



**Plains CO₂ Reduction (PCOR) Partnership Monthly Update
September 1–30, 2009**

PHASE II ACTIVITIES

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

Highlights

- A meeting with Phase II task leaders was held on September 3, 2009, to discuss the format, time line, and funding for preparation of the final report for each task. The final report is due to the U.S. Department of Energy (DOE) National Energy Technology Laboratory (NETL) no later than December 29, 2009.
- Continued preparatory work for the Phase II final report due December 29, 2009, including a first draft completion of all task final reports (except Task 2) by September 30, 2009.
- A task leader meeting was held September 11, 2009. Topics discussed included the Phase II final report, new internal procedures for deliverables and milestones, and plans for the upcoming annual meeting.
- Met on September 10, 2009, to review the modifications made to the Partners-Only Decision Support System (DSS, 2007–2009 © EERC Foundation).
- Continued plans for the upcoming 2009 PCOR Annual Meeting in St. Louis, Missouri, including:
 - Drafted proposed agendas for the premeeting workshops and annual meeting.
 - Continued contacting speakers and sponsors.
 - Discussed awards, gifts, products, and evening activity.
- An e-mail blast (www.undeerc.org/PCOR/PCOR09/email/email090911.asp) was sent to the membership on Friday, September 11, 2009, and included all of the information needed to register for the premeeting workshops, the meeting, and the evening dinner. Links to the annual meeting registration Web site can be found on the EERC's Web site, the PCOR Partnership public Web site, and the Partners-Only DSS Web site.
- Reviewed the updated documentary entitled "Managing Carbon Emissions: The Geologic Solution." This documentary is slated for broadcast on November 10, 2009, on Prairie Public Television, and the DVD is planned for distribution at the upcoming PCOR Partnership Annual Meeting.
- Reviewed the updated PCOR Partnership Atlas, 3rd Edition, and initiated the printing process to ensure timely distribution of the atlas at the upcoming PCOR Partnership Annual Meeting.
- Prepared a poster of the Carbon Sequestration Leadership Forum (CSLF)-recognized (May 2007) Zama Acid Gas EOR, CO₂ Sequestration, and Monitoring Project and a poster describing the Fort Nelson project for exhibition at the Third CSLF Ministerial Meeting in London, England, October 11–16, 2009. The Fort Nelson project is being considered for CSLF recognition.

- Phase II deliverables submitted 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
- Upcoming Phase II deliverables for October:
 - D3: Task 1 – Quarterly Report
 - D44: Task 9 – Best Practice Manual: Regional Sequestration Opportunities (Update/Revision)
 - 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 a) to run the reservoir simulation tool (RST), vertical seismic profiling (VSP), and other downhole logging tools around the first week of October; b) to wrap up the primary data collection by the end of October; and c) to continue to monitor throughout December, compiling as much data as possible to include in the final report.
- Follow-on logging and analysis are scheduled for October 5, 2009.
- Additional work under way includes:
 - Continued development of petrophysical model of the Northwest McGregor injection site and study area.
 - Continued preparation of a CMG GEM 3-D model of geochemical reactions.
 - Finished compiling DST data and began calculating results.
 - Continued monitoring of oil, water and gas flow.
 - Sampling of oil, water, and gas continues on a weekly basis. Approximately half of the submitted samples have been analyzed.
 - Geochemical modeling: kinetics, equilibrium, and 2-D dynamic simulations continued.

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

Highlights

- Continued injection and production at the site.
- Met with representatives of Apache Canada Ltd., on September 23, 2009, at its offices in Calgary, Alberta, Canada, to review project and wrap up work.
- Met with representatives of Weatherford Advanced Geotechnology, on September 23, 2009, at its offices in Calgary, Alberta, Canada, to review project and wrap up work.
- Finalized the RTIP.
- Continued preparation of the final task report.

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

Highlights

- Efforts were undertaken to disassemble the wellheads and clean up the Lignite site.
- Finalized the RTIP.
- Continued preparation of the final task report.

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

Highlights

- Completed final report on September 30th, 2009.
- 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.”
- Initiated preparation of presentation posters for display at the PCOR Partnership annual meeting.

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

Highlights

- Incorporated DOE NETL project manager’s comments into the next edition of the PCOR Partnership Atlas (D49).
- Presented the new DSS content and layout for internal review and comment.
- Received draft final report from the Iowa Geological Survey.
- Continued preparation of the final task report.

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.
- Followed and reviewed actions occurring in Congress for any implications relating to CCS, and provided updates of these activities to task leaders.
- Responded to a request for information on pore space ownership regulations.
- Continued preparation of the final task report.

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

Highlights

- Hosted an internal viewing of geologic documentary (D46) on September 22, 2009, and continued to address final comments on geologic documentary with Prairie Public Broadcasting. The broadcast date is November 10, 2009, in the Prairie Public region.

