May 5, 2006

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 CO_2 Reduction Partnership Quarterly Technical Progress PowerPoint Presentation for the Period January 1–March 31, 2006
DOE Cooperative Agreement No. DE-FC26-05NT42592

Enclosed is a modified hard copy of the Quarterly Technical Progress PowerPoint Presentation and the Request for Patent Clearance Form for the Plains CO_2 Reduction Partnership Program. The agreement number was previously incorrect. Also enclosed is a disk containing the modified 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)

U.S. DEPARTMENT OF ENERGY

REQUEST FOR PATENT CLEARANCE FOR RELEASE OF CONTRACTED RESEARCH DOCUMENTS

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☐ 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

♦Award No.
DE-FC26-05NT42592

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

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

1. Document Title: Plains CO_2 Reduction Partnership

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 _____ Date _____
(Awardee)

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

Address Energy & Environmental Research Center, PO Box 9018, Grand Forks, ND, 58202-9018

B. DOE PATENT COUNSEL ACTION

☐ Patent clearance for release of the above-identified document is granted.

☐ Other: _____

Signed _____ Date _____
(Patent Attorney)

PLAINS CO_2 REDUCTION PARTNERSHIP

Quarterly Technical Progress PowerPoint Presentation

(for the period January 1–March 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:

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Energy & Environmental Research Center
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Grand Forks, ND 58202-9018

April 2006

DISCLAIMER

EERC DISCLAIMER

University of North Dakota
Energy & Environmental Research Center
Plains CO_2 Reduction Partnership

Project Summary

DE-FC26-05NT42592

For Period January 1 – March 31, 2006

National Energy Technology Laboratory

Partnership Objectives

The Plains CO_2 Reduction (PCOR) Partnership is a collaborative regional framework to support the testing and demonstration of CO_2 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

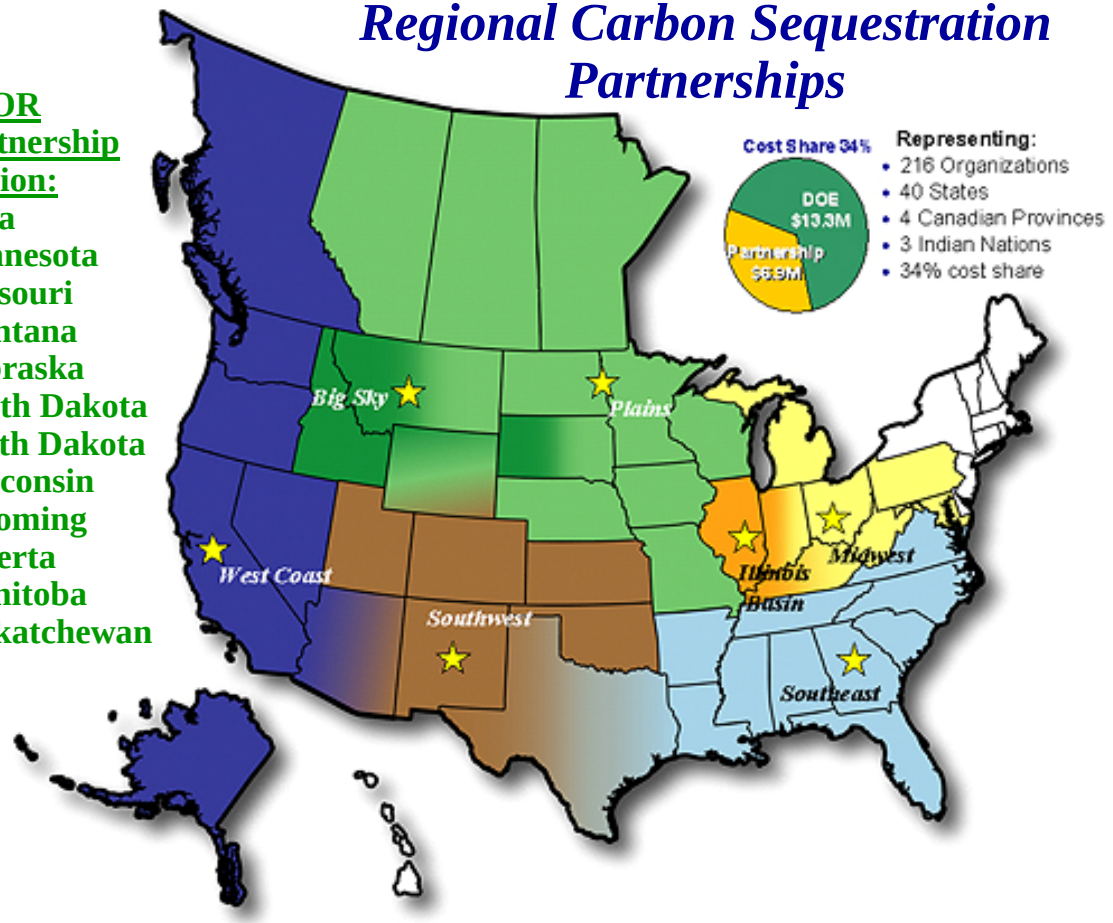
National Energy Technology Laboratory
Regional Carbon Sequestration Partnerships

