

**Plains CO₂ Reduction (PCOR) Partnership Monthly Update
August 1–31, 2009**

PHASE II ACTIVITIES

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

Highlights

- Attended the North Dakota Industrial Commission Oil & Gas Meeting on August 6, 2009, in Bismarck, North Dakota, and updated the Oil & Gas Council on the progress of the field validation projects, including the ongoing Northwest McGregor huff ‘n’ puff project.
- On August 17, 2009, the U.S. Department of Energy (DOE) National Energy Technology Laboratory (NETL) posted a news release on its Web site regarding the PCOR Partnership’s use of its Decision Support System (DSS, ©2007 EERC Foundation) in the preparation of a carbon management plan for one of its partners, Excelsior Energy Inc.
- This release, entitled “Regional Partner’s Decision Support System Used in Development of Carbon Management Plan for Industry,” was also posted on the EERC Web site (www.undeerc.org/news/newsitem.aspx?id=347) and the PCOR Web site (www.undeerc.org/PCOR/newsandpubs/newsitem.aspx?id=347).
- On August 26, 2009, a DOE Fossil Energy Techline was posted announcing that the carbon sequestration film, produced with support from DOE and Prairie Public Broadcasting (PPB), has received a 2009 Gold Aurora Award in the documentary category for nature/environment. For more details, link to the DOE’s Fossil Energy Web site at www.fossil.energy.gov/news/techlines/2009/09061-CCS_Documentary_Wins_Award.html
- The announcement regarding “Out of the Air – Into the Soil” was also posted on:
 - The Energy & Environmental Research Center (EERC) Web site (www.undeerc.org/news/newsitem.aspx?id=348).
 - The PCOR Partnership public-accessible Web site (www.undeerc.org/PCOR/newsandpubs/newsitem.aspx?id=348).
 - The Carbon Sequestration Leadership Forum (CSLF) Web site (www.cslforum.org/projects/rcsp.html) and an e-mail notice was sent to its members.
- Conducted a review of the current PCOR Partnership databases used internally for tracking data:
 - Deliverables database
 - Products database
 - Partner contacts database
 - Links, terrestrial references, and CO₂ sources database (as suppliers to the Web site)
- Continued plans for the upcoming 2009 PCOR Partnership Annual Meeting in St. Louis, Missouri:
 - Drafted proposed agendas for the premeeting workshops and annual meeting
 - Initiated contact for speakers and sponsors
 - Reviewed proposed Web site scheduled to go live on September 1, 2009
 - Discussed awards, gifts, products, and evening activity

- Continued preparatory work for the Phase II final report due December 29, 2009.
- Reviewed proposed changes to the PCOR Partnership public Web site.
- Phase II deliverables submitted for August:
 - D22: Task 8 – Web Site Update
 - Monthly Update
- Upcoming Phase II deliverables for September:
 - D52: Task 3 – Zama Field Validation Test Regional Technology Implementation Plan (RTIP)
 - D53: Task 4 – Lignite Field Validation Test RTIP
 - D49: Task 6 – Regional Atlas
 - Monthly Update

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

Highlights

- The anticipated course of action is to a) run the reservoir simulation tool (RST), vertical seismic profiling (VSP), and other downhole logging tools around the end of September; b) wrap up the primary data collection by the end of October; and c) continue to monitor throughout December, compiling as much data as possible to include in the final report.
- Started mineralogical analysis of thin sections from core provided by the North Dakota Geological Survey.
- Preliminary oil production rate remains within the 3–5-barrels-per-day range, which is two to three times greater than preinjection production rates.
- The CO₂ content of the produced gas remains high (approximately 65%), but it appears that the CO₂ concentration is slowly tapering off.
- Additional work under way includes:
 - Development of petrophysical model of the Northwest McGregor injection site and study area.
 - Preparation of a CMG 2D model, including more detailed geochemical investigation.

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

Highlights

- Continued preparation of the RTIP.
- Continued injection and production at the site.

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

Highlights

- Proofread the RTIP and submitted it for internal review.
- Continued to develop final report.

