

July 31, 2009

Ms. Karlene Fine
Executive Director
North Dakota Industrial Commission
600 East Boulevard Avenue
State Capitol, 14th Floor
Bismarck, ND 58505-0840

Dear Ms. Fine:

Subject: EERC Plains CO₂ Reduction Partnership (PCOR) Phase III Deliverable D58/59
Quarterly Technical Progress Report for the Period April 1 – June 30, 2009
Contract Nos. FY08-LX111-162 and G015-030; EERC Funds 9821–9825

Enclosed is a hard copy of the Quarterly Technical Progress Report for the PCOR Partnership Program for Phase III. Also enclosed is a CD containing the Quarterly Technical Progress Report. A PDF version will also be sent via e-mail.

If you have any questions, please contact me by phone at (701) 777-5279 or by e-mail at esteadman@undeerc.org.

Sincerely,

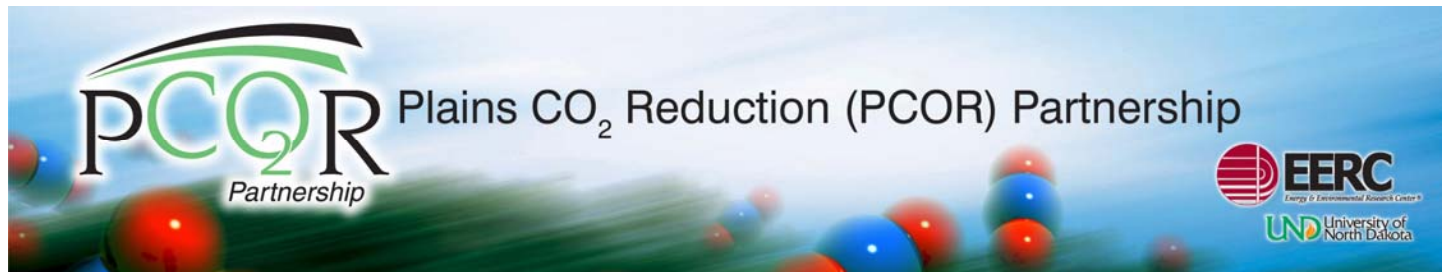
Edward N. Steadman
PCOR Partnership Manager
EERC Senior Research Advisor

ENS/sah

Enclosures

c/enc: Jeff Burgess, Lignite Energy Council
Rich Baker, NDIC Department of Mineral Resources, Oil and Gas Division
Lynn Helms, NDIC Department of Mineral Resources, Oil and Gas Division

c: Corey Irion, EERC



PLAINS CO₂ REDUCTION PARTNERSHIP PHASE III

Quarterly Technical Progress Report

(for the period April 1 – June 30, 2009)

Prepared for:

Karlene Fine

North Dakota Industrial Commission
600 East Boulevard Avenue
State Capitol, 14th Floor
Bismarck, ND 58505-0840

Contract Nos. FY08-LX111-162 and G015-030
EERC Funds 9821–9825

Prepared by:

Edward N. Steadman
John A. Harju
Lucia Romuld
James A. Sorensen
Daniel J. Daly
Melanie D. Jensen
Lisa S. Botnen
Wesley D. Peck
Steven A. Smith
Charles D. Gorecki
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

July 2009

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PLAINS CO₂ REDUCTION PARTNERSHIP PHASES III
Quarterly Technical Progress Report
April 1 – June 30, 2009

INTRODUCTION

The Plains CO₂ Reduction (PCOR) Partnership is one of seven regional partnerships operating under the U.S. Department of Energy (DOE) National Energy Technology Laboratory (NETL) Regional Carbon Sequestration Partnership (RCSP) Program. The PCOR Partnership is led by the Energy & Environmental Research Center (EERC) at the University of North Dakota (UND) in Grand Forks, North Dakota. The PCOR Partnership region includes all or part of nine states (Iowa, Minnesota, Missouri, Montana, Nebraska, North Dakota, South Dakota, Wisconsin, and Wyoming) and four Canadian provinces (Alberta, British Columbia, Manitoba, and Saskatchewan).

Phase III is a 10-year project, divided into three BPs, running from October 1, 2007, to September 30, 2017. This progress report summarizes the activities for the above-referenced reporting period (April 1 – June 30, 2009) for Phases III.

The activities for Phase III of the PCOR Partnership include two large-volume carbon dioxide (CO₂) storage demonstration tests (Figure 1) along with continued regional characterization and outreach. Fourteen tasks will be implemented; see Table 1 for the responsibility matrix.

Table 1. Phase III Responsibility Matrix

Phase III Task Description	Responsible Party
Task 1 – Regional Characterization	Wes Peck
Task 2 – Public Outreach and Education	Dan Daly
Task 3 – Permitting and National Environmental Policy Act (NEPA) Compliance	Lisa Botnen
Task 4 – Site Characterization and Modeling	Jim Sorensen
Task 5 – Well Drilling and Completion	Steve Smith
Task 6 – Infrastructure Development	Melanie Jensen
Task 7 – CO ₂ Procurement	John Harju
Task 8 – Transportation and Injection Operations	Steve Smith
Task 9 – Operational Monitoring and Modeling	Charles Gorecki
Task 10 – Site Closure	TBA
Task 11 – Postinjection Monitoring and Modeling	TBA
Task 12 – Project Assessment	Katherine Anagnost
Task 13 – Project Management	Ed Steadman
Task 14 – RCSP Water Group Coordination	Charles Gorecki



Figure 1. PCOR Partnership Phase III demonstration test sites.

SUMMARY OF SIGNIFICANT PHASE III ACCOMPLISHMENTS

Task 1 – Regional Characterization

The PCOR Partnership completed a detailed site characterization for its first target area, the Dickinson Lodgepole Mounds (DLM, including the Eland oil field) near Dickinson, North Dakota, with the submittal of “Site Characterization of the Dickinson Lodgepole Mounds for Potential CO₂ Enhanced Oil Recovery” (D2) on May 29, 2009. The DLM in southwestern North Dakota have been identified as possible targets for CO₂ storage and CO₂ EOR activities because of the high recovery factor and very successful waterflooding operations as well as their proven ability to trap oil and gas for millions of years. Site characterization has indicated that the DLM have a high potential for CO₂ EOR, with estimated incremental recovery in the 21 million- to 34 million-barrel range and associated storage of 6 to 15 million tons of CO₂.

The evaluation of the Missouri Department of Natural Resources, Division of Geology and Land Survey (MO DGLS), the U.S. Geological Survey (USGS), and EPA water analysis has been completed. This resulted in entry of 1589 analyses in 53 Missouri counties along and northwest of the freshwater–saline transition. A stratigraphic column based on Missouri formations and hydrologic units has been created based on this work.

Task 2 – Public Outreach and Education

During this reporting period, work continued on the Outreach Information System (OIS); work continued on an update of the Web pages for the Phase III demonstrations; work continued on materials for classroom use; an outside review of outreach materials was completed; members of the outreach team presented at two teachers’ workshops and attended an outreach advisory meeting for the Weyburn-Midale project; and a draft fact sheet for the Fort Nelson demonstration (D16) was submitted to DOE for review.

Task 3 – Permitting and NEPA Compliance

The permitting and NEPA compliance activities for the Williston Basin have focused on collecting general background material. The PCOR Partnership has been acting in support of Spectra Energy Transmission’s (Spectra Energy’s) permitting efforts for the Fort Nelson demonstration.

The EERC held a regulatory workshop/brainstorming session in Deadwood, South Dakota. The workshop was attended by most of the relevant regulators in the PCOR Partnership region as well as a representative from IOGCC.

Task 4 – Site Characterization and Modeling

During this quarter, work continued on the development of a Project Risk Assessment Plan for the Fort Nelson demonstration. Participants in the Fort Nelson risk assessment have included the EERC, Spectra Energy, and Oxand. Development of the Williston Basin field validation test experimental design package (D42) continued. Efforts were primarily focused on using well log data and field-based observations to characterize the general geological conditions of an area in southwestern North Dakota that includes several oil fields under consideration for CO₂-based EOR activities under Phase III. With respect to characterization of the Fort Nelson area, the primary accomplishment was the drilling of an exploration well at the Fort Nelson CCS project injection site location. The well was drilled to a total depth of approximately 2560 m (8400 ft). Core and/or cuttings were collected from all key potential sink and seal formations. A series of well log data were collected, as were fluid samples. The collection and compilation of results from previous efforts to characterize the geology and hydrogeology of the area also continued.

Task 5 – Well Drilling and Completion

This task is anticipated to be initiated Quarter 1 – BP4, Year 3. Once activities are initiated, progress will be communicated through quarterly progress reports.

Task 6 – Infrastructure Development

Some of the work on this task has been delayed while the plans for CO₂ capture and geologic sequestration for the demonstration projects are finalized. Once the specific CCS strategy for the demonstration project has been finalized, planned task activities related to CO₂ capture, compression, and pipeline design and routing can begin. In the interim, activities are being undertaken that support the planned effort.

Task 7 – CO₂ Procurement

Discussions with potential CO₂ suppliers have taken place. Because of the sensitive nature of negotiations, specifics cannot be shared at the present time.

Task 8 – Transportation and Injection Operations

This task is anticipated to be initiated Quarter 3 – BP4, Year 4. Once activities are initiated, progress will be communicated and detailed in the quarterly progress report.

Task 9 – Operational Monitoring and Modeling

This task is anticipated to be initiated Quarter 1 – BP4, Year 3. Once activities are initiated, progress will be communicated and detailed in the quarterly progress report.

Task 10 – Site Closure

This task is anticipated to be initiated Quarter 1 – BP5, Year 9. Once activities are initiated, progress will be communicated and detailed in the quarterly progress report.

Task 11 – Postinjection Monitoring and Modeling

This task is anticipated to be initiated Quarter 1 – BP5, Year 9. Once activities are initiated, progress will be communicated and detailed in the quarterly progress report.

Task 12 – Project Assessment

Project assessment was conducted for the nine Phase III tasks initiated during the period October 1, 2007 – September 30, 2008, and a project assessment annual report (D57) was submitted on December 31, 2008. The next annual report is due December 31, 2009.

