



December 12, 2008

North Dakota Industrial Commission  
ATTN: Renewable Energy Development Program  
State Capitol – 14<sup>th</sup> Floor  
600 East Boulevard Ave Dept 405  
Bismarck, ND 58505-0840

**RE: Transmittal Letter for Corn Oil Extraction Grant Request**

Dear Industrial Commissioners:

Please accept the enclosed grant application as allowed by the Industrial Commission's November 24, 2008 special grant round ruling.

On behalf of the grant applicants, I hereby commit to complete the project as provisionally described in the application if awarded the requested grant amount.

Thank you for your consideration of this opportunity to develop additional renewable energy resources in North Dakota.

Sincerely,

Jeff Zueger  
General Manager  
Chief Operating Officer  
Blue Flint Ethanol, LLC

# Corn Oil Extraction

Headwaters Incorporated  
&  
Great River Energy

Jeff J. Zueger  
Blue Flint Ethanol, LLC  
Chief Operating Officer  
Prepared by:  
Adam C. Dunlop

December 12, 2008

Grant Request: \$500,000

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## ABSTRACT

Headwaters Incorporated and Great River Energy are requesting assistance with the financial capital required to proceed with installation of equipment which will allow separation and sale of crude corn oil from the syrup stream at the Blue Flint Ethanol production facility. The oil extraction system will use a centrifuge to separate oil from the current syrup stream to produce crude corn oil. The oil will be sold into the biodiesel production market where it will be converted and sold as biodiesel.

**Objectives:** Utilization of an ethanol process co-product to produce biodiesel.

Creating a renewable energy market for corn oil, a product not currently harnessed in North Dakota. Protecting ND renewable energy jobs through diversification of revenue streams to the existing Blue Flint Ethanol production facility.

**Expected Results:** Production of 1.5 million gallons of extracted corn oil for biodiesel production per year.

**Duration:** The project is anticipated to be completed five months from the date that a “notice to proceed” is given to the general contractor.

**Total Project Cost:** The capital costs associated with the project are approximately \$2 million depending on timing of contract execution. This pricing estimate is for a turnkey system that ties directly into the existing process equipment and includes the installation of; instrumentation and controls, electrical and mechanical equipment, centrifuge, storage of finished product, and load out system.

**Participants:** Headwaters Incorporated, Great River Energy, Blue Flint Ethanol, LLC, Ever Cat Fuels, and Tenaska Bio Fuels. Technology and equipment providers, general contractor and subcontractors are still being evaluated.

## **PROJECT DESCRIPTION**

**Objectives:** This project facilitates better utilization of corn, North Dakota's primary source of renewable fuel by developing a new co-product of ethanol production.

Valuable corn oil that has typically been mixed and sold as feed can be separated and captured, creating an additional more valuable co-product. This can be achieved without significantly decreasing the value of any of the existing co-products. The new co-product (corn oil) can then be processed into biodiesel increasing the amount of fuel derived from a bushel of corn by up to 7 percent.

Despite the fact that the technology is proven and the financial analysis compelling, there are currently no ethanol facilities in North Dakota that have been able to expend the capital required to capture the valuable corn oil from the syrup stream. Therefore, this first of a kind project in North Dakota will help develop a renewable energy market for a product not currently harnessed in the State, create wealth, new opportunities, and tax revenues for North Dakota.

An additional objective of this project is to protect the existing renewable energy jobs at Blue Flint during difficult economic time periods. Revenue generated from the installation of the corn oil extraction system provides greater diversification to Blue Flint Ethanol's combined revenue stream.

**Methodology:** Blue Flint Ethanol, LLC is unable to secure the financing required to complete the corn oil extraction project. Therefore, Headwaters Incorporated and Great River Energy have agreed to partner and form a Limited Liability Corporation which

would purchase and install the equipment necessary to extract the corn oil. The new LLC herein referred to as “The Project” is contingent upon award of grant funds.

There are numerous technology suppliers that can provide the equipment and training required to extract corn oil from the existing syrup stream, one of them is Fagan

Incorporated which originally built the Blue Flint ethanol facility. The basic principal of the technology from all providers involves using a centrifuge to separate corn oil from thin stillage. Project management is continuing to investigate technology providers to ensure optimal compatibility with our facility.

The process for corn oil extraction is very similar with all technology suppliers.

