



**Plains CO₂ Reduction (PCOR) Partnership Monthly Update
February 1–28, 2007**

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

Highlights

- All Fact sheets were updated and added to the PCOR Partnership private Web site as of February 23, 2007.
- An informational e-mail was sent to the partners discussing the conference call that was conducted on February 9, 2007, regarding Phase III. We informed them of the new developments and that we will keep them posted of any new information once we hear.
- Ducks Unlimited (DU) created an additional fact sheet that was added to the PCOR Partnership private Web site.
- PCOR Partnership now has 64 members:
 - Added Schlumberger on February 14, 2007.
 - Added Spectra Energy on February 9, 2007.

Travel/Meetings

- February 7–8, 2007: Public Service Commission Talk about sequestration in Bismarck, North Dakota.
- March 7, 2007: Capture and Transportation Model Seminar in Pittsburgh, Pennsylvania.
- Formulating details on 2007 PCOR Partnership Annual Meeting. Tentative dates are October 18–19, 2007. Location will be the Energy & Environmental Research Center (EERC) in Grand Forks, North Dakota.

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

Highlights

- Initiated the evaluation of Class II injection well data from North Dakota, South Dakota, and Montana. This is part of an effort to incorporate Class II injection well data into the general characterization of saline formations in the region.
- Initiated the collection of Class II disposal well data from Wyoming, Nebraska, and Iowa.

Travel/Meetings

- March 7–9, 2007: Zama group meeting in Calgary Alberta.

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

Highlights

- Completed Carbon Sequestration Leadership Forum application; will begin to compile ideas for poster to be presented in Paris, France, March 25–28, 2007.

- Will be submitting an abstract on the Zama Field Validation Test for Pittsburgh conference.
- Began work on Class II injection well add-on project.
 - Worked on developing a spreadsheet of parameters that need to be collected.
- Tracer has been successfully stripped from fluid samples and should be ready to inject at Zama.
- A conference call for the Zama project was held on February 8, 2007. Project updates are listed below.

Zama Updates

Rob Lavoie (CalPetra) – Engineering Support

- Apache is injecting about 25,000 m³/day (880 mcf) of 25% H₂S, 72% CO₂, 3% HC's.

Doug Nimchuk (Apache Canada, Ltd.) – Planning and Engineering

The following is a time line for the proposed coring and logging program:

- 05-10-117-04W6: Late February or early March spud for Muskeg/Keg River core. Checking on over-pressured reservoir for safety concerns on coring.
- Need more information on logging program and to discuss with Alberta Geological Survey and Apache Geological & Geophysical.
- 02/08-33-115-06W6: Slave point K core: estimated spud August 2007. Note: that well is not approved yet; contingent on reservoir simulation.
- 02/07-10-116-05W6: Watt Mountain core: estimated spud October 2007; contingent on static reservoir pressure check.

Pat McLellan (Advanced Geotechnologies, Inc.) – Geomechanical Evaluation

- Unconfined compressive strength, static Young's moduli, dynamic elastic properties, and bulk densities measured on eight core plugs of Muskeg River anhydrite and dolomite.
- Triaxial strength testing program and acoustics under stress ongoing at the University of Saskatchewan with Dr. Chris Hawkes – eight core plugs.
- Pore volume compressibility and dynamic and static elastic properties being determined for 2 or 3 high-quality Keg River cores at Omni Laboratories, Houston, Texas, for a range of formation pressure conditions to simulate stress paths associated with production and injection conditions over time in F Pool (Figure 1). We are just beginning. Probably 1–2 months.
- Composite presentations being prepared of log- and core-derived bulk density, compressional and simulated shear sonic, dynamic elastic properties, and calculated static elastic properties for F-Pool data (drafts near completed, except for lab data).
- Vertical in situ stress profiles determined for 2 wells near F Pool.
- Preliminary FLAC 2D axisymmetric and plane strain geomechanical models constructed for F Pool based on reef geometry assumed in an earlier University of Regina GEM simulation study of acid gas miscible flood. Characterization of the key geomechanical inputs in the program – in situ stress and formation pressure history, static rock mechanical properties, and fluid properties continuing. The simulation work is now on hold until laboratory and log data are more mature.

