

FY06-LV(55)-143

“Plains CO₂ Reduction Partnership – Phase II”

Submitted by: Energy & Environmental Research Center;
Request for: \$ 360,000; Total Project Costs: \$21,427,892;
Principal Investigator: Edward N. Steadman; Duration: 4-years.

PARTICIPANTS

<u>Sponsor</u>	<u>Cost Share</u>
Lignite Industry Participants	
Excelsior	\$ 95,000
Great River Energy	\$ 60,000
Otter Tail Power Cooperative	\$ 60,000
Great Northern Power Development	\$ 60,000
SaskPower	\$ 60,000
Excel Energy	\$ 60,000
Apache Canada (in-kind)	\$ 3,157,968
Amerada Hess (in-kind)	\$ 1,000,000
Ducks Unlimited (in-kind)	\$ 200,759
Energy & Utilities Board (in-kind)	\$ 571,048
ND State University (in-kind)	\$ 68,611
Prairie Public Television	\$ 276,188
NDIC	
Oil & Gas Research Council	\$500,000
Oil & Gas Research Council (in-kind)	\$157,308
Geological Survey (in-kind)	\$141,010
Lignite Research Council	\$720,000
U.S. DOE	\$14,300,000
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Total Cost	\$21,487,892

Project Schedule - 48 Months

Contract Date – 12/7/05

Start Date – 12/7/05

Completion Date – 10/31/09

Project Deliverables

Contract Signed: December 7, 2005 (✓)

Progress Reports:

4/30/06 (✓); 10/31/06 (✓);

4/30/07 (✓); 10/31/07 (✓);

4/30/08 (✓); 10/31/08 (✓);

4/30/09 ();

Final Report 10/31/09 ()

OBJECTIVE / STATEMENT OF WORK:

Based on Phase I results (see contract LRC FY-04-L(50)-128 “Plains CO₂ Reduction Partnership (PCORP) Phase I, initiate Phase II activities that continue assessing sequestration opportunities leading to field sequestration tests to validation eventual commercial applications that include geologic storage and coal seams (producing coal bed methane). Assess sequestration economics, risk, and monetary co-benefits of carbon sequestration; Provide public carbon sequestration

outreach. The program goal is to mitigate risk to the coal-based power industry by taking a market- & incentive-based approach to carbon management

STATUS

October 1 – December 31, 2005. Presentations were made in seven different meetings/conferences. Preliminary technical discussions began regarding the field validation tests for: 1) enhanced oil recovery at the Beaver Lodge field, North Dakota; 2) Zama, Alberta acid gas injection; coal seam well logs and identification of four areas for further investigation and 3) terrestrial test site selection. Further work was conducted with respect to characterization of sequestration opportunities including soil work, map work, and data assembly and display. Development of NEPA documents occurred. Work began on public outreach and education activities including: development of draft fact sheet, development of preliminary video outline and public web site. Work began on identification of commercially available sequestration technologies ready for large-scale deployment.

October 1, 2005 – March 31, 2006. Results for this period focused on developing NEPA Compliance Documents, Experimental Design Packages, Outreach Action Plans, Regional Characterization Gap Assessments, Regulatory Permitting Action Plans, and establishing subcontracts.

April 1, 2006 – September 30, 2006. Progress was made in field validation test Tasks 2-5 and in the supporting Tasks 1, 6,7,8,9, & 10. Progress was made at the Zama field test site with a solid measurement, mitigation, and verification plan falling into place as injection of the acid gas is about to proceed. Preparatory work for the Beaver Lodge field validation test is continuing. Arrangements for the necessary permits have been made with regard to the lignite field test and progress was made securing commercial partners. The Prairie pothole field test site has been selected and background work on the development of terrestrial carbon offsets has begun.

October 31, 2006 – March 31, 2007. The official start-up of the 100/01-13-116-6W6 acid gas injector on the Zama Keg River F Pool was December 17, 2006. Significant progress has been made gathering baseline data for the Beaver Lodge Duperow Unit. The drilling prognosis has been completed. Initial work on carbon sequestration program brochure and the detailed fact sheet for investors is underway. Regional characterization continues, and the Decision Support System continues to evolve and improve. In March 2007, the pipeline data were added to the “partners-only” Web site. The regulatory, outreach, and program integration tasks are continuing to meet program goals.

April 1, 2007 – September 30, 2007. Significant progress was made in both field validation test tasks (Tasks 2-5) and in the supporting tasks (Tasks 1, 6-10). Progress was made at the Zama Field Validation Test site with implementation of a solid monitoring, mitigation, and verification program. Progress was made in the lignite field validation test, including procuring the necessary permits, drilling a five-spot CO₂ injection and monitoring pattern.

October 1, 2007 – March 31, 2008. Laboratory tests focusing on the injection of CO₂ were conducted relative to the Williston Basin field validation test. Injection of acid gas at the Zama, Alberta site continued at approximately 1 million cubic feet per day. Laboratory core studies were conducted in preparation of the upcoming field operations for the lignite field validation testing. The documentary “Reducing Our Carbon Footprint: The Role Markets” was scheduled for a

broadcast on Prairie Public Television (April 17) and a draft documentary “Terrestrial Sequestration: Using Nature to Capture CO₂” was prepared.

April 1, 2008 – September 30, 2008. Evaluation of oil fields in the Williston Basin that may be suitable candidates to host the Task 2 injection and monitoring, mitigation, and verification activities continued. Laboratory tests of core plugs before and after CO₂ injection were conducted. The results are expected during the next quarter. Work continued on the application to EPA for underground injection of CO₂ into a North Dakota lignite seam. Well development is complete for the lignite CO₂ injection and monitoring. Negotiations are complete with Proxair to supply and inject the CO₂. The documentary “Out of the Air – Into the Soil: Land Practices that Reduce Atmospheric Carbon Levels” was completed. A draft report has been completed: “Phase II Best Practice Manual: Regional Sequestration Opportunities.”