**Attachment A** shows a basic Process Flow Diagram of an ethanol facility with corn oil extraction.

### ***CORN OIL EXTRACTION SYSTEM (COES) PROCESS DESCRIPTION***

As part of existing plant operations, ethanol is removed from fermented corn slurry (beer) in the distillation process. After distillation to remove ethanol, the spent corn slurry (whole stillage) is processed through a centrifuge to separate the solids (wet cake) from the liquids (thin stillage). Wet cake discharged from the centrifuge is conveyed either to the wet cake storage pad for sale locally as wet livestock feed and/or to the distiller’s dry grain and solubles (DDGS) dryer to produce a dry livestock feed. Thin stillage discharged from the centrifuge is processed through an eight stage closed loop evaporator system to remove water. Water vapor from the evaporator is captured, condensed, and collected for re-use in the process. The remaining concentrated liquid discharged from the evaporator system is referred to as “syrup” which contains carbohydrates, fats (corn oil), sugars, and

proteins. The syrup is pumped to a storage tank and is then applied to the wet cake discharged from the centrifuge or added to the distillers grains run through the dryers.

The proposed COES will extract corn oil from the thin stillage by diverting the discharge from the sixth or seventh stage of the existing 8-stage evaporation system to a specially designed stacked disc centrifuge to physically separate corn oil from the thin stillage. Corn oil will be piped to a product storage tank and the remaining liquids (defatted thin stillage) will be returned to the eighth stage of the existing evaporation system for continued processing as normal.

The COES is comprised of a heating step, a physical separation step, and a storage/load out step. Each of these steps is described below.

#### *COES Heating Step (non-contact)*

Thin stillage from the discharge of the sixth or seventh stage of the evaporator system is pumped through a series of non-contact heat exchangers. The thin stillage is directed to the cold side of a non-contact plate and frame heat exchanger and is partially heated by recovering heat from the treated thin stillage discharged from COES. The partially heated thin stillage is then directed to two scraped tube heat exchangers that increase the temperature of the thin stillage to the desired COES operating temperature of approximately 240°F. The heated thin stillage is held in a pressurized 500-gallon tank for approximately five minutes prior to processing through the separation step.

#### *COES Separation Step*

Heated thin stillage from the pressure tank is fed to a stacked disc centrifuge to separate and remove corn oil. The centrifuge separates corn oil from sludge and defatted thin

stillage. Upon exiting the centrifuge, the corn oil is directed to the oil recovery tank and the sludge and defatted thin stillage are recombined and returned to the inlet of the eighth stage of the evaporator system through the hot side of the non-contact plate and frame heat exchanger (described in the heating step above). The corn oil from the stacked disc centrifuge is discharged to an oil recovery tank. The oil recovery tank is equipped with an atmospheric vent but its operating level is maintained relatively constant during normal operations which minimize tank working losses. The discharge point of the oil recovery tank is submerged in the corn oil so that no air can be introduced into the system. The recovered corn oil is then continuously pumped to one of two 15,000-gallon storage tanks. The pumping rate is adjusted to maintain a constant working level in the oil recovery tank.

#### *COES Oil Storage Tank*

Corn oil from the oil recovery tank is pumped to a specially designed heat traced oil storage tank located outside the plant in a secondary containment area. Corn oil is pumped from the storage tanks to tank trucks for shipment to off-site customers.

**Anticipated Results:** It is anticipated that approximately 1.5 million gallons of corn oil per year will be recovered by this system. The corn oil will be transported via truck to a biodiesel production facility. The Project anticipates new transportation jobs/opportunities to result from the corn oil extraction and has engaged in conversations with individuals interested in basing a transportation business around transporting renewable fuels.



**Facility/Resources:** The corn oil extraction system, storage, and load out facilities will all be located at the Blue Flint Ethanol production facility. Resources necessary to construct and integrate the extraction system will be provided by technology providers and contractors which specialize in tank construction, piping, electrical and instrumentation, etc...

**Environmental and Economic Impacts:** In December of 2006, an engineering review completed for Adkins Energy LLC, confirmed that a proposed Corn Oil Extraction System was exempt from Permit to Construct regulations since the process description and chemical characteristics are not regulated and no new point sources for emissions are created. The Project anticipates a similar benign environmental impact on its current air and water permits and will confer with the North Dakota Department of Health prior to construction.

There may be some energy efficiency gained in the distillers grains drying process as a result of the oil extraction. According to Cleantech Corp, corn oil removal can improve drying efficiency by more than 10%, reducing natural gas or coal needs and therefore NO<sub>x</sub>, SO<sub>x</sub>, VOC, and CO<sub>2</sub> emissions. The National Corn to Ethanol Research Center provides similar data using assumptions that the reduction in the dryer load is proportional to the reduction in the mass of the oil content in the whole stillage, which is approximately 10%, resulting in an overall savings of about 1,200/32,000 Btu/gal or 4%.