Task 13 – Project Management

Phase III of the PCOR Partnership started October 1, 2007. Phase II members in good standing are automatically enrolled in Phase III for the overlapping years (October 1, 2007 – September 30, 2009). As denoted in Table 2, the PCOR Partnership currently has 83 partners. Activities in this reporting period include the following:

Table 2. PCOR Partnership Membership, Phase II/Phase III

U.S. Department of Energy National Energy Technology Laboratory	Fischer Oil and Gas, Inc.	North Dakota Industrial Commission
UND EERC	Great Northern Power Development, LP	Lignite Research, Development and Marketing Program
Abengoa Bioenergy New Technologies	Great River Energy	North Dakota Industrial Commission
Air Products and Chemicals	Hess Corporation	Oil and Gas Research Council
Alberta Department of Energy	Huntsman Corporation	North Dakota Natural Resources Trust
ALLETE	Interstate Oil and Gas Compact Commission	North Dakota Petroleum Council
Ameren Corporation	Iowa Department of Natural Resources	North Dakota State University
American Coalition for Clean Coal Electricity	Lignite Energy Council	Otter Tail Power Company
American Lignite Energy (ALE)	Manitoba Geological Survey	Petroleum Technology Research Centre
Apache Canada Ltd.	Marathon Oil Company	Petroleum Technology Transfer Council
Baker Hughes Oilfield Operations, Inc.	MEG Energy Corporation	Prairie Public Broadcasting
Basin Electric Power Cooperative	Melzer Consulting	Pratt & Whitney Rocketdyne, Inc.
Biorecro AB	Minnesota Power	Ramgen Power Systems, Inc.
Blue Source, LLC	Minnkota Power Cooperative, Inc.	RPS Energy Canada Ltd. – APA
BNI Coal, Ltd.	Missouri Department of Natural Resources	Petroleum Engineering Inc.
British Columbia Ministry of Energy, Mines, and Petroleum Resources	Missouri River Energy Services	Saskatchewan Industry and Resources
Carbozyme, Inc.	Montana–Dakota Utilities Co.	SaskPower
Computer Modelling Group, Inc.	Montana Department of Environmental Quality	Schlumberger
Dakota Gasification Company	National Commission on Energy Policy	Shell Canada Energy
Ducks Unlimited Canada	Natural Resources Canada	Spectra Energy
Ducks Unlimited, Inc.	Nebraska Public Power District	Strategic West Energy Ltd.
Eagle Operating, Inc.	Nexant, Inc.	Suncor Energy Inc.
Eastern Iowa Community College District	North American Coal Corporation	TAQA NORTH, Ltd.
Enbridge Inc.	North Dakota Department of Commerce	TGS Geological Products and Services
Encore Acquisition Company	Division of Community Services	University of Alberta
Energy Resources Conservation Board/ Alberta Geological Survey	North Dakota Department of Health	U.S. Geological Survey Northern Prairie Wildlife Research Center
Environment Canada	North Dakota Geological Survey	Weatherford Advanced Geotechnology
Excelsior Energy Inc.	North Dakota Industrial Commission	Western Governors' Association
	Department of Mineral Resources, Oil and Gas Division	Westmoreland Coal Company
		Wisconsin Department of Agriculture, Trade and Consumer Protection
		Xcel Energy

- The Continuation Application for BP4 (Years 3–8) was transmitted electronically to DOE on June 30, 2009. The Project Management Plan (PMP) was sent July 14, 2009. Submittal of the Continuation Application was a month ahead of the contractually required due date.
- All products required for submission during this reporting period were met.
- Current and pending CO₂-related projects within the PCOR Partnership region are numerous and dynamic. To better inform our partners, a Web application is presently under development to exhibit CO₂ projects by location, parties involved, and Web site links to learn more about them.
- Work is under way to provide our partners with a topical report on past, present, and future carbon market activities.
- The PCOR Partnership is working closely with additional EERC staff to establish an EERC Carbon Management Working Group. This working group will function as an informal entity that facilitates communications between the various groups working in carbon management activities.
- A risk management plan (RMP) outline (D77) is due September 30, 2009. An initial draft of the RMP has been started. The risk management database research has also begun.

- Work has begun on the risk management activities for the Fort Nelson field demonstration. A kickoff meeting was held with Spectra Energy on June 11, 2009, in Calgary, Alberta, Canada, to discuss the risk management process and policy procedures.

Task 14 – RCSP Water Working Group (WWG) Coordination

The WWG has held several monthly conference calls with members representing each of the seven regional partnerships and DOE NETL. The first annual WWG meeting was held on May 7, 2009, from 12:30 to 5:00 p.m. in the Waterfront Room at the Sheraton Square Hotel in Pittsburgh, Pennsylvania. The main focus of this meeting was to address each partnership's opportunities and challenges with respect to water and CCS and to comment on the Outline for the White Paper on the Nexus of CCS and Water. The first milestone for this task entitled "Outline for the White Paper on the Nexus of Carbon Capture and Storage and Water" (M21) was completed. Work continues on the draft of the White Paper on the Nexus of Carbon Capture and Storage and Water.

PHASE III PROGRESS OF WORK

Task 1 – Regional Characterization

The Regional Characterization task entails the review, characterization, and update of the PCOR Partnership region's CO₂ sinks and sources for inclusion in the DSS. Activities in this reporting period include the following:

- DGLS publication RI-48, Evaluation of Missouri's Coal Resources, contains maps of the principal coal seams of the state. These maps depict the aerial extent of coal beds, locations of shafts and drifts, selected control points, areas most favorable for mining, and mined out areas. As part of this subproject, division staff began the process of updating these maps with additional data points obtained from the USGS National Coal Resources Data System (NCRDS). This better defines the distribution of individual coal seams as well as their thickness and depth.
- During this quarter, metadata were created for all coal seam point GIS layers. These data will be utilized this quarter to generate raster and contour files depicting thickness of coal and overburden.
- Evaluation of DGLS, USGS, and EPA water analysis has been completed. This resulted in entry of 1589 analyses in 53 Missouri counties along and northwest of the freshwater-saline transition. Parameters entered into an Access database include public land survey and latitude/longitude location, well depth, county, DGLS log number, owner, elevation, analysis date, hydrologic unit, formation sampled or bottom of hole, sample depth (if different than total depth), laboratory or source of data, pH, specific conductance, temperature, total hardness, carbonate hardness, calcium (Ca), magnesium (Mg), sodium (Na), potassium (K), chloride (Cl), fluoride (F), silica (Si), sulfate (SO₄), carbonate (CO₃), bicarbonate (HCO₃), alkalinity as calcium carbonate (CaCO₃), and

total dissolved solids (TDS). Finally, a stratigraphic column based on Missouri formations and hydrologic units has been created.

- Oil and gas files pertaining to various leases are being reviewed. During this quarter, files were reviewed for 19 counties. A review of 3678 files has yielded 43 porosity and permeability studies, 14 water chemistry analysis, seven formation test reports, and two detailed geologic reports.
- A major remodel of the PCOR Partnership DSS continues. This redesign incorporates the demonstration project reporting system (DPRS). The DPRS is a Web-based interface designed to provide structured access to data by all demonstration participants and other partners to facilitate communication and interpretation of these data and to allow for efficient replication of additional or related demonstration projects. Figures 2 and 3 show screen captures of draft content displayed in the new Web site format.
- Discussions were held with the Nebraska Oil and Gas Commission to assess the CCS opportunities in that state.

Task 2 – Public Outreach and Education

Task 2 continues to provide outreach and education mechanisms to raise awareness regarding CO₂ storage opportunities in the region as well as outreach to select target audiences

EERC ES35486.CDR

DSS Decision Support System PCOR Partnership EERC

DSS Home About PCOR Partner Contacts EERC Contacts Site Map

Interactive Maps

► Learn About Carbon Management

- CO₂ Sources
- CO₂ Capture and Storage
- Geologic Sequestration
- Terrestrial Sequestration
- Glossary of Terms

Field Validation Tests

Regulations

Carbon Markets

Products Database

Multimedia Gallery

To learn more about carbon management, contact:

Ed Steadman
PCOR Partnership Program Manager
Senior Research Advisor
(701) 777-5279
esteadman@undeeerc.org

Learn About Carbon Management

To stabilize the levels of CO₂ in the environment, there needs to be a reduction in the amount of CO₂ that is released by human activity. Reducing anthropogenic CO₂ emissions with the goal of stabilizing the level of CO₂ in the atmosphere is called carbon management.



Carbon management is a complex issue because most of the anthropogenic CO₂ comes from the use of fossil fuels for energy, and maintaining our energy flow is critical to our economy and our quality of life. Carbon dioxide emissions can be reduced by:

- Conserving energy.
- Using more efficient fossil fuel energy systems.
- Increasing the use of renewable and nuclear energy.
- Sequestering carbon.

Carbon sequestration offers a promising set of technologies through which CO₂ can be stored for long period of times either geologically or through terrestrial methods. The PCOR Partnership is investigating sequestration technologies in order to provide a safe, effective, and efficient means of managing the CO₂ emissions across the center of North America.

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Figure 2. Example of new DSS Web page describing carbon management in the region.



Figure 3. Example of new DSS Web page describing field tests in the region.

concerned with the demonstration activities. Activities in this reporting period include the following:

- Efforts continued to populate the OIS, which will contain a record of outreach activities as well as provide a basis for assessing audience exposure to outreach activities.
- Demographic information was ordered for the Canadian portion of the region, and a draft map was created for public television coverage in the region. B-roll (footage of landscapes and facilities) and interviews with in-house personnel were obtained using the prosumer-grade videocamera obtained over the summer. The footage obtained is intended for Web applications.
- Invitations to present at three regional teacher seminars were received and accepted by the PCOR Partnership task leaders, including 1) the “North Dakota Petroleum Council Teacher Education Seminar” (June 8–11, 2009), Bismarck, North Dakota; 2) the Lignite Energy Council’s “2009 Lignite Education Seminar: Energy, Economics and Environment” (June 15–18, 2009), also in Bismarck, North Dakota; and 3) the Keystone Center’s Teacher Training Opportunity “CSI: Climate Status Investigations” (July 29–30, 2009) in Omaha, Nebraska.

- Work was initiated on Web pages to house more than 50 video clips (D20). Draft Web pages were prepared and the protocols tested to ensure that the video could be streamed efficiently.
- Lipman Hearne, a marketing and communications firm, has been retained to prepare an inventory of all communication materials, develop a set of criteria for effective communication products, and assess the existing materials according to the criteria. Utilizing the criteria and communication needs identified through their assessment, Lipman Hearne is developing recommendations to improve the outreach materials.
- Fact Sheet No. 16, a draft regarding the Fort Nelson site, entitled “Geologic Storage of Sour CO₂ from a Natural Gas-Processing Plant – A Commercial Demonstration,” was submitted on May 29, 2009 (D16).
- Members of the outreach team took part in the monthly conference calls and related activities of the Outreach Working Group.
- A member of the outreach team attended an outreach advisory committee meeting for the Weyburn-Midale project in Regina, Saskatchewan, Canada, at the end of June and toured the Weyburn sequestration project field site.
- A PowerPoint presentation (D19) focused on the Fort Nelson demonstration is under preparation and is scheduled to be completed by July 31, 2009.

Task 3 – Permitting and NEPA Compliance

The goal of Task 3 is to assist demonstration site owners with all permits and approvals needed to comply with state, provincial, and federal requirements. The EERC will also identify and track existing and evolving regulations for CO₂ storage and transportation. Activities for the reporting period included the following:

- Various state, provincial, and regional GHG reduction and CCS initiatives are being tracked and analyzed.
- An update to the regulatory section of the DSS is under development.
- Legislative actions occurring in Congress continue to be followed and reviewed for any implications relating to CCS.
- Recent publications relating to regulating CO₂ sequestration and MVA issues continue to be reviewed.
- Analysis of carbon market strategies continues.
- Frequent updates are provided to task leaders with regard to federal, state, and provincial actions.
- EERC staff attended the IOGCC meeting in Anchorage, Alaska. In addition, EERC staff also participated in the IOGCC Pipeline Transportation Task Force meeting.
- Review of EPA’s positive “endangerment finding” that GHGs endanger public health continues.
- A review of the Waxman/Markey bill is ongoing.
- The EERC held a Regulatory Workshop – Brainstorming Session June 16–17, 2009, in Deadwood, South Dakota. Attendees, who include oil and gas regulators and pipeline authorities from British Columbia, Alberta, Saskatchewan, Montana, Wyoming, North Dakota, South Dakota, Nebraska, and Missouri, all provided an overview of CO₂ sources, sinks, EOR projects, and regulatory activities from their respective

jurisdictions. Additionally, the Washington representative of IOGCC and Melzer Consulting were in attendance to update the group on various regional and federal policy issues. The session was set up to allow the group to interact freely and exchange information, ideas, and experiences. A follow-up meeting will be held later this year or early next.

