Wireline Logging

- Injection targets include the Oriskany (5,923-5,954 ft); the Salina (6,734-7,048 ft); and the Clinton (8,207'-8,274 ft)
- The White Clinton is much easier to see and post-injection changes may be detectable
- Additional 1-mile of "quasi-3D" to investigate reservoirs and 3D options
- 10-mile seismic survey completed in August 2006
- Site is located in the western flank of the Appalachian Basin, a major sedimentary basin in the MRCSP region
- Near Ohio, Pennsylvania, and West Virginia
- 30 miles southwest of Wheeling, WV
- A series of meetings have been held with both regulatory agencies to discuss the permitting strategy as the project progresses
- Ohio has Underground Injection Control primary and Ohio EPA regulates Class I and Class V wells

Site Characterization – Seismic Survey

- 10-mile seismic survey completed in August 2006
- Additional 1-mile of "quasi-3D" to investigate reservoirs and 3D options
- The Oriskany Sandstone (between the Devonian and Mississippian) on right of the revolution lines of this data
- The White Clinton is much easier to see and post-injection changes may be detectable
- Injection targets include the Oriskany (5,823-5,994 ft); the Salina (6,734-7,048 ft); and the Clinton (8,207-8,274 ft)

Site Characterization – Test Well Drilling

- Deep Test Well Drilling in Winter 2007
- Total Depth: 8,384' 2/5/07
- Mudlogging and Wireline logging were used to characterize well
- Sidewall coring tool malfunction in last 6 months

Conceptual Injection System

- Middle-Devonian to Middle Silurian deep saline formations primary target (Oriskany, mid-Salina, and "Clinton" carbonate)
- Exploratory approach is being developed to perform injection tests in several different targets
- Target injection volume is 3,000 metric tons carbon dioxide
- Exploratory approach is being developed to perform injection tests in several different targets
- Preparing UIC permit for carbon dioxide injection tests at the site
- Develop injection plan for site. Given the low injection volume, a more exploratory approach may be more useful to determine injection potential across multiple units.
- Refine geological framework for carbon dioxide sequestration in Middle-Devonian to Middle-Silurian targets for the region
- Continue to characterize new horizons for sequestration in the MRCSP region

Monitoring Program

- Monitoring options were reviewed and a subset of options was selected based on the proposed injection system specifications and geologic setting
- Depth of target reservoir and injection volume present challenges for effective WMI methods

Permitting Track

- Ohio has Underground Injection Control primary and Ohio EPA regulates Class I and Class V wells
- A series of meetings have been held with both regulatory agencies to discuss the permitting strategy as the project progresses
- FirstEnergy has been part of all discussions, Battelle and FirstEnergy are jointly preparing the permit documents
- A UIC. Class VI/Exemption Technology Injection Permit Application for Pilot Carbon Sequestration submitted November 2007 is the Ohio EPA

Timeline and Next Steps

- Complete GPR logging, Pressure Express tests, and/or sidewall coring in key intervals at the R.E. Burger FGEC/M3IP well to delineate permeability better in these rock intervals
- Prepare UIC permit for carbon dioxide injection tests at the site
- Develop injection plan for site. Given the low injection volume, a more exploratory approach may be more useful to determine injection potential across multiple units.
- Refine geological framework for carbon dioxide sequestration in Middle-Devonian to Middle-Silurian targets for the region
- Continue to characterize new horizons for sequestration in the MRCSP region

R.E. Burger Test Site

- FirstEnergy plant outside of Wheeling, OH, across from Independence, WV
- 30 miles southwest of Wheeling, WV
- Site is located in the western flank of the Appalachian Basin, a major sedimentary basin in the MRCSP region
- The plant is a 413 MW coal-powered plant located on 100 acres on the Ohio River
- Carbon dioxide source: Commercial supply
- Total Depth: 8,384' 2/5/07

Outreach

- Summer 2006:
  - Coordinated with FirstEnergy in planning interactions and developing a series of informational materials to introduce project and describe future seismic and other activities (neighbor letter, fact sheet, brochures)
- Winter 2007:
  - Coordinated with FirstEnergy in scheduling a site visit and presentations to DOE staff
  - Facilitated development of an educational video on sequestration by the Science Media Group at the Harvard-Smithsonian Center for Astrophysics
- Current Activity:
  - Continue public outreach – employee meetings at FirstEnergy, public informational meetings, and Ohio EPA public hearing

Additional contributions by numerous other MRCSP team members

- Michele Somerday, Danielle Schneider, and others
- Larry Mikelson, Doug Nuttel, Ron Riley, Ernie Smith, Mark Karanoni
- R.E. Burger, Mittel Gupta, Paul Jagusch, Joel Dinsmore, Danielle Happey, Judith Bradbury, Ren Jeane, Jackie Ross, John Bacon, Juan Peter, and others
- Lynn Brackett, Charlie Byrer
- Lee Avery, Eric Lewis
- Jake Harper, Kristin Carter
- Dwight Peters