ANALYSIS AND PRELIMINARY DETERMINATION FOR THE CONSTRUCTION AND OPERATION PERMITS FOR THE PROPOSED CONSTRUCTION OF A FUEL GRADE ETHANOL PRODUCTION FACILITY FOR UNITED WISCONSIN GRAIN PRODUCERS, LLC, TO BE LOCATED AT STATE HWY 33 AND CNTY HWY EF, FRIESLAND, COLUMBIA COUNTY, WISCONSIN

Permit # 03-DCF-048 and 03-DCF-048-OP and/or 111030040-F01

Facility I.D. # 111030040

This review was performed by the Wisconsin Department of Natural Resources, Bureau of Air Management, P.O. Box 7921, Madison, Wisconsin 53707, (608)266-7718 in accordance with Chapter 285, Wis. Stats., and Sections NR 400 to NR 499, Wis. Adm. Code.

Reviewed by: Don C. Faith III, P.E. Initials: DCF3 Date: 6/11/03

Peer review conducted by: /s/ Steven Dunn Date: 6/6/03

Preliminary Determination Approved by:SignatureDateRegional Supervisor or Central Office Designee/s/ Jeffrey C. Hanson6/11/03Stationary Source Modeling Team Leader/s/ Gail McGovern6/ 11/03Compliance Engineer (reviewed/approved)/s/ M. Sloat6/9/03

cc: M. Sloat - Reedsburg;
D. Packard - Poynette

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INTRODUCTION

Stationary sources that are not specifically exempt from the requirement to obtain a construction permit under s. 285.60(5), Wis. Stats. or ch. NR 406, Wis. Adm. Code may not commence construction, reconstruction, replacement, relocation or modification unless a construction permit for the project has been issued by the Department of Natural Resource's (DNR's) Air Management Program. Owners or operators subject to the construction permit requirements must submit a

construction and operation permit application to the DNR. The application is reviewed following the provisions set forth in ss. 285.60 to 285.65, Wis. Stats. The criteria for permit issuance vary depending on whether the source is major or minor and whether the source is locating in an attainment or nonattainment area.

Subject sources are to be reviewed with respect to the equipment and facility description provided in the application and for the resulting impact upon the air quality. The review ensures compliance with all applicable rules and statutory requirements. The plan review will show why the source(s) should be approved, conditionally approved, or disapproved. It will encompass emission calculations and an air quality analysis using U.S. EPA models, if applicable. As a precautionary note, the emission estimates are based on U.S. EPA emission factors (AP-42) or theoretical data and can vary from actual stack test data.

The sources included in this construction permit are also required to obtain an operation permit under s. 285.60(1)(b), Wis. Stats. This review constitutes the Department's review of applications for both the construction permit and the operation permit for these units. This review may be updated when the compliance demonstration information is received. An operation permit may be issued after the applicant demonstrates that the sources included in the construction permit are in compliance with the applicable rules, emission limits and the conditions.

GENERAL APPLICATION INFORMATION

Owner/Operator:	United Wisconsin Grain Producers, LLC W772 Hwy Z Fall River, WI 53952
Contact:	Dave Whitford (RMT Inc.) (608) 662-5139
Responsible Official:	Carl T. Benek - Director (920) 484-3943
Submitted By:	Dave Whitford (RMT Inc.)

Date of Complete Application: June 9, 2003

PROJECT DESCRIPTION

The company has submitted a proposal to build a fuel grade ethanol production facility at a greenfield site. The maximum theoretical emissions of particulate matter, Nitrogen oxides, Carbon monoxide and volatile organic compounds will exceed the thresholds given in s. NR 406.04(2)(c), Wis. Adm. Code and s. NR 407.04, Wis. Adm. Code. Therefore a construction permit and an operation permit will be required.

SOURCE DESCRIPTION

United Wisconsin Grain Producers, LLC (UWGP) is proposing to build a fuel grade ethanol production facility at a 'greenfield' site near Friesland, WI. Emission sources at the plant include grain handling (storage), drying, fermentation, distillation, wet grain handling, combustion, storage

tanks and fugitives. The plant has a proposed annual capacity of 50 million gallons of ethanol, actual production is estimated to be 45 million gallons of denatured alcohol.

UWGP is proposing to be a synthetic minor source with respect to both the Title V and PSD (Ch. NR 405, Wis. Adm. Code) regulations. The estimated allowable CO, VOC, NOx, PM_{10} and other criteria pollutant emissions will be less than 100 TPY.

The process begins with unloading of the grain (corn), storage and subsequent milling (size reduction) of the corn in hammermills. The hammermill is a dry milling process used to reduce / mill the corn into a powder. The milled corn is put into water (made into a 'slurry') and cooked to dissolve the corn starches. Enzymes within the slurry convert the starches to sugars. This 'mash' (cooked corn /water slurry) is then fermented using specific strains of yeast known to provide good yields of ethanol from the corn sugars. The fermented liquid ("beer") contains 12 - 16% ethanol. This mixture is distilled (using 3 distillation towers) to reach 95% ethanol / 5% water. The distillation process cannot proceed further (to higher concentrations) due to a water / ethanol azeotrope which forms somewhere near 95% ethanol concentration. The spent, wet grain (corn) is also collected and dried for use as an animal feed. The residual water in the distilled ethanol is removed by pressurization of the liquid and removal of the smaller water molecules through the use of molecular sieves. This yields a 200 proof (pure, 100%) ethanol. This material will be blended with gasoline to 'denature' the ethanol for use as a fuel.

A thermal oxidizer / waste heat boiler will be used to produce steam for process uses (e.g. cooking the corn/water slurry, distillation, evaporation, etc.). Cooling towers are used to remove the heat collected from the process coolers, distillation process condensers, evaporators and other operations.

The application includes the proposal of anaerobic digesters ("Biomethanators") which will convert residuals from the evaporators to methane and other combustible gases for use as a fuel for the dryers. Once through the Biomethanators, the water exiting this process is returned to the process.

The facility is also proposing the installation of a diesel engine fire pump but has not indicated the installation of any back up diesel generators.

Description of New or Modified Equipment:

Process P10, Control C10, Stack S10 - Drying process (P10) - 85 MMBTU/hr, Distillation Process, Condensation Process (Molecular Sieves), Biomethanator (P11), Centrifuges

Control C10 - Thermal Oxidizer / Waste Heat Recovery Boiler (NSPS; > 100 MMBTU/hr)
(Natural gas fired, 140 MMBTU/hr + 85 MMBTU/hr for the dryers).
Overall control efficiencies: CO: 90%; VOC: 98%; PM/PM_{10}: 90%

S10
Height: 125 feet
Diameter: 6 feet
Exhaust flow rate: 89200 ACFM (average)
Exhaust temperature: 220EF (normal)
Discharge direction: Up (unobstructed)

Process P11 (Control C11, Stack S11) - Biomethanators (Anaerobic Digesters). In normal operation, the methane and other combustible gases formed from the Biomethanators will be combusted in the DDGS dryers, and will replace some natural gas (i.e. will be discharged through C10, S10).

However, the facility has noted that there may be some instances where the gases will be combusted in a flare. The facility has requested a specific limitation on the number of hours that the Biomethanators may be directed to the flare (C11).

Process Flows: 135 gpm of process wastewater (typ.) (165 gpm max.).

Control C11 - Flare 98% collection efficiency; 96.0% control (destruction) eff.. Flare (bypass operation) will not be for more than 5040 hours per year.

Stack S11
Height: 11 feet
Diameter: 1.4 feet
Exhaust flow rate: 2400 ACFM (average); 2670 ACFM (max.)
Exhaust temperature: 1000EF (normal)
Discharge direction: Up (unobstructed)

Process P20 - Grain (corn) receiving / handling
Normal operation 12 hrs. / day; 5 days/wk.; 260 days/yr.
16,000,000 Bu/yr normal; 18,000,000 Bu/yr max.

Control - C20 (baghouse, enclosure)
Control eff: at least 97%. Felted Polyester fabric; 10:1 A/C (fpm) (Require 10:1 A/C ratio (maximum) as the facility did not specify the actual baghouse parameters). Pressure drop: 2 to 8 in. W.C.

S20
Height: 85 feet
Diameter: 3 feet
Exhaust flow rate: 31500 ACFM (average)
Exhaust temperature: 67EF (normal)
Discharge direction: Up (unobstructed)

Process P30 - Grain (corn) milling / transfer
Normal operation 24 hrs. / day; 7 days/wk.; 353 Pressure drop: 2 to 8 in. W.C. days/yr.
16,000,000 Bu/yr normal; 18,000,000 Bu/yr max.

Control - C30 (baghouse, enclosure)
Control eff: at least 97%. Polyester fabric; 10:1 A/C (fpm) (Require 10:1 A/C ratio (maximum) as the facility did not specify the actual baghouse parameters). Pressure drop: 2 to 8 in. W.C.

S30
Height: 75 feet
Diameter: 1.166 feet
Exhaust flow rate: 11500 ACFM (average)
Exhaust temperature: 68EF (normal)
Discharge direction: Up (unobstructed)

Process P40 - Fermentation (Fermentation tanks, Beer well)
Normal operation 24 hrs. / day; 7 days/wk.; 353 Pressure drop: 2 to 8 in. W.C. days/yr.
950,400 gal/day corn slurry (typ.); 1,056,000 gal/day (max.) (Input)
30,000 gal/day yeast (typ.); 33,333 gal./day (max.) (Input)
140,625 TPY CO_2 (typ.); 156,250 TPY (max.)

981,900 gal/day (typ.); 1,091,000 gal/day (max.) Fermented slurry output.

Process scrubber: (C40) Control eff: at least 98.7%. 50 gpm water flow; inlet gas - 95° F / 6000 ACFM Pressure drop: 4 to 8 in. W.C.

S40
Height: 45 feet
Diameter: 1.66 feet
Exhaust flow rate: 4650 ACFM (average)
Exhaust temperature: 75EF (normal)
Discharge direction: Up (unobstructed)

Process P50, Stack S50, Control C50 - Loading Rack w/ Flare

S50
Height: 36 feet
Diameter: 2.5 feet
Exhaust flow rate: 7500 ACFM (average)
Exhaust temperature: 1000EF (normal)
Discharge direction: Up (unobstructed)

Tanks T61, T62
Floating Roof Tanks: 750,000 gallon capacity. (Will meet NSPS requirements)

Tanks T63, T64, T65
Floating Roof Tanks: 200,000 gallon capacity. (Will meet NSPS requirements)

Tank T66
Fixed Roof Tank: 2000 gallon capacity (Subject to NPSP recordkeeping)
Process P70; "Control" C70; Stack S70 - DDGS Cooling (Cyclone w/ baghouse).
Normal operation: 24 hrs./day; 7 days / wk; 353 days / yr.
DDGS: 145,000 TPY (typ.); 162,000 TPY (max.)
Fabric filter portion of control will have 10:1 A/C. (Felted Polyester fabric).

Pressure drop: 2 to 8 in. W.C.

S70
Height: 75 feet
Diameter: 1.83 feet
Exhaust flow rate: 22000 ACFM (average)
Exhaust temperature: 85EF (normal)
Discharge direction: Up (unobstructed)

Stack S80, Process P80 - Cooling Tower (4 discharge fans).
Flow: 20,000 gpm typ. 20,000 gpm max. (propose use of 22,000 gpm as limit). 0.005% drift max.; 2,000 ppm solids; up to 124 ppm VOC. Normal operation: 24 hrs/day; 7 days/wk; 365 days/ yr.

S80
Height: 36 feet
Diameter: 25 feet

Exhaust flow rate: 412,000 ACFM (average)
Exhaust temperature: 100EF (normal)
Discharge direction: Up (unobstructed)

Process P90; Control C90; Stack S90 - DDGS loadout.
Normal operation: 12 hrs./day; 5 days / wk; 260 days / yr.
DDGS: 145,400 TPY (typ.); 161,600 TPY (max.)
Fabric filter portion of control will have 10:1 A/C. (Felted Polyester fabric). 97% control.

S90
Height: 45 feet
Diameter: 1.7 feet
Exhaust flow rate: 4750 ACFM (average / max.)
Exhaust temperature: 68EF (normal)
Discharge direction: Up (unobstructed)

CROSS MEDIA IMPACTS

No direct cross media impacts are anticipated as scrubbers used by the facility recycle their captured VOC's back into the process. Similarly, the materials collected in the baghouses are expected to be recycled back into the respective processes as well. The facility will be required to obtain the needed permits, approvals and licenses from other sections of the Department as well, in accordance with those programs' requirements (e.g. for wastewater, if applicable).

EMISSION CALCULATIONS

Ethanol Vapor Pressure calculation:.
A= 8.04494 B= 1554.3 C= 222.65 (no range cited) P in mm Hg

$\log_{10} P = A - B/(C + t)$ where t =° C From Lange's Handbook of Chemistry; Dean; 11th ed. (1973)

70.6° F = (70.6 – 32) / 1.8 = 21.44° C

log10 P = 8.04494 - 1554.3 / (222.65 + 21.44) = 1.67721

$10^{1.67721}$ = 47.55 mm Hg 47.55 mm Hg / 760 mm Hg * 14.7 = 0.92 psia

Using factors from The Properties of Gases and Liquids; Reid, Prausnitz & Sherwood, 3rd. ed. (1977)

A = 18.9119 B= 3803.98 C = -41.68 Range; 270 – 369 K

Same formula, except that temperature is in Kelvins and the formula uses the logarithm of natural log base, e.

T = 273.2 + 21.44 = 294.64 K

Ln P = 18.9119 - 3803.98 / (294.64 + (-41.68)) = 3.87403

$e^{3.87403}$ = 48.1359 mm Hg 48.1359 mm Hg / 760 mm Hg * 14.7 = 0.93 psia

Both values are in excess of 0.51 psia.

Production Rate: ~ 50 E6 gallons / yr. / (365 days/yr) / 24 hrs/day = 5708 gallons per hour (> 95 gpm).

WISCONSIN HAZARDOUS AIR POLLUTANT (NR 445) REVIEW

The facility has identified hazardous air pollutants contained within the emissions from the facility that are above the reporting thresholds required under ch. NR 407, Wis. Adm. Code. The emissions of Acrolein are above the Table 1 threshold. Modeling conducted shows that the emissions impact are below the Acceptable Ambient Concentrations (AAC) of ch. NR 445, Wis. Adm. Code.

CompoundCAS
PTE
(lbs/hr)PTE
(lbs/yr or TPY)NR 445 limit
(≥ 25 ft.)UnitsTableAcetaldehyde75-07-01.77.5362.952lbs/hr1Acetaldehyde75-07-01.77.530.9377lbs/hrWLAcetic Acid **64-19-71.77.418.76lbs/hr1Acrolein107-02-80.150.650.0864lbs/hr1Acrolein107-02-80.150.650.0021lbs/hrWLBenzene71-43-2-90# *300.0lbs/yr3AFormaldehyde50-00-00.140.6250.0lbs/yr3BFurfural98-01-10.030.132.784lbs/hr1Methanol67-56-11.3--Hexane 110-54-30.411.862.952lbs/hr1Total: 112(b) only12** not a 112(b) listed compound; # - lbs/yr; * includes nat. gas combustion contribution.

The facility will emit more than 250 pounds per year of Formaldehyde and thus is subject to a Hazardous BACT review. The facility is asserting that Hazardous BACT is a control efficiency of 98% control of (VOC) emissions. In addition, BACT for Formaldehyde is also a requirement that the oxidizer be operated at temperatures at or above 1400° F. It is the Department's opinion that the rate of Formaldehyde production / formation from an combustion reaction can be significantly higher when the temperatures drop below 1400° F. A control efficiency of 98% (for VOC's) does not necessarily reflect what has been determined to be the best available means of controlling / reducing Formaldehyde emissions. The concentrations of formaldehyde are lower than the VOC concentrations, and can be difficult to measure and assure that they are also being controlled to the same level as VOC's. Thus it would be difficult to be confident that the process could demonstrate and consistently achieve 98% control of Formaldehyde at a lower temperature.

In addition, the initial application indicated that the potential Formaldehyde emissions from the DDGS cooling process were 26 pounds per year. The Department then noted that the emissions would be subject to Hazardous BACT (for Formaldehyde, HCOH). Upon conducting a Top Down Hazardous BACT, it was demonstrated that add-on control is not economically feasible for the amount of Formaldehyde collected/destroyed by any add-on control. It is proposed that the Hazardous BACT for HCOH be operation of the DDGS dryer in a manner which does not result in excessive Formaldehyde emissions. This will require monitoring of the dryer operating parameters and maintaining these parameters within ranges which do not result in emissions exceeding that noted within the application. The Haz. BACT for the DDGS cooling cyclone refers to the DDGS dryer, as this expected to be is the primary source of Formaldehyde being emitted from the cooling process.

NR 445 WATCH LIST POLLUTANTS

This source has the potential to emit pollutants covered under the Watch List: Acrolein and Acetaldehyde. The Watch list compounds were identified as compounds having uncertainty factors greater than 300 and is a voluntary emissions / impact reduction program. The potential emissions of watch list pollutants are above the respective deminimus value. See the above table for the anticipated emissions and respective deminimus rates. In the case of Acrolein, the reference concentration is quite low due to a high uncertainty / safety factor (1000) assigned as to the possible risk it constitutes.

The impact of Acetaldehyde is less than the target Reference Concentration (Rfc). Modeling of the Acrolein emissions indicate that the maximum impact and the impact at the closest residence are both above the target Reference Concentration, but as this is a voluntary / advisory value and not a formal standard, this is allowable and approvable.

Watch List Analysis Results

(All Concentrations in g/m3, annual average)

Maximum ImpactAcroleinAcetaldehydeConcentration0.102.3Rfc0.029% Rfc50025.6

Watch List Analysis Results

(All Concentrations in g/m3, annual average)

Maximum Residential ImpactAcroleinConcentration0.039Rfc0.02% Rfc195

An examination of the effects of elevating the stack heights indicated that substantial increases of the fermentation scrubber and DDGS cooler stacks (30' and 25' additional respectively) would result in a slight reduction in the maximum impact (0.089 g/m^3) but this would nearly achieve the Rfc at the nearest residence (0.0224 g/m^3). The company has elected not to make any changes in stack heights, as this is not a required element under the Statutes or Wis. Adm. Code.

Note that this analysis was based upon the predicted maximum concentrations. The actual concentrations may be lower. As the Acrolein emissions are above the NR 445 table values, there will be specific limitations placed on the quantity that may be emitted (per normal policy), as these were the quantities that were modeled and were found in compliance with the NR 445, Wis. Adm. Code, Acceptable Ambient Concentrations (AAC).

COMPLIANCE AND TECHNOLOGY REVIEW

The facility will emit particulate matter from road dust and grain receiving / handling and milling.

The PM emissions from the grain receiving operation will be controlled with a fabric filter baghouse and an enclosure. The operating pressure drop will be maintained within the range of about 2 to 8 inches of water column gauge pressure. The corn hammermill and milled grain transport will also emit PM and will be controlled by a separate baghouse with similar range of operating pressure drop. The use of the baghouse will enable compliance with the PM emission limit in the permit. The air to cloth ratio for the baghouse parameters provided is 10 (fpm, ACFM / sq. ft. area) (for each baghouse) and these are estimated to have a control efficiency of 97%. It is proposed that the facility conduct a stack test of the emissions from the hammermill.

The facility is presuming about 30% control of the particulate matter that is expected to be generated as a result of trucks traveling over the facility roads, bringing in raw materials (e.g. dried, shelled

corn, denaturant gasoline and fuel additive), and transporting the final fuel grade ethanol product away. There will be a permit section with requirements pertaining to fugitive dust from facility paved roadways. Some materials may be transported by rail.

The facility will emit ethanol and other byproducts of the fermentation process which are VOC's. The VOC emissions will exceed 15 pounds per day, so the facility will be subject to s. NR 424.03, Wis. Adm. Code. The section requires 85% control; or where 85% control is demonstrated to be technologically infeasible, the use of the latest available control techniques (LACT) and operating practices demonstrating best current technology, as approved by the Department.

The company proposes to use a thermal oxider / waste heat recovery boiler to meet the VOC, s. NR 424.03(2), Wis. Adm. Code, 85 percent control requirement, for emissions from the distillation, condensation, molecular sieve, methanator and spent grain drying processes. As the oxidizer produces steam from the process, and inputs more heat than would be needed for emissions control alone, the combination also constitutes a basic emissions unit.

Ethanol is very soluble in water. A water scrubber will be used as a part of the process to collect VOC from the fermentation process (primarily CO_2 with VOC's) and recycle the collected VOC's back into the process. This scrubber is thus is considered part of the process.

The Department required investigation of the use of a second, supplemental control to collect and/or destroy additional VOC's from the fermentation process. The facility indicated that thermal oxidation of this stream (within the waste heat recovery boiler / oxidizer) would not be feasible, since the high volume of Carbon Dioxide would serve to quench (cool) the combustion in the oxidizer and prevent its operation and that a dedicated oxidizer would be too costly. An examination of the use of a second scrubber was also asserted to be too costly under the standards normally applied under ch. NR 424, Wis. Adm. Code ($8100 / ton), as any additional water being used for control would require the installation and operation of a wastewater treatment plant, which effectively trebled the capital cost of add-on control. The facility also indicated that there are no additional volumes of water that could be directed to the main scrubber or a supplemental scrubber that would not subsequently require the addition of a wastewater treatment facility. The facility has indicated that in the EPA consent decrees regarding similar operations, the required control efficiency has been 95%. Thus, as 85% control (of the emissions from the scrubber), are determined to be technologically infeasible, Latest Available Control Technologies and operating practices (LACT) will apply. LACT for this process is determined to be use of a scrubber achieving not less than 98.7% collection of VOC emissions and that the maximum possible fresh water incoming to the process shall be used within this scrubber to collect VOC emissions as noted in the 85% control analysis.

The facility will be subject to the new source performance standard (NSPS) for equipment leaks in synthetic organic chemical manufacturing industry under s. NR 440.565, Wis. Adm. Code. The requirements call for the monitoring, visual inspection and repairs. The same language incorporated into 00-POY-167 (Badger State Ethanol, Monroe) and 02-DCF-023 (Algoma Ethanol) permits will be used in this proposed permit.

The thermal oxidizer / waste heat recovery boiler will be subject to the NSPS requirements for boilers having heat inputs greater than 100 MMBTU/hr. This includes a Nitrogen Oxides limit of 0.10 lbs/ MMBTU and monitoring requirements. As the unit appears to have a heat input capacity of less than 250 MMBTU/hr the facility can submit a plan for conducting parametric monitoring of the system, in place of a requirement to install and operate a Nitrogen Oxides CEM (Continuous Emissions Monitor).

The thermal oxidizer system will have competing demands with regard to the applicable limitations

that will apply to emissions from the unit and the upstream processes. The oxidizer will need to operate at a temperature that is sufficiently high to assure that VOC's (including those which may produce odors), Formaldehyde (and other HAP's) and Carbon Monoxide are properly controlled by the oxidation reactions that rely upon sufficient temperature, residence time and turbulence. These are 'offset' by the need for the thermal oxidizer / waste heat boiler to not to emit in excess of the NSPS limit of 0.10 pounds of Nitrogen Oxides per million BTU of heat input and a more stringent 0.095 lbs / MMBTU proposed by the facility. To meet the Nitrogen Oxides limit, it is expected that the facility will need to assure that the oxidizer temperatures are not too high. Generally speaking, temperatures in excess of 1500° F can yield considerable formation of 'thermal NO_X.' In addition, the higher temperatures are more costly in terms of fuel usage. The temperature and other factors will be used to demonstrate compliance with the NO_X limitation by the NSPS required development of 'parametric monitoring' allowable in place of a CEM (Continuous Emissions Monitor). In addition to proper control of the oxidizer operating temperatures, the facility may be able to make use of low NO_X burners (LNB's) and/or staged combustion within the dryers and within the oxidizer itself, to further assure that the NO_X emissions are in compliance with the NSPS. Retention time of gases within the boiler is estimated at approximately 0.9 seconds at maximum capacity.