- Wrapped up filming for the “Carbon Footprint: One Size Does Not Fit All” documentary (D51) in Minneapolis, Minnesota, September 14–19, 2009, including an energy audit of two family properties, footage of the Great River Energy facility, and the last of the “day in the life” sequences of family energy use.
- Continued review of film footage and preparation of a storyline for the Carbon Footprint documentary.
- Continued preparation of the final task report.

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.
- Prepared the final task report.

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:
 - Continued 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.
 - Continued discussions with NACAP committee members on additional work assigned.
- Participated in the kickoff conference call for the Regional Carbon Sequestration Partnership (RCSP) Atlas and the NACAP Atlas on September 10, 2009.
- Participated in conference calls and activities for the Outreach Working Group, including:
 - Received for comment a draft final copy of the Outreach Working Group report entitled “Best Practices Manual for Outreach.”
 - Prepared and submitted on September 25, 2009, a review of the draft document entitled “Guidelines for Community Engagement Regarding Carbon Dioxide Capture and Storage (CCS) Projects” by the World Resources Institute.
- Participated in conference calls for other various working groups, including Geologic and Modeling, Capture and Transportation, Simulation and Risk Assessment, GIS, and the Water Working Group.
- Sent an e-mail inquiry on September 15, 2009, to the PCOR Partnership partners to determine interest in receiving an invitation to the RCSP annual review meeting scheduled for November 16–19, 2009, in Pittsburgh, Pennsylvania.
- A draft RCSP Annual Review Meeting agenda was received on September 24, 2009, with RCSP asking for a review of the agenda and speakers to fill the time slots. It is proposed that the PCOR Partnership present on its Terrestrial field validation test, its Lignite field

validation test, its Northwest McGregor Huff 'n' Puff project, and its Phase III development phase projects. RCSP working groups will also hold meetings.

PHASE III ACTIVITIES

Task 1 – Regional Characterization (Wesley D. Peck)

Highlights

- Continued efforts to collect and comprehend the readily available data on the subsurface of western Nebraska as it relates to CCS in response to projected needs of the Nebraska Public Power District.
- Continued discussions regarding 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.
- Continued content compilation for the Multimedia Gallery, including the Image Library, News, Facts, and Videos, for the revised DSS Web site.
- Continued 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

- Continued efforts to finalize speaker agreement for the PCOR Partnership Annual Meeting and Workshops, scheduled for December 1–3, 2009, in St. Louis, Missouri.
- Initiated planning and the preparation of a revised scope of work for the public Web update due in January 2010 (D13).
- Received and accepted a formal invitation to give a presentation on focus groups and outreach tracking and planning at the initial meeting of the IEA Greenhouse Gas R&D Programme, Social Research Network, on November 2–3, 2009, in Paris, France.
- Participated in conference call to develop outreach materials for the Aquistore Project studying the feasibility of storing carbon dioxide in deep saline aquifers in the Canadian Western Sedimentary Basin (Midwest Partnership [Illinois Geological Survey] was also involved in the call). Invited to participate in a workshop in Regina, Saskatchewan, on October 26, 2009, to develop materials for this project outreach effort.

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

Highlights

- Completed the NEPA for non-site-specific and non-field-based work for the PCOR Partnership project for BP4 and BP5.
- Continued ongoing review of recent publications relating to regulating CO₂ sequestration and MVA issues.
- Continued analyses of carbon market strategies.
- Completed 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. Comments are due October 15, 2009.

- Participated on September 3, 2009, in CCEMC’s “Climate Change and Emissions Management Act: Alberta’s Response to Reduce Emissions” webinar that described the Act and the CCEMC. The CCEMC is the innovative initiative of Alberta to address climate change issues through funding new emissions reducing technology. The Expression of Interest (EOI) applications are due September 30, 2009.
- Attended Platts 2nd Annual Carbon Capture and Sequestration Conference 2009 on September 14–15, 2009, in Washington, D.C. This event highlighted the latest information on policy and economics of CCS.
- Participated in a conference call of the Interstate Oil and Gas Compact Commission’s Pipeline Transportation Task Force Executive Committee.
- Reviewed a report about bioenergy with CCS that was submitted by Biorecro AB, and participated in meeting with Biorecro on September 28, 2009, at the EERC.

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

Highlights

- Met with Spectra Energy officials in Calgary, Alberta, Canada, on September 24–25, 2009, for a review of project progress as well as to participate in a technical program on the winter 2009/2010 project plans.
- Held several phone meetings with Oxand and Spectra Energy to finish up the first-round risk assessment for the Fort Nelson CCS project, including a risk evaluation workshop on September 11, 2009. This workshop included an evaluation of the risk estimation results, i.e., determining which risks needed to be treated and which were acceptable.
- Finalized work on the development of a project risk assessment plan for the Fort Nelson demonstration and transmitted the draft report to Spectra Energy on September 21, 2009.
- 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.
- Conducted initial error minimizing stochastic mineralogical petrophysical analysis of the test well.

