July 21, 2000

TO INTERESTED PARTIES:

RE: Corn Plus Ethanol Plant Expansion

Enclosed is the Environmental Assessment Worksheet (EAW) for the proposed Corn Plus Ethanol Plant Expansion, Faribault County. The EAW was prepared by the Minnesota Pollution Control Agency (MPCA) and is being distributed for a 30-day review and comment period pursuant to the Environmental Quality Board (EQB) rules. The comment period will begin the day the EAW availability notice is published in the EQB Monitor, which will likely occur in the July 24, 2000, issue.

Comments received on the EAW will be used by the MPCA in evaluating the potential for significant environmental effects from this project and deciding on the need for an Environmental Impact Statement (EIS).

A final decision on the need for an EIS will be made by the MPCA Commissioner after the end of the comment period. If a request for an EIS is received during the comment period, or if the Commissioner recommends the preparation of an EIS, the nine-member MPCA Citizens’ Board (Board) will make the final decision. The final EIS need decision will also be made by the Board if so requested by the project proposer, other interested parties or MPCA staff and if this request is agreed to by one or more members of the Board or the MPCA Commissioner. The Board meets once a month, usually the fourth Tuesday of each month, at the MPCA office in St. Paul. Meetings are open to the public and interested persons may offer testimony on Board agenda items. A listing of Board members is available on request by calling (651) 296-7306.

Please note that comment letters submitted to the MPCA do become public documents and will be part of the official public record for this project.

If you have any questions on the EAW, please contact John Elling of my staff at (651) 296-8011.

Sincerely,

Beth G. Lockwood
District Planning Supervisor
Operations and Planning Sections
North, South & Metro Districts

BGL:sjs

Enclosure
**ENVIRONMENTAL ASSESSMENT WORKSHEET**

**Note to reviewers:** The Environmental Assessment Worksheet (EAW) provides information about a project that may have the potential for significant environmental effects. This EAW was prepared by the Minnesota Pollution Control Agency (MPCA), acting as the Responsible Governmental Unit (RGU), to determine whether an Environmental Impact Statement (EIS) should be prepared. The project proposer supplied reasonably accessible data for, but did not complete the final worksheet. Comments on the EAW must be submitted to the MPCA during the 30-day comment period which begins with notice of the availability of the EAW in the *Minnesota Environmental Quality Board (EQB) Monitor*. Comments on the EAW should address the accuracy and completeness of information, potential impacts that warrant further investigation, and the need for an EIS. A copy of the EAW may be obtained from the MPCA. An electronic version of the EAW is available at the MPCA Website www.pca.state.mn.us.

1. **Project Title:** Corn Plus Ethanol Plant Expansion

2. **Proposer:** Corn Plus Ethanol  
   **Contact Person** Keith Kor  
   **and Title** Plant Manager  
   **Address** 711 Sixth Avenue, Winnebago, Minnesota 56098  
   **Phone** 507-893-4747  
   **Fax** 507-893-4552

3. **RGU:** Minnesota Pollution Control Agency  
   **Contact Person** John Elling  
   **and Title** Project Manager  
   **Address** 520 Lafayette Road North, St. Paul, Minnesota 55155  
   **Phone** 651-296-8011  
   **Fax** 651-297-2343

4. **Reason for EAW Preparation:**  
<table>
<thead>
<tr>
<th>EIS</th>
<th>Scoping</th>
<th>Citizen</th>
<th>RGU</th>
<th>Proposer</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

   If EAW or EIS is mandatory give EQB rule category subpart number and name: 
   Minn. Rule 4410-4300 Subp. 5. B. Fuel conversion facilities (alcohol fuels).

5. **Project Location:**  
<table>
<thead>
<tr>
<th>County</th>
<th>Faribault</th>
<th>City/Twp</th>
<th>Winnebago/Winnebago</th>
</tr>
</thead>
<tbody>
<tr>
<td>South</td>
<td>1/2</td>
<td>SE 1/4</td>
<td>Section 35 Township 104N Range 28W</td>
</tr>
</tbody>
</table>

   *The following figures are attached to the EAW:*  
   Figure 1  County map showing the general location of the project;  
   Figure 2  United States Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable); and  
   Figure 3  Site plan showing all significant project and natural features.
6. Description:

a. Provide a project summary of 50 words or less to be published in the EQB Monitor.

Corn Plus is proposing to expand the existing ethanol production facility and increase ethanol production from 23 million gallons per year (MMGY) to 44 MMGY. Current plant production of 90,000 tons per year (TPY) of distillers dried grain with solubles (DDGS), used as animal feed, will increase to 170,000 TPY. Corn throughput for the plant will increase from 9.531 million bushels per year (MMBPY) to 17 MMBPY.

b. Give a complete description of the proposed project and related new construction. Attach additional sheets as necessary. Emphasize construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes. Include modifications to existing equipment or industrial processes and significant demolition, removal or remodeling of existing structures. Indicate the timing and duration of construction activities.

Process Description: The dry mill ethanol production process consists of four basic steps which are described as follows.

Starch Conversion. This process breaks down all starch available in the corn, converting it to sugar. Milled corn is blended with water backset (re-used process water) and alpha-amylase enzyme to form a mash which is slurried to a retention vessel to allow time for the water and enzyme to soak into the grain particles. Steam is injected into the flow of mash to raise the temperature and pressure in the vessel to cook and sterilize the mash. The mash is then diluted and cooled to 90 degrees Fahrenheit for fermentation. Starch conversion is a continuous flow process.