According to the EPA, increased Biodiesel usage has a number of important environmental benefits. Biodiesel provides significant greenhouse gas (GHG) emission

reductions. B100 reduces lifecycle greenhouse gas emissions by more than 50 percent, while B20 reduces GHG emissions by at least 10%. In addition, biodiesel offers several criteria emissions benefits for the existing vehicle fleet. It reduces emissions of carbon monoxide, particulate matter (PM), and sulfates, as well as hydrocarbon and air toxics emissions.

The short term economic impacts are associated with the construction portion of the project. Construction is expected to bring 5-10 jobs to the area for about two months. The laborers are expected to stay in the local community and support local businesses. Labor and equipment for the long term operation and maintenance of the project is expected to total about \$1.2 million dollars per year. Much of this capital will be spent in the rural communities supporting the facility.

**Ultimate Technological and Economic Impacts:** Ultimately, the extraction of corn oil will lead to additional biodiesel production and increased energy independence. As stated in the objectives, there is currently no business in ND that is producing corn oil for biodiesel production. There is considerable interest by marketers and biodiesel producers to develop the corn oil to biodiesel market in ND. Assistance with the finances required to initiate the corn oil extraction will make a quality product available to these businesses in a consistent and economic manner.

Ethanol plants have become an outlet which farmers rely on to sell corn. Diversification of ethanol plant revenue will help ensure that ND farmers have a purchaser readily available for the increasing amounts of corn produced in ND.

**Why the Project is Needed:** To increase the amount of renewable fuel produced in ND and better utilize the most common feedstock of renewable fuel in ND.

Currently, on a national scale the majority of ethanol production is based on a dry milling technique that utilizes more than 1 billion bushels of corn to produce 3 billion gallons of ethanol per year (Fuel #1). The dry mill process converts starch from a kernel of corn into sugar and then sugar into ethanol. The balance of the corn (non-starch components) then goes through a dewatering and dehydration process where the byproduct is sold as a commercial feed ingredient called distillers dried grain. DDG contains the majority of the corn oil that was present in the kernel. Today, the 1 billion bushels of corn currently used in the dry mill ethanol process contain roughly 300 million gallons of corn oil that is currently sold as commercial feed. Corn oil extraction technology presents another option - cost effective conversion into biodiesel (Fuel #2).

### **STANDARDS OF SUCCESS**

This project is an embodiment of the renewable fuels industry's continued innovation of utilizing the State's renewable energy resources in a manner that produces value and develops markets. Ethanol has significant economic value to the state of ND. To ensure the future of ethanol production facilities and the renewable jobs they provide, more efficient use of all co-products is necessary. Favorable economics for ethanol production facilities spurs new jobs in the production of corn, ethanol and industries which support and transport products. This is ultimately beneficial for the state and rural communities. Creating a new and valuable co-product to ethanol production, and developing a

marketplace for the co-product, facilitates economic growth in the State during a time period growth in ethanol production appears to have stagnated. Though difficult to quantify, demonstrating any growth in the ethanol industry in this economic climate is a success.

One measurement of success will be the volume of crude corn oil sold in the state of ND. A similar measurement will be the volume of corn oil shipped from the Blue Flint facility. An estimated 250 truckloads of product will need to be transported from the facility on an annual basis.

The private sector is likely to benefit from new jobs in construction of the extraction equipment and transporting the extracted oil. Support services should see increased traffic through their businesses as a result of the project. The public will benefit from the license fees off the transportation vehicles, fuel taxes associated with keeping the product moving and ultimately from higher usage of a cleaner and sustainable motor fuel.

## **BACKGROUND/QUALIFICATIONS**

Headwaters Incorporated provides products, technologies, and services to building products, coal combustion products (CCPs), and energy industries in the United States and Canada. Great River Energy, headquartered in Maple Grove, Minnesota, is the second largest electric utility in state, based on generating capacity, and the fifth largest generation and transmission (G&T) cooperative in the U.S. in terms of assets. Blue Flint Ethanol, LLC is a 50 million gallon per year ethanol plant; 49% owned by Great River Energy and 51% owned by Headwaters Incorporated. The plant has been operational since February 2007 and is currently running above nameplate capacity.

