

217/782-2113

CONSTRUCTION PERMIT  
NSPS/NESHAP SOURCE

PERMITTEE

Marquis Energy, LLC  
Attn: Jason Marquis  
11953 ESK Road  
Hennepin, Illinois 61327

Application No.: 10110032

I.D. No.: 155010AAJ

Applicant's Designation:

Date Received: November 22, 2010

Subject: Plant Expansion

Date Issued: June 14, 2011

Location: 11953 ESK Road, Hennepin, Putnam County

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of a plant expansion, including the new emission units listed in Attachment A and other ancillary operations, as described in the above-referenced application. This Permit is subject to the following conditions and the standard conditions attached hereto.

Section 1: Plant-Wide Conditions

1.0 Introduction

- a. This permit authorizes an expansion of an existing fuel ethanol plant. The proposed expansion (the affected expansion) would have a nominal design capacity of 140 million gallons of ethanol per year. The expansion would generally be designed to function as a stand-alone plant, with construction of additional equipment and facilities, for grain receiving and storage, grain milling, mash preparation, fermentation, distillation of stillage, feed drying, storage and loadout of feed; storage and loadout of fuel ethanol, and natural gas-fired boilers. Certain existing day tanks, storage tanks and ethanol loadout operations would support the expansion, with increases in their utilization. The plant expansion would also provide redundancy and backup capability for certain operations at the existing plant, including boilers, grain receiving and storage, and feed loadout operations.
- b. This permit is issued based on the expansion project not being a major project subject to the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21. In particular:
  - i. This is generally because the source with the permitted increase in the production and emissions will still not be a major source for purposes of PSD. In particular, the potential emissions of each regulated NSR pollutant other

than greenhouses gases (GHG) from the source, as limited by the permit, would be less than the major source threshold of the PSD rules (i.e., less than 250 tons per year). (See Table I of Attachment B.)

- ii. In addition, the existing boilers, as a group, and the proposed boilers, as a group, are both not major sources of emissions for purposes of PSD because the potential emissions of regulated pollutants other than GHG of each group of boilers, as limited by this permit, would be less than 100 tons per year. (See Table II of Attachment C.)

Note: For purposes of PSD applicability, this permit is issued based on the proposed expansion project being a separate project from the original construction of the plant, which was constructed pursuant to Construction Permit 06020041. This is because the expansion will entail construction of extensive new equipment and facilities to physically double the capacity of the plant and is being pursued by the Permittee with new financing and construction contracts, separate from those for the original plant.

- iii. As the project is not subject to the PSD rules for emissions of pollutants other than GHG, the project is not subject to PSD for GHG, as provided by the USEPA's Tailoring Rule during Phase I, i.e., the period from January 2, 2011 through June 30, 2011.

Note: In January 2011, USEPA also announced that it was planning to defer PSD permitting for three years for emissions of GHG from biogenic sources, i.e., GHG emissions that are generated during the combustion or decomposition of biologically based material). When this deferral is enacted by USEPA, it would apply to the fermentation operations and the biomethanators at the plant.

- c.
  - i. This permit is issued based on the source becoming a major source for hazardous air pollutants (HAP) with this expansion project, so that certain operations at the source, both new and existing, will become subject to applicable National Emission Standards for Hazardous Air Pollutants (NESHAP) standards in 40 CFR Part 63, as further addressed in Condition 1.3-2 and in other conditions of this permit.
  - ii. This permit is issued based on the expansion of the plant not requiring case-by-case determinations of Maximum Achievable Control Technology (MACT) pursuant to Section 112(g) of the Clean Air Act. This is because the expansion would not entail construction of any new process or production units that by themselves would be considered major sources for HAPs. (See Table V of Attachment C.)

1.1 Plant-Wide Operating Limitations

- a. The amount of grain processed at this plant shall not exceed 289,000 tons/month and 2,890,000 tons/year.
- b. Ethanol production from the plant, determined as 200 proof ethanol shipped from the distillation department (molecular sieves) shall not exceed 28.0 million gallons/month and 280 million gallons/year.
- c. The total feed production of the plant, expressed in terms of dry feed or dry feed equivalent, shall not exceed 91,000 tons/month and 910,000 tons/year.
- d. Natural gas usage by the plant shall not exceed 990 million cubic feet per month and 9,870 million cubic feet per year.
- e. Compliance with these annual limitations and other annual limitations or limits of this permit shall be determined from a running total of 12 months of data, unless otherwise specified in the particular condition.

1.2 Plant-wide Emission Limitations and Emission-Related Requirements

- a.
  - i. Emissions of volatile organic material (VOM), nitrogen oxide (NO<sub>x</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), and particulate matter (PM and PM<sub>10</sub>-PM<sub>2.5</sub>) from the expanded plant shall not exceed the limitations in Table I of Attachment B.
  - ii. Emissions of hazardous air pollutants from the expanded plant shall not exceed the limitations in Table II of Attachment B.
  - iii. For purposes of determining compliance with these limitations, the procedures in the unit-specific conditions of this permit shall be followed unless other credible evidence provides a more accurate estimate of emissions.
- b. If not otherwise specified for a particular emission unit, the emissions of HAPs, other than acetaldehyde, shall not exceed the following limits, which are expressed as a percentage of the VOM limitations:

Individual HAP: 10.0 percent of VOM limit.  
Aggregate HAPs: 15.0 percent of VOM limit.

Note: Refer to the unit-specific condition of this permit and Attachment B, Table II for limits for acetaldehyde emissions.

- c.
  - i. Where the limitations for emissions of PM<sub>10</sub> and PM<sub>2.5</sub> set by this permit are identical, compliance with the limitation for PM<sub>2.5</sub> shall be considered to be provided by compliance with the limitation for PM<sub>10</sub>. In particular, if emission testing for a unit shows compliance with the limitation for PM<sub>10</sub>, separate emission testing shall not be required to show compliance with the limitation as applied to PM<sub>2.5</sub>.
  - ii. Where the limitations for emissions of PM and PM<sub>10</sub> set by this permit are identical, compliance with the limitation for PM<sub>10</sub> shall be considered to be provided by compliance with the limitation for PM. In particular, if emission testing for a unit, including measurements of both filterable and condensable particulate by USEPA Methods 5 and 202 or other appropriate USEPA methods, shows compliance with the limitation for PM, separate emission testing for emissions of filterable PM<sub>10</sub> by USEPA Method 201 or 201A shall not be required to show compliance with the limitation as applied to PM<sub>10</sub>.

#### 1.3-1 Regulations of General Applicability

Emission units at this source are subject to the following regulations of general applicability:

- a. No person shall cause or allow the emission of fugitive particulate matter from any process, including any material handling or storage activity, that is visible by an observer looking generally overhead at a point beyond the property line of the source unless the wind speed is greater than 25 miles per hour, pursuant to 35 IAC 212.301 and 212.314.
- b. No person shall cause or allow the emission of smoke or other particulate matter with an opacity greater than 30 percent into the atmosphere from any emission unit, pursuant to 35 IAC 212.123(a), except as allowed by 35 IAC 212.123(b) or 212.124.
- c. The process emission units at the plant are subject to 35 IAC 214.301, which provides that no person shall cause or allow the emissions of sulfur dioxide (SO<sub>2</sub>) into the atmosphere from any process emission unit to exceed 2000 ppm.

#### 1.3-2 Applicability of National Emission Standards for Hazardous Air Pollutants (NESHAP) for New Operations

- a. The expanded plant will be subject to the following National Emission Standards for Hazardous Air Pollutants (NESHAP), beginning three years after the initial startup of the first emission unit in the expanded plant that is subject to a NESHAP standard. At such time, the Permittee will also become subject to certain requirements in the General Provisions of the NESHAP, 40 CFR 63, Subpart A. This is because the plant will become a "major source" of HAPs because the potential emissions

of HAPs from the plant with the expansion will be more than the major source threshold for HAP emissions, i.e., more than 10 tons per year for an individual HAP or 25 tons per year for all HAPs combined. Because the existing plant, prior to expansion, is not a major source for emissions of HAPs, the subject units at the source will be addressed as units at an existing source except as otherwise provided by a particular NESHAP.

NESHAP Standard (Subpart in 40 CFR Part 63)	Subject Operations or Emission Units	Regulatory Category	Section in Permit
Subpart FFFF: Miscellaneous Organic Chemical Manufacturing NESHAP (MON)	Mash Prep. - Controlled	Process Vents	2.6
	Mash Prep. - Other	Process Vents (not subject)	
	Fermentation	Process Vents	2.4
	Distillation	Process Vents	2.5
	Storage Tanks - Ethanol	Storage Tanks (not subject)	2.7
Storage Tank - Denaturant	Storage Tanks		
Subpart FFFF: Miscellaneous Organic Chemical Manufacturing NESHAP (MON) (Continued)	Equipment Components - Denaturant	Equipment Leaks	2.9
	Equipment Components - Other than Denaturant	Equipment Leaks (not subject)	
	Loadout	Transfer Racks (not subject)	2.8
Subpart ZZZZ: Reciprocating Compression Ignition Engines	Emergency Diesel Engine		2.2
Subpart DDDDD: Industrial Commercial and Institutional Boilers	Boilers	Natural Gas Fired Boilers	2.1

- b. i. All emission units at the expanded plant, both "original" and "new," that are subject to the Miscellaneous Organic Chemical Manufacturing NESHAP (MON), 40 CFR 63 Subpart FFFF, shall comply in a timely manner with applicable requirements of the MON, as further addressed in other conditions of this permit. For this purpose, the following conditions of this permit shall also apply to the existing emission unit at the plant. As appropriate for compliance with the MON, units at the plant need not be addressed separately based on their status, new or original, but may be addressed together as they are subject to common procedural and administrative requirements. For example, a single Startup Shutdown and Malfunction (SSM) Plan may be prepared and implemented for all fermentation operations as they are functionally and

operationally similar. Compliance reports pursuant to the MON should also address all the units at the plant that are subject to the control requirements of the MON.

- ii. Unless otherwise specified in a particular provision of this permit or the MON, conditions in this permit that set forth requirements of the MON shall take effect on the MON compliance date for an existing source that becomes a major source, i.e., beginning three years after the initial startup of the first emission unit in the expanded plant that is subject to a NESHAP standard.
- iii. As the expanded plant will be an affected source that is subject to the MON, the Permittee shall comply with the following general reporting requirements of the MON for the expansion of the plant:
  - A. Initial notification of startup of an affected HAP source shall be submitted not later than 120 calendar days after becoming subject to the MON. [40 CFR 63.2515 and 63.9(b)(ii)]
  - B. Notification of compliance status shall be submitted no later than 150 days after applicable compliance date as determined in accordance with 40 CFR 63.2445.
- c. The existing boilers shall comply with the applicable provisions of 40 CFR 63 Subpart DDDDD (NESHAP for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters).

Note: The requirements of 40 CFR 63 Subpart DDDDD are currently stayed by USEPA.

- d. At all times, the Permittee shall, to the extent practicable, maintain and operate the operation and emission units, and their associated air pollution control systems, that are subject to NESHAP in a manner consistent with good air pollution control practice for minimizing emissions, as required pursuant to 40 CFR 63.6(e)(1)(i).

#### 1.3-3 Non-Applicability Provisions

- a. This permit is issued based on the expanded plant not being subject to the NESHAP for the Synthetic Organic Chemical Manufacturing Industries (SOCMI), 40 CFR 63 Subpart F, because it does not produce any of the chemicals listed in these rules. [40 CFR 63.100]
- b. This permit is issued based on the expanded plant not being subject to the NESHAP for SOCMI for Process Vents; Storage

Vessels; Transfer Operation; and Wastewater, 40 CFR 63 Subpart G, because the expansion does not manufacture as a primary product any of the chemicals listed in Table 1 of these rules and does not use as a reactant, manufacture as a product or co-product any of the chemicals listed in Table 2 of these rules. [40 CFR 63.110]

- c. This permit is issued based on the expanded plant not being subject to the NESHAP for Organic Hazardous Pollutants for Equipment Leaks, 40 CFR 63, Subpart H, because the plant is not subject to the SOCOMI NESHAP, 40 CFR 63 Subpart G.
- d. This permit is issued based on the expanded plant not being subject to the NESHAP for Organic Liquid Distribution (non-gasoline), 40 CFR 63 Subpart EEEE, because the denaturant tank is subject to the MON, 40 CFR 63 Subpart FFFF. [40 CFR 63.2338] The denaturant tank is the only unit that meets the definition of an organic liquid distribution unit. [40 CFR 63.2406]
- e. This permit is issued based on the expanded plant not being subject to the NESHAP for Chemical Manufacturing Area Sources, 40 CFR 63 Subpart VVVVVV, because the source is not an area source and the HAP concentration in the process fluid does not meet the minimum applicability thresholds of these rules. [40 CFR 63.11494]
- f. This permit is issued based on the existing boilers, for which construction commenced before June 4, 2010, not being subject to control requirements of the NESHAP for Industrial Commercial and Institutional Boilers Area Sources (40 CFR 63, Subpart JJJJJJ) because requirements were not proposed for natural gas fired boilers. [40 CFR 63.11195(e)]

#### 1.4 Good Air Pollution Control Practice

The Permittee shall operate and maintain the emission units at this plant, including associated air pollution control equipment, in a manner consistent with good air pollution control practice, as follows:

- a. At all times, including periods of startup, shutdown, malfunction or breakdown, operate as practicable to minimize emissions.
- b. Conduct routine inspection and perform appropriate maintenance and repairs to facilitate proper functioning of equipment and minimize or prevent malfunctions and breakdowns.
- c. Install, calibrate and maintain required monitoring devices and instrumentation in accordance with good monitoring practices, following the manufacturer's recommended operating and

maintenance procedures or such other procedures as otherwise necessary to assure reliable operation of such devices.

- d. Install stacks for the principal emission units designed with a height and exhaust velocity that satisfies good engineering practice.

#### 1.5 Records for Required Monitoring Systems and Instrumentation

The Permittee shall keep records of the data measured by required monitoring systems and instrumentation. Unless otherwise provided in a particular condition of this permit, the following requirements shall apply to such recordkeeping:

- a. For required monitoring systems, data shall be automatically recorded by a central data system, dedicated data logging system, chart recorder or other data recording device. If an electronic data logging system is used, the recorded data shall be the hourly average value of the particular parameter for each hour. During periods when the automatic recording device is out of service, data shall be recorded at least once per shift for periods when the associated emission unit(s) is in service.
- b. For required instrumentation, the measured data shall be recorded manually at least once per shift, with data and time both recorded, for periods when the associated emission unit(s) are in service, provided however that if data from an instrument is recorded automatically, the above provisions for recording of data from monitoring systems shall apply.

#### 1.6 Retention and Availability of Records

All records, including logs and procedures, required by this permit shall be retained by the Permittee at a readily accessible location at the source for at least three years from the date of entry and shall be available for inspection by the Illinois EPA upon request. Any records retained in electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA request for records during the course of a source inspection. The Permittee shall provide copies of any required records requested by the Illinois EPA as soon as is practicable, considering the nature and extent of the requested records.

#### 1.7 Plant-Wide Reporting

- a. The Permittee shall submit Quarterly Compliance Reports as specified in the unit specific conditions of this permit and Condition 3.4(b).



- b.
  - i. The Permittee shall submit an Annual Emission Report in accordance with 35 IAC Part 254.
  - ii. With its Annual Emission Report, the Permittee shall report:
    - A. The annual operating hours of the distillation process, fermentation process and the feed drying system, and the percentage of these operating hours, if any, that these units operated out of compliance.
    - B. Significant deficiencies in the condition of emission units and control systems as related to emissions identified during the detailed annual inspection of equipment.
- c.
  - i. The Permittee shall notify the Illinois EPA within 30 days of any deviation from the operating and production limitations in Condition 1.1 or the annual emission limitations set for the expansion plant. Any such notification shall include the information specified in Condition 3.4.
  - ii. Notwithstanding the above or provisions in the Unit Specific Conditions of this permit for reporting deviations, if deviation will occur from required maintenance, repair or other activity that can be scheduled in advance, the Permittee shall also notify the Illinois EPA prior to undertaking such activity, if it is feasible to do so. Such notification shall be submitted at least 5 days in advance unless the activity is scheduled less than 5 days in advance. Such notification shall be followed by such other notification or reporting as required for the deviations.

#### 1.8 Submission of Reports

- a.
  - i. All notifications and reports required by this permit shall be sent to the Illinois EPA at the following address unless otherwise indicated:

Illinois Environmental Protection Agency  
Division of Air Pollution Control  
Compliance Enforcement Section (#40)  
P.O. Box 19276  
Springfield, Illinois 62794-9276
  - ii. A copy of each report or notification shall also be sent directly to the Illinois EPA's regional office at the following address:

Illinois Environmental Protection Agency  
Division of Air Pollution Control  
5415 North University  
Peoria, Illinois 61614

- b. When this permit requires immediate notification, such notification shall be provided by telephone and followed by facsimile or e-mail transmittal of a narrative report.

1.9 Other Requirements

- a. This permit does not relieve the Permittee of the responsibility to comply with all Local, State and Federal Regulations which are part of the applicable Illinois State Implementation Plan, as well as all other applicable Federal, State and Local requirements.
- b. In particular, this permit does not excuse the Permittee from the obligation to undertake further actions at the source as may be needed to eliminate air pollution, including nuisance due to odors, such as raising the height of stacks, using alternative scrubbant materials, installing back-up control systems or altering process conditions in emission units.

1.10 Authorization to Operate

- a. The expanded plant may be operated pursuant to this construction permit for a period of one year from initial startup of the feed dryers constructed as part of the expansion to allow for shakedown and required emission testing of new equipment and facilities.
- b. Upon successful completion of testing in accordance with Condition 3.1-1, the Permittee may continue to operate the expanded plant under this construction permit until the Illinois EPA takes final action on the Permittee's application for a Clean Air Act Permit Program (CAAPP) permit, provided that the Permittee submits a complete CAAPP permit application for the expanded plant on timely basis as required by Section 39.5(5) (x) of the Environmental Protection Act.

Section 2: Unit Specific Conditions

2.1 Package Boilers

2.1.1 Description

Two new natural gas fired boilers would be used to generate the steam to supply the heat for the expansion, including steam to the feed dryers. These boilers would also provide redundancy and backup capability for existing plant.

The boilers would be equipped with economizers to recover heat that would preheat the boiler feed water.

2.1.2 List of Emission Units and Pollution Control Equipment

Process	Description	Emission Control Equipment
Boilers 3 and 4	Two Natural Gas Fired Boilers (Maximum heat input capacity 280 million Btu/hour, each)	Ultra Low-NO <sub>x</sub> burner

2.1.3 Applicability Provisions and Applicable Regulations

- a. The "affected boilers" for the purpose of these unit-specific conditions are the boilers described in Conditions 2.1.1 and 2.1.2.
- b. The affected boilers are subject to the federal New Source Performance Standards (NSPS) for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60, Subpart Db and related provisions in 40 CFR 60, Subpart A. The Illinois EPA is administering NSPS in Illinois on behalf of the United States EPA under a delegation agreement.

