



**Plains CO<sub>2</sub> Reduction (PCOR) Partnership Monthly Update  
October 1–31, 2009**

**PHASE II ACTIVITIES**

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

**Highlights**

- We led a meeting on October 7, 2009, to discuss the format, time line, and point persons for completion of the materials for the Regional Carbon Sequestration Partnership (RCSP) Annual Review Meeting in Pittsburgh, Pennsylvania, on November 16–19, 2009.
- A task leader meeting was held October 19, 2009. Topics discussed included the Phase II final report; the Third Carbon Sequestration Leadership Forum (CSLF) Ministerial meeting in London, England; the RCSP Annual Review Meeting; and plans for the upcoming annual meeting.
- The Lignite Energy Council's Awards Committee designated Ed Steadman and John Harju to receive the “Distinguished Service – Research and Development Award” because of their leadership and counsel on CO<sub>2</sub> storage projects involving the lignite industry. The awards were presented on October 8, 2009, in Bismarck, North Dakota.
- A poster of the CSLF-recognized (May 2007) Zama Acid Gas Enhanced Oil Recovery (EOR), CO<sub>2</sub> Sequestration, and Monitoring Project was exhibited at the Third CSLF Ministerial Meeting in London, England, October 11–16, 2009.
- We continued planning for the upcoming 2009 PCOR Annual Meeting in St. Louis, Missouri, including:
  - Chose a tag line: Carbon Management 2010: The Push Toward Commercialization.
  - Drafted a preliminary agenda for the premeeting workshops and annual meeting.
  - Continued contacting speakers and sponsors.
  - Discussed awards, gifts, products, and evening activity.
  - Updated the preliminary agenda online and included a feature on one of the speakers. An e-mail blast was sent to the membership on Friday, October 23, 2009 ([www.undeerc.org/PCOR/PCOR09/email/email091019.asp](http://www.undeerc.org/PCOR/PCOR09/email/email091019.asp)).
  - Continued preparations for the internal run-through meeting on November 12, 2009.
- Continued preparatory work for the Phase II final report due December 29, 2009.
- Phase II deliverables were submitted for October:
  - Phase II – D3: Task 1 – quarterly report (delayed and submitted November 2, 2009)
  - Monthly update
- Upcoming Phase II deliverables for November:
  - Phase II – D55: Task 2 – Williston Basin Field Validation Test Regional Technology Implementation Plan
  - Phase II – D31: Task 4 – Williston Basin Test Site – Geological Characterization Experimental Design Package

- Phase II – 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

- Primary data collection was completed by the end of October, and plans are under way to continue to monitor throughout December, compiling as much data as possible to include in the final report.
- Dynamic model history matching pressures was worked on:
  - Completed reservoir saturation tool logging, processing, and interpretation (October 6, 2009).
  - Completed reservoir fluid sample and analysis (October 7).
  - Completed the caliper log (October 8).
  - Working on the final vertical seismic profiling (October 9).
  - Worked on seismic inversions.
  - Worked on Qemscan® versus scan data and numerical modeling.
- Postproduction logging is complete and now undergoing data analysis to evaluate the fate of CO<sub>2</sub> in the reservoir.
- The postproduction logging has included casing and cement integrity analysis, downhole sampling at reservoir conditions, reservoir saturation logging to identify the location of free gas, and vertical seismic profiling to identify the location of CO<sub>2</sub> in both vertical and horizontal directions from the wellbore.
- Project reporting has begun to bring the project to a close. However, CO<sub>2</sub> continues to be present in the production gas; therefore, production of fluids will continue to be monitored until CO<sub>2</sub> is no longer present, and tracers are no longer identifiable.

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

### Highlights

- A fact sheet for the upcoming RCSP annual review meeting was prepared.
- A PowerPoint presentation and poster for the upcoming RCSP annual review meeting are being prepared.
- A PowerPoint presentation and poster for the upcoming PCOR Partnership annual meeting are being prepared.

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

### Highlights

- A fact sheet for the upcoming RCSP annual review meeting was prepared.
- A PowerPoint presentation and poster for the upcoming RCSP annual review meeting are being prepared.
- A PowerPoint presentation and poster for the upcoming PCOR Partnership annual meeting are being prepared.

