



EERC

Energy & Environmental Research Center

UNIVERSITY OF NORTH DAKOTA

15 North 23rd Street — Stop 9018 / Grand Forks, ND 58202-9018 / Phone: (701) 777-5000 Fax: 777-5181
Web Site: www.undeerc.org

January 31, 2007

AAD Document Control
U.S. Department of Energy
National Energy Technology Laboratory
PO Box 10940, MS 921-107
Pittsburgh, PA 15236-0940

Dear AAD Document Control:

Subject: Plains CO₂ Reduction Partnership Phase II Quarterly Technical Progress PowerPoint
Presentation for the Period October 1 – December 31, 2006
DOE Cooperative Agreement No. DE-FC26-05NT42592

Enclosed are hard copies of the Phase II Quarterly Technical Progress PowerPoint Presentation and the Request for Patent Clearance Form for the Plains CO₂ Reduction Partnership Program. Also enclosed is a disk containing the Quarterly Technical Progress PowerPoint Presentation. If you have any questions, please call me at (701) 777-5279 or e-mail at esteadman@undeerc.org.

Sincerely,

Edward N. Steadman
Senior Research Advisor

ENS/slw

Enclosures

c/enc: John Litynski, NETL
Sheryl Landis, EERC (Patent Clearance Form)

c: Tobe Larson, EERC

U.S. DEPARTMENT OF ENERGY
**REQUEST FOR PATENT CLEARANCE FOR
RELEASE OF CONTRACTED RESEARCH DOCUMENTS**

NETL F 510.1-5
(02/2002) OPI=CC01
(Previous Editions Obsolete)

TO: ■ For Technical Reports
AAD Document Control
MS 921-107
U.S. Department of Energy - NETL
P.O. Box 10940
Pittsburgh, PA 15236-0940

◆ Award No.
DE-FC26-05NT42592

Name & Phone No. of DOE COR
John Litynski (304) 285-1339

□ For Technical Papers/Journal Articles/Presentations
Mark P. Dvorscak
U.S. Department of Energy
9800 S. Cass Avenue
Argonne, IL 60439
FAX: (630) 252-2779

A. AWARDEE ACTION (AWARDEE COMPLETES PART A. 1-5)

1. Document Title: Plains CO₂ Reduction Partnership Phase II
2. Type of Document: ■ Technical Progress Report □ Topical Report □ Final Technical Report
□ Abstract □ Technical Paper □ Journal Article □ Conference Presentation
Other (please specify) _____
3. Date Clearance Needed: _____
- ◆4. Results of Review for Possible Inventive Subject Matter:
 - a. ■ No Subject Invention is believed to be disclosed therein.
 - b. □ Describes a possible Subject Invention relating to _____
 - i. Awardee Docket No.: _____
 - ii. A disclosure of the invention was submitted on _____
 - iii. A disclosure of the invention will be submitted by the following date: _____
 - iv. A waiver of DOE's patent rights to the awardee: □ has been granted, □ has been applied for, or
□ will be applied for by the following date: _____
- ◆5. Signed *Sheryl E. Landis* Date 1-29-07
(Awardee)

Name & Phone No. Sheryl E. Landis (701) 777-5124

Address Energy & Environmental Research Center, 15 North 23rd Street, Stop 9018, Grand Forks, ND, 58202-9018

B. DOE PATENT COUNSEL ACTION

- Patent clearance for release of the above-identified document is granted.
- Other: _____

Signed _____
(Patent Attorney)

Date _____



Plains CO₂ Reduction (PCOR) Partnership
Practical, Environmentally Sound CO₂ Sequestration



PLAINS CO₂ REDUCTION PARTNERSHIP

Phase II Quarterly Technical Progress PowerPoint Presentation

(for the period October 1 – December 31, 2006)

Prepared for:

AAD Document Control

U.S. Department of Energy
National Energy Technology Laboratory
PO Box 10940, MS 921-107
Pittsburgh, PA 15236-0940

Agreement No. DE-FC26-05NT42592
Contracting Officer's Representative: John Litynski

Prepared by:

Edward N. Steadman
John A. Harju
Erin M. O'Leary
Lucia Romuld
James A. Sorensen
Daniel J. Daly
Melanie D. Jensen
Lisa S. Botnen
Barry W. Botnen
Wesley D. Peck
Steven A. Smith
Tami Jo Votava
Stephanie L. Wolfe
Kim M. Dickman

Energy & Environmental Research Center
University of North Dakota
15 North 23rd Street, Stop 9018
Grand Forks, ND 58202-9018

January 2007

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government, nor any agency thereof, nor any of their employees makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

This report is available to the public from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161; phone orders accepted at (703) 487-4650.

EERC DISCLAIMER

LEGAL NOTICE This research report was prepared by the Energy & Environmental Research Center (EERC), an agency of the University of North Dakota, as an account of work sponsored by the U.S. Department of Energy and the North Dakota Industrial Commission. Because of the research nature of the work performed, neither the EERC nor any of its employees makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement or recommendation by the EERC.

University of North Dakota
Energy & Environmental Research Center
Plains CO₂ Reduction Partnership



Project Summary

DE-FC26-05NT42592

*For Period October 1 –
December 29, 2006*

National Energy Technology Laboratory



Partnership Objectives

The Plains CO₂ Reduction (PCOR) Partnership is a collaborative regional framework to support the testing and demonstration of CO₂ sequestration technologies in the central interior of North America.

The PCOR Partnership project includes ten performance tasks:

- Task 1 – Project Management and Reporting
- Task 2 – Field Validation Test – Beaver Lodge, North Dakota
- Task 3 – Field Validation Test – Zama, Alberta
- Task 4 – Field Validation Test – Lignite in North Dakota
- Task 5 – Terrestrial Validation Test
- Task 6 – Continued Characterization of Regional
Sequestration Opportunities
- Task 7 – Research, Safety, Regulatory, and Permitting Issues
- Task 8 – Public Outreach and Education
- Task 9 – Identification of the Commercially Available Sequestration
Technologies Ready for Large-Scale Deployment
- Task 10 – Regional Partnership Program Integration



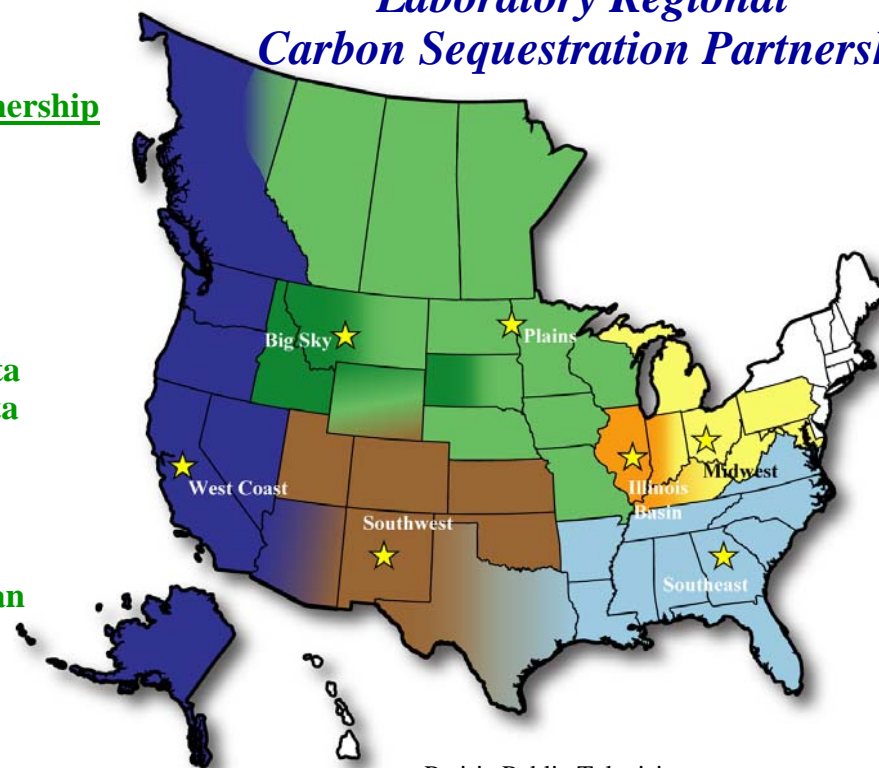
PCOR Partnership Phase II Partners (62, including EERC):