The emission of nitrogen oxides (NO<sub>x</sub>) from each boiler, including periods of startup, malfunction, and breakdown, shall not exceed 0.1 lb/million Btu in accordance with the provisions of the NSPS, 40 CFR 60.44b(a)(1)(i), for low heat release steam generating units.

- c. The affected boilers are subject to the NESHAP for Industrial Commercial And Institutional Boilers and Process Heaters, 40 CFR 63 Subpart DDDDD, and related provisions in the General Provisions of the NESHAP, 40 CFR 63 Subpart A.

Note: The requirements of 40 CFR 63 Subpart DDDDD are currently stayed by USEPA.

- d. The emission of smoke or other particulate matter from the affected boilers shall not have an opacity greater than 30 percent, except as allowed by 35 IAC 212.123(b) and 212.124. Compliance with this limit shall be determined by 6-minute averages of opacity readings in accordance with USEPA Reference Method 9. [35 IAC 212.109 and 212.123(a)]
- e. The emission of carbon monoxide (CO) from each affected boiler shall not exceed 200 ppm, corrected to 50 percent excess air. [35 IAC 216.121]

#### 2.1.4 Non-Applicability of Regulations of Concern

- a. There are no applicable NSPS requirements for emissions of particulate matter or sulfur dioxide pursuant to 40 CFR 60.43b or 60.42b, respectively, as the affected boilers only fire natural gas.
- b. This permit is issued based on the affected boilers not being subject to trading requirements for NO<sub>x</sub> allowances under 35 IAC 217 Subpart U, NO<sub>x</sub> Control and Trading Program. Although these rules are part of Illinois' State implementation Plan (SIP), this is because the USEPA is no longer operating the NO<sub>x</sub> Trading Program under the NO<sub>x</sub> SIP Call. At the federal level, the Clean Air Interstate Rule (CAIR) NO<sub>x</sub> Ozone Season Trading Program has replaced the NO<sub>x</sub> SIP Call. Under CAIR, persons are not required to hold NO<sub>x</sub> allowances for the NO<sub>x</sub> emissions of industrial boilers that are not part of electric generating units.

Note: Pending Illinois rulemaking would exempt the boilers at the Permittee from trading requirements under Part 217 Subpart U. However, the Permittee would still be subject to the monitoring and recordkeeping requirements.

#### 2.1.5 Operational and Production Limits and Work Practices

- a. Natural gas shall be the only fuel fired in the affected boilers.
- b. The design heat input capacity of each affected boiler shall not exceed 280 million Btu/hour.
- c. The affected boilers shall be equipped, operated, and maintained with ultra low NO<sub>x</sub> burners.
- d. At all times, the Permittee shall maintain and operate the affected boilers, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions, pursuant to 40 CFR 60.11(d) and 63.6.

## 2.1.6 Emission Limitations

- a. Emissions of the affected boilers shall not exceed the following limits. These limits are based on information in the application including the maximum firing rate (280 million Btu/hour, each), the emission factors based on the manufacturer's guaranteed data for NO<sub>x</sub> (0.04 lb/million Btu), CO (0.02 lb/million Btu) and VOM (0.006 lb/million Btu) emissions and standard emission factor for other pollutants and continuous operation:

Pollutant	Emissions		
	Each Boiler		Combined
	Lbs/Hour	Tons/Year	Tons/Year
NO <sub>x</sub>	11.20*	49.06	98.11
CO	5.60	24.53	49.06
VOM	1.81	7.94	15.87
PM/PM <sub>10</sub> -PM <sub>2.5</sub>	2.13	9.32	18.64
SO <sub>2</sub>	0.17	0.74	1.47
Acetaldehyde	0.01	0.05	0.10
Individual HAPs, Other Than Acetaldehyde	0.51	2.21	4.42
Total HAPs, Other Than Acetaldehyde	0.53	2.32	4.62

\* Compliance with this limit shall be determined as a 30-day average, using the applicable compliance methodology of the NSPS.

## 2.1.7 Testing Requirements

- a. The Permittee shall perform emission tests for each affected boiler as specified in Condition 3.1-1.

## 2.1.8-1 Emission Monitoring Requirements

- a. The Permittee shall install, maintain, and operate a continuous emissions monitoring system on each boiler for NO<sub>x</sub> emissions. This system shall be operated during all periods of operation of affected boiler except for continuous monitoring system breakdowns and repairs. Data is to be recorded during calibration checks, and zero and span adjustment. [40 CFR 60.48b]
- b. The Permittee shall install, calibrate, operate, and maintain a CO continuous monitoring system on the exhaust from boilers within one year after the initial emission testing required by this permit unless this testing or further testing conducted by the Permittee demonstrates that the unit normally complies by a margin of at least 20

percent with the emission limits in this permit or the Illinois EPA approves further time for the Permittee to achieve this level of performance.

- c.
  - i. These monitoring systems shall be operated during all periods of operation of the combustion unit except for continuous monitoring system maintenance, breakdowns and repairs. The Permittee shall comply with applicable requirements of the NSPS for continuous emission monitoring.
  - ii. The Permittee shall maintain records for the continuous monitoring systems, including recorded emission concentrations and records of maintenance, calibration, and operational activity associated with the system.
  - iii. The Permittee shall submit quarterly monitoring reports to the Illinois EPA for the NO<sub>x</sub> emission monitoring systems (and CO emission monitoring systems, if required) in accordance with applicable reporting requirements of the NSPS for continuous monitoring systems.
- d. Following the shakedown period, as provided by 40 CFR 60.48b(g) (2) and 60.49b(c) and (j), NO<sub>x</sub> continuous emission monitoring on the boilers may be discontinued if a parametric monitoring plan is approved by the Illinois EPA in accordance with applicable provisions of the NSPS in a revised construction permit or the operating permit for the plant.
- e. The requirement for a CO monitoring system may be revised or waived in the operating permit for the source if the Illinois EPA determines that compliance with requirements for CO emissions is not facilitated to a significant degree by such monitoring.

#### 2.1.8-2 Operational Monitoring

- a. The Permittee shall install, operate and maintain instrumentation on each boiler for oxygen level in the flue gas.

#### 2.1.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected boilers:

- a. A file containing the design heat input capacity of each boiler (million Btu/hour), with supporting documentation.

- b. Records required to be kept for each operating day, pursuant to the NSPS, 40 CFR 60, Subpart Db, for each affected boiler, including the following when continuous emissions monitoring (rather than parametric monitoring) is required for NO<sub>x</sub> emissions:
  - i. Calendar date; [40 CFR 60.49b(g) (1)]
  - ii. Total natural gas usage for the affected boilers (ft<sup>3</sup>/day); [40 CFR 60.49b(d)]
  - iii. The average hourly NO<sub>x</sub> emission rates (expressed in lbs/million Btu heat input) measured or if parametric monitoring is approved, records shall be kept of NO<sub>x</sub> emissions as predicted by parametric monitoring; [40 CFR 60.49b(g) (2)]
  - iv. The 30-day average NO<sub>x</sub> emission rates (lbs/million Btu heat input) calculated at the end of each operating date from the measured or if parametric monitoring is approved, records shall be kept of NO<sub>x</sub> emissions as predicted by parametric monitoring, hourly NO<sub>x</sub> emission rates for the preceding 30 operating days; [40 CFR 60.49b(g) (3)]
  - v. Identification of the operating date when the calculated 30-day average NO<sub>x</sub> emission rates are in excess of the NO<sub>x</sub> emissions standards under 40 CFR 60.44b, with the reasons for such excess emissions as well as a description of corrective actions taken; [40 CFR 60.49b(g) (4)]
  - vi. Identification of the operating days for which pollutant data have not been obtained, including reasons for not obtaining sufficient and a description of corrective actions taken; [40 CFR 60.49b(g) (5)]
  - vii. Identification of the times when emission data have been excluded from the calculation of average emission rates and the reasons for excluding data; [40 CFR 60.49b(g) (7)]
  - viii. Identification of the times when the pollutant concentration exceeds full span of the continuous monitoring system; [40 CFR 60.49b(g) (8)]
  - ix. Description of any modifications to the continuous monitoring system that could affect the ability of the continuous monitoring system to comply with Performance Specification 2 or 3; [40 CFR 60.49b(g) (9)]

- x. Results of daily CEMS drift tests and quarterly accuracy assessments as required under Appendix F, Procedure 1 of 40 CFR 60 [40 CFR 60.49b(g)(10)].
- c. Calculations of the annual capacity factor, determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar quarter, per quarter. [40 CFR 60.49b(d)]
- d. Records for the operating hours of each affected boiler (hours/month and hours/year).
- e. The following logs for each affected boiler:
  - i. An operating log, in accordance with Condition 3.3(c).
  - ii. An inspection, maintenance and repair log, in accordance with Condition 3.3(d).
- f. The following records related to emissions:
  - i. Documentation for the emission factor(s) and maximum hourly emission rates used by the Permittee to determine CO, PM, PM<sub>10</sub>/PM<sub>2.5</sub>, SO<sub>2</sub>, VOM and HAP emissions of the affected boilers.
  - ii. Records of all other data, not addressed above, used or relied upon by the Permittee to determine emissions, including hourly NO<sub>x</sub> and CO emission data for the affected boilers as determined by continuous emission monitoring, if applicable.
  - iii. Records for each boiler of the emissions of NO<sub>x</sub>, lbs/hour, 30-day average, on a daily basis.
  - iv. Records for each boiler any hour (or for NO<sub>x</sub>, any day) when emissions exceeded the applicable limit.
  - v. Records of the NO<sub>x</sub>, CO, PM, PM<sub>10</sub>/PM<sub>2.5</sub>, SO<sub>2</sub>, VOM, and HAP emissions of each affected boiler (tons/month and tons/year), based on operating data for the boilers and the emission monitoring data (NO<sub>x</sub>), emission testing data or appropriate emission factors, with supporting calculations. These records shall be compiled on at least a quarterly basis.



2.1.10 Reporting Requirements

- a. The Permittee shall fulfill all applicable notification and reporting requirements of the NSPS for each affected boiler including:
  - i. Written notification of commencement of construction, no later than 30 days after such date; [40 CFR 60.7(a)(1)]
  - ii. Written notification of the actual date of initial startup, within 15 days after such date. [40 CFR 60.7(a)(3)]
- b. The Permittee shall promptly notify the Illinois EPA of any deviations from the requirements of this permit for each affected boiler. These reports shall include the information specified in Condition 3.4.
  - i. For NO<sub>x</sub> emissions from the affected boilers, excess emissions are defined as any calculated 30-day rolling average NO<sub>x</sub> emission rate, as determined under 40 CFR 60.46b(e), that exceeds either (1) the applicable NSPS standard, or (2) the hourly NO<sub>x</sub> limitation in Condition 2.1.6(b), based on the average hourly firing rate of the boiler during the 30-day period.
  - ii. Excess opacity that lasts more than 24 minutes (four 6-minute averaging periods) shall be immediately reported to the Illinois EPA.
  - iii. The deviations addressed above and all other deviations shall be reported in the quarterly compliance report.

2.2 Engine

2.2.1 Description

The diesel-fired engine for the emergency water pump is an existing engine that would also serve the expanded plant in a fire emergency if the source experiences a loss of electrical power from the public utility. This engine would routinely operate for less than an hour per month, to confirm that unit is fully operational and would be available if needed for emergency purposes.

Applicable requirements for this engine are generally established in Section 2.2 of Construction Permit 06020041. This engine is being further addressed in this permit as it is now subject to a NESHAP, as addressed in Condition 2.2.3(d), below. Otherwise, the conditions in this section of this permit reflect conditions in Permit 06020041.

2.2.2 List of Emission Units and Pollution Control Equipment

Process	Description	Emission Control Equipment
Engine	Diesel-fired Engine (300 hp)	----

2.2.3 Applicability Provisions and Applicable Regulations

- a. The "affected engine" for the purpose of these unit-specific conditions, is an engine described in Condition 2.2.1 and 2.2.2.
- b. The affected engine is subject to the federal NSPS for Stationary Compression Ignition Internal Combustion Engines, 40 CFR 60, Subpart I and related provisions in Subpart A. The Illinois EPA is administering NSPS in Illinois on behalf of the United States EPA under a delegation agreement.

Affected engine (fire pump backup) shall comply with requirements of 40 CFR 60.4205 (c), which requires the following emission standards:

NMHC + NO <sub>x</sub>	CO	PM
g/Hp-hr	g/Hp-hr	g/Hp-hr
7.8	2.6	0.4

- c. The emission of smoke or other particulate matter from emergency generator shall not have an opacity greater than 30 percent, except as allowed by 35 IAC 212.123(b) and 212.124. Compliance with this limit shall be determined by 6-minute averages of opacity readings in accordance

with USEPA Reference Method 9. [35 IAC 212.109 and 212.123(a)]

- d. The affected engine is subject to the applicable requirements of the NESHAP for Stationary Reciprocating Internal Combustion Engines, 40 CFR 63 Subpart ZZZZ, for an affected engine that meets the applicability provisions of this NESHAP, e.g., the engine is manufactured after June 11, 2006. In particular, pursuant to this NESHAP, 40 CFR 63.6590(c), each such subject engine shall comply with the applicable requirements of the NSPS for Stationary Compression Ignition Internal Combustion Engines, 40 CFR 60 Subpart IIII.

#### 2.2.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the affected engine not being subject to 35 IAC 212.321, Emission of Particulate Matter from Process Emission Units, because due to the nature of this process, such rules cannot reasonably be applied.

#### 2.2.5 Operational and Production Limits and Work Practices

- a.
  - i. Distillate fuel oil shall be the only fuel fired in the affected engine.
  - ii.
    - A. The operation of the affected engine for maintenance and readiness checks shall be limited to 100 hours per year so that the engine qualifies as an emergency engine for purposes of the NSPS.
    - B. Operation of affected engine shall not exceed 300 hours per year, provided, however, that the Illinois EPA may authorize temporary operation of engines in excess of 300 hours per year to address extraordinary circumstances that require operation of this device, by issuance of a separate State construction permit addressing such circumstances.
  - iii. Sulfur content of the fuel fired in the affected engine shall not exceed 0.05% weight.
- b. The affected engine shall be operated and maintained according to manufacturer's written instructions or procedures developed by the Permittee that are approved by the manufacturer, over entire life of the engine pursuant to 40 CFR 60 4206. In addition, the Permittee shall also

comply with all applicable requirement of 40 CFR part 89, 94 and/or 1068 pursuant to 40 CFR 60.4211(a).

- c. For affected engine, the diesel fuel used shall comply with the requirements of 40 CFR 80.510(a) and beginning October 1, 2010, the diesel fuel used shall comply with the requirements of 40 CFR 80.510(b).
- d. At all times, the Permittee shall maintain and operate the affected engine that is subject to NSPS, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions, pursuant to 40 CFR 60.11(d).

2.2.6 Emission Limitations

- a. Emissions from the affected engine shall not exceed the following limits. These limits are based on the information provided in the permit application including the maximum capacity of engine (300 hp), emission factors and maximum operation (300 hours per year).

Pollutant	Emission Rate	
	Lbs/Hour	Tons/Year
NO <sub>x</sub>	3.45	0.52
CO	0.18	0.03
VOM	0.09	0.01
PM/PM <sub>10</sub> -PM <sub>2.5</sub>	0.06	0.01
SO <sub>2</sub>	0.39	0.06
Acetaldehyde		0.001
Individual HAPs, Other Than Acetaldehyde		0.001
Total HAPs, Other Than Acetaldehyde		0.002

2.2.7 Testing Requirements

Upon written request by the Illinois EPA, the Permittee shall promptly perform emission tests for the affected engine in accordance with the methods and procedures specified in Condition 3.1-1 for the pollutants specified in the request.

2.2.8 Instrumentation Requirements

The Permittee shall install, operate, and maintain a non-resettable hour meter on the affected engine pursuant to 40 CFR 60.4209(a).

2.2.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected engine:

- a. A file containing:
  - i. Applicable emission factors for the engine, with supporting documentation, including a copy of the manufacturer's specifications or guarantee for emissions from the engine.
  - ii. The maximum hourly emission rates from the engine, with supporting calculations.
- b. Records for the sulfur content of the fuel used in the affected engine (percent by weight), which shall be recorded for each shipment of fuel delivered to the plant.
- c. Records of fuel usage for the affected engine, gallons/month and gallons/year.
- d. Records of operating hours for the affected engine (hours/month and hours/year).
- e. The following log(s) or other records for the affected engine:
  - i. An operating log, in accordance with Condition 3.3(c).
  - ii. An inspection, maintenance and repair log, in accordance with Condition 3.3(d).
- f. Records for monthly and annual NO<sub>x</sub>, CO, PM, PM<sub>10</sub>/PM<sub>2.5</sub>, SO<sub>2</sub>, and VOM emissions from the affected engine based on fuel consumption and other operating data, and appropriate emission factors, with supporting calculations.

#### 2.2.10 Reporting Requirements

- a. The Permittee shall promptly notify the Illinois EPA of any deviations from the requirements of this permit for the affected engine as follows. These reports shall include the information specified in Condition 3.4.
  - i. The use of fuel with a sulfur content in excess of the limit specified in this permit with the length of time this fuel was used and the effect on the emission of SO<sub>2</sub>.
  - ii. The deviations addressed above and all other deviations shall be reported in the quarterly compliance report.

2.3 Grain Receiving, Handling, Milling, and Processing

2.3.1 Description

A new grain elevator will be constructed at which corn is received by truck and rail car and stored in bins prior to processing. The total storage capacity of the new elevator is approximately 1.0 million bushels. The initial processing of the corn occurs in the elevator, when the corn is screened or cleaned to remove cobs and other foreign matter. Corn will be milled in two stages, first with roller crackers and then with hammermills. The finely ground grain is conveyed to the mixer, where it is mixed with recycled process water from the cook water tank and sent to slurry tank for enzymatic processing.

Emissions of particulate matter (PM) from the grain elevator would be controlled by design of equipment and control by filters or baghouses. In particular, the dump pit for receiving grain by truck would be "aspirated," to collect dust laden air generated by the fall of grain into the dump pit.

