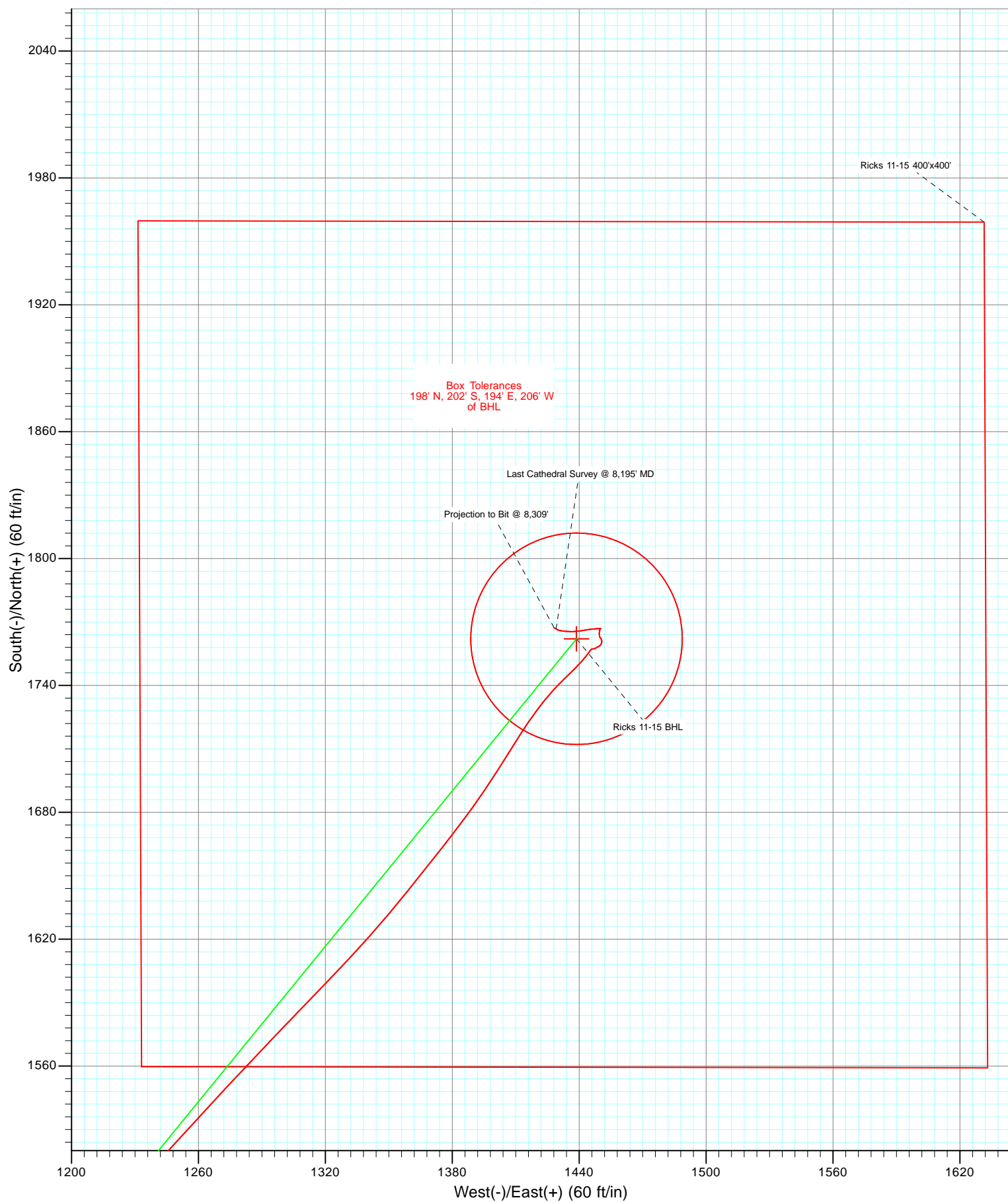


Azimuths to True North
Magnetic North: 8.76°

Magnetic Field
Strength: 52984.8snT
Dip Angle: 66.85°
Date: 8/12/2011
Model: IGRF2010

DD Ricks 11-15 115319; 97656; BH KBE @ 4897.0ft (Xtreme 14) North American Datum 1983 Well Ricks 11-15, True North					
Type	Target	Azimuth	Origin Type	N/S	E/W
Target	Ricks 11-15 BHL	39.23	Slot	0.0	0.0
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
Ricks 11-15 TGT	6380.0	1762.1	1438.8	40.136826	-104.652520
Ricks 11-15 BHL	7765.0	1762.1	1438.8	40.136826	-104.652520



Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Ricks 11-15
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4897.0ft (Xtreme 14)
Site:	SWSW Sec15-2N-R65W (Ricks)	MD Reference:	KBE @ 4897.0ft (Xtreme 14)
Well:	Ricks 11-15	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 Sec15-2N-R65W (Ricks)			
Site Position:		Northing:	1,292,048.25 ft	Latitude:	40.131989
From:	Lat/Long	Easting:	3,235,497.23 ft	Longitude:	-104.657780
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.54 °

Well	Ricks 11-15					
Well Position	+N/-S	0.0 ft	Northing:	1,292,048.53 ft	Latitude:	40.131989
	+E/-W	0.0 ft	Easting:	3,235,529.10 ft	Longitude:	-104.657666
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,875.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/12/2011	8.76	66.85	52,985

Design	DD			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	39.23

Survey Program	Date	8/24/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
90.0	8,309.0	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	0.70	294.10	90.0	0.2	-0.5	-0.1	0.78	0.78		
184.0	1.90	15.80	184.0	2.0	-0.6	1.1	2.05	1.28		
277.0	3.50	43.90	276.9	5.5	1.8	5.4	2.18	1.72		
370.0	5.20	47.70	369.6	10.4	6.9	12.4	1.85	1.83		
460.0	6.30	41.10	459.2	16.8	13.1	21.3	1.42	1.22		
550.0	9.50	42.80	548.3	26.0	21.4	33.7	3.56	3.56		
637.0	10.30	41.70	634.0	37.1	31.5	48.6	0.94	0.92		
727.0	12.70	38.00	722.2	50.9	42.9	66.6	2.79	2.67		
815.0	13.90	38.20	807.8	66.8	55.4	86.8	1.36	1.36		
880.0	14.60	38.50	870.8	79.4	65.3	102.8	1.08	1.08		
978.0	14.00	36.80	965.8	98.5	80.1	127.0	0.75	-0.61		
1,066.0	14.20	40.90	1,051.1	115.2	93.6	148.4	1.16	0.23		

Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Ricks 11-15
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4897.0ft (Xtreme 14)
Site:	SWSW Sec15-2N-R65W (Ricks)	MD Reference:	KBE @ 4897.0ft (Xtreme 14)
Well:	Ricks 11-15	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
1,155.0	15.40	43.30	1,137.2	132.1	108.8	171.1	1.51	1.35	
1,244.0	16.10	45.00	1,222.8	149.4	125.7	195.2	0.94	0.79	
1,333.0	17.60	44.40	1,308.0	167.7	143.8	220.9	1.70	1.69	
1,422.0	20.20	41.20	1,392.2	188.9	163.3	249.6	3.14	2.92	
1,510.0	22.60	42.80	1,474.1	212.7	184.8	281.7	2.81	2.73	
1,598.0	24.60	40.10	1,554.8	239.2	208.1	316.9	2.58	2.27	
1,685.0	26.30	39.50	1,633.3	267.9	232.1	354.3	1.98	1.95	
1,773.0	27.40	39.40	1,711.8	298.6	257.3	394.0	1.25	1.25	
1,860.0	29.30	40.00	1,788.4	330.4	283.7	435.3	2.21	2.18	
1,948.0	30.60	39.10	1,864.6	364.2	311.7	479.3	1.56	1.48	
2,035.0	32.40	37.60	1,938.8	399.9	339.9	524.7	2.26	2.07	
2,123.0	31.80	37.30	2,013.4	437.0	368.3	571.4	0.71	-0.68	
2,209.0	32.60	37.70	2,086.1	473.4	396.2	617.3	0.96	0.93	
2,299.0	33.10	38.10	2,161.8	511.9	426.2	666.1	0.61	0.56	
2,389.0	33.00	41.20	2,237.2	549.7	457.5	715.1	1.88	-0.11	
2,476.0	31.80	39.90	2,310.7	585.1	487.8	761.7	1.59	-1.38	
2,562.0	32.50	41.50	2,383.5	619.8	517.7	807.5	1.28	0.81	
2,652.0	31.50	40.00	2,459.8	655.9	548.8	855.1	1.42	-1.11	
2,741.0	31.60	41.90	2,535.6	691.1	579.3	901.7	1.12	0.11	
2,831.0	32.00	41.00	2,612.1	726.6	610.7	949.1	0.69	0.44	
2,921.0	30.20	40.90	2,689.2	761.7	641.2	995.5	2.00	-2.00	
3,009.0	31.40	39.70	2,764.8	796.1	670.3	1,040.6	1.53	1.36	
3,098.0	31.60	38.40	2,840.7	832.2	699.6	1,087.1	0.80	0.22	
3,186.0	33.50	38.30	2,914.8	869.3	729.0	1,134.4	2.16	2.16	
3,275.0	33.00	38.40	2,989.3	907.6	759.3	1,183.2	0.57	-0.56	
3,361.0	34.20	36.80	3,060.9	945.3	788.3	1,230.8	1.73	1.40	
3,451.0	32.60	36.60	3,136.0	985.0	817.9	1,280.3	1.78	-1.78	
3,539.0	32.20	38.00	3,210.3	1,022.5	846.5	1,327.4	0.97	-0.45	
3,625.0	32.20	37.00	3,283.1	1,058.9	874.4	1,373.2	0.62	0.00	
3,718.0	31.20	35.70	3,362.2	1,098.3	903.3	1,422.0	1.30	-1.08	
3,808.0	31.30	35.40	3,439.2	1,136.2	930.5	1,468.6	0.21	0.11	
3,896.0	31.60	36.40	3,514.2	1,173.4	957.4	1,514.4	0.68	0.34	
3,985.0	31.80	37.80	3,590.0	1,210.7	985.6	1,561.2	0.86	0.22	
4,075.0	31.40	37.30	3,666.6	1,248.1	1,014.3	1,608.3	0.53	-0.44	
4,163.0	32.60	37.10	3,741.3	1,285.3	1,042.5	1,654.9	1.37	1.36	
4,251.0	32.70	39.50	3,815.3	1,322.5	1,072.0	1,702.4	1.48	0.11	
4,341.0	33.80	40.30	3,890.6	1,360.4	1,103.6	1,751.7	1.32	1.22	
4,427.0	32.70	40.60	3,962.5	1,396.2	1,134.2	1,798.9	1.29	-1.28	
4,517.0	30.80	42.50	4,039.1	1,431.7	1,165.6	1,846.2	2.39	-2.11	
4,605.0	29.30	42.50	4,115.2	1,464.2	1,195.4	1,890.2	1.70	-1.70	
4,693.0	26.70	41.80	4,192.9	1,494.8	1,223.1	1,931.4	2.98	-2.95	
4,782.0	24.00	42.40	4,273.3	1,523.1	1,248.6	1,969.5	3.05	-3.03	
4,872.0	24.10	42.90	4,355.5	1,550.1	1,273.5	2,006.1	0.25	0.11	
4,962.0	22.10	43.70	4,438.3	1,575.8	1,297.7	2,041.3	2.25	-2.22	
5,051.0	20.70	44.10	4,521.2	1,599.2	1,320.2	2,073.7	1.58	-1.57	
5,141.0	19.00	41.60	4,605.8	1,621.5	1,341.0	2,104.2	2.11	-1.89	
5,229.0	17.90	38.70	4,689.3	1,642.8	1,359.0	2,132.0	1.63	-1.25	
5,318.0	15.60	38.10	4,774.5	1,662.9	1,374.9	2,157.6	2.59	-2.58	
5,408.0	13.50	36.20	4,861.6	1,680.9	1,388.6	2,180.2	2.39	-2.33	
5,497.0	12.10	32.70	4,948.4	1,697.1	1,399.8	2,199.9	1.80	-1.57	
5,585.0	9.70	31.70	5,034.8	1,711.2	1,408.6	2,216.4	2.74	-2.73	
5,674.0	8.20	34.60	5,122.7	1,722.8	1,416.2	2,230.2	1.76	-1.69	
5,763.0	6.80	38.60	5,211.0	1,732.2	1,423.1	2,241.8	1.68	-1.57	

Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Ricks 11-15
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4897.0ft (Xtreme 14)
Site:	SWSW Sec15-2N-R65W (Ricks)	MD Reference:	KBE @ 4897.0ft (Xtreme 14)
Well:	Ricks 11-15	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
5,851.0	5.80	43.00	5,298.4	1,739.5	1,429.4	2,251.4	1.26	-1.14	
5,941.0	4.30	49.60	5,388.1	1,745.0	1,435.0	2,259.3	1.78	-1.67	
6,029.0	3.60	40.00	5,475.9	1,749.3	1,439.3	2,265.3	1.09	-0.80	
6,117.0	2.40	41.90	5,563.8	1,752.7	1,442.3	2,269.9	1.37	-1.36	
6,205.0	1.60	33.60	5,651.7	1,755.1	1,444.2	2,272.9	0.96	-0.91	
6,291.0	1.10	38.60	5,737.7	1,756.8	1,445.4	2,275.0	0.60	-0.58	
6,378.0	0.90	102.30	5,824.7	1,757.3	1,446.6	2,276.1	1.23	-0.23	
6,464.0	0.60	46.40	5,910.7	1,757.5	1,447.6	2,276.9	0.87	-0.35	
6,554.0	0.60	65.70	6,000.7	1,758.0	1,448.4	2,277.7	0.22	0.00	
6,640.0	0.50	55.40	6,086.7	1,758.4	1,449.1	2,278.5	0.16	-0.12	
6,729.0	0.40	65.80	6,175.7	1,758.7	1,449.7	2,279.2	0.14	-0.11	
6,819.0	0.80	33.70	6,265.7	1,759.4	1,450.3	2,280.1	0.56	0.44	
6,908.0	0.40	356.00	6,354.7	1,760.2	1,450.6	2,280.9	0.61	-0.45	
6,998.0	0.40	35.70	6,444.7	1,760.8	1,450.8	2,281.4	0.30	0.00	
7,088.0	1.00	327.90	6,534.7	1,761.7	1,450.6	2,282.0	1.03	0.67	
7,176.0	1.00	329.40	6,622.6	1,763.0	1,449.8	2,282.5	0.03	0.00	
7,265.0	1.10	9.80	6,711.6	1,764.5	1,449.5	2,283.5	0.82	0.11	
7,353.0	1.20	11.00	6,799.6	1,766.2	1,449.8	2,285.1	0.12	0.11	
7,443.0	0.30	150.10	6,889.6	1,767.0	1,450.1	2,285.8	1.60	-1.00	
7,577.0	0.20	342.60	7,023.6	1,766.9	1,450.2	2,285.8	0.37	-0.07	
7,664.0	1.90	263.90	7,110.6	1,766.9	1,448.8	2,284.9	2.15	1.95	
7,752.0	3.20	264.90	7,198.5	1,766.5	1,444.9	2,282.1	1.48	1.48	
7,840.0	2.30	253.70	7,286.4	1,765.8	1,440.7	2,279.0	1.19	-1.02	
7,929.0	3.00	273.10	7,375.3	1,765.4	1,436.7	2,276.1	1.27	0.79	
8,018.0	2.60	275.90	7,464.2	1,765.7	1,432.3	2,273.6	0.47	-0.45	
8,106.0	0.60	301.20	7,552.2	1,766.2	1,430.0	2,272.5	2.36	-2.27	
8,195.0	0.60	300.20	7,641.1	1,766.7	1,429.2	2,272.3	0.01	0.00	Last Cathedral Survey @ 8,195' MD
8,309.0	0.60	300.20	7,755.1	1,767.3	1,428.1	2,272.1	0.00	0.00	Projection to Bit @ 8,309'

Targets									
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	
- Shape									Latitude Longitude
Ricks 11-15 TGT		0.00	0.00	6,380.0	1,762.1	1,438.8	1,293,824.20	3,236,951.08	40.136826 -104.652520
- survey misses target center by 12.0ft at 6933.3ft MD (6380.0 TVD, 1760.4 N, 1450.6 E)									
- Point									
Ricks 11-15 BHL		0.00	0.00	7,765.0	1,762.1	1,438.8	1,293,824.20	3,236,951.08	40.136826 -104.652520
- survey misses target center by 15.4ft at 8309.0ft MD (7755.1 TVD, 1767.3 N, 1428.1 E)									
- Circle (radius 50.0)									

Survey Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
8,195.0	7,641.1	1,766.7	1,429.2	Last Cathedral Survey @ 8,195' MD	
8,309.0	7,755.1	1,767.3	1,428.1	Projection to Bit @ 8,309'	

Checked By: _____ Approved By: _____ Date: _____