PCOR Partnership Phase II Partners:

- ☆ University of North Dakota Energy & Environmental Research Center (EERC)
- Alberta Energy and Utilities Board
- Amerada Hess Corporation
- Apache Canada Ltd.
- Basin Electric Power Cooperative
- British Columbia Ministry of Energy, Mines and Petroleum Resources
- 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 – Geologic Survey
- Lignite Energy Council
- Minnesota Power
- Minnkota Power Cooperative, Inc.
- Montana–Dakota Utilities Co.
- Montana Department of Environmental Quality
- Natural Resources Canada
- Nexant, Inc.
- North Dakota Department of Commerce Division of Community Services
- North Dakota Department of Health
- North Dakota Geological Survey
- North Dakota Industrial Commission Department of Mineral Resources, Oil and Gas Division

PCOR Partnership Region:

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



- North Dakota Industrial Commission Lignite Research, Development and Marketing Program
- North Dakota Oil and Gas Research Council
- North Dakota Natural Resources Trust
- North Dakota Petroleum Council
- North Dakota State University
- Otter Tail Power Company
- Petroleum Technology Transfer Council
- Prairie Public Television
- Ramgen Power Systems, Inc.
- Saskatchewan Industry and Resources
- SaskPower
- Suncor Energy Inc.
- U.S. Geological Survey Northern Prairie Wildlife Research Center
- 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
Alberta Energy and Utilities Board	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		
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
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

Continued. . .

Partnership Team (cont.)

Partner Name	City	State	Congressional District
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**
Minnesota Power	**Duluth**	**Minnesota**	**8**
Minnkota Power Cooperative, Inc.	**Duluth**	**Minnesota**	**8**
Montana–Dakota Utilities Co.	**Bismarck**	**North Dakota**	**At Large**
Montana Department of Environmental Quality	**Helena**	**Montana**	**At Large**
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**

Partnership Team (cont.)

Partner Name	City	State	Congressional District
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
North Dakota State University	Fargo	North Dakota	At Large
Otter Tail Power Company	Fergus Falls	Minnesota	7
Petroleum Technology Transfer Council	Houston	Texas	7
Prairie Public Television	Fargo	North Dakota	At Large
Ramgen Power Systems, Inc.	Bellevue	Washington	8
Saskatchewan Industry and Resources	Regina, Saskatchewan		
SaskPower	Regina, Saskatchewan		
Suncor Energy Inc.	Calgary, Alberta		
U.S. Geological Survey Northern Prairie Wildlife Research Center	Jamestown	North Dakota	At Large
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 – **Ron Rovenko**

  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	$14,300,000	$7,161,549	$21,461,549	33%

- **U.S. Department of Energy (DOE) Costs to Date: $939,268**

- **Cost Share to Date: $194,480**

No in-kind cost share reposed yet.

Highlights of Progress to Date

Task 1 – Management and Reporting

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

- Sao Paulo and Rio de Janeiro, Brazil, for production of PCOR Partnership Carbon Market Trading Video (January)
- Fort Totten, North Dakota, meeting with Spirit Lake Tribal Nation (January)
- Grand Forks, North Dakota, meeting with Ramgen Power Systems, Inc. (January)
- Grand Forks, North Dakota, meeting with Lignite Energy Council (February)
- Houston, Texas, Petroleum Technology Transfer Council Workshop – DOE CO_2 Enhanced Oil Recovery Pre-Proposal (February)
- Madison, Wisconsin, MASDA Roundtable on Carbon Sequestration (March)
- Berkeley, California, International Symposium on Site Characterization for CO_2 Geological Storage (March)

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.
- Identified data gaps with respect to geochemical, geomechanical, and seismic data for the site.
- Continued the development of an experimental design package for the Beaver Lodge field validation test.

