



## Gulf Coast Carbon Center Progress Update, July 2004

The Gulf Coast Carbon Center (GCCC) is applying its technical and educational resources in order to implement, on an aggressive time scale, geologic sequestration of anthropogenic carbon dioxide. Our focus is on the Gulf Coast of Texas, Louisiana, and Mississippi, an area where opportunities for early implementation are numerous and diverse and one that has a high potential of being economically viable. GCCC will develop and distribute information needed to inform and engage all critical contributors to the system and seek a competitive, next-stage field demonstration at an appropriate scale to demonstrate competence in measurement, monitoring, and verification (MMV), as well as project economic viability.

### July accomplishments:

- Praxair has joined GCCC as its fourth industrial sponsor. On July 14<sup>th</sup>, Praxair representatives visited the Bureau of Economic Geology and participated in joint presentations and discussions with GCCC personnel. With annual sales of \$5.6 billion, Praxair is a global, Fortune 500 company that supplies atmospheric, process, and specialty gases, such as CO<sub>2</sub>. Praxair recently started up two new hydrogen plants in Texas City and Port Arthur, Texas, along with a 300-mile hydrogen pipeline system, the largest in the world. Hydrogen plants are sources of low-cost CO<sub>2</sub> that can be utilized in near-term, CO<sub>2</sub>-EOR and sequestration projects. Discussions are under way concerning near-term field-demonstration projects utilizing Praxair capabilities, as well as various other action items. Praxair brings a wealth of experience, technological expertise, and business sense to GCCC.
- Ian Duncan has been newly hired as Associate Director of the Bureau of Economic Geology for Environment and Earth systems. Ian comes to the Bureau after working 10 years as Scientist Manager at the Virginia Department of Mines, Minerals, and Energy—Division of Mineral Resources—with expertise in coal geology. As a geology professor, Ian taught at SMU in Dallas and Washington University in St Louis. Ian will be directing GCCC efforts in public outreach, Federal- and State-level contacts, and new-member recruitment.
- Several new research elements have been added to GCCC. Terrestrial sequestration for Texas will be examined by Bridget Scanlon using funding from DOE Southeast regional partnership in collaboration with Texas A&M and Winrock International. In addition, GCCC received a grant from DOE for sequestration risk assessment, titled “Development of Science-Based Permitting Guidance for Geological Sequestration of CO<sub>2</sub> in Deep Saline Aquifers Based on Modeling and Risk Assessment.” The objective of this study is to develop science-based permitting procedures for CO<sub>2</sub> sequestration on the basis of (1) a review of existing permitting procedures, (2) numerical simulations of flow and transport of CO<sub>2</sub> (partially based on the Frio experiment), (3) evaluation of risk on the basis of probability distributions of selected parameters, and (4) ranking of parameters analyzed to allow site characterization and monitoring to focus on critical parameters for CO<sub>2</sub> sequestration. J. P. Nicot will be leading this research in collaboration with PNL.
- GCCC has now screened a total of seven counties along the Texas Gulf Coast, producing a total of 160 EOR-CO<sub>2</sub> sequestration candidate reservoirs. This is in addition to 117 candidate reservoirs in Harris, Chambers, Liberty, and Jefferson Counties. Moreover, DOE Southeast regional partnership subcontracts to Louisiana and Mississippi have been processed, and LGS and MMRI will start to compile reservoir-attribute data in GIS.
- Discussions with operators in candidate reservoirs have been initiated to formulate potential source-sink field-demonstration sites: Hunt Oil (Franks field), Smith Oil (Gillick field), and Carnes Oil (Neches field). Moreover, previous and current EOR-CO<sub>2</sub> projects have been researched in detail.
- The Texas Governor’s Clean Coal Technology Council meeting was attended in Longview, Texas, 7/28–29. Mike Moore of GCCC gave a presentation on EOR for Texas and its economic benefits. GCCC will be examining potential sinks for a potential FutureGen project in Texas.
- Preinjection baseline monitoring continues at the Frio Brine Field Project site. Crosswell seismic and VSP by LBNL and Paulsson have been completed. Praxair recently joined the Frio research team to supply CO<sub>2</sub> storage and injection equipment. Injection is scheduled for the third week in September, with monitoring to follow. A proposal to CCP for a Frio2 project to do a second round of injection with MMV was submitted.

### August goals include:

- Guest presentation on regional carbon partnerships outreach group phone conference to review GCCC and Frio outreach activities and processes—August 5.
- Mark Holtz’s participation in teaching at the U.S.-Norway summer school for Carbon Capture & Storage in Geologic Formations, sponsored by DOE in Santa Fe, New Mexico—August 9–11.
- Participation in DOE geological characterization working group teleconference—August 18.
- Participation in potential mutual research initiatives with Dow Chemical Co. in Houston—August 26.
- Sierra Club visit to Frio Brine Pilot Field Demonstration site—August 27.
- Adding crosswell EM survey supported by Australian CO<sub>2</sub>CRC to the Frio Brine Field Project, scheduled run—August 12–13; completion of hydrologic baseline studies and characterization data submission to TCEQ to obtain approval to inject.
- Active stakeholder recruitment and public outreach.

GCCC is supported by the John A. and Katherine G. Jackson School of Geosciences, ChevronTexaco, BP, KinderMorgan, and Praxair.

