

## PTTC Focused Technology Workshop

### “Central Kentucky Outcrop Analogs for Trenton/Black River Dolostone Reservoirs”

June 1, 2005; Lexington, KY

#### Workshop Summary

This workshop was the first of two workshops that we held at either end of the basin - Lexington, Kentucky and Albany, NY - in which we could combine lectures with core examination and optional trips to the field to actually examine outcrop analogs in their natural setting. Therefore, this workshop, like the one that followed six days later, had to be limited to approximately 40 registrants.

David Harris, our workshop coordinator from the Kentucky Geological Survey, recruited five speakers, plus himself, to present the results of research funded by DOE, Trianna Energy and the New York State Energy Research Development Administration (NYSERDA) that focused on dolostone outcrops and adjacent shallow cores in central Kentucky. This three-year study consisted of three phases: petrography and geochemistry of outcrop samples; shallow, high-resolution seismic shot over the outcrops; and study of a continuous core taken in the vicinity of the outcrop that went entirely through the Trenton and Black River carbonates.

The overall goal of the research project - and of this workshop - was to characterize shallow Ordovician tectonic dolomites in outcrop to help improve our exploration strategies in the search for subsurface reservoirs. Presentations focused on four areas: timing of dolomitization, including relation to structure, hydrocarbon migration and absolute timing; dolomitization effects on porosity; controls on dolomitization, both structural and stratigraphic; and source and pathways for fluids.

Harris began the morning session with an overview of the workshop and a summary of the petrographic and geochemical portions of their study of fault controlled Ordovician dolomite reservoirs. This presentation was followed by summaries of shallow, high-resolution seismic reflection data shot over several areas of interest, including a Black River porosity zone in Clinton County, KY, and two talks on the petrology and fluid inclusion studies of the core funded by Trianna Energy and NYSERDA.

The afternoon session allowed participants ample time to examine the core in detail, having at their disposal the core description, wire-line logs and results of the various research studies. For those who still had not had enough, Harris offered an optional trip to the field to examine the outcrop, specifically the famed “light bulb” structure, in more detail.

Preliminary conclusions include: dolomitization occurred in two major events that differ in timing, style, chemistry and porosity effects; dolomite timing differs from

Mississippi Valley Type (MVT) mineralization; more dolomite is not always better for reservoir development; many events happen after dolomitization; and ultimately, porosity is related to the proximity to controlling faults.

Workshop participants received the usual notebook with copies of power point slides used by the speakers, plus copies of the logs, core descriptions and a table of isotope data. A CD also was included, which contained core photos, core descriptions and a masters thesis on the core.

Participants were equally balanced between the public and private sectors (18 each), and nearly two thirds of them - 21 of 36 - were from Kentucky, with another 11 from four other Appalachian basin states (NY, OH, PA, WV). The four remaining attendees were from Mississippi, South Carolina, Colorado and Illinois. Based on the attendance, audience participation, personal feedback during and after the workshop and evaluation forms (below), we would have to conclude that the workshop was well received.

## Evaluation Forms

## Attendance List

The list of final attendees is attached. Of the 34 that pre-registered, 33 attended. These 33 were joined by 3 walk-ins, for a final count of 36, that were divided evenly between industry and government/academic.