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

- Prepared review of source attributes (D1, Task 1).
- Prepared a topical report on “Preliminary Design of Advanced Compression Technology” (D47).
- Continued an internal review of document summarizing updated capture technologies

- Continued information gathering regarding power usage, thermodynamic balances, reagent costs, etc., for near-term capture technologies.
- Initiated information gathering about water usage during CCS activities.
- Reviewed a report about bioenergy with CCS that was submitted by Biorecro AB, and participated in meeting with Biorecro on September 28, 2009, at the EERC.
- Attended 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>)
- Preparations are under way to attend:
 - 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 (<http://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 – Post Injection 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

- Participated in a free webinar on September 22, 2009, sponsored by the International Energy Agency (IEA) CCS entitled “How Stable is Stable? – What Is Required for CCS Site Handover?”
 - Hosted representatives from Biorecro AB, Stockholm, Sweden, during their visit to the EERC on Monday, September 28, to discuss an approach to capture and store CO₂ originating from biotic sources, referred to as bioenergy with carbon capture and storage (BECCS).
 - Continued preparations for a PowerPoint presentation and a poster for the Fort Nelson CCS Project seeking CSLF recognition at the Third CSLF Ministerial Meeting in London, England, October 11–16, 2009.
 - Drafted a technical paper and prepared a PowerPoint presentation for the Carbon Management Session to be held on October 26, 2009, at the EERC Air Quality VII Conference.
 - A task leader meeting was held September 11, 2009. Topics discussed included the plans for the upcoming annual meeting, an update on proposed Phase III demonstration sites, and a review of past proposals and upcoming deliverables.
 - An e-mail blast (www.undeerc.org/PCOR/PCOR09/email/email090911.asp) was sent to the membership on Friday, September 11, 2009, and included all the information needed to register for the premeeting workshops, the meeting, and the evening dinner. Links to the annual meeting registration Web site can be found on the EERC’s Web site, the PCOR Partnership public Web site, and the Partners-Only DSS Web site.
 - Received notification from the Lignite Energy Council's Awards Committee that Ed Steadman and John Harju have been designated to receive the “Distinguished Service – Research and Development Award” because of their leadership and counsel on CO₂ storage projects involving the lignite industry. The awards will be presented on October 8, 2009, in Bismarck, North Dakota.
 - Continued planning for the upcoming 2009 PCOR Partnership annual meeting scheduled for December 1–3, 2009, in St. Louis, Missouri.
 - Phase III deliverables/milestones for September:
 - M23: Task 14 – Monthly Water Working Group (WWG) Conference Call Held
 - M4: Task 4 – Williston Basin Site Selected (Confidential)
 - M5: Task 4 – Data Collection Initiated for Williston Basin Test Site (Confidential)
 - 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
- Upcoming Phase III deliverables for October:
- M23: Task 14 – Monthly WWG Conference Call Minutes
 - Phase III - D78: Task 14 – Final White Paper on the Nexus of CCS and Water
 - Phase III – D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report

- Monthly Update

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

Highlights

- Distributed the August WWG conference call notes from on September 3, 2009.
- Collected comments (due by September 21, 2009) on the draft White Paper on the Nexus of CCS and Water.
- Began preparation of the final white paper (D78) that will be submitted to DOE NETL on or before October 21, 2009.
- Held monthly WWG conference call on September 22, 2009.

Phase II – Travel/Meetings

- September 1–3, 2009: Attended the North Dakota Petroleum Council Annual Meeting in Medora, North Dakota.
- September 2, 4, 15, and 25, 2009: Attended editing sessions with Prairie Public Broadcasting at its offices in Fargo, North Dakota.
- September 9–11, 2009: Attended meetings with Ducks Unlimited in Bismarck, North Dakota.
- September 14–18, 2009: Traveled to Minneapolis, Minnesota, to complete filming for the Carbon Footprint documentary.
- September 21–24, 2009: Attended the 26th Annual International Pittsburgh Coal Conference in Pittsburgh, Pennsylvania.

Phase III – Travel/Meetings

- September 3, 2009: Participated in CCEMC's webinar entitled "Climate Change and Emissions Management Act: Alberta's Response to Reduce Emissions."
- September 13–16, 2009: Attended the Platt's 2nd Annual Carbon Capture & Sequestration Policy, Economics, Regulation and Risk Conference in Washington, D.C.
- September 13–16, 2009: Attended the ACI 3rd Annual Carbon Capture and Sequestration Summit and Post-Summit Workshop entitled "From the Smokestack to the Gas Tank: Transforming CO₂ into Fuel" in Washington, D.C.
- September 13–16, 2009: Attended the Water/Energy Sustainability Symposium at the 2009 Ground Water Protection Council Annual Forum in Salt Lake City, Utah.
- September 15–17, 2009: Presented at the 2009 North Dakota Solid Waste and Recycling Symposium in Minot, North Dakota.
- September 22, 2009: Participated in IEA CCS Webinar entitled "How Stable Is Stable? – What Is Required for CCS Site Handover?"
- September 22–25, 2009: Met with representatives of Spectra Energy in Calgary, Alberta, Canada.