- Representatives of Schlumberger Carbon Systems were contacted about participation in the PCOR Partnership annual meeting.

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

##### Highlights

- A fact sheet for the upcoming RCSP annual review meeting was prepared.
- A PowerPoint presentation and poster for the upcoming RCSP annual review meeting are being prepared.
- Display exhibits, e.g., posters, for the upcoming PCOR Partnership annual meeting are being prepared.
- Representatives of Ducks Unlimited, North Dakota State University, and the U.S. Geological Survey (USGS) were contacted about participation in the PCOR Partnership annual meeting.

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

##### Highlights

- A fact sheet for the upcoming RCSP annual review meeting was prepared.
- A PowerPoint presentation and poster for the upcoming RCSP annual review meeting are being prepared.
- Posters for the upcoming PCOR Partnership annual meeting are being prepared.

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

##### Highlights

- Various state, provincial, and regional greenhouse gas (GHG) reduction and carbon capture and storage (CCS) initiatives were tracked and analyzed.
- Actions occurring in Congress were followed and reviewed for any implications relating to CCS, and updates of these activities were provided to task leaders.
- We responded to a request for information on pore space ownership regulations.

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

##### Highlights

- A PowerPoint presentation was initiated for the upcoming PCOR Partnership annual meeting and workshops.
- Specific clips were identified for use in the Footprint documentary and preparation of the storyline (Phase II, D51) continued.
- The broadcast edition of the geologic documentary was finalized and sent to close-captioning in preparation for broadcast in the Prairie Pubic viewing region on November 10, 2009.
- An internal audit indicates a total of 3100 DVDs have been distributed to date, i.e., 1450 copies of *Nature in the Balance*, 800 copies of *Reducing Our Carbon Footprint*, and 850 copies of *Out of the Air – Into the Soil*.

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

### Highlights

- We 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 CO<sub>2</sub> within the PCOR Partnership region. The update incorporates gas-processing facilities that were added to the CO<sub>2</sub> emission database during the last year, as well as updates to information initially included in the report.
- A PowerPoint presentation for the upcoming PCOR Partnership annual meeting was initiated.

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

### Highlights

- The 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.
- Efforts were coordinated to prepare wrap-up presentations on the four Phase II field validation tests for the upcoming RCSP annual review meeting:
  - The four poster acknowledgments were completed and returned to DOE NETL on October 21, 2009.
  - Drafts of the four proposed posters were prepared and preliminarily reviewed.
  - The four fact sheets on the Phase II field validation projects were prepared and submitted to DOE NETL on October 26, 2009.
- We 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.
- A draft RCSP Outreach Working Group logo banner similar in design and format to the RCSP Water Working Group logo banner was prepared.



### **PHASE III ACTIVITIES**

#### **Task 1 – Regional Characterization (Wesley D. Peck)**

##### **Highlights**

- Completed modifications for a 6-month no-cost extension to the Missouri Department of Natural Resources Division of Land and Geological Survey subcontract.
- Continued efforts to compile geographic information system (GIS) metadata for sources, saline formations (Madison, Maha, and Viking), sedimentary basins, Prairie Pothole Region, coal basins, and coal basin assessment areas (Ardley, Hanson–Hanson, and Wyodak–Anderson).
- Continued efforts to compile basemap features for the Fort Nelson project. This information will be used to create planning and discussion maps for the Phase III project.
- Continued efforts to revise the core files for the new GIS portion of the PCOR Partnership Web site.
- Finished formatting a list of articles and studies on pertinent terrestrial studies being conducted in the PCOR Partnership region. This list will be included on the DSS Web site once edited.
- Continued efforts to collect oil and gas well data for PCOR Partnership region area by state/province.
- Continued efforts to collect material for four posters to be presented at the upcoming RCSP meeting.
- Continued work on the characterization of the Cedar Creek Sandstone in western Nebraska.