- ★ University of North Dakota Energy & Environmental Research Center (EERC)
- Advanced Geotechnology, a Division of Hycal Energy Research Laboratories, LTD.
- Air Products and Chemicals
- Alberta Department of Energy
- Alberta Energy and Utilities Board
- Alberta Geological Survey
- Amerada Hess Corporation
- Apache Canada Ltd.
- Basin Electric Power Cooperative
- British Columbia Ministry of Energy, Mines and Petroleum Resources
- Carbozyme, Inc.
- Center for Energy & Economic Development (CEED)
- Dakota Gasification Company
- Ducks Unlimited Canada
- Ducks Unlimited, Inc.
- Eagle Operating, Inc.
- Eastern Iowa Community College District
- Encore Acquisition Company
- Environment Canada
- Excelsior Energy, Inc.
- Fischer Oil and Gas, Inc.
- Great Northern Power Development, LP
- Great River Energy
- Interstate Oil and Gas Compact Commission
- Iowa Department of Natural Resources – Geological Survey
- Lignite Energy Council
- MEG Energy Corporation
- Melzer Consulting
- Minnesota Power
- Minnkota Power Cooperative, Inc.
- Missouri Department of Natural Resources
- Montana–Dakota Utilities Co.
- Montana Department of Environmental Quality
- National Commission on Energy Policy
- Natural Resources Canada

PCOR Partnership

Region:

Iowa
Minnesota
Missouri
Montana
Nebraska
North Dakota
South Dakota
Wisconsin
Wyoming
Alberta
Manitoba
Saskatchewan



National Energy Technology Laboratory Regional Carbon Sequestration Partnerships

- | | |
|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| ▪ Nexant, Inc. | ▪ Prairie Public Television |
| ▪ North Dakota Department of Commerce Division of Community Services | ▪ Pratt & Whitney Rocketdyne, Inc. |
| ▪ North Dakota Department of Health | ▪ Ramgen Power Systems, Inc. |
| ▪ North Dakota Geological Survey | ▪ Saskatchewan Industry and Resources |
| ▪ North Dakota Industrial Commission Department of Mineral Resources, Oil and Gas Division | ▪ SaskPower |
| ▪ North Dakota Industrial Commission Lignite Research, Development and Marketing Program | ▪ Shell Canada Limited |
| ▪ North Dakota Industrial Commission Oil and Gas Research Council | ▪ Suncor Energy Inc. |
| ▪ North Dakota Natural Resources Trust | ▪ University of Alberta |
| ▪ North Dakota Petroleum Council | ▪ U.S. Department of Energy |
| ▪ North Dakota State University | ▪ U.S. Geological Survey Northern Prairie Wildlife Research Center |
| ▪ Otter Tail Power Company | ▪ Westmoreland Coal Company |
| ▪ Petroleum Technology Transfer Council | ▪ Western Governors' Association |
| | ▪ Wisconsin Department of Agriculture, Trade and Consumer Protection |
| | ▪ Xcel Energy |



Partnership Team

Partner Name	City	State	Congressional District
University of North Dakota Energy & Environmental Research Center (EERC)	Grand Forks	North Dakota	At Large
Advanced Geotechnology, a Division of Hycal Energy Research Laboratories, LTD.	Calgary, Alberta		
Air Products and Chemicals	Allentown	Pennsylvania	15
Alberta Department of Environment	Edmonton, Alberta		
Alberta Energy and Utilities Board	Edmonton, Alberta		
Alberta Geological Survey	Edmonton, Alberta		
Amerada Hess Corporation	Williston	North Dakota	At Large
Apache Canada Ltd.	Calgary, Alberta		
Basin Electric Power Cooperative	Bismarck	North Dakota	At Large
British Columbia Ministry of Energy, Mines and Petroleum Resources	Victoria, British Columbia		
Carbozyme, Inc.	Monmouth Junction	New Jersey	4
Center for Energy & Economic Development (CEED)	Alexandria	Virginia	8
Dakota Gasification Company	Bismarck	North Dakota	At Large
Ducks Unlimited Canada	Stonewall, Manitoba		
Ducks Unlimited, Inc.	Memphis	Tennessee	9

Continued. . .



Partnership Team (cont.)

Partner Name	City	State	Congressional District
Eagle Operating, Inc.	Kenmare	North Dakota	At Large
Eastern Iowa Community College District	Davenport	Iowa	1
Encore Acquisition Company	Fort Worth	Texas	12
Environment Canada	Manitoba and Saskatchewan Provinces		
Excelsior Energy, Inc.	Minnetonka	Minnesota	3
Fischer Oil and Gas, Inc.	Grand Forks	North Dakota	At Large
Great Northern Power Development, LP	Townsend	Montana	At Large
Great River Energy	Elk River	Minnesota	6
Interstate Oil and Gas Compact Commission	Oklahoma City	Oklahoma	5
Iowa Department of Natural Resources – Geological Survey	Iowa City	Iowa	2
Lignite Energy Council	Bismarck	North Dakota	At Large
MEG Energy Corporation	Calgary, Alberta		
Melzer Consulting	Midland	Texas	11
Minnesota Power	Duluth	Minnesota	8



Continued. . .

Partnership Team (cont.)

Partner Name	City	State	Congressional District
Minnkota Power Cooperative, Inc.	Grand Forks	North Dakota	At Large
Missouri Department of Natural Resources	Jefferson City	Missouri	4
Montana–Dakota Utilities Co.	Bismarck	North Dakota	At Large
Montana Department of Environmental Quality	Helena	Montana	At Large
National Commission on Energy Policy	Washington	DC	1
Natural Resources Canada	Ottawa, Ontario		
Nexant, Inc.	San Francisco	California	8
North Dakota Department of Commerce Division of Community Services	Bismarck	North Dakota	At Large
North Dakota Department of Health	Bismarck	North Dakota	At Large
North Dakota Geological Survey	Bismarck	North Dakota	At Large
North Dakota Industrial Commission Department of Mineral Resources, Oil and Gas Division	Bismarck	North Dakota	At Large
North Dakota Industrial Commission Lignite Research, Development and Marketing Program	Bismarck	North Dakota	At Large
North Dakota Industrial Commission Oil and Gas Research Council	Bismarck	North Dakota	At Large
North Dakota Natural Resources Trust	Bismarck	North Dakota	At Large
North Dakota Petroleum Council	Bismarck	North Dakota	At Large



Continued. . .

Partnership Team (cont.)