Continued. . .

Highlights of Progress to Date (cont.)

Task 3 – Field Validation Test – Zama, Alberta

- The following deliverables have been completed and sent to DOE:
  - Experimental Design Package
  - Regulatory Permitting Action Plan
  - Site Health and Safety Plan
- The Public Outreach Action Plan is on schedule to be delivered to DOE on April 28, 2006.
- Regional geological characterization is in the data collection and organization phase. This is a long-term characterization effort by the Alberta Energy and Utilities Board and Geological Survey over the course of Phase II.
- Historical Zama Field characterization and data collection is being completed by APA Petroleum Engineering, Inc., in Calgary. This will be completed by the end of Phase II Year I.
- Required injection pressures in the field are being met and injection is anticipated by late May 2006.

Continued. . .

Highlights of Progress to Date (cont.)

Task 4 – Field Validation Test – Lignite in North Dakota

- Well logs from several wells in North Dakota have been downloaded, and the individual coal seams were identified.
- Data gaps regarding hydrogeochemistry, geophysical characteristics, and other data needs were identified.
- Data on the baseline geology of the areas for potential pilot projects were gathered and examined.
- Worked with the North Dakota Industrial Commission – Department of Mineral Resources and the North Dakota State Land Department to develop a list of candidate sites for the Field Validation Test.

Continued. . .

Highlights of Progress to Date (cont.)

Task 5 – Terrestrial Validation Test

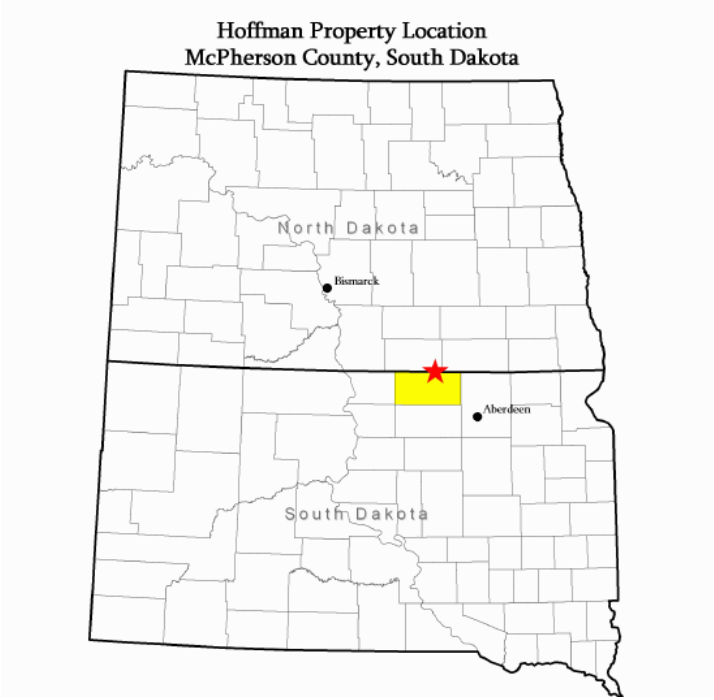
- Held initial Terrestrial Validation Test team meeting, Bismarck, North Dakota (December) with the following:
  - Ducks Unlimited, Inc.
  - U.S. Geological Survey Northern Prairie Wildlife Research Center
  - North Dakota State University (NDSU)
- Deliverables completed to date:
  - Experimental Design Package
  - NEPA Compliance Document
  - Site Health and Safety Plan
  - Regulatory Permitting Action Plan
- Work in Progress:
  - Outreach Action Plan (to be completed April 28, 2006)
  - Gathering informational materials for Web site
  - Development of Sampling Protocols

