



**Plains CO₂ Reduction (PCOR) Partnership Monthly Update
August 1–31, 2007**

Task 1 – Project Management and Reporting (Edward N. Steadman/John A. Harju)

Highlights

- The PCOR Partnership will be presenting at the Peer Review Meeting in Pittsburgh, Pennsylvania (September 17–20, 2007).
 - PCOR Partnership representatives at the meeting will be John Harju (Energy Environmental Research Center [EERC]), Ed Steadman (EERC), and Lynn Helms (North Dakota Industrial Commission [NDIC] Department of Mineral Resources, Oil and Gas Division).
- The PCOR Partnership Task 9 Best Practice Manual (November 2006 deliverable) is currently being revised.
- Task 8 Web Site Update was sent for review on August 31, 2007.
- Working on Task 5 (2007 Q4 Milestone) – Fact Sheet 11, “Land-Use Management Practices That Increase Soil Organic Carbon,” for September submission.
- Working on Task 8 – Carbon Markets and Trading video (draft/review format) for September submission.
- The PCOR Partnership now has 69 Phase II partners; on August 28, 2007, the Minnesota Geological Survey – University of Minnesota joined.
- Participating in Air Quality VI (September 24–26, 2007, Arlington, Virginia):
 - Sunday, September 23 – Preconference Workshop 1 (CO₂ Separation and Sequestration)
 - Wednesday, September 26 – Session 6 (CO₂ Sequestration and Monitoring, Mitigation, and Verification [MMV]).
 - Wednesday, September 26 – Session 7 (CO₂ Sequestration)

Travel/Meetings

- July 31–August 1, 2007: Anticipated drilling date for lignite field demonstration in Burke County, North Dakota
- August 7, 2007: Burke County Meeting for lignite field validation test in Bowbells, North Dakota
- August 16–20, 2007: American Petroleum Institute Meeting in Dickinson, North Dakota
- August 23, 2007: Capacity Working Group Meeting in Houston, Texas
- August 28, 2007: Missouri River Energy Meeting (Phase II membership discussion), EERC, in Grand Forks, North Dakota
- September 10–14, 2007: 24th Pittsburgh Coal Conference in Johannesburg, South Africa
- September 18–20, 2007: North Dakota Petroleum Council 26th Annual Meeting in Medora, North Dakota
- September 24–26, 2007: Air Quality VI in Arlington, Virginia
- September 28, 2007: Society of Exploration of Geophysicists Postconvention Workshop on “CO₂ Sequestration Monitoring” in San Antonio, Texas

- October 14–17, 2007: Gasification Technologies Council in San Francisco, California
- January 27–30, 2008: 11th Annual Conference on Clean Air, Mercury, Global Warming, and Renewable Energy in Tucson, Arizona
- April 6–10, 2008: 235th American Chemical Society National Meeting (Advances in CO₂ Management: CO₂ Sequestration, Utilization, Capture and Enhanced Oil Recovery) in New Orleans, Louisiana

Task 2 – Field Validation Test at a Williston Basin Oil Field, North Dakota (James A. Sorensen)

Highlights

- Development of petrophysical model of the Beaver Lodge oil field continued.

Travel/Meetings

- Nothing to note at this time.

Task 3 – Field Validation Test at Zama, Alberta (Steven A. Smith)

Highlights

- American Association of Petroleum Geologists paper completed and submitted (“Estimates of CO₂ Storage Capacity in Selected Oil Fields of the Northern Great Plains Region of North America”).
- Geological Working Group Conference Call: saline aquifer issues slow to resolve, the main points to reach a consensus were related to screening criteria and confidence rankings; issues involving injectivity, economics, storage calculations, and Phase II validation tests were tabled until the next meeting; the Oil and Gas Group is moving forward with a draft report outlining a methodology to be circulated to the group.
- Development of geological model for the Broom Creek saline aquifer storage capacity evaluation is progressing. The model is being populated with porosity and permeability values derived from core and well log data.
- Poster for San Antonio, September 28, 2007.
- Continued core collection activities; working on increasing Zama budget to increase analytical work on as much new core as possible.

