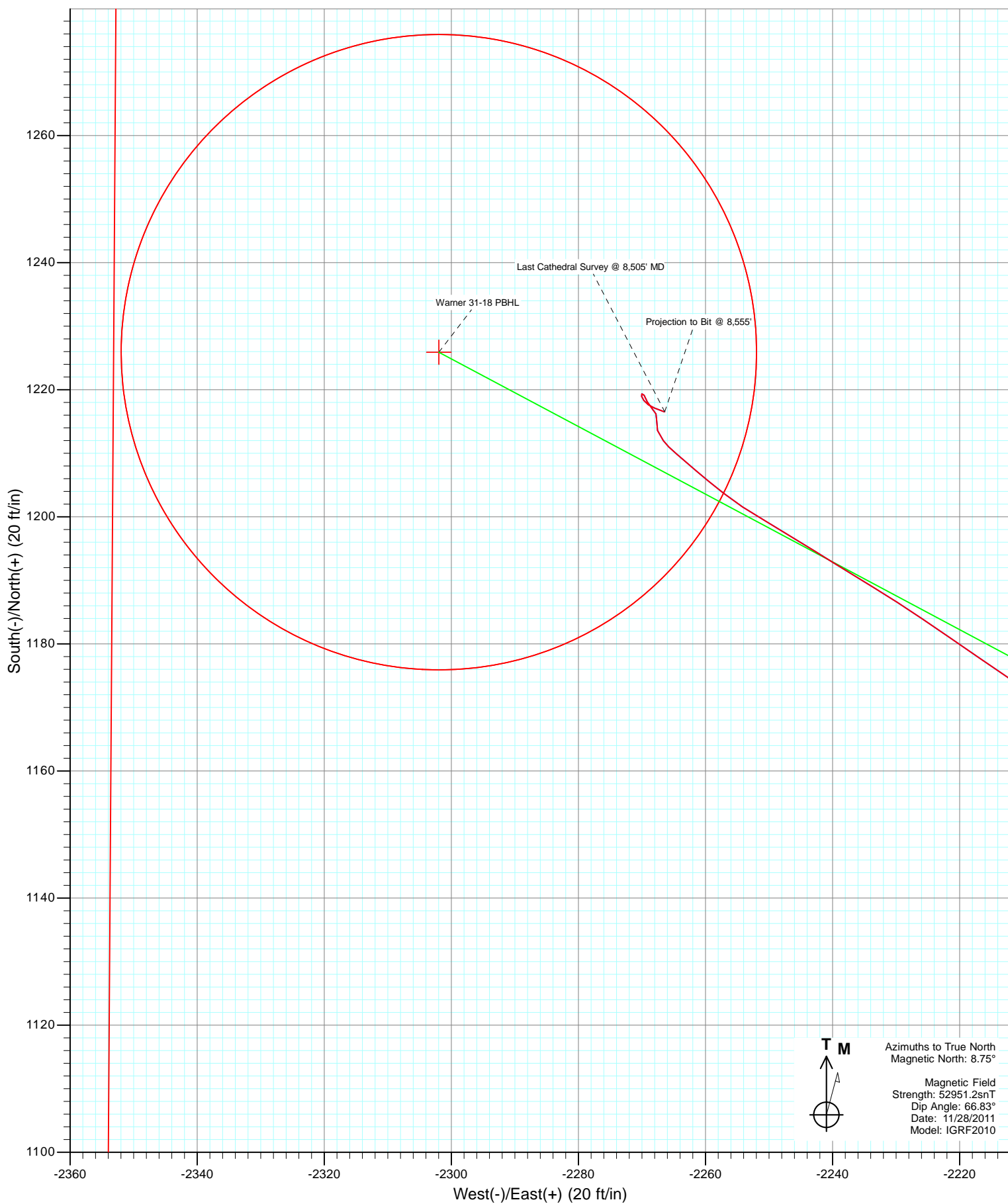


Azimuths to True North
Magnetic North: 8.75°

Magnetic Field
Strength: 52951.2snT
Dip Angle: 66.83°
Date: 11/28/2011
Model: IGRF2010

DD Warner 31-18 115549 123055; LR KBE @ 4998.0ft (Xtreme 14) North American Datum 1983 Well Warner 31-18, True North		Azimuth 298.04		Origin Type Slot	N/S 0.0	E/W 0.0	From TVD 0.0
Name Warner 31-18 PBHL	TVL 7968.0	+N/-S 1225.9	+E/-W -2302.0	Latitude 40.142663	Longitude -104.715692		



Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Warner 31-18
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4998.0ft (Xtreme 14)
Site:	SENW Sec18-T2N-R65W (Warner 25-18)	MD Reference:	KBE @ 4998.0ft (Xtreme 14)
Well:	Warner 31-18	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		SENW Sec18-T2N-R65W (Warner 25-18)			
Site Position:		Northing:	1,294,539.44 ft	Latitude:	40.139180
From:	Lat/Long	Easting:	3,221,562.60 ft	Longitude:	-104.707534
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.51 °

Well	Warner 31-18					
Well Position	+N/-S	0.0 ft	Northing:	1,294,582.62 ft	Latitude:	40.139298
	+E/-W	0.0 ft	Easting:	3,221,583.46 ft	Longitude:	-104.707458
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,983.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/28/2011	8.75	66.83	52,951

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	298.04	

Survey Program	Date	12/5/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
119.0	8,555.0	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		
119.0	0.40	31.00	119.0	0.4	0.2	0.0	0.34	0.34		
212.0	1.80	17.30	212.0	2.0	0.8	0.2	1.52	1.51		
306.0	2.00	349.30	305.9	5.1	0.9	1.5	1.00	0.21		
414.0	2.60	317.90	413.8	8.7	-1.0	5.0	1.27	0.56		
504.0	3.60	304.80	503.7	11.8	-4.7	9.7	1.35	1.11		
593.0	5.50	300.10	592.4	15.6	-10.7	16.8	2.17	2.13		
681.0	7.60	294.20	679.9	20.1	-19.7	26.8	2.50	2.39		
771.0	9.70	294.90	768.8	25.7	-32.0	40.3	2.34	2.33		
860.0	11.50	292.70	856.3	32.3	-47.0	56.6	2.07	2.02		
1,005.0	11.30	295.40	998.4	44.0	-73.1	85.2	0.39	-0.14		
1,094.0	12.00	294.90	1,085.6	51.6	-89.4	103.2	0.79	0.79		
1,184.0	13.40	295.40	1,173.4	60.0	-107.3	122.9	1.56	1.56		

Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Warner 31-18
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4998.0ft (Xtreme 14)
Site:	SENW Sec18-T2N-R65W (Warner 25-18)	MD Reference:	KBE @ 4998.0ft (Xtreme 14)
Well:	Warner 31-18	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
1,273.0	15.30	293.10	1,259.6	69.0	-127.4	144.9	2.23	2.13	
1,363.0	16.90	294.20	1,346.1	79.1	-150.3	169.8	1.81	1.78	
1,451.0	19.30	296.80	1,429.7	90.9	-174.9	197.1	2.88	2.73	
1,540.0	22.30	300.50	1,512.9	106.1	-202.6	228.7	3.68	3.37	
1,630.0	25.30	300.50	1,595.3	124.5	-233.9	265.0	3.33	3.33	
1,716.0	27.40	301.20	1,672.3	144.1	-266.7	303.1	2.47	2.44	
1,803.0	29.90	299.50	1,748.7	165.1	-302.7	344.8	3.02	2.87	
1,891.0	29.90	299.70	1,825.0	186.8	-340.8	388.6	0.11	0.00	
1,980.0	29.40	298.60	1,902.3	208.3	-379.3	432.6	0.83	-0.56	
2,068.0	28.70	298.30	1,979.2	228.6	-416.8	475.4	0.81	-0.80	
2,158.0	30.00	295.50	2,057.7	248.5	-456.2	519.5	2.10	1.44	
2,248.0	29.00	295.00	2,136.0	267.5	-496.3	563.7	1.14	-1.11	
2,337.0	28.20	295.80	2,214.2	285.7	-534.7	606.3	1.00	-0.90	
2,457.0	27.90	296.90	2,320.1	310.8	-585.3	662.7	0.50	-0.25	
2,517.0	27.10	297.10	2,373.3	323.3	-610.0	690.4	1.34	-1.33	
2,606.0	27.30	296.90	2,452.4	341.8	-646.2	731.1	0.25	0.22	
2,696.0	27.60	297.00	2,532.3	360.6	-683.2	772.5	0.34	0.33	
2,785.0	26.90	296.30	2,611.4	378.9	-719.6	813.3	0.87	-0.79	
2,875.0	26.90	299.50	2,691.7	397.9	-755.6	854.0	1.61	0.00	
2,961.0	28.60	300.50	2,767.8	418.0	-790.3	894.0	2.05	1.98	
3,049.0	30.80	301.20	2,844.2	440.3	-827.7	937.6	2.53	2.50	
3,137.0	32.00	299.10	2,919.3	463.3	-867.4	983.4	1.85	1.36	
3,227.0	32.30	300.10	2,995.5	487.0	-909.0	1,031.2	0.68	0.33	
3,315.0	29.00	299.60	3,071.2	509.3	-947.9	1,076.1	3.76	-3.75	
3,404.0	29.20	298.70	3,149.0	530.4	-985.7	1,119.3	0.54	0.22	
3,491.0	28.80	298.00	3,225.1	550.5	-1,022.8	1,161.5	0.60	-0.46	
3,581.0	28.10	296.60	3,304.2	570.1	-1,060.9	1,204.4	1.07	-0.78	
3,667.0	28.10	299.10	3,380.1	589.0	-1,096.7	1,244.9	1.37	0.00	
3,755.0	26.80	294.70	3,458.2	607.4	-1,132.9	1,285.4	2.74	-1.48	
3,845.0	25.80	294.40	3,538.9	624.0	-1,169.1	1,325.2	1.12	-1.11	
3,934.0	27.40	294.80	3,618.5	640.6	-1,205.4	1,365.0	1.81	1.80	
4,023.0	28.60	296.40	3,697.0	658.6	-1,243.0	1,406.7	1.59	1.35	
4,112.0	28.20	295.50	3,775.3	677.2	-1,281.1	1,449.0	0.66	-0.45	
4,202.0	28.80	299.50	3,854.4	697.0	-1,319.2	1,492.0	2.22	0.67	
4,291.0	29.00	301.00	3,932.3	718.7	-1,356.3	1,534.9	0.84	0.22	
4,380.0	27.80	300.00	4,010.6	740.1	-1,392.8	1,577.2	1.45	-1.35	
4,469.0	30.20	296.10	4,088.5	760.4	-1,430.9	1,620.4	3.43	2.70	
4,557.0	30.70	297.30	4,164.3	780.4	-1,470.7	1,664.9	0.89	0.57	
4,644.0	27.70	299.20	4,240.3	800.5	-1,508.1	1,707.4	3.61	-3.45	
4,734.0	24.70	297.00	4,321.0	819.2	-1,543.1	1,747.1	3.50	-3.33	
4,821.0	24.10	294.20	4,400.3	834.8	-1,575.5	1,783.0	1.50	-0.69	
4,910.0	27.40	297.00	4,480.4	851.5	-1,610.4	1,821.6	3.95	3.71	
4,997.0	25.50	297.40	4,558.3	869.2	-1,644.8	1,860.4	2.19	-2.18	
5,086.0	26.00	297.10	4,638.5	886.9	-1,679.2	1,899.0	0.58	0.56	
5,174.0	28.60	296.10	4,716.6	905.0	-1,715.3	1,939.4	3.00	2.95	
5,263.0	28.30	297.80	4,794.9	924.2	-1,753.1	1,981.7	0.97	-0.34	
5,353.0	27.60	297.90	4,874.4	943.9	-1,790.4	2,023.9	0.78	-0.78	
5,442.0	28.60	297.30	4,952.9	963.3	-1,827.5	2,065.8	1.17	1.12	
5,529.0	28.90	297.60	5,029.2	982.6	-1,864.7	2,107.7	0.38	0.34	
5,619.0	26.60	296.80	5,108.8	1,001.8	-1,901.9	2,149.6	2.59	-2.56	
5,707.0	27.50	298.30	5,187.2	1,020.3	-1,937.4	2,189.6	1.28	1.02	
5,797.0	27.30	301.00	5,267.1	1,040.8	-1,973.4	2,231.0	1.40	-0.22	
5,884.0	25.60	298.30	5,345.0	1,059.9	-2,007.0	2,269.7	2.39	-1.95	

Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Warner 31-18
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4998.0ft (Xtreme 14)
Site:	SENW Sec18-T2N-R65W (Warner 25-18)	MD Reference:	KBE @ 4998.0ft (Xtreme 14)
Well:	Warner 31-18	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
5,972.0	24.30	300.30	5,424.8	1,078.1	-2,039.4	2,306.8	1.76	-1.48	
6,060.0	23.50	299.80	5,505.2	1,096.0	-2,070.3	2,342.5	0.94	-0.91	
6,148.0	20.80	299.80	5,586.7	1,112.4	-2,099.1	2,375.6	3.07	-3.07	
6,236.0	17.40	297.90	5,669.9	1,126.4	-2,124.3	2,404.4	3.93	-3.86	
6,324.0	16.30	297.60	5,754.1	1,138.2	-2,146.8	2,429.9	1.25	-1.25	
6,413.0	15.60	297.10	5,839.7	1,149.5	-2,168.5	2,454.4	0.80	-0.79	
6,500.0	13.90	298.30	5,923.8	1,159.8	-2,188.2	2,476.5	1.99	-1.95	
6,589.0	13.40	303.70	6,010.3	1,170.6	-2,206.2	2,497.5	1.54	-0.56	
6,678.0	10.80	304.80	6,097.3	1,181.0	-2,221.6	2,516.0	2.93	-2.92	
6,765.0	8.00	301.30	6,183.1	1,188.8	-2,233.5	2,530.2	3.28	-3.22	
6,855.0	5.90	302.40	6,272.5	1,194.6	-2,242.7	2,541.0	2.34	-2.33	
6,944.0	5.90	300.20	6,361.0	1,199.3	-2,250.5	2,550.1	0.25	0.00	
7,034.0	4.20	308.30	6,450.7	1,203.7	-2,257.1	2,558.0	2.04	-1.89	
7,121.0	3.00	310.70	6,537.5	1,207.2	-2,261.3	2,563.4	1.39	-1.38	
7,211.0	2.40	310.40	6,627.4	1,209.9	-2,264.6	2,567.5	0.67	-0.67	
7,300.0	1.40	323.00	6,716.3	1,212.0	-2,266.6	2,570.3	1.21	-1.12	
7,389.0	1.00	340.40	6,805.3	1,213.6	-2,267.6	2,571.9	0.60	-0.45	
7,478.0	1.30	6.30	6,894.3	1,215.3	-2,267.7	2,572.8	0.67	0.34	
7,567.0	1.10	308.20	6,983.3	1,216.9	-2,268.3	2,574.0	1.32	-0.22	
7,655.0	1.00	341.00	7,071.3	1,218.1	-2,269.2	2,575.4	0.68	-0.11	
7,745.0	0.50	323.10	7,161.3	1,219.2	-2,269.7	2,576.4	0.61	-0.56	
7,834.0	0.20	229.10	7,250.3	1,219.4	-2,270.0	2,576.8	0.62	-0.34	
7,922.0	0.40	162.90	7,338.2	1,219.0	-2,270.0	2,576.6	0.42	0.23	
8,009.0	0.60	145.40	7,425.2	1,218.3	-2,269.7	2,576.0	0.29	0.23	
8,096.0	0.70	122.00	7,512.2	1,217.7	-2,269.0	2,575.1	0.32	0.11	
8,186.0	0.70	115.10	7,602.2	1,217.1	-2,268.0	2,574.0	0.09	0.00	
8,276.0	0.60	104.60	7,692.2	1,216.8	-2,267.1	2,572.9	0.17	-0.11	
8,363.0	0.10	190.00	7,779.2	1,216.6	-2,266.6	2,572.5	0.69	-0.57	
8,451.0	0.20	82.20	7,867.2	1,216.5	-2,266.5	2,572.3	0.28	0.11	
8,505.0	0.00	225.70	7,921.2	1,216.5	-2,266.4	2,572.3	0.37	-0.37	Last Cathedral Survey @ 8,505' MD
8,555.0	0.00	225.70	7,971.2	1,216.5	-2,266.4	2,572.3	0.00	0.00	Projection to Bit @ 8,555'

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									
Warner 31-18 PBHL	0.00	0.00	7,968.0	1,225.9	-2,302.0	1,295,787.92	3,219,270.63	40.142663	-104.715692
- survey misses target center by 36.8ft at 8551.8ft MD (7968.0 TVD, 1216.5 N, -2266.4 E)									
- Circle (radius 50.0)									

Survey Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
8,505.0	7,921.2	1,216.5	-2,266.4	Last Cathedral Survey @ 8,505' MD	
8,555.0	7,971.2	1,216.5	-2,266.4	Projection to Bit @ 8,555'	

Checked By: _____ Approved By: _____ Date: _____