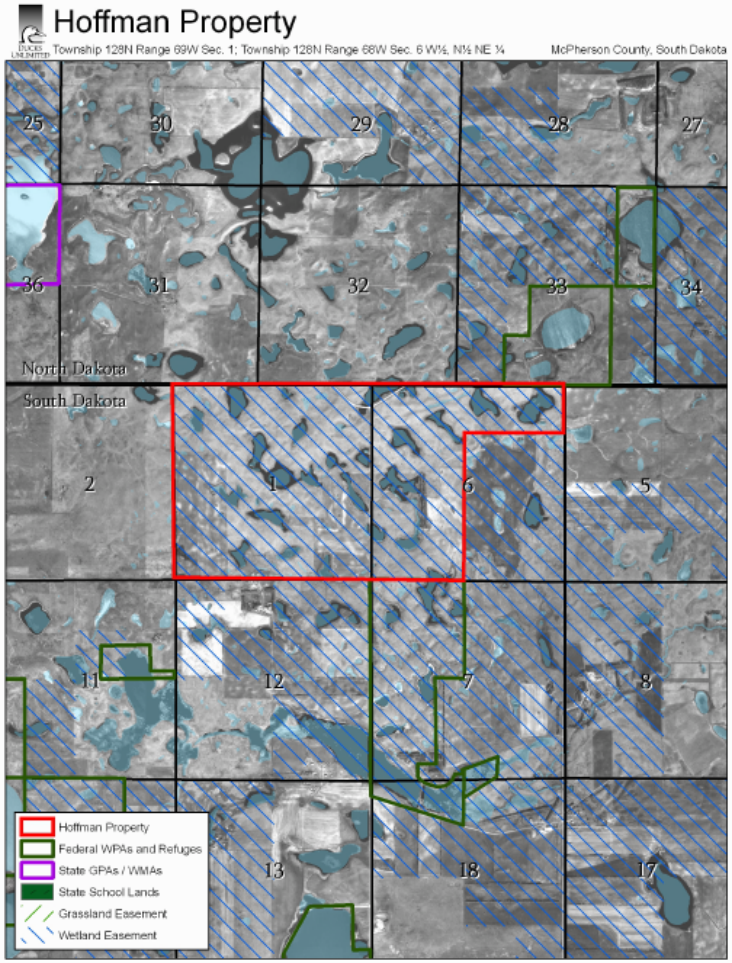
Continued. . .

Highlights of Progress to Date (cont.)

Task 5 – Terrestrial Validation Test

- In the process of selecting field test sites
  - Compiling characterization data
  - Restoration activities planned on the Hoffman property, McPherson County, South Dakota, and other potential sites





Continued. . .

Highlights of Progress to Date (cont.)

Task 6 – Continued Characterization of Regional Sequestration Opportunities

Decision Support System

- Updated the site to include finalized products from Phase I and Phase II kickoff materials.
- Assisted several partners on using the DSS to create maps and save maps to other programs.
- Added a “Pool” layer – users can now view reservoir data and sequestration estimates for individual pools as well as for fields.
- Purchased and installed a software program for checking for broken links on Web sites.
- Tested and worked with the Spatial Database Engine software.

Characterization

- Submitted the Data Gap Assessment report.
- Continued data input for the gas well analysis data for North Dakota wells.
- Continued gathering terrestrial characterization data. Added Nebraska soil data.
- NDSU continued its analysis of the soils data collected in Phase I.
- Accepted a proposal from the Iowa Department of Natural Resources – Geological Survey to begin working with us in the second year of the first budget period. They will concentrate on characterizing the sequestration potential of these three settings:
  - Paleozoic sandstone and carbonate strata, which are saline aquifers in the southern and western parts of the state
  - Precambrian-age clastics associated with the Mid-Continent Rift
  - Pennsylvanian strata and associated coals located in the southern part of the state.

Continued. . .

Highlights of Progress to Date (cont.)

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

Characterization (continued)

- Continued work in digitizing North Dakota oil and gas well logs in preparation for export to modeling software for characterization of porosity, permeability, salinity, and formation conductivities.
- Preliminary evaluation of the Forest City basin coals from state reports from Iowa and Missouri.
- Added Alberta reservoir data. We are working on obtaining the well data.

Continued. . .

Highlights of Progress to Date (cont.)

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

- Working with Outreach task leader to develop communication and support plans for regulatory issues.
- Completed Regulatory Permitting Action Plans for Tasks 3 and 5.
- Completed Health and Safety Plan for Task 3.
- Continued to assess regulatory developments as they relate to CO_2 sequestration.
- Reviewed risk assessment brief for Monitor Scientific.
- Continued preparations for NEPA and permitting issues for the lignite field validation test.
- Began reviewing the possible areas for the lignite field validation test to look at potential permitting requirements.
- Had discussions with Nebraska Department of Agriculture. They are interested in having someone from their state become a member/partner.
- Discussing potential participation by Dale Enerson, North Dakota Farmers Union (NDFU).
- Participated in combined outreach and geologic working group conference call on MMV issues.

Continued. . .