Currently, the plant processes approximately 9.5 million bushels of corn per year. Post-expansion corn processing will use approximately 17 MMBPY. Corn is received via a dust controlled dump into metal grain bins. Storage consists of two 65,000-bushel bins. From these bins, corn is moved into a 12,000-bushel surge bin before grinding.

The facility will add a second hammermill as part of the proposed project. A new, larger dust filter will be added to serve both mills. Grain handling dust collection equipment will remain unchanged. Corn Plus will also increase current grain truck unloading capacity from 10,000 bushels per hour (BPH) to 35,000 BPH by adding a second elevator with 25,000 BPH capacity.

Batch Fermentation. Fermentation involves the conversion of sugars (dextrins) in the mash to ethanol. The process begins by adding yeast and gluco-amylase enzyme to the mash and transferring it to one of seven fermentation tanks. The enzyme breaks the dextrins down into glucose, a simple sugar, which is converted by the yeast to ethanol and carbon dioxide (CO₂). The ethanol goes into solution with the mash to make beer. The CO₂ flows to a scrubber, which captures the entrained ethanol, and then is recovered by Dixie Carbonic, located in Winnebago. After approximately 48 hours, all sugars are consumed and the entire contents of the fermenter are pumped to the beer well. The ethanol concentration at this stage is about 12 percent by volume. The empty fermentation tank is then rinsed and cleaned for the next batch.

The facility currently uses four fermentation vessels of 250,000 gallon capacity each and one 250,000 gallon beer well. That beer well will be converted to use as a fermenter, two additional 340,000 gallon fermenters and one 400,000 gallon beer well will be added as part of the proposed project.
**Distillation/Dehydration.** In this process, the ethanol is separated from the beer and purified to 200 proof (anhydrous ethanol). Beer is pumped continuously from the beer well to the top of the stripper column. Steam is injected at the bottom of the stripper and ethanol travels up the column as a vapor. Water and remaining corn solids travel down and out of the stripper as a liquid. The ethanol vaporizes and reaches 186 proof at the top of the stripper. The water from the stripper with the ethanol works its way down and out the bottom. The 186 proof ethanol is pumped through a vaporizer/superheater and the resulting vapor flows through one of three molecular sieve beds. The sieve material in the bed absorbs the remainder of the water and 200 proof ethanol vapor flows out of the bottom. The 200 proof ethanol is condensed and pumped through a cooler to a storage tank. The flow of 186 proof alternates from one bed to the other every eight minutes. The bed not in use is regenerated by vacuum. The product from regeneration is 130 proof ethanol, which is condensed and pumped back to the rectifying section of the stripper column.

The expansion project will involve the addition of a new beer column, one new rectifier column, two new molecular sieves and a new side stripper column. The existing rectifier column will remain in use as the new side stripper while the existing beer column, molecular sieve and distillation wet scrubber will be replaced with new equipment. The two new sieve beds will be added to the current ones for a total of four. All units will be controlled by the existing CO₂ recovery plant.

**By-product Processing.** Stillage, a by-product of distillation, consists of the remaining solids and water coming off the bottom of the stripper column. The stillage is dried for storage and shipping to cattle feeders. Processing begins with the stillage being centrifuged to yield thin stillage and solids fractions. The thin stillage becomes backset water for the cook (starch conversion) system and feed to the evaporator. The evaporator removes water from the thin stillage to create a 27 percent dry matter syrup. Syrup is pumped to the mixing auger to be combined with the wet distillers grains (solids coming off the centrifuge). The mixture is conveyed into drum dryers, where it is dried. The particle emissions are controlled by cyclone separators. Fifty percent of the exhaust is recycled to the dryer inlet and the balance is vented to the atmosphere. The resulting DDGS exits the cyclone via an air lock divided by two screw conveyors. The first recycles two-thirds to three-fourths of the product back to the mixing auger and the second conveys the remainder to storage.

A new dryer will be added to the facility and both dryers will exhaust into separate stacks. A wet scrubber will be provided for the new dryer to remove particulates and volatile organic compounds (VOCs) and to reduce any odors.

**Other Facilities:** An 87.8 million British Thermal Unit (BTU) per hour gas-fired boiler currently provides steam for cooking, distilling, evaporating, and other plant uses.

A second boiler of the same capacity will be added for the expansion project. The new boiler will have a low nitrogen oxide (NOₓ) burner with flue gas recirculation.

Wastewater pretreatment at the facility partially treats process wastewater prior to discharge to the Winnebago activated sludge wastewater system. Current cooling tower and reverse osmosis (RO) wastewater volume is approximately 32,000 gallons per day (GPD). While the expansion will result in doubling cooling tower and RO wastewater discharge volumes, only cooling tower blow down water and facility sanitary wastes will run to the city treatment system. Other process wastewater streams will be reclaimed through the methanator planned for the project. Hydraulic loading to the Winnebago plant will remain at levels similar to the current volume and are not anticipated to exceed the agreement between Corn Plus and the city of Winnebago. Corn Plus may decide to modify the existing treatment agreement with Winnebago to provide more margin between the permitted and expected discharge volumes.
A second cooling tower (same size as existing tower) will be added along with a 525,000 gallon denatured ethanol storage tank. An existing 25,000 gallon tank may be converted to denaturant storage. Both tanks will have floating internal roofs to control emissions.