Task 5 – Terrestrial Validation Test (Barry W. Botnen)

Highlights

- On June 30, 2009, submitted the RTIP for terrestrial sequestration to DOE NETL for review.
- Drafted and submitted for internal review a value-added topical report entitled “Technical, Regulatory, and Economic Feasibility of Wetlands as a Greenhouse Gas Mitigation Strategy.”
- The U.S. Geological Survey (USGS) continued its analysis of wetland catchment gas sampling and reporting on these data.
- North Dakota State University (NDSU) continued its analysis of the economic impact of easement payments.
- Initiated final reporting activities now that the RTIP is complete.
- Assisted with, and featured in, an Energy Success Story entitled “Restored Wetlands Lead to Increased Terrestrial CO₂ Sequestration,” posted on August 17, 2009, on the Partners for Affordable Energy Web site (www.powerofcoal.com/?id=59&ncid=5&nid=93).

Task 6 – Continued Characterization of Regional Sequestration Opportunities (Wesley D. Peck)

Highlights

- Continued the compilation and formatting of the next edition of the PCOR Partnership Atlas (D49).
- Continued preparation of the new geographic information system (GIS) interface for the DSS, and initiated an internal review to identify any illogical or inefficient steps.
- Continued to create and provide new material to the Web programmers for their effort to update the DSS site.
- Submitted the new DSS content and layout for task leader review and comment.
- Received notice from the Iowa Geological Survey anticipating transmittal of a draft final report for review before the September 1, 2009.

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

Highlights

- Tracked and analyzed various state, provincial, and regional greenhouse gas (GHG) reduction and carbon capture and storage (CCS) initiatives.
- Initiated review of the U.S. Environmental Protection Agency’s (EPA’s) recent release of additional data as they relate to the geologic sequestration of carbon dioxide under the “Federal Requirements under the Underground Injection Control (UIC) Program for Carbon Dioxide (CO₂) Geologic Sequestration (GS) Wells; Notice of Data Availability and Request for Comment,” announced August 24, 2009.
- Reviewed the Climate Change Emissions Management Corporation’s (CCEMC’s) announcement of its 2009 Call for Proposals: Initial Expressions of Interest Stage directed at project proponents wishing to obtain funding for developing and demonstrating projects that reduce GHG emissions in Alberta, Canada.
- Preparations are under way to participate on September 3, 2009, in CCEMC’s “Climate Change and Emissions Management Act: Alberta’s Response to Reduce Emissions” Webinar

that will briefly describe the Act and the CCEMC. The CCEMC is the innovative initiative of Alberta to address climate change issues through funding new emission-reducing technology.

- Preparations are under way to attend the Platts 2nd Annual Carbon Capture and Sequestration Conference 2009 on September 14–15, 2009, in Washington, D.C. This event will highlight the latest information on policy and economics of CCS.

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

Highlights

- Received DOE NETL comments on the geologic sequestration (D46) documentary that was submitted for review on May 29, 2009; revisions were initiated.
- Finalized preparation of the public Web site update (D22) scheduled for submittal at month-end.
- Developed the draft agenda and speaker list for the 2-hour outreach workshop to be held on December 1, 2009, prior to the 2009 PCOR Partnership Annual Meeting in St. Louis, Missouri.
- Contacted a potential speaker for the outreach workshop.
- Assisted PPB during its filming for the “Welcome and Introduction” feature for the geologic sequestration (D46) documentary.
- Initiated review of the raw footage provided by PPB for the Carbon Footprint documentary (D51) to identify scenes for use in the construction of the documentary backbone.
- Responded to an information request from DOE regarding the copyright and distribution of the documentaries coproduced by PPB and the PCOR Partnership.
- Received DOE NETL approval of the PCOR Partnership Best Practices Manual as submitted on May 29, 2009.
- Reviewed budget status with PPB on the documentaries under production and moved forward with plans for additional filming in Minneapolis, Minnesota.

