

## **ZAMA ACID GAS EOR, CO<sub>2</sub> SEQUESTRATION, AND MONITORING PROJECT**

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### **ABSTRACT**

A comprehensive monitoring, mitigation, and verification (MMV) plan is being conducted at the Zama oil field in northwestern Alberta, Canada, to determine the effect of acid gas injection for the simultaneous purpose of disposal, sequestration of CO<sub>2</sub>, and enhanced oil recovery (EOR). The injection process and hydrocarbon recovery will be carried out by Apache Canada Ltd., while the Energy & Environmental Research Center (EERC) through the Plains CO<sub>2</sub> Reduction (PCOR) Partnership (one of seven U.S. Department of Energy regional partnerships) will conduct the MMV activities at the site. Research activities are being conducted at multiple scales of investigation in an effort to validate the ultimate fate of the injected gas. Geological, geomechanical, geochemical, and engineering work is being used to fully describe the injection zone and adjacent strata. Certifying the integrity of the cap rock is a critical research area, with additional tests being completed on the reef to determine the nature of potential geochemical and geomechanical changes that may occur because of acid gas exposure. Fluids will be sampled at and directly above the producing horizon to ensure containment through active and inactive wells in the pinnacle. A perfluorocarbon tracer is being used to track fluid flow throughout the system and to identify leakage should it occur. With over 800 pinnacles in the Zama Field, the potential for long-term sequestration is significant.