Residual water and grain slurry from the distillation process is centrifuged, into wet spent grain and used process water.

The facility is proposing to dry the wet spent grain using a pair of rotary drum dryers. Recent tests have revealed that the drying of these materials can result in considerable emissions of VOC's (beyond that from the VOC's dissolved within the water), thought to be due to thermal decomposition of the spent grain as it is being dried.

The dried grain is cooled / transported with a cyclone which is asserted to be a part of the process (P70). The VOC emissions exiting from this stream, are also subject to regulation under ch. NR 424, Wis. Adm. Code and need to be controlled by 85% or a level determined to constitute Latest Available Control Techniques and operating practices (LACT). The facility has asserted and demonstrated that 85% control of this stream is not technologically feasible under the standards normally applied under ch. NR 424, Wis. Adm. Code. The facility also asserts that the volume of the exhaust is such that it cannot be effectively directed through the Waste Heat recovery boiler / Thermal Oxidizer. The facility is proposing that LACT be no additional control of VOC emissions from the cooling cyclone and assuring that the exhaust temperature does not exceed 95° F. It is proposed that LACT for this process be proper operation and control of the dryer process (a portion of P10) as this is viewed as the original source of emissions from this process (P70).

The used process water (from the centrifuge) is directed to a steam heated evaporator system which using multiple 'effects' operating at varying pressures, purifies the water for reuse by the process. The evaporator residual solids are added as 'the solubles' of the 'Distillers Dried Grains with Solubles. The water and higher volatility materials separated from the 'solubles' in the evaporator, are all directed to the Biomethanators.

The Biomethanators (P11) use an anaerobic (without air) biological digestion process, to break down the dissolved organics into methane and other materials which are combustable. These off gases will normally be directed to the dryers to be combusted as a supplemental fuel, though the facility is proposing to also have a bypass stack / flare for combusting these gases when the dryers aren't operating. The facility asserts that the remaining digested water is then returned to the process. The Biomethanators are noted as producing a fuel gas with up to a 2.85 MMBTU/hr heat content.

The 200,000 (3) and 750,000 (2) gallon tanks are subject to most of the requirements the NSPS (since the design capacity is greater than 39,894 gallons containing liquids with vapor pressures of

greater than 15 kPa / 0.51 psia). Though the vapor pressure at the annual average temperature of 45° F is right at 0.51 psia, the NSPS applicability is determined by the vapor pressure at the highest monthly average temperature (0.92 psia at 70.7° F). NSPS requirements are that it have an internal floating roof and specific fittings as well as monitoring, inspection and recordkeeping requirements. The smallest tank used to hold an additive (used as a corrosion inhibitor) will be small enough (less than 19,815 gallons) that is will only be subject to NSPS recordkeeping requirements.

The fuel grade Ethanol product will be loaded out into on-road tanker trucks or into rail tanker cars. Due to the volumes of material that will be produced and off-loaded and due to the potential of the incoming tanker trucks having been previously used for transporting gasoline, the facility has proposed the use of a vapor collection / disposal system equipped with a flare. This system is intended to collected the VOC containing air within the tanker truck / rail tanker that is displaced as the tank is being filled with the product, and burn it within a dedicated loadout flare. Without this system, the facility emissions would be substantially higher and could trigger the requirement that the facility be subject to Benzene LAER (Lowest Achievable Emission Rate), under ch. NR 445, Wis. Adm. Code, from Benzene which could be contained within the incoming tanker trucks, etc. The use of a vapor collection system is required of sources which have the potential to load out 40,000 gallons per day of materials, where those materials have a vapor pressure of 1.52 psia at 70° F, under s. NR 419.06(3), Wis. Adm. Code. As the vapor pressure of the loaded material (Ethanol) is about 0.9 psia at 70° F, this requirement does not appear to formally apply to the source, even though the vapors which are being displaced by the filling operation, may be gasoline, which has a significantly higher vapor pressure. Note that the collection / disposal equipment is proposed by the facility and will be required for the facility to be a minor source and/or not subject to Hazardous LAER. With the flare usage, the total potential Benzene emissions were estimated to be 84 pounds per year.

The DDGS (Distiller's Dried grain w/ solubles) loading is controlled using a baghouse. The baghouse will have similar Air to Cloth, pressure drop and collection efficiency as others noted for the operation. The loading operation will also be enclosed.

AIR QUALITY REVIEW

A modeling analysis was completed by Gail McGovern on June 4. This analysis assessed the impact of particulate matter, nitrogen oxide, sulfur dioxide, carbon monoxide, and various HAP emissions from the UWGP proposed ethanol plant. The facility has been proposed to be located in a rural site between the villages of Friesland and Randolph. Terrain is a factor in the immediate area, so elevations were considered in this analysis. Since the facility will be located in a PSD baseline county (baseline set on September 20, 1994), increment consumption was analyzed for PM_{10}, NO_x, and SO_2.

MODELING ANALYSIS

1. Don Faith supplied the emission parameters used in this analysis via a report from RMT, Inc. who is the consultant for this project. Building dimensions were determined from measurements taken from a plot plan provided with the permit application. Please refer to the attached source table.

2. Five years (1975-1979) of preprocessed meteorological data was used in this analysis. The surface data was collected in Madison, WI, and the upper air meteorological data originated in Green Bay, WI.

3. The Industrial Source Complex Short Term 3 (ISCST3) model was also used in the analysis. The model used rural dispersion coefficients, with the regulatory default option. This allows for

calm wind correction, buoyancy induced dispersion, and building downwash.

Regional background concentrations were found to be as follows:

BACKGROUND CONCENTRATIONS
(Concentrations are in g/m^3)

Monitoring Site	Pollutant	Averaging Period	Concentration
Madison Dane County	TSP	24 hr	69.3
Madison Dane County	PM_{10}	24 hr Annual	49.8 22.2
Green Bay East H. S. Brown County	SO_2	3 hr 24 hr Annual	137.1 35.2 7.9
Devils Lake State Park Sauk County	NO_x	Annual	4.7
923 270th Avenue Luck Polk County	CO	1 hr 8 hr	3188.0 890.4

1415 East Walnut

East 12886 Tower Road

5. The receptors used in this analysis consisted of a rectangular grid around the facility. Points within known fences or on top of buildings were not considered. Approximately 1695 receptors were used in this analysis.

MODEL RESULTS

The results demonstrate that the ambient air quality standards will be attained and maintained assuming the emission rates and stack parameters listed in the attached source table.

Analysis Results

(All Concentrations in g/m^3)

	PM_{10} - 24 hr	PM_{10} - Annual	TSP - 24 hr
Increment Source Impact	29.8	3.9	
-Increment 3017-% Increment Consumed	99.3	22.9-NAAQS Source Impact	45.3
	5.5	45.3	
Background	49.8	22.2	69.3
Total Concentration	95.1	27.7	114.6
NAAQS	150	50	150
% NAAQS	63.4	55.4	76.4

Analysis Results

(All Concentrations in g/m^3)

	SO_2 - 3 hr	SO_2 – 24 hr	SO_2 - Annual
Increment Source Impact	45.6	16.1	
2.2Increment 5129120% Increment Consumed	8.9	17.7	11.0NAAQS Source Impact
	45.6	16.1	2.2
Background	137.1	35.2	

	7.9
Total Concentration	
	182.7
	51.3
	10.1
NAAQS	
	1300
	365
	80
% NAAQS	
	14.1
	14.1
	12.6

Analysis Results
(All Concentrations in g/m^3)

	NO_x - Annual	CO – 1 hr	CO – 8 hr
Increment Source Impact			
	20.2	-	
-Increment 25.0--% Increment Consumed80.8--NAAQS Source Impact20.2252.0108.0			
Background			
	137.1		
	3188.0		
	890.4		
Total Concentration			
	182.7		
	3440.0		
	998.4		
NAAQS			
	1300		
	40000		
	10000		
% NAAQS			
	14.1		
	8.6		
	10.0		

HAP Analysis Results
(All Concentrations in g/m^3)

	Acetic Acid – 24 hr	Acrolein – 24 hr	Acrolein – 1 hr*
Source Impact	3.4	0.8	6.5
Acceptable Ambient Concentration (AAC)	6006.0	22.9	
% AAC	0.6	13.3	28.4

*The 1-hour acrolein standard has been proposed, but is not currently in use.

HAP Analysis Results
(All Concentrations in g/m^3)

	Acetaldehyde – 24 hr	Hexane – 24 hr	Hexane - Annual*
Source Impact	23.8	11.5	0.8
Acceptable Ambient Concentration (AAC) / Reference Conc. (RfC)	4320	4320	200
% AAC / % RfC	0.6	0.3	0.4

*The annual hexane standard is found in Table 5 of NR445.04. The standard of comparison is referred to as the reference concentration

CONCLUSION

The results of the final modeling analysis demonstrate that all applicable air quality standards will be satisfied, assuming the emission rates and stack parameters given in the source tables.

UWGP - Friesland
Point Source Stack Parameters

ID	LOCATION (M)	HEIGHT (M)	DIAM (M)

VELOCITY
(M/S)
TEMP
(K)S10333540.5, 4826059.338.11.8316.0377.0

S20333618.0, 4826033.625.90.9122.31293.0S30333591.6,

4826032.822.90.6118.6293.0S40333539.3, 4826001.913.710.5113.9293.0S50333627.7,

4826011.610.970.4324.17810.8S11333553.3, 4826031.33.350.4320.7811.0S70333581.2,

4826062.322.90.5642.3293.0S80 (CT1)333467.5, 4826124.710.977.624.26311S80

(CT2)333477.1, 4826126.410.977.624.26311S80 (CT3)333486.1,

4826128.610.977.624.26311S80 (CT4)333495.6, 4826130.510.977.624.26311S90333611.7,

4826050.413.70.3622.6293.0ENGINE333463.0, 4826111.92.420.1545.0683.0

UWGP - Friesland
Criteria Pollutant Emission Rates
IDPM/PM_{10} (#/HR)NO_x (#/HR)SO_2 (#/HR)CO (#/HR)S105.521.40.118.5S202.0---S300.8---S400.06---S500.060.4-2.4S110.060.44-2.37S703.0 / 0.5---S80 (CT1)0.275---S80 (CT2)0.275---S80 (CT3)0.275---S80 (CT4)0.275---S900.4---ENGINE0.063.440.380.18

UWGP - Friesland
HAP Emission Rates
IDAcetic Acid (#/HR)Acrolein (#/HR)Acetaldehyde (#/HR)Hexane (#/HR)S101.50.0290.25-S20----S30----S400.20.0471.4-S50---0.4S11----S70-0.080.09-S80 (CT1)----S80 (CT2)----S80 (CT3)----S80 (CT4)----S90----ENGINE----

EMISSIONS FROM NEW EQUIPMENT OR MODIFICATION

I. Process P10, P11, Control C10, Stack S10 - Distillation, Condensation, Drying, Biomethanation, Steam Generation / Thermal Oxidation (up to 225 MMBTU/hr)

Potential to Emit
PollutantPounds per Hour (lbs/hr)Tons per Year (TPY)Particulate matter (PM)5.524.2Sulfur dioxide (SO_2)0.10.6Nitrogen oxides (NO_x)21.4*93.6Carbon monoxide (CO)18.580.8Volatile organic compounds (VOCs)6.7429.5Formaldehyde0.140.6Acetic Acid1.56.7Acrolein0.0290.1Acetaldehyde0.251.1* (Based on 0.095 lbs/MMBTU w/ max. of 225 MMBTU/hr).

II. Process P20, Control C20, Stack S20 - Grain receiving / unloading / storage

Potential to Emit

PollutantPounds per Hour (lbs/hr)Tons per Year (TPY)Particulate matter (PM)2.08.7

III. Process P30, Control C30, Stack S30 - Grain hammermill

Potential to Emit
PollutantPounds per Hour (lbs/hr)Tons per Year (TPY)Particulate matter (PM)0.83.5

IV. Process P40, Control C40, Stack S40 - Fermentation

Potential to Emit
PollutantPounds per Hour (lbs/hr)Tons per Year (TPY)Volatile organic compounds (VOCs)7.432.5Acetaldehyde1.46.0Acetic Acid0.20.7Acrolein0.0470.2Formaldehyde11.4 #Methanol0.10.6 # - lbs/yr

V. Process P50 / Control C50 - Loading Rack

Potential to Emit
PollutantPounds per Hour (lbs/hr)Tons per Year (TPY)Nitrogen oxides (NO_X)0.41.9Carbon monoxide (CO)2.410.4Volatile organic compounds (VOCs)1.46.0Hexane0.40.1Benzene 0.184 lbs/yr

VI. Tank T61 - 750,000 gallon floating roof tank (final product tank)

Potential to Emit
PollutantPounds per Hour (lbs/hr)Tons per Year (TPY)Volatile organic compounds (VOCs)0.040.17

VII. Tank T62 - 750,000 gallon floating roof tank (final product tank)

Potential to Emit
PollutantPounds per Hour (lbs/hr)Tons per Year (TPY)Volatile organic compounds (VOCs)0.040.17

VIII. Tank T63 - 200,000 gallon floating roof tank (200 proof Ethanol tank)

Potential to Emit
PollutantPounds per Hour (lbs/hr)Tons per Year (TPY)Volatile organic compounds (VOCs)0.060.26

IX. Tank T64 - 200,000 gallon floating roof tank (gasoline denaturant tank)

Potential to Emit
PollutantPounds per Hour (lbs/hr)Tons per Year (TPY)Volatile organic compounds (VOCs)0.200.89

X. Tank T65 - 200,000 gallon floating roof tank (190 proof Ethanol)

Potential to Emit
PollutantPounds per Hour (lbs/hr)Tons per Year (TPY)Volatile organic compounds (VOCs)0.060.27

XI. Tank T66 - 2,000 gallon fixed roof tank (Methanol / Xylene additive)

Potential to Emit
PollutantPounds per Hour (lbs/hr)Tons per Year (TPY)Volatile organic compounds (VOCs)<0.010.005

XII. Process P11, Control C11; Stack S11 - Biomethanators (bypass operation)

Potential to Emit
PollutantPounds per Hour (lbs/hr)Tons per Year (TPY)Particulate Matter (PM) Allowable **0.952.4*Nitrogen oxides (NO_x)0.441.1*Carbon monoxide (CO)2.376.0*Volatile organic compounds (VOCs)0.330.8** Restricted to 5040 hours per year of bypass operation.
** - Based on 0.15 lbs/MMBTU ch. NR 415 limit and 6.3 MMBTU/hr.

XIII. Process P70; Stack S70 - DDG Cooling (C70 - Cyclone; Type II w/ fabric filter)

Potential to Emit
PollutantPounds per Hour (lbs/hr)Tons per Year (TPY)Particulate matter (PM)3.013.1PM_{10} (PM ≤ 10 m)0.52.1Volatile organic compounds (VOCs)4.620.2Acetaldehyde0.090.4Acrolein0.080.3Formaldehyde-26 lbs/yrMethanol0.110.5

XIV. Process P80; Stack S80 - Cooling Tower (4 fans)

Potential to Emit
PollutantPounds per Hour (lbs/hr)Tons per Year (TPY)Particulate matter (PM)1.04.4Volatile organic compounds (VOCs)0.10.3

XV. Process P90; Stack S90; Control C90 - DDGS Loadout

Potential to Emit
PollutantPounds per Hour (lbs/hr)Tons per Year (TPY)Particulate matter (PM)0.41.8

Emergency Fire Pump

Potential to Emit
PollutantPounds per Hour (lbs/hr)Tons per Year (TPY)Particulate matter (PM)0.060.01*Sulfur dioxide (SO_2)0.380.1Nitrogen oxides (NO_x)3.440.9Carbon monoxide (CO)0.180.04*Volatile organic compounds (VOCs)0.100.02** Noted as 0.0 TPY. Based on max of 500 hours / year of operation, 0.2 wt. % S fuel oil.

<u>TOTAL EMISSIONS FROM NEW EQUIPMENT OR MODIFICATION</u>

PollutantPotential to Emit (TPY unless otherwise noted) Particulate matter (PM)76.2Sulfur dioxide (SO_2)0.7Nitrogen oxides (NO_x)97.5Carbon monoxide (CO)97.3Volatile organic compounds (VOCs)90.9Total Federal HAPs (s. 112(b) pollutants)< 10 / 25 TPYFormaldehyde 0.6

FACILITY AND PROJECT CLASSIFICATION

1. Existing Facility Status:

The proposed ethanol production facility is a “Greenfield” source with no existing emissions.

2. Project Status:

The proposed ethanol production facility will constitute a new synthetic minor non-Part 70 / PSD minor source since the potential emissions of criteria pollutants will be less than 100 TPY. The ethanol facility is considered as being within a PSD source category (“Chemical plants”) with a 100 TPY major source threshold, so emissions must be below 100 TPY to avoid PSD review. Emissions of federally listed (Section 112(b)) hazardous air pollutants (HAP’s) will also remain below the 10 TPY threshold for any single compound and less than 25 TPY in aggregate for all federal HAP’s.

3. Facility Status After Completion of Project:

Following completion of the project, the facility will constitute a PSD minor source and a "FESOP" (Federally Enforceable, State operation pemit) / Synthetic minor, non-Part 70 source. This is based upon the emissions being below the PSD / Title V major source threshold of 100 TPY of criteria pollutants and emissions of federal hazardous air pollutants being below the 10 / 25 TPY major source thresholds.

4. Summary:

NSR
ApplicabilityExisting
FacilityProposed
ProjectFacility After
ProjectMajorMinorMajorMinorMajorMinorPSDnaXXNon-AttainmentnananaFederal HAPnaXX
Part 70
ApplicabilityExisting
FacilityFacility After
ProjectPart 70FESOP
(Syn. Minor)non-part 70Part 70FESOP (Syn. Minor)non-part 70StatusnaX

ENVIRONMENTAL ANALYSIS

The proposed project is a Type III action under Chapter NR 150, Wis. Adm. Code, because there is a potential increase in hazardous emissions and the potential to emit of the project is less than 100 TPY for each criteria pollutant.

This preliminary determination does not constitute approval from the Bureau of Air Management or any other DNR sections which may also require review of the project. A news release is required for this proposal and is included in the public comment notice. It is proposed that an environmental assessment not be completed.

RULE APPLICABILITY

The smaller (2000 gallon) storage tank proposed by the facility is small enough and/or has a low

enough vapor pressure contents such that it is not subject to the major requirements of chs. NR 419, NR 420 or s. NR 440.285, Wis. Adm. Code except for some recordkeeping requirements and basic tank requirements. The 200,000 gallon tank (used for gasoline denaturant) is required to have a submerged fill pipe since its capacity is greater than 1000 gallons and it has a vapor pressure of more than 1.52 psia at 70° F (under s. NR 419.06(2), Wis. Adm. Code). The facility has proposed submerged fill pipes for the internal floating roof tanks and the fixed roof tank as well. The large 200,000 and 750,000 gallon tanks have a vapor pressure at the maximum monthly storage temperature such that they are all subject to an internal floating roof and specific fitting requirements of s. NR 440.285, Wis. Adm. Code.

Volatile Organic Compound emissions from the process line are subject to control under ch. NR 424, Wis. Adm. Code. The chemicals products manufacturing VOC control requirements of ch. NR 421, Wis. Adm. Code, are specifically limited to pharmaceutical manufacturing (thus NR 424 applies).

NEW SOURCE PERFORMANCE STANDARDS (NSPS) APPLICABILITY

For proposed construction of a source:

1. Is the proposed source in a source category for which there is an existing or proposed NSPS? Yes. The storage tanks are all within the s. NR 440.285, Wis. Adm. Code NSPS for storage of volatile organic liquids, most of which are subject to most requirements of the rule. The ethanol production operation is considered to be partially within the s. NR 440.62, Wis. Adm. Code requirements for the Synthetic Organic Chemical Manufacturing Industry (SOCMI, Subpart VV). There is a NSPS for Grain Elevators (s. NR 440.47, Wis. Adm. Code). There is a NSPS for moderate sized (100 - 250 MMBTU/hr) boilers: s. NR 440.205, Wis. Adm. Code. There are also NSPS for SOCMI distillation and reactor processes (s. NR 440.686 and s. NR 440.705, Wis. Adm. Code).*

2. Is the proposed source an affected facility? Yes.

   All of the tanks are subject to the NSPS but smallest storage tank (4,500 gallon) are only subject to the recordkeeping requirements for tank capacity and material vapor pressure. The large storage tanks (> 40,000 gallons) are subject to all of the s. NR 440.285, Wis. Adm. Code requirements which mandate use of an internal floating roof and specific fittings. This is based on a calculated vapor pressure of 0.9 psia at 70.7° F (average temperature in July) and the maximum true vapor pressure being above 3.5 KPa (0.51 psia) and 5.2 KPa (0.754 psia). See s. NR 440.285(2)(f), Wis. Adm. Code for definition of "Maximum true vapor pressure."

   The ethanol manufacturing process has been determined to be subject to the valve, pump and fitting leak prevention requirements of s. NR 440.62, Wis. Adm. Code, but not to the general SOCMI distillation and reactor requirements of s. NR 440.686 and NR 440.705 , Wis. Adm. Code (Subparts NNN and RRR). The U.S. EPA has identified that the original intent of these later two standards were to exclude products such as ethanol produced by biological synthesis (e.g. fermentation).

   The thermal oxidizer / waste heat recovery boiler (C10) is considered a steam generating unit with a heat input capacity of at least 100 MMBTU/hr and thus is subject to s. NR 440.205, Wis. Adm. Code. The applicability of the NSPS to this unit was confirmed by the U.S. EPA in a letter dated January 8, 2003. This was based on a similar facility (Badger State Ethanol).

   The Grain Elevator NSPS applies to Grain Terminal Elevators or Grain Storage Elevators. A "Grain Terminal Elevator" means any grain elevator which has a permanent storage capacity

of more than 88,100 cu. meters (ca. 2.5 million US Bushels) except those located at animal food manufacturers, pet food manufacturers, cereal manufacturers, breweries and livestock feedlots.
A "Grain Storage Elevator" means any grain elevator located at any wheat flour mill, wet corn mill, dry corn mill (for human consumption), rice mill or soybean mill which has a permanent grain storage capacity of 35,200 cu. meters (ca. 1 million Bu).

The total capacity of grain storage noted within the application appears to be less than 1 million Bushels. Also, since the corn milling does not appear to be for direct human consumption the facility does not appear to constitute a Grain Storage Elevator. Since the total capacity appears to be less than 2.5 million Bu, the facility does not appear to qualify as a Grain Terminal Elevator. Thus the facility does not appear to be subject to the standards of s. NR 440.47, Wis. Adm. Code.

For the proposed modification of an existing source:

1. Is the existing source, which is being modified, in a source category for which there is an existing or proposed NSPS? Not applicable (not a modification).

2. Is the existing source, which is being modified, an affected facility (prior to modification)? Not applicable.

3. Does the proposed modification constitute a modification under NSPS to the existing source? Not applicable.

4. Will the existing source be an affected facility after modification? Not applicable.

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAPS) APPLICABILITY

Part 61 NESHAPS:

1. Will the proposed new or modified source emit a pollutant controlled under an existing or proposed NESHAPS? No

2. Is the proposed new or modified source subject to an existing or proposed NESHAPS? No

Part 63 NESHAPS:

1. Will the proposed new or modified source emit a pollutant controlled under an existing Part 63 NESHAPS? No

2. Is the proposed new or modified source subject to an existing Part 63 NESHAPS? No

3. Is the proposed project subject to s. 112(g) of the Clean Air Act? No. The section 112(g) rules only apply to case-by-case MACT standards that are developed for new construction or reconstruction of sources that (by themselves) constitutes a new major source of federal hazardous air pollutants (for source categories not covered under an existing Part 63 MACT standard).

Though a new source, the facility application indicates that the controlled emissions are below the major source threshold, thus case by case, s. 112(g) MACT does not apply.