Travel/Meetings

- September 6, 2007: Zama meeting and site visit in Zama, Alberta, Canada

Task 4 – Field Validation Test of Lignite Coal in North Dakota (Lisa S. Botnen)

Highlights

- Drilling has begun, and four of the five wells have been drilled to their total depth, cemented, and logged.
- Core was taken from the center well and is being analyzed by Terratek.
- The zone of interest (1100–1110 ft) in the first observation well was perforated, and initial swabbing of the well has occurred. The test will continue to try to get a representative sample of the formation water in order to test for water quality and quantity.

- Sundry notices were submitted to the NDIC for variations in sample collecting intervals in three of the observation wells. Sundry notices were also submitted, informing the state of the status of pit reclamation.
- A public meeting was held in Bowbells, North Dakota. This meeting was held at the request of the Burke County Commission. The commissioners, other local officials, and several people from the general public were in attendance. The meeting went well, and an update meeting will be held once some preliminary results of the testing are available, most likely this winter.
- Baseline characterization is continuing.

Travel/Meetings

- Denver, Colorado, to observe Schlumberger and Terratek processing of data collected in the field
- Field site for well completion this fall

Task 5 – Terrestrial Validation Test (Barry Botnen)

Highlights

- Continue to sample at South Dakota sites; this was initiated in late March 2007.
- Completed nine sample events to date.
- Photo stations for each treatment have been established.
- Grazing study and vegetation study are ongoing.
- Grassland samples from 2006 have been analyzed, and the results are being reviewed.
- 2007 grassland sampling complete in Minnesota. South Dakota samples are currently being prepared for analysis.
- The Business Requirements Document for the carbon-tracking database is complete and being reviewed by the EERC.
- Best management practices fact sheet is in final draft form.
- Completed a prospectus for grassland carbon offset sale in the Prairie Pothole Region.
- Completed a carbon sequestration fact sheet for investors.
- Completed a private carbon/easement document.
- Working on a draft Landowner Agreement document for carbon marketing.
- Working on a draft legal document to transfer carbon rights from landowner to aggregator.
- Completed a business model and term sheet for packaged carbon offsets.
- Working on draft topical reports for providing a primer on carbon market basics and an overview of the business flow process for terrestrial offsets from private lands. We anticipate submitting this report next quarter.
- Evaluating other state and regional greenhouse gas or cap-and-trade program rules and policies.
- Evaluating the Department of Energy's (DOE's) Guidelines for Aggregators and terrestrial offset providers.
- Preparing overview of voluntary carbon market, active players, certification standards, market activity, etc.
- Three outreach brochures are currently in press. They can be distributed as a stand-alone resource for landowners or investors interested in terrestrial carbon offset opportunities. The

final brochures will also be distributed as appropriate for the PCOR Partnership regional and national Outreach Action Plan.

- Documents have been developed to answer potential grasslands carbon sequestration investor questions on issues such as leakage and, additionally, biotic values of Prairie Pothole Region, emission offsets due to tillage practices, and sequestration rates. These documents will be presented as a fact sheet or a topical report.
- Continuing to update Ducks Unlimited (DU)–PCOR Partnership terrestrial project Web site.
- Review of DOE technical guidelines (1605b) is ongoing.
- Working on characterization inputs and the terrestrial portion of the Decision Support System (DSS, © 2007 EERC Foundation).

Travel/Meetings

- August: DU, Bismarck, North Dakota
- September 3–4, 2007: South Dakota

Task 6 – Continued Characterization of Regional Sequestration Opportunities (Erin M. O’Leary)

Highlights

Characterization

- Met with NDIC to discuss the gas analysis project. NDIC will review the Web site and provide feedback for graphing capabilities. Raw data and temporary access to the Web site were sent to NDIC.
- Continued work on the gas analysis Web site including updates, speed improvement to data graphing, and routines to create bar chart icons for thematic map data. Other items for development: tie DSS to NDIC when a user clicks on a well (eventually do the same with DSS and geographic information system [GIS]), create a thematic map that displays a bar chart over all formations for each well, graphs will be simplified into two identifying graphs, and add gas plants as a layer on the Web site.
- Source overlap issues with Big Sky and the Southwest Partnership are under review.
- Spoke with NDIC concerning a master list of gas-processing plants in western North Dakota. Received a spreadsheet which included three more plants than we currently have in our database.
- Working on Broom Creek Formation.
- Created and populated a database of references regarding terrestrial sequestration activities in the PCOR Partnership region. This data will be made available to partners in the indirect sequestration portion of the DSS.
- Geological characterization meeting was held to outline the deliverables for the next 2 years.

