



Plains CO₂ Reduction (PCOR) Partnership Monthly Update January 1–31, 2010

PHASE III ACTIVITIES

Task 1 – Regional Characterization (Wesley D. Peck)

Highlights

- Traveled to Lincoln, Nebraska, January 11–12, 2010, to meet with representatives from the Nebraska Public Power District with regard to carbon management planning. Also participated in discussions regarding potential CO₂ needs for enhanced oil recovery (EOR) in western Nebraska and adjacent Kansas.
- Compiled metadata for the saline aquifer raster data and provided the raster data sets to the Sandia Staffing Alliance (SSA) on January 15, 2010. SSA is working with the U.S. Department of Energy (DOE) National Energy Technology Laboratory (NETL) on aspects of saline sequestration as related to water supply for power plants.
- Continued review of the Decision Support System (DSS, © 2007–2009 EERC Foundation). The objective of this review is to identify discrepancies in the relational database schematics and tables. The following efforts have been undertaken:
 - The new risk management section for the DSS was completed, sent to programming, and review began January 15, 2010.
 - The test data entry system for the image gallery was received.
 - The PCOR Partnership database structure that supports the DSS was received. Several of the database tables are no longer needed, and the data review and cleanup will make management of the system easier and more intuitive.
- Created updated imagery and maps for upcoming PowerPoint presentations.
- Continued work on reviewing the geology of western Nebraska with respect to CO₂ storage in saline formations. Expanded the investigation to explore faulting that may affect storage security and volume.
- Began preparation of materials for upcoming North American Carbon Atlas Partnership (NACAP) meeting in Cuernavaca, Mexico, where discussion on the capacity estimation methodology will continue.
- Helped update regional statistical data for the DOE NETL revised fact sheet for Phase II.

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

Highlights

- Held a third internal meeting on January 8, 2010, with PCOR Partnership management to review the draft documentary “Carbon Footprint: One Size Does Not Fit All” (a draft had

been sent to NETL on December 29, 2009, and the draft final is due to NETL on March 31, 2010).

- The fourth documentary, Managing Carbon Dioxide: The Geologic Solution, was mailed out January 8, 2010, to all partners who had not received a copy at the annual meeting. A follow-up e-mail to the partners is planned in order to provide public broadcasting station information to urge broadcast throughout the PCOR Partnership region.
- Held an internal meeting with management on January 14, 2010, to review proposed changes to the public Web site.
- Submitted the Public Site Update report on January 15, 2010 (Deliverable D13).
- Reviewed the draft video of presentations and classroom activities from last summer's (July 29–30, 2010) Keystone CSI: Climate Status Investigations education workshop coordinated in conjunction with the PCOR Partnership in Omaha, Nebraska. An internal work plan to finalize the video segments was developed.
- Prepared drafts of two abstracts for consideration for the 9th Annual Carbon Capture and Sequestration Conference in Pittsburgh, Pennsylvania, May 10–12, 2010. The abstract titles are tentatively: "Outreach Planning and Tracking" and "Covering the Bases – Regional and Project Level Outreach for Sequestration."

Task 3 – Permitting and NEPA (National Environmental Policy Act) Compliance (Lisa S. Botnen)

Highlights

- Participated in conference calls of the Interstate Oil and Gas Compact Commission's (IOGCC's) Pipeline Transportation Task Force (PTTF). The PTTF was formed in May 2009 to undertake a scoping on behalf of states on the issue of CO₂ pipeline transportation. The main outcome of the task force will be to produce a report to help states begin to understand the issues that will need to be addressed in siting and regulating new CO₂ pipelines.
- Reviewed and commented on PTTF draft interim regulatory framework report on CO₂ pipeline infrastructure issues.
- Completed an IOGCC survey on PCOR Partnership Phase II field validation site permitting issues to be used at the IOGCC Regional Carbon Sequestration Partnership (RCSP) "Lessons Learned" exercise and participated in that meeting in Santa Fe, New Mexico, on January 20–22, 2010.
- Worked with British Columbia regulators on the development of a comprehensive review of acid gas disposal and potential carbon capture and storage (CCS) regulations.
- Conducted an internal meeting to begin development of a PCOR Partnership regulatory workshop expanded to include pipeline regulators, tentatively scheduled for June in Deadwood, South Dakota.
- Reviewed Senate Bill 2889 named the "Surface Transportation Board Reauthorization Act of 2009" to identify potential implications for CO₂ pipelines.
- Conducted internal meetings to facilitate the update of the "Regulations" page on the DSS (<http://www2.undeerc.org/website/pcorp/Regulations/Default.aspx>).
- Continued review of the implications of U.S. Environmental Protection Agency (EPA) findings document entitled "Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Clean Air Act" signed by the EPA Administrator on December 7, 2009.

- Forwarded timely CCS information to internal project leaders, e.g., an article called “SEC to Issue Climate Change Disclosure Guidance.”