CRITERIA FOR PERMIT APPROVAL

Section 285.63, Wis. Stats., sets forth the specific language for permit approval criteria. The Department finds that:

1. The source will meet emission limitations.

2. The source will not cause nor exacerbate a violation of an air quality standard or ambient air increment.

3. The source is operating or seeks to operate under an emission reduction option. Not Applicable.

4. The source will not preclude the construction or operation of another source for which an air pollution control permit application has been received.

DETERMINATION

The preliminary determination of the DNR Air Management Program is that this project when constructed or modified and operated consistent with the application and subsequent information submitted will be able to meet the emission limits and conditions included in the attached Draft Permit. A final decision regarding emission limits and conditions will be made after the Department has reviewed and evaluated all comments received during the comment period. The proposed emission limits and other proposed conditions in the Draft Permit are written in the same form that they will appear in the construction permit and, where applicable, the operation permit. These proposed conditions may be changed as a result of public comments or further evaluation by the Department.

PERMIT FEE CALCULATIONBASIC FEES: 1.
Construction or replacement of a PSD or NAA minor source or the PSD or NAA minor modification of a Part 70 minor source. ($2,300)23002.
PSD or NAA minor modification of a Part 70 major source ($4,400)3.
PSD or NAA major modification of an existing PSD or NAA major source where the major modification is not a PSD or NAA major source by itself ($8,000)4.
Construction of a PSD or NAA major source, or any modification that constitutes a PSD or NAA major source by itself. ($12,000)5.
Revision of a valid construction permit. ($1,100)ADDITIONAL FEES:1.
The permit application required the review and analysis of two or more basic emissions units. ($400 per basic emission unit)10,8002.
The permit application is for a nonattainment area major source requiring an analysis of alternatives. ($1,350)3. The permit application is for a direct source which requires an emission offset under ch. NR 408, or the determination of a net emissions increase under ch. NR 405. ($3,350).4. The permit application is for a source which requires a case-by-case BACT, MACT or LAER determination. This excludes ch. NR 445 BACT or LAER determinations. ($2,700 per BACT, MACT or LAER determination)5.
The permit application is for a PSD or NAA minor source or minor modification to a major PSD or NAA source whose projected air quality impact requires a detailed air quality modeling analysis. ($700)7006. The permit application is for any source which is not a PSD or NAA minor source or minor modification to a PSD or NAA major source whose project air quality

impact requires a detailed air quality analysis. ($3,200)7.
The permit application is for a source which may emit a toxic or hazardous substance listed in s. NR 406.04(2)(f) or chs. NR 446 to 484. ($650)6508.
The permit application is for a source which requires a case-by-case ch. NR 445 BACT or LAER determination. A single determination may address multiple air contaminants. ($1,350 per BACT or LAER determination)27009.
The permit application is for a source which requires a stack test. ($1,350 for a single air contaminant test plus $950 for each additional air contaminant, not to exceed $4,200)420010.
The permit application is for a source which requires an environmental assessment under ch. NR 150. ($1050)11. A public hearing on the application is held at the request of the permit applicant or its agent. ($950).12.
The permit application is for a source which requires an emission limit determination under s. NR 424.03(2)(c), Wis. Adm. Code. ($400 per basic emissions unit)200013.
The application is for a source which requires specific permit conditions to limit the facility potential to emit in order to make the source or modification a PSD, NAA or Part 70 minor source or a PSD or NAA minor modification. ($2,150)215014.
The application for a medical waste incinerator which requires review of a needs and siting analysis. ($2,650)15. The application is for a source not reviewed under ch. NR 405 or 408, Wis. Adm. Code, where the applicant requested in writing and received the permit in 50 days or less. ($2,650)265016. The application for a source which is subject to review under ch. NR 405 or 408 where the applicant requested in writing and received the permit in 60 days or less. ($4,000)17. The application is for a source which is subject to review under ch. NR 405 or 408 where the applicant requested in writing and received the permit in 61 to 90 days or less. ($2,650)TOTAL FEE28150CREDIT(S)1.
The applicant publishes the newspaper notice ($150)1502.
The initial fee submitted with the application ($1350)1350TOTAL AMOUNT DUE26650

DRAFT AIR POLLUTION CONTROL CONSTRUCTION PERMIT
DRAFT AIR POLLUTION CONTROL OPERATION PERMIT

FACILITY NO. 111030040

PERMIT NOS. 03-DCF-048 and 03-DCF-048-OP / 111030040- F01

STACK NO.(S). S10, S20, S30, S40, S50, T61, T62, T63, T64, T65, T66, S70, S80, S90

SOURCE NO.(S). P10, C10, P20, P30, P40, P50 T61, T62, T63, T64, T65, T66, P70, P80, P90

THIS CONSTRUCTION PERMIT EXPIRES EIGHTEEN (18) MONTHS FROM THE DATE OF ISSUANCE OR WHEN THE OPERATION PERMIT IS ISSUED FOR THE EMISSION UNITS INCLUDED IN THIS PERMIT, WHICHEVER COMES FIRST.

THIS OPERATION PERMIT EXPIRES SIXTY (60) MONTHS FROM THE DATE OF ISSUANCE.

In compliance with the provisions of Chapter 285, Wis. Stats., and Chapters NR 400 to NR 499, Wis. Adm. Code,

Name of Source: United Wisconsin Grain Producers, LLC

Street Address: State Hwy 33 and Cnty Hwy EF
Friesland, Wisconsin

Responsible Official & Title: Carl T. Benek, Director

is authorized to construct/operate a fuel grade ethanol production facility described in the plans and specifications dated February 12, 2003; April 18, 2003; May 9, 2003; May 23, 2003; June 3, 2003 and June 9, 2003 in conformity with the conditions herein.

This authorization requires compliance by the permit holder with the emission limitations, monitoring requirements and other terms and conditions set forth in Parts I and II hereof.

Dated at Poynette, Wisconsin this _____ day of _____.

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
For the Secretary

By _____ DRAFT
Dean Packard, Air Management Supervisor, Northern Team
South Central Region Air Program

Note: Part II contains general requirements for all stationary sources. Part II is not attached to the Draft Permit and is available upon request.

PART I: **APPLICABLE LIMITATIONS**

A. **Stack S10; Control C10 - Thermal Oxidizer / Waste Heat Recovery Boiler (140 MMBTU/hr burners); Process P10 - DDGS Drying Process (85 MMBTU/hr burners); Distillation and related processes; Molecular Sieve / Condenser; Process P11 - Biomethanator (normal operation). The Thermal Oxidizer / Waste Heat Recovery Boiler is Subject to NSPS, s. NR 440.205, Wis. Adm. Code.POLLUTANTSa. LIMITATIONSb. COMPLIANCE DEMONSTRATIONc. REFERENCE TEST METHODS, RECORDKEEPING AND MONITORING**1. Volatile organic compounds (VOC) (1) 98% overall control of VOC emissions, not less than 99.0% VOC destruction efficiency and 99% capture (85% control required under ch. NR 424). [s. 285.65(7), Wis. Stats.; s. NR 406.10 and s. NR 424.03(2)(b), Wis. Adm. Code]

(2) 0.365 pounds VOC per ton of DDGS (Distillers Dried Grain with Solubles, dried to 11% moisture) when the

dryers are operating and not more than 6.7 pounds per hour. [s.285.65(7), Wis. Stats.]

(3) Total throughput of DDGS (dried to 11% moisture) may not exceed 13,470 Tons per month (averaged over any 12 consecutive month period).

(1) Whenever any of the listed processes are operating, the permittee shall vent the process exhausts to the thermal oxidizer / waste heat recovery boiler. [s. NR 406.10, Wis. Adm. Code]

(2) The thermal oxidizer temperature shall be maintained within the range needed to maintain compliance with all applicable requirements. This shall be a temperature at or above 1400° F unless a higher minimum temperature is shown to be needed to maintain compliance with all applicable requirements. [s. NR 407.09(1)(c), Wis. Adm. Code]

(3) Compliance emission tests shall be conducted within 90 days after the start of initial operation to demonstrate compliance with the volatile organic compound emission limitations and minimum destruction efficiency in I.A.1.a.(1) and (2) while operating at 100% capacity. If the compliance emission tests cannot be conducted within 90 days after the start of initial operation, the permit holder may request and the Department may approve, in writing, an extension of time to conduct the test(s). [s. NR 439.03, Wis. Adm. Code]
(1) Whenever VOC compliance testing is required, USEPA Method 18 shall be used. When approved in writing an equivalent test method may be substituted for the required test method. [§ NR 439.06(8), Wis. Adm. Code]

(2) The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the thermal oxidizer / waste heat recovery boiler. [s. NR 439.04(1)(d), Wis. Adm. Code]

(3) The facility shall continuously monitor and record the temperature within the thermal oxidizer and shall maintain hourly / daily records of the quantity of DDGS (dried to 11% moisture) produced by the dryer. [s. NR 439.055(2)(a), Wis. Adm. Code]

(4) The permittee shall keep records of all inspections, checks and any maintenance or repairs performed on the thermal oxidizer, containing the date of the action, initials of inspector, and the results. [s. NR 439.04(1)(d), Wis. Adm. Code]

(5) Instrumentation to monitor the temperature in the thermal oxidizer shall be installed and operated properly. [s. NR 439.055(1)(a), Wis. Adm. Code]

(6) The facility shall summarize the daily DDGS throughput on a monthly basis and calculate the 12 month average DDGS throughput within 14 days of the end of the prior month.
[s. NR 439.04, Wis. Adm. Code]2. Particulate Matter Emissions
(1) 0.30 pounds per ton of DDGS dried / handled (based on weight dried to 11% moisture) when the dryers are operating and not more than 5.5 pounds per hour. 1
[s. 285.65(7), Wis. Stats., and s. NR 415.05(1) and (2), Wis. Adm. Code]

(1) Whenever the facility is operating, the permittee shall vent the listed process exhausts to the thermal oxidizer / waste heat recovery boiler. [s. NR 406.10, Wis. Adm. Code]

(2) The facility shall maintain the DDGS drying temperatures and other pertinent operating parameters (e.g. dryer rotation rate, oxidizer temperature, DDGS throughput) within the ranges determined necessary to maintain compliance with the particulate matter emission limitations. [s. NR 407.09(1)(c), Wis. Adm. Code]

(3) Compliance emission tests shall be conducted within 90 days after the start of initial operation to demonstrate compliance with the particulate matter emission limitations in I.A.1.a.(1) and (2) while operating at 100% capacity. If the compliance emission tests cannot be conducted within 90 days after the start of initial operation, the permit holder may request and the Department may approve, in writing, an extension of time to conduct the test(s).[s. NR 439.03, Wis. Adm. Code](1) Whenever particulate matter emission testing is required, the permittee shall use U.S. EPA Method 5 including backhalf (US EPA Method 202). [s. NR 439.06(1), Wis. Adm. Code]

(2) Reference Test Method for PM_{10} Emissions: Whenever compliance emission testing is required, the appropriate US EPA Method; 201 or 201A shall be used to demonstrate compliance. [s. NR 439.06(1m), Wis. Adm. Code]

(3) The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the thermal oxidizer / waste heat recovery boiler. [s. NR 439.04(1)(d), Wis. Adm. Code]

(4) The facility shall monitor and record the dryer temperature and other pertinent operating parameters (e.g. dryer rotation rate, oxidizer temperature, DDGS throughput) at least once every 8 hours. [s. NR 439.055(2)(a), (b), Wis. Adm. Code]

(5) The permittee shall keep records of all inspections, checks and any maintenance or repairs performed on the thermal oxidizer, containing the date of the action, initials of inspector, and the results. [s. NR 439.04(1)(d), Wis. Adm. Code]

(6) Instrumentation to monitor the temperature within the dryers shall be installed and operated properly, as well as any other monitoring instrumentation needed. [s. NR 439.055(1)(a), Wis. Adm. Code]3. Visible Emissions(1) 20% Opacity [s. NR 431.05(1), Wis. Adm. Code]**(1)** The requirements in I.A.1.b. and I.A.2.b. shall be used to show compliance with the visible emissions limitation.
[s. 285.65(7), Stats.]**(1)** Whenever visible emissions compliance testing is required, USEPA Method 9 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04, Wis. Adm. Code shall be used. [s. NR 439.06(9)(a)1., Wis. Adm. Code] 4. Formaldehyde and other NR 445 hazardous air pollutant Emissions(1) Hazardous Best Available Control Technology as described in I.A.4.b.(1) and (2) for Formaldehyde.
[s. NR 445.04(3)(b), Wis. Adm. Code]

(2) 0.14 pounds per hour of Formaldehyde. [s. NR 406.10 and s. NR 445.04(3)(b), Wis. Adm. Code]

(3) 0.029 pounds per hour of Acrolein. [s. NR 406.10 and s. NR 445.04(1), Wis. Adm. Code](1) Whenever any of the listed processes are operating, the permittee shall vent the process exhausts to the thermal oxidizer / waste heat recovery boiler which achieves 99.0% VOC destruction efficiency (98% overall control). [s. NR 406.10 and s. NR 445.04(3)(b), Wis. Adm. Code]

(2) The thermal oxidizer temperature shall be maintained within the range needed to maintain compliance with all applicable requirements. This shall be a temperature at or above 1400° F unless a higher minimum temperature is shown to be needed to maintain compliance with all applicable requirements. [s. NR 445.04(3)(b) and s. NR 407.09(1)(c), Wis. Adm. Code]

(3) Stack emission tests shall be conducted within 180 days after the start of initial operation to determine Formaldehyde and Acrolein emission rates while operating at 100% capacity for Process P10 using USEPA Method 0011, or another method approved by the Department in writing. If the stack emission tests cannot be conducted within 180 days after the start of initial operation, the permit holder may request and the Department may approve, in writing, an extension of time to conduct the test(s). [s. NR 439.03, Wis. Adm. Code]
(1) Whenever Formaldehyde or other Aldehyde (e.g. Acrolein) compliance testing is required, USEPA Method

0011, shall be used. When approved in writing, an equivalent test method may be substituted for the required test method. [s. NR 439.06(8), Wis. Adm. Code]

(2) The permittee shall continuously monitor and record the operating temperature of the thermal oxidizer / waste heat recovery boiler. [s. NR 439.055, Wis. Adm. Code]

5. Nitrogen Oxides emissions(1) 0.095 pound per million BTU heat input and not more than 21.4 pounds per hour. This includes the heat input contributed by gaseous byproduct / waste.
[s. NR 440.205(5)(a)1. and (e), Wis. Adm. Code; s. 285.65(7), Wis. Stats.](1) Compliance emission tests shall be conducted within 180 days after the start of initial operation to demonstrate compliance with the nitrogen oxides emission limitation while operating at 100% capacity for Process P10. If the compliance emission tests cannot be conducted within 180 days after the start of initial operation, the permit holder may request and the Department may approve, in writing, an extension of time to conduct the test(s). [s. NR 440.205(7) and s. NR 439.03, Wis. Adm. Code]

(2) The permittee shall submit a plan containing the elements required under s. NR 440.205(10)(c), Wis. Adm. Code identifying the relationship of the operating conditions monitored and the nitrogen oxides emission rates (parametric monitoring). This shall be submitted for approval within 360 days of initial startup. [s. NR 440.205(10)(c), Wis. Adm. Code]

(3) The thermal oxidizer temperature shall be maintained within the range needed to maintain compliance with all applicable requirements. This shall be a temperature at or below 1500̊ F unless a different maximum temperature or a temperature range is shown to be needed to maintain compliance with all applicable requirements. [s. NR 407.09(1)(c), Wis. Adm. Code]

(4) The thermal oxidizer may only use Natural Gas as its supplemental fuel (the oxidizer is also used to combust VOC's from the controlled processes). The DDGS dryer may only be fueled using Natural Gas and (when in normal operation) off gases from the Biomethanators. [s. NR 406.10, Wis. Adm. Code]
(1) Whenever nitrogen oxides compliance testing is required, USEPA Method 7, 7A, 7E, or another method approved by the Department in writing shall be used. When approved in writing, an equivalent test method may be substituted for the required test method. [s. NR 439.06(6), Wis. Adm. Code]

(2) The permittee shall continuously monitor and record the operating temperature of the thermal oxidizer as well as any other parameters noted for parametric monitoring.
[s. NR 439.04 and s. NR 440.205(9)(g)2., Wis. Adm. Code]

(3) The permittee shall monitor and record the quantity of natural gas fuel burned in the thermal oxidizer and dryers on at least a daily basis (more detailed monitoring may be needed for parametric monitoring of emissions). [s. NR 440.205(9)(g)2., Wis. Adm. Code]

(4) The permittee shall monitor and record the quantity of the Biomethanator gases burned by the dryers on at least a daily basis. [s. NR 440.205(9)(g)2., Wis. Adm. Code]6. Malodorous emissions(1) General Limitations. No person may allow or permit emissions into the ambient air any substance or combination of substances in such quantities that an objectionable odor is determined to result unless preventative measures satisfactory to the department are taken to abate or control such emission. [s. NR 429.03(1), Wis. Adm. Code](1) The thermal oxidizer temperature shall be maintained within the range needed to maintain compliance with all applicable requirements. This shall be a temperature at or above 1400̊ F unless a higher minimum temperature is shown to be needed to maintain compliance with all applicable requirements. [s. NR 407.09(1)(c), Wis. Adm. Code](1) OBJECTIONABLE ODOR TESTS. An odor shall be deemed objectionable (malodorous) when either or both of the following tests are met:

(a) Upon decision resulting from investigation by the department, based upon the nature, intensity, frequency, and duration of the odor as well as the type of area involved and other pertinent factors.

(b) Or when 60% of a random sample of persons exposed to the odor in there place of residence of employment, other than employment at the odor source, claim it to be objectionable and the nature, intensity, frequency, and duration of the odor are considered.
[s. NR 429.03(2), Wis. Adm. Code]

(2) Facility shall maintain records and the procedures necessary to assure compliance with the odor prevention and abatement plan and shall incorporate these into the plan.
[s. NR 439.04, Wis. Adm. Code]

(3) The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the facility. [s. NR 439.04(1)(d), Wis. Adm. Code]7. Carbon Monoxide emissions(1) 18.4 pounds per hour. This limitation is in place to assure that the carbon monoxide emissions do not exceed the major source thresholds. [s. NR 406.10, Wis. Adm. Code and s. 285.65(7), Wis. Stats.]

(1) Whenever any of the listed processes are operating, the permittee shall vent the process exhausts to the thermal oxidizer / waste heat recovery boiler. [s. NR 406.10, Wis. Adm. Code]

(2) The thermal oxidizer temperature shall be maintained within the range needed to maintain compliance with all applicable requirements. This shall be a temperature at or above 1400° F unless a higher minimum temperature is shown to be needed to maintain compliance with all applicable requirements. [s. NR 407.09(1)(c), Wis. Adm. Code]

(3) Stack emission tests shall be conducted within 180 days after the start of initial operation to determine the Carbon Monoxide emission rate while operating at 100% capacity for Process P10. If the stack emission tests cannot be conducted within 180 days after the start of initial operation, the permit holder may request and the Department may approve, in writing, an extension of time to conduct the test(s). [s. NR 439.03, Wis. Adm. Code]
(1) Reference Test Method for Carbon Monoxide Emissions: Whenever compliance emission testing is required, the appropriate US EPA Method; 10, 10A or 10B shall be used. [s. NR 439.06(4)(a), Wis. Adm. Code]
8. Stack Parameters(1) Stack Parameters These requirements are included because the source was reviewed with these stack parameters and it was determined that no increments or ambient air quality standards will be violated when constructed as proposed.

(a) The stack height shall be at least 125.0 feet above ground level. [(s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code]

(b) The stack inside diameter at the outlet may not exceed 6 feet. [s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code]

(c) The stack may not be equipped with a rainhat or other device which impedes the upward flow of the exhaust gases. [s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code](1) To demonstrate compliance, the permittee shall maintain the records in I.A.7.c.(1). [s. NR 407.09(4)(a)1., Wis. Adm. Code](1) The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the physical stack parameters. [s. NR 439.04(1)(d), Wis. Adm. Code]

B. Stack S11; Control C11; Process P11- Biomethanator (bypass operation). (6.3 MMBTU/hr flare)

POLLUTANTSa.	**LIMITATIONSb.**	**COMPLIANCE DEMONSTRATIONc.**

REFERENCE TEST METHODS, RECORDKEEPING AND MONITORING1. Volatile organic compounds (VOC) (1) 94% overall control (based on approx. 98% collection, 96% destruction). (85% overall control of VOC emissions as required under ch. NR 424.) [s. 285.65(7), Wis. Stats.; s. NR 406.10 and s. NR 424.03(2)(b), Wis. Adm. Code]

(2) 0.3 pounds per hour
This limit was proposed by the permittee and relies upon the system achieving 94% overall control. [s.285.65(7), Wis. Stats.]

(1) Whenever the Biomethanator process is operating in bypass mode, the permittee shall vent the process exhaust to an operating flare. [s. NR 406.10, Wis. Adm. Code]

(2) The flare shall meet the General Control Device requirements of s. NR 440.18, Wis. Adm. Code.
[s. NR 445.04(3), Wis. Adm. Code and s. 285.65(3), Wis. Stats.]

(1) Whenever VOC compliance testing is required, USEPA Method 18 shall be used. When approved in writing an equivalent test method may be substituted for the required test method. [§ NR 439.06(8), Wis. Adm. Code]

(2) The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the flare. [s. NR 439.04(1)(d), Wis. Adm. Code]

(3) The facility shall continuously monitor and record the temperature within the flare, output from a "flame eye,"and/or any other monitoring / records needed to demonstrate compliance with the requirements of s. NR 440.18, Wis. Adm. Code, whenever emissions from the Biomethanator are discharged through the flare (in Bypass mode). [s. NR 440.18, s. NR 439.04 and s. NR 439.055(2)(a), Wis. Adm. Code]

(4) The permittee shall keep records of all inspections, checks and any maintenance or repairs performed on the flare, containing the date of the action, initials of inspector, and the results. [s. NR 439.04(1)(d), Wis. Adm. Code]

(5) Instrumentation to monitor the temperature in the flare, the "flame eye" and any additional instrumentation needed under the s. NR 440.18, Wis. Adm. Code requirements, shall be installed and operated properly. [s. NR 439.055(1)(a), Wis. Adm. Code]
2. Particulate Matter Emissions
(1) 0.06 pounds per hour. [s. NR 415.06(2)(a), Wis. Adm. Code; s. 285.65(7), Wis. Stats.]

Note: The particulate matter emissions limitation of 0.06 pounds per hour is more restrictive than the applicable limitation of s. NR 415.06, Wis. Adm. Code. This is necessary to prevent a violation of an ambient air quality standard and/or increment.

(1) Whenever the Biomethanator process is operating in bypass mode, the permittee shall vent the process exhaust to an operating flare. [s. NR 406.10, Wis. Adm. Code]

(2) The flare shall meet the General Control Device requirements of s. NR 440.18, Wis. Adm. Code.
[s. NR 445.04(3), Wis. Adm. Code and s. 285.65(3), Wis. Stats.]

