

January 31, 2019

Ms. Karlene Fine
Executive Director
North Dakota Industrial Commission
State Capitol, 10th Floor
600 East Boulevard Avenue
Bismarck, ND 58505-0310

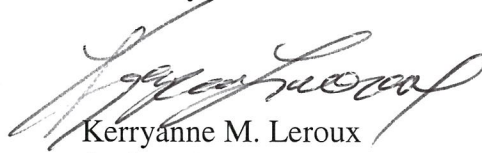
Dear Ms. Fine:

Subject: Quarterly Progress Report Entitled “Integrated Carbon Capture and Storage for North Dakota Ethanol Production – Phase III”; Contract No. R-038-047; EERC Fund 23627

Attached is the subject report for the period of October 1, 2018, through December 31, 2018, that shows the progress that has been made with partners of this project.

Thank you for funding this work. If you have any questions, please contact me by phone at (701) 777-5013 or by e-mail at kleroux@undeerc.org.

Sincerely,



Kerryanne M. Leroux
Senior Chemical Engineer, Oilfield Operations
Team Lead

KML/kal

Attachment

c/att: Andrea Pfennig, NDIC



INTEGRATED CARBON CAPTURE AND STORAGE FOR NORTH DAKOTA ETHANOL PRODUCTION – PHASE III

Quarterly Progress Report

(for the period of October 1, 2018, through December 31, 2018)

Prepared for:

Karlene Fine

North Dakota Industrial Commission
State Capitol, 14th Floor
600 East Boulevard Avenue, Department 405
Bismarck, ND 58505-0840

Project Period: December 1, 2018 – May 31, 2020
Contract No. R038-047

Prepared by:

Kerryanne M. Leroux

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

January 2019

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INTEGRATED CARBON CAPTURE AND STORAGE FOR NORTH DAKOTA ETHANOL PRODUCTION – PHASE III

ACCOMPLISHMENTS

Summary

The Energy & Environmental Research Center (EERC), in partnership with the North Dakota Industrial Commission (NDIC), North Dakota ethanol producer Red Trail Energy (RTE), and the U.S. Department of Energy (DOE), is conducting the third phase (Phase III) of a multiphase research and development effort to create the first integrated carbon capture and storage (CCS) system in North Dakota for the reduction of carbon emissions from ethanol production and capitalize on evolving low-carbon fuel (LCF) markets.. The ultimate goal of this effort is implementation of a small-scale (<200,000 metric tons, or tonnes, CO₂ per year) commercial CCS system at an industrial fuel production facility to generate a reduced-carbon ethanol fuel applicable for LCF programs. Actions this quarter toward supporting continuation of the CCS effort at the RTE site include the following:

- Finalized contract with NDIC.
- Drafted formal contracts for RTE and Trimeric
- DOE was notified of the NDIC award, and the process was begun to receive official approval to begin work.

Major Goals of the Project

The ultimate goal of this effort is implementation of a small-scale (<200,000 tonnes CO₂ per year) commercial CCS system at an industrial fuel production facility to generate a reduced-carbon ethanol fuel applicable for LCF programs. To achieve that goal, the EERC, in partnership with NDIC, North Dakota ethanol producer RTE, and DOE, is conducting the third phase (Phase III) of a multiphase research and development effort to create the first integrated CCS system in North Dakota for the reduction of carbon emissions from ethanol production and capitalize on evolving LCF markets.

Accomplishments under These Goals (for the reporting period)

Specific research objectives for this subtask are 1) generation of site-specific CO₂ capture process designs to obtain engineering design bids, 2) collection of baseline monitoring and site characterization data to determine potential future well locations, 3) creation of draft CCS North Dakota permitting documents, 4) maintaining up-to-date understanding of requirements from evolving CO₂ markets/incentives, and 5) execution of county- and community-level outreach to support stakeholder and community acceptance of implementing an integrated CCS effort.

Accomplishments during the reporting period include the following:

- Finalized contract with NDIC.
- DOE was notified of the NDIC award, and the process was begun to receive official approval to begin work.
- Drafted formal contracts for RTE and Trimeric.

Plan for the Next Reporting Period to Accomplish the Goals

Contracts and agreement updates will be completed with RTE, DOE, and Trimeric as necessary to begin work. Kickoff meetings will be held to discuss action plans, time lines, and roles and responsibilities. Preparations will be made for near-surface monitoring activities such as a detailed sampling plan. Preparations will also be made for the conducting the seismic survey such as meetings with county and city officials, drafting landowner agreements, permit submission, and formal survey design. Detailed outlines for the draft CCS permits will be created and a template generated for adding text as developed. Details of how pathways can be obtained to account for CCS through the now formally adopted CCS Protocol within California’s LCF Standard will be investigated. Outreach materials will be generated such as fact sheets and “frequently asked question” documents for officials, landowners, and public audiences in preparation for the seismic survey and near-surface sampling, as well as to introduce the overall potential CCS effort.

PARTNERS AND FINANCIAL INFORMATION

This project is sponsored by the NDIC Renewable Energy Program, RTE, and DOE. Table 1 shows the budget of \$2,650,000 for this project and expenses through the reporting period.

Sponsor	Budget	Expenses	Remaining
NDIC Cash	\$500,000	\$–	\$500,000
DOE Cash	\$400,000	\$–	\$400,000
RTE Cash	\$950,000	\$–	\$950,000
RTE In-Kind	\$800,000	\$–	\$800,000
Total Project	\$2,650,000	\$–	\$2,650,000

PRODUCTS

Publications, Conference Papers, and Presentations

None.

Web Site(s) or other Internet Site(s), Technologies or Techniques, Inventions, Patent Applications, and/or Licenses

None.

CHANGES/PROBLEMS

None.