- Actions by the province of British Columbia are continually monitored for the effect they may have on the Fort Nelson demonstration project. The PCOR Partnership has been supporting Spectra Energy's permitting efforts for the Fort Nelson demonstration. EERC staff met with representatives from Spectra Energy and the British Columbia government to discuss regulatory issues in British Columbia, Canada, and in the United States. Additionally, legislative and regulatory actions by the province of British Columbia are continually followed for the effect they may have on the Fort Nelson demonstration project.

Task 4 – Site Characterization and Modeling

Task 4 is focused on evaluating the effectiveness of large-scale CO₂ sequestration in geological formations at two different sites. The first site will examine CO₂ sequestration in conjunction with EOR operations in a deep carbonate reservoir in the Williston Basin. The second will examine CO₂ sequestration in a carbonate brine-saturated formation near Fort Nelson, British Columbia. Characterization activities for the reporting period included:

- Development of the Williston Basin Field Validation Test Experimental Design Package (D42) continued.
- Creation of a petrophysical model of a series of geologically related oil fields in the Dickinson area of the Williston Basin using well log data and field-based observations continued.
- An exploration well at the Fort Nelson CCS project injection site was drilled to a total depth of approximately 2560 m (8400 ft).
- Core and/or cuttings from all key potential sink and seal formations were collected.
- A network of shallow groundwater monitoring wells in an array around the exploratory well were drilled.
- Shallow groundwater was collected for baseline analyses.
- Development of the MVA plan for the Fort Nelson demonstration continued. Efforts were focused on developing a RMP for the injection portion of the Fort Nelson CCS project. The results of the risk assessment which is conducted as part of the RMP will be used to determine the key MVA activities necessary to manage and mitigate risk and to finalize the MVA plan for the Fort Nelson CCS project.
- A Project Risk Assessment Plan for the Fort Nelson demonstration was initiated. Participants in the Fort Nelson risk assessment have included the EERC, Spectra Energy, and Oxand.
- With respect to the Williston Basin demonstration, negotiations for the sale and transportation of the CO₂ continue between prospective owner/operators of CO₂ sources and prospective owner/operators of oil reservoirs. A Geological Characterization Experimental Design Package (D31) is under development, and although a specific site has not been chosen, the collection of baseline geological data at the regional and

subregional scale has been initiated (M7). Specific areas of interest within the Williston Basin for which baseline data have been obtained include the Dickinson area, the Cedar Creek Anticline, the Nesson Anticline, and the Northeast Flank.

Task 5 – Well Drilling and Completion

This task will be initiated in BP4. The EERC will work with the commercial operator of the selected Williston Basin oil field and provide technical support to develop engineering designs for the installation of necessary injection, production, and monitoring wells and develop operational plans for the injection and recycling of CO₂ over the duration of the project. Progress in this task will be reported once activities are initiated.

Task 6 – Infrastructure Development

This task will facilitate the infrastructure planning required for CCS to be implemented on a wide-scale regional basis as well as the development of the specific infrastructure associated with the capture, dehydration, compression, and pipeline transportation of CO₂ from its source to a Williston Basin oil field for EOR. Activities for the reporting period include:

- New capture technologies were researched, summarized, and included in an updated CO₂ capture technologies value-added topical report. The technologies that are applicable to the PCOR Partnership Phase III demonstration project will be highlighted. Upon completion of internal review, the document will be submitted to DOE for review as a value-added topical report.
- The ProTreat™ gas scrubbing model was evaluated with respect to its applicability/usefulness to the PCOR Partnership program and members. Because it appeared that it will be a useful tool for determining applicability of gas scrubbing to the CO₂ streams from the various PCOR Partnership sources and has the potential to provide information that can be used to better estimate the cost of this type of process, the software was licensed for 1 year.
- At the request of Excelsior Energy, text, figures, and tables that show the potential pipeline infrastructure needed to move CO₂ from the planned Mesaba integrated gasification combined-cycle plant to various geological sequestration opportunities in the PCOR Partnership region were prepared.
- During this quarter, Ramgen focused on the conceptual design of its 13,000-hp demonstration unit and worked to identify facility and interface issues that may impact the installation of a demonstration unit. Initial demonstration of the CO₂ Rampressor will be conducted in Dresser-Rand's closed-loop test facility in Olean, New York. Ramgen personnel traveled to Dresser-Rand's facility to kick off an assessment of upgrades needed prior to installation of the Rampressor there. The results of this assessment will be incorporated into an updated facility- and interface-issues report that will be finalized during the July–September 2009 quarter. The report will also include procurement information. Ramgen has made progress on its procurement plan for the CO₂ Rampressor. Ramgen personnel met with a candidate vendor for manufacture of the rotors needed for the CO₂ Rampressor.

- Discussions were held with the North Dakota Pipeline Authority that focused on integrating Task 6 activities with their activities and maximizing any possible synergies between the two groups' activities. As a result of these discussions, the task leader attended a CO₂ pipeline infrastructure public meeting in Casper, Wyoming. The meeting was sponsored by the Enhanced Oil Recovery Institute (EORI) at the University of Wyoming and featured the “rollout” of a preliminary CO₂ pipeline network for the state of Wyoming. The EORI network can be compared with the Wyoming portion of the proposed preliminary regional pipeline network that was developed under Phase II activities during July 2008. The entire PCOR Partnership-developed regional pipeline network route is being reevaluated and adapted to incorporate the Phase III demonstration test activities.
- Preliminary calculations needed to investigate CO₂ compressors that could be utilized in the Phase III Williston Basin demonstration were initiated.

Task 7 – CO₂ Procurement

This task will document CO₂ procurement procedures for the EOR activities. EERC personnel will interface with commercial partners with respect to CO₂ procurement in the Williston Basin demonstration as a means of documenting critical pathways for future projects.

- During this reporting period, discussions continued with prospective owner/operators of CO₂ sources and prospective owner/operators of oil reservoirs for the Williston Basin demonstration. Specific details cannot be shared at the present time because of the business-sensitive nature of the negotiations.
- Significant effort was previously focused on facilitating negotiations between one particular CO₂ supplier and regional oil companies. Although these negotiations continue, they have not yet resulted in an agreement allowing identification of a specific site. This has resulted in the delay of several deliverables. We are currently working to resolve this issue by exploring a set of options that will meet overall goals and objectives, including potential alternative arrangements and/or projects that could be considered as contingencies. Potential alternative arrangements include a CO₂ capture facility at another regional coal-fired utility and integration of that CO₂ with that of a colocated ethanol production facility. Other potential alternative sources are also being pursued.

Task 8 – Transportation and Injection Operations

This task will be initiated in the second year of BP4 and will consist of monitoring and documenting commercial partner activities related to transport of CO₂ via pipeline to the Williston Basin site as well as on-site injection. Progress will be reported in this task once activities are initiated.

Task 9 – Operational Monitoring and Modeling

This task will be initiated at the beginning of BP4 to develop data sets for the large-volume CO₂ injection tests that 1) verify that injection operations do not adversely impact human health

or the environment and 2) validate the storage of CO₂ for the purpose of developing and, ultimately, monetizing carbon credits.

Task 10 – Site Closure

Task 10 will conduct research with regard to site closure practices and procedures that would be applicable for sites similar to the PCOR Partnership demonstration. This task will be initiated Quarter 1 – BP5, Year 9. Once activities are initiated, progress will be communicated and detailed in the quarterly report.

Task 11 – Postinjection Monitoring and Modeling

This task will use the data generated by the site characterization and monitoring activities to provide the technical basis for 1) the formal establishment of carbon credits that are directly linked to the volume of CO₂ injected into the site and 2) a third-party carbon-trading entity to validate and ultimately monetize the credits derived from the Phase III tests. This task will be initiated Quarter 1 – BP5, Year 9. Once activities are initiated, the progress will be communicated and detailed in the quarterly report.

Task 12 – Project Assessment

Task 12 entails the evaluation of Phase III project progress, accomplishments, and goals. Project assessment was conducted for all active Phase III tasks for the period running from October 1, 2007 – September 30, 2008, and illustrated in the project assessment annual report (D57). The report was submitted on December 31, 2008. The next project assessment report is due December 31, 2009.

Task 13 – Project Management

This task focuses on ensuring the overall success of the entire program by providing experienced management and leadership to each of the individual tasks and to the program as a whole. The PM and task leaders meet regularly to report the progress of their tasks and discuss any issues and corrective actions necessary. Task leaders are also responsible to provide the PM with written weekly updates. These updates include highlights (including trip reports), issues (i.e., budget, staffing, technical issues, etc.), opportunities, and travel plans. The monthly, quarterly, and yearly updates can be found on the PCOR Partnership DSS. During the April – June, 2009 quarter, the following activities were performed:

- The Quarterly Progress Report/Milestone Quarterly Report (D58/59) was submitted to DOE on April 30, 2009.
- In collaboration with Spectra Energy, the PCOR Partnership assisted in the preparation of a joint project application for the Fort Nelson CCS demonstration project to be recognized by the Carbon Sequestration Leadership Forum. If awarded, the project will receive recognition from the international research community and potential support from the U.S. and Canadian governments. The application was submitted on June 22,

2009. The PCOR Partnership has offered to assist with any reporting requirements stemming from the award.

- Preparations have begun for the 2009 PCOR Partnership annual meeting. The meeting will be held in St. Louis, Missouri, on December 2–3, 2009, with workshops on CCS Outreach Strategies and Carbon Management to be held December 1. A “Save-the-Date” e-mail blast was sent to partners on May 29, 2009.
- The PCOR Partnership’s PM serves as Chairman for the North American Energy Working Group (NAEWG) North American Carbon Atlas Partnership Methodology Subcommittee (on CO₂ Storage Capacity Estimation). This subcommittee discusses geologic storage capacity coefficients and the methodology for estimations. The data sharing of this group will lead to a solid foundation in the area of CO₂ capture and sequestration mapping and estimations in North America. This subcommittee will coordinate its activities closely with the NAEWG North American Carbon Atlas Partnership. The Kickoff Session was March 27, 2009, and a conference call was held May 4, 2009, with another scheduled for July 14, 2009. The subcommittee’s recommendations will be presented to NAEWG at a meeting July 22–23, 2009, in Pittsburgh, Pennsylvania.
- A DOE Fossil Energy Techline “DOE Regional Partnership Begins Core Sampling for Large-Volume Sequestration Test” was posted online May 22, 2009. This Techline outlined the core-sampling and well-logging activities at Spectra Energy’s Fort Nelson, British Columbia, Canada, demonstration project site.
- A draft DOE Fossil Energy Techline “Example Benefits of a Regional Carbon Sequestration Partnership’s Decision Support System Displayed in the Development of a Carbon Management Plan” is under development. This Techline also highlights the PCOR Partnership’s collaboration with Excelsior Energy Inc. on the preparation of a carbon management plan for its Mesaba Energy project.
- The PCOR Partnership took part in the 8th Annual Carbon Capture & Sequestration Conference held May 4–7, 2009, in Pittsburgh, Pennsylvania. The PCOR Partnership delivered four presentations, as well as two poster presentations. A booth was on exhibit and staffed during the conference.