(3) In addition to the gaseous materials from the Biomethanator, the flare may only be fired using natural gas (as a supplemental fuel). [s. NR 406.10, Wis. Adm. Code]

(1) Whenever particulate matter emission testing is required, the permittee shall use U.S. EPA Method 5 including

backhalf (US EPA Method 202). [s. NR 439.06(1), Wis. Adm. Code]

(2) Reference Test Method for PM_{10} Emissions: Whenever compliance emission testing is required, the appropriate US EPA Method; 201 or 201A shall be used to demonstrate compliance. [s. NR 439.06(1m), Wis. Adm. Code]

(3) The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the flare and of the fuel connections. [s. NR 439.04(1)(d), Wis. Adm. Code]

(4) The permittee shall keep records of all inspections, checks and any maintenance or repairs performed on the flare, containing the date of the action, initials of inspector, and the results. [s. NR 439.04(1)(d), Wis. Adm. Code]

(5) Instrumentation to monitor the temperature in the flare and the "flame eye" within the flare shall be installed and operated properly. [s. NR 439.055(1)(a), Wis. Adm. Code]
3. Visible Emissions(1) 20% Opacity [s. NR 431.05(1), Wis. Adm. Code]**(1)** The requirements in I.A.1.b. and I.A.2.b. shall be used to show compliance with the visible emissions limitation.
[s. 285.65(7), Stats.]**(1)** Whenever visible emissions compliance testing is required, USEPA Method 9 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04, Wis. Adm. Code shall be used. [s. NR 439.06(9)(a)1., Wis. Adm. Code]
4. Malodorous emissions(1) General Limitations. No person may allow or permit emissions into the ambient air any substance or combination of substances in such quantities that an objectionable odor is determined to result unless preventative measures satisfactory to the department are taken to abate or control such emission. [s. NR 429.03(1), Wis. Adm. Code](1) Whenever the Biomethanator process is operating in bypass mode, the permittee shall vent the process exhaust to an operating flare. [s. NR 406.10, Wis. Adm. Code]

(2) The flare shall meet the General Control Device requirements of s. NR 440.18, Wis. Adm. Code.
[s. NR 445.04(3), Wis. Adm. Code and s. 285.65(3), Wis. Stats.]
(1) OBJECTIONABLE ODOR TESTS. An odor shall be deemed objectionable (malodorous) when either or both of the following tests are met:
(a) Upon decision resulting from investigation by the department, based upon the nature, intensity, frequency, and duration of the odor as well as the type of area involved and other pertinent factors.
(b) Or when 60% of a random sample of persons exposed to the odor in there place of residence of employment, other than employment at the odor source, claim it to be objectionable and the nature, intensity, frequency, and duration of the odor are considered.
[s. NR 429.03(2), Wis. Adm. Code]

(2) Facility shall maintain records and the procedures necessary to assure compliance with the odor prevention and abatement plan and shall incorporate these into the plan.
[s. NR 439.04, Wis. Adm. Code]

(3) The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the facility. [s. NR 439.04(1)(d), Wis. Adm. Code]
5. Carbon Monoxide emissions(1) 2.4 pounds per hour. This limitation is in place to assure that the carbon monoxide emissions do not exceed the major source thresholds. [s. NR 406.10, Wis. Adm. Code and s. 285.65(7), Wis. Stats.]

(2) Bypass operation for the Biomethanators (discharge to flare and operation of flare) may not exceed 420 hours per month, averaged over any 12 consecutive month period. This limitation is in place to assure that the carbon monoxide emissions do not exceed the major source thresholds. [s. NR 406.10, Wis. Adm. Code and s. 285.65(7),

Wis. Stats.]

(1) Whenever the Biomethanator process is operating in bypass mode, the permittee shall vent the process exhaust to an operating flare. [s. NR 406.10, Wis. Adm. Code]

(2) The flare shall meet the General Control Device requirements of s. NR 440.18, Wis. Adm. Code. [s. NR 445.04(3), Wis. Adm. Code and s. 285.65(3), Wis. Stats.]

(3) To demonstrate compliance with the operational time limitation, the permittee shall maintain the records in I.B.5.c.(4). [s. NR 407.09(4)(a)1., Wis. Adm. Code](1) Reference Test Method for Carbon Monoxide Emissions: Whenever compliance emission testing is required, the appropriate US EPA Method; 10, 10A or 10B shall be used. [s. NR 439.06(4)(a), Wis. Adm. Code]

(2) The facility shall maintain daily records of any monitoring / records needed to demonstrate compliance with the requirements of s. NR 440.18, Wis. Adm. Code. [s. NR 439.04, Wis. Adm. Code]

(3) The permittee shall keep records of all inspections, checks and any maintenance or repairs performed on the flare, containing the date of the action, initials of inspector, and the results. [s. NR 439.04(1)(d), Wis. Adm. Code]

(4) The facility shall maintain daily records of the time and duration of bypass operation of the Biomethanator (including flare operation). These records shall be summarized monthly to determine the total monthly hours of bypass operation and the 12 month average of bypass operation. [s. NR 439.04, Wis. Adm. Code]6. Stack Parameters(1) Stack Parameters These requirements are included because the source was reviewed with these stack parameters and it was determined that no increments or ambient air quality standards will be violated when constructed as proposed.

(a) The stack height shall be at least 11.0 feet above ground level. [(s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code]

(b) The stack inside diameter at the outlet may not exceed 1.4 feet. [s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code]

(c) The stack may not be equipped with a rainhat or other device which impedes the upward flow of the exhaust gases. [s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code]
(1) To demonstrate compliance, the permittee shall maintain the records in I.A.7.c.(1). [s. NR 407.09(4)(a)1., Wis. Adm. Code](1) The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the physical stack parameters. [s. NR 439.04(1)(d), Wis. Adm. Code]

C. Stack S20; Control C20; Process P20 - Ethanol plant Grain Receiving: Corn Unloading, Conveyor, Elevator, Corn Storage SilosPOLLUTANTS / PARAMETERSa. LIMITATIONSb. COMPLIANCE DEMONSTRATIONc. REFERENCE TEST METHODS, RECORDKEEPING AND MONITORING1. Particulate Matter Emissions(1) 2.0 pounds per hour from stack S20. 2 [s. 285.65(7), Wis. Stats.; s. NR 404.08(2); s. NR 415.05(2), Wis. Adm. Code]

(2) Minimization of fugitive dust emissions: No person may cause, allow or permit any materials to be handled, transported or stored without taking precautions to prevent particulate matter from becoming airborne. [s. NR 415.04, Wis. Adm. Code]
(1) The grain receiving areas, conveyors, elevators and associated equipment shall be enclosed. The collected exhaust from the Process P20 area shall be vented to an operating fabric filter baghouse whenever unloading, transfer

or other operations are occurring. [s. 285.65(7), Wis. Stats.; s. NR 406.10, Wis. Adm. Code]

(2) The pressure drop across the baghouse shall be maintained between 2 to 8 inches of water column gauge pressure. [s. NR 407.09(1)(c), Wis. Adm. Code]

(3) The permittee shall clean and sweep the corn / grain receiving areas and roads as needed to prevent fugitive dust emissions. [s. NR 415.04, Wis. Adm. Code]

(4) Fabric spout extensions, covered conveyors, doors and/or other controls, where applicable shall be used where practical to minimize fugitive dust from grain unloading, transfer, storage and milling. [s. NR 415.04, Wis. Adm. Code]

(5) The baghouse design shall provide an air to cloth ratio (ACFM / ft^2) of no more than 10:1 (10 fpm) at the maximum exhaust flow. [s. NR 406.10, Wis. Adm. Code]

(1) Whenever particulate matter emission testing is required, the permittee shall use US EPA Method 5 including backhalf (US EPA Method 202). [s. NR 439.06(1), Wis. Adm. Code]

(2) Reference Test Method for PM_{10} Emissions: Whenever compliance emission testing is required, the appropriate US EPA Method; 201 or 201A shall be used to demonstrate compliance. [s. NR 439.06(1m), Wis. Adm. Code]

(3) The permittee shall monitor and record the pressure drop at least once for every eight hours of operation or once per day of operation, whichever yields the greatest number of measurements. [s. NR 439.055(2)(b), Wis. Adm. Code]

(4) The facility shall maintain diagrams, and other information documenting the use of fabric spout extensions, covered conveyors, loading/unloading area enclosures, etc, where applicable. [s. NR 439.04, Wis. Adm. Code]

(5) The facility shall document the procedures and practices for cleaning and sweeping the grain receiving areas and maintain records of all cleaning activities and of other actions / precautions taken to prevent particulate matter (fugitive particulate matter) from becoming airborne. [s. NR 439.04, Wis. Adm. Code]
1. Particulate Matter Emissions
[Continued](6) A compliance emission test shall be conducted within 90 days after the start of initial operation to demonstrate compliance with the particulate emission limitations in I.A.1.a.(1) while operating at 100% capacity. If the compliance emission tests cannot be conducted within 90 days after the start of initial operation, the permit holder may request and the Department may approve, in writing, an extension of time to conduct the test(s). [s. NR 439.03, Wis. Adm. Code]

(7) The permittee shall take precautions to prevent particulate matter from becoming airborne.
(a) Such precautions shall include, but not be limited to:
i. Use, where possible, of water or chemicals for control of dust in construction operations.
ii. Application of asphalt, water, suitable chemicals or plastic covering on dirt roads, material stockpiles and other surfaces which can create airborne dust, provided such application does not create a hydrocarbon, odor or water pollution problem.
iii. Installation and use of hoods, fans and air cleaning devices to enclose and vent the areas where dusty materials are handled.
iv. Covering or securing of materials likely to become airborne while being moved on public roads or railroads.
v. The paving or maintenance of roadway areas so as not to create air pollution.

[s. NR 415.04, Wis. Adm. Code]
(6) The permittee shall keep records of all inspections, checks and any maintenance or repairs performed on the baghouse, containing the date of the action, initials of inspector, and the results. [s. NR 439.04(1)(d), Wis. Adm. Code]

(7) The permittee shall keep records of the baghouse design / specification which demonstrate the design and operating parameters achieve an air to cloth ratio not exceeding 10:1. [s. NR 439.04(1)(d), Wis. Adm. Code]

2. Visible Emissions(1) 20% Opacity [s. NR 431.05(1), Wis. Adm. Code](1) The requirements in 1.C.1.b. shall be used to show compliance with the visible emissions limitation.
[s. 285.65(7), Stats.](1) Whenever visible emissions compliance testing is required, USEPA Method 9 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04, Wis. Adm. Code shall be used. [s. NR 439.06(9)(a)1., Wis. Adm. Code]

(2) Reference Test Method for Visible (Fugitive Dust) emissions: Whenever compliance emissions testing is required, US EPA Method 22 shall be used to demonstrate compliance. [s. NR 439.06(9)(b), Wis. Adm. Code]

(3) The requirements in 1.C.1.c. (3) - (7) shall be used for the recordkeeping / monitoring. [s. NR 439.04, Wis. Adm. Code]
3. Physical Stack Parameters(1) Stack Parameters These requirements are included because the source was reviewed with these stack parameters and it was determined that no increments or ambient air quality standards will be violated when constructed as proposed.

(a) The stack height shall be at least 85.0 feet above ground level. [(s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code]

(b) The stack inside diameter at the outlet may not exceed 3 feet. [s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code]

(c) The stack may not be equipped with a rainhat or other device which impedes the upward flow of the exhaust gases. [s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code]
(1) To demonstrate compliance, the permittee shall maintain the records in I.C.3.c.(1). [s. NR 407.09(4)(a)1., Wis. Adm. Code](1) The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the physical stack parameters. [s. NR 439.04(1)(d), Wis. Adm. Code]

D. Stack S30, Process P30, Control C30 - Milling / Milled Corn TransferPOLLUTANTS / PARAMETERSa. LIMITATIONSb. COMPLIANCE DEMONSTRATIONc. REFERENCE TEST METHODS, RECORDKEEPING AND MONITORING1. Particulate Matter Emissions(1) 0.8 pound per hour [s. 285.65(7), Wis. Stats., s. NR 404.08(2), s. NR 415.05(1) and (2), Wis. Adm. Code](1) Whenever any portion of the milled corn transfer process is in operation, the permittee shall vent the exhaust to an operating fabric filter baghouse. This was proposed in the permit application. [s. NR 406.10, Wis. Adm. Code]

(2) A compliance emission test shall be conducted within 90 days after the start of initial operation to demonstrate compliance with the particulate emission limitations in I.A.1.a.(1) while operating at 100% capacity. If the compliance emission tests cannot be conducted within 90 days after the start of initial operation, the permit holder may request and the Department may approve, in writing, an extension of time to conduct the test(s). [s. NR 439.03, Wis. Adm. Code]

(3) The operating pressure drop across the baghouse shall be maintained between 2.0 to 8.0 inches of water column gauge pressure. [s. NR 407.09(1)(c), Wis. Adm. Code]

(4) The baghouse design shall provide an air to cloth ratio (ACFM / ft^2) of no more than 10:1 (10 fpm) at the maximum exhaust flow. [s. NR 406.10, Wis. Adm. Code]

(1) Whenever particulate matter emission testing is required, the permittee shall use US EPA Method 5 including backhalf (US EPA Method 202). [s. NR 439.06(1), Wis. Adm. Code]

(2) The permittee shall monitor and record the pressure drop at least once for every eight hours of operation or once per day of operation, whichever yields the greatest number of measurements. [s. NR 439.055(2)(b), Wis. Adm. Code]

(3) The permittee shall keep records of all inspections, checks and any maintenance or repairs performed on the baghouse, containing the date of the action, initials of inspector, and the results. [s. NR 439.04(1)(d), Wis. Adm. Code]

(4) The permittee shall keep records of the baghouse design / specification which demonstrate the design and operating parameters achieve an air to cloth ratio not exceeding 10:1. [s. NR 439.04(1)(d), Wis. Adm. Code]
2. Visible Emissions**(1)** 20% Opacity [s. NR 431.05(1), Wis. Adm. Code](1) The requirements in I.D.1.b.(1), (3) and (4) shall be used to show compliance with the visible emissions limitation. [s. NR 407.09(4)(a)1., Wis. Adm. Code](1) Whenever visible emissions compliance testing is required, USEPA Method 9 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04, Wis. Adm. Code shall be used. [s. NR 439.06(9)(a)1., Wis. Adm. Code]

(2) The requirements in 1.D.1.c. (2) - (4) shall be used for the recordkeeping / monitoring. [s. NR 439.04, Wis. Adm. Code]
3. Physical Stack Parameters(1) Stack Parameters These requirements are included because the source was reviewed with these stack parameters and it was determined that no increments or ambient air quality standards will be violated when constructed as proposed.

(a) The stack height shall be at least 75.0 feet above ground level. [(s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code]

(b) The stack inside dimension at the outlet may not exceed 1.17 feet in diameter. [s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code]

(c) The stack may not be equipped with a rainhat or other device which impedes the upward flow of the exhaust gases. [s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code]
(1) To demonstrate compliance, the permittee shall maintain the records in I.C.3.c.(1). [s. NR 407.09(4)(a)1., Wis. Adm. Code](1) The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the physical stack parameters. [s. NR 439.04(1)(d), Wis. Adm. Code]

E. Stack S40; Process P40 - Fermentation process with scrubber .POLLUTANTSa. LIMITATIONSb. COMPLIANCE DEMONSTRATIONc. REFERENCE TEST METHODS, RECORDKEEPING AND MONITORING1. Volatile organic compound (VOC) emissions(1) Latest Available Control Techniques and operating practices (LACT). LACT is determined to be the use of a process scrubber achieving at least 98.7% collection of VOC emissions (for return to the process) and directing the maximum possible incoming fresh water through the scrubber. [s. NR 406.10 and s. NR

424.03(2)(c), Wis. Adm. Code]

(2) 7.4 pounds per hour.
[s. NR 406.10 and s. NR 424.03(2)(c), Wis. Adm. Code; s. 285.65(7), Wis. Stats.]

(1) Whenever fermentation is conducted at the facility, the permittee shall direct the fermentation process exhaust to an operating water scrubber. [s. NR 406.10, Wis. Adm. Code and s. 285.65(7), Wis. Stats.]

(2) The pressure drop across the wet scrubber shall be maintained between 4 to 8 inches of water column gauge pressure. [s. NR 407.09(1)(c), Wis. Adm. Code]

(3) The wet scrubber shall have a water flow / addition rate of at least 50.0 gpm and the level/range determined to assure compliance with all limitations. If a higher level or a range is needed for compliance, this shall be documented in facility records and in the material submitted to complete the operation permit application. [s. NR 424.03, Wis. Adm. Code]

(4) Compliance emission tests shall be conducted within 90 days after the start of initial operation to demonstrate compliance with the volatile organic compound emission limitations in I.E.1.a.(1) and (2) while operating at 100% capacity. If the compliance emission tests cannot be conducted within 90 days after the start of initial operation, the permit holder may request and the Department may approve, in writing, an extension of time to conduct the test(s). [s. NR 439.03, Wis. Adm. Code]
(1) Whenever VOC compliance testing is required, U.S. EPA Method 18 shall be used. When approved in writing, an equivalent test method may be substituted for the required test method. [§ NR 439.06(8), Wis. Adm. Code]

(2) The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the scrubber, including flow / instrumentation diagrams which demonstrate that the process directs the maximum possible incoming fresh water to the scrubber. [s. NR 439.04(1)(d), Wis. Adm. Code]

(3) The facility shall monitor and record the flow rate of water to the scrubber and the pressure drop across the scrubber / demister at least once every 8 hours or once per day, whichever yields the greatest number of measurements. [s. NR 439.055(2)(b), Wis. Adm. Code]

(4) The permittee shall keep records of all inspections, checks and any maintenance or repairs performed on the scrubber, containing the date of the action, initials of inspector, and the results. [s. NR 439.04(1)(d), Wis. Adm. Code]

(5) Instrumentation to monitor the pressure drops and flow rates in the scrubber shall be installed and operated properly. [s. NR 439.055(1)(a), Wis. Adm. Code]

2. Visible Emissions(1) 20% Opacity [s. NR 431.05(1), Wis. Adm. Code](1) The requirements in 1.E.1.b. shall be used to show compliance with the visible emissions limitation.

[s. 285.65(7), Wis. Stats.](1) Whenever visible emissions compliance testing is required, USEPA Method 9 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04, Wis. Adm. Code shall be used. [s. NR 439.06(9)(a)1., Wis. Adm. Code]

4. Acrolein Emissions(1) 0.047 pounds per hour of Acrolein. [s. NR 406.10 and s. NR 445.04(1), Wis. Adm. Code](1) Whenever fermentation is conducted at the facility, the permittee shall direct the fermentation process exhaust to an operating water scrubber. [s. NR 406.10, Wis. Adm. Code and s. 285.65(7), Wis. Stats.]

(2) The pressure drop across the wet scrubber shall be maintained between 4 to 8 inches of water column gauge pressure. [s. NR 407.09(1)(c), Wis. Adm. Code]

(3) The wet scrubber shall have a water flow / addition rate of at least 50.0 gpm and the level/range determined to assure compliance with all limitations. If a higher level or a range is needed for compliance, this shall be documented in facility records and in the material submitted to complete the operation permit application. [s. NR 424.03, Wis. Adm. Code]

(4) Stack emission tests shall be conducted within 180 days after the start of initial operation to determine Acrolein emission rates while operating at 100% capacity for Process P40 using USEPA Method 0011, or another method approved by the Department in writing. If the stack emission tests cannot be conducted within 180 days after the start of initial operation, the permit holder may request and the Department may approve, in writing, an extension of time to conduct the test(s). [s. NR 439.03, Wis. Adm. Code]

(1) Whenever Formaldehyde or other Aldehyde (e.g. Acrolein) compliance testing is required, USEPA Method 0011, shall be used. When approved in writing, an equivalent test method may be substituted for the required test method. [s. NR 439.06(8), Wis. Adm. Code]

4. Physical Stack Parameters(1) ~~Stack Parameters~~ These requirements are included because the source was reviewed with these stack parameters and it was determined that no increments or ambient air quality standards will be violated when constructed as proposed.

(a) The stack height shall be at least 45.0 feet above ground level. [(s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code]

(b) The stack inside dimension at the outlet may not exceed 1.66 feet in diameter. [s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code]

(c) The stack may not be equipped with a rainhat or other device which impedes the upward flow of the exhaust gases. [s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code]

(1) To demonstrate compliance, the permittee shall maintain the records in I.E.4.c.(1). [s. NR 407.09(4)(a)1., Wis.

Adm. Code](1) The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the physical stack parameters. [s. NR 439.04(1)(d), Wis. Adm. Code]

F. Stack S50; Control C50; Process P50 - Loading Rack with flarePOLLUTANTSa. LIMITATIONSb. COMPLIANCE DEMONSTRATIONc. REFERENCE TEST METHODS, RECORDKEEPING AND MONITORING1. Volatile Organic Compound (VOC) emissions (1) No person may cause, allow or permit emissions of volatile organic compounds to the ambient air which substantially contribute to the exceeding of an air standard or cause pollution [s. NR 419.03(1), Wis. Adm. Code].

(2) No transfer of products from this facility may be made to a tanker truck unless any vapors carried by the tanker and/or emitted from the product are collected, processed and disposed of through a vapor collection, processing and disposal system (flare). [s. NR 406.10, s. NR 419.03(2) and s. NR 445.04(3), Wis. Adm. Code]

(3) 1.4 pounds per hour. This limit was proposed by the permittee : It relies upon the system achieving 94% overall control, is needed to avoid NR 445 Haz. LAER and to be a synthetic minor source. [s. NR 406.10; s. NR 419.03 and s. NR 445.04(3), Wis. Adm. Code; s. 285.65(7), Wis. Stats.]
(1) To demonstrate compliance with volatile organic compound emission limitations, the permittee shall conduct compliance emission testing whenever requested by the department [s. NR 439.06(3), Wis. Adm. Code]

(2) To demonstrate compliance with vapor collection system limitation, the permittee shall provide vapor collection/processing/disposal equipment at loading bays (both truck and railcar) for all products distributed at this facility to ensure that any gasoline and other volatile organic compound vapors are processed and disposed of through a vapor processing and disposal system. The vapor collection system shall be used whenever loading ethanol product and shall direct emissions to a flare. [s. NR 406.10; s. NR 445.04(3) and s. NR 407.09(4)(a)(3)(b), Wis. Adm. Code]

(3) The flare shall meet the General Control Device requirements of s. NR 440.18, Wis. Adm. Code.
[s. NR 445.04(3), Wis. Adm. Code and s. 285.65(3), Wis. Stats.]

(1) ~~Reference Test Method for Volatile Organic Compound Emissions:~~ Whenever compliance emission testing is required, the appropriate US EPA Method; 18, 25, 25A or 25B or other method as approved in writing, shall be used to demonstrate compliance. [s. NR 439.06(3)(a), Wis. Adm. Code]

(2) The permittee shall monitor and maintain daily records of the specific materials being transferred (loaded and unloaded), the throughput / quantity of material(s) and their vapor pressure (in psia or KPa). The permittee shall also identify and maintain daily records of the prior contents of the incoming tank truck prior to loading to assure compliance with the requirements of b.(3) (if no control is applied under (b.(2)). [s. NR 419.06, Wis. Adm. Code]

(3) The permittee shall keep and maintain on site "as built" technical drawings, blueprints or equivalent records of the piping for the loading bay, the vapor processing equipment and a log of the tankers authorized to load Ethanol at the facility [§§. 285.65(3), Stats., and NR 439.04(1)(d), Wis. Adm. Code]

(4) The facility shall maintain daily records of the usage of the gasoline vapor collection / disposal equipment. [s. NR 439.04, Wis. Adm. Code]

(5) The facility shall continuously monitor and record the temperature within the flare, output from a "flame eye,"and/or any other monitoring / records needed to demonstrate compliance with the requirements of s. NR 440.18, Wis. Adm. Code, whenever the loading rack is in use. [s. NR 440.18, s. NR 439.04 and s. NR 439.055(2)(a), Wis. Adm. Code]

1. Volatile Organic Compound (VOC) emissions [Continued](6) The permittee shall keep records of all inspections, checks and any maintenance or repairs performed on the flare, containing the date of the action, initials of inspector, and the results. [s. NR 439.04(1)(d), Wis. Adm. Code]

(7) Instrumentation to monitor the temperature in the flare, the "flame eye" and any additional instrumentation needed under the s. NR 440.18, Wis. Adm. Code requirements, shall be installed and operated properly. [s. NR 439.055(1)(a), Wis. Adm. Code]

2. Particulate Matter Emissions

(1) 0.06 pounds per hour. [s. NR 415.06(2)(a), Wis. Adm. Code; s. 285.65(7), Wis. Stats.]

Note: The particulate matter emissions limitation of 0.06 pounds per hour is more restrictive than the applicable limitation of s. NR 415.06, Wis. Adm. Code. This is necessary to prevent a violation of an ambient air quality standard and/or increment.

(1) The flare shall meet the General Control Device requirements of s. NR 440.18, Wis. Adm. Code. [s. NR 445.04(3), Wis. Adm. Code and s. 285.65(3), Wis. Stats.]