Partner Name	City	State	Congressional District
North Dakota State University	Fargo	North Dakota	At Large
Otter Tail Power Company	Fergus Falls	Minnesota	7
Petroleum Technology Transfer Council	Houston	Texas	7
Pratt & Whitney Rocketdyne, Inc.	Canoga Park	California	25
Prairie Public Television	Fargo	North Dakota	At Large
Ramgen Power Systems, Inc.	Bellevue	Washington	8
Saskatchewan Industry and Resources	Regina, Saskatchewan		
SaskPower	Regina, Saskatchewan		
Shell Canada Limited	Calgary, Alberta		
Suncor Energy Inc.	Calgary, Alberta		
University of Alberta	Edmonton, Alberta		
U.S. Geological Survey Northern Prairie Wildlife Research Center	Jamestown	North Dakota	At Large
Westmoreland Coal Company	Colorado Springs	Colorado	5
Western Governors Association	Denver	Colorado	1
Wisconsin Department of Agriculture, Trade and Consumer Protection	Madison	Wisconsin	2
Xcel Energy	Golden	Colorado	7



Partnership Principals

- *Principal Investigator: Ed Steadman, EERC*
- *Task Leaders*
 - Task 1 – Project Management and Reporting – **Ed Steadman** and **John Harju**
 - Task 2 – Field Validation Test – Beaver Lodge, North Dakota – **Jim Sorensen**
 - Task 3 – Field Validation Test – Zama, Alberta – **Steve Smith**
 - Task 4 – Field Validation Test – Lignite in North Dakota – **Lisa Botnen** and **Ed Steadman**
 - Task 5 – Terrestrial Validation Test – **Barry Botnen**
 - Task 6 – Continued Characterization of Regional Sequestration Opportunities – **Erin O’Leary**
 - Task 7 – Research, Safety, Regulatory, and Permitting Issues – **Lisa Botnen**
 - Task 8 – Public Outreach and Education – **Dan Daly**
 - Task 9 – Identification of the Commercially Available Sequestration Technologies Ready for Large-Scale Deployment – **Melanie Jensen**
 - Task 10 – Regional Partnership Program Integration – **Ed Steadman**
- *National Energy Technology Laboratory Project Manager: John Litynski*



Budget

Start Date	End Date	Government Cost	Performer Cost	Total Cost	Cost Share
10/1/05	9/30/09	\$15,710,015	\$10,145,953	\$25,855,968	39%

- **U.S. Department of Energy (DOE) Costs to Date: \$2,756,299**
- **Cost Share to Date: \$803,714**



Highlights of Progress to Date

Task 1 – Management and Reporting

Presented at and/or participated in the following meetings/conferences:

- Regional Carbon Sequestration Review Meeting, Pittsburgh, Pennsylvania (October).
- Western Fuels Symposium, Denver, Colorado (October).
- IEA 2nd Risk Assessment Network Meeting, Lawrence Berkeley National Laboratory, Berkeley, California (October).
- Saskatchewan and Northern Plains Oil and Gas Symposium, Regina, Saskatchewan, Canada (October).
- GIS User Group Meeting, Bismarck, North Dakota (October).
- Met with Lynn Helms, Ed Murphy, and David Hvinden from the North Dakota Industrial Commission (NDIC) to discuss ongoing projects and opportunities, Grand Forks, North Dakota (November).
- Documentary interview with Mary Jo Roth (Great River Energy) at Prairie Public Broadcasting studios and follow-up discussions on draft video track, Fargo, North Dakota (November).
- Documentary interviews in Chicago, Illinois, and Washington, DC (November).
- Zama Project Meeting, Calgary, Alberta, Canada (December).
- Met with Duck's Unlimited in Bismarck, North Dakota (December).
- Society of Petroleum Engineers (SPE) CO₂ Workshop, Houston, Texas (December).



Continued. . .

Highlights of Progress to Date (cont.)

Task 2 – Field Validation Test – Beaver Lodge, North Dakota

- Continued the development of the National Environmental Policy Act (NEPA) document for the Beaver Lodge Field Validation Test.
- Continued a literature search for readily available documents and data specifically related to the Beaver Lodge field.
- Continued the development of an Experimental Design Package for the Beaver Lodge Field Validation Test.
- Worked with the North Dakota Geological Survey to identify and obtain representative samples for laboratory work to examine mineralogical changes in reservoir and seal rocks after exposure to CO₂ under Beaver Lodge Duperow reservoir conditions.
- Set up equipment and initiated the development of experimental protocols for conducting laboratory activities.



Continued. . .

Highlights of Progress to Date (cont.)

Task 3 – Field Validation Test – Zama, Alberta

- Start-up of the 100/01-13-116-6W6 acid gas injector on the Zama Keg River F Pool was officially December 15. Injection began at low rates to confirm mechanical integrity of surface connections. December 19 was the first full day of acid gas injection at a rate of 30,000 cubic meters (1,059,440 cubic feet). This is roughly equivalent to 60 tons of acid gas per day. At 30% H₂S content, this is about 42 tons of CO₂ injected per day and 15,330 tons per year.
- Continued to develop enhanced monitoring, mitigation, and verification (MMV) strategies in conjunction with our subcontractors and other partners.
- Have identified several pinnacles in the Zama area that can be cored to evaluate the effect of H₂S/CO₂ on the system.
- Worked with Apache Canada, Ltd., Alberta Energy and Utilities Board (EUB), Natural Resources Canada (NRCan), and others to develop an approach for collecting core from key formations within the pinnacle formation and overlying strata.
- Working with NRCan and EUB to obtain potential funding for MMV activities.



Continued. . .

Highlights of Progress to Date (cont.)

Task 4 – Field Validation Test – Lignite in North Dakota

- Submitted Final NEPA for the Lignite Field Validation Test.
- Completed drilling permit applications, which will be submitted to NDIC before drilling commences.
- Discussions are ongoing with PCOR partner Eagle Operating to drill the wells and assist with well operations.
- Received Exception Order from NDIC for well-spacing requirements
- The model for simulation of injection/production from lignite in Burke County is under development. Figure 1 shows the 5-spot well layout.

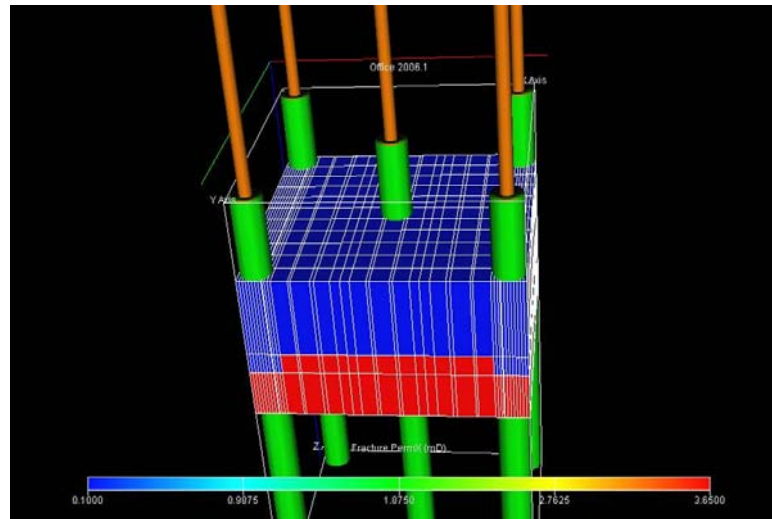


Figure 1. 5-spot model of production from coal seam.

