



Plains CO₂ Reduction (PCOR) Partnership Monthly Update
April 1–30, 2010

PHASE III ACTIVITIES

Task 1 – Regional Characterization (Wesley D. Peck)

Highlights

- Continued upgrade and modification of the Decision Support System (DSS, © 2007–2010 EERC Foundation). The following efforts have been undertaken:
 - Reviewed and programmed material drafted regarding carbon market information.
 - Reviewed and began testing the first draft of the new image gallery.
 - Reviewed and began testing the first draft of the new geographic information system (GIS) interface. This new interface has changed significantly in appearance from the current version but is hoped to deliver a more productive user experience.
- On April 8, met with a representative of Nebraska Public Power District (NPPD) regarding options for a carbon management plan.
- The first of four GIS layers was sent to NATCARB (the NATional CARBOn Sequestration Database and GIS) for use in the electronic version of the national U.S. Department of Energy (DOE) atlas.
- Initiated efforts toward preparation of new text and images for the new national atlas (print version) on the background of the PCOR Partnership, as well as information on each of its Phase II field validation tests and its planned Phase III demonstration projects and outreach activities. The new information is due to DOE July 1, and a conference call has been scheduled for May 20 to discuss progress.
- Assembled materials for display and distribution at the upcoming 18th Williston Basin Petroleum Conference and Expo (May 2–4, 2010).
- Discussed potential opportunities to expand a regional characterization effort to examine the basal aquifer system across the Dakotas, Manitoba, Saskatchewan, and Alberta.
- Initiated compilation of base data on the Lower Cambrian aquifer system in the Dakotas. This is part of a larger effort to review this saline system across the Dakotas, Manitoba, Saskatchewan, and Alberta with respect to CO₂ capacity.
- Created and assembled PowerPoint information for presentations at the upcoming 9th Annual Conference on Carbon Capture and Sequestration in Pittsburgh (May 10–13, 2010).

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

Highlights

- Participated in the Regional Carbon Sequestration Partnership (RCSP) Outreach Working Group conference call on April 15, 2010.
- Held an in-house meeting on April 9 to review proposed video clips (excerpted from the “Managing Carbon Dioxide: The Geologic Solution” documentary) and new Web pages for inclusion on the PCOR Partnership public Web site.
- In collaboration with Prairie Public Broadcasting (PPB), worked on integration of the revised narration track using a new narrator for the “Carbon Footprint: One Size Does Not Fit All” draft documentary.
- Met with PPB on April 6 and 16 to finalize development of the Budget Period (BP) 4 scope of work and budget and to discuss upcoming education activities.
- Finalized and uploaded to the 9th Annual Conference on Carbon Capture and Sequestration Web site (<http://carbonsq.com/>) the following presentations:
 - “Covering the Bases – Regional and Project Level Outreach for Sequestration” to be presented on May 12 in the Outreach and Education technical concurrent session.
 - “Development of a Manual for Public Outreach Best Practices” to be presented on May 12 in the Initiatives under the U.S.–Canada Clean Energy Dialogue technical concurrent session.
- Participated in an in-house meeting on April 23 to begin review and revision of current fact sheets as well as initiated plans for future fact sheets for use within the overall context of PCOR Partnership outreach activities.
- Continued efforts to prepare sample outreach materials for the Indian Land Tenure Foundation.

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

Highlights

- Continued efforts toward planning the upcoming regulatory meeting in Deadwood, South Dakota, on July 21–22, 2010, including holding an in-house meeting on April 6.
- Participated in the Interstate Oil and Gas Compact Commission (IOGCC) Pipeline Transportation Task Force conference calls.
- Continued developing materials for inclusion on the partners-only Web site regulatory page.
- Completed review of the U.S. Environmental Protection Agency’s (EPA’s) proposed new greenhouse gas (GHG) emission reporting requirements and drafted an e-mail update to the partnership.
- Attended the University of North Dakota Law School Energy Law Symposium on April 9, where federal climate legislation was discussed.
- Participated in conference calls of the Presidential Interagency Task Force on carbon capture and storage (CCS), and participated in the DOE CCS Task Force – CO₂ Storage Workgroup conference call on Monday, April 12.
- Attended a full-day workshop hosted by Alberta Innovates in Calgary, Alberta, Canada, on Monday, April 19, 2010. The workshop was meant for attendees to provide insights and advice on the scientific and technical data and information that should be generated and

reported from the four large-scale demonstration CCS projects being funded in part under the government of Alberta's CAN\$2 billion CCS fund. Information about each of these projects can be found on the following Web site: www.energy.alberta.ca/Initiatives/1438.asp.