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

Highlights

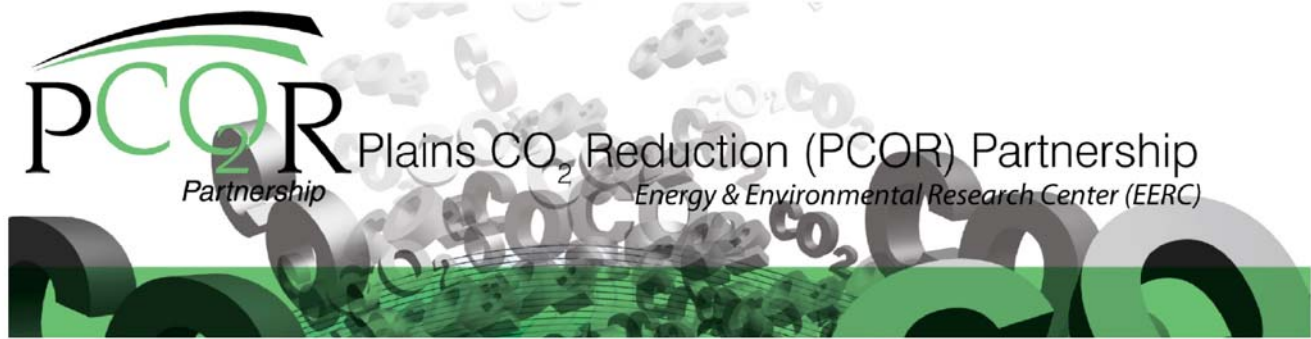
- Continued efforts to update the draft Best Practices Manual: Regional Sequestration Opportunities (D44) report summarizing the cost and effort required for the initial capture, compression, and transportation of CO₂ within the PCOR Partnership region. The update incorporates gas-processing facilities that were added to the CO₂ emission database during the last year.

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

Highlights

- Program Manager continued his efforts as the chairman of the North American Energy Working Group (NAEWG) North American Carbon Atlas Partnership (NACAP) Methodology Subcommittee, including the following:

- Initiated work determining the “level of detail/granularity in publically accessible GIS” as assigned to the Methodology Working Group and Information Technology Working Group. This work must be completed by next NACAP meeting.
- Initiated discussions with NACAP committee members on additional work assigned.
- Began preparations for participation in the kickoff conference call for the Regional Carbon Sequestration Partnerships (RCSP) Atlas and the NACAP Atlas to be held in early September.
- Participated in conference calls for the various working groups, including Outreach, Geologic, and Modeling; Capture and Transportation; Simulation and Risk Assessment; GIS; and Water Working Group.



PHASE III ACTIVITIES

Task 1 – Regional Characterization (Wesley D. Peck)

Highlights

- Initiated effort to collect and comprehend the readily available data on the subsurface of western Nebraska as they relate to CCS in response to projected needs of the Nebraska Public Power District.
- Targeted the Cedar Hills Sandstone in western Nebraska as the initial formation for review for CO₂ storage in Nebraska. The Cedar Hills Sandstone ranges from 30 to 80 feet thick and is capped by the Flower Pot Formation (shale) and the Blaine anhydrite. The depth to the top of the Blaine Formation is 2500 to 3500 feet.
- Discussed the Permian Amazon dolomite with the Nebraska Oil and Gas Conservation Commission as another potential target formation. The Amazon Formation is found in the western panhandle region of Nebraska and may have up to 30% porosity in the 30-ft-thick unit.
- Initiated content compilation for the multimedia gallery, including the image library, news, facts, and videos, for the revised DSS Web site.
- Created a draft design for the image library and worked with the EERC Contracts Office to determine appropriate terms of use.
- Initiated the design of a new Web page to display PCOR Partnership-related items, such as announcements, program management documents, and upcoming events.

Task 2 – Public Outreach and Education (Daniel J. Daly)

Highlights

- Developed the draft agenda and speaker list for the 2-hour outreach workshop to be held on December 1, 2009, prior to the 2009 PCOR Partnership Annual Meeting in St. Louis, Missouri.
- Contacted a potential speaker for the outreach workshop.
- Submitted comments on the RCSP Outreach Working Group (OWG) draft Best Practices Manual.
Participated in a conference call for the Weyburn–Midale Project Communication Expert Advisory Panel. The call included discussions regarding display booths at upcoming conferences and a Canadian CCS project-related, public-accessible Web site under development in collaboration with Natural Resources Canada.
- Initiated discussions on outreach product placement within public libraries across the PCOR Partnership region.

- Initiated assessment of the outreach audit performed by Lipman Hearne to evaluate the audit recommendations and consider future collaboration for outreach activities and products.