Continued. . .



Highlights of Progress to Date (cont.)

Task 4 – Field Validation Test – Lignite in North Dakota

- A dissertation by a Ph.D. candidate, who conducted a relatively thorough study of coalbed methane (CBM) wells in Powder River Basin, was reviewed and its implications for CO₂ injection analyzed.
- Notified State Land Department that drilling has been delayed as a result of weather conditions.
- A list of desirable logging, gas analysis, and additional research tests is under development for inclusion in the Experimental Design Package.
- Discussions are ongoing with Schlumberger regarding logging and, possibly, core analysis services.
- A database of gamma ray logs from 54 wells and sonic logs from 12 wells in the vicinity of the proposed pilot project site was created.
- Available logs were analyzed, and a map of the coal seam thickness in the area was created.
- Work has begun on the experimental design package, site health and safety plan, and regulatory permitting action plan.
- A database on available background data has been created.
- Background data gaps have been identified, and research is under way for available information to fill the gaps.



Continued. . .

Highlights of Progress to Date (cont.)

Task 4 – Field Validation Test – Lignite in North Dakota

- The available background data were analyzed using statistical procedures and parameters for the initial (not validated) geological and numerical models chosen.
- The initial numerical model of the coal seam was built using Eclipse software.
- Manipulations with the created numerical model were completed to ensure obtaining physically sound results of numerical simulation.
- Preliminary results of numerical simulations provided insight into anticipated production rates.
- A list of data needed for geological and numerical model validation has been put together.
- Continuing to revise the drilling prognosis so it will better suit the needs of the project.



Continued. . .

Highlights of Progress to Date (cont.)

Task 5 – Terrestrial Validation Test

- Completed (draft form):
 - Best Management Practices Fact Sheet
 - Indirect Benefits Fact Sheet
 - North Dakota State University (NDSU) wetlands paper
- Completed geographic information system (GIS) modeling to evaluate/select field validation sites.
- Prairie Pothole Region carbon field validation sites selected.
- Sampling work plan in draft form.
- Soil sampling on Sheridan County, North Dakota, sites complete. Samples are being analyzed.
- Ducks Unlimited, Inc. (DU), Project Web site was constructed and is now online and linked to the EERC/PCOR Partnership Web site.
- Business model/processes for aggregating and transacting carbon offsets in a voluntary market are being drafted. Legal wording for easement documents for carbon are complete in draft form (offer sheets, easement terms, risk/insurance assessment, pricing options – ongoing research).



Continued. . .

Highlights of Progress to Date (cont.)

Task 5 – Terrestrial Validation Test (cont.)

- **Coordination Meeting.** A meeting was held with the EERC, DU, USGS, and NDSU to coordinate the plans for the 2007 field season. Study sites, landowner contacts, data collection, and a review of the 2006 field season were discussed.
- **Outreach.** Meetings were held with NWF, TNC, Edison Electric, and API to discuss recent policy developments, carbon market activity, terrestrial offset programs, and to present aggregated grassland offsets to potential investors using recent research on business models.
- **Outreach.** Article published in Ecosystem Marketplace. We continue to investigate the investor perspective and opportunities in the carbon market.
- **Business Processes.** Refinement of business models for negotiating carbon costs per ton, market, and delivery risk assessment.



Continued. . .

Highlights of Progress to Date (cont.)

Task 5 – Terrestrial Validation Test (cont.)

- **First Draft of Business Requirements Document for Carbon-Tracking Database.** This has been circulated to DU technical staff for preliminary review. Comments are currently being incorporated into the document, and broader review will take place in March 2007. Once the Business Requirements Document is finalized, work will begin on the Functional Requirement Specifications. These will itemize in detail the programming elements needed for the new functionality for tracking carbon offset transactions and inventory.
- **Review of DOE Technical Guidelines for the Voluntary Trading of GHG.** This review is ongoing with new information and interpretation of the guidelines. This initial review sought to itemize the key points in the Guidelines dealing with the role of aggregators, the generation of terrestrial offsets, carbon rate calculation methods for terrestrial offsets, and any other guidelines dealing with additionally and preservation. Currently under review.
- **DU International Conservation Planning Regions** (by conservation priority). GIS data set delivered to the EERC for incorporation into PCOR Partnership Decision Support Mapping Application.



Highlights of Progress to Date (cont.)

Task 6 – Continued Characterization of Regional Sequestration Opportunities

Characterization

- Continued working with our Alberta partner (Alberta Energy and Utilities Board) on the Alberta oil and gas well and field data.
- Received oil field shape files for British Columbia, Canada. We will put these into the decision support system (DSS) as soon as we receive the associated attribute data.
- Created stratigraphy maps for the states and provinces contained in the PCOR Partnership region for use in the DSS.
- Worked with NDIC on updating the oil and well data for North Dakota.
- Added new ethanol CO₂ sources to the DSS.
- Purchased and installed the Eclipse software from Schlumberger. This package will enable us to model geologic reservoirs.
- Completed QA/QC on the gas analysis data.
- Worked on negotiations with PenWell to obtain pipeline data for the DSS.
- Finalized the subcontract with the Iowa Geological Survey.



Continued. . .

Highlights of Progress to Date (cont.)

Task 6 – Continued Characterization of Regional Sequestration Opportunities (cont.)

Decision Support System (DSS)

- Modified the extent of the PCOR Partnership region to include northeastern corner of British Columbia, Canada.
- Added new layers (stratigraphy and coal with references), ability to use multiple text boxes and to clear text on the map, and ecoregion definitions to the DSS.
- Created a “T-Zone” for terrestrial data.
- Began programming of a GIS site for the gas analysis data. This gas analysis will provide us with a better understanding of the nature of acid gas resources in the region, including zones that aren’t currently being produced. It will assist us in developing our regional vision. The Gas Analysis GIS site will be built entirely on the SDE/SQL platform.
- Added topical report by Stefan Bachu (EUB) and various presentation materials to the DSS.



Continued. . .

Highlights of Progress to Date (cont.)

Task 6 – Continued Characterization of Regional Sequestration Opportunities (cont.)

Other Activities

- Began work on the second edition of the PCOR Partnership Atlas. The new version will include all new maps depicting the expanded region, a new member list, updated source and sink data, discussion of the Phase II and Phase II demo sites, and material on regulatory and safety issues. The updated Atlas should be available sometime in February 2007.
- Working on changes to the geological CO₂ sequestration estimates based on changes from the Geological Working group for the purposes of the products required for the National Atlas. We did not make said changes to the DSS data sets.
- Provided NATCARB with the shape files and other products for use in the National Carbon Sequestration Atlas.



Continued. . .

Highlights of Progress to Date (cont.)

Task 7 – Research, Safety, Regulatory, and Permitting Issues

General

- Continued outline for analysis and reporting of carbon market strategies.
- Reviewed Global Warming Reduction Act of 2006 introduced by Senators Kerry and Snowe.
- Reviewed EPA Draft Guidance Using Class V Experimental Technology Well Classification for Pilot Carbon Geologic Sequestration Projects.
- Began work to review pricing structure and market trends for carbon management plans.
- Continued review of recent publications relating to regulating CO₂ sequestration and MMV issues.
- Reviewed California Global Warming Solutions Act of 2006.
- Completed review of IOGCC draft model statute for states.
- Completed analysis for a CO₂ emission avoidance technology's qualification as a carbon offset project under various schemes in the United States and Europe.