Structures for the new equipment will generally expand on the existing structures. The construction will require three to six months depending on equipment delivery.

c. Explain the project purpose; if the project will be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.

The purpose of the project is to increase ethanol production at the Corn Plus facility. Increased corn usage, coupled with increased ethanol production, will result in additional financial income to the local rural community.

d. Are future stages of this development including development on any outlots planned or likely to happen?  
[ ] Yes  [x] No  
If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

e. Is this project a subsequent stage of an earlier project?  [x] Yes  [ ] No  
If yes, briefly describe the past development, timeline and any past environmental review.

An EAW was prepared in March, 1993, when the facility was first proposed. The public comment period for the EAW began on March 29, 1993, and ended on April 28, 1993. The MPCA approved a negative declaration on the need for an environmental impact statement on May 24, 1993. The current Air Quality Title V Permit limits their production level at approximately 23 MMGY. This EAW proposal is for an increase in ethanol production from 23 MMGY to 44 MMGY.

7. **Project Magnitude Data**

<table>
<thead>
<tr>
<th>Total Project Area (acres)</th>
<th>189</th>
</tr>
</thead>
<tbody>
<tr>
<td>or Length (miles)</td>
<td></td>
</tr>
<tr>
<td>Number of Residential Units:</td>
<td>Unattached</td>
</tr>
<tr>
<td>Commercial/Industrial/Institutional Building Area (gross floor space):</td>
<td>total square feet</td>
</tr>
<tr>
<td>Indicate area of specific uses (in square feet):</td>
<td></td>
</tr>
<tr>
<td>Office</td>
<td>600</td>
</tr>
<tr>
<td>Retail</td>
<td>0</td>
</tr>
<tr>
<td>Warehouse</td>
<td></td>
</tr>
<tr>
<td>Light Industrial</td>
<td></td>
</tr>
<tr>
<td>Other Commercial (specify)</td>
<td></td>
</tr>
<tr>
<td>Building height</td>
<td></td>
</tr>
<tr>
<td>If over 2 stories, compare to heights of nearby buildings</td>
<td></td>
</tr>
</tbody>
</table>

Manufacturing | 0 |
| Other Industrial | 9,200 |
| Institutional | |
| Agricultural | 145 acres currently; no change planned |

The current fermentation tank is 37 feet.  
The new dryer vent stack will be 110 feet above grade.
8. **Permits and approvals required.** List all known local, state and federal permits, approvals and financial assistance for the project. Include modifications of any existing permits, governmental review of plans, and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure.

<table>
<thead>
<tr>
<th>Unit of Government</th>
<th>Type of Application</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPCA</td>
<td>Air Emissions Permit</td>
<td>To be modified.</td>
</tr>
<tr>
<td>MPCA</td>
<td>National Pollutant Discharge Elimination Discharge System (NPDES)</td>
<td>No apparent change needed.</td>
</tr>
<tr>
<td>MPCA</td>
<td>Stormwater Permit NPDES permit modification</td>
<td>No apparent change needed.</td>
</tr>
<tr>
<td>MPCA</td>
<td>Above-ground Liquid Storage Tank permit</td>
<td>Not required. (non-stainless steel tank storage to remain below one million gallons).</td>
</tr>
<tr>
<td>Minnesota Department of Natural Resources (DNR)</td>
<td>Water Appropriation Permit</td>
<td>Permits were issued previously.</td>
</tr>
<tr>
<td>City of Winnebago</td>
<td>Utility use agreement(s)</td>
<td>No apparent change needed.</td>
</tr>
</tbody>
</table>

9. **Land use.** Describe current and recent past land use and development on the site and on adjacent lands. Discuss project compatibility with adjacent and nearby land uses. Indicate whether any potential conflicts involve environmental matters. Identify any potential environmental hazards due to past site uses, such as soil contamination or abandoned storage tanks, or proximity to nearby hazardous liquid or gas pipelines.

The Corn Plus facility is located on a 189 acre rural parcel on the southeast side of the city of Winnebago, adjacent to the intersection of the Chicago & Northwestern and the Chicago, Milwaukee, St. Paul & Pacific railroads in Faribault County. Most of the parcel (145 acres) is farmland and will remain in agricultural use after the proposed plant expansion. There are no known environmental hazards associated with past or current facility operations.

10. **Cover Types.** Estimate the acreage of the site with each of the following cover types before and after development:

<table>
<thead>
<tr>
<th>Types 1-8 wetlands</th>
<th>Before</th>
<th>After</th>
<th>Lawn/landscaping</th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wooded/forest</td>
<td>0</td>
<td>0</td>
<td>Impervious Surfaces</td>
<td>20.5</td>
<td>21.0</td>
</tr>
<tr>
<td>Brush/grassland</td>
<td>0</td>
<td>0</td>
<td>Other (describe)</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Cropland</td>
<td>145</td>
<td>145</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL**

<table>
<thead>
<tr>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>189</td>
<td>189</td>
</tr>
</tbody>
</table>

If **Before** and **After** totals are not equal, explain why:

The addition of one 68,000 bushel grain bin, a 525,000 gallon denatured ethanol tank, two additional 340,000 gallon fermenters, one new 185,000 gallon saccharification stainless steel tank, one new 400,000 gallon beer well, one new boiler, one new cooling tower and a new dryer are the only planned footprint additions to the facility. They will occupy less than 0.5 acres of the current site.
11. Fish, Wildlife, and Ecologically Sensitive Resources.

a. Identify fish and wildlife resources and habitats on or near the site and describe how they would be affected by the project. Describe any measures to be taken to minimize or avoid impacts.