Task 14 – RCSP WWG Coordination

The purpose of the WWG is to address the wide variety of concerns and opportunities at the nexus of carbon storage and water resources. Development of documents under this task is led by the EERC, with input from all WWG participants.

The first three monthly (April, May and June) conference calls (Milestone [M]23) have been held. The July monthly conference call has been canceled with the approval of DOE.

An outline for the white paper on the nexus of CCS and water (M21) was completed and transmitted to DOE and the WWG participants on February 27, 2009, for comment. An updated version of this outline was submitted to DOE and WWG participants on May 29, 2009.

The first annual WWG meeting (M24) was held on May 7, 2009, in Pittsburgh, Pennsylvania. The primary focus of this meeting was to discuss each partnership’s unique

challenges and opportunities with respect to the nexus of water and CCS and to review the outline of the white paper on the nexus of CCS and water.

The draft outline of the White Paper – Nexus of CCS and Water (M21) was resubmitted for comments. Work continues on the next stage of this white paper (M22) which is due in August 2009.

PHASE III COST STATUS

The approved BP3 budget along with actual costs incurred and in-kind cost share reported is shown in Table 3. An expected spending plan and actual incurred cost by quarter of cash funds for BP3 is provided in Figure 4 and Table 4. A revised budget and spending plan for BP3 was presented in the Continuation Application submitted to DOE on June 30, 2009. Once the Continuation Application is approved, the revised budget will be incorporated into the quarterly reports.

PHASE III SCHEDULE STATUS

Table 5 lists all deliverables and milestones by quarter, with completion dates, for the duration of the project. See Table 6 for the Gantt Chart for BP3. The Continuation Application included revised deliverable and milestone schedules and a Gantt Chart. Once the Continuation Application is approved by DOE, the new schedules will be incorporated into the quarterly reports.

ACTUAL OR ANTICIPATED PHASE III PROBLEMS OR DELAYS

Task 1 – Regional Characterization

Because of unanticipated delays in finalizing the work agreement, MO DGLS has underutilized its planned expenditures to date for this activity. MO DGLS has explored alternative measures with the EERC to address this issue. As a result of these discussions, MO DGLS is proceeding with an application for an extension of the period of performance to December 31, 2009.

Table 3. Phase III Budget – BP3

Organization	Approved Budget	Actual Costs Incurred
DOE Share – Cash	\$5,300,000	\$3,014,876
Nonfederal Share – Cash	\$2,808,847	\$817,563
Nonfederal Share – In-Kind	\$5,577,212	\$68,337
Total	\$13,686,059	\$3,900,776

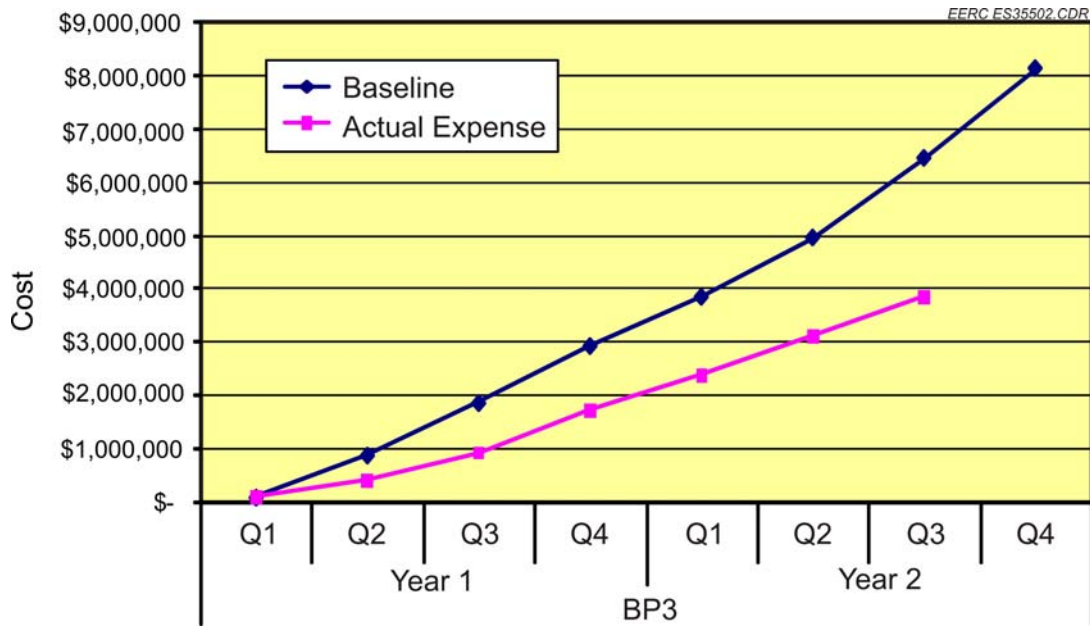


Figure 4. PCOR Partnership Phase III, BP3, funding (cash only).

Task 2 – Public Outreach and Education

Nothing anticipated at this time.

Task 3 – Permitting and NEPA Compliance

As stated in the schedule status section of this report, because negotiations are ongoing and still uncertain for PCOR Partnership partners in the Williston Basin demonstration, attendant deliverables and milestones were approved for extension by DOE.

Task 4 – Site Characterization and Modeling

The selection of a site for the Williston Basin Phase III demonstration has been approved for postponement until September 30, 2009. This postponement resulted in delays in other site-specific activities, such as the development of a NEPA document, site-specific characterization activities, site-specific MVA planning, and site-specific public outreach activities. The Continuation Application rescheduled all pertinent deliverables, milestones, and activities to reflect the expected September 30, 2009, site selection.

Task 5 – Well Drilling and Completion

Nothing to note at this time.

Table 4. BP3 Spending Plan

Baseline Reporting Quarter	Year 1								Year 2							
	Q1		Q2		Q3		Q4		Q1		Q2		Q3		Q4	
	Q1	Cum. BP Total	Q2	Cum. BP Total	Q3	Cum. BP Total	Q4	Cum. BP Total	Q1	Cum. BP Total	Q2	Cum. BP Total	Q3	Cum. BP Total	Q4	Cum. BP Total
Baseline Cost Plan																
Federal Share	\$ 88,728	\$ 88,728	\$ 318,976	\$ 407,704	\$ 510,620	\$ 918,324	\$ 600,000	\$ 1,518,324	\$ 567,251	\$ 2,085,575	\$ 756,335	\$ 2,841,910	\$ 1,134,503	\$ 3,976,413	\$ 1,323,587	\$ 5,300,000
Nonfederal Share	\$ -	\$ -	\$ 467,179	\$ 467,179	\$ 467,180	\$ 934,359	\$ 467,180	\$ 1,401,539	\$ 351,827	\$ 1,753,366	\$ 351,827	\$ 2,105,193	\$ 351,827	\$ 2,457,020	\$ 351,827	\$ 2,808,847
Total Planned	\$ 88,728	\$ 88,728	\$ 786,155	\$ 874,883	\$ 977,800	\$ 1,852,683	\$ 1,067,180	\$ 2,919,863	\$ 919,078	\$ 3,838,941	\$ 1,108,162	\$ 4,947,103	\$ 1,486,330	\$ 6,433,433	\$ 1,675,414	\$ 8,108,847
Actual Incurred Cost																
Federal Share	\$ 88,728	\$ 88,728	\$ 318,976	\$ 407,704	\$ 510,620	\$ 918,324	\$ 597,684	\$ 1,516,008	\$ 390,254	\$ 1,906,262	\$ 365,077	\$ 2,271,339	\$ 743,537	\$ 3,014,876		
Nonfederal Share	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 204,037	\$ 204,037	\$ 261,465	\$ 465,502	\$ 349,283	\$ 814,785	\$ 2,778	\$ 817,563		
Total Incurred Cost	\$ 88,728	\$ 88,728	\$ 318,976	\$ 407,704	\$ 510,620	\$ 918,324	\$ 801,721	\$ 1,720,045	\$ 651,719	\$ 2,371,764	\$ 714,360	\$ 3,086,124	\$ 746,315	\$ 3,832,439		
Variance																
Federal Share	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,316	\$ 2,316	\$ 176,997	\$ 179,313	\$ 391,258	\$ 570,571	\$ 390,966	\$ 961,537		
Nonfederal Share	\$ -	\$ -	\$ 467,179	\$ 467,179	\$ 467,180	\$ 934,359	\$ 263,143	\$ 1,197,502	\$ 90,362	\$ 1,287,864	\$ 2,544	\$ 1,290,408	\$ 349,049	\$ 1,639,457		
Total Variance	\$ -	\$ -	\$ 467,179	\$ 467,179	\$ 467,180	\$ 934,359	\$ 265,459	\$ 1,199,818	\$ 267,359	\$ 1,467,177	\$ 393,802	\$ 1,860,979	\$ 740,015	\$ 2,600,994		

Table 5. Phase III Milestones and Deliverables

Title/Description	Due Date	Actual Completion Date
Year 1 – Quarter 1 (October–December 2007)		
M17: Task 4 – Fort Nelson Test Site Selected	12/31/07	12/28/07
D37: Task 4 – Fort Nelson Test Site – Site Geological Characterization Experimental Design Package	12/31/07	12/28/07
D63: Task 13 – Project Management Plan	12/31/07	12/28/07
Year 1 – Quarter 2 (January–March 2008)		
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	1/31/08	1/31/08
D38: Task 4 – Fort Nelson Test Site – Geomechanical Experimental Design Package	1/31/08	1/31/08
M1: Task 1 – Three Target Areas Selected for Detailed Characterization	3/31/08	3/20/08
M18: Task 4 – Fort Nelson Test Site Geochemical Work Initiated	3/31/08	3/19/08
D11: Task 2 – Outreach Plan	3/31/08	3/31/08
D30: Task 4 – Williston Basin Test Site – Geomechanical Experimental Design Package	3/31/08	3/31/08
D27: Task 3 – Environmental Questionnaire – Fort Nelson Test Site	3/31/08	4/2/08
Year 1 – Quarter 3 (April–June 2008)		
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	4/30/08	4/30/08
D14: Task 2 – General Phase III Fact Sheet	4/30/08	4/30/08
D17: Task 2 – General Phase III Information PowerPoint Presentation	5/30/08	5/30/08
M3: Task 3 – Start Environmental Questionnaire for Williston Basin Test Site	6/30/08	6/27/08
M6: Task 4 – Williston Basin Test Site Geochemical Work Initiated	6/30/08	6/30/08
M7: Task 4 – Williston Basin Test Site Geological Characterization Data Collection Initiated	6/30/08	6/30/08
Year 1 – Quarter 4 (July–September 2008)		
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	7/31/08	7/31/08
D12: Task 2 – Demonstration Web Pages on the Public Site	7/31/08	7/31/08
M2: Task 1 – Demonstration Project Reporting System (DPRS) Prototype Completed	9/30/08	9/26/08
D1: Task 1 – Review of Source Attributes	9/30/08	9/26/08
Year 2 – Quarter 1 (October–December 2008)		
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	10/31/08	10/31/08
D20: Task 2 – Documentary Support to PowerPoint and Web Site	12/31/08	12/31/08
D57: Task 12 – Project Assessment Annual Report	12/31/08	12/31/08

Continued...