(2) In addition to the gaseous materials from the loading rack, the flare may only be fired using natural gas (as a supplemental fuel). [s. NR 406.10, Wis. Adm. Code]

(1) Whenever particulate matter emission testing is required, the permittee shall use U.S. EPA Method 5 including backhalf (US EPA Method 202). [s. NR 439.06(1), Wis. Adm. Code]

(2) ~~Reference Test Method for PM10~~ Emissions: Whenever compliance emission testing is required, the appropriate US EPA Method; 201 or 201A shall be used to demonstrate compliance. [s. NR 439.06(1m), Wis. Adm. Code]

(3) The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the flare and of the fuel connections. [s. NR 439.04(1)(d), Wis. Adm. Code]

(4) The permittee shall keep records of all inspections, checks and any maintenance or repairs performed on the flare, containing the date of the action, initials of inspector, and the results. [s. NR 439.04(1)(d), Wis. Adm. Code]

(5) Instrumentation to monitor the temperature in the flare and the "flame eye" within the flare shall be installed and operated properly. [s. NR 439.055(1)(a), Wis. Adm. Code]
3. Visible Emissions(1) 20% Opacity [s. NR 431.05(1), Wis. Adm. Code]

(2) No visible opacity from flares except for periods not to exceed 5 minutes during any 2 consecutive hours. [s. NR 440.18(3)(a), Wis. Adm. Code]
(1) The requirements in 1.F.1.b. shall be used to show compliance with the visible emissions limitation. [s. 285.65(7), Stats.](1) Whenever visible emissions compliance testing is required, USEPA Method 22 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04, Wis. Adm. Code shall be used. [s. NR 439.06 and s. NR 440.18(6)(a), Wis. Adm. Code]

(1) The requirements in I.F.1.c. shall be used as the recordkeeping / monitoring for visible emissions. [s. 285.65(7), Stats.]4. Nitrogen Oxides(1) 0.4 pounds per hour. This limitation is in place to help assure that the Nitrogen Oxides emissions do not exceed the major source threshold. [s. NR 406.10, Wis. Adm. Code and s. 285.65(7), Wis. Stats.]
(1) The flare shall meet the General Control Device requirements of s. NR 440.18, Wis. Adm. Code. [s. NR 445.04(3), Wis. Adm. Code and s. 285.65(3), Wis. Stats.](1) Whenever nitrogen oxides compliance testing is required, USEPA Method 7, 7A, 7E, or another method approved by the Department in writing shall be used. When approved in writing, an equivalent test method may be substituted for the required test method. [s. NR 439.06(6), Wis. Adm. Code]

(2) The permittee shall monitor and record the operating temperature of the flare. [s. NR 439.04, Wis. Adm. Code]
5. Carbon Monoxide emissions(1) 2.4 pounds per hour. This limitation is in place to help assure that the Carbon Monoxide emissions do not exceed the major source threshold. [s. NR 406.10, Wis. Adm. Code and s. 285.65(7), Wis. Stats.]

(1) The flare shall meet the General Control Device requirements of s. NR 440.18, Wis. Adm. Code. [s. NR 445.04(3), Wis. Adm. Code and s. 285.65(3), Wis. Stats.]

(1) Reference Test Method for Carbon Monoxide Emissions: Whenever compliance emission testing is required, the appropriate US EPA Method; 10, 10A or 10B shall be used. [s. NR 439.06(4)(a), Wis. Adm. Code]

(2) The facility shall maintain daily records of any monitoring / records needed to demonstrate compliance with the requirements of s. NR 440.18, Wis. Adm. Code. [s. NR 439.04, Wis. Adm. Code]

(3) The permittee shall keep records of all inspections, checks and any maintenance or repairs performed on the flare, containing the date of the action, initials of inspector, and the results. [s. NR 439.04(1)(d), Wis. Adm. Code]

(4) The facility shall maintain daily records of the time and duration of bypass operation of the Biomethanator. These records shall be summarized monthly to determine the total monthly hours of bypass operation and the 12 month average of bypass operation. [s. NR 439.04, Wis. Adm. Code]6. Physical Stack Parameters(1) Stack Parameters These requirements are included because the source was reviewed with these stack parameters and it was determined that no increments or ambient air quality standards will be violated when constructed as proposed.

(a) The stack height shall be at least 36.0 feet above ground level. [(s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code]

(b) The stack inside dimension at the outlet may not exceed 2.5 feet in diameter. [s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code]

(c) The stack may not be equipped with a rainhat or other device which impedes the upward flow of the exhaust gases. [s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code]
(1) To demonstrate compliance, the permittee shall maintain the records in I.F.6.c.(1). [s. NR 407.09(4)(a)1., Wis. Adm. Code](1) The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the physical stack parameters. [s. NR 439.04(1)(d), Wis. Adm. Code]

G. T61, T62 - 750,000 gallon Volatile Organic Liquid (VOL) Storage Tanks; T63, T64, T65 - 200,000 gallon Volatile Organic Liquid (VOL) Storage Tanks [subject to NSPS under s. NR 440.285, Wis. Adm. Code] POLLUTANTSa. LIMITATIONSb. COMPLIANCE DEMONSTRATIONc. REFERENCE TEST METHODS, RECORDKEEPING AND MONITORING1. Volatile organic compounds (VOC) (1) The storage tank shall be a fixed roof tank equipped with an internal floating roof. [s. NR 406.10, Wis. Adm. Code and s. NR 440.285(3)(a), Wis. Adm. Code]

(2) The internal floating roof shall be welded and shall rest or float on the liquid surface (but not necessarily in complete contact with it). The internal floating roof shall be floating on the liquid surface at all times except during initial fill and those times when the storage vessel is completely emptied or subsequently emptied and refilled. When the roof is resting on the leg supports, the process of filling, emptying or refilling shall be continuous and shall be accomplished as rapidly as possible. [s. NR 406.10 and s. NR 440.285(3)(a)1.a., Wis. Adm. Code]

(1) The permittee shall visually inspect the storage vessel with the seal in place before the initial fill of the volatile organic liquid. If there are any openings in the seals or other defects in the internal floating roof, the owner or operator shall repair these before filling the vessel. [s. NR 440.285(4)(a)1., Wis. Adm. Code]

(2) The permittee shall visually inspect the storage vessel internal floating roof and the primary seal through manholes and roof hatches on the fixed roof once every 12 months after the initial fill of the volatile organic liquid. If the internal floating roof is not resting on the surface of the Volatile Organic Liquid (VOL) inside the storage vessel, or there is liquid accumulated on the floating roof, or if the seal is detached or if there are holes or tears in the seal fabric, the owner or operator shall repair the items or empty and remove the storage vessel from service within 45 days. If a failure that is detected during inspections required under this paragraph cannot be repaired within 45 days and if the vessel cannot be emptied within 45 days, a 30-day extension may be requested from the Department in the inspection report required in s. NR 440.285(6)(a)3., Wis. Adm. Code. A request for an extension shall document that alternate storage capacity is unavailable and specify a schedule of actions the company owner or operator shall take to assure that the control equipment is repaired or the vessel will be emptied as soon as possible. [s. NR 440.285(4)(a)2., Wis. Adm. Code]
(1) Whenever VOC compliance testing is required, USEPA Method 25A shall be used. When approved in writing an equivalent test method may be substituted for the required test method. [§ NR 439.06(8), Wis. Adm. Code]

(2) The permittee shall maintain a record of the volatile organic liquid stored, the period of storage, and the maximum true vapor pressure of that liquid during the respective storage period for each tank. The maximum true vapor pressure is the equilibrium partial pressure exerted by the VOL based upon the maximum local monthly average ambient temperature (listed by the National Weather Service as 70.7° F for Portage, WI in July) [s. NR 440.285(7)(c), Wis. Adm. Code]

(3) The permittee of each storage vessel shall keep readily accessible records showing the dimensions of the storage

vessel and an analysis showing the capacity of the storage vessel. The permittee shall also keep and maintain on site current "as built" technical drawings, blueprints or equivalent records of the storage tanks. These records shall be kept for the life of the vessel. [s. NR 439.04 and s. NR 440.285(7)(a) and (b), Wis. Adm. Code]

1. Volatile organic compounds (VOC)
[Continued](3) The internal floating roof shall be equipped with a foam or liquid filled seal mounted in contact with the liquid (a liquid- mounted seal). The seal shall be in contact with the liquid between the wall of the storage vessel and the floating roof continuously around the circumference of the storage vessel. [s. NR 406.10 and s. NR 440.285(3)(a)1.b., Wis. Adm. Code]

(4) Each storage tank shall be equipped with a submerged fill pipe. [s. NR 406.10 and s. NR 419.06(2), Wis. Adm. Code]

(5) Each opening in a non-contact internal floating roof except for automatic bleeder vents (vacuum break vents) and the rim space vents is to provide a projection below the liquid surface. [s. NR 440.285(3)(a)1.c., Wis. Adm. Code]
(3) Visually inspect the internal floating roof, the primary seal, the secondary seal (if one is in service), gaskets, slotted membranes (if any), and sleeve seals (if any) each time the storage vessel is emptied and degassed. If the internal floating roof has defects, the primary seal has holes, tears or other openings in the seal or the seal fabric, the secondary seal has holes, tears or other openings in the seal or the seal fabric, the gaskets no longer close off the liquid surfaces from the atmosphere, or the slotted membrane has more than 10% open area, the owner or operator shall repair the items as necessary so that none of the conditions specified in this paragraph exist before refilling the storage vessel with VOL. In no event may inspections conducted in accordance with this provision occur at intervals greater than 10 years in the case of vessels undergoing annual visual inspections. [s. NR 440.285(4)(a)4., Wis. Adm. Code]

(4) After installing the fixed roof, internal floating roof tank, the owner or operator shall meet the following requirements:
(a) Furnish the department with a report that describes the control equipment and certifies that the control equipment meets the specifications of s. NR 440.285(3)(a)1. and (4)(a)1., Wis. Adm. Code. This report shall be an attachment of the notification required by s. NR 440.07(1)(c), Wis. Adm. Code.
(b) Keep a record of each inspection performed as required by I.I.1.b.(1)-(4). Each record shall identify the storage vessel on which the inspection was performed and shall contain the date the vessel was inspected and the observed condition of each component of the control equipment (seals, internal floating roof and fittings).
(c) If any of the conditions described in I.I.1.b.(2) [s. NR 440.285(4)(a)2., Wis. Adm. Code] are detected during the annual inspection, a report shall be furnished to the department within 30 days of the inspection. Each report shall identify the storage vessel, the nature of the defects and the date the storage vessel was emptied or the nature of and the date the repair was made.
[s. NR 440.285(6)(a), Wis. Adm. Code]

G. T61, T62 - 750,000 gallon Volatile Organic Liquid (VOL) Storage Tanks; T63, T64, T65 - 200,000 gallon Volatile Organic Liquid (VOL) Storage Tanks [subject to NSPS under s. NR 440.285, Wis. Adm. Code] [Continued]POLLUTANTSa. LIMITATIONSb. COMPLIANCE DEMONSTRATION1. Volatile organic compounds (VOC)
[Continued](6) Each opening in the internal floating roof, except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells and stub drains, is to be equipped with a cover or lid which is to be maintained in a closed position at all times (i.e., no visible gap) except when the device is in actual use. The cover or lid shall be equipped with a gasket. Covers on each access hatch and automatic gauge float well shall be bolted except when they are in use. [s. NR 440.285(3)(a)1.d., Wis. Adm. Code]

(7) Automatic bleeder vents (vacuum break vents) shall be equipped with a gasket and are to be closed at all times

when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports. [s. NR 440.285(3)(a)1.e., Wis. Adm. Code]

(8) Rim space vents shall be equipped with a gasket and are to be set to open only when the internal floating roof is not floating or at the manufacturer's recommended setting.
[s. NR 440.285(3)(a)1.f., Wis. Adm. Code]

(9) Each penetration of the internal floating roof for the purpose of sampling shall be a sample well. The sample well shall have a slit fabric cover that covers at least 90% of the opening.[s. NR 440.285(3)(a)1.g., Wis. Adm. Code]

(10) Each penetration of the internal floating roof that allows for passage of a column supporting the fixed roof shall have a flexible fabric sleeve seal or a gasketed sliding cover. [s. NR 440.285(3)(a)1.h., Wis. Adm. Code]

(11) Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover. [s. NR 440.285(3)(a)1.i., Wis. Adm. Code]
(4) Notify the department in writing at least 30 days prior to the filling or refilling of each storage vessel for which an inspection is required by (1) and (3) to afford the department the opportunity to have an observer present. If the inspection required by (3) is not planned and the owner or operator could not have known about the inspection 30 days in advance of refilling the storage vessel, the owner or operator shall notify the department at least 7 days prior to the refilling of the storage vessel. Notification shall be made by telephone immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, this notification including the written documentation may be made in writing and sent by express mail so that it is received by the department at least 7 days prior to the refilling.[s. NR 440.285(4)(a)5., Wis. Adm. Code]

(5) The above notification shall be directed to the Reedsburg Area Office Air Program; 344 S. Willow St.; P.O. Box 281; Reedsburg, WI 53959; ph. (608) 524-0497. [s. 285.65(3), Wis. Stats.]

H. T66 - 2,000 gallon Storage Tank for Gasoline Additive (Corrosion inhibitor) [subject to NSPS under s. NR 440.285, Wis. Adm. Code]POLLUTANTSa. LIMITATIONSb. COMPLIANCE DEMONSTRATIONc. REFERENCE TEST METHODS, RECORDKEEPING AND MONITORING1. Volatile organic compounds (VOC) (1) The storage tank shall be equipped with a fixed roof and a pressure/ vacuum conservation vent.
[s. NR 406.10, Wis. Adm. Code]

(2) The storage tank shall be equipped with a submerged fill pipe. [s. NR 406.10, Wis. Adm. Code]

(1) The permittee shall visually inspect the storage vessel with the roof in place before the initial fill of the gasoline denaturant and shall repair any holes or other defects observed. [s. NR 439.11 and s. NR 440.285(4)(a)1., Wis. Adm. Code]

(2) The permittee shall visually inspect the storage vessel once every 12 months after the initial fill of the volatile organic liquid. [s. NR 439.11 and s. NR 440.285(4)(a)2., Wis. Adm. Code]
(1) Whenever VOC compliance testing is required, U.S. EPA Method 18 or 25A shall be used. When approved in writing an equivalent test method may be substituted for the required test method. [s. NR 439.06(8), Wis. Adm. Code]

(2) The permittee of each storage vessel shall keep readily accessible records showing the dimensions of the storage vessel and an analysis showing the capacity of the storage vessel. The permittee shall also keep and maintain on site current "as built" technical drawings, blueprints or equivalent records of the storage tanks. These records shall

be kept for the life of the vessel. [s. NR 439.04 and s. NR 440.285(7)(a) and (b), Wis. Adm. Code]

(3) The permittee shall maintain a record of the volatile organic liquid stored, the period of storage, and the maximum true vapor pressure of that liquid during the respective storage period. [s. NR 439.04 and s. NR 440.28(6)(a), Wis. Adm. Code]

I. Stack S70, Control C70; Process P70 - DDGS Cooling and transportPOLLUTANTSa. LIMITATIONSb. COMPLIANCE DEMONSTRATIONc. REFERENCE TEST METHODS, RECORDKEEPING AND MONITORING1. Volatile organic compounds (VOC) (1) Latest Available Control Techniques and operating practices (LACT). [s. NR 424.03(2)(c), Wis. Adm. Code]

(2) 4.61 pound per hour
This limit was proposed by the permittee.
[s.285.65(7), Wis. Stats.]
(1) Compliance emission tests for VOC's shall be conducted within 90 days after the start of initial operation to demonstrate compliance with the volatile organic compound emission in I.E.1.a.(1) and (2) while operating at 100% capacity. If the compliance emission tests cannot be conducted within 90 days after the start of initial operation, the permit holder may request and the Department may approve, in writing, an extension of time to conduct the test(s).[s. NR 439.03, Wis. Adm. Code]

(2) The facility shall maintain the DDGS drying temperatures and other pertinent operating parameters (e.g. dryer rotation rate) within the ranges determined necessary to maintain compliance with the VOC emission limitations. [s. NR 407.09(1)(c), Wis. Adm. Code]
(1) Whenever VOC compliance testing is required, USEPA Method 18 shall be used. When approved in writing an equivalent test method may be substituted for the required test method. [§ NR 439.06(8), Wis. Adm. Code]

(2) The facility shall monitor and record the dryer temperature and other pertinent operating parameters parameters (e.g. dryer rotation rate) at least once every 8 hours. [s. NR 439.055(2)(a), (b), Wis. Adm. Code]

2. Visible Emissions**(1)** 20% Opacity [s. NR 431.05(1), Wis. Adm. Code]**(1)** The requirements in 1.E.3.b. shall be used to show compliance with the visible emissions limitation.
[s. 285.65(7), Stats.]**(1)** Whenever visible emissions compliance testing is required, USEPA Method 9 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04, Wis. Adm. Code shall be used. [s. NR 439.06(9)(a)1., Wis. Adm. Code]3. Particulate Matter Emissions(1) 3.0 pound per hour
[s. 285.65(7), Wis. Stats., s. NR 404.08(2), s. NR 415.05(1) and (2), Wis. Adm. Code](1) Whenever any portion of the DDGS cooling and transport process is in operation, the permittee shall vent the exhaust to a cyclone and fabric filter baghouse (these may be separate or a combined device). This was proposed in the permit application. [s. NR 406.10, Wis. Adm. Code]

(2) A compliance emission test shall be conducted within 90 days after the start of initial operation to demonstrate compliance with the particulate emission limitations in I.A.1.a.(1) while operating at 100% capacity. If the compliance emission tests cannot be conducted within 90 days after the start of initial operation, the permit holder may request and the Department may approve, in writing, an extension of time to conduct the test(s). [s. NR 439.03, Wis. Adm. Code]

(3) The operating pressure drop across the combined cyclone / baghouse shall be maintained between 2.0 to 8.0 inches of water column gauge pressure. [s. NR 407.09(1)(c), Wis. Adm. Code]

(4) The baghouse design shall provide an air to cloth ratio (ACFM / ft^2) of no more than 10:1 (10 fpm) at the maximum exhaust flow. [s. NR 406.10, Wis. Adm. Code]
(1) Whenever particulate matter emission testing is required, the permittee shall use US EPA Method 5 including backhalf (US EPA Method 202). [s. NR 439.06(1), Wis. Adm. Code]

(2) The permittee shall monitor and record the pressure drop at least once for every eight hours of operation or once per day of operation, whichever yields the greatest number of measurements. [s. NR 439.055(2)(b), Wis. Adm. Code]

(3) The permittee shall keep records of all inspections, checks and any maintenance or repairs performed on the cyclone / baghouse, containing the date of the action, initials of inspector, and the results. [s. NR 439.04(1)(d), Wis. Adm. Code]

(4) The permittee shall keep records of the baghouse design / specification which demonstrate the design and operating parameters achieve an air to cloth ratio not exceeding 10:1. [s. NR 439.04(1)(d), Wis. Adm. Code]
4. Formaldehyde and Acrolein Emissions(1) Hazardous BACT (Best Available Control Technology) is determined to be operation of the DDGS dryer in a manner which does not result in excessive Formaldehyde emissions. [s. NR 445.04(3)(b), Wis. Adm. Code]

(2) 2.2 pounds per month and not more than 0.0030 pounds per hour of Formaldehyde.
[s. NR 406.10 and s. NR 445.04(3)(b), Wis. Adm. Code]

(3) 0.08 pounds per hour of Acrolein. [s. NR 406.10 and s. NR 445.04(1), Wis. Adm. Code]
(1) The facility shall maintain the DDGS drying temperatures and other pertinent operating parameters (e.g. dryer rotation rate) within the ranges determined necessary to maintain compliance with the Formaldehyde and Acrolein emission limitations. [s. NR 407.09(1)(c), Wis. Adm. Code]

(4) Stack emission tests shall be conducted within 180 days after the start of initial operation to determine Acrolein emission rates while operating at 100% capacity for Process P70 using USEPA Method 0011, or another method approved by the Department in writing. If the stack emission tests cannot be conducted within 180 days after the start of initial operation, the permit holder may request and the Department may approve, in writing, an extension of time to conduct the test(s). [s. NR 439.03, Wis. Adm. Code]
(1) Whenever Formaldehyde or other Aldehyde (e.g. Acrolein) compliance testing is required, USEPA Method 0011, shall be used. When approved in writing, an equivalent test method may be substituted for the required test method. [s. NR 439.06(8), Wis. Adm. Code]

(2) The facility shall monitor and record the dryer temperature and other pertinent operating parameters parameters (e.g. dryer rotation rate) at least once every 8 hours. [s. NR 439.055(2)(a), (b), Wis. Adm. Code]
5. Physical Stack Parameters(1) Stack Parameters These requirements are included because the source was reviewed with these stack parameters and it was determined that no increments or ambient air quality standards will be violated when constructed as proposed.

(a) The stack height shall be at least 75.0 feet above ground level. [(s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code]

(b) The stack inside dimension at the outlet may not exceed 1.83 feet in diameter. [s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code]

(c) The stack may not be equipped with a rainhat or other device which impedes the upward flow of the exhaust

gases. [s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code]
(1) To demonstrate compliance, the permittee shall maintain the records in I.I.5.c.(1). [s. NR 407.09(4)(a)1., Wis. Adm. Code](1) The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the physical stack parameters. [s. NR 439.04(1)(d), Wis. Adm. Code]

J. Stack S80/ F80 (Stacks S81, S82, S83, S84); Process P80- Cooling Towers (4)~~POLLUTANTS / PARAMETERSa. LIMITATIONSb. COMPLIANCE DEMONSTRATIONc. REFERENCE TEST METHODS, RECORDKEEPING AND MONITORING~~~~1. Particulate Matter Emissions(1) 1.1 pounds per hour PM / PM_{10} from the process.~~

~~See Note 1. [s. NR 404.08(2) and s. NR 415.05(2), Wis. Adm. Code]~~

~~(2) Chromium compounds may not be added to the cooling water.~~
~~[s. NR 468.30(3)(b), Wis. Adm. Code and s. 285.65(7), Wis. Stats.](1) The total dissolved solids concentration in the cooling water may not exceed 2,000 parts per million (ppm) by weight. This information, the 22,000 gallon per minute flow rate (based on a design value of 20,000 gpm) and the design 0.005% max. circulation drift rate, was the basis of the calculated potential to emit [s. NR 439.04, Wis. Adm. Code]~~

~~(1) Whenever particulate matter emission testing is required, the permittee shall use US EPA Method 5 (including condensible particulate by US EPA Method 202). [s. NR 439.06(1), Wis. Adm. Code]~~

~~(2) The permittee shall determine and record the concentration of total dissolved solids in the cooling water and the total, per minute flow rate on a weekly basis. [s. NR 439.04, Wis. Adm. Code]~~

~~(3) The facility shall keep and maintain documentation of the circulation drift rate specification for the cooling towers installed at the facility. [s. NR 439.04, Wis. Adm. Code]2. Volatile Organic Compound (VOC) Emissions(1) 0.1 pounds per hour VOC from the process [s. NR 406.10 and s. NR 419.03, Wis. Adm. Code](1) The VOC content of the cooling tower water may not exceed 124 ppm. This, the 22,000 gallon per minute max. flow rate and the design 0.005% max. circulation drift rate is the basis of the calculated potential to emit. [s. NR 439.04, Wis. Adm. Code](1) Whenever VOC compliance testing is required, U.S. EPA Method 24 shall be used. When approved in writing an equivalent test method may be substituted for the required test method. [s. NR 439.06(8), Wis. Adm. Code]~~

~~(2) The permittee shall determine and record the concentration of total dissolved solids in the cooling water and the total, per minute flow rate on a weekly basis. [s. NR 439.04, Wis. Adm. Code]~~

~~(3) The facility shall keep and maintain documentation of the circulation drift rate specification for the cooling towers installed at the facility. [s. NR 439.04, Wis. Adm. Code]2. Visible Emissions(1) 20% Opacity [s. NR 431.05(1), Wis. Adm. Code](1) The requirements in 1.C.1.b. shall be used to show compliance with the visible emissions limitation.~~
~~[s. 285.65(7), Stats.](1) Whenever visible emissions compliance testing is required, USEPA Method 9 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04, Wis. Adm. Code shall be used. [s. NR 439.06(9)(a)1., Wis. Adm. Code]~~

~~Note 1: The particulate matter emissions limitation of 1.0 pounds per hour is more restrictive than the applicable limitation of s. NR 415.05, Wis. Adm. Code. This is necessary to prevent a violation of an ambient air quality standard and/or increment.~~

J. Stack S80 (Stacks S81, S82, S83, S84); Process P80- Cooling Towers (4)POLLUTANTSa. LIMITATIONSb. COMPLIANCE DEMONSTRATIONc. REFERENCE TEST METHODS, RECORDKEEPING AND MONITORING3. Physical Stack Parameters(1) Stack Parameters These requirements are included because the source was reviewed with these stack parameters and it was determined that no increments or ambient air quality standards will be violated when constructed as proposed.

