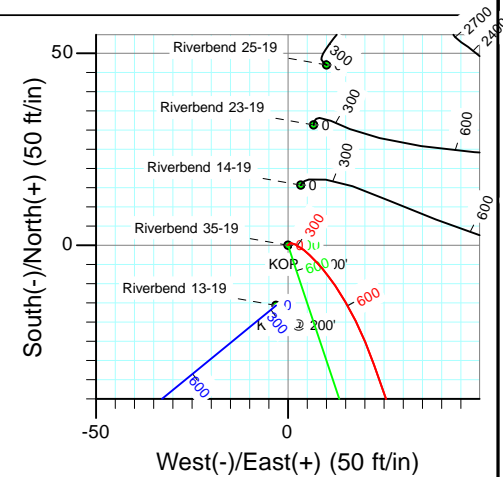
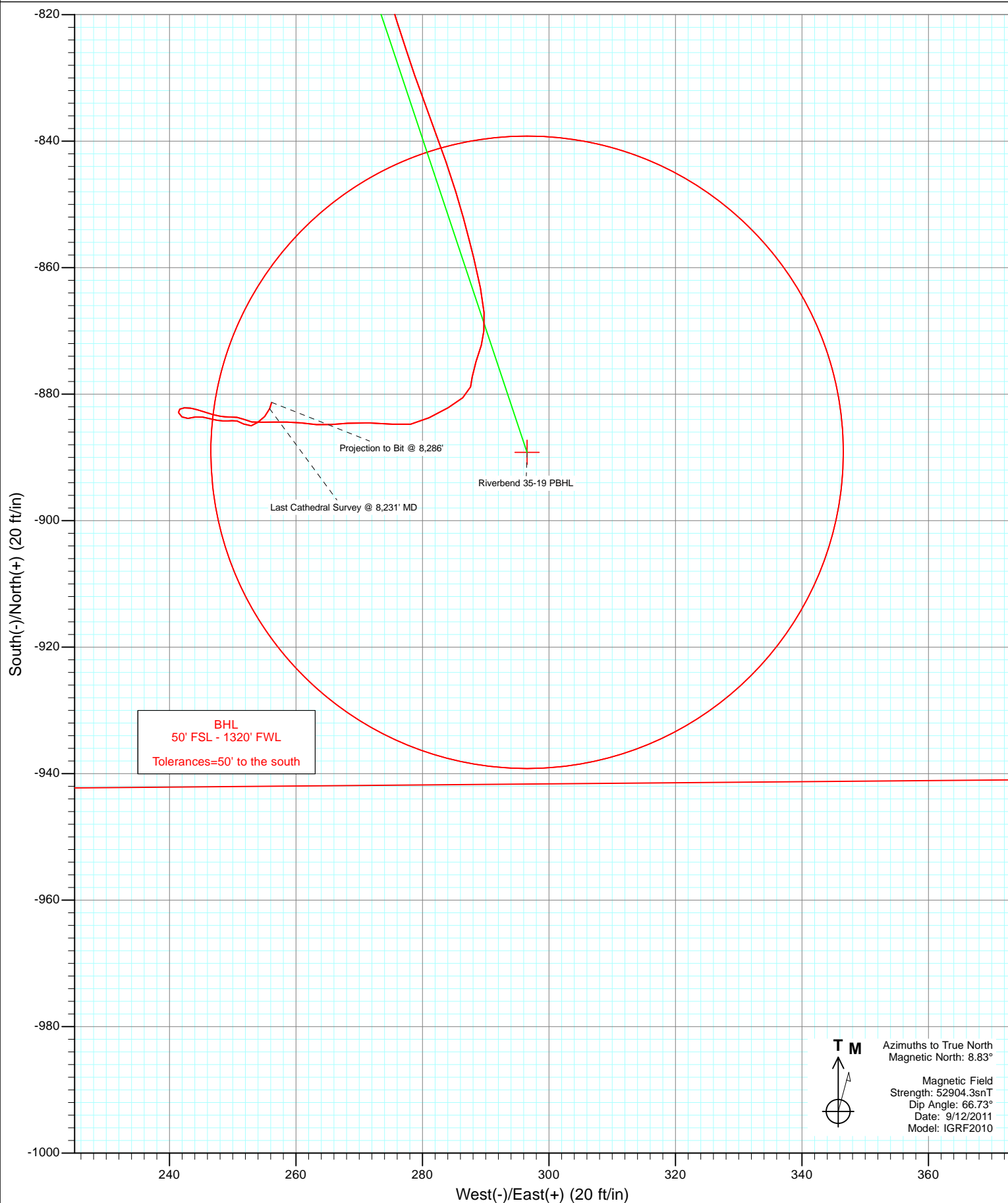