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

##### **Highlights**

- Finalized a speaker agreement for the PCOR Partnership annual meeting and workshops, scheduled for December 1–3, 2009, in St. Louis, Missouri.
- Prepared a revised scope of work for the public Web update due in January 2010 (D13) and initiated Web update activities.
- Attended a meeting with the Petroleum Technology Research Center on October 26, 2009, in Regina, Saskatchewan, Canada, to help lay the groundwork for select Saskatchewan sequestration projects (representatives of the Midwest Geological Carbon Sequestration Consortium and Schlumberger also attended).
- Finalized content and format for video clips from the documentaries *Reducing Our Carbon Footprint*, and *Out of the Air – Into the Soil*.

- Continued to work with speakers and on presentations for the Outreach Workshop at the PCOR Partnership annual meeting.
- Prepared a presentation for the initial meeting of the International Energy Agency (IEA) Greenhouse Gas R&D Programme, Social Research Network, in Paris November 2–3, 2009. The PCOR Presentation will be given by the RCSP Outreach Working Group Coordinator.
- Provided written comments to the RCSP Outreach Working Group Coordinator regarding the current draft of the Outreach Working Group’s Best Practices Manual.

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

#### Highlights

- Continued ongoing review of recent publications relating to regulating CO<sub>2</sub> sequestration and MVA issues.
- Continued analyses of carbon market strategies.
- Submitted comments on October 15, 2009, to the U.S. Environmental Protection Agency’s (EPA’s) recent release of additional data relating to the geologic sequestration of carbon dioxide under the “Federal Requirements under the Underground Injection Control (UIC) Program for Carbon Dioxide (CO<sub>2</sub>) Geologic Sequestration (GS) Wells; Notice of Data Availability and Request for Comment” announced August 24, 2009.
- Participated in a conference call of the Interstate Oil and Gas Compact Commission’s (IOGCC’s) Pipeline Transportation Task Force.
- Submitted comments on North Dakota’s proposed geologic sequestration rules.
- Participated in a conference call with the Outreach Working Group and EPA to discuss EPA’s outreach strategies regarding geologic sequestration.

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

#### Highlights

- Hosted a meeting with a representative of Spectra Energy on October 15, 2009, in order to discuss the next steps for Fort Nelson CCS Project modeling, risk management, and monitoring, verification, and accounting (MVA) activities.
- Continued revisions to the Risk Management Policy and Process report for the Fort Nelson CCS project.
- Created a draft “value-added” fact sheet on the PCOR Partnership’s approach to risk management of CCS projects.

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

#### Highlights

- Nothing to note at this time.

## **Task 6 – Infrastructure Development (Melanie D. Jensen)**

### Highlights

- Prepared a 36-page report and companion PowerPoint presentation for a PCOR Partnership partner. The report includes detailed information regarding power usage, reagent costs, efficiencies, etc., for five near-term, postcombustion CO<sub>2</sub> capture technologies.
- Participated in the kickoff conference call for the Pipeline Atlas Working Group (PAWG) on October 21, 2009.
- Received the final deliverables, i.e., a Topical Report for Facility Interface Issues, Conceptual Configuration, and Procurement Plan from Ramgen Power Systems (subcontractor).
- Initiated information gathering about water usage during CCS activities.
- Attended Optimized Gas Treating's advanced seminar focusing on the ProTreat™ simulator for acid gas treatment that was held October 28–29, 2009, in Houston, Texas. The ProTreat™ software was purchased for use in PCOR Partnership technology–source matching activities, and the seminar provided the in-depth training needed to fully use this tool ([www.ogtrt.com/event.cfm?eid=6](http://www.ogtrt.com/event.cfm?eid=6)).
- Contacted representatives of Ramgen Power Systems about participation in the PCOR Partnership annual meeting.

## **Task 7 – CO<sub>2</sub> Procurement (John A. Harju)**

### Highlights

- Continued discussions with potential CO<sub>2</sub> 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 4 (BP4), Year 4.

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

### Highlights

- Continued work on Fort Nelson porosity/permeability stochastic heterogeneous model and worked on exporting simulation data to ArcGIS for the meeting at the EERC on October 15, 2009, with Spectra Energy.