(a) The stack height shall be at least 36.0 feet above ground level. [(s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code]

(b) The stack inside diameter at the outlet may not exceed 25 ft (each physical stack). [s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code]

(c) The stack may not be equipped with a rainhat or other device which impedes the upward flow of the exhaust gases. [s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code](1) To demonstrate compliance, the permittee shall maintain the records in I.C.3.c.(1). [s. NR 407.09(4)(a)1., Wis. Adm. Code](1) The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the physical stack parameters. [s. NR 439.04(1)(d), Wis. Adm. Code]

K. F01; P10, P40, P50 and other VOC Process Equipment (Valves, Pumps, Flanges, etc.) Leaks - This is subject to new source performance standard (NSPS)POLLUTANTSa. LIMITATIONSb. COMPLIANCE DEMONSTRATIONc. REFERENCE TEST METHODS, RECORDKEEPING AND MONITORING1. Volatile organic compounds (VOC) **(1)** Pumps. 1.a. Each pump shall be monitored monthly to detect leaks by the methods specified in I.G.1.c.(2).
b. Each pump shall be checked by visual inspection each calendar week for indications of liquids dripping from the pump seal.
[s. NR 440.62(3), Wis. Adm. Code]
(2) Pressure relief devices in gas/vapor service. 1. Except during pressure releases, each pressure relief device in gas/vapor service shall be operated with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background, as determined by the methods specified in I.G.1.c.(3).
2.a. After each pressure release the pressure relief device shall be returned to a condition of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as soon as practicable but no later than 5 calendar days after the pressure release, except as provided in I.G.1.c.(4).
b. No later than 5 calendar days after the pressure release the pressure relief device shall be monitored to confirm the conditions of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, by the methods specified in I.G.1.c.(3).
[s. NR 440.62(3), Wis. Adm. Code](1) When a leak is detected it shall be repaired as soon as practicable but not later than 15 calendar days after it is detected, except as provided in I.G.1.c.(4).
b. A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.
(2) a. For pumps, if an instrument reading of 10,000 ppm or greater is measured a leak is detected.
b. If there are indications of liquids dripping from the pump seal a leak is detected.
(3) Each pump equipped with a dual mechanical seal system that includes a barrier fluid system is exempt from the requirements of I.G.1.a.(1). provided the following requirements are met:
a. Each dual mechanical seal system is:
1) Operated with the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure; or
2) Equipped with a system that purges the barrier fluid into a process stream with a zero VOC emissions to the atmosphere.
b. Each barrier fluid system is equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both.
c. Each pump is checked by visual inspection each calendar week for indications of liquids dripping from the pump seals.
d.1) Each sensor as described in I.G.1.b.(3)b. is checked daily or is equipped with an audible alarm, and

2) The owner or operator determines, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.
c. If there are indications of liquids dripping from the pump seal or the sensor indicates failure of the seal system, the barrier fluid system, or both based on the criterion determined in I.G.1.(3)d. 2) a leak is detected.
(1) Whenever VOC compliance testing is required, USEPA Method 25A shall be used. When approved in writing an equivalent test method may be substituted for the required test method. [§ NR 439.06(8), Wis. Adm. Code]
(2) Method 21 shall be used to determine the presence of leaking sources. The instrument shall be calibrated before use each day of its use by the procedures specified in Method 21. The following calibration gases shall be used:
a. Zero air (less than 10 ppm of hydrocarbon in air); and
b. A mixture of methane or n-hexane and air at a concentration of about, but less than, 10,000 ppm methane or n-hexane.
(3) Method 21 shall be used to determine the background level. All potential leak interfaces shall be traversed as close to the interface as possible. The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with 500 ppm for determining compliance.

(3) Sampling connection systems.
1. Each sampling connection system shall be equipped with a closed purge system.
2. Each closed purge system shall:
a. Return the purged process fluid directly to the process line with zero VOC emissions to the atmosphere; or
b. Collect and recycle the purged process fluid with zero VOC emissions to the atmosphere; or
c. Be designed and operated to capture and transport all the purged process fluid to a control device.
3. In situ-sampling systems are exempt from subd. 1. and 2.

(4) Open-ended valves or lines. 1.a. Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve.
b. The cap, blind flange, plug, or second valve shall seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line.
2. Each open-ended valve or line equipped with a second valve shall be operated with a second valve shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed.
(4) Delay of repair.
(a). Delay of repair of equipment for which leaks have been detected will be allowed if the repair is technically infeasible without a process unit shutdown. Repair of this equipment shall occur before the end of the next process unit shutdown.
(b) Delay of repair of equipment will be allowed for equipment which is isolated from the process and which does not remain in VOC service.
(c) Delay of repair for valves will be allowed if:
a. The owner or operator demonstrates that emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from delay of repair, and
b. When repair procedures are effected, the purged material is collected and destroyed or recovered in a control device complying with par. (j).
(d) Delay of repair for pumps will be allowed if:
a. Repair requires the use of a dual mechanical seal system that includes a barrier fluid system, and
b. Repair is completed as soon as practicable but not later than 6 months after the leak was detected.
(e) Delay of repair beyond a process unit shutdown will be allowed for a valve if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than 6 months after the first process unit shutdown.
3. When a double block-and-bleed system is being used the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with subd. 1. at all times.
(5) Valves in gas/vapor service in light liquid service. 1. Each valve shall be monitored monthly to detect leaks by the methods specified in I.G.1.c.(2).
(6) Pressure relief devices in light liquid and flanges and other connectors shall be monitored within 5 days by the

~~method specified in I.G.1.c.(2) if evidence of a potential leak is found by visual, audible, olfactory, or any other detection method.(4)(a) If an instrument reading of 10,000 ppm or greater is measured for a valve, a leak is detected.~~
~~(b) Any valve for which a leak is not detected for 2 successive months may be monitored the first month of every quarter, beginning with the next quarter, until a leak is detected.~~
~~(c) If a leak is detected the valve shall be monitored monthly until a leak is not detected for 2 successive months.~~
~~(d) First attempts at repair include, but are not limited to, the following best practices where practicable:~~
~~a. Tightening of bonnet bolts;~~
~~b. Replacement of bonnet bolts;~~
~~c. Tightening of packing gland nuts;~~
~~d. Injection of lubricant into lubricated packing.~~
~~6. Any valve that is designated for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of subd. 1. if the valve:~~
~~a. Has no external actuating mechanism in contact with the process fluid;~~
~~b. Is operated with emission less than 500 ppm above background as determined by the method specified in I.G.1.c.(3), and~~
~~c. Is tested for compliance with subd. 6. b. initially upon designation, annually, and at other times requested by the department.~~
~~7. Any valve that is designated as a difficult-to-monitor valve is exempt from the requirements of subd. 1. if:~~
~~a. The owner or operator of the valve demonstrates that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with subd. 1., and~~
~~b. The owner or operator of the valve adheres to a written plan that requires monitoring of the valve as frequently as practicable during safe-to-monitor times.~~
~~(5) When each leak is detected the following requirements apply:~~
~~1. A weather proof and readily visible identification, marked with the equipment identification number, shall be attached to the leaking equipment.~~
~~2. The identification on a value may be removed after it has been monitored for 2 successive months and no leak has been detected during those 2 months.~~
~~3. The identification on equipment except on valve may be removed after it has been repaired.~~
~~(6) When each leak is detected the following information shall be recorded in a log and shall be kept for 2 years in a readily accessible location:~~
~~1. The instrument and operator identification numbers and the equipment identification number.~~
~~2. The date the leak was detected and the dates each attempt to repair the leak.~~
~~3. Repair methods applied in each attempt to repair the leak.~~
~~4. "Above 10,000" if the maximum instrument reading measured by the methods specified in i.G.1.c.(2) after each repair attempt is equal to or greater than 10,000 ppm.~~
~~5. "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.~~
~~6. The signature of the owner or operator (or designate) whose decision it was that repair could not be affected without a process shutdown.~~
~~7. The expected date of successful repair of the leak if a leak is not repaired within 15 days.~~
~~8. Dates of process unit shutdown that occur while the equipment is unrepaired.~~
~~9. The date of successful repair of the leak.~~
~~8. Any valve that is designated as described in sub. (7)(f)2. as a difficult-to-monitor valve, is exempt from the requirements of subd. 1. if:~~
~~a. The owner or operator of the valve demonstrates that the valve cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface.~~
~~b. The process unit within which the valve is located either becomes an affected facility through s. NR 440.14 or 440.15, or the owner or operator designates less than 3.0% of the total number of valves as difficult-to-monitor, and~~
~~c. The owner or operator of the valve follows a written plan that requires monitoring of the valve at least once per calendar year.~~
~~(7) The following information pertaining to all equipment shall be recorded in a log that is kept in a readily accessible location:~~
~~1. A list of identification numbers for equipment subject to the requirements of this section.~~

2.a. A list of identification numbers for equipment that are designated for no detectable emissions. The designation of equipment shall be signed by the owner or operator.
3. A list of equipment identification numbers for pressure relief devices.
4.a. The dates of each compliance test.
b. The background level measured during each compliance test.
c. The maximum instrument reading measured at the equipment during each compliance test.
(f) The following information shall be recorded in a log that is kept in a readily accessible location:
1. A list of identification numbers for valves that are designated as unsafe-to-monitor, an explanation for each valve stating why the valve is unsafe-to-monitor and the plan for monitoring each valve.
2. A list of identification numbers for valves that are designated as difficult-to-monitor, an explanation for each valve stating why the valve is difficult-to-monitor and the schedule for monitoring each valve.
(h) The following information shall be recorded in a log that is kept in a readily accessible location.
1. Design criterion required in and explanation of the design criterion; and
2. Any changes to this criterion and the reasons for the changes.

L. Stack S90, Process P90, Control C90 - DDGS LoadoutPOLLUTANTS / PARAMETERSa. LIMITATIONSb. COMPLIANCE DEMONSTRATIONc. REFERENCE TEST METHODS, RECORDKEEPING AND MONITORING1. Particulate Matter Emissions(1) 0.41 pound per hour[5]
[s. 285.65(7), Wis. Stats., s. NR 404.08(2), s. NR 415.05(1) and (2), Wis. Adm. Code]

(2) Minimization of fugitive dust emissions: No person may cause, allow or permit any materials to be handled, transported or stored without taking precautions to prevent particulate matter from becoming airborne.
[s. NR 415.04, Wis. Adm. Code]
(1) The DDGS loadout and associated equipment shall be enclosed. The collected exhaust from the Process P90 area shall be vented to an operating fabric filter baghouse whenever loading / transfer or other operations are occurring. [s. 285.65(7), Wis. Stats.; s. NR 406.10, Wis. Adm. Code]

(2) The operating pressure drop across the baghouse shall be maintained between 2.0 to 8.0 inches of water column gauge pressure. [s. NR 407.09(1)(c), Wis. Adm. Code]

(3) The permittee shall clean and sweep the corn / grain receiving areas and roads as needed to prevent fugitive dust emissions. [s. NR 415.04, Wis. Adm. Code]

(4) Fabric spout extensions, covered conveyors, doors and/or other controls, where applicable shall be used where practical to minimize fugitive dust from the DDGS loadout process. [s. NR 415.04, Wis. Adm. Code]

(5) The baghouse design shall provide an air to cloth ratio (ACFM / ft^2) of no more than 10:1 (10 fpm) at the maximum exhaust flow. [s. NR 406.10, Wis. Adm. Code]
(1) Whenever particulate matter emission testing is required, the permittee shall use US EPA Method 5 including backhalf (US EPA Method 202). [s. NR 439.06(1), Wis. Adm. Code]

(2) The permittee shall monitor and record the pressure drop at least once for every eight hours of operation or once per day of operation, whichever yields the greatest number of measurements. [s. NR 439.055(2)(b), Wis. Adm. Code]

(3) The facility shall maintain diagrams, and other information documenting the use of fabric spout extensions, doors, covered conveyors, loading area enclosures, etc, where applicable. [s. NR 439.04, Wis. Adm. Code]

(4) The facility shall document the procedures and practices for cleaning and sweeping the DDGS loadout area and maintain records of all cleaning activities and of other actions / precautions taken to prevent particulate matter (fugitive particulate matter) from becoming airborne. [s. NR 439.04, Wis. Adm. Code](6) The permittee shall take precautions to prevent particulate matter from becoming airborne.
(a) Such precautions shall include, but not be limited to:
i. Use, where possible, of water or chemicals for control of dust in construction operations.
ii. Application of asphalt, water, suitable chemicals or plastic covering on dirt roads, material stockpiles and other surfaces which can create airborne dust, provided such application does not create a hydrocarbon, odor or water pollution problem.
iii. Installation and use of hoods, fans and air cleaning devices to enclose and vent the areas where dusty materials are handled.
iv. Covering or securing of materials likely to become airborne while being moved on public roads or railroads.
v. The paving or maintenance of roadway areas so as not to create air pollution.
[s. NR 415.04, Wis. Adm. Code]
(5) The permittee shall keep records of all inspections, checks and any maintenance or repairs performed on the baghouse, containing the date of the action, initials of inspector, and the results. [s. NR 439.04(1)(d), Wis. Adm. Code]

(6) The permittee shall keep records of the baghouse design / specification which demonstrate the design and operating parameters achieve an air to cloth ratio not exceeding 10:1. [s. NR 439.04(1)(d), Wis. Adm. Code]
2. Visible Emissions**(1)** 20% Opacity [s. NR 431.05(1), Wis. Adm. Code](1) The requirements in I.D.1.b. shall be used to show compliance with the visible emissions limitation. [s. NR 407.09(4)(a)1., Wis. Adm. Code](1) Whenever visible emissions compliance testing is required, USEPA Method 9 or 22 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04, Wis. Adm. Code shall be used. [s. NR 439.06, Wis. Adm. Code]

(2) The requirements in 1.D.1.c. (2) - (4) shall be used for the recordkeeping / monitoring. [s. NR 439.04, Wis. Adm. Code]
3. Physical Stack Parameters(1) Stack Parameters These requirements are included because the source was reviewed with these stack parameters and it was determined that no increments or ambient air quality standards will be violated when constructed as proposed.

(a) The stack height shall be at least 45.0 feet above ground level. [(s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code]

(b) The stack inside dimension at the outlet may not exceed 1.7 feet in diameter. [s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code]

(c) The stack may not be equipped with a rainhat or other device which impedes the upward flow of the exhaust gases. [s. 285.65(3), Stats. and s. NR 406.10, Wis. Adm. Code]
(1) To demonstrate compliance, the permittee shall maintain the records in I.C.3.c.(1). [s. NR 407.09(4)(a)1., Wis. Adm. Code](1) The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the physical stack parameters. [s. NR 439.04(1)(d), Wis. Adm. Code]

M. F01; Paved RoadsPOLLUTANTSa. LIMITATIONSb. COMPLIANCE DEMONSTRATIONc. REFERENCE TEST METHODS, RECORDKEEPING AND MONITORING1. Particulate Matter Emissions(1) Minimization of fugitive dust emissions: No person may cause, allow or permit any materials to be handled, transported or stored without taking precautions to prevent particulate matter from becoming airborne. Nor may a person allow a structure, a parking lot, or a road to be used, constructed, altered, repaired, sand blasted or demolished without taking such precautions.

[s. NR 415.04, Wis. Adm. Code]

(1) The permittee shall clean and sweep the corn / grain loading and unloading areas and roads as needed to prevent fugitive dust emissions. [s. NR 415.04, Wis. Adm. Code]

(2) The permittee shall take precautions to prevent particulate matter from becoming airborne.
(a) Such precautions shall include, but not be limited to:
i. Use, where possible, of water or chemicals for control of dust in construction operations.
ii. Application of asphalt, water, suitable chemicals or plastic covering on dirt roads, material stockpiles and other surfaces which can create airborne dust, provided such application does not create a hydrocarbon, odor or water pollution problem.
iii. Installation and use of hoods, fans and air cleaning devices to enclose and vent the areas where dusty materials are handled.
iv. Covering or securing of materials likely to become airborne while being moved on public roads or railroads.
v. The paving or maintenance of roadway areas so as not to create air pollution.
[s. NR 415.04, Wis. Adm. Code]
(1) Reference Test Method for Visible (Fugitive Dust) emissions: Whenever compliance emissions testing is required, US EPA Method 22 shall be used to demonstrate compliance. [s. NR 439.06(9)(b), Wis. Adm. Code]

(2) The permittee shall keep daily record of cleaning and sweeping activities required under I.M.1.b.(1).
[s. NR 439.04, Wis. Adm. Code]
2. Visible Emissions**(1)** 20% Opacity [s. NR 431.05(1), Wis. Adm. Code](1) The requirements in 1.M.1.b. shall be used to show compliance with the visible emissions limitation.
[s. 285.65(7), Stats.](1) Whenever visible emissions compliance testing is required, USEPA Method 9 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04, Wis. Adm. Code shall be used. [s. NR 439.06(9)(a)1., Wis. Adm. Code]

(2) Reference Test Method for Visible (Fugitive Dust) emissions: Whenever compliance emissions testing is required, US EPA Method 22 shall be used to demonstrate compliance. [s. NR 439.06(9)(b), Wis. Adm. Code]

N. Conditions Applicable to the Entire FacilityPOLLUTANTSa. LIMITATIONSb. COMPLIANCE DEMONSTRATIONc. REFERENCE TEST METHODS, RECORDKEEPING AND MONITORING1. Malodorous Emissions(1) General Limitations. No person may allow or permit emissions into the ambient air any substance or combination of substances in such quantities that an objectionable odor is determined to result unless preventative measures satisfactory to the department are taken to abate or control such emission. [s. NR 429.03(1), Wis. Adm. Code](1) If objectionable odors are determined to exist/persist as a result of process operations, the facility shall propose additional means of odor control by providing an odor prevention and abatement plan proposing the actions/controls needed to minimize the odors. Any additional odor control required by the plan shall be outlined within a compliance schedule that accompanies the plan. The department may amend the plan if deemed necessary. [s. NR 426.03, Wis. Adm. Code]

(1) OBJECTIONABLE ODOR TESTS. An odor shall be deemed objectionable (malodorous) when either or both of the following tests are met:

(a) Upon decision resulting from investigation by the department, based upon the nature, intensity, frequency, and duration of the odor as well as the type of area involved and other pertinent factors.

(b) Or when 60% of a random sample of persons exposed to the odor in there place of residence of employment, other than employment at the odor source, claim it to be objectionable and the nature, intensity, frequency, and duration of the odor are considered. [s. NR 429.03(2), Wis. Adm. Code]

(3) The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the

facility. [s. NR 439.04(1)(d), Wis. Adm. Code]

N. Conditions Applicable to the Entire FacilityCONDITION TYPEa. CONDITIONS2. Compliance Testing(1) If the compliance emission test(s) cannot be within the time frames specified in this permit, the permit holder may request and the Department may approve, in writing, an extension of time to conduct the test(s). [s. NR 439.07, Wis. Adm. Code]

(2) All testing shall be performed with the emissions unit operating at capacity or as close to capacity as practicable and in accordance with approved procedures. If operation at capacity is not feasible, the source shall operate at a capacity level which is approved by the Department in writing. [s. NR 439.07(1), Wis. Adm. Code]

(3) The Department shall be informed at least 20 working days prior to any stack testing so a Department representative can witness the testing. At the time of notification, a compliance emission test plan shall also be submitted to the Department for approval. When approved in writing, an equivalent test method may be substituted for the reference test method. The notification and test plan shall be submitted to the Wisconsin Department of Natural Resources, Reedsburg Area Office Air Program; 344 S. Willow St.; P.O. Box 281; Reedsburg, WI 53959 [s. NR 439.07(2), Wis. Adm. Code]

(4) Two copies of the report on the tests shall be submitted to the Department for evaluation within 60 days following the tests. [s. NR 439.07(9), Wis. Adm. Code]3. Records(1) The records required under this permit shall be retained for at least five(5) years and shall be made available to department personnel upon request during normal business hours. [s. NR 422.127(4)(d), s. NR 439.04, s. NR 439.05, Wis. Adm. Code]

N. Conditions Applicable to the Entire FacilityCONDITION TYPEa. CONDITIONSb. COMPLIANCE DEMONSTRATION4. Emergency Equipment operation(1) The emergency fire pump engine may not be operated more than an average of 41.6 hours per month, based on a 12 month average. [s. NR 406.10, Wis. Adm. Code]

(2) The fuel oil used for the fire pump engine may not contain more than 0.20 wt. % Sulfur. [s. NR 406.10, Wis. Adm. Code]

(3) The facility may not install / construct or operate a natural gas, diesel or gasoline emergency generator set as this was not included within the application and could result in the facility constituting a PSD major source. [s. NR 405.16 and s. NR 406.10, Wis. Adm. Code](1) The facility shall maintain records of the hours of operation (time, duration) of the emergency fire pump engine, compiled on a monthly basis. [s. NR 439.04, Wis. Adm. Code]

(2) The facility shall obtain and maintain records of the fuel sulfur content of any fuel oil received for use with the emergency fire pump engine. [s. NR 439.04, Wis. Adm. Code]

(3) The facility shall maintain records of any equipment installed at the facility. [s. NR 439.04, Wis. Adm. Code]5. Malfunction Prevention and Abatement Plans(1) A malfunction prevention and abatement plan shall be prepared and followed for the plant. [s. NR 439.11, Wis. Adm. Code]

(2) A written copy of the plan shall be kept at the plant and shall be updated once every five years. [s. NR 439.11(1), Wis. Adm. Code]

(3) All air pollution control equipment shall be operated, inspected and maintained in conformance with good engineering practices (e.g. operated, inspected and maintained according to manufacturer's specifications and directions) to minimize the possibility for the exceedance of any emission limitations. The control equipment shall be inspected and maintained no less than once every 6 months if an inspection / maintenance frequency is not

specified by the manufacturer or is more than once every 6 months. [s. NR 439.11(4), Wis. Adm. Code]

(4) The facility shall submit the plan to the Reedsburg Area Office Air Program; 344 S. Willow St.; P.O. Box 281; Reedsburg, WI 53959; ph. (608) 524-3896. The department may amend the plan if deemed necessary for malfunction prevention or for the reduction of excess emissions during malfunctions. [s. NR 439.11(2), Wis. Adm. Code]
(1) The plan shall be developed to prevent, detect and correct malfunctions or equipment failures which may cause any applicable emissions limitation to be violated or which may cause air pollution.
[s. NR 439.11(1), Wis. Adm. Code]

(2) This plan shall include installation, maintenance and routine calibration procedures for the process monitoring and control equipment instrumentation. This plan shall require an instrumentation calibration at the frequency specified by the manufacturer, yearly or at a frequency based on good engineering practice as established by operational history, whichever is more frequent. Inspection and/or calibration shall also be conducted whenever instrumentation anomalies are noted. [ss. NR 407.09(1)(c)1.c., NR 439.055(4) and s. NR 439.11, Wis. Adm. Code]

(3) The plan shall require a copy of the operation and maintenance manual for the control equipment be maintained on site. The plan shall contain all of the elements in s. NR 439.11(1)(a) - (h), Wis. Adm. Code. [s. NR 439.11, Wis. Adm. Code]

(4) The facility shall maintain an inventory of normal consumable items necessary to ensure operation of the control device(s) in conformance with the manufacturer's specifications and recommendations. [s. NR 439.11, Wis. Adm. Code]

(5) The facility shall maintain records of the instrumentation calibrations. [s. NR 439.04, Wis. Adm. Code]

O. Conditions Specific to the Construction PermitCONDITION TYPEa. SPECIFIC CONDITIONS
1. Construction Notification(1) The permittee shall inform the Wisconsin Department of Natural Resources, Reedsburg Area Office Air Program; 344 S. Willow St.; P.O. Box 281; Reedsburg, WI 53959; ph. (608) 524-3896, in writing of the following for the emissions unit covered in this permit:

(a) Notice of commencing construction shall be submitted within 15 days of the start of construction.