The March, 1993 EAW indicated there were no significant fish or wildlife resources on or near the site which would be disturbed or affected by construction or operation of the facility. Since fish and wildlife resources are similar now to those present in 1993, it remains unlikely that expansion of the plant capacity would have adverse effects on either resource type. There are no wetlands within 1/4 mile of the plant site. A request has been sent to the Minnesota DNR and U.S. Fish and Wildlife Services (FWS) to request updated information. The FWS had no objections to the project.

b. Are any state (endangered or threatened) species, rare plant communities or other sensitive ecological resources such as native prairie habitat, colonial waterbird nesting colonies or regionally rare plant communities on or near the site?  ☐ Yes ☒ No

If yes, describe the resource and how it would be affected by the project. Indicate if a site survey of the resources has been conducted and describe the results. If the DNR Natural Heritage and Nongame Research program has been contacted give the correspondence reference number. ERDB19930304-3

Describe measures to minimize or avoid adverse impacts.

The June 1, 2000 letter from the Natural Heritage and Nongame Research Program did not list any rare plant, animal species or other significant natural features to be within a one-mile radius of the proposed project.

12. Physical Impacts on Water Resources. Will the project involve the physical or hydrologic alteration (dredging, filling, stream diversion, outfall structure, diking, and impoundment) of any surface waters such as a lake, pond, wetland, stream or drainage ditch?  ☒ Yes ☐ No

If yes, identify water resource affected. Describe alternatives considered and proposed mitigation measures to minimize impacts. Give the DNR Protected Waters Inventory (PWI) number(s) if the water resources affected are on the PWI.

13. Water Use. Will the project involve installation or abandonment of any water wells, connection to or changes in any public water supply or appropriation of any ground or surface water (including dewatering)?  ☒ Yes ☐ No

If yes, as applicable, give location and purpose of any new wells; public supply affected, changes to be made, and water quantities to be used; the source, duration, quantity and purpose of any appropriations; and unique well numbers and DNR appropriation permit numbers, if known. Identify any existing and new wells on the site map. If there are no wells known on site, explain methodology used to determine.

The facility currently uses two on-site water supply wells to meet process demand of 250,000 GPD. Water Appropriation Permit 94-4137, allows the facility to use up to 91.2 million gallons per year (GPY) and the proposed expansion will not require more water usage than authorized by the permit. The purpose of the water use (water supply for corn processing) will remain the same after the expansion.

14. Water-related land use management districts. Does any part of the project involve a shoreland zoning district, a delineated 100-year flood plain, or a state or federally designated wild or scenic river land use district?  ☐ Yes ☒ No

If yes, identify the district and discuss project compatibility with district land use restrictions.
15. **Water Surface Use.** Will the project change the number or type of watercraft on any water body?

☐ Yes  ☒ No

If yes, indicate the current and projected watercraft usage and discuss any potential overcrowding or conflicts with other uses.

16. **Erosion and Sedimentation.** Give the acreage to be graded or excavated and the cubic yards of soil to be moved: <0.5 acres; <0.5 cubic yards. Describe any steep slopes or highly erodible soils and identify them on the site map. Describe any erosion and sedimentation control measures to be used during and after project construction.

The project site is relatively flat; steep slopes or highly erodible soils are not present.

17. **Water Quality - Surface Water Runoff.**

a. Compare the quantity and quality of site runoff before and after the project. Describe permanent controls to manage or treat runoff. Describe any storm water pollution prevention plans.

Runoff from impervious surfaces will continue to be directed to on-site landscaped areas. Peak runoff from the site will continue to be collected in the existing on-site stormwater detention pond. The facility has a stormwater pollution prevention plan, which addresses measures needed at the facility to minimize potential risks from spills and other potential pollutant sources.

Changes in the quantity and quality of the runoff after the project are not expected to be significant since the addition of one 68,000 bushel grain bin, a 525,000 gallon denatured ethanol tank, two additional 340,000 gallon fermenters, one new 185,000 gallon saccharification tank, one new 400,000 gallon beer well, one new boiler, one new cooling tower and a new dryer are the only planned footprint additions to the facility. They will occupy less than 0.5 acres of the current site. Silt fencing will be used to protect any sensitive areas adjacent to the facility construction areas.

b. Identify routes and receiving water bodies for runoff from the site; include major downstream water bodies as well as the immediate receiving waters. Estimate impact runoff on the quality of receiving waters.

Water from the stormwater detention basin discharges to the ditch along Trunk Highway 109 and eventually to the Blue Earth River located approximately five miles west of the city of Winnebago. No significant impact on the quality of the receiving waters is expected to occur as a result of the expansion.

18. **Water Quality – Wastewater.**

a. Describe sources, composition and quantities of all sanitary, municipal and industrial wastewater produced or treated at the site.

