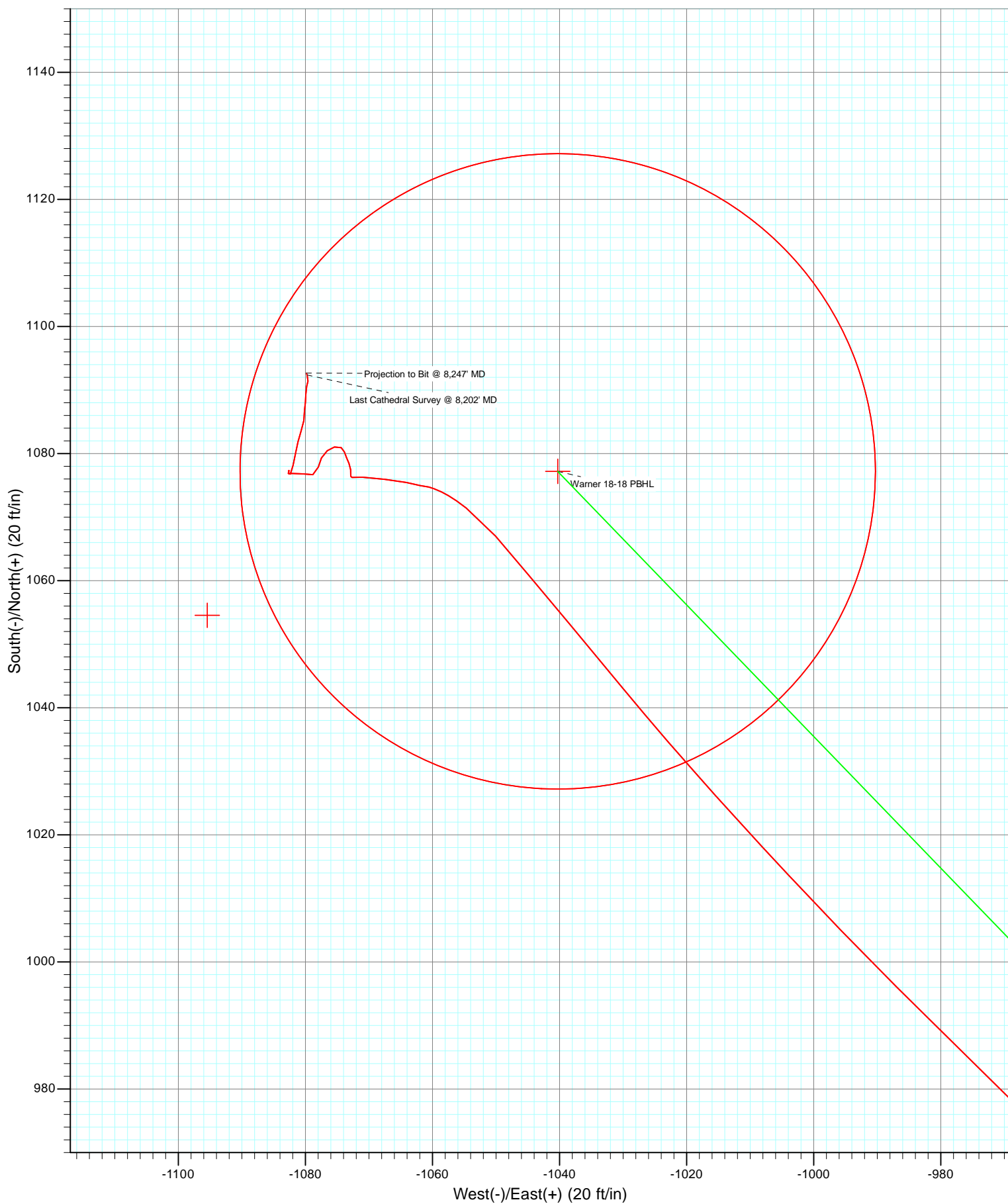


DD Warner 18-18 115xxx; LR KBE @ 4998.0ft (Xtreme 14) North American Datum 1983 Well Warner 18-18, True North							
Type	Target	Azimuth	Origin	Type	N/S	E/W	From TVD
Target	Warner 18-18 PBHL	316.00	Slot		0.0	0.0	0.0
Name	Warner 18-18 800'x800' Legal Box	TVD	+N/-S	+E/-W	Latitude	Longitude	
		-7968.0	1054.6	-1095.4	40.142232	-104.711351	
	Warner 18-18 PBHL	7968.0	1077.2	-1040.3	40.142294	-104.711154	



Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Warner 18-18
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 18-18	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 18-18					
Well Position	+N/-S	0.0 ft	Northing:	1,294,596.89 ft	Latitude:	40.139337
	+E/-W	0.0 ft	Easting:	3,221,590.32 ft	Longitude:	-104.707433
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	11/2/2011	8.76	66.84	52,959

Design	DD				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	316.00	

Survey Program	Date	12/11/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
119.0	8,247.0	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	0.30	151.20	119.0	-0.3	0.2	-0.3	0.25	0.25		
212.0	0.90	8.30	212.0	0.2	0.4	-0.1	1.24	0.65		
306.0	2.10	346.50	306.0	2.6	0.1	1.8	1.39	1.28		
412.0	4.40	329.40	411.8	8.0	-2.4	7.5	2.33	2.17		
502.0	5.90	325.20	501.4	14.8	-6.8	15.4	1.72	1.67		
592.0	8.00	329.00	590.8	24.0	-12.7	26.1	2.39	2.33		
681.0	10.20	324.50	678.6	35.7	-20.5	39.9	2.60	2.47		
771.0	12.10	319.20	766.9	49.3	-31.3	57.2	2.40	2.11		
880.0	14.20	317.80	873.1	67.9	-47.7	82.0	1.95	1.93		
961.0	13.80	315.30	951.7	82.1	-61.2	101.6	0.90	-0.49		
1,050.0	14.80	315.30	1,037.9	97.7	-76.6	123.5	1.12	1.12		
1,139.0	16.40	314.00	1,123.6	114.5	-93.7	147.5	1.84	1.80		

Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Warner 18-18
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 18-18	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
1,228.0	18.80	313.50	1,208.4	133.1	-113.1	174.4	2.70	2.70	
1,317.0	19.30	316.00	1,292.6	153.6	-133.7	203.4	1.08	0.56	
1,405.0	21.40	314.20	1,375.1	175.2	-155.4	234.0	2.49	2.39	
1,494.0	23.20	313.30	1,457.4	198.6	-179.8	267.7	2.06	2.02	
1,584.0	25.80	315.30	1,539.3	224.7	-206.4	305.0	3.03	2.89	
1,673.0	25.80	314.70	1,619.4	252.1	-233.8	343.8	0.29	0.00	
1,761.0	25.00	315.70	1,698.9	278.8	-260.4	381.5	1.03	-0.91	
1,850.0	24.10	313.70	1,779.9	304.9	-286.7	418.5	1.38	-1.01	
1,938.0	23.10	313.60	1,860.5	329.2	-312.2	453.7	1.14	-1.14	
2,026.0	21.20	314.60	1,942.0	352.3	-336.0	486.8	2.20	-2.16	
2,116.0	22.10	311.00	2,025.7	374.8	-360.4	520.0	1.78	1.00	
2,204.0	22.90	313.50	2,107.0	397.4	-385.3	553.6	1.42	0.91	
2,292.0	22.60	315.80	2,188.1	421.3	-409.5	587.6	1.07	-0.34	
2,381.0	22.60	313.30	2,270.3	445.3	-433.9	621.8	1.08	0.00	
2,471.0	22.90	317.30	2,353.3	470.1	-458.3	656.5	1.75	0.33	
2,559.0	23.50	316.10	2,434.2	495.3	-482.1	691.2	0.87	0.68	
2,648.0	23.70	312.20	2,515.8	520.1	-507.7	726.8	1.77	0.22	
2,735.0	22.40	316.40	2,595.8	543.8	-532.1	760.8	2.41	-1.49	
2,825.0	24.00	318.70	2,678.5	570.0	-556.0	796.3	2.04	1.78	
2,912.0	24.20	316.10	2,758.0	596.2	-580.0	831.8	1.24	0.23	
3,000.0	24.20	310.10	2,838.2	620.8	-606.3	867.7	2.79	0.00	
3,088.0	26.00	310.50	2,917.9	644.9	-634.8	904.9	2.05	2.05	
3,177.0	26.80	312.30	2,997.6	671.1	-664.5	944.3	1.27	0.90	
3,266.0	25.80	314.10	3,077.4	698.1	-693.2	983.7	1.44	-1.12	
3,356.0	25.00	313.20	3,158.7	724.7	-721.1	1,022.3	0.99	-0.89	
3,444.0	24.10	314.30	3,238.8	750.0	-747.6	1,058.8	1.15	-1.02	
3,533.0	23.50	316.40	3,320.2	775.5	-772.8	1,094.7	1.17	-0.67	
3,621.0	24.10	314.70	3,400.7	800.9	-797.7	1,130.2	1.04	0.68	
3,710.0	21.80	316.10	3,482.7	825.6	-822.1	1,164.9	2.66	-2.58	
3,799.0	20.00	318.60	3,565.8	848.9	-843.6	1,196.7	2.26	-2.02	
3,887.0	20.00	315.10	3,648.5	870.9	-864.2	1,226.7	1.36	0.00	
3,976.0	19.40	315.90	3,732.3	892.3	-885.2	1,256.7	0.74	-0.67	
4,065.0	21.10	317.50	3,815.8	914.7	-906.3	1,287.5	2.01	1.91	
4,155.0	20.70	315.20	3,899.9	937.9	-928.4	1,319.6	1.01	-0.44	
4,244.0	18.80	315.20	3,983.6	959.3	-949.6	1,349.7	2.13	-2.13	
4,332.0	17.10	314.10	4,067.4	978.3	-968.9	1,376.8	1.97	-1.93	
4,419.0	16.60	315.00	4,150.6	996.0	-986.9	1,402.0	0.65	-0.57	
4,508.0	15.70	317.00	4,236.1	1,013.8	-1,004.1	1,426.8	1.19	-1.01	
4,597.0	12.70	318.50	4,322.4	1,029.9	-1,018.8	1,448.6	3.40	-3.37	
4,686.0	9.80	320.60	4,409.7	1,043.1	-1,030.1	1,465.9	3.29	-3.26	
4,773.0	7.10	320.10	4,495.7	1,053.0	-1,038.2	1,478.7	3.10	-3.10	
4,863.0	6.00	320.10	4,585.1	1,060.9	-1,044.8	1,488.9	1.22	-1.22	
4,952.0	4.40	319.10	4,673.7	1,067.0	-1,050.0	1,497.0	1.80	-1.80	
5,040.0	4.00	307.70	4,761.5	1,071.4	-1,054.7	1,503.4	1.05	-0.45	
5,128.0	2.10	294.70	4,849.4	1,074.0	-1,058.6	1,507.9	2.28	-2.16	
5,215.0	0.70	278.80	4,936.4	1,074.7	-1,060.5	1,509.8	1.65	-1.61	
5,304.0	1.10	281.00	5,025.3	1,075.0	-1,061.9	1,510.9	0.45	0.45	
5,392.0	1.80	283.10	5,113.3	1,075.4	-1,064.1	1,512.8	0.80	0.80	
5,480.0	2.70	275.40	5,201.2	1,076.0	-1,067.5	1,515.5	1.08	1.02	
5,570.0	1.80	275.80	5,291.2	1,076.3	-1,071.0	1,518.2	1.00	-1.00	
5,660.0	0.40	231.00	5,381.2	1,076.2	-1,072.7	1,519.3	1.71	-1.56	
5,749.0	0.50	9.70	5,470.2	1,076.4	-1,072.9	1,519.6	0.95	0.11	
5,839.0	0.80	352.50	5,560.2	1,077.4	-1,072.9	1,520.3	0.39	0.33	

Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Warner 18-18
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 18-18	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
5,927.0	0.60	336.20	5,648.1	1,078.5	-1,073.1	1,521.2	0.32	-0.23	
6,013.0	0.60	335.90	5,734.1	1,079.3	-1,073.5	1,522.1	0.00	0.00	
6,102.0	0.70	343.40	5,823.1	1,080.2	-1,073.8	1,523.0	0.15	0.11	
6,192.0	0.50	295.60	5,913.1	1,080.9	-1,074.4	1,523.9	0.58	-0.22	
6,281.0	0.90	264.20	6,002.1	1,081.0	-1,075.4	1,524.7	0.61	0.45	
6,369.0	0.90	222.10	6,090.1	1,080.5	-1,076.6	1,525.0	0.73	0.00	
6,457.0	1.00	215.70	6,178.1	1,079.3	-1,077.5	1,524.9	0.17	0.11	
6,547.0	1.00	181.80	6,268.1	1,077.9	-1,077.9	1,524.2	0.65	0.00	
6,636.0	1.20	243.20	6,357.1	1,076.7	-1,078.8	1,523.9	1.28	0.22	
6,726.0	1.10	309.10	6,447.1	1,076.8	-1,080.3	1,525.0	1.39	-0.11	
6,815.0	1.40	243.20	6,536.0	1,076.9	-1,081.9	1,526.2	1.55	0.34	
6,904.0	0.70	26.70	6,625.0	1,076.9	-1,082.7	1,526.7	2.25	-0.79	
6,994.0	0.20	267.10	6,715.0	1,077.3	-1,082.6	1,527.0	0.91	-0.56	
7,082.0	0.60	171.30	6,803.0	1,076.9	-1,082.7	1,526.7	0.74	0.45	
7,170.0	0.60	31.40	6,891.0	1,076.8	-1,082.4	1,526.5	1.28	0.00	
7,259.0	1.20	12.10	6,980.0	1,078.1	-1,081.9	1,527.1	0.75	0.67	
7,346.0	1.30	10.90	7,067.0	1,080.0	-1,081.5	1,528.2	0.12	0.11	
7,434.0	1.20	12.30	7,155.0	1,081.9	-1,081.2	1,529.3	0.12	-0.11	
7,522.0	1.10	20.90	7,242.9	1,083.6	-1,080.7	1,530.1	0.23	-0.11	
7,611.0	1.10	7.80	7,331.9	1,085.2	-1,080.2	1,531.0	0.28	0.00	
7,701.0	0.90	359.50	7,421.9	1,086.8	-1,080.1	1,532.1	0.27	-0.22	
7,790.0	0.80	12.70	7,510.9	1,088.1	-1,080.0	1,532.9	0.25	-0.11	
7,880.0	0.90	355.70	7,600.9	1,089.4	-1,079.9	1,533.8	0.30	0.11	
7,968.0	0.70	18.20	7,688.9	1,090.6	-1,079.8	1,534.6	0.42	-0.23	
8,057.0	0.40	7.70	7,777.9	1,091.4	-1,079.6	1,535.0	0.35	-0.34	
8,202.0	0.40	337.20	7,922.9	1,092.4	-1,079.7	1,535.8	0.15	0.00	Last Cathedral Survey @ 8,202' MD
8,247.0	0.40	337.20	7,967.9	1,092.7	-1,079.8	1,536.1	0.00	0.00	Projection to Bit @ 8,247' MD

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 18-18 PBHL	0.00	0.00	7,968.0	1,077.2	-1,040.3	1,295,664.76	3,220,540.46	40.142294	-104.711154
- survey misses target center by 42.5ft at 8246.9ft MD (7967.8 TVD, 1092.7 N, -1079.8 E)									
- Circle (radius 50.0)									
Warner 18-18 800'x800'	0.00	0.00	-7,968.0	1,054.6	-1,095.4	1,295,641.61	3,220,485.51	40.142232	-104.711351
- survey misses target center by 8111.8ft at 0.0ft MD (0.0 TVD, 0.0 N, 0.0 E)									
- Rectangle (sides W800.0 H800.0 D0.0)									

Survey Annotations

	Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
			+N/-S (ft)	+E/-W (ft)	
	8,202.0	7,922.9	1,092.4	-1,079.7	Last Cathedral Survey @ 8,202' MD
	8,247.0	7,967.9	1,092.7	-1,079.8	Projection to Bit @ 8,247' MD

Checked By: _____ Approved By: _____ Date: _____