The Project has the opportunity to directly market the crude corn oil to Ever Cat Fuels located in Isanti, MN. Ever Cat is in the process of completing the construction of a 6 million gallon per year bio-diesel production facility which will use the Mcgyan<sup>®</sup> Process, a method to produce biodiesel in a fixed bed flow-through reactor. As an alternative to Ever Cat Fuels, the Project has a proposal from Tenaska Bio Fuels, a subsidiary of Tenaska Energy, the 26<sup>th</sup> largest private company in the US with annual revenues of over \$10 billion. Tenaska would market Blue Flint's crude corn oil into the bio diesel markets.

Each of the technology providers being considered have experience installing and starting up corn oil extraction from thin stillage in ethanol facilities. A Westfalia Separation centrifuge will likely be used. Westfalia has more than 110 years of innovation, engineering and comprehensive processing capabilities.

## **MANAGEMENT**

Jeff Zueger, General Manager of Blue Flint Ethanol, is a registered Professional Engineer in the state of North Dakota and has been in the power industry for 15 years. Jeff was the project manager for the design and construction of the Blue Flint facility. David Graf, who will be overseeing the oil extraction project, has a degree in Mechanical Engineering and 8 years experience in the engineering field. David has been managing projects at Blue Flint since the first production of ethanol at the plant. David will be approving all bids and contractors, reviewing drawings and overseeing general construction associated with this project.

## **TIMETABLE**

The project is anticipated to be completed five months from the date notice to proceed is given to the general contractor. The timeline for the project is expected to be similar to that presented in the Gantt chart in [Attachment B](#). Interim reports will be submitted on a monthly basis.

## **BUDGET**

The proceeds from the grant will be used to fund a portion of the capital costs of this project. Total capital costs are projected to be \$2 million. The \$2 million covers costs which encompass equipment procurement and acquisition, shipping, site preparation, installation and integration to the existing plant infrastructure. The remainder of the funding may be provided through equity provided by Headwaters Incorporated and Great River Energy. In the absence of being awarded the grant, the project will not occur as it is currently uneconomical (unprofitable) to proceed.

The project's projected capital costs are \$2 million. Included in the capital cost are the following costs:

1. Concrete pad and structural costs
2. Centrifuge and other extraction equipment
3. Plant integration costs which include piping, fittings and related costs
4. Installation labor including structural/equipment installation, mechanical and electrical
5. Permitting, professional services and other costs

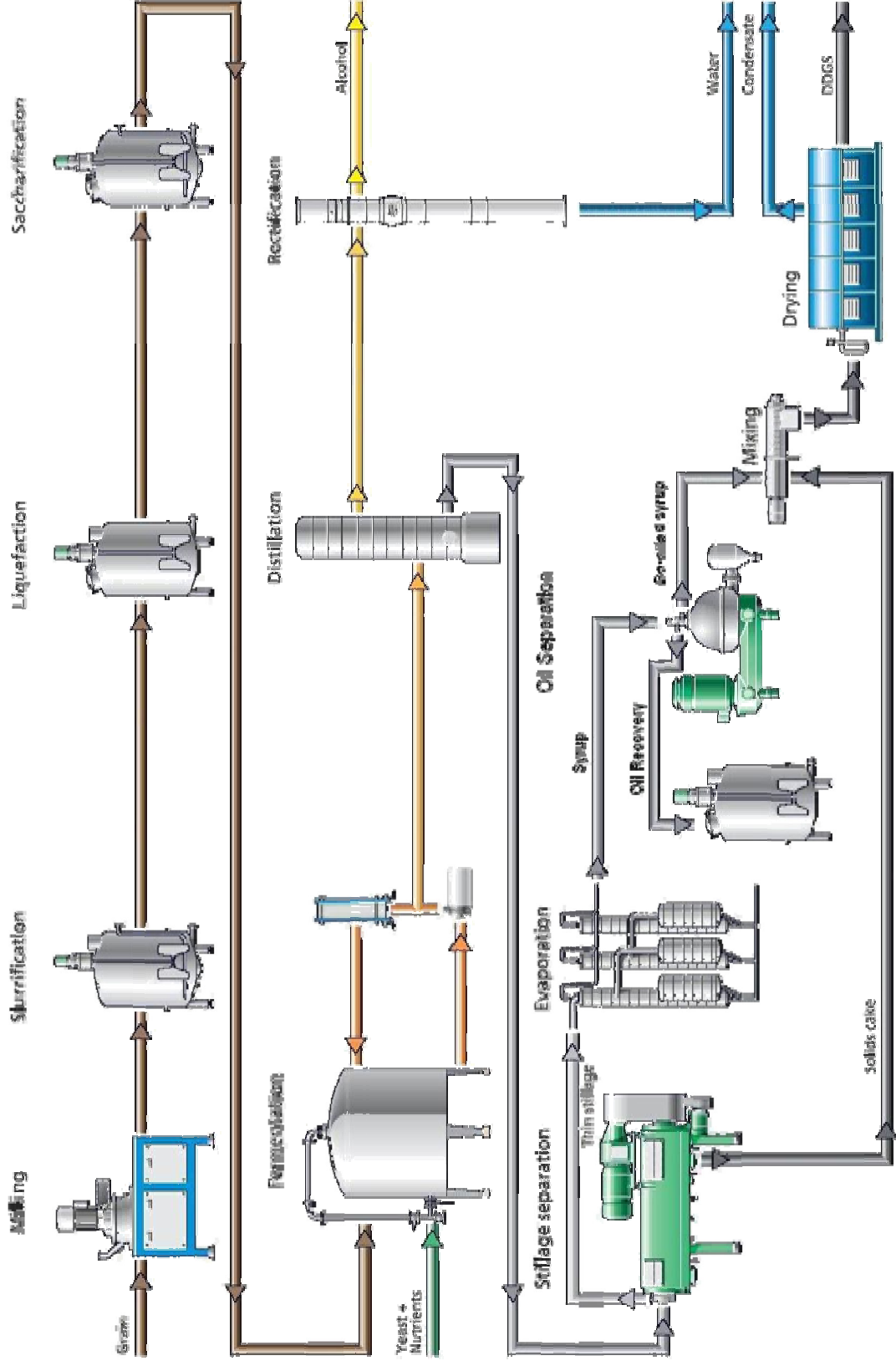
Estimated annual operating costs are \$1.2 million per year. Included in the operating costs are the following items:

1. Energy expenses
2. Management costs
3. Maintenance and supplies costs
4. Transportation expenses
5. Depreciation expenses

#### **TAX LIABILITY**

As indicated earlier, Headwaters Incorporated and Great River Energy have not yet formed the LLC (The Project) as it is contingent upon the result of this grant. Therefore, there is no outstanding tax liability. **Attachment C** is a Certificate of Good Standing issued by the Secretary of State of ND for Blue Flint Ethanol, LLC.

# Attachment A – Diagram of Ethanol Plant with Corn Oil Extraction Unit



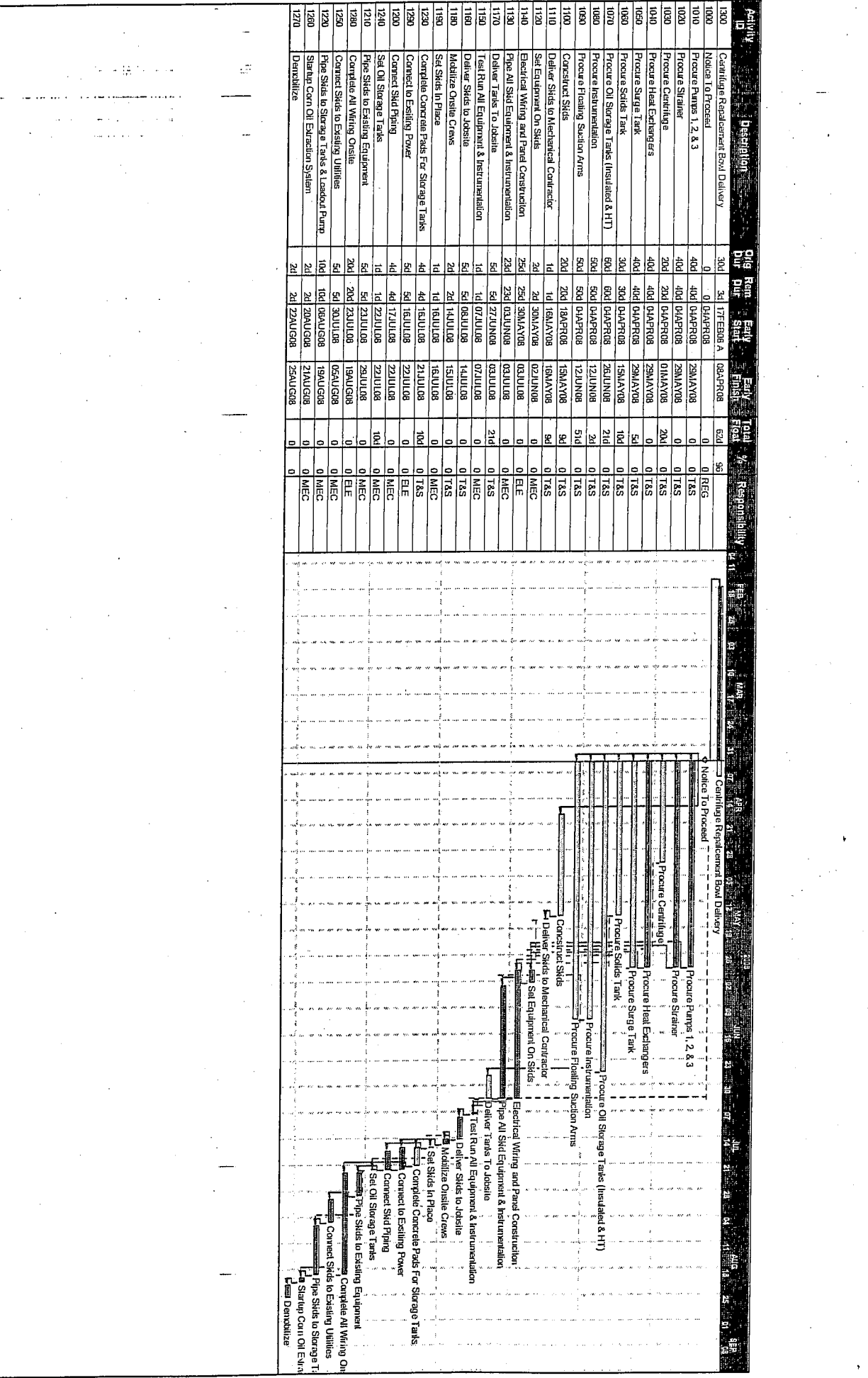


Activity ID	Description	Orig	Form	Early	Early	Total	Responsibility
		Bar	Bar	Start	Finish	Feet	
1300	Centrifuge Replacement Bowl Delivery	30d	3d	17E0808 A	08APR08	62d	95
1000	Notice To Proceed	0	0	0	0	0	REG
1010	Procure Pumps 1, 2 & 3	40d	40d	08APR08	29MAY08	0	0
1020	Procure Strainer	40d	40d	08APR08	29MAY08	0	0
1030	Procure Centrifuge	20d	20d	08APR08	08MAY08	20d	0
1040	Procure Heat Exchangers	40d	40d	08APR08	29MAY08	0	0
1050	Procure Surge Tank	40d	40d	08APR08	29MAY08	0	0
1060	Procure Skids Tank	30d	30d	08APR08	15MAY08	10d	0
1070	Procure Oil Storage Tanks (Insulated & HT)	60d	60d	08APR08	26JUN08	21d	0