The Corn Plus facility currently generates approximately 36,000 GPD of wastewater. Cooling tower blowdown, softener regeneration water, iron filter backwash and facility sanitary waste are all discharged to the city of Winnebago wastewater treatment system. Pre- and post-expansion sources and characteristics are summarized in the following tables:
Table 1. Current Wastewater Discharge

<table>
<thead>
<tr>
<th>Source</th>
<th>Biochemical Oxygen Demand (BOD)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Volume (GPD)</td>
</tr>
<tr>
<td>Cooling tower blowdown</td>
<td>32,000</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>&lt;4,000</td>
</tr>
<tr>
<td><strong>TOTAL SEWER LOAD</strong></td>
<td>36,000</td>
</tr>
</tbody>
</table>

Table 2. Future Wastewater Discharge

<table>
<thead>
<tr>
<th>Source</th>
<th>Biochemical Oxygen Demand (BOD)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Volume (GPD)</td>
</tr>
<tr>
<td>Cooling tower blowdown</td>
<td>64,000</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>&lt;8,000</td>
</tr>
<tr>
<td><strong>TOTAL SEWER LOAD</strong></td>
<td>72,000</td>
</tr>
</tbody>
</table>

b. Describe waste treatment methods or pollution prevention efforts and give estimates of composition after treatment. Identify receiving waters, including major downstream water bodies, and estimate the discharge impact on the quality of receiving waters. If the project involves on-site sewage systems, discuss the suitability of site conditions for such systems.

See anticipated composition and volume information above. The Corn Plus facility will generate no more than 0.072 million GPD of wastewater from cooling tower blowdown, and process upsets. All process-related wastewater is normally reused in mash preparation. The wastewater that is generated is sent to aeration tanks for BOD reduction prior to discharge to the Winnebago wastewater treatment activated sludge system.

Occasional plant upsets (primarily microbial contamination problems) make it necessary to periodically purge process condensate and syrup (an animal feed product) from the system. This occurs about twice a year. Some process condensate is discharged to the municipal treatment facility (the rest is land applied on site) and waste syrup is either land applied on site or distributed to local farmers for use as animal feed. Approximately 75,000 gallons of syrup is generated during each event, with a total maximum of about 200,000 GPY. Process condensate is generated at a rate of about 200,000 to 350,000 gallons per incident, with an annual total of about 500,000 gallons. Corn Plus is permitted to apply up to 2.8 million GPY to the entire 100 acre application site as long as nitrogen limits are met and there is no runoff from the site. Wastewaters are land applied at agronomic rates using a traveling gun, to various parts of the site, which is planted in corn, beans and mixed grasses. Current storage capacity for waste syrup and process condensate is in three storage tanks, with a total capacity of 114,000 gallons.
During periods when immediate land application is not practical, infected process condensate is recycled back through the plant until it can be land applied or until the infection is cleared up without discharging. Use of the existing stormwater pond for wastewater storage is prohibited. Winter land application is prohibited unless wastewater can be applied warm, directly to the soil surface, so there is no runoff. The material cannot be applied on snow cover.

No increase in land application of plant wastewater will result from the proposed plant capacity expansion. The facility was issued an NPDES State Disposal System Permit MN0063037, on April 20, 1998. The permit expiration date is March 31, 2003.

c. If wastes will be discharged into a publicly owned treatment facility, identify the facility, describe any pretreatment provisions and discuss the facility’s ability to handle the volume and composition of wastes, identifying any improvements necessary.

The city of Winnebago’s activated sludge system discharges to the Blue Earth River. The system has a design capacity of 1.7 MGD, expressed as an average wet weather flow. The Blue Earth River is classified for fisheries and recreational (Class 2B) use. The Corn Plus, city of Winnebago wastewater treatment system discharge limits include: 100 pounds per day (maximum) carbonaceous biological oxygen demand (CBOD₅) and 150 pounds per day total suspended solids.

Current pretreatment conditions are contained in the existing utility agreement between Corn Plus and the city of Winnebago. Corn Plus will continue to adhere to the Winnebago/Corn Plus pretreatment agreement.

d. If the project requires disposal of liquid animal manure, describe disposal technique and location and discuss capacity to handle the volume and composition of manure. Identify any improvements necessary. Describe any required setbacks for land disposal systems.

Not Applicable.

19. **Geologic hazards and soil conditions.**

   a. Approximate depth (in feet) to Ground water:

   90-100  unknown  minimum;  unknown  average.

   Bedrock:

   100-150  unknown  minimum;  unknown  average.

   Describe any of the following geologic site hazards to ground water and also identify them on the site map: sinkholes, shallow limestone formations or karst conditions. Describe measures to avoid or minimize environmental problems due to any of these hazards.


   No on-site hazards to ground water are known to exist.

   b. Describe the soils on the site, giving SCS classifications, if known. Discuss soil granularity and potential for groundwater contamination from wastes or chemicals spread or spilled onto the soils. Discuss any mitigation measures to prevent such contamination.
From: Soil Survey of Faribault County, Minnesota, USDA, NRCS, June, 1994

- Clarion loam, one to six percent slopes, well drained, moderate permeability, moderate to high organic matter content, depth to water table greater than six feet.

- Nicollet clay loam, one to three percent slopes, moderately well drained, moderate permeability, high organic matter content, depth to water table two and one-half to five feet.

- Waldorf silty clay loam, zero to one percent slopes, poorly drained, moderate to moderately slow permeability, high organic matter content, depth to water table zero to three feet.

Thin-wall tube samples were collected from the tank farm containment area in April, 1995. The samples indicated a permeability of $1 \times 10^{-7}$ centimeters per second (cm/sec).