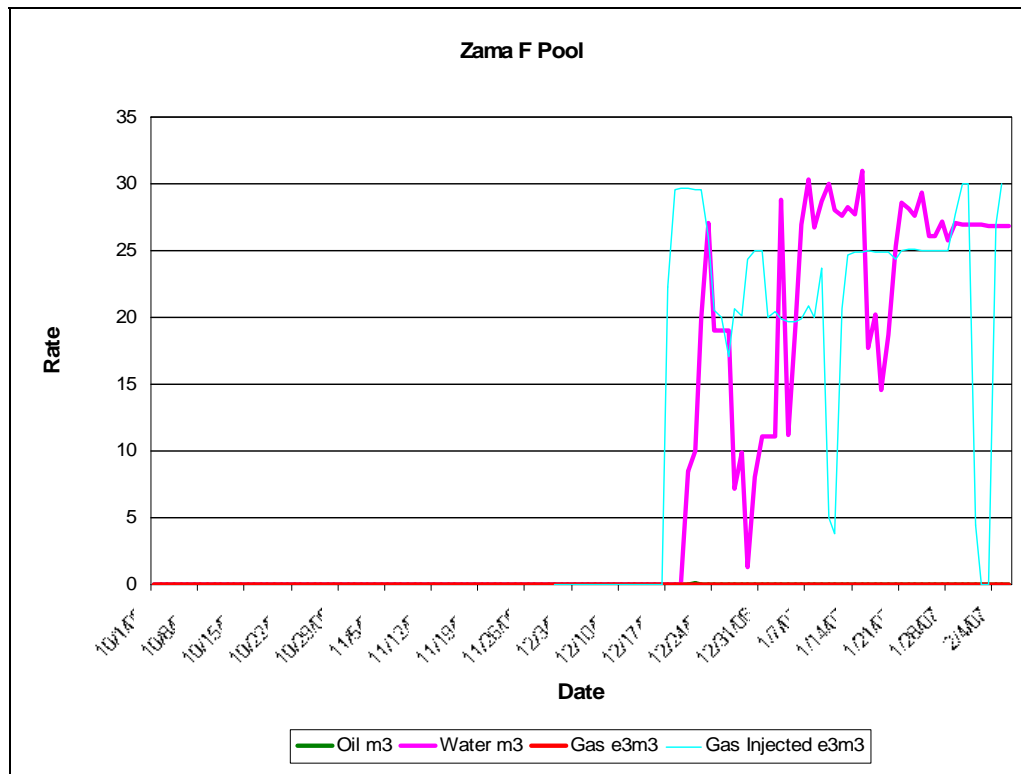


Figure 1. Injection and Production Summary for Zama Keg River F Pool.

- Discussions continue with the Energy & Environmental Research Center (EERC), APA, Alberta Geological Survey, Hycal, Apache, and others regarding potential coring, testing, and logging of one or more new wells in 2007.

Matt Grobe (Alberta Geological Survey) – Geological Characterization

- Work completed:
 - Elevation/depth to maps of stratigraphic surfaces.
 - Isopach maps of stratigraphic intervals from basement to Banff/Gething.
 - Constructed five regional cross sections.
 - Created shape files for all elevation maps up to Banff.
 - Draft report outline and list of figures.
 - Met with Apache staff to discuss pinnacle morphology as deduced from 3-D seismic.
- Work in progress:
 - Fine tuning maps in geographic information system (Arc Map).
 - Fine tuning cross sections in graphics software (Canvas).
 - Sending samples of Muskeg, Keg River, and Slave Point out for mineralogical and geochemical analysis.
 - Data culling of additional water analysis data and regional mapping for hydrogeological characterization.
 - Report writing on regional-scale geology and hydrogeology.

- Database of relevant well data from Alberta Energy & Utilities Board (EUB) digital records.
- Detailed review of F Pool well schematics from EUB tour reports.
- Characterization of regional scale stress regime.
- Testing of CO₂ solubility in brine for CO₂ and H₂S partitioning.

Travel/Meetings

- March 7–9, 2007: Calgary for Zama Meeting.
- March 31–April 4, 2007: American Association of Petroleum Geologist Conference in Long Beach, California.
- May 7–10, 2007: Sixth Annual Conference on Carbon Capture & Sequestration in Pittsburgh, Pennsylvania.

