

## **Structural Compartmentalization of the Turner Valley Formation at Moose Mountain, Alberta as Indicated by Water Analysis and Hydrogeology**

Andrew C. Newson , Moose Oils Ltd.  
and  
Richard Bartlett Hydro-Fax Resources Ltd.

### **ABSTRACT**

The Moose Mountain structure is a Laramide aged duplex of Paleozoic rock in the Foothills of the Western Canadian Sedimentary Basin, 100 kilometers SW of Calgary, Alberta. It is expressed at the surface by a Paleozoic outlier called the Moose Dome. This is an elongated dome of outcropping Paleozoic carbonate rocks surrounded by Lower Cretaceous clastic rocks. It has a NW to SE orientation and forms a significant topographic high.

The Moose Dome contains a large oil and gas condensate pool. The in place oil and gas reserves are in the order of 500 bcf and 50 mm bbls. The field has been on production for over 12 years and this production history plus recent drilling has shown that it is divided up into four different pools in the Mississippian aged Turner Valley formation. This structural compartmentalization of the reservoir is directly linked to the complex tectonic history of the field.

By looking at the detailed testing history of one of the wells, 2-27-23-7W5M, it is possible to understand some of the complexities of the structure. This well is one of seven commercial oil and gas well in the field. It produced very ambiguous results during testing due to structural compartmentalization of the reservoir. By relating this test data to the regional understanding of structural style and hydrogeology it is possible to understand this structural compartmentalization and use it to complete other wells successfully in similar structures in the Foothills.