



Plains CO₂ Reduction (PCOR) Partnership Monthly Update December 1–31, 2011

PHASE III ACTIVITIES

Task 1 – Regional Characterization (Wesley D. Peck)

Highlights

- Continued efforts on the revised Atlas (4th edition) due January 31, 2012.
- Organized and uploaded the geospatial data used in various PCOR Partnership activities to a central geodatabase location to allow for more efficient sharing of the data among the Energy & Environmental Research Center (EERC) staff.
- Presented an overview of the PCOR Partnership Program on December 7, 2011, to the “Introduction to Geographic Information Systems (GIS)” class at North Dakota State University in Fargo, North Dakota.
- Continued efforts on the Rival Field characterization, including the following:
 - Continued drafting Deliverable D5, second target area completed, due March 2012.
 - Continued working with TAQA North Ltd. (TAQA) on an added scope of work for the Rival Field.
 - Continued work on Rival Field activity posters for the American Association of Petroleum Geologists (AAPG) 2012 Annual Convention and Exhibition scheduled for April 2012 in Long Beach, California.

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

Highlights

- Held an in-house meeting to discuss filming at the Bell Creek site on December 8, 2011.
- Coordinated filming activities with Prairie Public Broadcasting (PPB). Traveled with PPB filming crew to the Bell Creek site. Highlights include video of drilling operations (time-lapse and real-time) as well as video of geologic analysis of cuttings, analysis of drilling mud, and coring operations.
- Continued efforts to finalize the Fort Nelson poster (D26).
- Continued efforts to update the public Web site (D13, due July 2012).
- Continued efforts to implement use of the outreach tracking database.
- Continued to develop outreach materials to address natural storage of CO₂, gas field chemical composition, unconventional oil and gas resources, and related topics.

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

Highlights

- Continued review of the Canadian Standards Association draft proposal for geologic storage.
- Completed the Lignite Field site plugging reclamation. Report development is under way.
- Participated in the Fort Nelson quarterly meeting in Calgary, Alberta. Provided Spectra Energy with a perspective on the Canadian Standards Association (CSA) draft proposal for geologic storage and also provided an update on North Dakota's CCS revised rulemaking process.

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

Highlights

- Continued preparation of a technology assessment on the geomechanical modeling options available.
- Bell Creek test site activities included the following:
 - Continued processing the information gathered from the visit to the Montana Board of Oil and Gas Conservation offices in Billings, Montana. The wireline logs that were scanned are now being digitized into LAS format.
 - Submitted the draft Bell Creek production and injection report (M16) on December 29, 2011.
 - Began correlating geomechanical data with reservoir properties to construct the geomechanical static model with Petrel.
 - Traveled to Bell Creek Field December 4–6, 2011, to participate in seismic check shot survey and source testing.
- Fort Nelson test site activities included the following:
 - Began correlating geomechanical data with reservoir properties to construct the geomechanical static model with Petrel.
 - Received an extension for and continued work on the geochemical report (D41/M32, due April 30, 2012).
 - Received an extension for and continued preparation of the site characterization report (D65, due January 2012).
 - Continued the multimineral analysis of the Fort Nelson wells using Techlog.
 - Held the quarterly Fort Nelson project meeting on December 13 and 14, 2011, in Calgary, Alberta, Canada. Topics discussed included the following:
 - ◆ Status of winter drilling and seismic survey activities
 - ◆ Risk assessment-driven MVA: the Bayesian approach
 - ◆ Restatement of project goals and the project master schedule
 - ◆ Potential meeting with DOE in early 2012
 - ◆ Modeling update
 - ◆ Well integrity report
 - ◆ Regulatory update
 - ◆ Next quarterly meeting tentatively scheduled for March or April 2012
 - Continued development of the scopes of work for each of the key activities to be undertaken by the EERC over the next 12 months.

- Held a conference call on December 1 with Spectra Energy and Nakles Consulting to discuss updates to monitoring, verification, and accounting (MVA) planning.

Task 5 – Well Drilling and Completion (John A. Hamling)

Highlights

- Completed the second soil gas-sampling trip targeting plugged and abandoned (P&A) wells within and surrounding the Bell Creek oil field on November 28 – December 1, 2011; approximately 170 gas samples from ~55 P&A wells were collected utilizing a three-spot pattern in addition to field blanks and repeat samples.
- Attended the National Ground Water Association Ground Water Expo on November 28 – December 1, 2011, in Las Vegas, Nevada.
- Continued to analyze and archive MVA baseline results in anticipation of a preinjection baseline report.
- Traveled to the Bell Creek Field on December 5, 2011, to observe seismic source testing and meet with Denbury Onshore LLC (Denbury) geophysical staff.
- Supervised drilling activities at the Bell Creek site from December 9, 2011, through January 3, 2012. Activities included the following:
 - Mobilized Capstar Rig 314 beginning on December 9, 2011, to the Bell Creek site.
 - Participated in a predrill meeting at the Bell Creek site on December 12, 2011, with Denbury, the EERC, and third-party service providers to discuss operational drilling logistics and safety.
 - Initiated drilling of the observation well (0506 OW) on December 15, 2011.
 - Targeted total depth of the surface hole was reached at 1010.0 ft on December 16, 2011.
 - Completed cementing the surface casing.
 - Drilled to 1400.0 ft and ran a gamma ray resistivity log to correlate core point depth.
 - ♦ Drilled to 1446.0 ft and initiated coring operations.
 - ♦ Recovered approximately 113 ft of drill stem core from the Bell Creek sands, Mowry shale, and Skull Creek shale.
 - Drilled to 4855 ft.
 - ♦ Completed a seven-run logging, pressure testing, and sidewall coring program (recovered forty-seven 1.5-inch diameter sidewall cores).