2.3.2 List of Emission Units and Pollution Control Equipment

Process	Description	Emission Control Equipment
Grain Receiving and Storage System	Truck and Rail Dump Station	Baghouse 5
	Conveyors	
	Elevators	
	Storage Bins (3-4)	
	Cleaners	
	Grain Day Bin	
Grain Milling	Roller Crackers	Baghouse 6
	Hammermill Feed Equipment	
	Hammermills (5-8)	
	Hammermill Discharge Conveyors	

2.3.3 Applicability Provisions and Applicable Regulations

- a. i. The "affected grain handling operations" for the purpose of these unit-specific conditions, are the grain handling operation described in Conditions 2.3.1 and 2.3.2.
- ii. The "affected grain milling operations" for the purpose of these unit-specific conditions, are the grain milling operation described in Conditions 2.3.1 and 2.3.2.
- b. The affected grain handling operations are subject to 35 IAC 212, Subpart S: Agriculture and shall be operated to

comply with all applicable requirements of Subpart S.  
[See Conditions 2.3.5-1]

- c. Affected grain milling operations are subject to 35 IAC 212.321, which provide that no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit, either alone or in combination with the emission of particulate matter from all other similar process emission unit, either alone or in combination with the emission of particulate matter from all other similar process emission units, at a source or premises, exceeds the allowable emission rates specified in 35 IAC 212.321(c).

#### 2.3.4 Non-Applicability Provisions

- a. The affected grain handling operations are not subject to 35 IAC 212.321 pursuant to 35 IAC 212.461(a).
- b. This permit is issued based on the affected operations not being subject to 40 CFR 60, Subpart DD, NSPS for Grain Elevators, because the plant's total permanent grain storage capacity, with the expansion, will not exceed the applicability threshold of this NSPS (threshold of 2,500,000 bushels permanent storage capacity).

Note: The new elevator will bring the total storage capacity of source to approximately 2.0 million bushels.

#### 2.3.5-1 Control Requirements from Applicable Regulations

- a. Housekeeping Practices. The Permittee shall implement and use the following housekeeping practices for affected grain handling operations, pursuant to 35 IAC 212.461(b):
  - i. Air pollution control devices shall be checked daily and cleaned as necessary to insure proper operation.
  - ii. Cleaning and Maintenance.
    - A. Floors shall be kept swept and cleaned from boot pit to cupola floor. Roof or bin decks and other exposed flat surfaces shall be kept clean of grain and dust that would tend to rot or become airborne.
    - B. Cleaning shall be handled in such a manner as not to permit dust to escape to the atmosphere.
    - C. The yard and surrounding open area, including but not limited to ditches and curbs, shall be

cleaned to prevent the accumulation of rotting grain.

iii. Dump Pit.

- A. Aspiration equipment shall be maintained and operated.
- B. Dust control devices shall be maintained and operated.

iv. Head House. The head house shall be maintained in such a fashion that visible quantities of dust or dirt are not allowed to escape to the atmosphere.

v. Housekeeping Check List. A written Housekeeping Check List for the grain handling operation, developed and maintained by the Permittee, shall be completed by the manager of the operation on at least a monthly basis and copies maintained on the premises for inspection by the Illinois EPA.

Note: The yard and driveway of any grain elevator shall be asphalted, oiled or equivalently treated to control dust. (See Condition 2.11.3(c))

b. The affected grain handling operations shall comply with applicable requirements of 35 IAC 212.462, as follows:

i. Cleaning and Separating Operations. [35 IAC 212.462(a)]

- A. Particulate matter generated during cleaning and separating operations shall be captured to the extent necessary to prevent visible particulate matter emissions directly into the atmosphere.
- B. Air contaminants collected from cleaning and separating operations shall be conveyed through air pollution control equipment, which has a rated, and actual particulate removal efficiency of not less than 90 percent by weight prior to release into the atmosphere.

ii. Dump-Pit Areas. [35 IAC 212.462(b)]

- A. Induced draft shall be applied to major dump pits and their associated equipment (including, but not limited to, boots, hoppers and legs) to such an extent that a minimum face velocity is maintained, at the effective



grate surface, sufficient to contain particulate emissions generated in unloading operations. The minimum face velocity at the effective grate surface shall be at least 200 feet per minute.

- B. The induced draft air stream shall be confined and conveyed through air pollution control equipment which has an overall rated and actual particulate collection efficiency of not less than 90 percent by weight.
- C. Means or devices (including, but not limited to, wind deflectors) shall be employed to prevent a wind velocity in excess of 50 percent of the induced draft face velocity at the pit; provided, however, that such means or devices do not have to achieve the same degree of prevention when the ambient air wind exceeds 25 mph.
- D. Any equivalent method, techniques, system, or combination thereof to achieve, at a minimum, a particulate matter emission reduction equal to the reduction which could be achieved by compliance with 35 IAC 212.462(b)(1) (Conditions 2.3.5-1(b)(ii)(A) through (C)).

iii. Internal Transferring Area. [35 IAC 212.462(c)]

- A. Internal transferring area shall be enclosed to the extent necessary to prohibit visible particulate matter emissions directly into the atmosphere.
- B. Air contaminants collected from internal transfer operations shall be conveyed through air pollution control equipment which has a rated and actual particulate removal efficiency of not less than 90 percent by weight prior to release into the atmosphere.

2.3.5-2 Operational Requirements to Address Potential Emissions

- a. Grain from "straight trucks" (as distinguished from hopper bottom trucks) shall only be received if the grain receiving operation for such trucks is equipped with quick closing doors and an aspirated dump pit.
- b. The Permittee shall operate the baghouses for the affected operations with a pressure drop that is within a range that is consistent with manufacturer's recommended levels

or that during emission testing that demonstrated compliance with applicable requirements.

- c. The Permittee shall operate and maintain air pollution control equipment for the affected units in a manner that assures that applicable requirements are met. The actions taken by the Permittee to meet this requirement shall include at least the following:
  - i. Written operating procedures shall be maintained and updated describing normal process and equipment operating parameters; monitoring or instrumentation for measuring control equipment operating parameters, if any; and control equipment inspection and maintenance practices. With respect to control equipment maintenance practices, the operating procedures may incorporate the manufacturer's recommended operating instructions, if a copy of these instructions is attached to the procedures.
  - ii. Visual inspections of air pollution control equipment shall be conducted on a regular schedule. These inspections shall include a detailed inspection of the performance and condition of control equipment at least once per year.

2.3.6 Emission Limitations

- a. i. Fabric filters (baghouses) on affected units shall comply with an emission limit of 0.005 grain per standard cubic foot (gr/scf).
- ii. There shall be no visible emissions of fugitive emission, as defined by 40 CFR 60.301, from the affected grain handling operations, other than the affected grain receiving operation, which shall not exhibit opacity greater than 5.0 percent, 6-minute average.
- b. i. Particulate matter emissions from affected operations shall not exceed the following limits. These limits are based on information provided in the application.

Operation	PM/PM <sub>10</sub> -PM <sub>2.5</sub> Emissions	
	Lb/Hr	Ton/Yr
Grain Receiving and Handling (Baghouse 5)	2.06	9.01
Grain Milling (Baghouse 6)	1.20	5.26
TOTAL		14.27

- ii. The above limits do not account for uncaptured particulate matter emissions associated with the grain receiving, handling, storage, and separating, which shall not exceed 4.03 tons/year.

2.3.7 Testing Requirements

- a. The Permittee shall perform emission tests for affected operations as specified in Condition 3.1-1.
- b. Upon written request by the Illinois EPA, the Permittee shall perform opacity observation in accordance with the methods and procedures specified by Condition 3.1-2 for affected grain handling operations as specified in such request.

2.3.8 Instrumentation Requirements

The Permittee shall install, operate, and maintain instrumentation on each baghouse for the affected operation to measure pressure drop across the baghouse.

2.3.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected operations:

- a. A file containing the permanent grain storage capacity of the expanded plant, with supporting documentation, which record shall be updated if the permanent grain storage capacity of the plant changes.
- b. A file containing:
  - i. A copy of the manufacturer's specifications and recommended operating and maintenance procedures for each baghouse.
  - ii. The range of pressure drop within which each baghouse will be operated, as required by Condition 2.3.5-2(b), if not the range recommended by the manufacturer, with explanation and supporting documentation.
- c. Records related to grain, on a monthly basis:
  - i. Grain received (tons/month).
  - ii. Grain in storage (tons).
  - iii. Grain processed, based on amount received adjusted for change in amount stored (tons/month).

- iv. Grain processed (tons/year).
- d. Records of the differential pressure of each baghouse, recorded at least once per operating day.
- e. The following logs for the affected operations and associated air pollution control equipment:
  - i. Operating log(s) in accordance with Condition 3.3(c).
  - ii. Inspection, maintenance and repair log(s) in accordance with Condition 3.3(d), which also specifically identify performance of the inspections required by Condition 2.3.5-2(c) (ii).
- f. The following records related to emissions:
  - i. Documentation for the PM, PM<sub>10</sub> and PM<sub>2.5</sub> emission factor(s) and maximum hourly emission rates used by the Permittee to determine emissions of the various affected operations.
  - ii. Records of all other data used or relied upon by the Permittee to determine the PM emissions of the affected operations.
  - iii. PM, PM<sub>10</sub> and PM<sub>2.5</sub> emissions from affected operations (tons/month and tons/year) based on appropriate emission factors and operating data, with supporting calculations.

#### 2.3.10 Reporting Requirements

- a. The Permittee shall promptly notify the Illinois EPA of any deviations from the requirements of this permit for the affected operations as follows. These notifications shall include the information specified by Condition 3.4.
  - i. Excess opacity that lasts more than 24 minutes (four 6-minute averaging periods) shall be immediately reported to the Illinois EPA.
  - ii. The deviations addressed above and all other deviations shall be reported with the quarterly compliance report.

2.4 Mash Preparation and Fermentation

2.4.1 Description

As part of the expansion, new equipment will be installed for mash preparation and fermentation, including seven new fermentation tanks, a new holding tank (beer well), and a new fermentation scrubber.

Ethanol is produced by fermentation of the starch in corn. Ground corn is prepared for fermentation by converting it to "mash", by the addition of water and enzymes in a series of liquefaction and saccharification tanks that with heating, break the ground corn into fine slurry. In the fermentation tanks, yeast is added to the mash to begin the batch fermentation process.

The CO<sub>2</sub>-rich gas generated by the fermentation tanks is routed through a scrubber to recover ethanol and other organic compounds in the exhaust. The fermentation scrubber is also referred to as the "CO<sub>2</sub> scrubber", as it scrubs the CO<sub>2</sub> stream from the fermentation tanks. The wastewater generated from the scrubbing process is routed back to the cook water tank for reuse. Because the seven fermentation tanks are controlled by a single scrubber, during normal operation of the fermentation system, the combination of the seven fermentation tanks and associated beer well are regulated by the MON as a continuous process. USEPA guidance provides that the CO<sub>2</sub> scrubber may be considered a control device and a recovery device so the scrubber can be operated to meet the criteria in the MON for Total Resource Effectiveness (TRE).

The emissions from some of the mash preparation units (mixer, slurry tanks, and yeast tanks), along with the emissions of certain units associated distillation process, would be controlled by the regenerative thermal oxidizers (Oxidizers) for the feed dryers, as further addressed in Condition 2.6. Other mash preparation units (liquefaction tanks, cook water tank, and chemical tanks) and the mash screen in the fermentation area, which have only trace levels of emissions in their exhaust, would not be controlled.

2.4.2 List of Emission Units and Pollution Control Equipment

Process	Description	Emission Control Equipment
Mash Preparation	Mixer	Oxidizers 3 and 4
	Slurry Tanks (3-4)	
	Yeast Tank (3-4)	
	Liquefaction Tanks (3-4)	----
	Cook Water Tank	----

Process	Description	Emission Control Equipment
Mash Preparation (Continued)	Flash Tank 2	Vents to Distillation
	Misc. Chemical Tanks	----
Fermentation	Fermenters (8-14)	Fermentation
	Beer Well 2	Scrubber 2
	Mash Screen	----

#### 2.4.3-1 Applicability Provisions and Applicable State Regulations

- a. An "affected unit" for the purpose of these unit specific conditions is an emission unit described in Conditions 2.4.1 and 2.4.2.
- b. The affected units are subject to 35 IAC 212.321. (Refer to Condition 2.3.3(c).)
- c. The affected units are subject to 35 IAC 215.301, which provides that no person shall cause or allow the discharge of more than 8 lbs/hour of organic material from an emission source, unless either emissions are controlled by at least 85 percent, as provided in 35 IAC 215.302, or the emissions do not qualify as photochemically reactive material, as defined by 35 IAC 211.4690 and do not contribute to an odor nuisance.

#### 2.4.3-2 Applicable Federal Emission Standards

- a. The affected units are subject to the NESHAP for Miscellaneous Organic Chemical Manufacturing (the Miscellaneous Organic NESHAP or MON), 40 CFR 63, Subpart FFFF and related requirements in the General Provisions of the NESHAP, 40 CFR 63 Subpart A.
- b. The affected fermentation tanks and beer well, mixer, slurry tanks and yeast tank (CO<sub>2</sub> scrubber) shall comply with the applicable emission limits, if a Group 2 demonstration is not made, and work practices requirements of the MON as applicable for continuous process vents, as generally follow, as further specified in 40 CFR 63.2450(b) - (e), and (g) - (s), as applicable.
  - i. Reduce emissions of total organic HAP by at least 98 percent by weight or to an outlet process concentration to no more than 20 ppmv as organic HAP or total organic carbon (TOC) as provided in Table 1 of the MON for control of emissions with a closed-vent system and any combination of control devices other than a flare, as provided by 40 CFR 63.2455(a); or

- ii. Utilize a recovery device to maintain the Total Resource Effectiveness (TRE) above 1.9, as applicable for an existing source, pursuant to 40 CFR 63.2455(b); or
- iii. Comply by emissions averaging, as provided by 40 CFR 63.2500.
- c. For the affected units, the Permittee shall meet the applicable requirements of the MON in 40 CFR 63.2450, General Requirements, and the General Provisions of the NESHAP (See Condition 3.6).

#### 2.4.4 Non-Applicability Provisions

- a. This permit is issued based on the affected units not being subject to the NSPS for VOC Emissions from SOCOMI Reactor Process, 40 CFR 60 Subpart RRR, because the fermentation tanks involve biological reaction and operate as batch processes.

#### 2.4.5 Operational and Production Limits and Work Practices

- a. i. The key operating parameters of the fermentation scrubber, as specified below, shall be maintained at levels that are consistent with levels at which emission testing demonstrated compliance with applicable requirements:
  - A. Minimum scrubber water flow rate: hourly average.
  - B. If scrubber water is recirculated, maximum scrubber water outlet temperature: °F, hourly average.
  - C. Maximum scrubber exhaust gas outlet temperature: °F, hourly average.
  - D. Type and minimum usage rate of scrubbing additive for enhancing control of acetaldehyde, e.g., sodium bisulfite additive: gallons/day.
- ii. If the differential pressure across the scrubber is outside of the normal operating range as defined by the Permittee for a period of 4 hours, the Permittee shall inspect the scrubber within 24 hours and initiate appropriate corrective action to restore the pressure drop of the scrubber to the normal range.

- iii. The Permittee shall operate and maintain the scrubber in accordance with written procedures developed and maintained by the Permittee.
- iv. Notwithstanding the above, for the purpose of evaluation of the scrubber and further emission testing, the Permittee may operate the scrubber at different operating parameters in accordance with a detailed plan describing the evaluation and testing program submitted to and approved by the Illinois EPA.

2.4.6 Emission Limitations

- a. The VOM emissions from the affected units that are to be controlled by the fermentation scrubber, i.e., the fermentation tanks and beer well, shall be controlled by at least 98 percent by weight or not exceed 665 lbs/million gallons ethanol, based on the equivalent ethanol production rate of the fermentation process.
- b. i. Emissions of VOM and HAPs from the affected units that are to be controlled by the fermentation scrubber shall not exceed the following limits:

Pollutant	Limits	
	Lb/Hr	Ton/Yr
VOM	10.63	46.58
Acetaldehyde	1.38	6.027
Individual HAPs, Other Than Acetaldehyde	0.05	0.21
Total HAPs, Other Than Acetaldehyde	0.08	0.38

- ii. This permit is issued based on minimal PM/PM<sub>10</sub>-PM<sub>2.5</sub> emissions from these affected units. For this purpose, PM emissions from these units, in total, shall not exceed 0.20 lb/hour and 0.87 tons/year.
- c. The VOM and HAP emissions from miscellaneous affected units (e.g., liquefaction tanks, cook water tank, and mash screen) and miscellaneous affected units used in feed dewatering (e.g., thin stillage tank, syrup tank, and whole stillage tank) that are not controlled shall not exceed the following limits. Compliance with these limits shall be determined on a calendar year basis.

Pollutant	Limits
	Tons/Year
VOM	0.91
Acetaldehyde	0.07
Individual HAPs, Other Than Acetaldehyde	0.19
Total HAPs, Other Than Acetaldehyde	0.19



Note: Emissions of affected units that are to be controlled by the oxidizers are addressed in Condition 2.6.6.

- d. The emissions of the existing fermentation units shall not exceed the following limits:
  - i. Emissions of acetaldehyde shall not exceed 1.35 lbs/hr and 5.986 tons/year.
  - ii. Emissions of total HAPs, combination of acetaldehyde and other HAPs, shall not exceed 6.266 tons/year.

#### 2.4.7 Testing Requirements

- a. The Permittee shall perform emission tests for affected units as specified in Condition 3.1-1.
- b. Upon written request by the Illinois EPA, the Permittee shall promptly perform emission tests for miscellaneous affected units in accordance with the methods and procedures specified in Condition 3.1-1 for the units and pollutants specified in the request.

#### 2.4.8-1 Monitoring Requirements

- a. For the fermentation scrubber, the Permittee shall comply with applicable monitoring requirements of the MON. (See Condition 3.5.)
- b.
  - i. The Permittee shall equip the fermentation scrubber with continuous monitoring devices for the scrubber water flow rate, scrubbant discharge temperature at the bottom of the scrubber (if scrubbant is recirculated), scrubber exhaust gas discharge temperature, rate of reagent addition to the scrubbant, and differential pressure across the packed bed and demister section of the scrubber.
  - ii. These monitoring devices shall record both average hourly data and discrete data at least every five minutes. During any period when measurements are not recorded by the computerized data logging system, instantaneous measurements shall be manually recorded at least twice per shift.

#### 2.4.8-2 Instrumentation Requirements

The Permittee shall install, operate and maintain instrumentation on the fermentation scrubber between the packed bed outlet and demister section of scrubber to enable

measurement of the differential pressure across the packed bed (inlet and outlet) and the differential pressure across the demister section of the scrubber. Data from this instrumentation shall be recorded at least once a week.

