



**Plains CO₂ Reduction (PCOR) Partnership Monthly Update
June 1–30, 2007**

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

Highlights

- Phase III Renewable application was sent to the U.S. Department of Energy (DOE) on June 5, 2007.
- Phase II Continuation Application (Progress Reports) for Budget Period 2 is due July 31.
- Participating in Air Quality VI (September 24–26, 2007, Arlington, Virginia).
 - Sunday, September 23 – Workshop 1 (CO₂ Separation and Sequestration)
 - Wednesday, September 26 – Session 6 (CO₂ Sequestration and monitoring, mitigation, and verification [MMV])
 - Wednesday, September 26 – Session 7 (CO₂ Sequestration)

Travel/Meetings

- June 10–15, 2007: 32nd International Technical Conference on Coal Utilization & Fuel Systems in Clearwater, Florida.
- June 25–26, 2007: Oil and Gas Research Council Meeting in Bismarck, North Dakota.
- July 10, 2007: Phase III discussions with Encore Acquisition Company, North Dakota Petroleum Council, Air Products, and Westmoreland Coal Company in Grand Forks, North Dakota at the Energy & Environmental Research Center (EERC).
- September 10–14, 2007: 24th Pittsburgh Coal Conference in Johannesburg, South Africa.
- September 24–26, 2007: Air Quality VI in Arlington, Virginia.
- October 14–17, 2007: Gasification Technologies Council in San Francisco, California.

Task 2 – Field Validation Test at Beaver Lodge, North Dakota (James A. Sorensen)

Highlights

- Prepared a draft preliminary report on results of experimental activities to evaluate the effects of supercritical CO₂ on mineralogy of several types of Williston Basin rocks, including Devonian Duperow dolomite.
- Improvements to permeability measurement equipment were necessary to conduct tests on Duperow rocks for porosity and permeability.
- Initiated development of petrophysical model of the Beaver Lodge oil field.

Travel/Meetings

- June 21, 2007: Attended Capacity Working Group Meeting (subgroup to Capacity Working Group) in Pittsburgh, Pennsylvania

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

Highlights

- Zama project was officially recognized by the Carbon Sequestration Leadership Forum in early March 2007.
- Alberta Energy and Utilities Board highlighted that there are two major opportunities to showcase the Zama Project; Green House Gas Technology Conference (GHGT 9) November 16–20, 2008, in Washington, D.C. (call for papers December 2007) and the Annual Carbon Capture & CO₂ Sequestration Conference in Pittsburgh, May 2008. Society of Petroleum Engineers and Petroleum Society Meetings (Annual Technical Conference and Exhibition, Canadian International Petroleum Council, etc.) are also good opportunities for exposure to the petroleum-focused operations.

Travel/Meetings

- August 23, 2007: Capacity Working Group meeting in either Pittsburgh or Houston.

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

Highlights

- EERC staff met with the State Land Department and Harris Construction to observe pad construction. Construction of the drilling pads is anticipated to take 7–10 days, depending on the weather.
- The applicability of various MMV technologies (tiltmeter survey, gravity survey, tracer study, and seismic survey) to the lignite test continues to be researched and evaluated.
- Baseline characterization is continuing.
- Agreements are being finalized with various service providers, including those completing various field tests and logging services.
- Discussions are continuing with Eagle Operating with regard to the logistics of the project and potential start dates. Their agreement is being finalized.
- A conference call with local officials in Burke County, North Dakota was held to provide them with more details regarding the research project. A public informational meeting will be scheduled for later in the month.
- Drilling is anticipated for mid-July 2007.

Travel/Meetings

- Trip to site to supervise pad construction, drilling, and coring.
- A public informational meeting will be held in Bowbells, North Dakota (Burke County Seat), sometime in the near future.

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

Highlights

- Continue to sample at South Dakota sites, this was initiated in late March 2007.
 - Completed five sample events to date.
 - Established photo stations for each treatment.
 - Grazing study and vegetation study are ongoing.