Continued. . .

Highlights of Progress to Date (cont.)

Task 7 – Research, Safety, Regulatory, and Permitting Issues

General (cont.)

- Participated in Outreach Working Group Conference call that discussed financial responsibility, insurance, and liability issues.
- Began writing an analysis of carbon market strategies.
- Continued review of draft 1605(b) forms and instructions.
- Reviewed Outreach Working Group's comments on the EPA Draft Guidance Document Using Class V Injection Wells.

Lignite Field Validation Test

- Submitted Final NEPA for the Lignite Field Validation Test.
- Received Exception Order from NDIC regarding well-spacing requirements for the Lignite Field Validation Test.
- Began work on SHSP and RPAP for Lignite Field Validation Test.

Beaver Lodge Field Validation Test

- Began work on NEPA document for Beaver Lodge.
- Began work on SHSP and RPAP for Beaver Lodge.



Continued. . .

Highlights of Progress to Date (cont.)

Task 8 – Public Outreach and Education

- Draft final Outreach PowerPoint submitted on schedule May 30, 2006.
- Two draft final Site Outreach plans (for Tasks 3 and 5) submitted on schedule April 30, 2006.
- Draft final of Fact Sheet 7, Zama project, submitted on schedule (July 31, 2006).
- Draft final of public Web site to NETL submitted on schedule (August 31, 2006), and submitted for internal EERC review.
- Work under way on Phase II Documentary 1 – Carbon Market Trading (deadline extension to July 31, 2007 to accommodate change in scope under consideration).
 - Filming and interviews completed in Brazil (January 2006), Alexandria (May 2006), Europe (June 2006), and Zama, Alberta, Canada (August 2006).
 - Interview and location footage reviewed (August – September 2006).
 - Draft video track (October 2006).
 - Additional interviews and location footage in Chicago, Illinois, and Washington, DC (November – December 2006).
 - Scope expanded to include private investment activities in geologic sequestration projects (December 2006).
- Draft final of Fact Sheet 8 submitted on schedule December 31, 2006.
- Continued collaboration on Regional Carbon Sequestration Program (RCSP) Outreach Working Group activities.



Continued. . .

Highlights of Progress to Date (cont.)

Task 9 – Identification of the Commercially Available Sequestration Technologies Ready for Large-Scale Deployment

- Prepared slides for a CO₂ capture overview given at the Western Fuels Symposium in Denver.
- Reviewed data and added new ethanol plants and smaller electric generating stations to the master source spreadsheet.
- Responded to partner requests for CO₂ capture data, assistance with various documents.
- Began planning the regional partnerships' capture and transportation working group workshop that will be held at the EERC in June 2007.
- Prepared the draft Best Practice Manual for wind power to provide energy for CO₂ pipeline compression.
- Began writing a section that deals with CO₂ capture and separation, compression, and transportation for the next version of the PCOR Partnership Atlas.



Continued. . .

Highlights of Progress to Date (cont.)

Task 10 – Regional Partnership Program Integration

- Membership discussions continued with numerous organizations.
- Participation continued in geologic, outreach, capture and separation, and GIS working group conference calls.
- Working with Dawn Deel, DOE, on National Sequestration Atlas.
- Took part in Regional Partnership Phase III Procurement Requirements with DOE and Partnerships call on November 13, 2006.
 - Mailed partner information on Regional Partnerships Phase III (January 5, 2006).

The following are new Phase II members:

- Melzer Consulting
- Pratt & Whitney Rocketdyne, Inc.
- Westmoreland Coal Company
- Shell Canada Limited



Project Tasks and Status

Task 1 – Management and Reporting		
Activity	Description	Status
1	Design Project Management and Reporting Plan	Completed (December 30, 2005)
2	Perform Project Management	Ongoing
3	Develop PCOR Partnership Phase II Final Report	Future activity (due September 30, 2009)



Continued. . .

Project Tasks and Status (cont.)

Task 2 – Field Validation Test at Beaver Lodge, North Dakota		
Activity	Description	Status
1	Project Design	Ongoing
2	Project Implementation	Future activity
3	Project Operations	Future activity
4	Closeout and Reporting	Future activity



Continued. . .

Project Tasks and Status (cont.)

Task 3 – Field Validation Test at Zama, Alberta		
Activity	Description	Status
1	Project Design	Complete
2	Project Implementation	Ongoing
3	Project Operations	Initiated
4	Closeout and Reporting	Future activity



Continued. . .

Project Tasks and Status (cont.)

Task 4 – Field Validation Test of North Dakota Lignite		
Task	Description	Status
1	Project Design	Ongoing
2	Project Implementation	Initiating
3	Project Operations	Future activity
4	Closeout and Reporting	Future activity



Continued. . .

Project Tasks and Status (cont.)

Task 5 – Terrestrial Validation Test		
Task	Description	Status
1	Project Design	Ongoing
2	Project Implementation	Ongoing
3	Project Operations	Initiating
4	Closeout and Reporting	Ongoing



Continued. . .

Project Tasks and Status (cont.)

Task 6 – Characterization of Regional Characterization Opportunities		
Task	Description	Status
1	Regional Characterization Gap Assessment	First assessment completed (February 28, 2006) (Second assessment due third budget period)
2	Data Collection	Ongoing
3	Improvements to the PCOR Partnership Decision Support System	Ongoing. New site released on 7/14/06. Updated site released in December 2006.
4	Reporting	Ongoing



Continued. . .

Project Tasks and Status (cont.)

Task 7 – Research, Safety, Regulatory, and Permitting Issues		
Task	Description	Status
1	Existing Regulations Related to the Sequestration of CO ₂ Identified and Tracked	Ongoing
2	New Regulatory Guidelines Collated for Projects Implemented and Commercially Ready Future Sequestration Projects	Ongoing
3	Reporting	Ongoing



Continued. . .

Project Tasks and Status (cont.)

Task 8 – Public Outreach and Education		
Activity	Description	Status
1	Outreach Planning	Task 2 Outreach Action Plan – Future Activity (Due March 31, 2007) Task 3 Outreach Action Plan – Complete (April 30, 2006) Task 4 Outreach Action Plan – Future Activity (Due April 30, 2007) Task 5 Outreach Action Plan – Complete (April 30, 2006) Task 8 Outreach Action Plan – Complete (February 28, 2006)
2	Web Site	Phase II Update Complete (August 31, 2006); undergoing internal review and finalization. Annual updates planned.
3	Outreach Booth	Future Activity (Due April 30, 2007)
4	Outreach PowerPoint	Completed (May 31, 2006) Annual updates planned.



Continued. . .

Project Tasks and Status (cont.)

Task 8 – Public Outreach and Education		
Activity	Description	Status
5	Fact Sheets	<p>Fact Sheet 6 – Completed (December 31, 2005)</p> <p>Fact Sheet 7 – Completed (July 31, 2006)</p> <p>Fact Sheet 8 – Completed (December 31, 2006)</p> <p>Fact Sheet 9 – Future activity (Due May 31, 2007)</p> <p>Fact Sheet 10 – Future activity (Due October 31, 2007)</p>
6	Documentaries	<p>Documentary 1 – Carbon Market Trading, request for broader scope and extension to Year 2, Quarter 4</p> <p>Documentary 2 – Future activity (Due August 31, 2007)</p> <p>Documentary 3 – Future activity (Due March 31, 2008)</p> <p>Documentary 4 – Future activity (Due June 30, 2009)</p>
7	Reporting	Ongoing



Continued. . .