- Began the biennial review of the IOGCC "Summary of State and Provincial Action to Create a Legal and Regulatory Infrastructure for Storage of Carbon Dioxide in Geologic Structures" and the IOGCC "Update on IOGCC Legal and Regulatory Guidance for States and Provinces."
- Reviewed the U.S. Carbon Sequestration Council paper entitled "Prospecting for Power: The Cost of Meeting Increases in Electricity Demand."
- Initiated review of the Det Norske Veritas CO₂ storage guideline entitled "CO₂QUALSTORE Guideline for Selection, Characterization and Qualification of Sites and Projects for Geological Storage of CO₂."

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

Highlights

- Submitted on April 23 the quarterly "Project Status Report for the Fort Nelson Carbon Capture and Storage Project" to the Carbon Sequestration Leadership Forum (CSLF).
- Attended and presented at the American Association of Petroleum Geologists (AAPG) Annual Convention & Exhibition held in New Orleans on April 11–14, 2010 (www.aapg.org/neworleans).
- Continued laboratory experiments on the effects of CO₂ and H₂S on samples of potential reservoir and seal rock from the Fort Nelson location and samples from Powder River Basin outcrops that serve as analogs for the Bell Creek reservoir and seal.
- Finalized and uploaded to the 9th Annual Conference on Carbon Capture and Sequestration Web site (<http://carbonsq.com/>) the following presentations:
 - "A New Risk Management Methodology for Large-Scale CO₂ Storage: Application to Spectra Energy's Proposed Fort Nelson Carbon Capture and Storage Project" to be presented on May 11 in the technical concurrent session entitled Geologic Storage/Risk Assessment.
 - "Results of the Plains CO₂ Reduction Partnership's Phase II Demonstration in the Northwest McGregor Oil Field, North Dakota" to be presented on May 11 in the technical concurrent session entitled CCS in Enhanced Oil Recovery (EOR).
 - "Zama Acid Gas EOR, CO₂ Sequestration, and Monitoring Project" to be presented May 11 in the technical concurrent session entitled CCS via EOR.
 - "CO₂ Storage Pilot Study for Lignite Coal" to be presented on May 11 in the technical concurrent session entitled Reservoirs/Modeling.
 - "Northwest McGregor Field CO₂ Huff -N- Puff: A Case Study of the Application of Selected Geophysical Techniques for CO₂ Monitoring in a Deep Carbonate Reservoir" to be presented on May 12 in the technical concurrent session entitled Geological Storage/Monitoring, Verification, and Accounting (MVA).

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

Highlights

- Nothing to note at this time.

Task 6 – Infrastructure Development (Melanie D. Jensen)

Highlights

- Continued preparation of the capture technology overview.
- Web-based information about capture technologies continues to be reviewed on a weekly basis.
- Continued review of the CO₂ source locations to determine if changes to the PCOR Partnership database are warranted.
- Comments on a “pipeline basics” overview that was prepared for IOGCC in December were received, addressed, and a corrected version returned to IOGCC.
- Reviewed the USCSC paper entitled “Prospecting for Power: The Cost of Meeting Increases in Electricity Demand.”
- Participated in the RCSP Water Working Group (WWG) conference call held April 28.
- Began preparation of a presentation about risks associated with capture, compression, and pipeline transportation for a risk management seminar to be conducted by Oxand Risk & Project Management Solutions. The seminar is scheduled for May 18, 2010, in Calgary, Alberta, Canada (www.ptac.org/co2/dl/co2w1001b.pdf).
- Researched CO₂ emission statistics (such as global total CO₂ emission, CO₂ emission from transportation in the United States, etc.) that can be used in general discussions and presentations.
- Finalized and uploaded to the 9th Annual Conference on Carbon Capture and Sequestration Web site (<http://carbonsq.com/>) the following poster presentation:
 - “Estimating the Cost to Capture, Compress, and Transport CO₂ from Stationary Sources in the PCOR Partnership Region” to be presented May 11 in the poster session entitled Economics of CCS.

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.

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

- This task is anticipated to be initiated Quarter 3 – Budget Period BP4, Year 4 (April 2011).

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

Highlights

- Worked with Weatherford Labs and Spectra Energy to put together an updated quote for the analysis of core from the test well in the Fort Nelson CCS Project.
- Discussed obtaining 2-D seismic lines with Spectra Energy for better formation descriptions in the Fort Nelson CCS Project.
- Secured updated software licenses from Schlumberger for the Petrel, ECLIPSE, and Techlog Petrophysics software for use in modeling both Phase III demonstration sites.

- Finalized and uploaded to the 9th Annual Conference on Carbon Capture and Sequestration Web site (<http://carbonsq.com/>) the following presentations:
 - “Laboratory and Numerical Modeling of CO₂–H₂S–Water–Rock Interactions at Williston Basin Reservoir Conditions” to be presented on May 11 in the technical concurrent session entitled Reservoirs/Modeling.
 - “Geochemical Modeling of Enhanced Oil Recovery and CO₂ Storage at the Northwest McGregor Oil Field” to be presented on May 11 in the technical concurrent session entitled CCS via EOR.
 - “Developing Resource Estimates for CO₂ Storage in Regional Deep Saline Formations” to be presented Tuesday, May 11, in the technical concurrent session entitled Large-Scale CCS Projects.
 - “History Matching a CO₂ Huff -N- Puff EOR Project with CMGs GEM and CMOST” to be presented on May 12 in the poster session entitled Geologic Storage – Simulation.
 - “Introducing New Statistical Methods in Geochemical Kinetics Modeling for Better Estimations of CO₂–Water–Rock Interactions” to be presented on May 11 in the poster session entitled Geologic Storage – Risk Assessment.