Task 3 – Permitting and National Environmental Protection Agency (NEPA) Modeling (Lisa S. Botnen)

Highlights

- Tracked and analyzed various state, provincial, and regional GHG reduction and CCS initiatives, and provided frequent updates to task leaders and pertinent partners.
- Continued ongoing efforts to develop an update to the regulatory section of the DSS.
- Followed and reviewed actions occurring in Congress for any implications relating to CCS, and provided updates of these activities to task leaders.
- Continued ongoing review of recent publications relating to regulating CO₂ sequestration and Monitoring, Verification, and accounting (MVA) issues.
- Continued analyses of carbon market strategies.
- Uploaded minutes of the PCOR Partnership Regulatory Workshop – Brainstorming Session onto the Partners-only DSS and notified the membership-at-large via e-mail.
- Preparations are under way to attend Platts 2nd Annual Carbon Capture and Sequestration Policy, Economics, Regulation, and Risk Conference on September 14–15, 2009, in Washington, D.C.
www.platts.com/IM.Platts.Content/ProductsServices/ConferenceAndEvents/2009/pc919/agenda.pdf?S=n
- Participated in a conference call of the Interstate Oil and Gas Compact Commission’s (IOGCC’s) Pipeline Transportation Task Force Executive Committee.
- Continued development of a permitting overview for one state and one province for inclusion on the DSS.

Task 4 – Site Characterization and Modeling (James A. Sorensen)

Highlights

- Prepared for another workshop to be held at Spectra Energy in Calgary, Alberta, Canada, to further identify potential risks associated with the Fort Nelson demonstration project.
- Continued the interpretation of the depositional system and facies distribution, and created new maps. This information will be used in the creation of the static model Version 2.
- Conducted initial dynamic modeling as an iterative process to determine the most representative injection scenarios and optimal injection schemes for long-term movement of CO₂.
- Continued work on the development of a risk management policy and process plan for the Fort Nelson demonstration.
- Continued the development of the static petrophysical geologic model of the reservoir and seal system at the Fort Nelson site, and researched literature on the hydrology and mineralogy within the Alberta Basin for preparation for geochemical modeling of the site.
- Presented a poster at the American Association of Petroleum Geologists (AAPG) Hedberg Conference “Geological Carbon Sequestration: Prediction and Verification” on August 16–19, 2009, in Vancouver, British Columbia, Canada.

Task 5 – Well Drilling and Completion (Steven A. Smith)

- This task is anticipated to be initiated Quarter 1 – BP4, Year 3.

Task 6 – Infrastructure Development (Melanie D. Jensen)

Highlights

- Continued efforts at the request of a partner to prepare text, figures, and tables to show potential pipeline infrastructure needed to move CO₂ to various geological sequestration opportunities in the PCOR Partnership region.
- Continued an internal review of the overview of updated capture technologies.
- Completed a preliminary draft of a “Review of Source Attributes” (D1).
- Gathered information for an Environmental Questionnaire about injection activities for use by a PCOR Partnership partner.
- Initiated information gathering regarding power usage, thermodynamic balances, reagent costs, etc., for near-term capture technologies.
- Began preparation of the topical report on “The Preliminary Design of Advanced Compression Technology” (D47).
- Preparations are under way to attend:
 - The American Conference Institute’s 3rd Annual Carbon Capture and Sequestration Summit and the Post-Summit Workshop entitled “From the Smokestack to the Gas Tank: Transforming CO₂ into Fuel,” on September 14–16, 2009, in Washington, D.C. (<http://americanconference.com/CCS.htm>)
 - Optimized Gas Treating’s advanced seminar focusing on the ProTreat™ simulator for acid gas treatment that will be held October 28–29, 2009, in Houston, Texas. The ProTreat™ software was purchased for use in future PCOR Partnership technology–source matching activities, and the seminar will provide the in-depth training needed to fully use this tool (www.ogtrt.com/event.cfm?eid=6).

Task 7 – CO₂ Procurement (John A. Harju)

Highlights

- Numerous discussions with potential CO₂ suppliers have taken place. Because of the sensitive nature of negotiations, specifics cannot be shared at the present time.

Task 8 – Transportation and Injection Operations (Steven A. Smith)

- This task is anticipated to be initiated Quarter 3 – BP4, Year 4.

Task 9 – Operational Monitoring and Modeling (Charles D. Gorecki)

- This task is anticipated to be initiated Quarter 1 – BP4, Year 3.

Task 10 – Site Closure (to be announced [TBA])

- This task is anticipated to be initiated in Quarter 1 – BP 5; Year 9.

Task 11 – Postinjection Monitoring and Modeling (TBA)

- This task is anticipated to be initiated in Quarter 1 – BP 5; Year 9.

