

Contract No. R005-0011

“Corn Oil Extraction”

Submitted by Headwaters Incorporated and Great River Energy

Blue Flint Ethanol will be managing this project

Principal Investigator: Jeff Zueger

PARTICIPANTS

Sponsor	Cost Share
Headwaters Energy Services Corp./ Great River Energy	\$1,500,000
North Dakota Industrial Commission	<u>\$ 500,000</u>
Total Project Cost	\$2,000,000

Project Schedule – 5 months

Contract Date – May 28, 2009

Start Date – June 1, 2009

Completion Date – October 31, 2009

Project Deliverables:

Status Report: June 30, 2009 v

Status Report: 30 days after first report v

Status Report: 60 days after first report

Status Report: 90 days after first report

Final Report: No later than December 31, 2009

OBJECTIVE/STATEMENT OF WORK:

The objectives of the project are three-fold: to protect ND renewable energy jobs through diversification of revenue streams to the existing Blue Flint Ethanol production facility, utilize an ethanol process co-product to produce biodiesel, and to create a renewable energy market for corn oil, a product not currently harnessed in North Dakota. While corn oil extraction technology has been utilized in ethanol plants outside of the state, this project would deploy two unique enhancements to the oil removal process: temperature optimization and wax separation. Temperature optimization increases the amount of oil production. It also enhances the quality of the oil. Wax separation avoids sending unwanted wax to biodiesel processing facilities that would have to dispose of it, thereby increasing the value of the corn oil. In addition, the wax removed from the corn oil is put back onto the feed, adding nutritional value to the feed.

STATUS

Contract executed. First two status reports have been received. A contract has been executed with a technology provider for the purchase and installation of a corn oil extraction system. The general system specifications are complete. The centrifuge has been purchased. Delivery of the completed skid is scheduled for October, 2009.

10/4/09