## **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 K. 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

- Held a task leader meeting October 19, 2009. Discussed the U.S. field demonstration site; the Third CSLF Ministerial meeting in London, England; the RCSP Annual Review Meeting, plans for the upcoming annual meeting; and planned abstracts for next year's GHGT-10 conference in Amsterdam.
- Presented 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.
- Received notification that the Fort Nelson CCS project received CSLF recognition.
- Presented a CO<sub>2</sub> Sequestration Workshop on October 25, 2009, in conjunction with the EERC Air Quality VII Conference in Arlington, Virginia.
- Served as session coordinator and presented on the PCOR Partnership at the Carbon Management Session held on October 26, 2009, at the EERC Air Quality VII Conference.
- Prepared a presentation on the Phase III demonstration site(s) for the upcoming RCSP Annual Review Meeting to be held November 16–19, 2009, in Pittsburgh, Pennsylvania.
- Accepted the Lignite Energy Council's "Distinguished Service – Research and Development Award" because of leadership and counsel on CO<sub>2</sub> storage projects involving the lignite industry. The awards were presented on October 8, 2009, in Bismarck, North Dakota.
- Began preparations for submittal of several abstracts for the 10th International Conference on Greenhouse Gas Control Technologies, September 19–23, 2010, RAI, Amsterdam, The Netherlands ([www.ghgt.info/GHGT10.html](http://www.ghgt.info/GHGT10.html)).
- Responded to a partner regarding PCOR Partnership policy and procedures with respect to abstract submittals.
- Continued planning for the upcoming 2009 PCOR Partnership annual meeting scheduled for December 1–3, 2009, in St. Louis, Missouri.
  - Updated the preliminary agenda online and included a feature on one of the speakers.
  - Sent e-mail blast to the membership on Friday, October 23, 2009.
  - Continued preparations for the run-through meeting on November 12, 2009.
- Phase III deliverables/milestones for October:
  - M23: Task 14 – monthly WWG conference call held
  - 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 updateUpcoming Phase III deliverables for November:
  - M23: Task 14 – Monthly WWG conference call held
  - Monthly update



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

### **Highlights**

- Distributed on October 9, 2009, the WWG minutes from the conference call held September 22, 2009.
- Submitted the final White Paper on the Nexus of CCS and Water (D78).
- Distributed an agenda for the November meeting of the WWG to be held in conjunction with the RCSP annual review meeting in Pittsburgh, Pennsylvania.
- Initiated coordination with the WWG and Public Outreach Group on a fact sheet based loosely on the white paper.
- Held monthly WWG conference call on October 26, 2009.

### **Phase II – Travel/Meetings**

- September 28–October 2, 2009: Traveled for site sampling to the Lignite field site and Northwest McGregor field site near Kenmare, North Dakota.
- October 4–6, 2009: Presented at the 2009 Geology and Resources Conference American Institute of Professional Geologists annual meeting in Grand Junction, Colorado.
- October 5–7, 2009: Traveled for a site visit to the Northwest McGregor field site near Tioga, North Dakota.
- October 6–10 and 19–23, 2009: Traveled for site sampling to the Northwest McGregor field site near Tioga, North Dakota.
- October 24–29, 2009: Presented at the EERC Air Quality VII Conference in Arlington, Virginia.
- October 28–30, 2009: Presented “Opportunities for the Utilization of CO<sub>2</sub> in North Dakota” in New Town, North Dakota.
- October 30, 2009: Traveled for a documentary edit session to Prairie Public Broadcasting offices in Fargo, North Dakota.

### **Phase III – Travel/Meetings**

- October 8, 2009: Traveled to accept an award at the Lignite Energy Council’s Annual Meeting in Bismarck, North Dakota.
- October 8–15, 2009: Presented at the Third CSLF Ministerial Meeting in London, England.
- October 12–17, 2009: Traveled to collect rock samples for the new U.S. field demonstration site.
- October 15–22, 2009: Presented at the 2009 Portland Geological Society Annual Meeting and attended the Geological Society of America Short Course: No. 506 Structural and Stratigraphic Concepts Applied to Basin Exploration in Portland, Oregon.
- October 25–27, 2009: Attended an Aquistore outreach and communication strategy meeting in Regina, Saskatchewan, Canada.
- October 27–30, 2009: Attended an Optimized Gas Treating Seminar in Houston, Texas.