Azimuths to True North
Magnetic North: 8.83°

Magnetic Field
Strength: 52904.3nT
Dip Angle: 66.73°
Date: 9/12/2011
Model: IGRF2010



DD Riverbend 35-19 115379; LR KBE @ 4951.0ft (Xtreme 14) North American Datum 1983 Well Riverbend 35-19, True North					
Type	Target	Azimuth	Origin Type	N/S	E/W
Target	Riverbend 35-19 PBHL	161.56	Slot	0.0	0.0
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
Riverbend 35-19 PBHL	8129.0	-889.2	296.6	40.029629	-104.824892
				From TVD	0.0



Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Riverbend 35-19
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4951.0ft (Xtreme 14)
Site:	SWSW Sec19-T1N-R66W (Riverbend 5)	MD Reference:	KBE @ 4951.0ft (Xtreme 14)
Well:	Riverbend 35-19	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		SWSW Sec19-T1N-R66W (Riverbend 5)			
Site Position:		Northing:	1,255,233.31 ft	Latitude:	40.032027
From:	Lat/Long	Easting:	3,188,750.05 ft	Longitude:	-104.825962
Position Uncertainty:	0.0 ft	Slot Radius:	0.000 in	Grid Convergence:	0.44 °

Well		Riverbend 35-19				
Well Position	+N/-S	0.0 ft	Northing:	1,255,248.98 ft	Latitude:	40.032070
	+E/-W	0.0 ft	Easting:	3,188,753.01 ft	Longitude:	-104.825951
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,929.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/12/2011	8.83	66.73	52,904

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	161.56	

Survey Program	Date	9/19/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
86.0	8,286.0	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		
86.0	0.40	42.00	86.0	0.2	0.2	-0.1	0.47	0.47		
180.0	0.40	74.10	180.0	0.6	0.7	-0.3	0.24	0.00		
274.0	1.20	115.20	274.0	0.2	1.9	0.4	1.00	0.85		
368.0	2.10	127.90	367.9	-1.2	4.2	2.5	1.03	0.96		
458.0	3.90	137.20	457.8	-4.5	7.6	6.7	2.07	2.00		
547.0	6.00	144.90	546.5	-10.5	12.3	13.9	2.47	2.36		
636.0	7.70	153.80	634.9	-19.7	17.6	24.3	2.25	1.91		
723.0	8.70	160.00	721.0	-31.1	22.4	36.6	1.53	1.15		
812.0	10.70	162.60	808.7	-45.3	27.2	51.6	2.30	2.25		
902.0	12.10	163.90	896.9	-62.4	32.3	69.4	1.58	1.56		
975.0	14.00	164.30	968.0	-78.2	36.8	85.8	2.61	2.60		
1,055.0	13.90	165.70	1,045.7	-96.8	41.8	105.1	0.44	-0.13		

Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Riverbend 35-19
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4951.0ft (Xtreme 14)
Site:	SWSW Sec19-T1N-R66W (Riverbend 5)	MD Reference:	KBE @ 4951.0ft (Xtreme 14)
Well:	Riverbend 35-19	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
1,143.0	15.90	167.90	1,130.7	-118.9	47.0	127.6	2.36	2.27	
1,231.0	15.70	162.60	1,215.4	-142.0	53.1	151.5	1.65	-0.23	
1,319.0	17.80	162.70	1,299.6	-166.2	60.6	176.9	2.39	2.39	
1,407.0	18.30	163.20	1,383.3	-192.3	68.6	204.1	0.59	0.57	
1,497.0	17.60	164.10	1,468.9	-218.9	76.4	231.8	0.84	-0.78	
1,587.0	18.80	159.60	1,554.4	-245.6	85.2	259.9	2.05	1.33	
1,675.0	18.60	160.90	1,637.8	-272.1	94.7	288.1	0.53	-0.23	
1,764.0	18.40	161.90	1,722.2	-298.9	103.7	316.4	0.42	-0.22	
1,853.0	17.30	161.50	1,806.9	-324.8	112.3	343.6	1.24	-1.24	
1,941.0	18.00	162.70	1,890.7	-350.2	120.5	370.3	0.90	0.80	
2,031.0	16.70	162.60	1,976.7	-375.8	128.5	397.2	1.44	-1.44	
2,121.0	16.30	160.40	2,062.9	-400.0	136.6	422.7	0.82	-0.44	
2,209.0	17.40	162.50	2,147.2	-424.2	144.7	448.2	1.43	1.25	
2,299.0	17.40	163.20	2,233.1	-449.9	152.6	475.1	0.23	0.00	
2,387.0	16.90	162.10	2,317.1	-474.7	160.4	501.1	0.68	-0.57	
2,475.0	16.40	166.00	2,401.4	-498.9	167.3	526.2	1.39	-0.57	
2,564.0	16.10	159.10	2,486.9	-522.7	174.8	551.1	2.19	-0.34	
2,653.0	17.30	162.10	2,572.1	-546.8	183.2	576.7	1.66	1.35	
2,741.0	17.60	160.90	2,656.1	-571.8	191.6	603.1	0.53	0.34	
2,828.0	17.80	160.80	2,739.0	-596.8	200.3	629.5	0.23	0.23	
2,915.0	17.40	157.20	2,821.9	-621.3	209.7	655.8	1.33	-0.46	
3,003.0	16.30	156.00	2,906.1	-644.8	219.8	681.2	1.31	-1.25	
3,091.0	17.00	158.90	2,990.4	-668.0	229.5	706.3	1.23	0.80	
3,181.0	17.30	162.90	3,076.4	-693.1	238.1	732.8	1.35	0.33	
3,270.0	17.90	165.70	3,161.3	-719.0	245.4	759.7	1.17	0.67	
3,360.0	16.90	164.30	3,247.2	-745.0	252.4	786.6	1.20	-1.11	
3,449.0	13.70	163.70	3,333.0	-767.6	258.8	810.0	3.60	-3.60	
3,537.0	13.10	163.30	3,418.6	-787.1	264.6	830.4	0.69	-0.68	
3,625.0	12.50	160.10	3,504.4	-805.6	270.7	849.9	1.06	-0.68	
3,711.0	9.40	162.60	3,588.8	-821.1	276.0	866.2	3.65	-3.60	
3,801.0	6.90	159.40	3,677.9	-833.2	280.1	879.0	2.82	-2.78	
3,890.0	6.90	161.10	3,766.3	-843.2	283.7	889.7	0.23	0.00	
3,980.0	5.00	164.90	3,855.8	-852.1	286.5	899.0	2.15	-2.11	
4,068.0	3.50	166.30	3,943.5	-858.5	288.1	905.5	1.71	-1.70	
4,156.0	2.90	168.50	4,031.4	-863.2	289.2	910.4	0.70	-0.68	
4,246.0	2.10	176.40	4,121.3	-867.1	289.8	914.3	0.97	-0.89	
4,335.0	1.60	186.50	4,210.3	-870.0	289.7	917.0	0.67	-0.56	
4,424.0	1.40	194.30	4,299.2	-872.3	289.3	919.0	0.32	-0.22	
4,512.0	2.20	200.10	4,387.2	-874.9	288.5	921.2	0.93	0.91	
4,600.0	1.00	180.10	4,475.2	-877.3	287.9	923.3	1.48	-1.36	
4,689.0	1.10	197.90	4,564.1	-878.8	287.6	924.7	0.38	0.11	
4,778.0	1.70	226.40	4,653.1	-880.6	286.4	925.9	1.01	0.67	
4,866.0	2.00	243.60	4,741.1	-882.1	284.1	926.7	0.71	0.34	
4,955.0	2.40	241.50	4,830.0	-883.7	281.1	927.2	0.46	0.45	
5,045.0	1.60	264.00	4,920.0	-884.8	278.1	927.3	1.23	-0.89	
5,135.0	2.10	275.00	5,009.9	-884.7	275.3	926.4	0.68	0.56	
5,225.0	2.60	271.20	5,099.8	-884.6	271.6	925.0	0.58	0.56	
5,313.0	1.80	267.00	5,187.8	-884.6	268.2	924.0	0.93	-0.91	
5,402.0	1.50	263.60	5,276.7	-884.8	265.6	923.4	0.35	-0.34	
5,490.0	1.60	275.00	5,364.7	-884.8	263.3	922.7	0.37	0.11	
5,579.0	1.50	277.20	5,453.7	-884.6	260.9	921.7	0.13	-0.11	
5,667.0	1.50	269.90	5,541.6	-884.4	258.6	920.8	0.22	0.00	
5,757.0	1.10	271.00	5,631.6	-884.4	256.5	920.1	0.45	-0.44	

Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Riverbend 35-19
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4951.0ft (Xtreme 14)
Site:	SWSW Sec19-T1N-R66W (Riverbend 5)	MD Reference:	KBE @ 4951.0ft (Xtreme 14)
Well:	Riverbend 35-19	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
5,847.0	1.20	267.20	5,721.6	-884.4	254.7	919.6	0.14	0.11	
5,936.0	1.00	276.20	5,810.6	-884.4	253.0	919.0	0.30	-0.22	
6,024.0	0.70	305.80	5,898.6	-884.0	251.8	918.3	0.59	-0.34	
6,113.0	0.90	270.90	5,987.6	-883.7	250.7	917.6	0.58	0.22	
6,201.0	1.10	275.00	6,075.5	-883.6	249.2	917.0	0.24	0.23	
6,289.0	1.10	280.30	6,163.5	-883.4	247.5	916.3	0.12	0.00	
6,379.0	0.50	288.80	6,253.5	-883.1	246.3	915.6	0.68	-0.67	
6,467.0	0.80	289.60	6,341.5	-882.7	245.3	915.0	0.34	0.34	
6,555.0	0.60	285.20	6,429.5	-882.4	244.3	914.4	0.24	-0.23	
6,644.0	0.70	278.80	6,518.5	-882.2	243.3	913.9	0.14	0.11	
6,734.0	0.50	265.20	6,608.5	-882.2	242.4	913.5	0.27	-0.22	
6,823.0	0.50	244.20	6,697.5	-882.4	241.6	913.5	0.20	0.00	
6,912.0	0.50	158.30	6,786.5	-882.9	241.4	913.9	0.77	0.00	
7,000.0	0.70	129.90	6,874.5	-883.6	242.0	914.8	0.40	0.23	
7,088.0	0.70	78.80	6,962.5	-883.8	242.9	915.3	0.69	0.00	
7,178.0	0.80	79.10	7,052.5	-883.6	244.1	915.4	0.11	0.11	
7,266.0	0.80	101.90	7,140.5	-883.6	245.3	915.8	0.36	0.00	
7,354.0	0.80	104.00	7,228.5	-883.9	246.5	916.5	0.03	0.00	
7,443.0	0.60	98.80	7,317.5	-884.1	247.6	917.0	0.24	-0.22	
7,531.0	0.60	94.20	7,405.5	-884.2	248.5	917.4	0.05	0.00	
7,620.0	0.40	84.20	7,494.5	-884.2	249.2	917.7	0.24	-0.22	
7,708.0	0.50	90.10	7,582.5	-884.2	249.9	917.9	0.13	0.11	
7,797.0	0.50	98.80	7,671.5	-884.3	250.7	918.2	0.09	0.00	
7,885.0	1.00	121.70	7,759.5	-884.7	251.7	918.9	0.65	0.57	
7,974.0	0.70	75.20	7,848.4	-885.0	252.9	919.5	0.82	-0.34	
8,064.0	0.80	53.70	7,938.4	-884.5	254.0	919.4	0.33	0.11	
8,152.0	1.10	46.80	8,026.4	-883.5	255.1	918.8	0.36	0.34	
8,231.0	1.10	17.71	8,105.4	-882.3	255.9	917.9	0.70	0.00	Last Cathedral Survey @ 8,231' MD
8,286.0	1.10	17.70	8,160.4	-881.3	256.2	917.1	0.00	0.00	Projection to Bit @ 8,286'

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Riverbend 35-19 PBHL	0.00	0.00	8,129.0	-889.2	296.6	1,254,362.08	3,189,056.31	40.029629	-104.824892
- hit/miss target									
- Shape									
- survey misses target center by 47.6ft at 8231.0ft MD (8105.4 TVD, -882.3 N, 255.9 E)									
- Circle (radius 50.0)									

Survey Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
8,231.0	8,105.4	-882.3	255.9	Last Cathedral Survey @ 8,231' MD	
8,286.0	8,160.4	-881.3	256.2	Projection to Bit @ 8,286'	

Checked By: _____ Approved By: _____ Date: _____