#### 2.4.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected units:

- a. A file containing:
  - i. The values of the following operating parameters of the fermentation operation when operating normally, with supporting calculations and documentation:
    - A. Mash feed rate to the fermentation tanks (gallons/hour);
    - B. Total quantity of mash fed into a fermentation tank during each cycle; and
    - C. Fermentation tank cycle time (hours/cycle).
  - ii. The values of the key operating parameters and range of pressure drop for the fermentation scrubber within which the scrubber will be operated, as required by Condition 2.4.5(a), with explanation and supporting documentation.
- b. Records for any period during which any affected unit that is normally controlled by the fermentation scrubber was in operation when the scrubber was not in operation or was malfunctioning so as to cause emissions in excess of applicable emissions limitation.
- c. The following logs for affected units and the fermentation scrubber:
  - i. Operating log(s), in accordance with Condition 3.3(c).
  - ii. Inspection, maintenance and repair log(s) in accordance with Condition 3.3(d).
- d. Records for any upsets in the affected units or other operations that could generate additional VOM and HAP emissions, with a description of the incident, an estimate of the additional VOM and HAP emissions that occurred with supporting calculations, and background information.

- e. The following records related to emissions:
  - i. Documentation for the emission rates or factors and maximum hourly emission rates for emissions of VOM, HAP and PM used by the Permittee to determine emissions of the various affected units.
  - ii. Records for the usage of sulfuric acid or other sulfur-containing reagent in the fermentation process that contributes to SO<sub>2</sub> emissions when stillage is subsequently processed into feed.
  - iii. Records of all other data used or relied upon by the Permittee to determine the emissions of the affected units.
  - iv. Records of the VOM, HAP, PM and PM<sub>10</sub>/PM<sub>2.5</sub> emissions from the affected units that are to be controlled by the fermentation scrubber (tons/month and tons/year), based on appropriate emission rates or factors and operating data, with supporting calculations.
  - v. Records of the VOM and HAP emissions from the affected units that are not controlled (tons/year), based on appropriate emission rates or factors and operating data, with supporting calculations.

Note: For the purpose of these records, HAPS shall include acetaldehyde and other organic HAPs emitted from the affected units, as addressed during emissions testing.

#### 2.4.10 Reporting Requirements

- a. The Permittee shall promptly notify the Illinois EPA of any deviations from the requirements of this permit for the affected units as follows. These notifications shall include the information specified by Condition 3.4.
  - i. If there is an exceedance of an applicable requirement for the fermentation scrubber by more than 2.0 percent, as determined by the monitoring required by Condition 2.4.8, that lasts longer than three hours, the Permittee shall immediately notify the Illinois EPA.
  - ii. The deviations addressed above and all other deviations shall be reported with the quarterly compliance report.
- b. If there is any deviation of the requirements of this permit, not addressed by the above reporting requirements,

as determined by the records required by this permit or by other means, the Permittee shall submit a report with the quarterly compliance report.

- c. Notwithstanding the above, if a deviation from the requirements of this permit will occur from required maintenance, repair or other activity that can be scheduled in advance, the Permittee shall also notify the Illinois EPA prior to undertaking such activity if it is feasible to do so. Such notification shall be submitted at least 5 days in advance unless the activity is scheduled less than 5 days in advance. This notification may be supplemented with additional information submitted within 7 days of the deviation, as needed to provide all information required by Condition 3.4(a).

2.5 Distillation

2.5.1 Description

As part of the expansion, new equipment will be installed for distillation of the output of the new fermentation tanks, including new columns (beer, rectifier, and stripper), a new 190 proof condenser and a new 200 proof condenser.

During the distillation process, the solids and water are separated from the ethanol-rich "beer" produced in the fermentation tanks with a vacuum distillation system, to produce approximately 190 proof ethanol (95% ethanol, 5% water). The remaining water in the ethanol is removed in a molecular sieve to produce approximately 200 proof (100% ethanol). Denaturant is added to the finished product prior to storage.

The emissions from the distillation process, along with the emissions of certain units associated with mash preparation and feed dewatering are controlled by oxidizers.

2.5.2 List of Emission Units and Pollution Control Equipment

Process	Description	Emission Control Equipment
Distillation	Beer Column, Rectifier Column and Stripper Column - 190 Proof Condenser	Oxidizers 3 and 4
	Molecular Sieve - 200 Proof Condenser	
	Reflux Tank and Regen Tank	

2.5.3 Applicability Provisions and Applicable Regulations

- a. An "affected unit" for the purpose of these unit specific conditions is an emission unit described in Conditions 2.5.1 and 2.5.2.
- b. The affected units are subject to 35 IAC 212.321. [Refer to Condition 2.3.3(c)]
- c. The affected units are subject to 35 IAC 215.301. [Refer to Condition 2.4.3(c)]
- d. i. The affected units are subject to requirements of the MON for continuous process vents. Unless a demonstration is made that the emission streams from the distillation process, following the condensers, as undiluted and uncontrolled contain less than 50 ppmv HAP, the distillation process shall be subject to the applicable requirements of 40 CFR 63.2455 for continuous process vents.

- ii. For the affected units, the Permittee shall meet the applicable requirements of the MON in 40 CFR 63.2450, General Requirements, and the General Provisions of the NESHAP (See Condition 3.6).

#### 2.5.4 Non-Applicability Provisions

- a. This permit is issued based on the affected units not being subject to either 40 CFR 60, Subpart NNN or RRR, Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry Distillation Operations, or Reactor Processes, respectively, based upon guidance from USEPA that this regulation is not applicable to processing of material produced by biological reaction.
- b. This permit is issued based on the condensers for the affected units not being subject to the control requirements of the MON for heat exchange systems, 40 CFR 63.2490, because the condensers are not "cooling towers" as defined in 40 CFR 63.101 because they are once-through cooling systems. They are also not system used to cool process equipment in a chemical manufacturing process listed in 40 CFR 63.100(b)(1).
- b. This permit does not address the applicability of 35 IAC 215.301 for the affected units that are controlled by oxidizer systems because the organic material emissions of the processes are required to be controlled by greater than 85%, such that organic material emissions are less than 8.0 lbs/hour. [Refer to Condition 2.6.6(a)]

#### 2.5.5 Operational and Production Limits and Work Practices

The affected units that are controlled by oxidizers shall not operate when the oxidizers are not in service.

#### 2.5.6 Emission Limitations

This permit is issued based on no emissions from the operation of the affected units other than emissions that occur through the oxidizers, as addressed in Condition 2.6.6(a); emissions from miscellaneous units, as addressed by Condition 2.4.6(c); or emissions attributable to leaking components, as addressed in Condition 2.9.6.

#### 2.5.7 Testing Requirements

For purposes of demonstrating compliance with the MON, the Permittee shall conduct performance tests or a design

evaluation in accordance with §§63.2450(g) or (h), respectively.

#### 2.5.8 Monitoring and Instrumentation Requirements

- a. For the distillation operation, the Permittee shall comply with applicable monitoring requirements of the MON. (See Condition 3.5.)

Note: See also monitoring requirements for the oxidizers in Condition 2.6.8-1(b) and (c) (combustion chamber temperature and flow to the oxidizers, respectively) and instrumentation requirements in Condition 2.6.8-2(a) (natural gas usage).

#### 2.5.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected units:

- a. A file containing the values of the following operating parameters for the distillation process when operating normally, hourly average, with supporting calculations and documentation:
  - i. Ethanol content of beer in the beer well.
  - ii. Feed rate to the beer column.
  - iii. Feed rate to the molecular sieve.
  - iv. Condenser cooling water temperature (°F).
- b. The following logs for the affected units:
  - i. Operating log(s), in accordance with Condition 3.3(c).
  - ii. Inspection, maintenance and repair log(s) in accordance with Condition 3.3(d).
- c. Records for any upsets in the operation or condition of affected units that could generate additional VOM or HAP emissions, with a description of the incident, an estimate of the additional VOM and HAP emissions that occurred with supporting calculations, and background information.

#### 2.5.10 Reporting Requirements

- a. The Permittee shall promptly notify the Illinois EPA of any deviations from the requirements of this permit for the affected unit as follows. These notifications shall include the information specified by Condition 3.4.

- i. If there are direct emissions from affected units, contrary to Condition 2.5.6, the Permittee shall notify the Illinois EPA within 72 hours.
  - ii. The deviations addressed above and all other deviations shall be reported with the quarterly compliance report.
- b. If there is any deviation of the requirements of this permit, not addressed by the above reporting requirements, as determined by the records required by this permit or by other means, the Permittee shall submit a report with the quarterly compliance report.
- c. Notwithstanding the above, if a deviation from the requirements of this permit will occur from required maintenance, repair or other activity that can be scheduled in advance, the Permittee shall also notify the Illinois EPA prior to undertaking such activity if it is feasible to do so. Such notification shall be submitted at least 5 days in advance unless the activity is scheduled less than 5 days in advance. This notification may be supplemented with additional information submitted within 7 days of the deviation, as needed to provide all information required by Condition 3.4(a).



## 2.6 Feed Drying and Handling Operations

### 2.6.1 Description

As part of the expansion, new equipment will be installed for feed drying and handling, including two new dryer systems, new oxidizers and new feed coolers. The new equipment and its operation would be similar to existing equipment at the plant.

Stillage, the solids-laden material recovered from the bottom of the distillation system, is processed in mechanical centrifuges for de-watering. The recovered water from the centrifuges is processed in a steam driven evaporator to produce thick syrup. Corn oil is also extracted from the thin stillage and sold as a byproduct. The wet cake from the centrifuges and the deoiled syrup from the evaporator are mixed and further processed by drying.

Two new dryer systems (each dryer system has three steam tube dryer/cyclones in series) would be used to produce dry feed from wet cake. These new dryer systems would have the capacity to convert all wet cake produced by the expansion into dry feed. Each dryer would be equipped with cyclones to minimize carry of PM with the exhaust. Each dryer system would be equipped with a natural gas-fired regenerative thermal oxidizer (Oxidizers 3 and 4) (with nominal rated burner capacity of 20 million Btu/hour, each) for controlling emissions of CO, VOM, HAP and PM from the dryer system.

The hot feed from the dryer system is then cooled in the feed cooling drum before it is conveyed to the feed storage area prior to shipping to customers. Particulate matter (PM) emissions from the cooling drum are controlled by a baghouse. The majority portion of the exhaust from this baghouse must be vented through the oxidizers with remainder vented to the atmosphere. This baghouse also controls PM from the conveyor system for dry feed.

Particulate matter (PM) emissions from the truck/rail feed loadout operation are controlled by a baghouse. Good operating practices are implemented to minimize PM emissions from the barge feed loadout operation and for the loadout of any wet cake that is sold without drying.

The oxidizers for the dryer systems also control the emissions from certain units in the mash preparation area (mixer, slurry tanks, yeast tanks and cook water tank) and the distillation area (190 proof condenser and 200 proof condenser).

## 2.6.2 List of Emission Units and Pollution Control Equipment

Process	Emission Unit	Emission Control Equipment
Feed Dewatering and Drying	Evaporators and Centrifuges	Oxidizers 3 and 4
	Dryer Systems 3 and 4 (each system has three steam tube dryer and cyclone combinations in series)	
	Whole Stillage Tank, Syrup Tank, Thin Stillage Tank, Centrate Tank, and Oil Storage Tank	----
Feed Cooling, Storage and Loadout	Feed Cooling Drum 2	Baghouse 7 (entire exhaust) and Oxidizers (partial exhaust)
	Dry Feed Conveyors	
	Feed Storage	----
	Truck Loadout	----
	Barge Loadout	----
	Wet Feed Storage Pad	----
Mash Preparation (Refer to Condition 2.4)	Mixer, Slurry Tanks and Yeast Tanks	Oxidizers 3 and 4
Distillation (Refer to Condition 2.5)	Various Columns/190 Proof Condenser, Molecular Sieve/200 Proof Condenser, Reflux Tank and Regen Tank	

## 2.6.3 Applicability Provisions and Applicable Regulations

- a. An "affected unit" for the purpose of these unit specific conditions is an emission unit described in Conditions 2.6.1 and 2.6.2.
- b. The affected units are subject to 35 IAC 212.321. (Refer to Condition 2.3.3(c))
- c. The affected units are subject to 35 IAC 215.301. (Refer to Condition 2.4.3(c))
- d. Unless the emission units that are subject to the MON that are ducted to the oxidizer (mixers, slurry tanks and yeast tanks in Mash Preparation and the Distillation Operation) comply with applicable emission control requirements of the MON without the oxidizer, as shown by appropriate measurements in the ductwork, the oxidizer shall be considered to be subject to the MON and operated to comply with all applicable requirements of the MON as addressed in Conditions 2.5.3 and 1.3-2.

2.6.4 Non-Applicability of Regulations of Concern

- a. For the affected units that are controlled by the oxidizer system, this permit does not address the applicability of 35 IAC 215.301 because the organic material emissions of the units are required to be controlled by greater than 85 percent, such that organic material emissions are less than 8.0 lbs/hour.

2.6.5-1 Operational Requirements Related to the Feed Dryers and Oxidizers

- a.
  - i. Natural gas and biogas from the bio-methanator and exhaust from the feed cooling drum baghouse shall be the only fuel fired in the oxidizers.
  - ii. The rated firing capacity of the fuel burners in each oxidizer shall not exceed 20 million Btu/hour. This limit does not address "assist gas" used to raise the heat content of the process exhaust from other units prior to combustion in the oxidizers.
  - iii. The total usage of natural gas in the oxidizers shall not exceed 16 million cubic feet per month and 176 million cubic feet per year.
  - iv. Each oxidizer systems shall be equipped, operated, and maintained with low NO<sub>x</sub> burner technology.
- b. The cyclones for the feed dryers shall be designed so as to be able to be operated to maintain effective control of emissions across the full range of operation of the dryers, such that control of emissions is not significantly degraded by the operating rate of the dryers, as related to the control of PM provided by the cyclones.
- c.
  - i. During periods when feed is present in dryers or emissions from other units are vented to an oxidizer, the minimum combustion chamber temperature of the oxidizer shall be maintained at a temperature that is consistent with the manufacturer's recommended minimum operating temperature or, once testing has been conducted demonstrating compliance with applicable requirements, the minimum operating temperature during emission testing. Notwithstanding the above, during shutdown of dryers and other units served by an oxidizer, the combustion chamber temperature of the oxidizer need not comply with the above requirements and may instead be maintained in accordance with good air

pollution control practice as addressed by the Permittee in its written procedures for shutdown of the oxidizer and associated units.

- iii. The combustion chamber of an oxidizer shall be preheated to the manufacturer's recommended temperature or a temperature that is consistent with the most recent emission test in which compliance was demonstrated, prior to sending the wet cake to the feed dryers or venting other units to the oxidizer.
  - iv. Notwithstanding the above, for the purpose of evaluation of the oxidizers and further emission testing, the Permittee may operate an oxidizer at different operating parameters in accordance with a detailed plan describing the evaluation and testing program submitted to and approved by the Illinois EPA.
- d. The Permittee shall operate and maintain the affected units and associated control systems in accordance with written procedures developed and maintained by the Permittee. These procedures shall provide for good air pollution control practices to minimize emissions and shall include the Permittee's standard operating procedures for startup, normal operation, and shutdown of the dryer system and address likely malfunction and upsets events for the dryer systems.

#### 2.6.5-2 Operational Requirements for Other Affected Units and Baghouses

- a. The Permittee shall operate the baghouses for the affected units with a pressure drop that is within a range that is consistent with manufacturer's recommended levels or that during emission testing that demonstrated compliance with applicable requirements.
- b.
  - i. PM emissions from feed loadout shall be controlled by partial enclosure and loadout practices to minimize loss of dust.
  - ii. The portion of exhaust that directly discharges to the atmosphere shall not exceed 20,000 acfm.
- c. The Permittee shall operate and maintain air pollution control equipment for the affected units in a manner that assures that applicable requirements are met. The actions taken by the Permittee to meet this requirement shall include at least the following:

- i. Written operating procedures shall be maintained and updated describing normal process and equipment operating parameters; monitoring or instrumentation for measuring control equipment operating parameters, if any; and control equipment inspection and maintenance practices. With respect to control equipment maintenance practices, the operating procedures may incorporate the manufactures recommended operating instructions, if a copy of these instructions is attached to the procedures.
- ii. Visual inspections of air pollution control equipment shall be conducted on a regular schedule. These inspections shall include a detailed inspection of the performance and condition of control equipment at least once per year.

2.6.6 Emission Limitations

- a.
  - i. The VOM emissions from affected units controlled by each oxidizer system shall be controlled by at least 98 weight percent or to a concentration of no more than 10 ppmv, whichever is less stringent.
  - ii. The CO emissions from the affected units controlled by each oxidizer system shall be controlled by at least 90 weight percent or to a concentration of no more than 100 ppmv, whichever is less stringent.
- b. Emissions of affected units controlled by each oxidizer system shall not exceed the following limits:

Pollutant	Each Oxidizer*		Combined
	Lbs/Hr	Tons/Yr	Tons/Yr
NO <sub>x</sub>	0.10**	4.38	8.76
CO	6.02	26.36	52.72
VOM	2.31	10.14	20.28
PM/PM <sub>10</sub> -PM <sub>2.5</sub>	1.41	---	12.33
SO <sub>2</sub>	10.43	45.65	91.31
Acetaldehyde	0.19	0.81	1.62
Individual HAP, Other Than Acetaldehyde	0.27	1.16	2.33
Total HAP, Other Than Acetaldehyde	0.69	3.07	6.15

\* PM emissions are directed through a combined stack.

\*\* This limit is in terms of lbs/million Btu, heat input to the burner.

- c. i. The fabric filter (baghouse) on feed cooler and dry feed conveyors shall comply with an emission limit of 0.005 grain per standard cubic feet (gr/scf).
- ii. Emissions of VOM, HAP and PM from feed cooler and dry feed conveyors (feed cooler baghouse or Baghouse 3) that exhaust directly to the atmosphere (i.e., are only controlled by the baghouse and are not routed to the oxidizers) shall not exceed the following limits:

Pollutant	Limits	
	Lbs/Hr	Tons/Yr
VOM	3.80	16.60
PM/PM <sub>10</sub> -PM <sub>2.5</sub>	0.86	3.75
Acetaldehyde	0.14	0.61
Individual HAP, Other Than Acetaldehyde	0.05	0.23
Total HAP, Other Than Acetaldehyde	0.15	0.67

- d. i. A. Fabric filter (baghouse) on truck/rail dry feed loadout shall comply with an emission limit of 0.005 grain per standard cubic feet (gr/scf).
- B. Stack emissions of PM/PM<sub>10</sub>-PM<sub>2.5</sub> from truck/rail dry feed loadout shall not exceed 0.39 lb/hour and 1.65 tons/year.
- C. Uncaptured or fugitive PM emissions from the truck/rail dry feed loadout shall not exceed 0.04 tons/year.
- e. i. A. Emissions of VOM from the wet cake transfer and loadout operation shall not exceed 0.45 ton/month, 4.55 tons/year and 0.045 tons per 10,000 tons of wet feed shipped.
- B. For each 10,000 tons of wet cake shipped from the plant during a 12-month period, the annual VOM emissions from the dryers and feed cooler, as allowed by Conditions 2.6.6(b) and (d), shall each be reduced by 0.022 tons (0.045 tons, total).
- ii. This permit is issued based on negligible PM/PM<sub>10</sub>-PM<sub>2.5</sub> emissions from the wet cake transfer and loadout operation. For this purpose, PM/PM<sub>10</sub>-PM<sub>2.5</sub> emissions shall not exceed 0.1 lb/hour and 0.44 tons/year.