Highlights of Progress to Date (cont.)

Task 8 – Public Outreach and Education

- Fact Sheet 6, Overview of Phase II activities, approved by NETL
- Prairie Public Television subcontract approved
- Draft final Outreach Plan submitted on schedule February 28, 2006, and approved by NETL
- Outreach PowerPoint initiated (due May 2006)
- Two draft final Site Outreach plans (for Tasks 3 and 5) in progress (due April 2006)
- Initial draft of public Web site update completed (due August 2006)
- Work under way on Documentary 1 – Carbon Market Trading (due January 2007)
  - Filming completed in Brazil in January 2006
  - Preliminary travel planning for travel to Alexandria in May and Europe in June
- 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 a paper and slide show for presentation at the IEEE Cement Industry Applications conference discussing the Phase I PCOR Partnership findings as they relate to the cement industry.
- Hosted a meeting with Pete Baldwin, President of Ramgen Power Systems, to discuss Ramgen's novel compression technology built on shock wave theory.
- Reviewed Web-available literature containing CO_2 pipeline conditions and compressor technologies.
- Working with the engineers who are reviewing wind speed data from areas in North Dakota that could be future wind-powered compression sites.
- Performed a Web search for ethanol plants from which the waste CO_2 stream is used for EOR.

Continued. . .

Highlights of Progress to Date (cont.)

Task 10 – Regional Partnership Program Integration

- Abstracts were submitted for the 8th International Conference on Greenhouse Gas Control Technologies (GHGT-8) in Norway (June 19-23, 2006).
- Membership discussions continued with numerous organizations.
- Participation continued in geologic, outreach, capture and separation, and GIS working group conference calls.
- Finalized subcontracts with North Dakota State University and Fisher Oil and Gas, Inc.
- Assisted NATCARB on posters and slides for a GIS Expo.
- Participated in GIS working group conference calls.
- Prepared slides summarizing the PCOR Partnership's Phase I CO_2 capture and separation activities for José Figueroa to present at the CO_2 sequestration conference in Alexandria, Virginia, in May.
- Presented a summary of PCOR Partnership Phase I activities and Phase II plans at the Capture and Transportation Working Group workshop in Palo Alto, California.
- Developing Regional Partnership Program Integration Plan.

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

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	Anticipated Late May
3	Project Operations	Future activity
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	Future activity
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	Initiating
3	Project Operations	Future activity
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
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	Outreach Action Plan completed; two of four site outreach plans In progress
2	Web Site	In progress (initial draft completed)
3	Outreach Booth	Will be initiated in Year 2, Quarter 1
4	Outreach PowerPoint	Initiated
5	Fact Sheets	Fact Sheet 6 completed
6	Television Programs	Documentary 1 – Carbon Market Trading, in progress
7	Progress Reports	Report for Year 1, Quarter 1, completed

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	In progress
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	Ongoing
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	Future activity
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	Initiated
3	Historical data collection	Initiated
4	Identification of data gaps	Initiated
5	Analytical activities on reservoir and caprock core samples	Future activity

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	Future activity
7	Facilitate the development of a site-specific plan for the installation and/or application of selected MMV technologies	Future activity
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	Future activity
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
14	Regional Technology Implementation Plan detailing MMV activities at an ongoing oil-producing facility	Future activity

Continued. . .

Project Milestones (cont.)

Milestone	Description	Status
Task 3 – Field Validation Test at Zama, Alberta		
1	H_2S/CO_2 injection commences	Late May 2006
2	Reservoir modeling	Future activity
3	Data acquisition and design	Ongoing
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 pinnacle before the sealing formation will be fractured	Future activity
7	Significant achievements/MMV updates	Future activity
8	Stress regimes of the injection zone	Future activity
9	Assessment of influence of underlying aquifers	Future activity
10	Progress Report 60 days prior to conclusion of Budget Period 1	Future activity
11	Geochemistry of the surface to subsurface	Future activity
12	Assessment of leakage potential as a result of injection	Future activity
13	Regional Technology Implementation Plan detailing MMV activities at an ongoing oil-producing facility	Future activity

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	Well locations will be identified summer 2006
3	Finalization of CO_2 flood design	Future activity
4	Collection of site-specific baseline surface and subsurface data	Initiated
5	Installation of selected MMV technologies	Future activity
6	Progress Report 60 days prior to conclusion of Budget Period 1	Future activity
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
5	Preparation and distribution of materials to solicit participation	Future activity
6	Indirect benefits	Ongoing
7	Regional partnerships for CO_2 sequestration	Future activity
8	Land use management practices that increase SOC	Future activity
9	Business flow process for carbon credit trading	Future activity
10	Economic feasibility of CO_2 sequestration	Future activity
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	Future activity

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	Future activity
3	Progress Report 60 days prior to conclusion of Budget Period 1	Future activity
4	Conduct data gap assessment (3rd Budget Period)	Future activity
5	Create field project data warehouse and put into production	Future activity
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
6	Road map document produced	Future activity

Continued. . .