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

Highlights

- Continued meetings with several EERC staff to discuss logistics, etc., of the STAC, Flatland, and PCOR Partnership relationship for the Lignite site.
- An analysis of coal drilling procedures, including well construction and completion, was conducted for wells in North Dakota and New Mexico.
- The experimental design package was submitted on February 28, 2007.
- Baseline characterization is continuing.
- The model for simulation of injection/production from lignite in Burke County is under development. Additional inputs for this model will come from logging that will be completed once the wells are drilled.

Travel/Meetings

- Trip to Minot or Bismarck, North Dakota, to discuss drilling with drilling partner and state officials.
- Field site visit sometime this spring.

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

Highlights

- Reviewing North Dakota State University wetlands paper.
- Working on finalizing DU Eco-Asset document.
- Initiating work on Carbon Sequestration program brochure and detail fact sheet for investors.
- Working with all partners on field strategies for the 2007 spring field season.
- Working on characterization inputs and the terrestrial portion of the decision support system (DSS).

Travel/Meetings

- March 22, 2007: The EERC will host a terrestrial meeting.

Task 6 – Continued Characterization of Regional Sequestration Opportunities **(Erin M. O’Leary)**

Highlights

Characterization

- Gathering references to terrestrial carbon management activities in the PCOR Partnership region on how to spatially represent the references in the DSS. The decision was to apply a spatial hierarchy that includes county level, half-state/province, state/province, and regional specificity.
- Working on updating source information in the DSS.

DSS

- Continued working on the PCOR Partnership Gas Analysis site, including the creation of a hillside raster image of western North Dakota, active server pages code development of the Web site pages, and the inclusion of North Dakota towns, rivers, and lakes data layers to the Web site.
 - Also investigated Graphics Server applications for use by this Web site.
- Working on updating the indirect carbon sequestration section in the DSS.
- Added the measuring tool and moved the scale bar to the left in the production server.
- Working on the graphing software for the Gas Analysis site as well as for future use in the DSS.

Other

- Received internal comments back regarding the recent edition of the PCOR Partnership Regional Atlas. These comments will be integrated into the document and a new draft created.
 - Responded to the U.S. Department of Energy (DOE) with comments on the PCOR Partnership portion of the national atlas.
 - A full version of the atlas will be provided to the partnerships in the near future.

Travel/Meetings

- February 2007: Attended the Environmental Systems Research Institute Petroleum Users Group annual meeting in Houston, Texas.
- June 2007: Attending an Environmental Systems Research Institute (ESRI) Conference.

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

Highlights

- Continued writing an analysis of carbon market strategies.
- Continued review of draft 1605(b) forms and instructions.
- Continued development of a presentation on carbon markets.
- Assisting in the production of PCOR Partnership carbon market video that is due in July.

Travel/Meetings

- Nothing to note at this time.

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

Highlights

Outreach Working Group

- Participated in conference call on February 15, 2007, featuring George Peritos of National Resources Defense Council.

Carbon Market Video

- Blue Source Interview/EERC meeting scheduled for April 3, 2007
- Bob Dambach from Prairie Public Broadcasting traveled to Georgia to develop field footage at DU site for the terrestrial video.
- Conducted a meeting with Bob Dambach on February 26, 2007, to discuss video scope, budgets, and schedules.

PowerPoint Update

- Submitted to National Energy Technology Laboratory on February 28, 2007.

Public Web Site Update

- Internal reviews are being conducted.

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

- Completed preparation of the capture, separation, compression, and transportation section of the second edition of the PCOR Partnership Regional Atlas.
- Incorporated additional comments from Dakota Gasification Company into the draft Wind Power Best Practice Manual. Internal reviews are being conducted.

Travel/Meetings

- March 7, 2007: the Capture, Separation, and Transportation working group meeting in Pittsburgh, Pennsylvania.

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

Highlights

- The PCOR Partnership Techline Fact Sheet review was completed and sent back to DOE on February 16, 2007.
- Sent Big Sky Regional Carbon Sequestration Partnership a copy of the PCOR Partnership presentation that was given in Tucson, Arizona.

Travel/Meetings

- May 7–10, 2007: 6th Annual Conference on Carbon Capture and Sequestration in Pittsburgh, Pennsylvania.
- June 19–20, 2007: Capture working group meeting at EERC.
- July 15–20, 2007: Carbon 2007 – American Carbon Society Conference in Seattle, Washington.
- September 10–14, 2007: 24th Pittsburgh Coal Conference in Johannesburg, South Africa.
- September 24–26, 2007: Air Quality VI in Arlington, Virginia.