2.6.7 Testing Requirements

- a. The Permittee shall perform emission tests for affected units as specified in Condition 3.1-1.
- b. Upon written request by the Illinois EPA, the Permittee shall perform opacity observation in accordance with the methods and procedures specified by Condition 3.1-2 for affected units as specified in such request.

2.6.8-1 Monitoring Requirements

- a. The Permittee shall install, calibrate, operate, and maintain the monitoring devices for the feed dryers to measure differential pressure (pressure drop) across the cyclones, which devices shall be operated at all times that the dryers are in operation. These devices shall record appropriate parameters at least every 15 minutes and this data and hourly average data shall both be recorded.
- b. The Permittee shall equip each oxidizer with a continuous monitoring device for combustion chamber temperature, which device shall be operated at all times that the oxidizer is in use and maintained within an accuracy of  $\pm 15$  °F.
- c. The Permittee shall install, operate, and maintain devices to monitor the valve or damper position on the flow control devices directing the various exhaust streams to the oxidizers, which shall be operated at all times that the plant is in operation. The position of these valves shall be monitored electronically by the plant operating system.
- d. Unless a fixed stack damper is installed on the exhaust from the feed cooler/baghouse that permanently restricts the direct discharge to the atmosphere to no more than 20,000 acfm, the Permittee shall install, operate, and maintain a continuous monitor for the flow rate (acfm) of the direct discharge to the atmosphere from the feed cooler baghouse, which device shall be operated at all times that the feed cooler is in operation.
- e. i. If the initial testing of the oxidizers or further testing conducted by the Permittee does not demonstrate that the oxidizers normally comply with the applicable hourly emission limit for CO in Condition 2.6.6 by a margin of at least 5 percent, the Permittee shall install, calibrate, operate, and maintain a CO continuous emissions monitoring system on the stack for the oxidizers within one year after

the initial emission testing required by this permit, unless the Illinois EPA approves further time for the Permittee to demonstrate that the oxidizers achieve this level of performance or the Permittee submits a proposed parametric monitoring plan, supported with continuous emissions monitoring data for CO, and the Illinois EPA approves a parametric monitoring plan for CO emissions from the oxidizers in lieu of continuous monitoring.

- ii. This monitoring system shall be operated during all periods of operation of the oxidizers except for monitoring system maintenance, breakdowns and repairs. The Permittee shall comply with applicable requirements of the NSPS for continuous emission monitoring.
- iii. The Permittee shall maintain records for this monitoring system, including recorded emission concentrations and records of maintenance, calibration, and operational activity associated with the system.
- iv. The Permittee shall submit quarterly monitoring reports to the Illinois EPA for this monitoring system in accordance with applicable reporting requirements of the NSPS for continuous emissions monitoring systems.
- v. The requirement for this monitoring system may be revised or waived in the operating permit for the source if the Illinois EPA determines that compliance with requirements for CO emissions are not facilitated to a significant degree by such monitoring.

#### 2.6.8-2 Instrumentation Requirements

- a. The Permittee shall install, operate and maintain instrumentation to record total natural gas usage by the thermal oxidizers, which data shall be recorded on at least a monthly basis.
- b. The Permittee shall install, operate, and maintain instrumentation on each baghouse for the affected units to measure pressure drop across the baghouse, which data shall be recorded on at least a daily basis.

#### 2.6.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected units:



- a. A file containing:
  - i. Design information for the feed dryers and oxidizer systems:
    - A. Moisture removal capacity of each feed dryer system, lbs water/hour.
    - B. The design heat input of the burner in each oxidizer, million Btu/hour.
  - ii. The values of the operating parameters for the feed dryers and oxidizers within which equipment will be operated, as required by Condition 2.6.5(c) and (d), with explanation and supporting documentation.
  - iii. For the baghouses used to control affected units:
    - A. A copy of the manufacturer's specifications and recommended operating and maintenance procedures for each baghouse.
    - B. The range of pressure drop within which each baghouse will be operated, as required by Condition 2.6.5(c), if not the range recommended by the manufacturer, with explanation and supporting documentation.
- b. Records for feed production from the plant (tons/month and tons/year, as shipped, by type of feed, e.g., dry, modified or wet).
- c. The following logs for affected units and associated control devices:
  - i. Operating log(s), in accordance with Condition 3.3(c), which shall also include:
    - A. For affected units controlled by an oxidizer, (including affected mash preparation units and affected distillation units), the operating levels of the units during periods when units operated when the oxidizer was out of service or was experiencing an upset or malfunction.
    - B. For feed dryers, periods when feed is present in a dryer while the associated oxidizer not in operation.
  - ii. Inspection, maintenance, and repair log(s) in accordance with Condition 3.3(d), which also

specifically identify performance of the inspections required by Condition 2.6.5-2(c)(ii).

- d. The following records related to emissions:
- i. Documentation for the emission rates or factors and maximum hourly emission rates for emissions of different pollutants used by the Permittee to determine emissions of the various affected units.
  - ii. Records of all other data used or relied upon by the Permittee to determine the emissions of the affected units.
  - iii. Records for upsets in the operation of the feed dryer or other affected units that could generate additional emissions, with a description of the incident, explanation, and corrective actions and any preventative measures taken, and an estimate of the additional emissions that occurred, with supporting calculations and background information.
  - iv. Records of the monthly and annual NO<sub>x</sub>, CO, PM, PM<sub>10</sub>/PM<sub>2.5</sub>, SO<sub>2</sub>, VOM, and HAP emissions from the feed dryer and other units controlled by each oxidizer system, based on appropriate emission rates or factors and operating data, with supporting calculations.
  - v. Records of the monthly and annual PM, PM<sub>10</sub>/PM<sub>2.5</sub>, VOM, and HAP emissions from the affected feed cooling and transport system, with supporting calculations.
  - vi. Records of the monthly and annual PM, PM<sub>10</sub>/PM<sub>2.5</sub> emissions from the affected feed load out system, with supporting calculations.
  - vii. Records of the monthly and annual VOM emissions from wet cake transfer and load out, with supporting calculations.

Note: For the purpose of these records, HAPS shall include acetaldehyde and other organic HAPS emitted from the affected units addressed during emissions testing.

#### 2.6.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA of any deviations from the requirements of this permit for the affected units as follows. These notifications shall include the information specified by Condition 3.4.

- a.
  - i. If there is an exceedance of applicable requirements for the oxidizers, as determined by the monitoring required by Condition 2.6.8 that lasts longer than three hours (180 minutes), the Permittee shall immediately notify the Illinois EPA. The initial notification for such a deviation may be supplemented with additional information submitted within seven days of the deviation, as needed to provide all information required by Condition 3.4.
  - ii. For VOM and CO emissions from the oxidizers, periods of excess emissions shall include any 1-hour period when the feed dryers are operating in which the average combustion temperature is more than 50°F below the temperature during testing that demonstrated compliance with applicable requirements. Additional provisions or revised provisions defining excess emissions may be included in subsequent permits based on actual operating data and experience.
  - iii. The deviations addressed above and all other deviations from applicable requirements shall be reported with the quarterly compliance report.
- b. Notwithstanding the above, if a deviation from the requirements of this permit will occur from required maintenance, repair or other activity that can be scheduled in advance, the Permittee shall also notify the Illinois EPA prior to undertaking such activity if it is feasible to do so. Such notification shall be submitted at least five days in advance unless the activity is scheduled less than five days in advance. This notification may be supplemented with additional information submitted within seven days of the deviation, as needed to provide all information required by Condition 3.4(a).

2.7 Ethanol and Denaturant Storage Tanks

2.7.1 Description

Internal floating roof storage tanks are used to store denaturant and product ethanol.

As part of expansion, two new storage tanks for final product would be added to the plant. The expansion plant will also be served by existing storage tanks, including a 190 proof ethanol, 200 proof ethanol, and denaturant storage tanks. No physical changes will occur to these existing tanks as a result of this expansion.

The existing denaturant tank will become subject to the MON because the denaturant may contain more than 5 percent HAPs and the maximum true vapor pressure of total HAPs in the denaturant at storage temperature is 6.9 or more kilopascals.

2.7.2 List of Emission Equipment and Pollution Control Equipment

Process	Description	Emission Control Equipment
Storage Tanks	Two New Denatured Ethanol Tanks (1,500,000 Gallons, each)	Internal Floating Roof with Primary and Secondary Seals

2.7.3-1 Applicability Provisions and Emission Standards for New Tanks

- a. An "affected tank" for the purposes of these unit specific conditions is a new storage tank described in Conditions 2.7.1 and 2.7.2.
- b. The affected tanks are subject to the NSPS for Volatile Organic Liquid Storage Vessels, 40 CFR 60, Subpart Kb, and related provisions in Subpart A.
- c. The affected tanks are subject to the control requirements of 35 IAC 215.122(b), which requires a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA. The Illinois EPA has not approved any alternative control. [Submerged Loading Pipe - 35 IAC 215.122(b)]

2.7.3-2 Emission Standards for Existing Denaturant Tank

- a. The "affected denaturant tank" for the purposes of these unit specific conditions is the existing denaturant storage tank described in Conditions 2.7.1.
- b. In addition to other applicable emission standards, as addressed in the original construction permit for the plant, the affected denaturant tank is subject to the MON as a Group 1 storage tank and shall comply with the

control requirements of 40 CFR 63 Subpart WW, except as specified in 40 CFR 63.2470.

Note: These requirements of the NESHAP are generally similar to the applicable requirements of the NSPS, 40 CFR 60, Subpart Kb.

2.7.4 Non-Applicable Provisions

- a. For the affected tanks, this permit does not address the applicability of 35 IAC 215.120, 215.127, and 215.128. This is based on the Illinois EPA's finding that compliance with 40 CFR 60, Subpart Kb assures compliance with 35 IAC 215.120, 215.127, and 215.128, following the review of the requirements of 40 CFR 60 Subpart Kb and 35 IAC 215.120, 215.127, and 215.128.
- b. This permit is issued based on the affected ethanol storage tanks not being subject to the control requirements of the MON for storage tanks. This is because the affected tanks do not meet the definition of "Group 1 storage tanks" in 40 CFR 63.2550(i).

2.7.5 Control Requirements

Each affected tank shall be equipped with the following closure devices between the wall of the storage vessel and the edge of the internal floating roof or other device complying with the NSPS: [40 CFR 60.112b(a) (1) (ii)]

- a. Two seals mounted one above the other so that each forms a continuous closure that completely covers the space between the wall of the storage vessel and the edge of the internal floating roof. The lower seal may be vapor-mounted, but both must be continuous.

2.7.6 Emission Limitations

- a. Emissions of VOM and HAPs from the storage tanks shall not exceed the following limits. Emissions from the storage tanks shall be determined based on operating information for the tanks and the USEPA's TANKS program.

Pollutant	Limits	
	New Tanks	Existing Tanks
	Tons/Year	Tons/Year
VOM	0.58	4.15
Acetaldehyde	0.001	0.011
Individual HAP, Other Than Acetaldehyde	0.01	0.09
Total HAP, Other Than Acetaldehyde	0.02	0.10

- b. For existing tanks, the VOM emission limits in Condition 2.7.6(a) shall become effective when the expanded plant begins operation, at which time the limits in Condition 2.7.6 of Construction Permit 06020041 will no longer apply.

Note: These limits allow increase of 0.96 tons/year of VOM emissions from existing storage tanks associated with the expansion.

#### 2.7.7 Operating Requirements

- a. Each affected tank is limited to the storage of ethanol or denaturant.
- b. Each affected tank shall be operated in compliance with the operating requirements of 40 CFR 60.112b(a) (1) and 60.113b(a), as follows:
  - i. The internal floating roof shall float on the liquid surface at all times, except during those intervals when the storage tank is being completely emptied and subsequently refilled and the roof rests on its leg supports. When the roof is resting on its leg supports, the process of emptying or refilling shall be continuous and shall be accomplished as rapidly as possible. [40 CFR 60.112b(a) (1) (i)]
  - ii. Each opening in a non-contact internal floating roof except for automatic bleeder vents (vacuum breaker vents) and the rim space vents shall provide a projection below the liquid surface. [40 CFR 60.112b(a) (1) (iii)]
  - iii. 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 shall be equipped with a cover or lid which is maintained in a closed position at all times (i.e., no visible gaps) 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. [40 CFR 60.112b(a) (1) (iv)]
  - iv. Automatic bleeder vents shall be equipped with a gasket and 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. [40 CFR 60.112b(a) (1) (v)]

- v. Rim space vents shall be equipped with a gasket and be set to open only when the internal floating roof is not floating or at the manufacturer's recommended setting. [40 CFR 60.112b(a) (1) (vi)]
- vi. 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 percent of the opening. [40 CFR 60.112b(a) (1) (vii)]
- vii. Each penetration of the internal floating roof that allows for the passage of a column supporting the fixed roof shall have a flexible fabric sleeve seal or a gasketed sliding cover. [40 CFR 60.112b(a) (1) (viii)]
- viii. Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover. [40 CFR 60.112b(a) (1) (ix)]
- ix. A tank that is in-service shall be repaired or emptied upon identification in an inspection that the floating roof is not resting on the surface of the VOL, there is liquid accumulated on the roof, the seal is detached, or there are holes or tears in the seal fabric. These actions shall be completed within 45 days of the inspection unless an extension is granted. [40 CFR 60.113b(a) (2) and (a) (3) (ii)]
- x. A tank that is empty shall be repaired prior to refilling the tank upon identification in an inspection that the floating roof has defects, the primary seal has holes, tears or other openings in the seal or seal fabric, or the secondary seal has holes, tears or other openings in the seal or seal fabric, or the gaskets no longer close off. [40 CFR 60.113b(a) (3) (ii) and (a) (4)]

#### 2.7.8 Inspection Requirements

The Permittee shall fulfill the applicable testing and procedures requirements of 40 CFR 60.113b(a) for each affected tank, including the following:

- a. For affected tanks equipped with a liquid-mounted, on an annual basis, visually inspect the internal floating roof and the primary seal through manholes and roof hatches on the fixed roof at least once every 12 months after initial fill. If the internal floating roof is not resting on the surface of the VOL inside the storage tank, or there is

liquid accumulated on the roof, or the seal is detached, or there are holes or tears in the seal fabric, the Permittee shall repair the items or empty and remove the storage tank from service within 45 days. If a failure that is detected during this inspection 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 Illinois EPA in the inspection report required in Condition 2.7.10 (40 CFR 60.115b(a)(3)). Such a request for an extension must document that alternate storage capacity is unavailable and specify a schedule of actions the company will take that will assure that the control equipment will be repaired or the storage tank will be emptied as soon as possible. [40 CFR 60.113b(a)(2)]

- b. As applicable for tanks equipped with both primary and secondary seals, visually inspect each affected tank as follows: [40 CFR 60.113b(a)(3)]
  - i. Visually inspect the tank as specified by 40 CFR 60.113(a)(4) at least every 5 years; or
  - ii. Visually inspect the tank as specified by 40 CFR 60.113(a)(2) at least once every 12 months.
- c. Visually inspect the internal floating roof, the primary seal, the secondary seal (if one is in service), gaskets, slotted membranes and sleeve seals (if any) each time the tank 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, or the secondary seal has holes, tears, or other openings in the seal or the seal fabric, or the gaskets no longer close off the liquid surfaces from the atmosphere, or the slotted membrane has more than 10 percent open area, the Permittee shall repair the items as necessary so that none of the conditions specified in this paragraph exist before refilling the storage tank with VOL. In no event shall inspections conducted in accordance with this provision occur at intervals greater than 10 years in the case of tanks for which annual visual inspection are performed and at intervals greater than 5 years in the case of tanks equipped with double-seal systems complying by means of 40 CFR 60.112b(a)(1)(ii)(B). [40 CFR 60.113b(a)(4)]

The Permittee shall give prior notification to the Illinois EPA for the above inspections as required by 40 CFR 60.113b(a)(5). [See also Condition 2.7.10(b)]



2.7.9 Recordkeeping Requirements

- a. The Permittee shall fulfill the applicable recordkeeping requirements of 40 CFR 60.115b for each affected tank pursuant to 40 CFR 60.115b(a), including keep a record of each inspection performed as required by Condition 2.7.8. [40 CFR 60.115b(a) (2)]
  - i. The date the inspection was performed;
  - ii. Who performed the inspection;
  - iii. The method of inspection;
  - iv. The observed condition of each feature of the internal floating roof (seals, roof decks and fittings), with the raw data recorded during the inspection; and
  - v. Summary of compliance.
- b. The Permittee shall maintain records of the following for each affected tank to demonstrate compliance with the Out-of-Service Inspection requirements of Condition 2.7.8(c):

Sufficient records to identify whenever the tank is empty for any reason or whenever repairs are made as a result of regular inspection or incident of roof damage or defect.
- c.
  - i. The Permittee shall keep the operating records required by 40 CFR 60.116b for each affected tank, as follows:

Records of the VOL stored, the period of storage, and the maximum true vapor pressure of that VOL during the respective storage period. [40 CFR 60.116b(c)]
  - ii. The Permittee shall keep the Material Safety Data Sheet (MSDS) or other comparable data for the volatile organic liquids (VOLs) stored in each affected tanks, which records shall be used to identify HAPs that may be emitted from the storage and loadout of VOL.
- d. The Permittee shall keep monthly and annual VOM and HAP emissions attributable to the affected tanks in tons/month and tons/year in accordance with the Condition 2.7.6 to be calculated and recorded at least annually, unless a more frequent determination is necessary to determine whether the plant's annual emissions of VOM have exceeded the limit in Table I.

2.7.10 Reporting Requirements

- a. The Permittee shall fulfill all applicable reporting and notification requirements of the NSPS, 40 CFR 60.7, for the affected tanks.
- b. The Permittee shall submit written notifications and reports to the Illinois EPA as required by the NSPS, for each affected tank, as follows:
  - i. If any of the conditions described in Condition 2.7.8(c) are detected during the annual visual inspection required in Condition 2.7.8, a report shall be furnished to the Illinois EPA within 30 days of the inspection. Each report shall identify the tank, the nature of the defects, and the date the tank was emptied or the nature of and date the repair was made. [40 CFR 60.115b(a) (3)]
  - ii. Notify the Illinois EPA in writing at least 30 days prior to the filling or refilling of a tank for which an inspection is required by Conditions 2.7.8 to afford the Illinois EPA the opportunity to have an observer present. If such inspection is not planned and the Permittee could not have known about the inspection 30 days in advance of refilling the tank, the Illinois EPA at least 7 days prior to the refilling of the tank. 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 Illinois EPA at least 7 days prior to the refilling. [40 CFR 60.113b(a) (5)]
- c. The Permittee shall promptly notify the Illinois EPA of any deviations from the requirements of this permit for the affected tanks as follows. These notifications shall include the information specified by Condition 3.4.
  - i. If a tank is damaged so there is a deviation from an applicable requirements which is not repaired or otherwise corrected within 24 hours, the Permittee shall then immediately notify the Illinois EPA.
  - ii. The deviations addressed above and all other deviations shall be reported with the quarterly compliance report.