Table 5. Phase III Milestones and Deliverables (continued)

Title/Description	Due Date	Actual Completion Date
Year 2 – Quarter 2 (January–March 2009)		
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	1/31/09	1/30/09
M21: Task 14 – Outline of White Paper on Nexus of CO ₂ Capture and Sequestration (CCS) and Water, Part Subtask 14.2 – White Paper on Nexus of CCS and Water	2/27/09	2/27/09
D24: Task 2 – PCOR Partnership Region Sequestration General Poster	3/31/09	3/31/09
M23: Task 14 – Monthly WWG Conference Call Held	3/31/09	3/31/09
Year 2 – Quarter 3 (April–June 2009)		
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	4/30/09	4/30/09
M23: Task 14 – Monthly WWG Conference Call Held	4/30/09	4/30/09
D2: Task 1 – First Target Area Completed	5/29/09	5/29/09
M23: Task 14 – Monthly WWG Conference Call Held	5/29/09	5/29/09
M24: Task 14 – WWG Annual Meeting Held	5/29/09	5/07/09
D16: Task 2 – Fort Nelson Test Site Fact Sheet	5/29/09	5/29/09
M23: Task 14 – Monthly WWG Conference Call Held	6/30/09	6/25/09
Year 2 – Quarter 4 (July–September 2009)		
M23: Task 14 – Monthly WWG Conference Call Held	7/31/09	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	7/31/09	
D19: Task 2 – Fort Nelson Test Site PowerPoint Presentation	7/31/09	
M22: Task 14 – Draft White Paper – Nexus of CCS and Water Available for Comments	8/17/09	
M23: Task 14 – Monthly WWG Conference Call Held	8/31/09	
D29: Task 3 – Permitting Action Plan	9/30/09	
M4: Task 4 – Williston Basin Test Site Selected	9/30/09	
M5: Task 4 – Data Collection Initiated for Williston Basin Test Site	9/30/09	
M23: Task 14 – Monthly WWG Conference Call Held	9/30/09	
D1: Task 1 – Review of Source Attributes	9/30/09	
D3: Task 1 – Permitting Review – One State and One Province	9/30/09	
D9: Task 1 – Updated DSS	9/30/09	
D47: Task 6 – Topical Report on the Preliminary Design of Advanced Compression Technology	9/30/09	
D77: Task 13 – Risk Management Plan Outline	9/30/09	
D78: Task 14 – Final White Paper on the Nexus of CCS and Water	9/30/09	

Continued...

Table 5. Phase III Milestones and Deliverables (continued)

Title/Description	Due Date	Actual Completion Date
Year 3 – Quarter 1 (October–December 2009)		
M23: Task 14 – Monthly WWG Conference Call Held	10/30/09	
D18: Task 2 – Williston Basin Test Site PowerPoint Presentation	10/30/09	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	10/30/09	
M23: Task 14 – Monthly WWG Conference Call Held	11/30/09	
D67: Task 4 – Fort Nelson Test Site – Simulation Report	11/30/09	
D79: Task 14 – Water Resource Estimation Methodology Document	11/30/09	
M13: Task 4 – Williston Basin Test Site – Geological Model Development Completed	12/31/09	
M14: Task 4 – Williston Basin Test Site Geological Characterization Data Collection Completed	12/31/09	
M15: Task 4 – Williston Basin Test Site Baseline Hydro – Model Completed	12/31/09	
M23: Task 14 – Monthly WWG Conference Call Held	12/31/09	
D29: Task 3 – Permitting Action Plan	12/31/09	
D31: Task 4 – Williston Basin Test Site – Geological Characterization Experimental Design Package	12/31/09	
D41: Task 4 – Fort Nelson Test Site – Geochemical Final Report	12/31/09	
D57: Task 12 – Project Assessment Annual Report	12/31/09	
D71: Task 9 – Williston Basin Test Site – Quarterly Summary of Operations	12/31/09	
D72: Task 9 – Fort Nelson Test Site – Quarterly Summary of Operations	12/31/09	
Year 3 – Quarter 2 (January–March 2010)		
M23: Task 14 – Monthly WWG Conference Call Held	1/29/10	
D15: Task 2 – Williston Basin Test Site Fact Sheet	1/29/10	
D28: Task 3 – Environmental Questionnaire – Williston Basin Test Site	1/29/10	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	1/29/10	
M23: Task 14 – Monthly WWG Conference Call Held	2/26/09	
M8: Task 4 – Williston Basin Test Site Wellbore Leakage Data Collection Initiated	3/31/10	
M23: Task 14 – Monthly WWG Conference Call Held	3/31/10	
D11: Task 2 – Outreach Plan	3/31/10	
D32: Task 4 – Williston Basin Test Site – Geomechanical Final Report	3/31/10	
D40: Task 4 – Fort Nelson Test Site – Geomechanical Final Report	3/31/10	
D71: Task 9 – Williston Basin Test Site – Quarterly Summary of Operations	3/31/10	
D72: Task 9 – Fort Nelson Test Site – Quarterly Summary of Operations	3/31/10	

Continued...

Table 5. Phase III Milestones and Deliverables (continued)

Title/Description	Due Date	Actual Completion Date
Year 3 – Quarter 3 (April–June 2010)		
M23: Task 14 – Monthly WWG Conference Call Held	4/30/10	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	4/30/10	
M23: Task 14 – Monthly WWG Conference Call Held	5/31/10	
D79: Task 14 – Water Resource Estimation Methodology Document	5/31/10	
M23: Task 14 – Monthly WWG Conference Call Held	6/30/10	
M24: Task 14 – WWG Annual Meeting Held	6/30/10	
D13: Task 2 – Public Site Updates	6/30/10	
D17: Task 2 – General Phase III Information PowerPoint Presentation	6/30/10	
D18: Task 2 – Williston Basin Test Site PowerPoint Presentation	6/30/10	
D19: Task 2 – Fort Nelson Test Site PowerPoint Presentation	6/30/10	
D25: Task 2 – Williston Basin Test Site Poster	6/30/10	
D33: Task 4 – Williston Basin Test Site – Geochemical Final Report	6/30/10	
D34: Task 4 – Williston Basin Test Site – Baseline Hydrogeological Final Report	6/30/10	
D71: Task 9 – Williston Basin Test Site – Quarterly Summary of Operations	6/30/10	
D72: Task 9 – Fort Nelson Test Site – Quarterly Summary of Operations	6/30/10	
Year 3 – Quarter 4 (July–September 2010)		
M23: Task 14 – Monthly WWG Conference Call Held	7/31/10	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	7/31/10	
M23: Task 14 – Monthly WWG Conference Call Held	8/31/10	
D70: Task 4 – Fort Nelson Test Site – Best Practices Manual – Simulation Report	8/31/10	
M9: Task 4 – Williston Basin Test Site – Geological Model Development Initiated	9/30/10	
M16: Task 4 – Williston Basin Test Site Final Geological Model Development Completed	9/30/10	
M23: Task 14 – Monthly WWG Conference Call Held	9/30/10	
D1: Task 1 – Review of Source Attributes	9/30/10	
D10: Task 1 – Demonstration Project Reporting System Update	9/30/10	
D26: Task 2 – Fort Nelson Test Site Poster	9/30/10	
D35: Task 4 – Williston Basin Test Site – Best Practices Manual – Site Characterization	9/30/10	
D36: Task 4 – Williston Basin Test Site – Wellbore Leakage Final Report	9/30/10	
D48: Task 7 – Procurement Plan and Agreement Report	9/30/10	

Continued...

Table 5. Phase III Milestones and Deliverables (continued)

Title/Description	Due Date	Actual Completion Date
Year 3 – Quarter 4 (July–September 2010), continued		
D50: Task 9 – Williston Basin Test Site – Site Characterization, Modeling, and Monitoring Plan	9/30/10	
D52: Task 9 – Fort Nelson Test Site – Site Characterization, Modeling, and Monitoring Plan	9/30/10	
D68: Task 4 – Fort Nelson Test Site – Best Practices Manual – Site Characterization	9/30/10	
D69: Task 4 – Williston Basin Test Site – Best Practices Manual – Simulation Report	9/30/10	
D71: Task 9 – Williston Basin Test Site – Quarterly Summary of Operations	9/30/10	
D72: Task 9 – Fort Nelson Test Site – Quarterly Summary of Operations	9/30/10	
Year 4 – Quarter 1 (October–December 2010)		
M20: Task 6 – Capture, Dehydration, and Compression Technology Design Completed	10/29/10	
M23: Task 14 – Monthly WWG Conference Call Held	10/29/10	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	10/29/10	
M11: Task 4 – Williston Basin Test Site Baseline Hydro Data Collection Completed	11/30/10	
M23: Task 14 – Monthly WWG Conference Call Held	11/30/10	
M23: Task 14 – Monthly WWG Conference Call Held	12/31/10	
D71: Task 9 – Williston Basin Test Site – Quarterly Summary of Operations	12/31/10	
D72: Task 9 – Fort Nelson Test Site – Quarterly Summary of Operations	12/31/10	
D57: Task 12 – Project Assessment Annual Report	12/31/10	
Year 4 – Quarter 2 (January–March 2011)		
M23: Task 14 – Monthly WWG Conference Call Held	1/31/11	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	1/31/11	
M19: Task 6 – Capture, Dehydration, and Compression Technology Selected	2/28/11	
M23: Task 14 – Monthly WWG Conference Call Held	2/28/11	
D65: Task 4 – Fort Nelson Test Site – Site Characterization Report	2/28/11	
M23: Task 14 – Monthly WWG Conference Call Held	3/31/11	
D61: Task 13 – Site Commercialization Plan	3/31/11	
D71: Task 9 – Williston Basin Test Site – Quarterly Summary of Operations	3/31/11	
D72: Task 9 – Fort Nelson Test Site – Quarterly Summary of Operations	3/31/11	

Continued...