20. **Solid Wastes, Hazardous Wastes, Storage Tanks.**

a. Describe types, amounts and compositions of solid or hazardous wastes, including solid animal manure, sludge and ash, produced during construction and operation. Identify method and location of disposal. For projects generating municipal solid waste, indicate if there is a source separation plan; describe how the project will be modified for recycling. If hazardous waste is generated, indicate if there is a hazardous waste minimization plan and routine hazardous waste reduction assessments.

Hazardous wastes generated by Corn Plus include solvents used for parts washing. The wastes are stored in steel barrels for transport to a commercial recycler. Waste lubricating oils from the plant are recycled. No changes to waste generation rates are anticipated as a result of the proposed facility expansion.

b. Identify any toxic or hazardous materials to be used or present at the site and identify measures to be used to prevent them from contaminating groundwater. If the use of toxic or hazardous materials will lead to a regulated waste, discharge or emission, discuss any alternatives considered to minimize or eliminate the waste, discharge or emission.

Ethanol, and regular unleaded or natural gasoline, used as a denaturant, are stored on the site. Storage tanks for these materials are located above-ground within containment areas which are required to meet MPCA above ground storage tank rules.

c. Indicate the number, location, size and use of any above or below ground tanks to store petroleum products or other materials, except water. Describe any emergency response containment plans.

The facility currently has a lined (secondary containment) tank farm which is where the facility’s above ground storage tanks are located. Corn Plus currently has a 40,000 gallon 190 proof ethanol storage tank, a 25,000 gallon 200 proof ethanol tank, a 19,800 gallon denaturant tank and two 120,000 gallon denatured ethanol tanks. With the plant expansion, the facility will add a new 525,000 gallon denatured ethanol tank and plans to use the existing 25,000 gallon ethanol tank for denaturant storage, in addition to the existing smaller denaturant tank.

Current production/process tanks located indoors include four 250,000 gallon fermenters and one 250,000 gallon beer well. As part of the expansion project, two additional 340,000 gallon fermenters will be added along with a new 400,000 gallon beer well, and also a 185,000 gallon saccharification tank.
Summary of Additional Tanks for Corn Plus Expansion

<table>
<thead>
<tr>
<th>Tank</th>
<th>Description / Contents</th>
<th>Construction</th>
<th>Capacity (gallons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sac No. 2</td>
<td>Saccharification</td>
<td>Stainless steel</td>
<td>185,000</td>
</tr>
<tr>
<td>BW No. 1</td>
<td>Beer Well</td>
<td>Stainless steel</td>
<td>400,000</td>
</tr>
<tr>
<td>Ferm. No. 5</td>
<td>Fermenter</td>
<td>Stainless steel</td>
<td>340,000</td>
</tr>
<tr>
<td>Ferm. No. 6</td>
<td>Fermenter</td>
<td>Stainless steel</td>
<td>340,000</td>
</tr>
<tr>
<td>Storage Tank, TK006</td>
<td>Denatured EtOH</td>
<td>Carbon steel</td>
<td>525,000</td>
</tr>
</tbody>
</table>

21. **Traffic.** Parking spaces added: 0. Existing spaces (if project involves expansion):

| Estimated total average daily traffic (ADT) generated: | Current ADT on Highway 109 is estimated at 3600 vehicles, with current truck and employee traffic estimated at 103 vehicles. The expansion will add 70 more vehicles a day. | Estimated maximum peak hour traffic generated (if known) and its timing: 90 percent from 8:00 am to 5:00 pm, with 10 percent between 5:00pm and 8:00pm. | Provide an estimate of the impact on traffic congestion affected roads and describe any traffic improvements necessary. If the project is within the Twin Cities metropolitan area, discuss its impact on the regional transportation system. |

Increased traffic congestion is not anticipated due to low volumes of post-expansion traffic. No traffic improvements are planned for the facility.

22. **Vehicle-related Air Emissions.** Estimate the effect of the project’s traffic generation on air quality, including carbon monoxide levels. Discuss the effect of traffic improvements or other mitigation measures on air quality impacts. Note: If the project involves 500 or more parking spaces, consult *EAW Guidelines* about whether a detailed air quality analysis is needed.

Air emissions due to vehicles would not be significant due to low additional traffic volume.

23. **Stationary Source Air Emissions.** Describe the type, sources, quantities and compositions of any emissions from stationary sources of air emissions such as boilers, exhaust stacks or fugitive dust sources. Include any hazardous air pollutants (consult *EAW Guidelines* for a listing), any greenhouse gases (such as carbon dioxide, methane, and nitrous oxides), and ozone-depleting chemicals (chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons or sulfur hexafluoride). Also describe any proposed pollution prevention techniques and proposed air pollution control devices. Describe the impacts on air quality.

An analysis of the potential increases in the emission of air pollutants has been performed in conjunction with Corn Plus’s application for an air emissions permit amendment. Preliminary estimates of controlled air emissions, that were submitted to the MPCA by Corn Plus, indicate that the plant will remain a minor source for Title V air permitting purposes; the plant will not emit 100 or more tons per year (TPY) of any Title V air pollutant. The application for an air emissions permit was submitted for this project and is being reviewed by the MPCA. The air emission permit for the facility will contain specific operational and performance standards for each emissions unit.