Project Tasks and Status (cont.)

Task 9 – Identification of the Commercially Available Sequestration Technologies Ready for Large-Scale Deployment		
Task	Description	Status
1	Economic Assessment of Regional Sequestration Opportunities	In progress
2	New Sequestration Approaches	<ul style="list-style-type: none"> – Draft BMP prepared for wind power project – Excelsior Energy carbon management plan white paper prepared
3	Reporting	Ongoing



Continued. . .

Project Tasks and Status (cont.)

Task 10 – Regional Partnership Program Integration		
Task	Description	Status
1	Development of Regional Partnership Program Integration Plan	Completed (July 18, 2006)
2	Integration of Partnership Program Activities	Ongoing
3	Reporting	Ongoing



Project Milestones

Milestone	Description	Status
Task 1 – Management and Reporting		
1	Design Project Management and Reporting Plan	Completed (December 30, 2005)
2	Manage writing of Progress Report	Ongoing
3	Provide overall project management	Ongoing
4	Provide Quarterly and Semiannual Reports	Ongoing
5	PCOR Partnership Phase I Wrap-Up/Phase II Kickoff Meeting	Completed (November 1–2, 2005)
Task 2 – Field Validation Test at Beaver Lodge, North Dakota		
1	Finalization of site-specific monitoring, mitigation, and verification (MMV) plan	Ongoing
2	Initiation of baseline characterization activities	Ongoing
3	Historical data collection	Ongoing
4	Identification of data gaps	Ongoing
5	Analytical activities on reservoir and caprock core samples	Initiated



Continued. . .

Project Milestones (cont.)

Milestone	Description	Status
Task 2 – Field Validation Test at Beaver Lodge, North Dakota (cont.)		
6	Identification of specific well locations within the Beaver Lodge field	Ongoing
7	Facilitate the development of a site-specific plan for the installation and/or application of selected MMV technologies	Ongoing
8	Facilitate the identification of infrastructure requirements	Future activity
9	Finalization of Amerada Hess Corporation CO ₂ flood design	Future activity
10	Installation of CO ₂ delivery system by Amerada Hess Corporation	Future activity
11	Collection of site-specific baseline surface and subsurface data	Ongoing
12	Installation of CO ₂ injection wells by Amerada Hess Corporation	Future activity
13	Progress reports 60 days prior to conclusion of Budget Period 1	Future activity (Due July 31, 2007)
14	Regional Technology Implementation Plan detailing MMV activities at an ongoing oil-producing facility	Future activity (Due July 31, 2009)

Continued. . .



Project Milestones (cont.)

Milestone	Description	Status
Task 3 – Field Validation Test at Zama, Alberta		
1	H ₂ S/CO ₂ injection commences	Injection was initiated in December.
2	Reservoir modeling	Currently obtaining existing model. Will review and modify as needed.
3	Data acquisition and design	Ongoing → 90% complete
4	Geologic characterization of the region (northwestern Alberta/northeastern British Columbia)	Ongoing
5	Establish hydrogeology of the study area	Ongoing
6	Conduct geomechanical tests of reservoir and caprock core samples to determine the mechanical integrity of those formations; results will be used to predict pressure that can be applied to the pinnacle before the sealing formation will be fractured.	Ongoing
7	Significant achievements/MMV updates	Future activity
8	Stress regimes of the injection zone	Ongoing
9	Assessment of influence of underlying aquifers	Future activity
10	Progress Report 60 days prior to conclusion of Budget Period 1	Future activity (Due July 31, 2007)
11	Geochemistry of the surface to subsurface	Future activity
12	Assessment of leakage potential as a result of injection	Ongoing
13	Regional Technology Implementation Plan detailing MMV activities at an ongoing oil-producing facility	Future activity (Due July 31, 2009)



Continued. . .

Project Milestones (cont.)

Milestone	Description	Status
Task 4 – Field Validation Test of North Dakota Lignite		
1	Initiation of baseline characterization activities	Completed (December 30, 2005)
2	Identification of specific well locations within the North Dakota lignite CBM test	Completed
3	Finalization of CO ₂ flood design	Future activity
4	Collection of site-specific baseline surface and subsurface data	Ongoing
5	Installation of selected MMV technologies	Future activity
6	Progress Report 60 days prior to conclusion of Budget Period 1	Future activity (Due July 31, 2007)
7	Finalization of site-specific MMV plan	Ongoing
8	Installation of CO ₂ delivery system	Future activity
9	Installation of CO ₂ injection wells	Future activity
10	Initial injection of CO ₂ into subsurface	Future activity
11	Initial collection of MMV data	Future activity
12	Review and analysis of results of first year of operation	Future activity
13	Review and analysis of results of second year of operation	Future activity
14	Regional Technology Implementation Plan detailing MMV activities at an ongoing oil-producing facility	Future activity

Continued. . .



Project Milestones (cont.)

Milestone	Description	Status
Task 5 – Terrestrial Validation Test		
1	Develop an experimental design package	Completed (February 28, 2006)
2	Safety, regulatory, and permitting	Completed (March 31, 2006)
3	GIS modeling to extrapolate survey site information to region	Ongoing
4	Progress Report 60 days prior to conclusion of Budget Period 1	Future activity (Due July 31, 2007)
5	Preparation and distribution of materials to solicit participation	Initiating
6	Indirect benefits	Complete in Draft Form
7	Regional partnerships for CO ₂ sequestration	Future activity
8	Land use management practices that increase SOC	Complete in Draft Form
9	Business flow process for carbon credit trading	Ongoing
10	Economic feasibility of CO ₂ sequestration	Ongoing
11	Regional Technology Implementation Plan	Future activity
12	Compiling design criteria	Ongoing
13	Develop Web-based landowner outreach strategy	Ongoing
14	Data compilation and analysis	Ongoing

Continued. . .



Project Milestones (cont.)

Milestone	Description	Status
Task 6 – Characterization of Regional Characterization Opportunities		
1	Conduct DSS data gap assessment (1st Budget Period)	Completed (February 28, 2006)
2	Place updated DSS into production	Completed (July 31, 2006).
3	Progress Report 60 days prior to conclusion of Budget Period 1	Future activity (Due July 31, 2007)
4	Conduct data gap assessment (3rd Budget Period)	Future activity
5	Create field project data warehouse and put into production	Zama site completed (June 30, 2006) Terrestrial site completed (November 2006)
Task 7 – Research, Safety, Regulatory, and Permitting Issues		
1	Provide regulatory support to Tasks 3 and 5 field validation testing	Ongoing
2	Provide summary of regulations related to four Phase II validation tests	Ongoing
3	Provide regulatory input to Progress Report	Future activity
4	Provide regulatory support to Tasks 2 and 4	Ongoing
5	Progress Report 60 days prior to conclusion of Budget Period 1	Future activity (Due July 31, 2007)
6	Road map document produced	Future activity

Continued. . .



Project Milestones (cont.)