2.7.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected tank without prior notification to the Illinois EPA or revision of this permit. This condition does not affect the Permittee's obligation to continue to comply with applicable requirements and to properly obtain a construction permit in a timely manner for any activity constituting construction or modification of the source, as defined in 35 IAC 201.102:

Changes in seal type and configuration, made during the course of normal repair and maintenance of an affected storage tank's floating roof.

2.8 Loading Rack

2.8.1 Description

The loading rack transfers ethanol into tank trucks, railcars or barge for shipment. VOM emissions occur from the VOM-laden air displaced from the tank when material is loaded. VOM emissions are normally controlled by flare systems.

The expansion will be served by existing loading racks. No physical changes will occur to these racks as a result of this expansion. However, the loading racks will handle more material with accompanying increases in emissions.

2.8.2 List of Emission Units and Pollution Control Equipment

Process	Description	Emission Control Equipment
Ethanol Loadouts (Existing)	Truck Loadout	Flare 1
	Rail Loadout	
	Barge Loadout	Flare 2*

\* Up to 1 million gallons of ethanol per year may be loaded out without control.

2.8.3 Applicability Provisions and Applicable Regulations

a. An "affected loading rack," for the purpose of these unit-specific conditions, is a loading rack described in Conditions 2.8.1 and 2.8.2.

2.8.4 Non-Applicability Provisions

a. This permit is issued based on the affected loading racks not being subject to applicable requirements for handling of gasoline because the vapor pressure of the ethanol product is less than 4.0 psi and hence will not be subject to the requirements applicable to handling of gasoline, including 40 CFR 60 Subpart XX, the NSPS for Bulk Gasoline Terminals.

b. This permit is issued based on the affected loading racks not being subject to the control requirements of the MON for transfer racks. This is because the affected loading racks do not meet the definition for "Group 1 transfer racks" in 40 CFR 63.2550(i).

c. The affected loading racks are not required to use submerged loading pipes or submerged fill pursuant to 35 IAC 215.122(a). This is because the Illinois EPA has determined that equivalent or greater control of emissions will be provided because each affected loading rack must

be equipped and operated with vapor collection and control equipment.

2.8.5 Control Requirements and Operational Limitations

- a. i. The loading of all transport tanks (tank truck, tank trailers, rail cars, and barges) shall be conducted using bottom filling or submerged loading.
- ii. The vapor displaced from the transport tanks by ethanol loadout shall be vented to appropriate flare, except that the barge loading operation may load up to one million gallons of ethanol when vapor collection and/or flare system is not operating, venting the vapors to the atmosphere, as needed to maintain the schedule for arrival, placement, and departure of barges at the dock.

Note: The barge loading operation would still comply with all applicable regulatory requirements when either vapor collection or flare systems not operating.

- b. Each flare shall be designed and be operated to comply with applicable requirements of 40 CFR 60.18, including:
  - i. Each flare shall be operated with no visible emissions as determined by the methods specified in 40 CFR 60.18(f) (1), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.
  - ii. Each flare shall be operated with a flame present when vapors displaced by ethanol loadout are being vented to it, as determined by the methods specified in 40 CFR 60.18(f) (2).
  - iii. Each flare shall be used only with the net heating value of the gas being combusted being 300 Btu/scf or greater. The net heating value of the gas being combusted shall be determined by the methods specified in 40 CFR 60.18(f) (3). Note: Natural gas or other gaseous fuel may be added to the displaced vapors to comply with this requirement.
  - iv. Each flare shall be operated with an exit velocity less than the maximum allowable velocity,  $V_{max}$ , as determined by the method specified in 40 CFR 60.18(f) (6).
  - v. Each flare shall be monitor to ensure that it is operated and maintained in conformance with the manufacture's design, as required by 40 CFR 60.18(d).

- c. The affected loading racks and associated vapor collection system shall be operated in accordance with good air pollution control practice to minimize emissions, including the following practices:
  - i. All loading and vapor return lines shall be equipped with fittings that are designed to be liquid and vapor tight.
  - ii. The loading racks shall be operated in a manner that prevents avoidable leaks of liquid during loading and any liquid drainage from the loading devices when a rack is not in use.
  - iii. The vapor collection systems shall be operated in a manner that prevents the gauge pressure from exceeding 18 inches of water and the vacuum from exceeding 6 inches of water during loading operations, as measured at a pressure tap or equivalent installed on each vapor collection system that is located as close as practicable to the vapor hose connection.
  
- d. For each railcar and barge, within 5 minutes after starting loading, the Permittee shall inspect the connection between the vapor collection system at the plant and the railcar for the presence of leaking vapor as determined by sound, sight, smell or a portable organic vapor analyzer. If a leak is identified, the Permittee shall:
  - i. Record the presence of a leak, including date, description of the leak, cause or likely causes, and identity of the rail car, if the leak is due to components on the railcar.
  - ii. Take action to repair the condition causing the leak, either promptly repairing or replacing the fitting or gasket of the vapor collection system or initiating action to have the fitting or gasket of the rail car repaired or replaced, as appropriate.
  - iii. Record the completion of the repair, including the nature of the repair(s) and when it was completed.
  
- e.
  - i. The Permittee shall operate and maintain the affected loading racks and associated control systems in accordance with written procedures developed and maintained by the Permittee. These procedures may incorporate or reference other printed procedures, e.g., the provided by the

equipment supplier or the company operating the transport vehicles.

ii. The Permittee shall keep a copy of the operating and maintenance procedures for the control systems provided by the supplier at a location at the plant where they are readily accessible to the individuals who are responsible for operation and maintenance of these systems.

f. The amount of ethanol, from expansion plant, loaded out to nondedicated trucks shall not exceed 82.5 million gallons per year.

#### 2.8.6 Emission Limitations

a. i. This permit is issued based on the control systems for the affected loading racks achieving at least the following nominal efficiencies:

A. Vapor collection system for trucks: 98.7 percent capture efficiency, assuming that the prior cargo handled by a truck was gasoline, or otherwise 95 percent capture efficiency if the prior cargo was ethanol.

B. Vapor collection system for rail cars and Barges: 95 percent capture efficiency.

C. Flare: 98 percent destruction efficiency.

ii. The total organic compound emissions from the affected loading racks shall not exceed 0.235 and 0.030 pounds per 1000 gallons of material loaded to nondedicated and dedicated trucks, respectively, and 0.030 pounds per 1000 gallons of material loaded to railcars and barges or 0.441 pounds per 1000 gallons of material loaded to barges when the vapor collection or flare system is not operating. These rates shall include those emissions not captured or controlled.

b. i. A. Total emissions of VOM from the affected loading racks, including the loadout operation for existing plant and expansion plant, shall not exceed 2.4 tons/month and 24.55 tons/year. These limits are based on the information in the application including emissions from combustion of fuel in the flare, maximum ethanol loadout to nondedicated trucks of 82.5 million gallons per year, and nominal capture

and control efficiencies as listed in Condition 2.8.6.

Note: These limits allow increase of 11.12 and 0.6 tons/year of VOM emissions from loadout operation associated with the expansion and off-site ethanol loadout operation, respectively.

- B. Emissions of VOM from the barge loading operation when the vapor collection or flare system is not operating shall not exceed 0.22 tons/year.
- C. Compliance with these limits shall be determined using published USEPA Methodology for calculating VOM emissions from loadout of volatile organic liquids. For this purpose, as related to VOM from loadout to transport vehicles other than railcars and barges, unless the Permittee maintains a record of the previous cargo of a transport vehicle and how this cargo was unloaded, i.e., with or without a vapor balance system, the VOM emissions from loadout into such vehicle shall be calculated as if the previous cargo was gasoline, which was unloaded with a vapor balance system.

Note: A similar provision for loadout to railcars and barges are not established because standard practice for handling of ethanol by rail and barge currently involves use of railcars that are dedicated to transport of ethanol and unloading facilities at receiving sources that are not equipped with vapor balance systems.

- ii. Emissions of NO<sub>x</sub> and CO from the flares (flares 1 and 2, combined) associated with the affected loading racks shall not exceed the following limits:

Pollutant	Emission Limits (Tons)	
	Month	Year
NO <sub>x</sub>	0.31	3.73
CO	2.01	20.47

- iii. This permit is issued based on minimal emissions of PM/PM<sub>10</sub>-PM<sub>2.5</sub> and SO<sub>2</sub> from each flare. For this purpose, emissions shall not exceed a nominal emission rate of 0.1 pound/hour and 0.44 tons/year, each.



- iv. A. The acetaldehyde emissions from affected loading racks shall not exceed 0.132 tons/year.
- B. The emissions of individual HAPs, other than acetaldehyde, from the affected loading racks shall not exceed 2.22 tons/year.
- C. The emissions of total HAPs, other than acetaldehyde, from the affected loading racks shall not exceed 6.04 tons/year.

#### 2.8.7 Testing Requirements

Upon written request by the Illinois EPA, The Permittee shall perform emission tests for the affected loading rack as specified in Condition 3.1-1.

#### 2.8.8 Inspection Requirements

- a. On at least a quarterly basis, while ethanol is being loaded out from the plant, the Permittee shall conduct inspections of the vapor collection system at the plant and the transport vehicles that are being loaded (including the connection between the plant and the transport vehicle) for the presence of leaking organic vapors. These inspections shall be conducted using USEPA Method 21 and relevant procedures of 40 CFR Part 60, Subpart VV for connectors and closed vent systems. The Permittee shall keep records for these inspections in accordance with relevant recordkeeping provisions of 40 CFR 60, Subpart VV.

#### 2.8.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected loading racks:

- a. Operating records for each day on which ethanol loadout is conducted, as follow:
  - i. Date and amount of ethanol loaded.
  - ii. Confirmation that established operating procedures were followed.
  - iii. Confirmation that the flare functioned properly, i.e., a flame was present and no visible emissions were observed except as allowed by 40 CFR 60.18(c)(1).

- b. Records for each event when ethanol loadout continues when associated flare is not operating properly to control VOM emissions:
  - i. Date, time, and duration of event.
  - ii. Description of event.
  - iii. Estimated amount of ethanol loaded until the situation was corrected or loadout ceased.
  - iv. Reason why loadout could not be immediately ceased.
  - v. Corrective actions taken.
  - vi. Actions taken to prevent or reduce the likelihood of future occurrences.
- c. An inspection, maintenance and repair log for each flare system, which lists activities that are performed, with date and responsible individual(s).
- d. A file containing emission factors, developed using published USEPA emissions estimation methodology, and standard USEPA emission factors, as control systems are properly operated.
- e. Monthly and annual records of the emissions of VOM, CO, NO<sub>x</sub> and HAP from the affected loading rack, with supporting calculations. For this purpose, standard emission factors shall be used for periods when the flare operates properly, e.g., 98 percent destruction of VOM. For periods when the flare does not operate properly, specific estimates of emissions shall be made, accompanied by written justification or explanation.

#### 2.8.10 Reporting Requirements

- a. The Permittee shall promptly notify the Illinois EPA of any deviations from the requirements of this permit for the affected loading rack as follows. These notifications shall include the information specified by Condition 3.4.
  - i. If there is an exceedance of applicable requirements during loadout of ethanol that lasts longer than one hour, the Permittee shall immediately notify the Illinois EPA. For this purpose, an exceedance shall be considered to continue even if operation of the loading rack is interrupted if the exceedance condition is still present when operation is resumed.

- ii. The deviations addressed above and all other deviations shall be reported with the quarterly compliance report.

2.8.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical changes with respect to these units without prior notification to the Illinois EPA or revision of this permit. This condition does not affect the Permittee's obligation to properly obtain a construction permit in a timely manner if these changes would accompany an activity that would constitute construction or modification of an emission unit, as defined in 35 IAC 201.102.

Changes in fittings made during the course of repair and maintenance of the affected loading racks.

2.9 Leaking Components

2.9.1 Description

Equipment components, such as valves, flanges, etc., involved with the fermentation, distillation and subsequent handling of ethanol and denaturant generate VOM emissions when they leak.

2.9.2 List of Emission Equipment and Pollution Control Equipment

Emission Unit	Description	Emission Control Measures
Process Components (Valves, Flanges, Pressure Relief Devices, Pumps, Seals, etc.)	Processing of Organic Material through the Plant's Piping System	Leak Detection and Repair Program

2.9.3 Applicability Provisions

- a. The "affected components" are equipment components, described in Condition 2.9.1 and 2.9.2 that are in VOM service.
- b. The affected components associated with the fermentation and distillation operations are subject to the NSPS for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry, 40 CFR 60, Subpart VV, and related provisions in Subpart A.
- c. The affected components associated with the affected denaturant tank and handling of denaturant are subject to the requirements of the MON for Equipment Leaks, 40 CFR 63.2480 which refers to the requirements of 40 CFR 63 Subpart UU, except as specified in 40 CFR 63.2480(b) and (d); 40 CFR 63 Subpart H, except as specified in 63.2480(b) and (d); or 40 CFR 65 Subpart F, except as specified in 63.2480(c) and (d).

2.9.4 Non-Applicable Provisions

- a. This permit is issued based on affected components not being subject to the requirements of 35 IAC Part 215, Subpart Q, Leaks from Synthetic Organic Chemical and Polymer Manufacturing Equipment, pursuant to the applicability provisions at 35 IAC 215.420, because the plant will have less than 1,500 components in gas or light liquid service (which components are used to manufacture the chemicals or polymers listed in 35 IAC Part 215, Appendix D).

- b. For the affected components, this permit does not address the applicability of 35 IAC 215.142 to certain components because the leaks of organic material are being addressed by the requirements of the NSPS, 40 CFR 60 Subpart VV or comparable requirements, which require timely repairs of any leaking component.
- c. This permit is issued based on the affected components not being subject to the NESHAP for Equipment Leaks, 40 CFR 63 Subpart H, because the expansion is not subject to SOCOMI source. [40 CFR 63.160]
- d. This permit is issued based on the affected loading racks not being subject to the control requirements of NESHAP for Miscellaneous Organic Chemical Manufacturing, 40 CFR 63 Subpart FFFF, for equipment leaks. This is because the affected components are defined as Group 2 racks by 40 CFR 63.2550(i).

#### 2.9.5 Control Requirements

- a. For affected components that are subject to 40 CFR 60, Subpart VV, the Permittee shall follow the work practice requirements set forth in 40 CFR 60.482-1 (Standards: General), 60.482-2 (Standards: Pumps in light liquid service), 60.482-4 (Standards: Pressure relief devices in gas/vapor service), 60.482-5 (Standards: Sampling connection systems), 60.482-6 (Standards: Open-ended valves or lines), 60.482-7 (Standards: Valves in gas/vapor service and light liquid service)\*, 60.482-8 (Standards: Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and flanges and other connectors), 60.482-9 (Standards: Delay of repair), and 60.482-10 (Standards: Closed vent systems and control devices).

\* The Permittee may elect to utilize the alternative standards of 40 CFR 60.483-1 or 60.483-2, where applicable.

- b. For the affected components of the affected denaturant tank and affected components for handling of denaturant, which are subject requirements for equipment leaks in the MON, the Permittee shall follow the Leak Detection and Repair (LDAR) requirements of the Generic MACT, 40 CFR 63 Subpart UU, except as specified in 40 CFR 63.2480(b) and (d); or the applicable leak detection requirements of 40 CFR 63 Subpart H, except as specified in 63.2480(b) and (d); or 40 CFR 65 Subpart F, except as specified in 63.2480(c) and (d).

## 2.9.6 Emission Limitations

- a. Emissions of VOM and HAPs from the affected components shall not exceed the following limit, total, as determined by use of appropriate USEPA methodology for estimating emissions from leaking components.

Pollutant	Tons/Yr
VOM	8.84
Acetaldehyde	1.37
Individual HAP, Other Than Acetaldehyde	0.13
Total HAP, Other Than Acetaldehyde	0.18

## 2.9.7 Operating Requirements

- a. For affected components that are not subject to 40 CFR Part 60, Subpart VV, the Permittee shall repair any affected component from which a leak of volatile organic liquid (VOL) is detected or observed. The repair shall be completed as soon as practicable but no later than 21 days after the leak is found. If the leaking component cannot be repaired until the process unit is shut down, the leaking component must then be repaired before the unit is restarted.
- b. For affected components that are subject to 40 CFR 60, Part 60, Subpart VV the Permittee shall follow the operating requirements set in 40 CFR 60.482-1 (Standards: general), 60.482-2 (Standards: Pumps in light liquid service), 60.482-4 (Standards: Pressure relief devices in gas/vapor service), 60.482-5 (Standards: Sampling connection systems), 60.482-6 (Standards: Open-ended valves or lines), 60.482-7 (Standards: Valves in gas/vapor service and light liquid service), 60.482-8 (Standards: Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and flanges and other connectors), 60.482-9 (Standards: Delay of repair), and 60.482-10 (Standards: Closed vent systems and control devices).

## 2.9.8 Inspection Requirements

For all affected components that are in VOC service, as defined by 40 CFR 60.481, other than components in vacuum service, the Permittee shall follow the inspection requirements set forth in 40 CFR 60.482-1 (Standards: General), 60.482-2 (Standards: Pumps in light liquid service), 60.482-4 (Standards: Pressure relief devices in gas/vapor service), 60.482-5 (Standards: Sampling connection systems), 60.482-6 (Standards: Open-ended valves or lines), 60.482-7 (Standards: Valves in gas/vapor service and light liquid service)\*, 60.482-8 (Standards: Pumps and valves in heavy liquid service, pressure relief devices in

light liquid or heavy liquid service, and flanges and other connectors), 60.482-9 (Standards: Delay of repair), and 60.482-10 (Standards: Closed vent systems and control devices).

\* The Permittee may elect to utilize the alternative standards of 40 CFR 60.483-1 through 60.483-2, where applicable.

#### 2.9.9 Recordkeeping Requirements

The Permittee shall maintain the following records related to affected components:

- a. The applicable records as specified in 40 CFR 60.486.
- b. A leaking components monitoring log, which shall contain the following information:
  - i. The name of the process unit where the component is located;
  - ii. The type of component (e.g., valve, pump seal, or relief device);
  - iii. The identification number of the component;
  - iv. The date on which a leaking component is discovered;
  - v. The date on which a leaking component is repaired;
  - vi. The date and instrument reading of the recheck procedure after a leaking component is repaired;
  - vii. A record of the calibration of the monitoring instrument;
  - viii. The identification number of leaking components which cannot be repaired until process unit shutdown; and
  - ix. The total number of components inspected and the total number of components found leaking during that monitoring period.
- c. All required reports as specified at 40 CFR 60.487.
- d. Records on at least an annual basis of the VOM and HAP emissions attributable to affected components, with supporting documentation and calculations.