Task 6 – Infrastructure Development (Melanie D. Jensen)

Highlights

- Continued testing the interactive technology tree on the PCOR Partnership Decision Support System (DSS, © 2007–2012 EERC Foundation).
- Continued work on an interactive compression technology tree for the DSS.
- Answered questions for a partner regarding flare gas in western North Dakota.

Task 7 – CO₂ Procurement (John A. Harju)

Highlights

- Participated in ongoing project discussions with Denbury.

Task 8 – Transportation and Injection Operations (Melanie D. Jensen)

Highlights

- Nothing to note at this time.

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

Highlights

- Held an in-house modeling group update meeting on December 1, 2011.
- Held an in-house meeting to discuss Bell Creek operations on December 8, 2011.
- Continued to review course materials from “Practical Reservoir Simulation” to help connect the geologic side of modeling with simulation and history matching.
- Prepared a summary report on the recently attended Midwest Carbon Sequestration Science Conference (November 7–9, 2011) held in Champaign, Illinois.
- Continued Bell Creek site activities, including the following:
 - Continued work on history matching.
 - Worked on finding relevant references and published literature related to mercury pressure data for one of the Bell Creek wells discussed in Society of Petroleum Engineers Paper Number 17366.
 - Participated in an in-house update meeting on December 15, 2011.
 - Began drafting an outline of the fieldwide modeling plan.

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

- This task is anticipated to be initiated in Quarter 1 – Budget Period (BP) 5, 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)

- Submitted the draft project assessment report (D57) for the period October 1, 2010 – September 30, 2011, on December 29, 2011.

Task 13 – Project Management (Charles D. Gorecki)

Highlights

- Held an in-house discussion on December 1, 2011, regarding the PCOR Partnership Technical Advisory Board (TAB) to discuss guidelines.
- Continued preparations for the inaugural TAB meeting tentatively scheduled for February 2012.
- Continued work on two presentations and a poster for the 2012 Carbon Management Technology Conference.

- Participated in a conference call with Big Sky Carbon Sequestration Partnership on December 6, 2011.
- Upon request from DOE, provided information on December 7, 2011, regarding tracers used at the Phase II geologic sites.
- Key EERC staff and University of North Dakota (UND) President, Robert Kelley, traveled to the Bell Creek site to watch drilling efforts on December 21–22, 2011.
- Continued ongoing efforts to update the partners' database.
- Selected Milwaukee, Wisconsin, as the site and September 11–13, 2012, for the dates for the 2012 annual meeting.
- Deliverables and milestones completed in December:
 - November monthly update
 - Task 16: M34 – Basal Cambrian Static Geological Model Completed
 - Task 12: D57 – Project Assessment Annual Report
 - Task 4: M16 – Bell Creek Test Site – Initiation of Production and Injection Simulation

Task 14 – RCSP WWG Coordination (Ryan J. Klapperich)

Highlights

- Distributed the draft interest survey on December 12, 2011.
- Distributed minutes from the November conference call on December 14, 2011.
- Sent notification of the January conference call on December 15, 2011.

Task 15 – Further Characterization of the Zama Acid Gas EOR, CO₂ Storage, and Monitoring Project (James A. Sorensen)

Highlights

- Met with Apache Canada staff on December 13, 2011, in Calgary, Alberta, Canada.

Task 16 – Characterization of the Basal Cambrian System (Wesley D. Peck)

Highlights

- Examination of previously unexamined boxes of core has revealed new rock that is suitable for taking samples for relative permeability tests. This effort will add nicely to the limited set of information available for the rocks of the Basal Cambrian system in North Dakota. Project is progressing according to schedule and budget.
- Submitted the draft Basal Cambrian static geological model report (M34) on December 21, 2011.

Travel/Meetings

- November 27 – December 3, 2011: Traveled to the Bell Creek test site area for continued baseline sampling.
- November 28 – December 1, 2011: Attended the National Ground Water Association Ground Water Expo in Las Vegas, Nevada.
- December 2–8, 2011: Attended a business dinner on December 4 and the 9th Annual Enhanced Oil Recovery Carbon Management Workshop on December 5–7, 2011, in Houston, Texas.

- December 4–6, 2011: Viewed the seismic check-shot survey at the Bell Creek oil field near Broadus, Montana.
- December 5, 2011: January 4, 2012: Traveled to oversee drilling efforts at the Bell Creek oil field located in southeastern Montana.
- December 6–7, 2011: Event staff conducted site visits for the upcoming annual meeting in Milwaukee, Wisconsin.
- December 7, 2011: Presented before an “Introduction to Geographic Information Systems (GIS)” class at North Dakota State University in Fargo, North Dakota.
- December 12–13, 2011: Traveled to attend the drilling kickoff meeting at the Bell Creek oil field located in Montana.
- December 13–14, 2011: Held the Fort Nelson quarterly meeting at Spectra Energy’s offices in Calgary, Alberta, Canada.
- December 21–22, 2011: EERC Director and UND President traveled to observe drilling efforts at the Bell Creek oil field located in southeastern Montana.

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