(b) Notice of intent to initially operate the source(s) covered by this permit, 30 days prior to the anticipated date of initial operation.

(c) Notice of the actual date of initial startup shall be submitted within 15 days of the initial startup.

[s. NR 439.03(1), Wis. Adm. Code]
2. Expiration of the Construction Permit (1) Construction Permit Expiration: This construction permit expires 18 months after the date of issuance. Construction or modification and an initial operation period for equipment shakedown, testing and Department evaluation of operation to assure conformity with the permit conditions is authorized for each emissions unit covered in this permit. Please note that the sources covered by this permit are required to meet all emission limits and conditions contained in the permit at all times, including during the initial operation period. If 18 months is an insufficient time period for construction or modification, equipment shakedown, testing and Department evaluation of operation, the permit holder may request and the Department may approve in writing an extension of this permit.

[ss. 285.60(1)(a)2 and 285.66(1), Wis. Stats.; s. NR 406.12, Wis. Adm. Code]
3. Completion of Operation Permit Application(1) (a)
Compliance information required to complete the operation permit application for the emission units included in this permit should be submitted to the DNR at least 4 months prior to the expiration of the

Construction Permit.

(b) Operation of the source(s) covered by this permit after this permit expires is prohibited unless a complete operating permit application for the source(s) has been submitted to the Department.

[s. 285.60(1)(b)1., Wis. Stats.; s. NR 407.04(1)(b), Wis. Adm. Code]

P. Conditions Specific to the Operation PermitCONDITION TYPEa. CONDITIONSb. COMPLIANCE DEMONSTRATION1. Monitoring / Compliance Reports(1) Upon issuance of the operation permit, the permittee shall submit periodic monitoring reports. [s. NR 407.09(1)(c)3., Wis. Adm. Code]

(2) Upon issuance of the operation permit, the permittee shall submit periodic certification of compliance. [s. NR 407.09(4)(a)3., Wis. Adm. Code]

(1) Submit a monitoring report which contains the results of monitoring or a summary of monitoring results required by this permit to the Department every 12 months.

(a) The time periods to be addressed by the submittal are dates, e.g., annual reports: January 1 to December 31.

(b) The report shall be submitted to the Wisconsin Department of Natural Resources, Reedsburg Area Office Air Program; 344 S. Willow St.; P.O. Box 281; Reedsburg, WI 53959; ph. (608) 524-3896. within 30 days after the end of each reporting period.

(c) All deviations from and violations of applicable requirements shall be clearly identified in the submittal.

(d) Each submittal shall be certified by a responsible official as to the truth, accuracy and completeness of the report.

(e) The content of the submittal is described in item D. of Part II of the operation permit. [s. NR 439.03(1)(b), Wis. Adm. Code]

[s. NR 439.03(1)(b), Wis. Adm. Code]

(2) Submit an annual certification of compliance with the requirements of this permit to the Wisconsin Department of Natural Resources, Reedsburg Area Office Air Program; 344 S. Willow St.; P.O. Box 281; Reedsburg, WI 53959; ph. (608) 524-3896.

(a) The time period to be addressed by the report is the dates, e.g. if annual: January 1 to December 31 period which precedes the report.

(b) The report shall be submitted to the Wisconsin Department of Natural Resources, Reedsburg Area Office Air Program; 344 S. Willow St.; P.O. Box 281; Reedsburg, WI 53959; ph. (608) 524-3896. within 30 days after the end of each reporting period.

(c) The information included in the report shall comply with the requirements of Part II Section N of this permit.

(d) Each report shall be certified by a responsible official as to the truth, accuracy and completeness of the report. [s. NR 439.03(1)(c), Wis. Adm. Code]The above DATES are the due dates and periods for monitoring data and compliance certification submittal that need to be provided by the facility as part of the information needed to complete their operation permit application.

BEFORE THE DEPARTMENT OF NATURAL RESOURCES AIR MANAGEMENT PROGRAM

Wisconsin Department of Natural Resources, Air Management Program, Preliminary Determination on an Air Pollution Control Permit to Construct and Permit to Operate an Air Contaminant Source at Friesland, Columbia County, Wisconsin.

Air Pollution Construction and Operation Permit Nos. 03-DCF-048 and 03-DCF-048-OP / 111030040- F01

United Wisconsin Grain Producers, LLC, State Hwy 33 and Cnty Hwy EF, Friesland, Wisconsin, has submitted to the Department of Natural Resources (DNR) permit applications including plans and specifications for the

construction and operation of a fuel grade ethanol production facility.

The Bureau of Air Management of the DNR has analyzed these materials and has preliminarily determined that the project should meet applicable criteria for permit approval as stated in s. 285.63, Wis. Stats., including both the emission limits and the ambient air standards and should, therefore, be approved.

The issuance of a construction permit allows the construction or modification and initial operation of a source. An operation permit allows continued operation of a source. An operation permit may be issued after the permittee demonstrates compliance with the applicable requirements.

This type of proposal normally does not have the potential to cause significant adverse environmental effects and the DNR has not prepared an Environmental Assessment of the proposal. This preliminary determination does not constitute approval from the Air Management Program or any other DNR sections which may also require a review of the project.

The DNR hereby solicits written comments from the public regarding the preliminary determination to approve the construction and operation permit application. These comments will be considered by the DNR prior to making a final decision regarding this proposal. Information, including plans and the DNR's preliminary analysis, is available for public inspection at the Department of Natural Resources Bureau of Air Management Headquarters, Seventh Floor, 101 South Webster Street, Madison, Wisconsin, at the Reedsburg Area Office Air Program; 344 S. Willow St.; P.O. Box 281; Reedsburg, WI 53959 and at Jane Morgan Memorial Library ;109 W. Edgewater St.; P.O.Box 477; Cambria WI 53923-0477 or contact Don C. Faith III, P.E. at (608) 267-3135. This information is also available for downloading from the internet using a world wide web browser at: http://www.dnr.state.wi.us/org/aw/air/reg/regs.htm

NOTICE IS HEREBY GIVEN that, pursuant to secs. 285.13(1), 285.61(7)(a) and 285.62(5)(a), Wis. Stats., DNR will hold a public hearing to receive public comments on the air pollution construction and operation permit applications of United Wisconsin Grain Producers for the proposed construction of a fuel grade ethanol production facility.

NOTICE IS FURTHER GIVEN that the public hearing will be held:

Tuesday, July 8, 2003 at 1:00 pm
Cambria Village Hall - Community Center
115 W. Edgewater
Cambria, Wisconsin

Interested persons wishing to comment on the proposal and preliminary determination may attend the hearing and/or submit written comments within 30 days of publication of this notice to:

Wisconsin Department of Natural Resources, Bureau of Air Management, P.O. Box 7921, Madison, Wisconsin 53707, (608)266-7718 Attn: Don C. Faith III.

Reasonable accommodation, including the provision of informational material in an alternative format, will be provided for qualified individuals with disabilities upon request.

Dated at Poynette, Wisconsin June 11, 2003.

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
For the Secretary

By /s/ Jeffrey C. Hanson for
Dean Packard, Air Management Supervisor, Northern Team
South Central Region Air Program

March 17, 2003

Mr. Carl T Benck, Director

File Code: 4560
United Wisconsin Grain Producers, LLC

FID No.: 111030040
W772 Hwy Z

Permit No.: 03-DCF-048
Fall River, WI 53952

Dear Mr. Benck:

The Central Office of the Department of Natural Resources is continuing to review the air pollution control permit application regarding the proposed construction and operation of an Fuel Grade Ethanol production facility to be located in Friesland, Wisconsin. The Department has identified additional information needed for the review.

With regard to the dried material processes controlled by a baghouse (e.g. P20, P90), please provide additional information regarding the other controls / enclosures which minimize particulate matter emissions. For both the grain receiving (unloading) process and the DDGS loading process, though these are asserted to be controlled with a baghouse, it is not clear whether all of these operations are conducted within a complete enclosure or of there are fugitive emissions that have not been accounted for within the application for these operations. Please provide considerably more detailed information about these processes, their enclosures and other possible emissions from these sources. Without knowing details of the enclosure(s), is not possible to assure that the emissions will not exceed the thresholds noted in your application. As this facility is within a PSD source category ('chemical process plants'), all emissions from the proposed operations, including those which are considered fugitive, must be examined and presented in determining whether the facility is a major source under PSD (under s. NR 405.07(4)(a), Wis. Adm. Code).

Please provide more information regarding the process diagram. The diagram appears to show material from the evaporator being directed to the dryers. This appears be the 'solubles' fraction that is often added to the spent grain (the Distiller's Dried Grain with 'Solubles' or DDGS.). Presumably, the evaporator residuals, plus any additional water needed for the biomethanators are directed to the biomethanators (as noted). The rest of the 'clean' water from the evaporator, would be expected to be directed back to the process (directly). One would also expect that once being used to generate methane, the water and residuals from the Methanator would be discharged rather than being directed to the process water reservoir ("cook water tank") unless there were a subsequent process to remove biomass

and clean the biomethanator discharge prior to its reuse. (No such discharge or cleaning process is noted). As noted in the initial incompleteness letter, this operation (the Biomethanator) is considered a process and should be documented more fully. If there are VOC or other emissions from wastewater holding or treatment on site, these should also be included within the application.

Please provide more information regarding the Nitrogen Oxides emissions from the combustion sources. The cited maximum theoretical emissions from the oxidizer / boiler is noted as 209 TPY (47.7 lbs/hr), but the cited potential to emit is listed as 86.3 TPY (19.7 lbs/hr). Your application does not note any fuel usage or other enforceable restrictions or add-on controls for Nitrogen Oxides. Compliance with the NSPS limit of 0.1 pounds of NO_X per million BTU of heat input would appear to result in 22.5 pounds per hour or up to 98.55 TPY of NO_X emissions (225 MMBTU/hr * 0.1 lbs/MMBTU) from S10 alone. This also presumes that the 225 MMBTU/hr includes the heat input from the Biomethanator gases and from VOC's collected within the process. It is not clear what would account for the maximum theoretical emissions of up to 47.7 lbs/hr of NOx. In addition, the application notes up to 0.86 TPY of NOx from the diesel engine fire pump, and up to 1.91 TPY of NO_X emissions from the Biomethanator flare. The NO_X emissions the loading rack flare (and the heat input capacity) do not appear to be noted. The total NO_X emissions would appear to be in excess of 100 TPY based on the NSPS standards and inclusion of all possible NO_X emission sources (which must include "insignificant sources"). The application only notes the NSPS limit (0.1 lbs/MMBTU) as the applicable limitation. If potential NO_X emissions are in excess of 100 TPY, the project would be subject to review under the federal Prevention of Significant Deterioration (PSD) program (ch. NR 405, Wis. Adm. Code) and would mandate that an Environmental Assessment be conducted.

With regard to the proposed VOC from the dryer / oxidizer system: Upon examining these further, the asserted emission rate of 5.3 pounds per hour of VOC's appears quite low compared to that observed or proposed from other operations. This translates to about 0.29 pounds of VOC per ton of dried spent grain (18.4 TPH DDGS) and includes the emissions from other processes (e.g. distillation / condensation). In other operations, the emissions limitation has been as much as 0.75 pounds VOC per ton. This raises the question as to whether the cited 95% overall control is sufficient to achieve the requested emission limitations.

Similarly, the particulate matter emissions from a similar process has an emissions limitation of 0.5 pounds per ton of DDGS, although your operation is asserted to only emit the equivalent of 0.3 pounds per ton. Please provide test results and other background information confirming that this process as proposed, can achieve these emission rates (both PM and VOC). Please also document the source of the emissions data used to determine the Carbon Monoxide (CO) emissions rate.

In addition to the Nitrogen Oxides emissions and most of the other criteria pollutants from the Loading Rack Flare (P50/C50) which need to be provided, the application appears to omit any listing of hazardous air pollutants from this operation. If the majority of the vapors collected from this process were from gasoline (from the incoming tanker trucks), assuming 0.5% Benzene in the vapor, the maximum theoretical emissions of Benzene could be on the order of 1.25 TPY and would have potential emissions of up to 100 lbs/yr (based on 96% control of the 251 TPY of VOC's controlled). This level of emissions of Benzene appears to be above the inclusion thresholds and should be reported. There may be other NR 445 listed compounds that should also be included. If you do not believe that there are any hazardous air pollutant emissions, as noted on your form, please document this assertion with calculations and/or other means.

Please provide more information about the sources of emissions that are contributing the listed facility wide hazardous emissions sources: The application form showing facility wide HAP emissions notes the emissions of up to 17.5 TPY of Acetic Acid but the process specific forms do not note which processes generate these emissions (it appears that these are generated from the drying process and from the fermentation process). Please provide more documentation as to the source(s) of the hazardous air pollutant emission factors used within the application and assure that all hazardous air pollutants are listed for a given process.

What is the discharge temperature of the Ethanol exiting the 200 proof condenser (following the molecular sieve process)? If seasonal variations in temperature are expected (due to variations in the temperature of the cooling water), please note the range of temperatures expected.

Please be advised that this is only a continuation of the initial review. Additional information or revisions of the application materials may be needed as the review proceeds. If you have any questions regarding this matter, please feel free to contact me at 608-267-3135.

Sincerely,

Don C. Faith III, P.E.
Air Management Engineer

cc: Michael Sloat - South Central Region Air Program, Reedsburg
Dave Whitford; RMT; 744 Heartland Trail; P.O. Box 8923; Madison, WI 53708-8923
March 10, 2003

Mr. Carl T Benck, Director

File Code: 4560
United Wisconsin Grain Producers, LLC

FID No.: 111030040
W772 Hwy Z

Permit No.: 03-DCF-048
Fall River, WI 53952

Dear Benck:

The Central Office of the Department of Natural Resources has received the air pollution control permit application regarding the proposed construction and operation of an Fuel Grade Ethanol production facility to be located in Friesland, Wisconsin. The application as submitted is deemed incomplete.

Please provide additional information regarding the proposed thermal oxidizer / waste heat recovery boiler (C10). The Department and the U.S. EPA both consider the combination to constitute a steam generating unit with a heat input capcity in excess of 100 MMBTU/hr and subject to s. NR 440.205,

Wis. Adm. Code. Although you note the 0.1 lbs/MMBTU emission limit for Nitrogen Oxides, your application fails to note the Nitrogen Oxides CEM which is normally required for these units or the alternatives allowed by the rule (assuming the total heat input is less than 250 MMBTU/hr). The applicablity of the NSPS to this type of system was confirmed by the U.S. EPA in a memo dated January 8, 2003 based on an inquiry regarding the Badger State Ethanol operation. NSPS compliance demonstration tests will be needed and may need to encompass operation at the upper limits of thermal oxidizer temperatures.

With regard to the oxidizer, you apparently don't directly note the applicability of ch. NR 429, Wis. Adm. Code for the oxidizer process. Though you note the applicability of this rule for the entire facility, it is particularly important that it be noted for this process. Proper control of odor emissions may require operation of the oxidizer at higher temperatures than would be needed to only achieve VOC control and this should be acknowledged within your application. Please also identify the residence time for the gases within the thermal oxidizer and provide the calculations used to arrive at this value. In addition, insufficient oxidizer temperatures could result in excessive Formaldehyde emissions from the drying process and not constitute application of the ch. NR 445, Wis. Adm. Code Hazardous BACT (Best Available Control Technology) requirements. You should provide a discussion regarding Formaldehyde Hazardous BACT. These types of units (thermal oxidizers) can often consistently achieve 99% or better control of the emissions entering the devices. The Formaldehyde BACT will need to be conducted in a top down fashion showing why 99% destruction of the emissions isn't feasible as BACT. Although you mention briefly that 99% overall control of emissions is presumed to be Formaldehyde Hazardous BACT (on the form), your application asserts that the system will only achieve 95% control of VOC's.

With regard to the particulate matter emissions (primarily from the DDGS dryer), please provide more information regarding the source of the DDGS particulate matter emission factor. What is final moisture content of the DDGS, what drying technology is used and does this correspond to that represented by the emission factor? Please also include a more detailed diagram or print of the proposed drying process and other pertinent information (e.g. are the two Dryers (A&B) rotary/ drum dryers, countercurrent or cocurrent flow types, burner type (e.g. low NOx)?). Although you note a DDGS Cyclone (P70), this is apparently only used to collect the DDGS product, and isn't a control device acting upon the dryer exhaust. Conceptually, a cyclone could be used to collect particulates from the dryer prior to the oxidizer. The Department also questions your use of a single process number to represent the Distilling, Condensing and Drying processes (P10). From our perspective, these constitute at least 3 basic emissions units and should probably be identified as separate processes, which share the control device and stack (e.g. P11 and P12).

With regard to the Thermal Oxidizer / Waste Heat boiler, your application notes that its normal exhaust flow rate will be at the maximum possible exhaust flow rate. Please provide additional information confirming that this will be the case. Most processes are designed to be operated at a level below that of their maximum capacity, but that is not reflected in the application for this and some of the other processes. This information is needed as ambient modeling is usually conducted using the "normal" flow rate when examining the possible impacts to assure that the air quality

standards are protected, and this avoids the need to mandate additional stack parameters.

With regard to the processes controlled by a baghouse, please provide more information regarding the baghouses. Without knowing more than the air to cloth ratio, it isn't possible to affirm that the baghouses will perform as proposed (and thus the application cannot be approved). For example the type of fabric is important for confirming whether the process can achieve the stated control or whether the cited pressure drop range is sufficient to assure compliance. The proposed air to cloth ratio is a bit higher (and the control efficiency is lower) than has been proposed for this type of operation.

With regard to the Carbon Dioxide scrubber (P40 / C40): These operations normally direct the collected VOC and water from the scrubber back into the process (as noted on the process diagram) and thus are considered a part of the process (as was noted in your application for the cyclone on process P70). Please conduct an NR 424 analysis that examines the application of control onto the exhaust stream exiting the process scrubber (your "C40"). For other facilities, the application of some form of additional control (beyond the 97.8% noted) has been typical for this operation (e.g. LACT), either in the form of an additional scrubber or a CO_2 collection process (which incorporated additional scrubbing). If a second scrubber is used, please also note whether it will use fresh water or recycled process water. Use of fresh water on a final scrubber has been required at other installations of this type.

The Department questions the apparent application assertion that the large storage tanks (200,000 gallon and 750,000 gallon) are only subject to the recordkeeping requirements of the Storage Tank NSPS (s. NR 440.285(7)(a) & (b), Wis. Adm. Code): According to National Weather Service records, the maximum monthly average temperature is expected to be 25° F in excess of the cited 45° F annual average temperature and the material is expected to have a maximum true vapor pressure in excess of 3.5 KPa (0.51 psia). As these tanks are larger than 151 cubic meters (~40,000 gallons), they are subject to the standards of s. NR 440.285(3), (4), ..., (7), Wis. Adm. Code. Though proposed to be equipped with floating roofs, the tanks still lack some of the fittings (e.g. gasketing, seal type) required by the NSPS. The highest monthly mean temperature for Portage occurs in July and is 70.6° F (Beaver Dam is at 70.7°F) and these are considered representative of Friesland. The NSPS requires that the "maximum true vapor pressure" (the equilibrium partial pressure as determined at the highest monthly average temperature) be used as the basis to determine whether the NSPS applies, not the vapor pressure at the annual mean temperature. The application of all NSPS applicable requirements (e.g. gasketed fittings, seal type, etc.) may have an effect upon the emissions from the source, so these portions of the submittal may also need to be updated. The application forms are also incomplete, in that a number of the mandatory tank parameters (e.g. vertical / horizontal; tank height, tank diameter, etc.) were not provided on the forms. Some of the parameters appear to be noted in the Tanks 4.0 output, but all of the required parameters should be provided on the forms. Required parameters are denoted by the use of 'shading' of the field description. Note that these fields only denote the minimum required information for an operation permit; the Department may require additional information when conducting its review.

Your application text and process diagram refers to "Methanators" (anaerobic digestors) which would be controlled by a flare and discharged to S60 (on the process diagram) / S11 (in the modeling), if not used for fueling the drying process. Even though you normally intend for the flare and stack to be used only as a backup or precaution, as you propose to have the capability of having these discharging directly when the dryers are not operating, it is not sufficient to assert that these are insignificant emission sources and not provide more detailed information about this process, the control and stack. Even if you withdrew the possibility of a flare and bypass stack, it would still be appropriate to assign a process number and provide information about the process (e.g. process forms, emissions), which will normally be directed eventually through control C10 / stack S10. Will 'temporary' shut down of the dryers inferred by this effect the control efficiency achieved by the thermal oxidizer?

With regard to the P70 / S70 (DDGS cyclone), the application does not contain an analysis demonstrating why the VOC emissions from this stream are not controlled by at least 85% (under ch. NR 424, Wis. Adm. Code). Why aren't these emissions directed though the thermal oxidizer / waste heat recovery system?

With regard to the cooling tower (P80 / F80), please examine whether any of the additives (e.g. biocides, corrosion inhibitors, etc.) expected to be used contain Volatile Organic Compounds (VOC's.). If so, the application should reflect these emissions as well, unless they can be shown to be minimal. It is presumed that the cooling tower is not used for direct cooling of VOC containing process water as the application asserts that the tower is for "Non-Contact Cooling Water," though this should be confirmed.

Please also provide a summary of the facility wide emissions of hazardous air pollutants which note the maximum hourly rates of emissions. Though the annual values may be representative of the hourly values, that is not always the case. Compliance with ch. NR 445, Wis. Adm. Code is based upon the maximum hourly emissions rate. Please provide more background information regarding the emission factors used for establishing the hazardous air pollutant emissions. The emissions of Acetaldehyde (9.2 TPY) are quite close to 10 TPY, the level at which would trigger a requirement that you propose a case-by-case new source MACT under Section 112(g), based on the control efficiencies proposed in your application.

Please provide more detailed information regarding the fence line used within the modeling analysis and that proposed to be associated with the facility (e.g. confirm that there will be a fence and if so, where it is located). With the printing on the "Preliminary Plant Layout" ("subject to change") being indistinct, it is not possible to discern whether there is a fence shown where it was shown in the modeling or if there is a fence at the outer perimitter of the property. In addition, in examining the modeling analysis presented, our modeler observed that the analysis appears to use a lower value for the PM / PM_{10} values than were presented within the application (4.98 vs. 5.5 lbs/hr). This lower value was needed to achieve compliance with the standards / increments, thus the value presented in the application (5.5 lbs/hr) is not approvable. (As noted previously, PM emissions from this process could be controlled by use of a cyclone). Note that the value(s) needed to achieve compliance may

also change depending upon the fence line and changes to the "Preliminary Plant Layout." Any changes to the plant layout / fence line from that presented in the application may not result in any modeled exceedances of air quality standards / increments.

Although the application asserts that the emissions will be capped at a level which will not require an environmental assessement based on air emissions, are there any other Department actions which may require an environmental review (e.g. water discharge, etc.)? Similarly, as this facility appears to be a "Greenfield" site, please contact the State Historical Society to determine if the site has historical significance and provide documentation as to their response.

Please be advised that this is only an initial review. Additional information or revisions of the application materials may be needed as the review proceeds. If you have any questions regarding this matter, please feel free to contact me at 608-267-3135.