1080	Procure Instrumentation	50d	50d	08APR08	12JUN08	2d	0
1090	Procure Floating Station Arms	50d	50d	08APR08	12JUN08	91d	0
1100	Construct Skids	20d	20d	18APR08	18MAY08	8d	0
1110	Deliver Skids to Mechanical Contractor	1d	1d	18MAY08	18MAY08	0	0
1120	Electrical Wiring and Panel Construction	2d	2d	30MAY08	02JUN08	0	0
1130	Test Run All Equipment & Instrumentation	23d	23d	03JUN08	03JUN08	0	0
1140	Deliver Tanks To Jobsite	5d	5d	07JUN08	07JUN08	21d	0
1150	Test Run All Equipment & Instrumentation	1d	1d	07JUN08	07JUN08	0	0
1160	Deliver Skids to Jobsite	5d	5d	08JUN08	14JUN08	0	0
1180	Mobilize Onsite Crews	2d	2d	14JUN08	15JUN08	0	0
1190	Set Skids in Place	1d	1d	16JUN08	16JUN08	0	0
1200	Complete Concrete Pads For Storage Tanks	4d	4d	16JUN08	21JUN08	10d	0
1210	Connect to Existing Power	5d	5d	16JUN08	22JUN08	0	0
1240	Connect Skid Piping	4d	4d	17JUN08	22JUN08	0	0
1240	Set Oil Storage Tanks	1d	1d	22JUN08	22JUN08	10d	0
1280	Complete All Wiring Onsite	20d	20d	23JUN08	29JUN08	0	0
1290	Connect Skids to Existing Utilities	5d	5d	30JUN08	05AUG08	0	0
1290	Pipe Skids to Storage Tanks & Loadout Pump	10d	10d	05AUG08	19AUG08	0	0
1280	Startup Corr Oil Extraction System	2d	2d	29AUG08	21AUG08	0	0
1270	Demobilize	2d	2d	22AUG08	25AUG08	0	0

