

## **Evaluating the Feasibility of CO<sub>2</sub> Storage through Reservoir Characterization and Geologic Modeling of the Viola Formation and Arbuckle Group in Kansas**

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### **ABSTRACT**

The Cambro-Ordovician Arbuckle Group consists of laterally extensive shelf carbonates that unconformably overly Proterozoic basement or Cambrian strata. In Kansas, the Arbuckle is a long-standing target for wastewater fluid injection due to properties such as thickness, high permeability, depth, and naturally low pressure. Integrated Carbon Capture and Storage for Kansas (ICKan), a U.S. DOE-funded project, evaluates CO<sub>2</sub> storage capacity and injectivity in the Arbuckle, Simpson, and Viola saline aquifers beneath oil producing strata in three potential storage sites, Pleasant Prairie, John Creek, and Davis Ranch fields. The study is being conducted to evaluate the feasibility of commercial scale CO<sub>2</sub> capture and storage (50+ million tonnes stored). The ICKan project will evaluate risks related to disposal of CO<sub>2</sub>, including impacts on seal integrity, pore-fluid pressure, and potential for induced seismicity. Here, we present 3-D cellular geologic models populated with reservoir characteristics such as porosity, permeability, and fluid saturations. The models will be upscaled for numerical simulation of CO<sub>2</sub> injection and storage predictions using a full compositional simulator under varying scenarios.