**Sources Of Air Emissions And Pollution Control Equipment:** The following is a summary of air emissions sources at the facility and the emission control equipment.
Corn Receiving and Handling. Trucks unload corn into a receiving pit located inside a building. Corn is conveyed through an outside conveyer/elevator/storage bin system to a surge bin from which metered amounts of corn are discharged into the mill. Fugitive particulate emissions from the unloading building, conveyers, elevators, and bins are exhausted through a negative pressure ventilation system, which continuously pulls air from these sources through a baghouse. Corn Plus plans to increase the current grain truck unloading capacity from 10,000 bushels per hour (BPH) to 35,000 BPH.

Corn Milling and Handling. Corn from the surge bin is fed to a hammer mill located outside. A blower is used to force the milled corn from the hammer mill into a cyclone, which discharges into the blender. The blender mixes the milled corn with water to start the ethanol production process. The air leaving the top of the cyclone enters a baghouse. An additional hammermill will be added, which will include a new baghouse at the hammermill.

Batch Fermentation. Fermentation of sugar produces ethanol and also CO₂ as a major by-product. Fermentation occurs in four batch fermentation tanks. The vents of the fermenters, as well as, the vents from other atmospheric vessels in the fermentation and mash cooling areas, are all tied into the inlet of one direct contact water scrubber. The gas coming off the fermenters and other vessels flows up through a bed of nylon packing. Water flows down through the bed. A continuous blow-down of this water flows back into the process stream. CO₂ and other non-condensables (air) leaving the scrubber are sent to Dixie Carbonic for CO₂ recovery. An additional fermentation tank will be added for the expansion.

Distillation/Dehydration. The beer resulting from the fermentation runs through a continuous vacuum distillation system to remove and rectify the ethanol. The vapor outlet of the distillation column is piped directly to a set of condensers which discharge liquid ethanol to the 190 proof reservoir. Any CO₂ and other noncondensible gases which are contained in the beer end up in the 190 proof reservoir and must be expelled to maintain vacuum in the system. The gases are exhausted to the distillation scrubber prior to venting to the atmosphere. The current distillation/dehydration system will generally be doubled with three added columns. Items include adding a new rectifier, a side stripper, a new beer column and adding two new molecular sieve beds. All distillation and molecular sieve vessels will be vented to the CO₂ recovery system.

Dried Distillers Grain Drying and Handling. Distillers grain is dried in a rotary dryer system in which wet material is moved pneumatically through the dryer. The current system features recycling of 50 percent of the exhaust gases to the dryer inlet to partially replace the air input and to recover energy. This results in an inlet air temperature which is 200 to 300 degrees Fahrenheit lower than a standard high-excess air dryer system. The forced air and solids exiting the dryer are conveyed to cyclones used to separate the dried grain. Exhaust gases not recycled to the dryer inlet are vented. A wet scrubber will be provided for the new dryer to control particulates and VOCs. Dried distillers grain is loaded into trucks in the same building and uses the same baghouse system as corn receiving and handling. A second dryer system will be installed for the expansion and each dryer will vent to its own stack. The new dryer will be capable of drying slightly more distillers grain than the existing dryer.
**Ethanol Storage Tanks.** The product flows into one of two 40,000-gallon storage tanks. The product, pumped daily from these shift tanks, goes to one of two 120,000-gallon tanks. Each time ethanol is transferred from shift to storage, a smaller amount of unleaded or natural gasoline is pumped from a 21,000-gallon storage tank to the 120,000-gallon tank involved. This amount is equal to five percent of the amount of ethanol transferred. All five of these storage tanks are located above ground in a single diked area. Each tank has a fire valve, a level gauge, overfill protection, an emergency vent, and a pressure vacuum vent. Product is bottom loaded into tanker trucks and rail cars. VOC emissions from these tanks are included in the facility totals.

With the plant expansion, the facility will add a new 525,000 gallon denatured ethanol tank and plans to use the existing 25,000 gallon ethanol tank for denaturant storage in addition to the existing smaller denaturant tank. An internal floating roof will be installed on both tanks.

**Steam Boiler.** A natural gas-fired boiler with a maximum fuel consumption rate of 87.8 million Btu/hour is located at the facility. Normal operating range is from 60 to 65 percent of the design capacity. The existing boiler has capacity for some expansion. Combustion gases are vented to the atmosphere.

To ensure sufficient steam will be available for the expansion, a new 87.8 million BTU/hour natural gas fired boiler will be installed. The two boilers will run at approximately 69 percent of their total design capacity and combustion gases will continue to be vented to the atmosphere.

The emissions associated with the project expansion and the total facility emissions after the expansion are shown in Tables 3 and 4 (respectively) below.