Task 12 – Project Assessment (Katherine Anagnost)

- Nothing to note at this time. The next Project Assessment Annual Report is scheduled to be submitted on December 31, 2009.

Task 13 – Project Management (Edward N. Steadman)

Highlights

- Followed up with CSLF regarding the application submitted June 22, 2009, for recognition of Spectra Energy's Fort Nelson demonstration project.
- Prepared a draft agenda for the CO₂ Sequestration Workshop to be held on October 25, 2009, in conjunction with the EERC Air Quality VII Conference in Arlington, Virginia.
- Drafted letters to contact Phase II members in order to solicit continued support of the PCOR Partnership for Phase III, BP4 and 5 activities.
- Attended the North Dakota Industrial Commission Oil and Gas Council meeting on August 6, 2009, in Bismarck, North Dakota, and discussed ongoing negotiations to secure a CO₂ supplier for the Phase III demonstration project.
- Discussed internally a new approach for tracking and processing the multitude of upcoming milestones, deliverables, and value-added reports.
- Reviewed papers submitted for the Society of Petroleum Engineers (SPE) International Conference on CO₂ Capture, Storage, and Utilization scheduled for November 2–4, 2009, in San Diego, California.
- Prepared for and presented at a meeting with DOE and NETL representatives in Pittsburgh, Pennsylvania, on August 27, 2009, regarding negotiations to secure a CO₂ supplier for the pending demonstration project, and reviewed potential alternate plans.
- Held a conference call on August 18, 2009, with several interested parties to further discuss Williston Basin CO₂-sourcing issues.
- Reviewed and discussed a draft specification for a proposed upcoming IEA Greenhouse Gas R&D Programme project.
- Continued work on the project risk management plan outline.
- Continued planning for the upcoming 2009 PCOR Partnership Annual Meeting scheduled for December 1–3, 2009, in St. Louis, Missouri, including ongoing efforts to post the registration information on the Internet.
- Continued preparation of materials for October 26, 2009, as Session Coordinator for the Carbon Management session in conjunction with the EERC's Air Quality VII Conference, including preparation of a presentation to be used during the session.
- Provided requested information to the Senior Policy Analyst in the Carbon Capture and Storage Development division of the Alberta Department of Energy.
- Phase III deliverables submitted for August:
 - M22: Task 14 – Draft White Paper – Nexus of CCS and Water Available for Comments
 - M23: Task 14 – Monthly WWG Conference Call Held

- Monthly Update
- Upcoming Phase III deliverables for September:
 - M23: Task 14 – Monthly Water Working Group (WWG) Conference Call Held
 - D1: Task 1 – Review of Source Attributes
 - D3: Task 1 – Permitting Review – One State and One Province
 - D9: Task 1 – Updated DSS
 - D47: Task 6 – Topical Report on the Preliminary Design of Advanced Compression Technology
 - D77: Task 13 – Risk Management Plan Outline
 - Monthly Update

Task 14 – Regional Carbon Sequestration Partnership (RCSP) Water Working Group Coordination (Charles D. Gorecki)

Highlights

- Submitted the Draft White Paper on the Nexus of CCS and Water to DOE NETL and the WWG for review and requested comments be received no later than September 21, 2009.
- Developed a banner logo for the WWG that includes the working group title along with the logos of all seven RCSPs and DOE NETL. This banner will be affixed to all WWG deliverables.
- Held monthly WWG conference call on August 25, 2009.

Phase II – Travel/Meetings

- August 27, 2009: Attended editing session for geologic sequestration documentary at Prairie Public Broadcasting studios in Fargo, North Dakota.

Phase III – Travel/Meetings

- August 3–5, 2009: Attended the IOGCC Carbon Capture & Geologic Storage Task Force meeting in Oklahoma City, Oklahoma.
- August 6, 2009: Presented at the North Dakota Industrial Commission Oil and Gas Council meeting in Bismarck, North Dakota.
- August 16–19, 2009: Presented at the AAPG/Scientific Ecology Group, Inc. /SPE Hedberg Research Conference “Geological Carbon Sequestration: Prediction and Verification” in Vancouver, British Columbia, Canada.
- August 24–27, 2009: Traveled to Spectra Energy offices for meetings regarding the Fort Nelson risk management plan in Calgary, Alberta, Canada.
- August 24–27, 2009: Attended meetings regarding CO₂ sourcing issues in Dallas, Texas, and Pittsburgh, Pennsylvania.