



Cathedral Energy Services  
1949 North Pyrite Road  
Casper, Wyoming 82604

**145459**

5":100' - TVD

12/9/2014 2:03:04 PM

**CATHEDRAL**

**Oper. Company:** EnCana Oil & Gas (USA) Inc.

**Country:** U.S.A.

**State / Province:** Colorado

**County / Parish:** Weld

**Started:** 11/30/2014 08:30 PM

**API/UWI:** 05-123-36891

**Field:** Wattenberg (Codell)

**Well:** Billings 3F-18H-L368

**Rig:** Patterson Drilling 326

**Ended:** 12/08/2014 04:30 PM

Gamma Ray  
Section Plane: 90.00  
Magnetic North: 8.63  
Gamma Attenuation Factor: 2.86  
Gamma Averaging: 7%

### Personnel

**Day Hand:** M. Andrew

**Night Hand:** T. Kapsh

**Comp. Emp:** Norman McCreary

Maximum Temperature: 224°F

### Location

**Latitude:** 40.222594

**Longitude:** -105.051741

**Elev. GL:** 5156

**Elev. DF:**

**Elev. KB:** 5188

Log and Survey Depths Relative to Kelly Bushing (KB) Depth

### Hole Data

Size	From	To
12-1/4	0	888
8-3/4	888	7620
6-1/8	7629	14170

### Casing Data

Size	From	To
9-5/8	0	888
7	0	7620
4-1/2	0	14170

### Bit Sizes

Size	From	To
12-1/4	0	888
8-3/4	888	7620
6-1/8	7620	14170

### Mud Data

Type	Weight	Density	Viscosity	Rm	Rmf	Rmc	From	To
Water Base	10.9		41				5000	7620
Water Base	12.1		43				7620	13055
Water Base	12.5		43				13055	13113
Water Base	12.5		43				13113	13113
Water Base	12.7		41				13113	14170

### Tool Run Data

Serial Number	Gamma Offset	Resist. Offset	Start Time	Start Depth	End Time	End Depth
2008	35.93	0	11/30/2014 8:30:10 AM	5000	12/3/2014 3:30:10 AM	7620
1461	38.2	0	12/4/2014 3:30:06 AM	7620	12/6/2014 11:00:06 PM	13055
1461	37.44	0	12/6/2014 11:30:49 PM	13055	12/7/2014 1:00:49 PM	13113
1354	40.02	0	12/7/2014 2:00:12 PM	13113	12/7/2014 11:00:12 PM	13113
2001	40.02	0	12/7/2014 11:30:39 PM	13113	12/8/2014 4:30:39 PM	14170

*All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not except in the case of gross or willful negligence on our part, be liable or responsible for any loss, cost damages or expenses incurred or sustained by anyone resulting from an interpretation made by any of our officers, agents, or employees.*

0.00      Gamma Ray (API)      150.00  
150.00      2      300.00

TVD      0.00      ROP (FT/HR)      600.00  
FT





















