

A Comparison of Two Plays: Mud-Mounds of the Seal Area and the Normandville Area, North Central Alberta

Breanne Graham*

University of Calgary, Calgary, Alberta, Canada
blgraham@ucalgary.ca

Federico Krause

University of Calgary, Calgary, Alberta, Canada

Abstract

Since the discovery of Waulsortian mud-mounds in the Pekisko Formation in the Seal Area, North-central Alberta, the oil and gas industry has had an interesting yet disappointing play. While the Waulsortian mud-mounds contain porous core and flank facies and are capped by shale, drilling a producing Waulsortian mud-mound has had about a one in four chance of succeeding. Factors that hinder production in the Seal Area include not only heavy oil but Waulsortian mud-mounds that are tight or produce water. Recently, Waulsortian mud-mounds were discovered to the West of the Seal Area, around Normandville and these mud-mounds produce light crude.

In order to understand factors that contribute to petroleum producing Waulsortian mud-mounds, it is necessary to compare and contrast the similarities and differences between the two areas. The Waulsortian mud-mounds in both areas have biologically influenced, diagenetically enhanced porosity, as well as permeability resulting from fracturing and dissolution. The Normandville Waulsortian mud-mounds differ slightly from the Seal Area mounds in diagenetic history as they contain late stage anhydrite. The Seal Area mounds are also more clearly biologically zoned. Factors such as diagenesis, biology, and facies occurrence influence the characteristics of Waulsortian mud-mounds and should be taken into consideration when looking at future plays of this type. In addition to these factors, the overall location of the Waulsortian mud-mounds and their growth trends may point to other new areas in Alberta where Waulsortian mud-mound exploration maybe possible.