

## **Analysis and Classification of Regional Encrinites: The Stratigraphy, Composition, and Detailed Sedimentology of Regional Encrinites within the Joana and Lodgepole Limestones in the Western U.S.**

By

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Regional encrinites (pelmatozoan rich lithologic units greater than 5 m in thickness that extend over at least 500 km<sup>2</sup> (Ausich, 1997)) typically form in shelf settings of shallow to moderate depth. The bioclastic composition, large areal extent and relatively thick nature of these deposits make them excellent candidates for hydrocarbon reservoirs given the proper conditions. Indeed, regional encrinites are important components of the reservoirs in the Williston basin and North Slope regions in North America, but have not been recognized as such in these areas, possibly because the concept of regional encrinites is a recent addition to the sedimentologic literature.

Although there are many examples of regional encrinites from around the world (e.g. the Lodgepole, Joana, and Burlington-Keokuk limestones of N. America, the Muschelkalk of Germany, and Smolegowa ls. of Poland to name a few) the physical and biological processes governing their formation are poorly understood. In addition, there is no classification scheme that describes the variation in the internal characteristics of regional encrinites. Therefore, the purpose of this research is to conduct extensive field studies and laboratory analyses designed to create a better understanding of the mechanisms of formation of regional encrinites and to create a sedimentologically based classification of the rock fabrics within these distinctive units.

Materials for this project come from the Early Mississippian Joana and Lodgepole limestones that crop out in Nevada, Utah, Idaho, Wyoming, and Montana. Preliminary field-work shows both the Joana and Lodgepole limestones to include extensive encrinite beds that qualify as regional encrinites.