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**Delineation of Reservoir Compartments with Geochemical Technologies—Applications to Gas and Gas-Condensate Systems**

Reservoir-scale geochemical studies are known to be very cost-effective compliments to traditional engineering efforts, and delineation of reservoir compartments is one of the most useful applications of this technology. This presentation will examine the available tools and interpretive methods, as well as expose the limitations and potential pitfalls. Gas and gas-condensate systems are particularly well-suited to reservoir continuity investigations due to the enhanced process and rate functions that promote homogenization of reservoir compartments. The primary tools used in these studies focus on the molecular composition and isotopic signatures of the gas phase, but associated liquids and aqueous phase samples are often included as well. It is noted that routine methods applied to crude oils (e.g., biomarker analysis) may be applicable to the gas system, but more advanced methods usually need to be used which focus on lower molecular weight components and thermally stable molecules. For the aqueous phase, dissolved solid analyses are useful (e.g., mineral suites) and isotopic techniques can also be applied (e.g., age dating of water). A frequent strategy is to provide a converging interpretation by integrating results from independent lines of evidence. The validity of this new paradigm will be reinforced with practical examples of compartment delineation within gas and gas-condensate accumulations.