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

Highlights

- Submitted second draft of the first-round risk assessment report for the Fort Nelson CCS project to Spectra Energy on January 7, 2010. The updated report appendices were sent on January 22, 2010.
- Held first monthly conference call between Spectra and the EERC on January 8, 2010. Topics discussed included drilling update, time line/communication pathways plan, water sampling and analysis, geology update, risk assessment, project time line, the proposed Fort Nelson zone on the DSS site and the upcoming January 27, 2010, meeting in Calgary.
- Continued running predictive simulations on the Fort Nelson CCS project.
- On January 9, 2010, Spectra hit total depth for the “slant drill” operation being conducted off the well they drilled last year. This has created a new borehole in the target reservoir and lower part of the cap rock that is approximately 80 meters away from the old borehole. The new borehole spans an interval from a depth of 2054 m at the top to 2283 m at the bottom. A variety of tests (well logging, leak-off tests, etc.) were initiated on the well over the course of the week and will continue over the winter.
- A conference call was held between Spectra, Weatherford Laboratories, and the EERC on January 12, 2010. Topics discussed included logistics for collecting and analyzing shallow groundwater and formation fluid samples, analytical tests on previously collected core, and the upcoming meeting in Calgary.
- Continued work on geochemical reaction modeling: all standard samples and representative samples of the cap rock and reservoir rocks from the site were submitted to the laboratory.
- Participated in a task leader meeting on January 19, 2010.
- Researched the British Columbia Oil and Gas Commission’s permitting and reporting requirements, including the following:
 - Acid gas permitting requirements
 - Non-special waste permitting requirements
 - Hydrocarbon storage permitting requirements
 - Storage well monthly reporting requirements
- A quarterly progress meeting was held at Spectra’s headquarters in Calgary on January 27, 2010. The meeting included Steve Smith and Scott Ayash of the EERC, David Moffatt and Mark Jenkins of Spectra, and Stefan Bachu of Alberta Innovates – Technology Futures.
- Participated in an internal budget review meeting on January 29, 2010.
- Prepared several potential abstracts for the upcoming 9th Annual Carbon Capture and Sequestration Conference in Pittsburgh, Pennsylvania.
- Continued work to develop and design a laboratory experimental program for petrological, geochemical, and geomechanical analysis of core samples from the Bell Creek area.

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

Highlights

- Nothing to note at this time.

Task 6 – Infrastructure Development (Melanie D. Jensen)

Highlights

- Submitted the value-added report entitled “Regional Emissions and Capture Opportunities Assessment – Plains CO₂ Reduction (PCOR) Partnership” on January 4, 2010. This report replaces Phase II Deliverable D44 as it updates the original document and expands on it with information gathered during Phase III activities.
- Dr. Robert Cowan began work on January 4, 2010, as a Research Engineer to assist on the Phase III Infrastructure Development task. Dr. Cowan’s areas of expertise are carbon capture and water treatment.
- Summarized various options for approaches to the carbon capture and transportation pieces of an integrated carbon management plan for presentation to the Nebraska Public Power District on January 12, 2010.
- Prepared statistics regarding the PCOR Partnership region’s power plants for outreach activities.
- Responded to an information request on January 13, 2010, from AECOM, a group that is preparing a capture technology summary for Environment Canada, one of the PCOR Partnership partners.
- Prepared an abstract entitled “Estimating the Cost to Capture, Compress, and Transport CO₂ from Stationary Sources in the PCOR Partnership Region” for the 9th Annual Carbon Capture and Sequestration Conference in Pittsburgh, Pennsylvania.
- Completed a first draft of a summary of the compression process during CCS on January 22, 2010. Plans are under way to submit the final product as a value-added report in the future.
- Developed a draft matrix of capture technologies and combustion platforms to be used as the basis for an updated overview of capture technologies. Plans are under way to submit the final product as a value-added report in the future.
- Summarized information about water usage during CCS activities and organized an internal meeting of EERC personnel to review and discuss activities and future projects.
- Checked the status of the activities of the Pipeline Atlas Working Group on January 15, 2010. No action has been taken or scheduled since the last conference call held November 12, 2009.

Task 7 – CO₂ Procurement (John A. Harju)

Highlights

- Continued discussions with potential CO₂ suppliers. Because of the sensitive nature of negotiations, specifics cannot be shared at the present time.
- Participated in an internal budget review meeting on January 29, 2010.

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

- This task is anticipated to be initiated Quarter 3 – Budget Period (BP)4, Year 4 (April 2011).

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

Highlights

- Attended a participatory workshop hosted by the Global Climate and Energy Project and the U.S. Geological Survey on seals and cap rocks in geologic carbon sequestration at the Asilomar Conference Grounds in Pacific Grove, California, January 12–15, 2010.
- Continued running predictive simulations on the Fort Nelson site with the new well locations, injection schemes, and fault transmissibilities.
- Discussed subcontracts for monitoring, verification, and accounting (MVA) activities at the Fort Nelson site with other task leaders and the mechanisms in which we can help facilitate these activities.
- Drafted an abstract for submittal to the 9th Annual Conference on Carbon Capture and Sequestration on the Fort Nelson modeling and MVA work.
- Began researching and requesting new tools to aid in more accurately modeling the Fort Nelson project.
- Continued working on predictive simulations with CO₂ injection to identify uncertainties and analyze sensitivities.
- Worked on numerical tuning optimization in CMOST for application to future simulation studies.
- Activities for the U.S. test site are not scheduled to begin until October 2010.