Sincerely,
Don C. Faith III, P.E.
Air Management Engineer

cc: Michael Sloat – South Central Region Air Program, Reedsburg
Dave Whitford; RMT; 744 Heartland Trail; P.O. Box 8923; Madison, WI 53708-8923

April 25, 2003

Mr. Carl T Benck, Director

File Code: 4560
United Wisconsin Grain Producers, LLC

FID No.: 111030040
W772 Hwy Z

Permit No.: 03-DCF-048
Fall River, WI 53952

Dear Mr. Benck:

The Central Office of the Department of Natural Resources is continuing to review the updated air pollution control permit application received April 21, 2003, regarding the proposed construction and operation of an Fuel Grade

Ethanol production facility to be located in Friesland, Wisconsin. The Department has identified additional information needed for the review.

With regard to the Heat Recovery Steam Generator / Thermal Oxidizer (Boiler / Oxidizer), the noted Nitrogen Oxides emissions rate (on form 4530-128) does not correspond to the proposed 0.080 pounds per million BTU heat input rating for the system with a heat input of 225 million BTU per hour. Please quantify any additional heat inputs or correct the overall emissions rate. Though some of this information appears to be partially present in the attached calculation sheets, the information summarizing the emissions from stack S10 (4530-128 form) should also be updated. Based on the information provided, it is not clear whether you are proposing a 0.080 pounds per million BTU for only the heat input to the Thermal Oxidizer portion of the process or if it is for the entire emissions exiting stack S10. Practically speaking, as the emissions are only measured at the stack (S10), the limit that is proposed must be for the entire emissions from the stack: Both the emissions from the dryer fuel combustion and the subsequent thermal oxidation must be used for the analysis and compliance emissions testing for demonstrating compliance with the NSPS and any more stringent limitations that you are proposing. There appears to be a similar discrepancy for Carbon Monoxide emissions noted on the form. Please also confirm that the other pollutant emissions noted on the form are correct.

Please provide process / control forms and stack emissions forms (including MTE's) for the Biomethanators and its flare. The Department specifically requested this in our last meeting. Your application cover letter indicates that you are requesting specific limitations on the hours of operation of this process (5040 hours /yr.). Although you have asserted that discharge from the S11 stack / flare is to be an infrequent occurrence, it could be a significant source if operated extensively due to unforseen circumstances but it would still be allowable under the conditions you have requested. As there is a separate stack, a separate control and the system could discharge its emissions for an extended period, it is necessary for this to be assigned a separate process number for the permit structure and for software used in house for maintaining records.

Please provide the information necessary to calculate the retention times within the Boiler / Oxidizer (e.g. volume, internal flow rate). Though you have asserted that the 'design retention time' is 0.5 seconds, the actual retention times may be substantially higher and may provide greater assurance that the system can achieve the proposed control efficiencies. The volumes and flows also enable us to confirm the heat release rate category under the NSPS.

Please quantify the pounds per year of potential emissions of Benzene from the loading rack flare. Though you report the emissions as 0.0 TPY, the reportable quantity for Benzene is 30 lbs/yr (under ch. NR 407, Wis. Adm. Code). My calculations indicate the potential emissions are in excess of 30 lbs/yr and thus should be reported (in a pounds per year format).

With regard to the fermentation process, the NR 424 analysis is considered incomplete. Your analysis only investigated a single control technology (e.g. a scrubber which also required a wastewater treatment plant). Please investigate and discuss other possible control technologies (e.g. thermal or catalytic oxidation). If feasible, they should be analyzed (e.g. directing the exhaust to the boiler / oxidizer, using a dedicated thermal or catalytic oxidizer which would require supplemental combustion air). Note that the potentially higher NO_X emissions in and of

themselves from the control may not be used as exclusive grounds for excluding a control (avoiding PSD status is not a valid reason for not applying a control). Please also identify and analyze whether there is an additional scrubber (or a higher control efficiency in a single scrubber) that could enable all of the effluent to be redirected back to the process and avoid the expense of a wastewater treatment process. Although this might not constitute a 'control' being required under the NR 424, Wis. Adm. Code, 85% control requirement, an additional scrubber (or larger single scrubber) providing additional control could still constitute "Latest Available Control Technology and operational practices" (LACT). For the Ethanol plants subject to PSD BACT, what are the control efficiencies applied to the fermentation processes (if possible, please provide multiple examples)?

The Formaldehyde (HCOH) BACT presented is not considered a top down BACT, nor is it consistent with other recent HCOH BACT's in use for other similar facilities. Your analysis only presents a single control efficiency but does not investigate whether any higher control efficiencies or operational restrictions should be considered as BACT, prior to the control efficiency you assert. Any top down BACT discussion should first investigate whether a control consistent with the Lowest Achievable Emission Rate (LAER) is feasible, prior to considering lower levels of control. In our meeting you also discussed the BACT used at the Monroe facility (e.g. maintain a temperature of at least 1400° F), but that option is not discussed and could be a more effective BACT if 98% overall VOC control could be achieved at a temperature of less than 1400° F. Please evaluate / consider and discuss whether HCOH hazardous BACT should be both an operational restriction (e.g. not less than 1400° F) and not less than 99% average VOC destruction efficiency (or some higher) control of VOC emissions (resulting in 98% (or some higher) overall VOC control based on the combined destruction and capture efficiency).

Please confirm that there are no reportable Formaldehyde emissions anticipated from the DDGS cooling cyclone process (P70): No Formaldehyde emissions were reported on the 4530-126 form. The emissions of Formaldehyde from this process must be less than 25.0 pounds per year, for them to not be included in the application under ch. NR 407, Wis. Adm. Code. (Your calculations appear to indicate that the Formaldehyde emissions are 26 pounds per year). If the emissions are in excess of 25.0 pounds per year, then this process should also be evaluated for Formaldehyde BACT, as the total Formaldehyde emissions from the facility are in excess of 250.0 pounds per year, after control. Please also provide a better explanation of what LACT is proposed to be for this process. It is not clear how a DDGS cooling exhaust temperature upper limit will suppress the liberation of VOC's: The only 'suppression' appears to be due to the fact that the VOC's will all be stripped out of the DDGS and exhausted uncontrolled, due to high flows through the cooling cyclone necessary to keep the exhaust at or below 95° F). If anything, your choice of having a maximum exhaust temperature of 95° appears that it would require higher exhaust flows and make control of this process more difficult. Could a significantly higher exhaust temperature lower the flow volume sufficiently that add-on control could be feasible? Please also address whether this exhaust stream could constitute an odor source and if so, what is proposed to minimize odors from this source.

Please also provide more information regarding the basis of the difference between the total PM noted to be emitted from the DDGS cooler (3.0 lbs/hr) and the PM_{10} emissions (0.5 lbs/hr). Is the cited pressure drop range for the combined cyclone and baghouse filter or for just the baghouse section. At a minimum, the fabric filter portion of the "Type II Cyclone" (???) is considered a formal control device and is not considered a "part of the process." The integration of two control devices into a single unit does not enable the second portion of the control to be excluded from consideration as a control device. Monitoring of the control will be required under the authority of ch. NR 439, Wis. Adm. Code. Monitoring and proper operation of the baghouse is necessary to assure compliance with the

emission limits. Note that recycling of a material back into a process does not automatically exclude what is effectively a control device for consideration as such. For example, a hot mix asphalt plant typically recycles its baghouse catch back into the process; however, the baghouse is none the less considered and treated as a control device. Though the cyclone itself may be validly considered a portion of the process, the 'supplemental' baghouse will be treated as a control device.

It appears that a hazardous BACT analysis is not needed for the fermentation process (P40) as the Formaldehyde emissions from the process appear to be less than 25 pounds per year (est. at 13 lbs/yr), presuming that the Formaldehyde is absorbed by the scrubber at a 98.7% or better efficiency.

With regard to the baghouse fabrics that are proposed to be a 'polyester fabric,' please note whether this is a felted or woven fabric. Felted fabrics are typically used in this type of application as they are usually more effective (see the control device form).

With regard to the proposed control device pressure drop ranges: Are there any scenarios where a pressure drop within the cited range could have emissions in excess of the emission limits noted for the individual processes. For example, if the nominal pressure drop through the baghouse used for corn milling is 6 inches of water column, are you confident that a pressure drop of 2.5 will be indicative of compliance with the limitation? What is the design pressure drop for the baghouses? Typically this information will be needed to size and cost the induced draft fans.

The Department does not necessarily agree that the limitations should all be stated strictly as pound per hour or pound per month type limitations. Though these limits will be present as well to assure that the emissions are capped, throughput based emission limits are more representative of how emissions are generated and give greater assurance that the process will perform as asserted if it is not tested at maximum capacity. If a process happens to be operated at 85% of capacity when undergoing testing, but emits at the hourly permit limit value, the Department cannot be confident that the source will be in compliance when operated at 100% of capacity. There may be situations where just a pound per hour limitation is sufficient, but this is determined on a case-by-case basis. If the facility is operated as close to the capacity as the application indicates, this should not be an issue.

Please be advised that this is only a continuation of the initial review. Additional information or revisions of the application materials may be needed as the review proceeds. If you have any questions regarding this matter, please feel free to contact me at 608-267-3135.

Sincerely,

Don C. Faith III, P.E.
Air Management Engineer

cc: Michael Sloat - South Central Region Air Program, Reedsburg
Dave Whitford; RMT; 744 Heartland Trail; P.O. Box 8923; Madison, WI 53708-8923

May 14, 2003

Mr. Carl T Benck, Director

File Code: 4560
United Wisconsin Grain Producers, LLC

FID No.: 111030040
W772 Hwy Z

Permit No.: 03-DCF-048
Fall River, WI 53952

Dear Mr. Benck:

The Central Office of the Department of Natural Resources is continuing to review the updated air pollution control permit application received May 12, 2003 (dated May 9, 2003), regarding the proposed construction and operation of an Fuel Grade Ethanol production facility to be located in Friesland, Wisconsin. The Department has identified that the application remains incomplete.

With regard to the Heat Recovery Steam Generator / Thermal Oxidizer (Boiler / Oxidizer), the proposed Nitrogen Oxides (NO_X) allowable emissions rate of 0.086 pounds per million BTU still appears lower than what would be advisable. Although the text associated with the discussion asserts that the fuel value obtained from the Biomethanators will only be used to replace the natural gas used to fire the dryers, the calculation appears to be based on it supplementing the maximum natural gas input.

My suggestion is that you consider an allowable NO_X rate of 0.090 pounds per million BTU or some similar value that assures that the source will remain a synthetic minor source, while providing as large a portion of the NSPS allowable as possible and continuing to meet air quality standards. This is based on 19.7 lbs/hr / (140 MMBTU/hr + 85 MMBTU/hr) = 0.08756 lbs / MMBTU. By the same token, we do not recommend having total emissions from a facility being too close to the major source threshold as considerable testing may be needed to assure that the source does not constitute a major source. Note that you must make the decision as to the specific allowable limit you are requesting and provide the proposed limitation in writing.

With regard to the Boiler / Oxidizer, the cited 0.5 second retention time alone does not necessarily imply that your stated level of control will be achieved. The AP-40 reference cited in your most recent response notes a range of 0.2 to 2.0 seconds of residence time, but that this factor is primarily dictated by kinetic considerations. What is the residence time of gases within the Monroe (Badger State Ethanol) facility and how does this compare to the proposed 'design' residence time? We typically would prefer a higher residence time to be confident that the oxidizer can achieve 99% VOC destruction efficiency (98% overall control). Is there additional information that could be provided to confirm that the 'design' residence time will achieve the needed control (e.g. information that shows that the gases will undergo considerable mixing and be highly turbulent prior to exiting the combustion zone).

The Formaldehyde (HCOH) BACT presented is still not considered a top down BACT, nor is it consistent with other recent HCOH ch. NR 445 Hazardous BACT's in use at similar facilities. Your application continues to asserts that the proposed 98% control of "emissions" constitutes BACT for Formaldehyde and that as it is better than the consent decree requirement of 95% control (of total VOC's) that it should constitute Hazardous BACT for Formaldehyde. This however, is not considered approvable as it is neither a top down BACT (e.g. which starts with LAER and must demonstrate that LAER is not feasible prior to proceeding to lower control efficiencies), nor is it consistent with other Hazardous BACT's. A PSD BACT does not automatically equate to being a ch. NR 445 Hazardous BACT.

It has been the Department's observation that when thermal oxidation is used for control of VOC emissions and streams containing considerable amounts of Formaldehyde, a control process which is measured as providing 98% control of overall VOC emissions does not necessarily provide 98% control of Formaldehyde and may actually constitute a Formaldehyde 'generator.' When lower temperatures (e.g. less than 1400° F) are used within an oxidizer (that may still achieve 98% control of overall VOC emissions), these lower temperatures may actually result in the formation of Formaldehyde and other products of incomplete combustion (and thus provide substantially less than 98% control of HCOH).

Your analysis only presents a single overall control efficiency (98% VOC) but does not investigate or discuss whether any higher control efficiencies or operational restrictions should be considered as BACT, prior to the control efficiency you assert. In our meeting you also discussed the BACT used at the Monroe facility (e.g. maintain a temperature of at least 1400° F), but that option is not presented and could be a more effective BACT if 98% overall VOC control could be achieved at a temperature of less than 1400° F (see prior paragraph). Please evaluate / consider and discuss whether HCOH hazardous BACT should be both an operational restriction (e.g. not less than 1400° F) and not less than 99% average VOC destruction efficiency (or some higher) control of VOC emissions (resulting in 98% (or some higher) overall VOC control based on the combined destruction and capture efficiency). Though your application asserts that it is premature to establish a minimum operational temperature, the Department does not concur with your assertion with the minimal discussion provided. Can you provide an economic (e.g. $ / ton) or technical justification as to why a minimum operational temperature of 1400° F is not feasible? Note that based on discussions during our meeting, the expectation is the temperatures in excess of 1400° F may very well be needed to achieve the required control of CO emissions.

The Department questions your decision to lower the estimated Formaldehyde emission rate from the DDGS cooling cyclone rather than conducting a ch. NR 445, Wis. Adm. Code Hazardous BACT analysis. By lowering the emissions to just below the significant / reportable level, you may have ostensibly eliminated the need to conduct the Hazardous BACT analysis, but due to the uncertainties involved with the level of emissions, this may result in a requirement to conduct testing of the Formaldehyde emissions from this emission point (it is expected that VOC testing will be needed regardless). This testing would be needed to confirm that the emissions are indeed reliably below the inclusion levels to assure that Hazardous BACT does not apply. As noted previously during our meeting, you may not rely upon any possible changes to the State's Hazardous Air Rule (ch. NR 445, Wis. Adm. Code), until those changes are formally promulgated and become effective.

Please also confirm whether the emissions noted as being emitted from stack S10 include the combustible gas input

from the Biomethanators (which would constitute 'normal' operation): The spreadsheet entry discussing this does not note the Biomethanators so it is unclear whether these emissions estimates are correct. Although the worst case emissions on a facility wide basis may be the scenario in which the Biomethanators are bypassed for the allowable 5040 hours per year, and the 'bypassed' emissions from S10 are needed to estimate the true facility-wide potential to emit, the worst case emissions from Process P10 /P11 / Stack S10 are expected to be the normal operating scenario and this should also be provided if they differ from those of the 'bypassed' scenario. It may be that the 'bypassed' vs. 'normal' emissions from Stack S10 will be the same, but I need confirmation of this.

Note that the proposed allowable emissions of NO_x (from Stack S10) should also reflect any new emission limits you are proposing (e.g. 0.090 or 0.093 ... lbs/MMBTU), even if you anticipate the Maximum Theoretical Emissions (MTE) to be at some lower level (which should also be reflected on the emissions forms for both the process and facility). The modeling analysis will not proceed until we are confident that all of the emission rates have be properly established.

Thank you for providing the process, control, stack and emission forms for the Biomethanators which are representative of 'bypass' operation.

Additional information or revisions of the application materials may be needed as the review proceeds. If you have any questions regarding this matter, please feel free to contact me at 608-267-3135.

Sincerely,

Don C. Faith III, P.E.
Air Management Engineer

cc: Michael Sloat - South Central Region Air Program, Reedsburg
Dave Whitford; RMT; 744 Heartland Trail; P.O. Box 8923; Madison, WI 53708-8923

-----Original Message-----
From: Dave Whitford [mailto:Dave.Whitford@rmtinc.com]
Sent: Monday, June 09, 2003 2:01 PM
To: Faith III, Don C
Cc: jmcallister@ahlerslaw.com; McGovern, Gail; Sloat, Michael R; Dave Fox; Dennis Hatfield; benck@uwgp.com; mail@uwgp.com
Subject: Re: NR 445 Watch List - Acrolein

Don, We have reviewed your e-mail concerning acrolein emissions as it relates to your department's "watch list" and have discussed the issue with Carl Benck of UWGP. As you know, acrolein is currently regulated in the existing NR 445 (WDNR''s hazardous air pollutant regulations) on a 24-hr average basis and, in the proposed revisions to NR 445, on a 1-hour average basis. However, the current and proposed regulations do not incorporate the NR 445 watch list value you refer to. We understand that the NR 445 watch list value is the reference concentration, or RfC, for acrolein, normally

governing impacts on an annual basis.
It is our understanding that WDNR does not use the RfC for acrolein as an ambient standard because the USEPA used too large an uncertainty factor to develop it. Substances that have defined RfCs with a high uncertainty factor (that is, the health data to support the numerical reference concentration has a high degree of uncertainty associated with it) are not regulated for chronic impacts. Acrolein is one of those substances. It has an extremely high uncertainty factor of 1,000 (*i.e.*, a safety factor of 1,000 has been factored into the reference concentration).

The permit application currently provides an air quality modeling analysis for acrolein that shows compliance with both the existing NR 445 regulation and the proposed NR 445 regulations. Consequently, we respectfully ask you to proceed with the permit review.

Thank you for your efforts to schedule a public hearing. We are very appreciative of your responsiveness.

Sincerely,

Dave

>>> "Faith III, Don C" <Don.FaithIII@dnr.state.wi.us> 06/06/03 02:27PM >>>

In conducting the review we have determined that the amount of Acrolein emitted was in excess of the NR 445 Watch list values. Yesterday, I got the modeling results back that evaluated these impacts and it was determined that the emissions of Acrolein resulted in concentrations up to 5 times greater than the target reference concentration at the point of maximum impact, and up to 2 times greater at the closest residence.

The NR 445 Watch list refers to 18 compounds which the department has determined are of particular concern, and for which we attempt to obtain voluntary compliance with the standards that have been developed. Although, typically, the impacts are less than the standards when modeled, in this instance, the impacts are substantially above the standards. Though your emissions of Acetaldehyde are also above the Watch list table value, its modeled impact is less than the reference concentration.

Though this is voluntary and you have no legal obligation to address thisissue, it is a normal element of our permit review / preliminary

determination document and may be a possible issue with regard to public concern (and it is also a matter of concern to us...). The stack from the oxidizer is quite high (125') and it is the smallest source. My expectation is that this impact is largely due to the CO2 scrubber with its 45' stack (and perhaps to a lesser extent, the DDGS cooler w/ 75' stack and the largest emission point).

You may want to consider whether it would be possible to elevate the CO2 scrubber stack and/or other stacks and then allow us to model the impacts with these new parameters. It is my understanding that you are uncertain whether you would be contracting to have a CO2 collection process installed (I'm also uncertain whether this collection process would actual collect and remove/destroy all of the residual VOC's in the process of compressing the CO2).

Although I realize that you are trying to maintain a schedule (and I've tried to assist you toward that goal), this is an issue which we would like the opportunity to resolve prior to the review going to public comment. Please feel free to give me a call to discuss this issue.

We have tentatively scheduled the public hearing you requested for July 8th. The program atty.. for SCR, Marcia Penner, is trying to work out the details of location, etc., so that this information can be included within the public notice.

Regards,

Don C. Faith III, P.E.

ph. (608) 267-3135

http://www.epa.gov/iris/subst/0364.htm

[Enter Date]

IN REPLY REFER TO: 4560

FID No.: 111030040
Dave Whitford (RMT Inc.)

PERMIT No.: 03-DCF-048
United Wisconsin Grain Producers, LLC
W772 Hwy Z
Fall River, WI 53952

Dear M~. Contact:

On February 12, 2003; [and dates of additional information submittals], the Bureau of Air Management of the Department of Natural Resources received your air pollution control permit application and additional information for the proposed construction and operation of a fuel grade ethanol production facility to be located in Friesland. The Department has checked the permit application materials for completeness and found those materials to be complete. Review and processing of your application materials will continue under the schedule set forth pursuant to s. 285.61, Wis. Stats.

Should you have any questions regarding the review of your application materials, please feel free to call me at (608) 267-3135.

Sincerely,

Don C. Faith III, P.E., Review Engineer
Bureau of Air Management

cc: M. Sloat - Reedsburg; D. Packard - Poynette
June 12, 2003

File Code: 4560
Mr. Carl Benek

FID# 111030040
United Wisconsin Grain Producers, LLC

Permit Number: 03-DCF-048
W772 Hwy Z
Fall River, WI 53952

Dear Mr Benek:

The Bureau of Air Management of the Department of Natural Resources has preliminarily reviewed the air pollution control permit application regarding the proposed construction and operation of a fuel grade ethanol production facility to be located in Friesland.

The Bureau of Air Management has prepared an analysis of the proposed project and has made a preliminary determination that it is approvable. The proposed permit limitations and conditions are included in the attached Draft Permit.

The estimate of the fees that will be charged when the construction permit is issued is as follows :

PRELIMINARY ESTIMATE OF THE APPLICATION FEE

Construction of a Part 70 minor source	$2,300
Review of 27 basic emission units	10,800
Hazardous air pollutant	650
Hazardous BACT	2,700
Detailed modeling	700
Stack test required (single air contaminant)	4,200
NR 424 Analysis	2,000
Synthetic Minor restrictions	2,150
Expedited review	2,650
Applicant publishes notice	(150)
Application fee submitted ($1350)	(1350)
Total:	$ 26,650

This is only an estimate of the application fee. This could be changed as a result of further work being required on the application prior to issuing the permit. When you receive your construction permit you will receive the final bill for the application fee.

The Department will now accept public comments on the proposed project as required by ss. 285.61(6) and (7) and 285.62(4) and (5), Wis. Stats. Comments will be received for 30 days after publication of a Class I Legal notice. Please review the Draft Permit and provide your comments within the same 30 day period.

As requested, a copy of this public notice is attached so you may expedite the permitting process. It should be published for one day in the **Portage Daily Register**. In return, you must provide me a notarized proof of publication prior to permit issuance.

The public input, if any, will also be reviewed to note if significant public interest in the project exists and whether a public hearing is warranted. If a hearing is warranted, it would be held within 60 days from the end of the public comment period. Finally, all public input will be used to render a final decision within another 60 days unless compliance with Wisconsin's Environmental Policy Act requires a longer time.

Please be advised that this is only a preliminary determination. If you have any questions regarding this matter, please feel free to contact me at (608) 267-3135.

Sincerely,

Don C. Faith III, P.E., Review Engineer
Bureau of Air Management

Attachment

cc: M. Sloat - Reedsburg; D. Packard - Poynette

June 12, 2003

File Code: 4560-1

FID #: 111030040

Permit Number: 03-DCF-048
Jane Morgan Memorial Library
109 W. Edgewater St.
P.O.Box 477
Cambria WI 53923-0477

Dear Librarian:

By Wisconsin law, the Department of Natural Resources is required to allow thirty (30) days of public comment, starting on the day of public notice, on draft air pollution construction and operation permits. In addition, the public notices related to such permits are sent to a public library located in the area of the facility requesting the permit.

Enclosed is the public notice, the preliminary determination and the draft permit for United Wisconsin Grain Producers, LLC located in Columbia County, Wisconsin. Please retain these documents in the library for sixty (60) days for public viewing. Thank you.

Sincerely,

Don C. Faith III, P.E., Review Engineer
Bureau of Air Management

Enclosure

cc: M. Sloat - Reedsburg; D. Packard - Poynette