Project Milestones (cont.)

Milestone	Description	Status
Task 8 – Public Outreach and Education		
1	Fact sheet production	Fact Sheet 6 completed
2	Outreach Action Plan produced	Completed
3	PowerPoint presentation	In progress
4	Update to PCOR Partnership Web site	In progress
5	First Phase II video produced with Prairie Public Television (PPTV) (carbon credit trading)	In progress
6	Outreach booth produced	Future activity
7	Progress Report 60 days prior to conclusion of Budget Period 1	Future activity
8	Second Phase II video produced with PPTV (terrestrial)	Future activity
9	Third Phase II video produced with PPTV (geologic)	Future activity
10	Fourth Phase II video produced with PPTV (CO_2 sequestration overview)	Future activity
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	Ongoing
3	New sequestration approaches – Excelsior Energy	Future activity
4	Economic assessment of regional sequestration opportunities	Future activity
5	Progress Report 60 days prior to conclusion of Budget Period 1	Future activity
Task 10 – Regional Partnership Program Integration		
1	Development of Regional Partnership Program Integration Plan	Ongoing
2	PCOR Partnership Annual Meeting	Future activity
3	Progress Report 60 days prior to conclusion of Budget Period 1	Future activity
4	Participation in DOE Regional Partnership Working Groups	Ongoing

Project Recognition

Meetings/Conferences

- Calgary, Alberta, for meeting with Task 3 subcontractors and Apache Canada Ltd. to discuss carbon isotopes vs. tracer technology (March)
- Sao Paulo and Rio de Janeiro, Brazil, for production of PCOR Partnership Carbon Market Trading Video (January)
- Fort Totten, North Dakota, meeting with Spirit Lake Tribal Nation (January)
- Grand Forks, North Dakota, meeting with Ramgen Power Systems, Inc. (January)
- Calgary, Alberta, meetings with Apache Canada Ltd., Suncor Energy Inc., Husky Energy Inc., Enbridge Pipeline Co., to discuss membership in PCOR Partnership (January)
- Grand Forks, North Dakota, meeting with Lignite Energy Council (February)
- Houston, Texas, Petroleum Technology Transfer Council Workshop – DOE CO_2 Enhanced Oil Recovery Preproposal (February)
- Grand Forks, North Dakota, presentation to the North Dakota Society of Professional Engineers (February)
- Madison, Wisconsin, MASDA Roundtable Meeting (March)
- Grand Forks, North Dakota, meeting with Suncor Energy Inc. (March)
- Palo Alto, California, Partnerships' Capture and Transportation Working Group workshop (March)
- Calgary, Alberta, to give presentation to the Calgary Chapter of the Society of Petroleum Engineers (March)

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
4	Attendance/presentations at technical meetings	Ongoing
5	PCOR Partnership meetings/workshops	Ongoing
6	PCOR Partnership Phase II Final Report	Future activity
Task 2 – Field Validation Test at Beaver Lodge, North Dakota		
1	Experimental design package and NEPA compliance document	Ongoing
2	Site health and safety plan	Future activity
3	Outreach action plan	Future activity
4	Regulatory permitting action plan	Future activity
5	Sampling protocols	Future activity
6	Progress report	Future activity
7	Regional Technology Implementation Plan	Future activity

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
3	Outreach action plan	Ongoing
4	Regulatory permitting action plan	Completed
5	Sampling protocols	Ongoing
6	Progress report	Future activity
7	Regional Technology Implementation Plan	Future activity
Task 4 – Field Validation Test of North Dakota Lignite		
1	Experimental design package and NEPA compliance document	Ongoing
2	Site health and safety plan	Future activity
3	Outreach action plan	Future activity
4	Regulatory permitting action plan	Future activity
5	Sampling protocols	Future activity
6	Progress report	Future activity
7	Regional Technology Implementation Plan	Future activity

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	Ongoing
4	Regulatory permitting action plan	Completed (March 31, 2006)
5	Sampling protocols	Ongoing
6	Progress report	Future activity
7	Regional Technology Implementation Plan	Future activity
Task 6 – Characterization of Regional Characterization Opportunities		
1	Regional characterization gap assessment – budget period 1	Completed (February 28, 2006)
2	Progress report	Future activity
3	Regional characterization gap assessment – budget period 2	Future activity
4	Regional atlas	Future activity
Task 7 – Research, Safety, Regulatory, and Permitting Issues		
1	Progress report	Future activity
2	Road map document	Future activity

Continued. . .