- Grassland samples from 2006 are currently being analyzed.
- 2007 grassland sampling underway in Minnesota.
- The Business Requirements Document for the carbon-tracking database is being reviewed by Ducks Unlimited, Inc. (DU).
- Best Management Practices fact sheet is in final draft form.
- Continue to further develop the following business flow processes:
 - Completed a prospectus for grassland carbon offset sale in the Prairie Pothole Region.
 - Completed a carbon sequestration fact sheet for investors.
 - Working on an evaluation of state and regional greenhouse gas (GHG) or cap and trade programs.
 - Completed a private carbon/easement document.
 - Working on a draft Landowner Agreement document for carbon marketing.
 - Working on a draft legal document to transfer carbon rights from landowner to aggregator.
 - Completed a business model and term sheet for packaged carbon offsets.
- The following items have been formulated into a topical report, currently in draft form, providing a primer on carbon market basics and an overview of the business flow process for terrestrial offsets from private lands. We anticipate submitting this report for the next quarter:
 - Evaluation of other state and regional GHG or cap and trade programs – rules and policies.
 - Evaluation of DOE guidelines for aggregators and terrestrial offset providers.
 - Overview of voluntary carbon market, active players, certification standards, market activity, etc.
- Three outreach brochures are currently at the press. They can be distributed as a stand-alone resource for landowners or investors interested in terrestrial carbon offset opportunities. The final brochures will also be distributed as appropriate for the PCOR Partnership regional and national Outreach Action Plan.
- During this reporting period, DU held a Climate Change Workshop on the impacts of global warming on wetland and waterfowl habitats. A group of approximately 15 scientists, managers, and policy specialists with an interest in climate change, carbon sequestration, climate policy and wetland and waterfowl management convened. The main purpose of the workshop was to draw on the experience of the participants to define possible management and policy options for wetland ecosystems and related habitats under pressure from climate variability. The results of the workshop will provide input for the Fact Sheet (or Topical Report) on climate science for policy.
- Review of DOE technical guidelines (1605b) is ongoing.
- Working on characterization inputs and the Terrestrial portion of the Decision Support System ®(DSS).

Travel/Meetings

- June 12, 2007: Toured sampling sites/activities with Northern Prairie Wildlife Research Center personnel to South Dakota at the DU Goebel Ranch.
- Travel to Bismarck, North Dakota to meet with DU in July.

Task 6 – Continued Characterization of Regional Sequestration Opportunities

(Erin M. O’Leary)

Highlights

Characterization:

- Made significant progress in the assessment of the Broom Creek Formation in central North Dakota. We have identified additional wells for priority attention in the creation of Log Ascii Standard (LAS) files. These added wells will refine the data set being used in the analysis of the Broom Creek Formation.
- The new unitized and nonunitized oil field list from the North Dakota Industrial Commission (NDIC) was compared to the current set. Several new fields have been added since the DSS has been online. The list of new fields is being worked on internally, and we will begin gathering the necessary information to determine CO₂ sequestration potential.
- To date, LAS files have been created for one or more logs types for 166 wells in western North Dakota. The majority of these files are being used in the regional assessment of the Broom Creek Formation. Internally worked on data management issues associated with the wells and their attributes that are being used in the assessment.

Class II Wells Project

- Reviewed a draft of a preliminary report describing the progress on the Class II injection well project. We will meet internally to discuss revisions to several of the maps included in the document, to discuss the progress, and to discuss the path forward of this project.

DSS

- Working on changing the Wyodak layer in the DSS to include Ardley, Harmon–Hanson, and Wyodak–Anderson. This combined layer will be called Evaluated Coal Fields. The changes are currently being tested.
- Working on a method to improve the saving of maps from the DSS. The new method will create PDF documents of the map and associated legend instead of giving them a screen shot capture of the map.
- The coal sequestration information for the Harmon–Hanson and the Ardley has been added to the geologic sequestration layers in the geographic information system (GIS) portion of the DSS.
- A few issues were identified with the DSS that would help make it a better tool. These ideas include displaying only a subset of a particular layer, the ability to rearrange the layer order, and improvements to color selection and depiction of various layers.
- The PCOR Partnership gas analysis prototype GIS site is ready to be discussed with representatives from NDIC. Progress on the operational sequence of various capabilities is to the point where specific input from the potential user group is needed.