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

- Continued planning for the upcoming PCOR Partnership annual meeting and sent an e-mail blast to the partnership on April 27 with date and location information. The annual meeting will be held October 19–21, 2010, at the Graves 601 Hotel in downtown Minneapolis, Minnesota.
- Presented on April 12, before the Joint Section Meeting of the Geological Society of America North-Central and South-Central Sections in Branson, Missouri.
- Submitted on April 23 the quarterly “Project Status Report for the Zama Acid Gas EOR, CO₂ Sequestration, and Monitoring Project” to the CSLF.
- Submitted proposed modifications to the statement of project objectives in regard to the Bell Creek MVA project and Zama add-on work on April 9, with the associated budgets sent on April 14.
- Efforts continued on a nontechnical risk register to assist with the overall PCOR Partnership Program risk management.

- Continued discussions with Spectra Energy on the proposed cost-share agreement.
- Continued preparations to hold a Fort Nelson CCS Project update meeting with representatives from DOE NETL, Spectra Energy, and the EERC on May 12 at the Pittsburgh Hilton.
- On April 14, distributed the IEA Greenhouse Gas R&D Programme's "Development of Storage Coefficients for Carbon Dioxide Storage in Deep Saline Formations" to the North American Carbon Atlas Partnership Methodology Subcommittee.
- A total of 18 abstracts were submitted to the 9th Annual CCS Conference in Pittsburgh – one was rejected, and one was declined. Three posters, 11 technical presentations, and one plenary session presentation will be presented May 10–13, 2010.
- Finalized and uploaded to the 9th Annual Conference on Carbon Capture and Sequestration Web site (<http://carbonsq.com/>) the following presentations:
 - "The PCOR Partnership: Collaborative U.S.–Canada Carbon Capture & Storage Demonstration Activities" to be presented on May 12 in the technical concurrent session entitled Initiatives under the U.S.–Canada Clean Energy Dialogue.
 - "The PCOR Partnership: CCS Demonstration Activities" to be presented on May 12 in the plenary session chaired by Traci Rodosta entitled The Regional Partnerships Move Forward on CCS Deployment.
- Deliverables for April:
 - March monthly update
 - M23: Task 14 – monthly WWG conference call held
 - D58/D59: Task 13 – quarterly progress report/milestone quarterly report

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

Highlights

- Distributed the March conference call notes on April 5, 2010.
- Held the monthly conference call on April 28, 2010.
- On April 30, submitted the value-added WWG fact sheet providing an overview of issues and opportunities associated with the nexus of water and CCS.
- Continued preparations for the 2nd WWG Annual Meeting to be held May 13, following conclusion of the 9th Annual Conference on Carbon Capture and Sequestration at the Pittsburgh Hilton.
- Finalized and uploaded to the 9th Annual Conference on Carbon Capture and Sequestration Web site (<http://carbonsq.com/>) the following presentation:
 - "Regional Carbon Sequestration Partnership: Water Working Group" to be presented May 11 in the technical concurrent session entitled Water Resources and CCS.

Travel/Meetings

- March 27 – April 4, 2010: attended the 6th Institute of Mathematics and its Applications Conference on Modelling Permeable Rocks, held March 29 – April 1, in Edinburgh, Scotland.
- April 9–15, 2010: attended two short courses entitled "Assessment of Unconventional Shale Resources Using Geochemistry" and "Reservoir Engineering for Geologists" in New Orleans, Louisiana.

- April 11–12, 2010: presented at the Joint Section Meeting of the Geological Society of America North-Central and South-Central Sections in Branson, Missouri.
- April 11–14, 2010: attended and presented at the AAPG 2010 Annual Convention & Exhibition in New Orleans, Louisiana.
- April 16 and 21, 2010: participated in documentary editing sessions at PPB in Fargo, North Dakota.
- April 18–19, 2010: attended the CO₂ Capture and Storage Information Needs and Knowledge Sharing Workshop for Alberta’s Four Large-Scale Demonstration Projects in Calgary, Alberta, Canada.
- April 24–30, 2010: attended the IEA Greenhouse Gas R&D Programme 6th Wellbore Integrity Network Meeting in The Hague, Amsterdam.
- April 24–30, 2010: attended the 17th Society of Petroleum Engineers Improved Oil Recovery Symposium and short courses in Tulsa, Oklahoma.
- April 26–30, 2010: attended the AAPG short course entitled “Basic Well Log Analysis” in Austin, Texas.