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

- This task is anticipated to be initiated in Quarter 1 – BP5, Year 9 (October 2015).

Task 11 – Postinjection Monitoring and Modeling (TBA)

- This task is anticipated to be initiated in Quarter 1 – BP5, Year 9 (October 2015).

Task 12 – Project Assessment (Katherine K. Anagnost)

Highlights

- Nothing to note at this time. The next project assessment report is due December 31, 2010.

Task 13 – Project Management (Edward N. Steadman)

Highlights

- Led a task leader meeting on January 19, 2010. Topics discussed included an annual meeting recap, the U.S. test site update, upcoming PCOR Partnership group meeting, new reporting format for the quarterly progress reports, and various task leader updates.

- Presented a review of Phase II activities and an update on Phase III activities before the North Dakota Oil and Gas Research Council on January 20, 2010, in Bismarck, North Dakota.
- Led an internal budget review meeting on January 29, 2010.
- Reviewed potential abstracts to be submitted before February 16, 2010, for the upcoming 9th Annual Carbon Capture and Sequestration Conference in Pittsburgh, Pennsylvania.
- Prepared a presentation for the EUEC 2010: Energy & Environment Conference on February 1–3, 2010, in Phoenix, Arizona.
- Submitted an abstract on January 14, 2010, for the Carbon Sequestration: Research, Deployment, and Commercialization at the Joint North-Central and South-Central GSA meeting in Branson, Missouri, April 11–13, 2010.
- Continued efforts as chairman of the NACAP Methodology Subcommittee including preparation for upcoming meeting March 9–10, 2010, in Cuernavaca, Mexico.
- Participated in the Fort Nelson CCS project monthly conference on January 8, 2010.
- Provided project baseline accounts for PCOR Partnership demonstration project information to the NETL Project Manager on January 7, 2010, to be compiled for an Underground Injection Control (UIC) Program Class VI Rule Economic Analysis Project Forecast.
- Participated in an internal planning session on January 6, 2010, for the next PCOR Partnership regulatory workshop tentatively scheduled for June in Deadwood, South Dakota.
- Responded to an inquiry on CCS in the PCOR Partnership region from a representative of the science team of the British Consulate in Boston, Massachusetts.
- Provided comments on January 25, 2010, to the RCSP Coordinator on the Site Screening, Selection and Characterization Process Diagrams to be included in an upcoming draft version of the Best Practices Manual.
- On January 25, 2010, agreed to present at the Institute for Energy and Environment at Ohio State University's Geologic Carbon Sequestration Site Integrity: Characterization and Monitoring Workshop on June 7–8, 2010.
- Deliverables for January:
 - December monthly update
 - D13: Task 2 – public site updates
 - M23: Task 14 – monthly Water Working Group (WWG) conference call held
 - D58/D59: Task 13 – quarterly progress report/milestone quarterly report
- Upcoming deliverables for February:
 - January monthly update
 - M23: Task 14 – monthly WWG conference call held

Task 14 – RCSP Water Working Group Coordination (Charles D. Gorecki)

Highlights

- Attended the Groundwater Protection Council 2010 UIC Conference held in Austin, Texas, on January 25–27, 2010. Served on an RCSP panel and provided an update on the PCOR Partnership on January 27, 2010.
- In lieu of the water resource estimation methodology document originally due in February 2010, a one-page fact sheet (front and back) providing an overview of issues and opportunities associated with the nexus of water and CCS will be due April 30, 2010.

- The WWG held its monthly conference call on January 6, 2010, and the minutes from the call were distributed on January 29, 2010.
- Initiated preparation of an abstract for the upcoming 9th Annual Carbon Capture and Sequestration Conference in Pittsburgh, Pennsylvania.
- Continued updating WWG future research goals.

Travel/Meetings

- January 11–12, 2010: met with representatives of Nebraska Public Power District in Lincoln, Nebraska.
- January 12–15, 2010: presented at the Seals and Caprocks in Geologic Carbon Sequestration Workshop in Pacific Grove, California.
- January 19–20, 2010: presented before the North Dakota Oil and Gas Research Council in Bismarck, North Dakota.
- January 20–22, 2010: participated in the IOGCC RCSP “Lessons Learned” exercise in Santa Fe, New Mexico.
- January 25–27, 2010: participated in the Groundwater Protection Council 2010 UIC Conference held in Austin, Texas.
- January 26–28, 2010: met with representatives of Spectra Energy in Calgary, Alberta, Canada.
- January 31, 2010: traveled for a presentation on February 1, 2010, at the 2010 EUEC Energy and Environment Conference in Phoenix, Arizona.