Start date: 15E0808  
 Finish date: 25AUG08  
 Data date: 01APR08  
 Project name: CORN OIL EXTRACTION  
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 ■ Summary bar  
 ◆ Start milestone point  
 ◆ Finish milestone point



# *State of North Dakota*

## SECRETARY OF STATE



### CERTIFICATE OF GOOD STANDING OF

BLUE FLINT ETHANOL LLC

The undersigned, as Secretary of State of the State of North Dakota, hereby certifies that BLUE FLINT ETHANOL LLC, a FOREIGN LIMITED LIABILITY COMPANY, authorized to transact business in the State of North Dakota on June 30, 2005, and according to the records of this office as of this date, has paid all fees due this office as required by North Dakota statutes governing a FOREIGN LIMITED LIABILITY COMPANY.

ACCORDINGLY the undersigned, as such Secretary of State, and by virtue of the authority vested in him by law, hereby issues this Certificate of Good Standing to

BLUE FLINT ETHANOL LLC

Issued: November 26, 2008

A handwritten signature in cursive script, reading "Alvin A. Jaeger".

Alvin A. Jaeger  
Secretary of State



January 12, 2009

Ms. Andrea Holl Phennig  
ND Department of Commerce  
1600 Century Avenue, Suite 2  
PO Box 2057  
Bismarck, ND 58502-2057

Dear Ms. Holl Phennig

Thank you for your interest and additional data requests associated with the Corn Oil Extraction grant application submitted to the North Dakota Industrial Commission on December 12, 2008.

Please find enclosed an addendum containing the additional supporting information requested. We have also enclosed letters of support from potential business partners associated with the project.

If there are additional questions regarding the application throughout the review process, please do not hesitate to contact us.

Thanks again for the opportunity to provide clarification.

Sincerely,

Jeff Zueger  
General Manager  
Chief Operating Officer  
Blue Flint Ethanol, LLC

# **Addendum to Corn Oil Extraction Grant Request**

## **Headwaters Incorporated & Great River Energy**

In an attempt to assist the reviewers the following information is provided to elaborate on areas of the original grant application. The heading indicates the applicable section of the grant application being expanded upon.

### **BUDGET**

The original grant indicated the proceeds from the grant will be used to fund a portion of the capital costs of this project. Total capital costs are projected to be \$2 million. Approximate allocation of these funds will be:

Centrifuge and Controls	\$530,000
Pumps and Heaters	\$250,000
Electrical Instruments & Installation	\$160,000
Mechanical Piping & Installation	\$500,000
Civil & Structural	\$300,000
Tank and Pipe Insulation	\$160,000
Detailed Engineering & Support	\$100,000

Estimated direct annual operating are \$1.2 million per year. Assumptions for the operating costs include:

Energy expenses	\$ 60,000
Management costs	\$ 465,000
Maintenance and supplies costs	\$ 25,000
Transportation expenses	\$ 350,000
Depreciation expenses	\$ 300,000

As indicated in the original application, the majority of the funding will be provided through equity provided by Headwaters Incorporated and Great River Energy. However, in the absence of being awarded the grant, the project will not occur as it is uneconomical (unprofitable) to proceed according to current market assumptions.

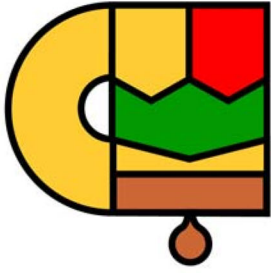
### **MANAGEMENT**

As indicated on the original grant application Blue Flint engineers will oversee the construction phase of the project. Engineering will follow a standard job plan to ensure all appropriate objectives and actions are being met. A typical job plan includes: complete capital project review, formation of a project team, approval of resources, commitment to recourse time and costs, engineering approval on all applicable project specifications, preconstruction team meetings, project oversight, document revisions, and SOP update and operator training. Project

meetings are scheduled after the formation of the project team and occur more frequently as project construction approaches. During construction phase, engineering will have daily interaction with the contractors to ensure quality work and timely progression.

### **CONFIDENTIAL INFORMATION**

Information was provided in this grant application in a manner which is not required to be held confidential based on patents and rights to technical data.



**Ever Cat Fuels LLC**  
617 Pierce Street  
Anoka, Minnesota 55303  
Phone 763-421-1072  
Fax 763-421-2319

1/08/2008

To whom it may concern:

Ever Cat Fuels is in the process of completing a 3 million gallon per year biodiesel plant located in Isanti, Minnesota. Our plant is expected to be online in March of this year. We plan on using distiller's corn oil as our main feedstock for this operation. We have had many discussions with Blue Flint Ethanol about purchasing all of their distiller's corn oil as a feedstock for our biodiesel plant once they start producing corn oil. We look forward to doing business with them.