Milestone	Description	Status
Task 8 – Public Outreach and Education		
1	Fact sheet production	<p>Fact Sheet 6 – Completed (December 31, 2005)</p> <p>Fact Sheet 7 – Completed (July 31, 2006)</p> <p>Fact Sheet 8 – Completed (December 31, 2006)</p> <p>Fact Sheet 9 – Future activity (Due May 31, 2007)</p> <p>Fact Sheet 10 – Future activity (Due October 31, 2007)</p>
2	Outreach Action Plan	<p>Task 2 Outreach Action Plan – Future Activity (Due March 31, 2007)</p> <p>Task 3 Outreach Action Plan – Complete (April 30, 2006)</p> <p>Task 4 Outreach Action Plan – Future Activity (Due April 30, 2007)</p> <p>Task 5 Outreach Action Plan – Complete (April 30, 2006)</p> <p>Task 8 Outreach Action Plan – Complete (February 28, 2006)</p>
3	PowerPoint presentation	<p>Completed (May 31, 2006)</p> <p>Annual updates planned.</p>
4	Update to PCOR Partnership Web site	<p>Phase II Update Complete (August 31, 2006); undergoing internal review and finalization.</p> <p>Annual updates planned.</p>

Continued. . .



Project Milestones (cont.)

Milestone	Description	Status
Task 8 – Public Outreach and Education, cont.		
5	First Phase II video produced with Prairie Public Television (PPTV) (carbon credit trading)	In progress, request for broader scope and extension to Year 2, Quarter 4
6	Outreach booth	Future Activity (Due April 30, 2007)
7	Progress Report 60 days prior to conclusion of Budget Period 1	Future activity (Due July 31, 2007)
8	Second Phase II video produced with PPTV (terrestrial)	Future activity (Due August 31, 2007)
9	Third Phase II video produced with PPTV (geologic)	Future activity (Due March 31, 2008)
10	Fourth Phase II video produced with PPTV (CO ₂ sequestration overview)	Future activity (Due June 30, 2009)
11	Best Practices Manual detailing outreach activities	Future activity
12	Balancing the regional and general outreach with needs at the specific field validation test locations	Ongoing
13	Keeping regional outreach activity in tune with the national RCSP program message and goals	Ongoing

Continued. . .



Project Milestones (cont.)

Milestone	Description	Status
Task 8 – Public Outreach and Education (cont.)		
14	Ensuring appropriate feedback opportunities for input and review by partners in the outreach process	Ongoing
15	Documentation of impact of outreach activities	Future activity
Task 9 – Identification of the Commercially Available Sequestration Technologies Ready for Large-Scale Deployment		
1	Economic assessment of regional sequestration opportunities	Ongoing
2	New sequestration approaches – wind power	Draft is currently in review by partners
3	New sequestration approaches – Excelsior Energy	Draft white paper submitted to Excelsior (December 31, 2006)
5	Progress Report 60 days prior to conclusion of Budget Period 1	Future activity (Due July 31, 2007)
Task 10 – Regional Partnership Program Integration		
1	Development of Regional Partnership Program Integration Plan	Completed (July 18, 2006)
2	PCOR Partnership Annual Meeting	2006 Completed (September 14, 2006 Calgary, Alberta)
3	Progress Report 60 days prior to conclusion of Budget Period 1	Future activity (Due July 31, 2007)
4	Participation in DOE Regional Partnership Working Groups	Ongoing



Project Recognition

Meetings/Conferences

- Regional Carbon Sequestration Review Meeting, Pittsburgh, Pennsylvania (October).
- Western Fuels Symposium, Denver, Colorado (October).
- IEA 2nd Risk Assessment Network Meeting, Lawrence Berkeley National Laboratory, (October).
- Saskatchewan and Northern Plains Oil and Gas Symposium, Regina, Saskatchewan, Canada (October).
- GIS User Group Meeting, Bismarck, North Dakota (October).
- Meeting with Lynn Helms, Ed Murphy, and David Hvinden from the North Dakota Industrial Commission (NDIC) to discuss ongoing projects and opportunities, Grand Forks, North Dakota (November).
- Documentary interview with Mary Jo Roth (Great River Energy) at Prairie Public Broadcasting studios and follow up discussions on draft video track, Fargo, North Dakota (November).
- Documentary interviews in Chicago and Washington, DC (November).
- Zama Project Meeting, Calgary, Alberta, Canada (December).
- Meeting with Duck's Unlimited in Bismarck, North Dakota (December).
- Society of Petroleum Engineers (SPE) CO₂ Workshop, Houston, Texas (December).



Project Deliverables

Deliverable	Description	Status
Task 1 – Management and Reporting		
1	Project Management Plan	Completed (December 30, 2005)
2	Quarterly reports	Ongoing
3	Continuation application for Budget Period 2	Future activity (Due July 31, 2007)
4	Attendance/presentations at technical meetings	Ongoing
5	PCOR Partnership meetings/workshops	Ongoing
6	PCOR Partnership Phase II Final Report	Future activity (Due September 30, 2009)
Task 2 – Field Validation Test at Beaver Lodge, North Dakota		
1	Experimental design package and NEPA compliance document	Ongoing (Due January 31, 2007)
2	Site health and safety plan	Future activity (Due February 28, 2007)
3	Outreach action plan	Future activity (Due March 31, 2007)
4	Regulatory permitting action plan	Future activity (Due February 28, 2007)
5	Sampling protocols	Future activity (Due May 31, 2007)
6	Progress report	Future activity (Due July 31, 2007)
7	Regional Technology Implementation Plan	Future activity (Due July 31, 2009)



Continued. . .

Project Deliverables (cont.)

Deliverable	Description	Status
Task 3 – Field Validation Test at Zama, Alberta		
1	Experimental design package and NEPA compliance document	Completed (February 28, 2006)
2	Site health and safety plan	Completed (March 31, 2006)
3	Outreach action plan	Completed (April 28, 2006)
4	Regulatory permitting action plan	Completed (March 27, 2006)
5	Sampling protocols	Completed (June 30, 2006)
6	Progress report	Future activity (Due July 31, 2007)
7	Regional Technology Implementation Plan	Future activity (Due July 31, 2009)
Task 4 – Field Validation Test of North Dakota Lignite		
1	Experimental design package and NEPA compliance document	NEPA completed, November 2006. Future activity (Due February 28, 2007)
2	Site health and safety plan	Future activity (Due March 31, 2007)
3	Outreach action plan	Future activity (Due April 30, 2007)
4	Regulatory permitting action plan	Future activity (Due March 31, 2007)
5	Sampling protocols	Future activity (Due June 30, 2007)
6	Progress report	Future activity (Due July 31, 2007)
7	Regional Technology Implementation Plan	Future activity (Due July 31, 2009)



Continued. . .

Project Deliverables (cont.)

Deliverable	Description	Status
Task 5 – Terrestrial Validation Test		
1	Experimental design package and NEPA compliance document	Completed (February 28, 2006)
2	Site health and safety plan	Completed (February 28, 2006)
3	Outreach action plan	Completed (April 28, 2006)
4	Regulatory permitting action plan	Completed (March 31, 2006)
5	Sampling protocols	Completed (June 21, 2006)
6	Progress report	Future activity (Due July 31, 2007)
7	Regional Technology Implementation Plan	Future activity (Due July 31, 2009)
Task 6 – Characterization of Regional Characterization Opportunities		
1	Regional characterization gap assessment – Budget Period 1	Completed (February 28, 2006)
2	Progress report	Future activity (Due July 31, 2007)
3	Regional characterization gap assessment – Budget Period 2	Future activity (Due October 31, 2007)
4	Regional atlas	Future activity Due (June 30, 2009)
Task 7 – Research, Safety, Regulatory, and Permitting Issues		
1	Progress report	Future activity (Due July 31, 2007)
2	Road map document	Future activity (Due June 30, 2009)



Continued. . .