2.9.10 Reporting Requirements

- a. The Permittee shall fulfill all applicable notification and reporting requirements of the NSPS for the affected components.
- b. The Permittee shall report any deviations from the requirements of this permit for the affected components in the quarterly compliance report submitted to the Illinois EPA. These reports shall include the information specified by Condition 3.4.

2.9.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to repair and replace affected components without prior notification to the Illinois EPA or revision of this permit. This condition does not affect the Permittee's obligation to properly obtain a construction permit in a timely manner for any activity constituting construction or modification of the source, as defined in 35 IAC 201.102.



## 2.10 Bio-Methanator

### 2.10.1 Description

Two new methanators and a flare system will be installed for the expansion. The wet feed evaporator condensate is routed to the bio-methanators to reduce the biological oxygen demand of the condensate for purposes of recycling process water. The wet feed evaporator is equipment used to produce feed and not equipment necessary to operate a miscellaneous organic chemical manufacturing process.

The treatment of certain wastewater streams that contain high levels of organic material in the bio-methanators produces a small stream of methane-rich bio-gas as a byproduct. This bio-gas is either used as fuel at the plant, substituting for natural gas, or disposed of by burning in the flare associated with the bio-methanator.

### 2.10.2 List of Emission Units and Pollution Control Measures

Emission Unit Description	Emission Control Equipment
Bio-methanators (5-6)	Flare 4

### 2.10.3 Applicable Regulations

The bio-methanators are subject to 35 IAC 212.321. (Refer to Condition 2.4.2(b).)

### 2.10.4 Non-Applicability Provisions

This permit is issued based on the bio-methanators not being subject to the MON. This is because the bio-methanators treat a process water stream to reduce its biological oxygen demand and enable recycling of the water.

### 2.10.5 Operational and Production Limits and Work Practices

- a. The exhaust from the bio-methanator shall directly route to the oxidizers or flare.

### 2.10.6 Emission Limitations

- a. Emissions from the bio-methanator/flare system, excluding emissions associated with use of bio-gas as fuel in the oxidizers, shall not exceed the following limits. These limits are based on the information provided in the permit application including standard emission factors and annual operation of the flare for disposal of bio-gas with a 12 percent capacity factor.

Pollutant	Emission Rate	
	Tons/Month	Tons/Year
NO <sub>x</sub>	0.03	0.26
CO	0.11	1.22
VOM	0.02	0.17
Acetaldehyde	---	0.002
Individual HAP, Other Than Acetaldehyde	---	0.02
Total HAP, Other Than Acetaldehyde	---	0.03

- b. This permit is issued based on minimal emissions of PM/PM<sub>10</sub>-PM<sub>2.5</sub> and SO<sub>2</sub> from the flare. For this purpose, emissions shall not exceed a nominal emission rate of 0.1 pound/hour and 0.44 tons/year, each.

2.10.7 Testing Requirements

None

2.10.8 Monitoring Requirement

The bio-methanator flare shall be equipped with a monitor or other device to confirm presence of a flame if bio-gas is being sent to the flare.

2.10.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the bio-methanator:

- a. A file containing estimate of the maximum and typical rates of bio-gas generation (cubic feet and million Btu/hour) and the typical heat content of the bio-gas (Btu/scf), with supporting data and calculations.
- b. A file containing estimates of the typical rate of gas consumed by the pilot flame for the flare, if any.
- c. Records for the amount of bio-gas generated by the bio-methanator (scf/month and scf/year), with supporting calculations.
- d. The following records related to flaring of bio-gas:
  - i. Each period when bio-gas is flared, with date, duration and explanation.
  - ii. The actual amount of bio-gas directed to the flare during these periods, if the Permittee estimates emissions from the bio-methanator for only bio-gas actually directed to the flare (rather than assuming

that all bio-gas that is generated is flared), with supporting calculations.

- iii. Each period when the flare operated without a flame present in the flare, including explanation and the amount of biogas exhausted through the flare during such period, with supporting calculations.
- e. Records on at least an annual basis of the VOM, CO and NO<sub>x</sub> emissions from the bio-methanator, with supporting documentation and calculations.

#### 2.10.10 Reporting Requirements

- a. The Permittee shall promptly notify the Illinois EPA of any deviations from the requirements of this permit for the bio-methanator as follows. These notifications shall include the information specified by Condition 3.4.
  - i. If the bio-methanator is damaged so there is a deviation from an applicable requirements that is not repaired or otherwise corrected within 12 hours, the Permittee shall then immediately notify the Illinois EPA.
  - ii. The deviations addressed above and all other deviations shall be reported with the quarterly compliance report.

2.11 Cooling Tower

2.11.1 Description

New cooling tower will be installed for affected expansion plant.

A non-contact cooling tower is used to support the heat exchangers used to cool process streams and to condense surplus steam being returned to boilers.

2.11.2 List of Emission Units and Pollution Control Measures

Process	Description	Control Measure
Cooling Tower 2	Non-Contact Cooling Tower (6 cells)	Drift Eliminator

2.11.3 Applicable Regulations

The cooling tower is subject to 35 IAC 212.321. (Refer to Condition 2.4.2(b).)

2.11.4 Non-Applicability Provisions

- a. This permit is issued based on the cooling tower not being subject to the NESHAP for Industrial Process Cooling Tower, 40 CFR 63 Subpart Q, because the cooling tower is not operated with chromium-based water treatment chemicals. [40 CFR 63.400]
- b. This permit is issued based on the cooling tower not being subject to the MON, because the cooling tower does not generate or circulate wastewater as defined at 40 CFR 63.2550(i).

2.11.5 Operational and Production Limits and Work Practices

- a. The cooling tower shall be equipped with drift eliminators with a design drift loss efficiency of at least 0.005 percent.
- b. The total dissolved solids (TDS) content of the water circulated in the cooling tower shall not exceed 2500 ppm, annual average.
- c. The circulation rate of cooling tower shall not exceed 5,250,000 gallons per hour.
- d. i. Only non-VOC additives shall be used in the cooling tower.

- ii. Process water or wastewater shall not be introduced into the cooling water, other than through unintentional leaks, which shall promptly be repaired.

2.11.6 Emission Limitations

Emissions of PM/PM<sub>10</sub>-PM<sub>2.5</sub> from the cooling tower shall not exceed 23.97 tons per year.

2.11.7 Testing Requirements

None

2.11.8 Sampling and Analysis Requirements

- a. The Permittee shall sample and analyze the water circulated in the cooling tower on at least a quarterly basis for the TDS concentration, taking either grab samples or a daily composite sample of the water.
- b. The Permittee shall keep records for this sampling and analysis activity, including documentation for sampling and analysis as well the resulting data that is collected.

2.11.9 Recordkeeping Requirements

The Permittee shall maintain records of the following information for the cooling tower:

- a. A file containing:
  - i. The manufacturer's specifications or design data for the cooling tower, including water circulation rate (gallons/hour) and design loss rate of the drift eliminators (percent), with supporting documentation.
  - ii. The maximum PM and PM<sub>10</sub>/PM<sub>2.5</sub> emissions from the cooling tower (tons/year), based on maximum operating rate of the cooling tower and factors that with greatest loss of PM as emissions, with supporting calculations.
- b. Records for the actions used to routinely verify the solids contents of the water circulating in the cooling tower, such as sampling and analysis in accordance with the NPDES permit, periodic grab sampling and analysis, conductivity measurements, etc., including:
  - i. If routine verification will not be conducted pursuant to the NPDES permit, a written description

of the procedures, with explanation of how they act to address compliance.

- ii. Records for implementation of the procedure, including measured value(s) of relevant parameter(s).
- c. Records for the amount of water circulated in the cooling tower, gallons/month, with supporting calculations.
- d. The following logs for the affected units:
  - i. Operating log(s), in accordance with Condition 3.3(c).
  - ii. Inspection, maintenance and repair log(s) in accordance with Condition 3.3(d).
- e. Records for the PM and PM<sub>10</sub>/PM<sub>2.5</sub> emissions from the cooling tower (tons/month and tons/year), with supporting documentation and calculations.

#### 2.11.10 Reporting Requirements

- a. The Permittee shall promptly notify the Illinois EPA of any deviations from the requirements of this permit for the cooling tower as follows. These notifications shall include the information specified by Condition 3.4.
  - i. If the cooling tower is damaged so there is a deviation from an applicable requirements that is not repaired or otherwise corrected within 24 hours, the Permittee shall then immediately notify the Illinois EPA.
  - ii. The deviations addressed above and all other deviations shall be reported with the quarterly compliance report.

2.12 Roadways and Other Sources of Fugitive Dust

2.12.1 Description

Fugitive dust (PM emissions) are generated by vehicle traffic on roadways and parking lots at the plant. The expansion plant would have approximately 1 mile of roadways for delivery of grain and denaturant and loadout of ethanol and DDGS and approximately 1.25 miles for the delivery of process chemicals and loadout of wet feed and corn oil. Emissions of PM will be controlled by paving major roadways, which handle all the traffic coming into or leaving the plant, and implementation of dust control measures, if necessary.

2.12.2 List of Emission Units and Pollution Control Measures

Operation	Description	Control Measure
Fugitive Dust	Plant Roads and Parking Lots and Vehicle Traffic	Paving and Sweeping

2.12.3 Applicable Regulations

- a. The "affected operations" for the purpose of these unit-specific conditions are the operations described in Condition 2.12.1 and 2.12.2.
- b. Visible emissions of fugitive particulate matter from any process, including material handling or storage activity, shall not be present beyond the property line of the source, pursuant to 35 IAC 212.301. [See also Condition 1.3(a)]
- c. The yard and driveway of the grain elevator at the expansion plant must be asphalted, oiled or equivalently treated to control dust, pursuant to 35 IAC 212.461(b)(5).

2.12.4 Non-Applicability of Regulations of Concern

- a. The affected operations are not subject to the requirements of 35 IAC 212.321 because of the disperse nature of these emissions units. [35 IAC 212.323]

2.12.5 Operational and Production Limits and Work Practices

- a. Multi-service road segments, i.e., portion of roadways that handle truck traffic for grain, feed, and fuel ethanol trucks, shall be paved.
- b. The Permittee shall follow good air pollution control practices to prevent nuisance dust from plant roads, parking areas, and other open areas of the plant in accordance with the written fugitive dust control program

described in Condition 2.12.5(c). These practices shall provide for pavement on all regularly traveled entrances and exits to the plant and treatment (sweeping, application of water, use of dust suppressant, etc., when necessary) of paved and unpaved roads and areas that are routinely subject to vehicle traffic as necessary to prevent nuisance emissions of dust.

- c. i. The Permittee shall carry out control measures for fugitive dust in accordance with a written control program maintained by the Permittee. This program shall set forth the measures being implemented to demonstrate compliance with Conditions 2.12.3, 2.12.5(a) and 2.12.6, to control fugitive dust at each area of the plant with the potential to generate significant quantities of fugitive dust. This program shall include: (1) A map or diagram showing the location of all fugitive emission units controlled, including the location, identification, length, and width of roadways, and volume and nature of expected traffic or other activity; (2) a description of the emissions control technique(s) (e.g., water spray surfactant spray, water flushing, or sweeping), that will be implemented as necessary; (3) triggers for implementation of additional control, e.g., observation of extended dust plumes following passage of vehicles; and (4) a narrative description of the estimated effectiveness of the various control techniques in reducing PM emissions, with supporting explanation.
- ii. The Permittee shall submit a copy of a revised fugitive dust control program to the Illinois EPA for review within 90 days as follows:
  - A. A revised program that includes such control measures for fugitive dust as may be needed to assure compliance with Condition 2.12.8 shall be submitted if:
    - I. The average silt loading on roadways, as measured pursuant to Condition 2.12.6, exceeds 0.6 grams/square meter;
    - II. The projected maximum total PM emissions, based on the records required by Condition 2.12.9(a)(ii) are more than 90 percent of a limit in Condition 2.12.6; or



III. Total PM emissions from the affected operations exceed the limit in Condition 2.12.8.

- B. A revised program that corrects observed deficiencies in the control program shall be submitted if the Illinois EPA makes a written request for a revised program, citing deficiencies in the current program.

2.12.6 Emission Limitations

Emissions of PM from the affected operations shall not exceed 66.40 tons per year, as PM, and 12.96 tons/year, as PM<sub>10</sub>/PM<sub>2.5</sub>, as determined by use of appropriate USEPA methodology for estimating emissions of fugitive dust.

2.12.7 Testing Requirements

None

2.12.8 Operational Measurements

The Permittee shall conduct measurements of the silt loading on various affected roadway segments and parking areas, as follows:

- a. Sampling and analysis of the silt loading shall be conducted using the "Procedures for Sampling Surface/Bulk Dust Loading," Appendix C.1 in *Compilation of Air Pollutant Emission Factors*, USEPA, AP-42. A series of samples shall be taken to determine the average silt loading and address the change in silt loadings as related to the amount and nature of vehicle traffic and implementation of the operating program.
- b. Measurements shall be performed by the following dates:
  - i. No later than 90 days after the date that initial emission testing of the feed dyers is performed, as required by Condition 2.6.7.
  - ii. Upon written request by the Illinois EPA, the Permittee shall conduct measurements, as specified in the request, which shall be completed within 75 days of the Illinois EPA's request.
- c. The Permittee shall submit test plans, test notifications and test reports for these measurements as specified by Condition 3.1

2.12.9 Recordkeeping Requirements

The Permittee shall maintain the following records for the affected operations:

- a. A file containing:
  - i. The Permittee's assumptions, with supporting explanation, for the typical and maximum quantity and nature of vehicle traffic at the plant, including truck traffic related to the receipt of raw materials and loadout of products and employee and other vehicle traffic involved in the routine operation of the plant.
  - ii. The maximum PM emissions from the affected operations (tons/year, as PM and as PM<sub>10</sub>/PM<sub>2.5</sub>), with supporting calculations, based on the maximum vehicle traffic at the plant (as recorded above), the silt loading on the different classes of roadways at the plant (as measured if required pursuant to Condition 2.12.8), and the effectiveness of the current fugitive dust control program (as addressed in Condition 2.12.5(b)).
- b. If dust suppression activities are necessary, records documenting implementation of the fugitive dust control program, including:
  - i. For each dust control treatment of roadway(s): the date and time; the reason for treatment, if not routine; the identity of the roadway(s) treated; the type of treatment; the identity of the treatment vehicle or equipment; and a description of any unusual observations or events related to control of dust that occurring during treatment;
  - ii. A log recording incidents when control measures were not carried out as scheduled or were not fully implemented and incidents when additional control measures were carried out, with description of each such incident and explanation. This log shall address any adjustments to the scheduling of control measures made by the Permittee due to weather conditions that either acted to reduce or increase the level of potential dust, such as precipitation or extended periods of dry weather.
- c. Records of the amount of different material received or shipped from the plant by rail (gallons or tons, by type of material).

- d. Records on at least an annual basis of the PM emissions from the affected operations, with supporting documentation and calculations.

2.12.10 Reporting Requirements

- a. The Permittee shall promptly notify the Illinois EPA of any deviations from the requirements of this permit for affected operations as follows. These notifications shall include the information specified by Condition 3.4.
  - i. If there is an exceedance of Condition 2.12.3(b) that lasts longer than one hour, the Permittee shall immediately notify the Illinois EPA.
  - ii. The deviations addressed above and all other deviations shall be reported with the quarterly compliance report.
- b. With the Quarterly Emission Report, the Permittee shall submit the following information to the Illinois EPA:

Dates when control measures otherwise required by the dust control program were not carried out with explanation.

## Section 3: General Conditions

## 3.1-1 Emission Testing

- a. i. If the initial emission tests for emission unit(s), as addressed below, do not include the performance tests for emissions of HAPs from emission unit(s) required by the MON, the Permittee shall have the required performance tests conducted in a timely manner, i.e., no later than 150 days after the compliance date of the MON, as required by 40 CFR 63.2450(g), unless for the oxidizers, the Permittee has performance testing conducted, with measurements in the ductwork for the controlled mash preparation units and distillation, to demonstrate compliance with the MON without reliance on the oxidizers. If the initial emission tests, below, or subsequent emission tests are conducted in accordance with applicable procedures of the MON and show compliance with the MON, the results of those performance tests may be used to demonstrate compliance with the MON and initial performance testing need not be repeated.
- ii. Within 180 days of initial startup of the feed dryers constructed as part of the expansion of the plant, the Permittee shall also have emissions of selected units as specified in the following table, measured during conditions which are representative of maximum emissions. This testing may be combined with emission testing require by the MON:

Emission Unit/Process	Emissions						Efficiency	
	PM - PM <sub>10</sub> / PM <sub>2.5</sub> <sup>a</sup>	VOM	NO <sub>x</sub>	CO	SO <sub>2</sub>	HAP	VOM	CO
Grain Receiving and Handling Baghouse	X							
Milling Baghouse	X							
Fermentation Scrubber	X	X				X	X	
Oxidizer (c10)	X	X	X	X <sup>b</sup>	X <sup>c</sup>	X	X	X <sup>d</sup>
Oxidizer (c11)	X	X	X	X <sup>b</sup>	X <sup>c</sup>	X	X	X <sup>d</sup>
Cooling Drum Baghouse	X	X				X		
Feed Loading Baghouse	X							
Boilers		X	X	X				

## Notes:

<sup>a</sup> See Condition 1.2(c).

<sup>b</sup> Emissions testing for CO shall be conducted concurrently with NO<sub>x</sub> testing, except for the boilers, for which non-concurrent CO testing may be conducted once the NO<sub>x</sub> monitors are certified.

- c Emissions testing of the oxidizers shall be conducted on one oxidizer, either chosen at random or as selected by the Illinois EPA.
- d Efficiency testing need not be performed if the Permittee is demonstrating compliance based on the concentration of CO in the exhaust.
  - iii. In addition to the emission testing required above, the Permittee shall perform emission tests as requested by the Illinois EPA for an emission unit within 45 days of a written request by the Illinois EPA or such later date agreed to by the Illinois EPA.
- b. i. For purposes of demonstrating compliance with an applicable NSPS or NESHAP standard, testing shall be conducted in accordance with the specified procedures of the NSPS or NESHAP. In particular:
  - A. For testing of boilers to demonstrate compliance with the NSPS: 1) The emission tests for the boiler shall be conducted and data collected in accordance with 40 CFR 60.8 and the test methods and procedures specified in 40 CFR 60.46(e); and 2) NO<sub>x</sub> emissions shall be monitored for 30 successive boiler operating days and the 30-day average emission rate is used to determine compliance with the NSPS standard. The 30-day average emission rate is calculated as the average of all hourly emissions data recorded by the monitoring system during the 30-day test period, unless USEPA approves alternative procedures to demonstrate compliance with the NSPS pursuant to 40 CFR 60.13(i).
- ii. For other emission testing, the following methods and procedures shall be used for testing of emissions, unless another method is approved by the USEPA or Illinois EPA. Refer to 40 CFR 60, Appendix A, for USEPA test methods.