<table>
<thead>
<tr>
<th>Table 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in Potential Facility Emissions Attributed to Expansion</td>
</tr>
<tr>
<td>Corn Plus Ethanol</td>
</tr>
<tr>
<td><strong>Pollutant</strong></td>
</tr>
<tr>
<td>Carbon Monoxide (CO)</td>
</tr>
<tr>
<td>Nitrous Oxides (NOx)</td>
</tr>
<tr>
<td>Sulfur Dioxide (SO2)</td>
</tr>
<tr>
<td>Volatile Organic Compounds (VOCs)</td>
</tr>
<tr>
<td>Total Particulate Matter (PM)</td>
</tr>
<tr>
<td>Particulate Matter less than ten microns (PM10)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Post-Expansion Facility Controlled Emission Summary</td>
</tr>
<tr>
<td>Corn Plus Ethanol</td>
</tr>
<tr>
<td><strong>Pollutant</strong></td>
</tr>
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</tr>
<tr>
<td>Particulate Matter less than ten microns (PM10)</td>
</tr>
</tbody>
</table>
24. **Odors, noise and dust.** Will the project generate odors, noise or dust during construction or during operation?  □ Yes  □ No
If yes, describe sources, characteristics, duration, quantities or intensity and any proposed measures to mitigate adverse impacts. Also identify locations of nearby sensitive receptors and estimate impacts on them. Discuss potential impacts on human health or quality of life. (Note: fugitive dust generated by operations may be discussed at item 23 instead of here.)

**Dust.** Dust will be generated as part of construction; however, external dust impacts should be minimal due to the relatively small area to be disturbed. Dust from additional truck traffic for the proposed expansion will be minimal. Any exposed soil piles will be covered or watered to prevent wind blown dust.

**Odors.** According to Corn Plus, odors have not been a concern at the site. No significant change in odors from the facility is expected to occur related to the project.

**Noise.** No noise source at the facility exceeds 80 decibels, based on manufactured specifications. There will be no change as a result of the proposed expansion.

25. **Nearby resources.** Are any of the following resources on or in proximity to the site?

a. Archaeological, historical, or architectural resources?  □ Yes  □ No
b. Prime or unique farmlands or land within an agricultural preserve?  □ Yes  □ No
c. Designated parks, recreation areas, or trails?  □ Yes  □ No
d. Scenic views and vistas?  □ Yes  □ No
e. Other unique resources?  □ Yes  □ No

If yes, describe the resource and identify any project-related impacts on the resources. Describe any measures to minimize or avoid adverse impacts.

The existing 145 acres of farmland at the plant site will remain in agricultural use after the proposed plant expansion.

26. **Visual impacts.** Will the project create adverse visual impacts during construction or operation? Such as glare from intense lights, lights visible in wilderness areas and large visible plumes from cooling towers or exhaust stacks?  □ Yes  □ No
If yes, explain.

The exhausts from the gas-fired boiler and the distillers grain drying system are currently emitted from their existing stacks which are 40 and 108 feet above grade, respectively.

The new boiler will exhaust to a similar 40-foot stack. An additional distillers grain dryer will be added for the expansion and each dryer system will exhaust to its own stack. The new dryer stack will include a wet scrubber for control of particulates and VOCs. Two water vapor plumes will be visible from approximately the same distance as the single plume is viewed now.

27. **Compatibility with plans and land use regulations.** Is the project subject to an adopted local comprehensive plan, land use plan or regulation, or other applicable land use, water, or resource management plan of a local, regional, state or federal agency?  □ Yes  □ No
If yes, describe the plan, discuss its compatibility with the project and explain how any conflicts will be resolved. If no, explain.

28. **Impact on infrastructure and public services.** Will new or expanded utilities, roads, other infrastructure
or public services be required to serve the project?  ☐ Yes  ☒ No
If yes, describe the new or additional infrastructure or services needed. (Note: any infrastructure that is a connected action with respect to the project must be assessed in the EAW; see EAW Guidelines for details.)

No new or additional infrastructure will be needed for the facility expansion.

29. **Cumulative impacts.** Minn. R. 4410.1700, subp. 7, item B requires that the RGU consider the “cumulative potential effects of related or anticipated future projects” when determining the need for an environmental impact statement. Identify any past, present or reasonably foreseeable future projects that may interact with the project described in this EAW in such a way as to cause cumulative impacts. Describe the nature of the cumulative impacts and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to cumulative impacts (or discuss each cumulative impact under appropriate item(s) elsewhere on this form).

This project is an expansion of an existing facility. No cumulative impacts are believed to be present.

30. **Other Potential Environmental Impacts.** If the project may cause any adverse environmental impacts not addressed by items 1 to 28, identify and discuss them here, along with any proposed mitigation.

No effects are anticipated except for those addressed in this EAW.

31. **Summary of issues.** List any impacts and issues identified above that may require further investigation before the project is begun. Discuss any alternatives or mitigative measures that have been or may be considered for these impacts and issues, including those that have been or may be ordered as permit conditions.

**Air Quality.** Final review and approval of an Air Emissions Permit by the MPCA is required prior to the start of expansion related construction. The emissions of PM, PM10, CO, NOX, VOC’s, and SO2 are expected to occur at rates less than 100 tons per year, (based on performance stack test results) making this facility eligible for permitting as a synthetic minor source with respect to these air emissions.
RGU CERTIFICATION.

I hereby certify that:

• The information contained in this document is accurate and complete to the best of my knowledge.
• The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined at Minn. R. 4410.0200, subps. 9b and 60, respectively.
• Copies of this EAW are being sent to the entire EQB distribution list.

Name and Title of Signer:

________________________________________
Beth G. Lockwood, District Planning Supervisor  
Operations and Planning Section; North, South and Metro Districts

Date:

The format of the Environmental Assessment Worksheet was prepared by the staff of the Environmental Quality Board at Minnesota Planning. For additional information, worksheets or for EAW Guidelines, contact: Environmental Quality Board, 658 Cedar St., St. Paul, MN 55155, 651-296-8253, or www.mnplan.state.mn.us.