Class II Wells Project

- Final report has been submitted internally for review.

DSS

- Working on detecting whether the user has turned on the pop-up blocker (it needs to be turned off to use some of the functionality, such as advanced searches).
- The new ArcGIS Server v. 9.2 is being configured.
- Updated the Mississippian Madison saline system legend and the Lower Cretaceous legend by adding the total estimated capacity.
- Increased the size of the source dot in the DSS.
- Working on trying to print a legend of the map in the correct resolution when the map is printed and allow DSS users to create a print-quality pdf map of their area of interest.

Other

- Plans are being made for a focused geographic characterization meeting to be held after the annual meeting; so far Iowa Geological Survey and NDIC will be able to attend.
- Worked on reports and PowerPoints for the Peer Review. Attended several PCOR Partnership-related meetings.
- Beginning to work on the next Gap Assessment.
- Participated in conference calls for the GIS, and the saline and oil/gas subgroups of the Geological Working Group. Some prototype maps will be made to help illustrate several confusing issues discussed in the saline system subgroup.
- The second edition of the atlas is due for delivery.

Travel/Meetings

- Nothing to note at this time.

Task 7 – Research, Safety, Regulatory, and Permitting Issues (Lisa S. Botnen)

Highlights

- Sundry notices were submitted to the NDIC for variations in sample collecting intervals in three of the observation wells for the lignite field validation test.
- Sundry notices were also submitted informing the state of the status of pit reclamation for the lignite field validation test.
- Continued to follow legislative actions occurring in Congress.
- Continued review of recent publications relating to regulating CO₂ sequestration and MMV issues.

Travel/Meetings

- Nothing to note at this time.

Task 8 – Public Outreach and Education (Daniel J. Daly)

Highlights

Documentaries

- The interview with Carl Bauer, DOE, at the National Energy Technology Laboratory (NETL) on August 21, 2007, has been completed.
- Prairie Public Television has completed interviewing the remaining EERC personnel.

- Completed the third editing session of the video.
- A schedule will be set up to review the video.
- WinRock Consulting in California has identified 12 sites for interviews and location footage regarding forest cleanup as a means of reducing forest fires and CO₂ emissions.

Outreach Action Plan – Lignite Field Verification Test

- Revised materials are in editing.

Public Web Site

- Continue to revise as needed.

Outreach Action Plan – Task 2

- Waiting for information to determine schedule and focus projects.

Outreach Working Group

- Participated in phone call reviewing public perception thesis from Massachusetts Institute of Technology and discussed media training at the December 11–13, 2007, meeting in Pittsburgh, Pennsylvania.

Fact Sheet 9 – Lignite Field Verification Test

- Approved as final by NETL on July 30, 2007.

Travel/Meetings

- December 11–13, 2007, Annual Review Meeting in Pittsburgh, Pennsylvania

Task 9 – Identification of Commercially Available Sequestration Techniques Ready for Large-Scale Deployment (Melanie D. Jensen/Michael L. Jones)

Highlights

- Continue to work on wind power best practices manual.
- Continue work on emission data verification.
- Reviewed Capture and Transportation Working Group Workshop presentation.
- A paper was prepared and submitted documenting the data sources for the regional CO₂ emission database to NETL. This paper will be included in a report summarizing the methodologies used by all of the partnerships.
- Prepared responses to peer reviewer questions.

Travel/Meetings

- Nothing to note at this time.

Task 10 – Regional Partnership Program Integration (Edward N. Steadman)

Highlights

- Second edition of the PCOR Partnership Atlas is in final stages. Anticipate October distribution.

Travel/Meetings

- August 14, 2007: Office of Science Review in Washington, D.C.
- September 17–20, 2007: Peer Review of the Carbon Sequestration Program in Pittsburgh, Pennsylvania
- October 18–19, 2007: PCOR Partnership Annual Meeting at the EERC in Grand Forks, North Dakota