Table 5. Phase III Milestones and Deliverables (continued)

Title/Description	Due Date	Actual Completion Date
Year 4 – Quarter 3 (April–June 2011)		
M23: Task 14 – Monthly WWG Conference Call Held	4/29/11	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	4/29/11	
M23: Task 14 – Monthly WWG Conference Call Held	5/31/11	
M23: Task 14 – Monthly WWG Conference Call Held	6/30/11	
M24: Task 14 – WWG Annual Meeting Held	6/30/11	
D17: Task 2 – General Phase III Information PowerPoint Presentation	6/30/11	
D18: Task 2 – Williston Basin Test Site PowerPoint Presentation	6/30/11	
D19: Task 2 – Fort Nelson Test Site PowerPoint Presentation	6/30/11	
D21: Task 2 – Williston Basin Test Site 15-minute Documentary	6/30/11	
D60: Task 13 – Site Development, Operations, and Closure Plan	6/30/11	
D71: Task 9 – Williston Basin Test Site – Quarterly Summary of Operations	6/30/11	
D72: Task 9 – Fort Nelson Test Site – Quarterly Summary of Operations	6/30/11	
Year 4 – Quarter 4 (July–September 2011)		
M23: Task 14 – Monthly WWG Conference Call Held	7/29/11	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	7/29/11	
M23: Task 14 – Monthly WWG Conference Call Held	8/31/11	
M23: Task 14 – Monthly WWG Conference Call Held	9/30/11	
D1: Task 1 – Review of Source Attributes	9/30/11	
D4: Task 1 – Permitting Review – Two Additional States	9/30/11	
D9: Task 1 – Updated DSS	9/30/11	
D45: Task 6 – Topical Report on the Integrated Capture Plant and Its Shakedown	9/30/11	
D46: Task 6 – Topical Report on Pipeline Route Selection, Design, and Construction	9/30/11	
D71: Task 9 – Williston Basin Test Site – Quarterly Summary of Operations	9/30/11	
D72: Task 9 – Fort Nelson Test Site – Quarterly Summary of Operations	9/30/11	
Year 5 – Quarter 1 (October–December 2011)		
M23: Task 14 – Monthly WWG Conference Call Held	10/31/11	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	10/31/11	
M12: Task 4 – Williston Basin Test Site Geochemical Work Completed	11/30/11	
M23: Task 14 – Monthly WWG Conference Call Held	11/30/11	
D79: Task 14 – Water Resource Estimation Methodology Document	11/30/11	

Continued...

Table 5. Phase III Milestones and Deliverables (continued)

Title/Description	Due Date	Actual Completion Date
Year 5 – Quarter 1 (October–December 2011), continued		
D80: Task 14 – BPM on the Nexus of Water and Carbon Sequestration Activities	11/30/11	
M23: Task 14 – Monthly WWG Conference Call Held	12/30/11	
D57: Task 12 – Project Assessment Annual Report	12/30/11	
D71: Task 9 – Williston Basin Test Site – Quarterly Summary of Operations	12/30/11	
D72: Task 9 – Fort Nelson Test Site – Quarterly Summary of Operations	12/30/11	
Year 5 – Quarter 2 (January–March 2012)		
M23: Task 14 – Monthly WWG Conference Call Held	1/31/12	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	1/31/12	
M23: Task 14 – Monthly WWG Conference Call Held	2/29/12	
M10: Task 4 – Williston Basin Test Site Wellbore Leakage Data Collection Completed	3/30/12	
M23: Task 14 – Monthly WWG Conference Call Held	3/30/12	
D5: Task 1 – Second Target Area Completed	3/30/12	
D71: Task 9 – Williston Basin Test Site – Quarterly Summary of Operations	3/30/12	
D72: Task 9 – Fort Nelson Test Site – Quarterly Summary of Operations	3/30/12	
Year 5 – Quarter 3 (April–June 2012)		
M23: Task 14 – Monthly WWG Conference Call Held	4/30/12	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	4/30/12	
M23: Task 14 – Monthly WWG Conference Call Held	5/31/12	
D66: Task 4 – Williston Basin Test Site – Simulation Report	5/31/13	
M10: Task 4 – Williston Basin Test Site Wellbore Leakage Data Collection Completed	6/29/12	
M23: Task 14 – Monthly WWG Conference Call Held	6/29/12	
M24: Task 14 – WWG Annual Meeting Held	6/29/12	
D13: Task 2 – Public Site Updates	6/29/12	
D22: Task 2 – Fort Nelson Test Site 15-minute Documentary	6/29/12	
D17: Task 2 – General Phase III Information PowerPoint Presentation	6/29/12	
D18: Task 2 – Williston Basin Test Site PowerPoint Presentation	6/29/12	
D19: Task 2 – Fort Nelson Test Site PowerPoint Presentation	6/29/12	
D71: Task 9 – Williston Basin Test Site – Quarterly Summary of Operations	6/29/12	
D72: Task 9 – Fort Nelson Test Site – Quarterly Summary of Operations	6/29/12	

Continued...

Table 5. Phase III Milestones and Deliverables (continued)

Title/Description	Due Date	Actual Completion Date
Year 5 – Quarter 4 (July–September 2012)		
M23: Task 14 – Monthly WWG Conference Call Held	7/31/12	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	7/31/12	
M23: Task 14 – Monthly WWG Conference Call Held	8/31/12	
M23: Task 14 – Monthly WWG Conference Call Held	9/30/12	
D1: Task 1 – Review of Source Attributes	9/30/12	
D10: Task 1 – DPRS Update	9/30/12	
D44: Task 5 – Williston Basin Test Site – Drilling and Completion Activities Final Report	9/30/12	
D71: Task 9 – Williston Basin Test Site – Quarterly Summary of Operations	9/30/12	
D72: Task 9 – Fort Nelson Test Site – Quarterly Summary of Operations	9/30/12	
Year 6 – Quarter 1 (October–December 2012)		
M23: Task 14 – Monthly WWG Conference Call Held	10/31/12	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	10/31/12	
M23: Task 14 – Monthly WWG Conference Call Held	11/30/12	
M23: Task 14 – Monthly WWG Conference Call Held	12/31/12	
D14: Task 2 – General Phase III Fact Sheet	12/31/12	
D57: Task 12 – Project Assessment Annual Report	12/31/12	
D71: Task 9 – Williston Basin Test Site – Quarterly Summary of Operations	12/31/12	
D72: Task 9 – Fort Nelson Test Site – Quarterly Summary of Operations	12/31/12	
Year 6 – Quarter 2 (January–March 2013)		
M23: Task 14 – Monthly WWG Conference Call Held	1/31/13	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	1/31/13	
D64: Task 4 – Williston Basin Test Site – Site Characterization Report	1/31/13	
M23: Task 14 – Monthly WWG Conference Call Held	2/28/13	
M23: Task 14 – Monthly WWG Conference Call Held	3/29/13	
D15: Task 2 – Williston Basin Test Site Fact Sheet	3/29/13	
D71: Task 9 – Williston Basin Test Site – Quarterly Summary of Operations	3/29/13	
D72: Task 9 – Fort Nelson Test Site – Quarterly Summary of Operations	3/29/13	
Year 6 – Quarter 3 (April–June 2013)		
M23: Task 14 – Monthly WWG Conference Call Held	4/30/13	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	4/30/13	

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Table 5. Phase III Milestones and Deliverables (continued)

Title/Description	Due Date	Actual Completion Date
Year 6 – Quarter 3 (April–June 2013) continued		
M23: Task 14 – Monthly WWG Conference Call Held	5/31/13	
D66: Task 4 – Williston Basin Test Site – Simulation Report	5/31/13	
D79: Task 14 – Water Resource Estimation Methodology Document	5/31/13	
M23: Task 14 – Monthly WWG Conference Call Held	6/28/13	
M24: Task 14 – WWG Annual Meeting Held	6/28/13	
D16: Task 2 – Fort Nelson Test Site Fact Sheet	6/28/13	
D17: Task 2 – General Phase III Information PowerPoint Presentation	6/28/13	
D18: Task 2 – Williston Basin Test Site PowerPoint Presentation	6/28/13	
D19: Task 2 – Fort Nelson Test Site PowerPoint Presentation	6/28/13	
D71: Task 9 – Williston Basin Test Site – Quarterly Summary of Operations	6/28/13	
D72: Task 9 – Fort Nelson Test Site – Quarterly Summary of Operations	6/28/13	
Year 6 – Quarter 4 (July–September 2013)		
M23: Task 14 – Monthly WWG Conference Call Held	7/31/13	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	7/31/13	
M23: Task 14 – Monthly WWG Conference Call Held	8/30/13	
D42: Task 5 – Williston Basin Test Site – Injection Experimental Design Package	8/30/13	
M23: Task 14 – Monthly WWG Conference Call Held	9/30/13	
D1: Task 1 – Review of Source Attributes	9/30/13	
D6: Task 1 – Permitting Review – Three States and Two Provinces	9/30/13	
D9: Task 1 – Updated DSS	9/30/13	
D71: Task 9 – Williston Basin Test Site – Quarterly Summary of Operations	9/30/13	
D72: Task 9 – Fort Nelson Test Site – Quarterly Summary of Operations	9/30/13	
Year 7 – Quarter 1 (October–December 2013)		
M23: Task 14 – Monthly WWG Conference Call Held	10/31/13	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	10/31/13	
D43: Task 5 – Williston Basin Test Site – Monitoring Experimental Design Package	10/31/13	
M23: Task 14 – Monthly WWG Conference Call Held	11/29/13	
M23: Task 14 – Monthly WWG Conference Call Held	12/31/13	
D57: Task 12 – Project Assessment Annual Report	12/31/13	
D71: Task 9 – Williston Basin Test Site – Quarterly Summary of Operations	12/31/13	
D72: Task 9 – Fort Nelson Test Site – Quarterly Summary of Operations	12/31/13	

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Table 5. Phase III Milestones and Deliverables (continued)

Title/Description	Due Date	Actual Completion Date
Year 7 – Quarter 2 (January–March 2014)		
M23: Task 14 – Monthly WWG Conference Call Held	1/31/14	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	1/31/14	
M23: Task 14 – Monthly WWG Conference Call Held	2/28/14	
M23: Task 14 – Monthly WWG Conference Call Held	3/31/14	
D24: Task 2 – PCOR Partnership Region Sequestration General Poster	3/31/14	
D71: Task 9 – Williston Basin Test Site – Quarterly Summary of Operations	3/31/14	
D72: Task 9 – Fort Nelson Test Site – Quarterly Summary of Operations	3/31/14	
Year 7 – Quarter 3 (April–June 2014)		
M23: Task 14 – Monthly WWG Conference Call Held	4/30/14	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	4/30/14	
M23: Task 14 – Monthly WWG Conference Call Held	5/30/14	
M23: Task 14 – Monthly WWG Conference Call Held	6/30/14	
M24: Task 14 – WWG Annual Meeting Held	6/30/14	
D13: Task 2 – Public Site Updates	6/30/14	
D17: Task 2 – General Phase III Information PowerPoint Presentation	6/30/14	
D18: Task 2 – Williston Basin Test Site PowerPoint Presentation	6/30/14	
D19: Task 2 – Fort Nelson Test Site PowerPoint Presentation	6/30/14	
D71: Task 9 – Williston Basin Test Site – Quarterly Summary of Operations	6/30/14	
D72: Task 9 – Fort Nelson Test Site – Quarterly Summary of Operations	6/30/14	
Year 7 – Quarter 4 (July–September 2014)		
M23: Task 14 – Monthly WWG Conference Call Held	7/31/14	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	7/31/14	
M23: Task 14 – Monthly WWG Conference Call Held	8/29/14	
M23: Task 14 – Monthly WWG Conference Call Held	9/30/14	
D1: Task 1 – Review of Source Attributes	9/30/14	
D7: Task 1 – Third Target Area Completed	9/30/14	
D10: Task 1 – Demonstration Project Reporting System Update	9/30/14	
D71: Task 9 – Williston Basin Test Site – Quarterly Summary of Operations	9/30/14	
D72: Task 9 – Fort Nelson Test Site – Quarterly Summary of Operations	9/30/14	

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Table 5. Phase III Milestones and Deliverables (continued)