Project Deliverables (cont.)

Deliverable	Description	Status
Task 8 – Public Outreach and Education		
1	Fact sheets	<p>Fact Sheet 6 – Completed (December 31, 2005)</p> <p>Fact Sheet 7 – Completed (July 31, 2006)</p> <p>Fact Sheet 8 – Completed (December 31, 2006)</p> <p>Fact Sheet 9 – Future activity (Due May 31, 2007)</p> <p>Fact Sheet 10 – Future activity (Due October 31, 2007)</p>
2	Outreach action plan	<p>Task 2 Outreach Action Plan – Future Activity (Due March 31, 2007)</p> <p>Task 3 Outreach Action Plan – Complete (April 30, 2006)</p> <p>Task 4 Outreach Action Plan – Future Activity (Due April 30, 2007)</p> <p>Task 5 Outreach Action Plan – Complete (April 30, 2006)</p> <p>Task 8 Outreach Action Plan – Complete (February 28, 2006)</p>
4	PowerPoint presentations	<p>Completed (May 31, 2006)</p> <p>Annual updates planned.</p>



Continued. . .

Project Deliverables (cont.)

Deliverable	Description	Status
Task 8 – Public Outreach and Education, cont.		
5	Videos	<p>Documentary 1 – Carbon Market Trading, request for broader scope and extension to Year 2, Quarter 4</p> <p>Documentary 2 – Future activity (Due August 31, 2007)</p> <p>Documentary 3 – Future activity (Due March 31, 2008)</p> <p>Documentary 4 – Future activity (Due June 30, 2009)</p>
6	Web site update	<p>Phase II Update Complete (August 31, 2006); undergoing internal review and finalization.</p> <p>Annual updates planned.</p>
7	Outreach booth	Future Activity (Due April 30, 2007)
8	Progress report	Future activity (Due July 31, 2007)



Continued. . .

Project Deliverables (cont.)

Deliverable	Description	Status
Task 9 – Identification of the Commercially Available Sequestration Technologies Ready for Large-Scale Deployment		
1	Best Practices Manual – Regional Sequestration Opportunities	Future activity (Due July 31, 2008)
2	Best Practices Manual – Excelsior Energy, Inc.	Future activity (Due October 31, 2007)
3	Best Practices Manual – Wind Energy	Draft submitted; currently in review by partners
4	Progress report	Future activity (Due July 31, 2007)
Task 10 – Regional Partnership Program Integration		
1	Regional Partnership Program Integration Plan	Completed (July 18, 2006)
2	Progress report	Future activity (Due July 31, 2007)



Next Steps

Task 1 – Management and Reporting

- Continue to ensure timely production of deliverables and overall project management.

Task 2 – Field Validation Test – Beaver Lodge, North Dakota

- Finalization of NEPA document.
- Finalization of Experimental Design Package.
- Finalization of Public Outreach Plan.
- Finalization of Site Health and Safety Plan.
- Identification of potential subcontractors for selected MMV activities.

Task 3 – Field Validation Test – Zama, Alberta

- Project meetings in March 2007.
- Finalize plans to collect and analyze core samples.
- Determine additional cost-effective MMV techniques to employ.



Continued. . .

Next Steps (cont.)

Task 4 – Field Validation Test – North Dakota Lignite

- Complete the Experimental Design Package, Site Health and Safety Plan, and Regulatory Permitting Action Plan.
- Complete drilling prognosis and submit drilling permit applications to NDIC.
- Continue baseline characterization and model development.
- Prepare to drill in March or April (weather permitting).
- Continue to work on securing CO₂ for injection.

Task 5 – Terrestrial Validation Test

- Publish NDSU Wetlands paper.
- Select sites to be sampled and/or restored (current activity).
- Visit sites to establish baselines (current activity).
- Implement sampling protocols.
- Initiate field sampling (Spring 2007).
- Continue to evaluate terrestrial carbon markets.



Continued. . .

Next Steps (cont.)

Task 6 – Characterization of Regional Sequestration Opportunities

- Continue to update the DSS with regional characterization information.
- Revise the static pages in the DSS Web site.

Task 7 – Research, Safety, Regulatory, and Permitting Issues

- Provide input to all Field Validation Test task leaders in the development of NEPA compliance documents, site health and safety plans, regulatory permitting action plans, and experimental design packages.
- Provide guidance with regard to regulatory issues to other task leaders.
- Continue to analyze the development and activity of carbon markets.
- Continue to assess regulatory developments.
- Continue to pursue regulatory partners.



Continued. . .

Next Steps (cont.)

Task 8 – Public Outreach and Education

- Complete Fact Sheet 7 (NETL comments received).
- Complete Web update (NETL comments received; internal review continues).
- Complete Fact Sheet 8 (NETL comments received)
- Continue preparation of Documentary 1 (scope change and extension to July 2007 requested).
- Initiate Year 2 update of Power Point (due February 2007)
- Initiate Outreach Booth (due April 2007)

Task 9 – Identification of the Commercially Available Sequestration Technologies Ready for Large-Scale Deployment

- Continue to update the DSS GIS data set with more current data from the U.S. Environmental Protection Agency (EPA) and other organizations/agencies.
- Fill DSS infrastructure data gaps.
- Prepare the final version of the Best Practices Manual for wind power to provide energy required for pipeline compression of CO₂, incorporating partners' comments.
- Attend the regional partnerships' capture and transportation working group model tutorial session on March 7, 2007, in Pittsburgh, PA.



Continued. . .

Next Steps (cont.)

Task 9 – Identification of the Commercially Available Sequestration Technologies Ready for Large-Scale Deployment, cont.

- Implement the use of appropriate pipeline and capture cost models into the Task 9 work.
- Begin calculation of replacement power needed if capture is employed to reduce regional emissions.
- Complete the planning of the regional partnerships' capture and transportation working group meeting to be held at the EERC in June 2007.
- Prepare a module explaining capture and separation for inclusion on the PCOR Partnership Web site.
- Complete the capture and separation, compression, and transportation section for the new version of the PCOR Partnership Atlas.

Task 10 – Regional Partnership Integration

- Increase development to integrate all Regional Carbon Sequestration Partnerships.
- Also increase the involvement of all PCOR partners.



Upcoming Issues

Task 1 – Management and Reporting

- None anticipated at this time.

Task 2 – Field Validation Test – Beaver Lodge, North Dakota

- None anticipated at this time.

Task 3 – Field Validation Test – Zama, Alberta

- None anticipated at this time.

Task 4 – Field Validation Test – North Dakota Lignite

- None anticipated at this time.

Task 5 – Terrestrial Validation Test

- None anticipated at this time.

Task 6 – Characterization of Regional Sequestration Opportunities

- None anticipated at this time.



Continued. . .

Upcoming Issues (cont.)

Task 7 – Research, Safety, Regulatory, and Permitting Issues

- None anticipated at this time.

Task 8 – Public Outreach and Education

- Obtain permission for change in scope and extension for Video 1.
- Finalize list for additional interviews and location footage for Video 1.

Task 9 – Identification of the Commercially Available Sequestration Technologies Ready for Large-Scale Deployment

- None anticipated at this time.

Task 10 – Regional Partnership Integration

- None anticipated at this time.