Other

- Will begin the conversion of the GIS portion of the DSS from Version 9.1 to 9.2. The latest version uses the .net framework which will require that most of the current code be rewritten for the conversion. Version 9.2 will allow for several new capabilities that have been requested for the GIS portion of the DSS.
- Participated in a GIS working group phone conference call.

- Completed a map/poster of the PCOR Partnership region. This map was presented at the Environmental Systems Research Institute (ESRI) International Users Group Meeting in San Diego, California.
- Working on transferring test data to the new server that houses ArcServer and ArcIMS. The goal is to gain some exposure to the many facets of the system. This exposure will allow for the formulation of questions to be asked at the upcoming GIS conference.

Travel/Meetings

- June 18–22, 2007: Attended an ESRI conference in San Diego, California.
- July 24, 2007: Traveling to Bismarck to meet with NDIC and the North Dakota Geological Survey to discuss the gas analysis project.

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

Highlights

- Provided comments to the Interstate Oil and Gas Compact Commission CO₂ Task Force on their model regulations and statute.
- Reviewed the status of the membership of the Western Regional Climate Action Initiative. Utah joined in May, and Manitoba joined in June 2007.
- Reviewed state requirements for handling of drill cuttings and core samples for the Lignite Field Validation Test.
- Continue to follow the developments of various state and regional initiatives.
- Continued analysis of carbon market strategies.
- Completed a review of new guidelines for wetlands permitting in case it is necessary for future projects.
- Continued to follow legislative actions occurring in Congress.
- Continued review of recent publications relating to regulating CO₂ sequestration and MMV issues.
- Completed permitting section of the Phase III application.
- Completed a review of various cap and trade strategies for GHG put forth by various entities.
- Completed a review of the Climate Registry and its member states.
- Received approval of the drilling permits for the Lignite Field Validation Test.
- Completed an assessment of the status of the states involved in the Regional Greenhouse Gas Initiative.

Travel/Meetings

- Nothing to note at this time.

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

Highlights

Videos:

- Completed rewrite of the Carbon Market script including Blue Source, LLC quotes to reflect the new direction that will feature more on private transactions, the market influence overall, and a revised animation list.

- Being reviewed internally.
- Changes made to script as well as revised animation concepts.
- Gave Prairie Public Television contact information for the WestCarb Partnership to set up filming of the terrestrial projects in California.

Outreach Action Plan – Lignite Field Verification Test

- Submitted to National Energy Technology Laboratory (NETL) for review in April 2007, and we are awaiting their comments.

Public Web Site

- Continue to revise as needed.

Outreach Booth

- Submitted to NETL for review in April, and we are awaiting their comments.

Fact Sheet 9 – Lignite Field Verification Test

- Submitted to NETL for review in May.

Travel/Meetings

- Nothing to note at this time.

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

Highlights

- Participated in a conference call with Ramgen Power Systems and GPS, Inc., to discuss the next steps in the testing of the Rampressor during the Phase III demonstration.
- Participated in the Carbon Capture, Separation, and Transportation Working Group Workshop.
 - Day 1: Toured the Dakota Gasification Company's Great Plains Synfuels Plant in Beulah, North Dakota.
 - Day 2: Presentations by outside speakers.
 - Day 3: Overviews of capture group activities presented by each of the partnership representatives, a tour of the EERC, and a discussion of items of interest to the working group members.
 - Everyone seemed to have very positive comments regarding the workshop both in terms of information content and logistics.
- Fixed the broken links on the capture technologies page that is being created for the Partners-only Web site, and renamed other links.

Travel/Meetings

- Nothing to note at this time.

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

Highlights

- Second edition of the PCOR Partnership Atlas is in final stages. Anticipate mid July for distribution.

Travel/Meetings

- June 19–20, 2007: Carbon Capture, Separation, and Transportation Working Group Workshop held at the EERC in Grand Forks, North Dakota.
- September 17–20, 2007: Peer Review of the Carbon Sequestration Program in Pittsburgh, Pennsylvania.
- Formulating details on 2007 PCOR Partnership Annual Meeting on October 17 and 18. Location will be at the EERC in Grand Forks, North Dakota.