Regards,

Clayton McNeff, Ph.D.  
Chief Financial Officer



January 12, 2009

North Dakota State Renewable Energy Commission  
North Dakota Industrial Commission

Dear Commissioner's:

**Re: Letter in Support of Grant to Blue Flint Ethanol for the installation of  
Corn Oil Extraction Equipment**

Please accept this letter as support to Blue Flint Ethanol in their efforts in applying for funds to add corn oil extraction capability to their Underwood, North Dakota Ethanol facility.

Tenaska BioFuels, LLC would like to help the commission in its decision process by providing the following:

1. The benefits to Blue Flint Ethanol
2. The benefits to the State of North Dakota
3. The market applications for corn oil
4. Tenaska BioFuels ability to market the extract corn oil as well as qualifications

**Benefits to Blue Flint**

With the support of the Renewable Fuel Standard and the lack of an alternative substitute for Methyl Tertiary Butyl Ether (MTBE), the U.S. gasoline marketplace will continue to need a significant amount of ethanol. However, the current productive capacity for ethanol is greater than the current demand. Ethanol producers are competing through price to place the current amount of industry production. This has created a situation that has driven down the price of ethanol to the variable cost of production. Since not all plants have the same debt structure or the same variable cost of production, some plants are better situated than others to produce when there is excess capacity. This has been evidenced by a number of plant shut downs. Only the most efficient facilities will be able to produce ethanol and co-products profitably.

The addition of corn oil extraction equipment will allow Blue Flint to upgrade the value of its co-products. Specifically, the extracted corn oil will replace a portion of the Distiller Grains sales at a better value than provided in the feed market. This type of upgrade will allow Blue Flint to stay competitive with other facilities that are installing this type of equipment.

### **Benefits to the State of North Dakota**

There continues to be discussion and dialogue with respect to second generation biofuels and the viability of corn based ethanol. Blue Flint is a progressive company with a unique energy source. The addition of the extraction equipment would further enhance Blue Flints reputation as a cutting edge ethanol producer and further prove that corn based ethanol can be a long term piece to our nation's energy policy. North Dakota would stand to benefit from Blue Flints' standing in the industry.

The agricultural community would also benefit from a steady demand of corn that will continue to support the price basis for locally produced corn.

In addition, tax revenue from Blue Flint, its employees and vendors would have a better of chance of continuing if Blue Flint remains a viable ongoing concern.

### **Market Applications for Corn Oil Produced as an ethanol Co-Product**

Corn Oil produced as a co-product of ethanol production can vary widely in its quality attributes. We believe that the cost benefit of the technology that Blue Flint is considering is the most prudent means of extracting corn oil. The corn oil to be produced will have a high free fatty acid (HFFA) content which is currently unsuitable for food use. However, our company as well as others, continue to fund research and development to convert the HFFA material to food use. Currently the HFFA corn oil is being used for biodiesel and feed applications. Tenaska is experienced in marketing this type of material and is confident that Tenaska will be able monetize the benefits of the equipment for Blue Flint and the State of North Dakota.

### **Why is Tenaska qualified to market this product and offer opinions to the commission?**

Tenaska BioFuels, LLC (TBF) is very active in the ethanol, biodiesel and vegetable oil markets. TBF is a subsidiary of Tenaska, Inc. which is the 26<sup>th</sup> largest private entity in terms of sales in the U.S. Tenaska is a strong company with approximately \$1 billion of net equity and no corporate debt. TBF has been operating in the biofuels industry since 2006 with personnel who have experience in the feed, ethanol and vegetable oils markets dating back to 1983. TBF is currently providing marketing services for corn oil as an ethanol co-product to approximately ten ethanol facilities. Tenaska has a dedicated rail fleet for vegetable oil use of over 100 cars that will be used to ship product from the Underwood plant. In addition, Tenaska has established relationships with a number of biodiesel producers who can handle this material. Tenaska also has dedicated storage in Minnesota, Indiana and Louisiana that can be used as a back stop in times of low demand.



We hope that the State of North Dakota will support this important upgrade to the Blue Flint Underwood facility. Please feel free to contact me directly at (402) 938-6901, if you have questions regarding the viability of this process and the prospects for selling the corn oil produced from the new equipment.

Regards,

A handwritten signature in black ink, appearing to read 'Dave Neubauer', with a stylized flourish at the end.

Dave Neubauer  
Vice President and General Manager  
Tenaska BioFuels, LLC