Title/Description	Due Date	Actual Completion Date
Year 8 – Quarter 1 (October–December 2014)		
M23: Task 14 – Monthly WWG Conference Call Held	10/31/14	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	10/31/14	
D75: Task 3 – Updated Permitting Action Plan	10/31/14	
M23: Task 14 – Monthly WWG Conference Call Held	11/28/14	
D79: Task 14 – Water Resource Estimation Methodology Document	11/28/14	
M23: Task 14 – Monthly WWG Conference Call Held	12/31/14	
D25: Task 2 – Williston Basin Test Site Poster	12/31/14	
D57: Task 12 – Project Assessment Annual Report	12/31/14	
D71: Task 9 – Williston Basin Test Site – Quarterly Summary of Operations	12/31/14	
D72: Task 9 – Fort Nelson Test Site – Quarterly Summary of Operations	12/31/14	
Year 8 – Quarter 2 (January–March 2015)		
M23: Task 14 – Monthly WWG Conference Call Held	1/30/15	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	1/30/15	
M23: Task 14 – Monthly WWG Conference Call Held	2/27/15	
M23: Task 14 – Monthly WWG Conference Call Held	3/31/15	
D71: Task 9 – Williston Basin Test Site – Quarterly Summary of Operations	3/31/15	
D72: Task 9 – Fort Nelson Test Site – Quarterly Summary of Operations	3/31/15	
Year 8 – Quarter 3 (April–June 2015)		
M23: Task 14 – Monthly WWG Conference Call Held	4/30/15	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	4/30/15	
M23: Task 14 – Monthly WWG Conference Call Held	5/29/15	
M23: Task 14 – Monthly WWG Conference Call Held	6/30/15	
M24: Task 14 – WWG Annual Meeting Held	6/30/15	
D17: Task 2 – General Phase III Information PowerPoint Presentation	6/30/15	
D18: Task 2 – Williston Basin Test Site PowerPoint Presentation	6/30/15	
D19: Task 2 – Fort Nelson Test Site PowerPoint Presentation	6/30/15	
D26: Task 2 – Fort Nelson Test Site Poster	6/30/15	
D71: Task 9 – Williston Basin Test Site – Quarterly Summary of Operations	6/30/15	
D72: Task 9 – Fort Nelson Test Site – Quarterly Summary of Operations	6/30/15	

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Table 5. Phase III Milestones and Deliverables (continued)

Title/Description	Due Date	Actual Completion Date
Year 8 – Quarter 4 (July–September 2015)		
M23: Task 14 – Monthly WWG Conference Call Held	7/31/15	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	7/31/15	
M23: Task 14 – Monthly WWG Conference Call Held	8/31/15	
M23: Task 14 – Monthly WWG Conference Call Held	9/30/15	
D1: Task 1 – Review of Source Attributes	9/30/15	
D8: Task 1 – Permitting Review – Three States and One Province	9/30/15	
D9: Task 1 – Updated DSS	9/30/15	
D49: Task 8 – Transportation and Injection Operations Final Report	9/30/15	
D51: Task 9 – Williston Basin Test Site – Monitoring for CO ₂ , EOR, and Sequestration Best Practices Manual	9/30/15	
D53: Task 9 – Fort Nelson Test Site – Monitoring for CO ₂ Sequestration in a Brine Formation Best Practices Manual	9/30/15	
D71: Task 9 – Williston Basin Test Site – Quarterly Summary of Operations	9/30/15	
D72: Task 9 – Fort Nelson Test Site – Quarterly Summary of Operations	9/30/15	
Year 9 – Quarter 1 (October–December 2015)		
M23: Task 14 – Monthly WWG Conference Call Held	10/30/15	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	10/30/15	
M23: Task 14 – Monthly WWG Conference Call Held	11/30/15	
D80: Task 14 – BPM on the Nexus of Water and Carbon Sequestration Activities	12/31/15	
M23: Task 14 – Monthly WWG Conference Call Held	12/31/15	
D14: Task 2 – General Phase III Fact Sheet	12/31/15	
D23: Task 2 – Sequestration in Carbon Management – 30-minute Documentary	12/31/15	
D57: Task 12 – Project Assessment Annual Report	12/31/15	
Year 9 – Quarter 2 (January–March 2016)		
M23: Task 14 – Monthly WWG Conference Call Held	1/29/16	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	1/29/16	
M23: Task 14 – Monthly WWG Conference Call Held	2/29/16	
M23: Task 14 – Monthly WWG Conference Call Held	3/31/16	
D11: Task 2 – Outreach Plan	3/31/16	
D15: Task 2 – Williston Basin Test Site Fact Sheet	3/31/16	

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Table 5. Phase III Milestones and Deliverables (continued)

Title/Description	Due Date	Actual Completion Date
Year 9 – Quarter 2 (January–March 2016) continued		
D55: Task 11 – Report on Cost-Effective Long-Term Monitoring Strategies for the Williston Basin Test Site	3/31/16	
D56: Task 11 – Report on Cost-Effective Long-Term Monitoring Strategies for the Fort Nelson Test Site	3/31/16	
Year 9 – Quarter 3 (April–June 2016)		
M23: Task 14 – Monthly WWG Conference Call Held	4/29/16	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	4/29/16	
M23: Task 14 – Monthly WWG Conference Call Held	5/31/16	
M23: Task 14 – Monthly WWG Conference Call Held	6/30/16	
M24: Task 14 – WWG Annual Meeting Held	6/30/16	
D13: Task 2 – Public Site Updates	6/30/16	
D16: Task 2 – Fort Nelson Test Site Fact Sheet	6/30/16	
D17: Task 2 – General Phase III Information PowerPoint Presentation	6/30/16	
D18: Task 2 – Williston Basin Test Site PowerPoint Presentation	6/30/16	
D19: Task 2 – Fort Nelson Test Site PowerPoint Presentation	6/30/16	
Year 9 – Quarter 4 (July–September 2016)		
M23: Task 14 – Monthly WWG Conference Call Held	7/29/16	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	7/29/16	
M23: Task 14 – Monthly WWG Conference Call Held	8/31/16	
M23: Task 14 – Monthly WWG Conference Call Held	8/31/16	
D1: Task 1 – Review of Source Attributes	9/30/16	
D10: Task 1 – Demonstration Project Reporting System Update	9/30/16	
D73: Task 11 – Williston Basin Test Site – Progress Report on Monitoring and Modeling Fate of CO ₂	9/30/16	
D74: Task 11 – Fort Nelson Test Site – Progress Report on Monitoring and Modeling Fate of CO ₂	9/30/16	
Year 10 – Quarter 1 (October–December 2016)		
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	10/31/16	
D57: Task 12 – Project Assessment Annual Report	12/30/16	

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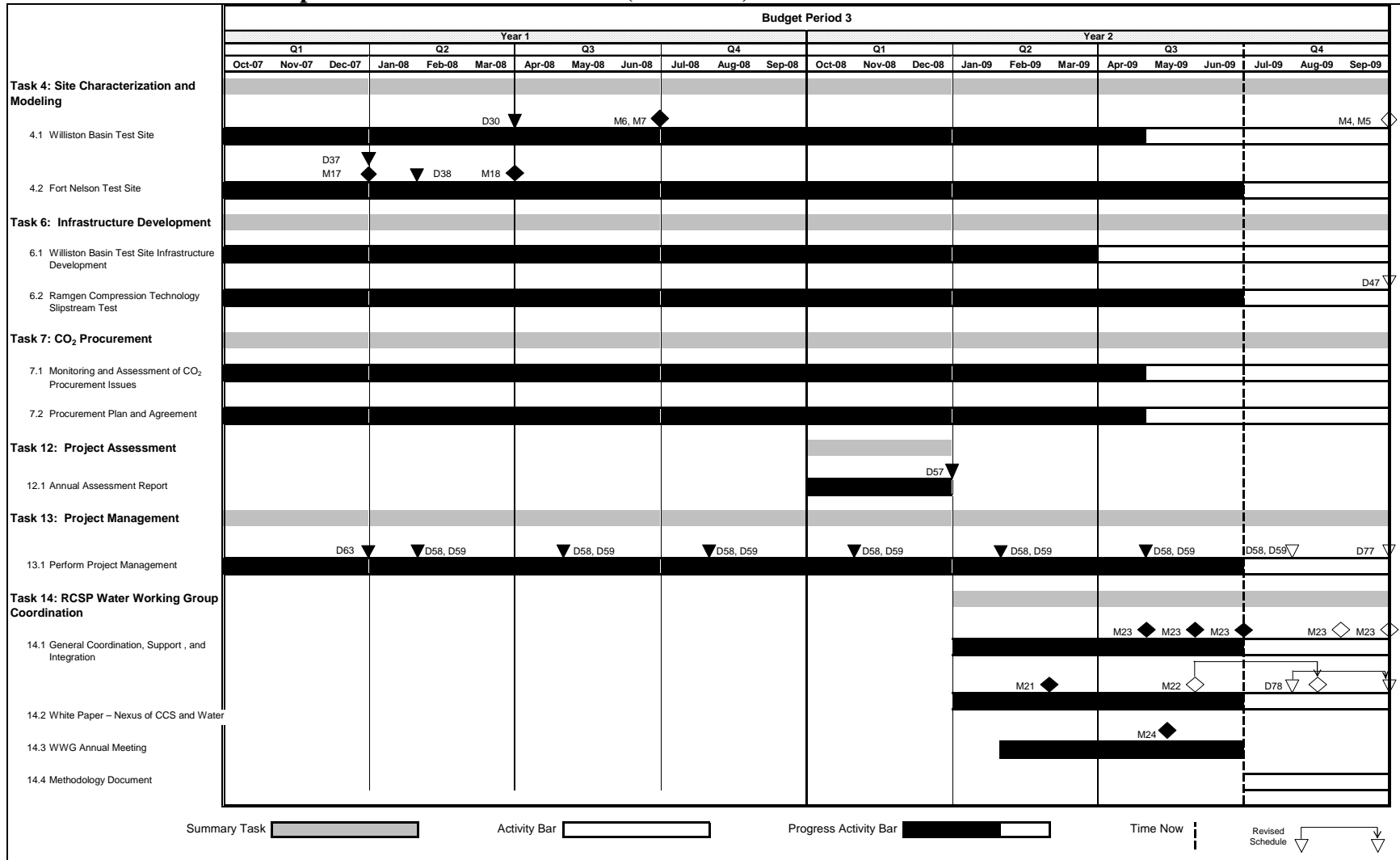
Table 5. Phase III Milestones and Deliverables (continued)

Title/Description	Due Date	Actual Completion Date
Year 10 – Quarter 2 (January–March 2017)		
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	1/31/17	
D73: Task 11 – Williston Basin Test Site – Progress Report on Monitoring and Modeling Fate of CO ₂	1/31/17	
Year 10 – Quarter 3 (April–June 2017)		
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	4/28/17	
D17: Task 2 – General Phase III Information PowerPoint Presentation	6/30/17	
D18: Task 2 – Williston Basin Test Site PowerPoint Presentation	6/30/17	
D19: Task 2 – Fort Nelson Test Site PowerPoint Presentation	6/30/17	
Year 10 – Quarter 4 (July–September 2017)		
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	7/31/17	
D54: Task 10 – Site Closure Report	9/29/17	
D73: Task 11 – Williston Basin Test Site – Progress Report on Monitoring and Modeling Fate of CO ₂	9/29/17	
D74: Task 11 – Fort Nelson Test Site – Progress Report on Monitoring and Modeling Fate of CO ₂	9/29/17	
D76: Task 3 – Best Practices Manual – Permitting	9/29/17	
D62: Task 13 – Final Report	9/29/17	
D58/D59: Task 13 – Quarterly Progress Report/Milestone Quarterly Report	10/31/17	

