

**KYCCS – Western Kentucky Meeting
January 22, 2008, Lexington, Kentucky**

Notes by Rick Bowersox, KGS:

1. Objectives of test well
 - a. Find area(s) to test CO₂ storage near or similar to where storage will be needed
 - b. Use exiting data to extend the research project rather than reinforcing the known
 - c. Test at least two primary saline reservoirs
 - d. Feasibility
 - i. Mixed risk approach
 - ii. Investigate areas that make sense form a practical standpoint
 - iii. Use existing data to guide testing the unknown; extend the available data
 - iv. Test two primary objectives
 - v. Look for good reservoir properties: porosity, permeability, reservoir thickness
 - vi. Goal is to answer whether or not CO₂ can be injected
2. Technical criteria
 - a. Test at least two primary storage reservoirs
 - b. Verify that there is seal for each primary reservoir below 2500 ft
 - c. Both primary reservoirs to be above 8000 ft
 - d. Adequate subsurface control
 - e. Two new seismic lines across the proposed test well location of ~5 mi each
 - f. Generally within the Western Kentucky Coal Field
 - g. Avoid proximity to surface faults and existing wells to the extent possible
 - h. Prefer to stay beyond the area of potential seismicity with >0.3 g ground acceleration
3. Operating criteria
 - a. Clear title to surface and minerals
 - b. Drillsite accessible to the largest expected equipment and large enough to accommodate operations, ~5 Ac
 - c. Remote from sensitive areas: populated, environmentally sensitive, archeological and historical sites
 - d. Permittable by local, State, and Federal regulatory agencies
 - e. No site restrictions for the term of testing, at least 3 yrs with an option to extend as needed
 - f. Minimal physical site preparation and use encumbrances: grading and new roads, flooding, surface instabilities
 - g. Outside of 5-year mine development projection areas
4. Well design and services
 - a. Drilling and casing program: Paul Heard, Conoco, to work on this with KGS input
 - b. Drilling supervision
 - c. Drilling contractor: Conoco to investigate this
 - d. Permitting by Kentucky DOGC and Region 4 EPA
 - e. Site access per Memorandum of Understanding

- f. Completion rig: Les Wilson recommended
 - g. Coring, 300 ft of spot cores plus 80 rotary sidewall cores: Steve Greb, KGS, to investigate
 - h. Logging program: mudlogger, Platform Express, FMI, LSS, ECS, VSP, and other electric logs as required
 - i. cased to TD
 - j. Core analysis: porosity, permeability, mineralogy and geochemistry, rock strengths, thin sections – Conoco and KGS to coordinate capabilities
 - k. CO₂ coreflood tests
 - l. Possible participation by national labs? Dave Harris, KGS, to investigate
5. Well testing
- a. Defined scope
 - b. Injection rates and volumes
 - c. Below frac gradient as determined by step-rate injection
 - d. Vertical conductivity and communication
 - e. Lateral extent of plume
 - f. Initial flow test to gather formation water sample for geochemistry
 - g. Pressure maintenance
 - h. Injection fluid composition: fresh water, brine, or CO₂
 - i. Reservoir modeling
 - j. Long-term post-injection pressure and leakage monitoring
6. Contingencies if hydrocarbons discovered
- a. Initial permit as a service well, if possible
 - b. Lease terms to address this without restrictions on injection testing
 - c. Value of drilled well?
7. Seismic program: to be determined pending availability of services
8. Re-entry of existing abandoned exploratory wells: tabled

**KYCCS - Western Kentucky
Meeting Attendance 01/22/08**

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