Project Deliverables (cont.)

Deliverable	Description	Status
Task 8 – Public Outreach and Education		
1	Fact sheets	Fact Sheet 6 completed; Fact Sheets 7, 8, 9, and 10 future activities
2	Outreach action plan	Completed (February 28, 2006)
4	PowerPoint presentations	Future activity
5	Videos	Documentary 1 in progress; Documentaries 2, 3, and 4 future activities
6	Web site update	In progress
7	Outreach booth	Future activity
8	Progress report	Year 1, Quarter 1 report completed
Task 9 – Identification of the Commercially Available Sequestration Technologies Ready for Large-Scale Deployment		
1	Best Practices Manual – Regional Sequestration Opportunities	Future activity
2	Best Practices Manual – Excelsior Energy, Inc.	Future activity
3	Best Practices Manual – Wind Energy	Future activity
4	Progress report	Future activity
Task 10 – Regional Partnership Program Integration		
1	Regional Partnership Program Integration Plan	Ongoing
2	Progress report	Ongoing

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 Amerada Hess CO_2 flood EOR pilot project plans
- Identification of specific site location within the Beaver Lodge field where CO_2 injection and EOR activities will be conducted
- Identification of potential subcontractors for selected MMV activities

Task 3 – Field Validation Test – Zama, Alberta

- Continued Characterization of the Region
- Develop geomechanical test program
- Public Outreach Action Plan – April 28, 2006
- Commence project implementation Late May 2006

Continued. . .

Next Steps (cont.)

Task 4 – Field Validation Test – North Dakota Lignite

- Select a site to conduct testing from among the candidate locations
- Develop contract with operator to drill four test wells

Task 5 – Terrestrial Validation Test

- Complete:
  - Outreach Action Plan
  - Develop Sampling Protocols
- Select sites to be sampled and/or restored
- Visit sites to establish baselines

Continued. . .

Next Steps (cont.)

Task 6 – Characterization of Regional Sequestration Opportunities

- Improvements to DSS
  - change initial map to reflect entire region (it currently dust off northern half of provinces) and reflect the demonstration site locations (instead of sources)
  - Add capabilities for multiselect, labels, and exporting images
  - Add sedimentary basins layer
  - Add water layers
  - Add two bringe formations and coal beds
  - Add ecosystem basis for terrestrial data
- Meet with Zama team to discuss project specific warehouse

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 assess regulatory developments
- Review regulations and begin summary related to Phase II validation tests
- Continue to pursue regulatory partners

Continued. . .

Next Steps (cont.)

Task 8 – Public Outreach and Education

- Complete first two site outreach plans (due April 30)
- Plan and prepare materials for European video travel and interviews
- Continue preparations for Web update (due August 31)
- Initiate work on Fact Sheet 7 (due July 31)
- Finalize RCSP OWG paper, PowerPoint, and video sections (due May 2006)
- Complete outreach PowerPoint presentation (due May 30)

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

- Continue to compare existing source data with updated data sets from the U.S. Environmental Protection Agency (EPA) and others
- Continue to fill DSS infrastructure data gaps
- Explore collaboration with Cansolv and Carbozyme CO_2 capture technologies
- Continue to evaluate the use of wind power to provide a portion of the energy required for pipeline compression of CO_2

Task 10 – Regional Partnership Integration

- Develop Regional Partnership Program Integration Plan

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

- Have operator drill wells by summer/fall 2006 to initiate program

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

- Optimizing film and interview opportunities during foreign travel for Documentary 1
- Ensuring coordinated outreach to general public and test sites

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

- Finding venues to demonstrate Cansolv Technologies Inc. and Ramgen Power Systems, if appropriate
- Finding appropriate projects for collaboration with Carbozyme, Inc.

Task 10 – Regional Partnership Integration

- None anticipated at this time