Table 6. PCOR Partnership Phase III BP3 Gantt Chart



Table 6. PCOR Partnership Phase III BP3 Gantt Chart (continued)



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Table 6. PCOR Partnership Phase III BP3 Gantt Chart (continued)

Key for Phase III Deliverables (D) ▼		Key for Phase III Milestones (M) ◆	
D1	Review of Source Attributes	M1	Three Target Areas Selected
D2	First Target Area Completed	M2	DPRS Prototype
D3	Permitting Review – One State and One Province	M3	Start Environmental Questionnaire for WB Test Site
D9	Updated DSS	M4	WB Test Site Selected
D11	Outreach Plan	M5	Data Collection Initiated for WB Test Site
D12	Demonstration Web Pages on the Public Site	M6	WB Test Site Geochemical Work Initiated
D14	General Phase III Fact Sheet	M7	WB Test Site Geological Characterization Data Collection Initiated
D16	Fort Nelson (FN) – Test Site Fact Sheet	M17	FN Test Site Selected
D17	General Phase III Information PowerPoint Presentation	M18	FN Test Site Geochemical Work Initiated
D19	FN Test Site – PowerPoint Presentation	M21	Outline of White Paper on Nexus of CCS and Water Available for Comments
D20	Video Support to PowerPoint and Web Site	M22	Draft White Paper on the Nexus of CCS and Water Available for Comments
D24	PCOR Partnership Region Sequestration General Poster	M23	Monthly WWG Conference Call Held
D27	FN Test Site – Environmental Questionnaire	M24	WWG Annual Meeting Held
D30	Williston Basin (WB) Test Site – Geomechanical Experimental Design Package		
D37	FN Test Site – Site Geological Characterization Experimental Design Package		
D38	FN Test Site – Geomechanical Experimental Design Package		
D47	Topical Report on the Preliminary Design of Advanced Compression Technology		
D57	Project Assessment Annual Report		
D58	Quarterly Progress Report		
D59	Milestone Quarterly Report		
D63	Project Management Plan		
D77	Risk Management Plan Outline		
D78	Final White Paper on the Nexus of CCS and Water		

Task 6 – Infrastructure Development

Some of the work on this task has been delayed while the plans for the CO₂ capture and geologic sequestration for the Williston Basin demonstration are finalized.

Task 7 – CO₂ Procurement

The EERC will continue to pursue potential CO₂ sources that meet the goals of the project and meet the new Williston Basin site selection date of September 30, 2009.

Task 8 – Transportation and Injection Operations

Nothing to note at this time.

Task 9 – Operational Monitoring and Modeling

Nothing to note at this time.

Task 10 – Site Closure

Nothing to note at this time.

Task 11 – Postinjection Monitoring and Modeling

Nothing to note at this time.

Task 12 – Project Assessment

Nothing to note at this time.

Task 13 – Project Management

There is concern about the delays to the Phase III project in the Williston Basin. Options for alternative ways to proceed and an estimate of the impacts of each option to the costs and schedule are being researched. The Continuation Application realigned schedules and budgets to reflect a Williston Basin site selection as of September 30, 2009.

Task 14 – RCSP WWG Coordination

Nothing to note at this time.

PHASE III PRODUCTS OR TECHNOLOGY TRANSFER ACTIVITIES

Task 1 – Regional Characterization

MO DGLS staff have continued to work with City Utilities of Springfield, Missouri, on its proposed demonstration project to sequester CO₂ in a shallow aquifer below the power plant.

Task 2 – Public Outreach and Education

Fact Sheet No. 16, a draft regarding the Fort Nelson site, entitled “Geologic Storage of Sour CO₂ from a Natural Gas-Processing Plant – A Commercial Demonstration,” was submitted on May 29, 2009 (D16).

Task 3 – Permitting and NEPA Compliance

The PCOR Partnership Regulatory Workshop – Brainstorming Session was held June 16–17, 2009, in Deadwood, South Dakota. Attendees included oil and gas regulators and pipeline authorities from British Columbia, Alberta, Saskatchewan, Montana, Wyoming, North Dakota, South Dakota, Nebraska, and Missouri as well as the Washington representative of IOGCC and Melzer Consulting.

Additionally, EERC staff attended the IOGCC meeting in Anchorage, Alaska. In addition, EERC staff also participated in the IOGCC Pipeline Transportation Task Force meeting.

Task 4 – Site Characterization and Modeling

No deliverables were due for Task 4 during this reporting period.

Task 5 – Well Drilling and Completion

Not applicable.

Task 6 – Infrastructure Development

The task leader attended the Eighth Annual Carbon Capture and Sequestration Conference held in Pittsburgh, Pennsylvania, May 4–7, 2009, to learn more about various emerging CO₂ capture technologies.

The task leader attended a CO₂ pipeline infrastructure public meeting in Casper, Wyoming, on May 19, 2009. The meeting was sponsored by the EORI at the University of Wyoming and featured the rollout of a preliminary CO₂ pipeline network for the state of Wyoming.

Task 7 – CO₂ Procurement

Numerous discussions with potential CO₂ suppliers have taken place. Because of the sensitive nature of negotiations, specifics cannot be shared at the present time.

Task 8 – Transportation and Injection Operations

Not applicable.

Task 9 – Operational Monitoring and Modeling

Not applicable.

Task 10 – Site Closure

Not applicable.

Task 11 – Postinjection Monitoring and Modeling

Not applicable.

Task 12 – Project Assessment

No deliverables were due during this reporting period.

Task 13 – Project Management

The Quarterly Progress Report/Milestone Quarterly Report (D58/59) was submitted to DOE for approval on April 30, 2009.

Task 14 – RCSP WWG Coordination

The WWG Monthly Conference Call (M23) is up-to-date, and the meeting notes were submitted to the DOE on April 30, May 29, and June 30, 2009.

The WWG Annual Meeting (M24) was held on May 7, 2009, and the meeting notes were submitted to the DOE on May 30, 2009.

MEETINGS/TRAVEL

Representatives from the PCOR Partnership participated in and/or presented at the following meetings and conferences in this reporting period:

- April 6–10, 2009: Attended Introduction to ABAQUS training seminar in Woodbury, Minnesota.
- April 6–9, 2009: Participated in meetings with Spectra Energy Transmission; the Province of British Columbia Ministry of Energy, Mines and Petroleum Resources; and the British Columbia Oil and Gas Commission regarding the progress of the Fort Nelson CCS demonstration project in Victoria, British Columbia, Canada.

- April 16–18, 2009: Attended the IEA Greenhouse Gas R&D Programme’s 4th Risk Assessment Network Meeting in Melbourne, New South Wales, Australia.
- April 15, 2009: Attended a meeting at Basin Electric Power Cooperative’s headquarters regarding the Williston Basin demonstration project site selection in Bismarck, North Dakota.
- April 20–22, 2009: Attended the 2009 International Symposium on Oilfield Chemistry in The Woodlands, Texas.
- April 20–21, 2009: Participated in meetings with Baker Hughes Incorporated and Baker Petrolite Corporation in Houston, Texas.
- April 22–23, 2009: Participated in meetings with Encore Acquisition Company in Fort Worth, Texas.
- April 23, 2009: Attended a meeting with Devon Energy to view a demonstration of Aqua-Pure distillation unit technology in Decatur, Texas.
- April 26–29, 2009: Attended the 17th Annual Williston Basin Petroleum Conference in Regina, Saskatchewan, Canada.
- May 3–7, 2009: Attended the AAPG Hedberg Research Conference “Basin and Petroleum System Modeling: New Horizons in Research and Applications” in Napa, California.
- May 4–7, 2009: Attended and participated in the 8th Annual Conference on Carbon Capture & Sequestration in Pittsburgh, Pennsylvania.
- May 4, 2009: Organized and hosted the NAEWG Methodology Subcommittee Meeting/Conference Call in Pittsburgh, Pennsylvania.
- May 6, 2009: Organized and participated in a Fort Nelson demonstration project meeting in Pittsburgh, Pennsylvania.
- May 7, 2009: Organized and chaired the WWG annual meeting in Pittsburgh, Pennsylvania.
- May 11–13, 2009: Attended the IOGCC 2009 Midyear Issues Summit in Anchorage, Alaska.
- May 13–14, 2009: Attended the IEA Greenhouse Gas R&D Programme’s 5th Wellbore Integrity Network Meeting, Calgary, Alberta, Canada.
- May 18–22, 2009: Attended the University of Alabama’s 2009 International Coalbed & Shale Gas Symposium and Short Course #2: Coalbed Methane and Shale Gas Well Completions and Production: Principles and Best Practice in Tuscaloosa, Alabama.
- May 19, 2009: Attended the Wyoming CO₂ Pipeline Infrastructure Development Meeting in Casper, Wyoming.
- May 27–29, 2009: Attended and presented at the Innovating for Energy (IFP) International Conference on Deep Saline Aquifers for Geological Storage of CO₂ and Energy in Rueil-Malmaison, France.
- June 2–4, 2009: Attended the IEA Greenhouse Gas R&D Programme’s 5th Meeting of the Monitoring Network in Tokyo, Japan.
- June 1–3, 2009: Attended QEMSCAN Training at Colorado School of Mines in Golden, Colorado.
- June 7–10, 2009: Attended and presented at the AAPG Annual Convention and Expo in Denver, Colorado.
- June 8–12, 2009: Met with Spectra Energy Transmission and presented modeling results in Calgary, Alberta, Canada.

- June 10, 2009: Presented at the North Dakota Petroleum Council 2009 Teacher Seminar in Bismarck, North Dakota.
- June 16–17, 2009: Hosted the PCOR Partnership Regulatory Workshop – Brainstorming Session in Deadwood, South Dakota.
- June 16–18, 2009: Met with Spectra Energy Transmission on Fort Nelson demonstration project risk assessment in Calgary, Alberta, Canada.
- June 17, 2009: Presented at the Lignite Energy Council’s 2009 Lignite Education Seminar: Energy, Economics and Environment in Bismarck, North Dakota.
- June 18–20, 2009: Attended and presented at the Energy Council’s 2009 State and Provincial Trends in Energy and the Environment Conference in Saskatoon, Saskatchewan, Canada.
- June 23–24, 2009: Attended the EORI 3rd Annual Wyoming CO₂ Conference in Casper, Wyoming.
- June 26, 2009: Participated in session of the Outreach Advisory Panel of the Weyburn–Midale Project in Regina, Saskatchewan, Canada.
- June 29 – July 1, 2009: Met with Spectra Energy Transmission on Fort Nelson demonstration project risk assessment in Calgary, Alberta, Canada.

Materials presented at these meetings are available to partners on the PCOR Partnership DSS Web site (<http://gis.undeerc.org/website/pcorp/>).

REFERENCES

None.