Location of Sample Points	USEPA Method 1
Gas Flow and Velocity	USEPA Method 2
Flue Gas Weight	USEPA Method 3
Moisture	USEPA Method 4
Particulate Matter	USEPA Methods 5 <sup>a</sup> and 202 <sup>b</sup>
Nitrogen Oxides	USEPA Method 7, 7E, or 19
Opacity	USEPA Method 9 <sup>c</sup>
Carbon Monoxide	USEPA Method 10
Volatile Organic Material	USEPA Methods 18 and 25/25A <sup>d</sup>

Hazardous Air Pollutants

USEPA Method 18<sup>d,e</sup>

Notes:

- a. For emission units for which the average stack gas temperature is less than 250°F, such as grain handling operations, but not including boilers, testing may be conducted at actual stack gas temperature without heating of the probe or filter holders.
  - b. Particulate matter tests shall include measurements of condensable particulate matter, as collected in the back half of the Method 5 sampling train or by separate measurements using USEPA Method 202 (40 CFR Part 51, Appendix M).
  - c. Observation of opacity shall be made in conjunction with measurements of PM emissions.
  - d. Testing shall also be conducted in accordance with industry-specific guidance from USEPA on testing VOM and HAP emissions from process units at ethanol plants. For example, results of VOM emission measurements by Method 25 or 25A shall be multiplied by the appropriate default scalar factor (currently 2.2) unless appropriate speciated VOM measurements are conducted to establish a unit-specific ratio between the results of Method 25 or 25A testing and actual VOM emissions.
  - e. USEPA Method 320 may also be used.
- c. The Permittee shall submit a written test plan to the Compliance Section of the Division of Air Pollution Control for review at least 45 days prior to the scheduled date of testing. This plan shall describe the specific procedures for testing, including as a minimum:
- i. The person(s) who will be performing sampling and analysis and their experience with similar tests.
  - ii. The specific conditions under which testing will be performed, including a discussion of why these conditions will be representative of maximum emissions and any changes in the means or manner by which the operating parameters for the emission unit and any control equipment will be determined.
  - iii. The specific determinations of emissions and operation that is intended to be made, including sampling and monitoring locations.

- iv. The test method(s) that will be used, with the specific analysis method, if the method can be used with different analysis methods.
  - v. As part of the approval of a test plan, the Permittee may request and the Illinois EPA may approve a program to evaluate alternative levels of operating parameters for a control device, leading to testing at new values for operating parameters. In such case, the provisions of the approved test plan shall supersede the particular provisions of this permit with respect to the required level of operating parameters for the affected unit(s).
- d.
- i. For emission or performance testing that is intended to demonstrate compliance with a NESHAP, the Permittee shall notify the Illinois EPA of the planned test at least 60 calendar days before the test is scheduled to begin as required in 40 CFR 63.7(b)(1).
  - ii. For other emission tests, the Permittee shall notify the Illinois EPA prior to these tests to enable the Illinois EPA to observe these tests. Notification of the expected date of testing shall be submitted a minimum of 30 days prior to the expected date. Notification of the actual date and expected time of testing shall be submitted a minimum of 5 working days prior to the actual date of the test. The Illinois EPA may at its discretion accept notifications with shorter advance notice provided that the Illinois EPA will not accept such notifications if it interferes with the Illinois EPA's ability to observe testing.
- e. The Permittee shall submit copies of the Final Reports for these tests to the Illinois EPA within 14 days after the test results are compiled and finalized but no later than 45 days after completion of sampling. The Final Report shall include as a minimum:
- i. A summary of results
  - ii. General information
  - iii. Operating data for the unit(s) and associated control devices during testing, including data both for parameters for which operation will be restricted based upon the value of operating parameters during testing and for parameters that are needed to more fully describe operating conditions during testing.

- iv. Description of test method(s), including description of sampling points, sampling train, analysis equipment, and test schedule.
- v. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration.
- f. The Permittee shall retain copies of emission test reports for at least three years after the date that an emission test is superseded by a more recent test.

### 3.1-2 Opacity Observations

- a. Upon written request by the Illinois EPA, the Permittee shall conduct opacity observations for specific affected operation(s) or unit(s) within 45 calendar days of the request or on the date agreed upon by the Illinois EPA, whichever is later.
- b. Opacity of emissions shall be determined during representative weather and operating conditions by a qualified observer in accordance with USEPA Test Method 9, as further specified below.
- c. The duration of opacity observations for each test shall be at least 30 minutes (five 6-minute averages) unless the average opacities for the first 12 minutes of observations (two six-minute averages) are both no more than half of the most stringent requirement applying to opacity.
- d.
  - i. The Permittee shall notify the Illinois EPA at least 7 days in advance of the date and time of these tests, in order to allow the Illinois EPA to witness testing. This notification shall include the name and employer of the qualified observer(s).
  - ii. The Permittee shall promptly notify the Illinois EPA of any changes in the time or date for testing.
- e. The Permittee shall provide a copy of its observer's readings to the Illinois EPA at the time of testing, if Illinois EPA personnel are present.
- f. The Permittee shall submit a written report for this testing within 15 days of the date of testing. This report shall include:
  - i. Date and time of testing.
  - ii. Name and employer of qualified observer.
  - iii. Copy of current certification.



- iv. Description of observation condition, including recent weather.
- v. Description of the operating conditions of the affected operation or unit.
- vi. Raw data.
- vii. Opacity determinations.
- viii. Conclusions.
- g. The Permittee shall retain copies of test reports for at least three years after the date that a test is superseded by a more recent test.

### 3.2 Operation and Maintenance Procedures

- a. Where this permit requires the Permittee to operate or maintain emission units in accordance with written procedures, such procedures may incorporate procedures provided by the equipment manufacturer or supplier if a copy of these procedures is attached to the Permittee's procedures.
- b. For continuous monitoring devices and operational instrumentation required by this Permit, the Permittee shall keep a copy of manufacturer's or supplier's recommended operating and maintenance procedures and its specifications for the performance of the devices.

### 3.3 General Requirements for Logs

- a. The logs required by this permit may be kept in manual or electronic form, and may be part of a larger information database maintained by the Permittee provided that the information required to be kept in a log is readily accessible.
- b. The Permittee shall maintain logs for the operation and maintenance and repair of monitoring devices and other instrumentation required by this permit.
- c. Operating logs required by this permit shall, at a minimum, include the following information:
  - i. Information identifying periods when a unit or group of related units was not in service.
  - ii. For periods when a unit or group of related units is in service and operating normally, relevant process information to generally confirm normal operation.

- iii. For periods when a unit or group of related units is in service and is not operating normally, identification of each such period, with detailed information describing the operation of the unit(s) and the potential consequences for additional emissions from unit(s), with explanation.
  - d. Inspection, maintenance and repair logs required by this permit shall, at a minimum, include the following information:
    - i. Identification of equipment, with date, time, responsible employee and type of activity.
    - ii. For inspections, a description of the inspection, findings, and any recommended actions, with reason.
    - iii. For maintenance and repair activity, a description of actions taken, reason for action, e.g., preventative measure or corrective action as a result of inspection, and the condition of equipment following completion of the activity.

3.4 Reporting of Deviations

- a. Reports of deviations shall include the following information:
  - i. Identify the deviation, with date, time, duration and description.
  - ii. Describe the effect of the deviation on compliance, with an estimate of the excess emissions that accompanied the deviation, if any.
  - iii. Describe the probable cause of the deviation and any corrective actions or preventive measures taken.
- b. Quarterly compliance report shall be submitted no later than 45 days after the preceding calendar quarter. This report shall also provide a listing of all deviations for which immediate or 30-day reporting was required, but need not include copies of the previously submitted information.
- c. If there are no deviations during the calendar quarter, the Permittee shall still submit a compliance report, which report shall state that no deviations occurred during the reporting period.

3.5 Requirements for Continuous Operational Monitoring for Operations Subject to the MON (40 CFR 63, Subpart FFFF)

Operation	Status	Control Requirements	Monitoring
Fermentation*	Group 2 Continuous	Absorber: N/A	\$63.993 -

Operation	Status	Control Requirements	Monitoring
	Process Vent (CPV): TRE greater than 1.9; <u>or</u>	Table 1 to Subpart FFFF (Par. 3)	Operational & Monitoring Requirements
	Group 1 CPV: TRE less than or = to 1.9	Absorber: §63.2455 - Table 1 to Subpart FFFF (Par. 1.a.(i) or (iii))	§63.2450(k)(5)
Distillation*	Exempt - Uncontrolled emission stream containing less than 50 ppmv HAP; <u>or</u>	N/A: Compliance demonstration per §63.2550	N/A
	Group 1 CPV	Oxidizer: §63.2455 - Table 1 to Subpart FFFF (Par. 1.a.(i) or (iii))	§63.2450

\* If emissions testing does not confirm first status, appropriate operational monitoring shall be conducted for a "Group 1 control device."

3.6 Common Requirements of the General Provisions of the NESHAP, 40 CFR 63, Subpart A, for Operations Subject to the MON (40 CFR 63, Subpart FFFF)

The following requirements apply to miscellaneous organic chemical manufacturing process units (MCPUs) that are subject to the control requirements of 40 CFR 63 Subpart FFFF.

a. Startup shutdown and malfunction plan [(40 CFR 63.6(e)(3))]

The Permittee shall prepare a written startup, shutdown and malfunction plan that describes, in detail, the operation and maintenance activities during periods of startup, shutdown, and malfunction; and a program of corrective action for malfunctioning process, air pollution control, and monitoring equipment used to comply with the MON. The SSMP does not need to address any scenario that would not cause the source to exceed an applicable emission limitation in the relevant standard. This plan shall be developed by the applicable compliance date. The SSMP shall address the following:

- i. Operation and maintenance procedures, including associated air pollution control and monitoring equipment, to ensure the minimization of emissions of HAPs.
- ii. Malfunction and repair procedures to ensure the correction of malfunctions as soon as practicable after such occurrence in order to minimize excess emissions of HAPs.

- iii. Corrective action procedures to restore malfunctioning process and air pollution control equipment to its normal and usual manner of operation.
- b. The Permittee shall submit semiannual compliance reports in accordance with the requirements of 40 CFR 63.2520(b). The first compliance report must cover the period beginning on the applicable compliance date for the MON and ending on June 30 or December 31, whichever date is the first date following the end of the first 6 months after the applicable date. Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31. The semiannual compliance report may be included with the applicable Quarterly Deviation Report submitted under Condition 3.4. The semiannual reports shall contain the information specified by 40 CFR 63.2520(e), including but not limited to:
- i. A statement by a responsible official with the official's name, title, and signature, certifying the accuracy of the content of the report.
  - ii. For each SSM during which excess emissions occurs, the compliance report shall include records that the procedures specified in the SSMP were followed or documentation of actions taken that are not consistent with the SSMP, and include a brief description of each malfunction.
  - iii. Information on deviations, as defined in 40 CFR 63.2550, according to 40 CFR 63.2520(e)(5)(i), (ii), (iii), and (iv).
- c. The Permittee shall comply with other applicable notification, reporting and recordkeeping requirements specified in 40 CFR 63.2515, 63.2520 and 63.2525.
- d. The Permittee shall comply with applicable provisions of the General Provisions of the NESHAP, 40 CFR 63, Subpart A, as listed in Attachment D of this permit, including but not limited to:
- i. Notifications provided in accordance with the applicable requirements of 40 CFR 63.6(h)(4)-(5), 63.7(b)-(c), 63.8(e), (f)(4) and (6), 63.9(b)-(h) as listed in Attachment D.
  - ii. If requested by the Illinois EPA, notification(s) that a performance evaluation of the continuous monitoring system is being conducted, and such evaluation shall be conducted in accordance with the requirements of 40 CFR 63.8(e).

- iii. Notification of any request to use an alternate monitoring procedure shall be submitted in accordance with the requirements of 40 CFR 63.9(b) - (e).
  
- e. To request approval to set operating limits for parameters other than those specified in 40 CFR 63.2455 through 63.2485, the Permittee shall submit a precompliance report to the USEPA at least 6 months prior to the compliance date. Alternatively, requests for approval of alternative monitoring methods may be made according to 40 CFR 63.8(f). The USEPA shall either approve or disapprove the report within 90 days after receipt, and if disapproved, the Permittee shall still maintain compliance with the emission limitations and work practice standards in the MON by the applicable compliance date. To change any of the information submitted in the report, notification shall be provided 60 days prior to implementation of the planned change.

If you have any questions on this permit, please contact Minesh Patel at 217/782-2113.

**COPY**

**Original Signed by  
Edwin C. Bakowski, P.E.**

Edwin C. Bakowski, P.E.  
Manager, Permit Section  
Division of Air Pollution Control

Date Signed: June 14, 2011

ECB:MVP:psj

cc: Region 2

ATTACHMENT A

Listing of Identified Emission Units and Process Equipment

Operation	Emission Unit/Process Equipment	Emission Control Equipment	
Boilers 3 and 4	Two Natural Gas Fired Boilers (280 Million Btu/Hr, Each)	Ultra Low-NO <sub>x</sub> burner	
	Boiler Feedwater Tank	----	
Grain Receiving and Storage System	Truck and Rail Dump Station	Baghouse 5	
	Conveyors		
	Elevators		
	Storage Bins (3-4)		
	Cleaner		
Grain Milling	Grain Surge Bin	Baghouse 6	
	Roller Crackers		
	Hammermill Feed Equipment		
	Hammermills (5-8)		
Mash Preparation	Hammermill Discharge Conveyors	Oxidizers	
	Cook Water Tank		----
	Mixer		----
	Slurry Tank (3-4)		----
	Yeast Tank (3-4)		----
	Liquefaction Tank (3-4)		----
	Flash Tank 2		Vent to Distillation
Fermentation	Misc. Chemical Tanks	----	
	Fermentation Tanks (8-14)	Fermentation Scrubber 2	
	Beer Well 2	----	
Distillation	Mash Screen	----	
	Beer Column, Rectifier Column and Stripper Column - 190 Proof Condenser	Oxidizers 3 and 4	
	Molecular Sieve - 200 Proof Condenser		
Reflux Tank and Regen Tank			
Solid Separation and Evaporation (Feed Dewatering)	Evaporators and Centrifuges	Oxidizers 3 and 4	
	Whole Stillage Tank	----	
	Syrup Tank	----	
	Thin Stillage Tank	----	
	Centrate Tank		
Feed Drying and Cooling	Oil Storage Tank	Oxidizers 3 and 4	
	Dryer System 3 and 4 (Each Dryer System has Three Steam Tube Dryers/Cyclone combination in Series)		
	Feed Cooling Drum 2		Baghouse 7 (entire exhaust) and Oxidizers (partial exhaust)
Dry Feed Conveyors			

Operation	Emission Unit/Process Equipment	Emission Control Equipment
Feed Storage and Loadout	Dry Feed Storage	----
	Wet Feed Storage Pad	----
	Truck and Rail Loadout	Baghouse 8
	Barge Loadout (Existing)	----
Biomethanator	Biomethanator (5-6)	Flare 4
Storage Tanks	Two new Denatured Ethanol Tanks (1,500,000 gallons, Each)	Internal Floating Roof with Primary and Secondary Seals
Ethanol Loadouts (Existing)	Truck and Railcar Loadout	Flare 1
	Barge Loadout	Flare 2
Process Components (Valves, Flanges, Pressure Relief Valves, Pumps, Seals, etc.)	Processing of Organic Material through the Plant's Piping System	Leak Detection and Repair Program
Cooling Tower 2	Non-Contact Cooling Tower (6 cells)	Drift Eliminator
Fugitive Dust	Plant Roads and Parking Lots and Vehicle Traffic	Paving and Sweeping

Attachment B

TABLE I: Annual Emission Limitations for the Plant with the Expansion (Tons/Year)

Emission Unit(s)	NO <sub>x</sub>	CO	VOM	PM/PM <sub>10</sub> -PM <sub>2.5</sub>	SO <sub>2</sub>
Boilers	183.96	91.99	27.67	34.95	2.76
Engine <sup>1</sup>	0.52	0.03	0.01	0.01	0.06
Grain Receiving and Handling				25.83	
Grain Milling				10.52	
Fermentation (Scrubber)			93.16	1.72	
Feed Dryers/Oxidizers	17.52	105.44	40.56	24.66	182.61
Feed Cooler (Baghouse)			33.20	7.50	
Truck/Rail Dry Feed Loadout				3.44	
Barge Feed Loadout				3.24	
Wet Cake Transfer & Loadout <sup>2</sup>			9.10	0.88	
Ethanol & Denaturant Tanks			4.73		
Ethanol Loadout (Flares)	3.73	20.47	24.55	1.76	1.76
Bio-methanator (Flares)	0.52	2.44	0.34	0.88	0.88
Component Leaks			17.68		
Miscellaneous Units			1.81		
Subtotal	206.25	220.37	243.71	114.51	188.07
Cooling Towers				47.94	
Plant Roads/Parking Areas				131.95/25.75	
Subtotal	----	----	----	179.89/73.69	----
Totals	206.25	220.37	243.71	294.40/188.20	188.07

Note:

- Existing engine would also serve the expansion.
- Emissions from wet cake loadout are offset by a greater reduction emissions from the Feed Dryers, so that they do not add to total plant emissions.



TABLE II: Annual HAP Limitations for the Plant with the Expansion  
(Tons/Year)

Emission Unit(s)	Acet.	Other HAP	Total HAP	Ind. HAP
Boilers	0.19	8.66	8.85	8.84
Engine	0.001	0.002	0.003	0.002
Grain Receiving and Handling				
Grain Milling				
Fermentation (Scrubber)	11.923	0.75	12.673	0.42
Feed Dryers/Oxidizers	3.15	10.42	13.57	4.49
Feed Cooler (Baghouse)	1.22	1.22	2.44	0.53
Truck/Rail Dry Feed Loadout				
Barge Feed Loadout				
Wet Cake Transfer & Loadout				
Ethanol & Denaturant Tanks	0.012	0.12	0.132	0.10
Ethanol Loadout (Flares)	0.132	6.04	6.172	2.22
Bio-methanator (Flares)	0.004	0.06	0.064	0.04
Component Leaks	2.74	0.35	3.09	0.26
Miscellaneous Units	0.14	0.38	0.52	0.29
Subtotal	19.512	28.002	47.514	17.192
Cooling Towers	----	----	----	----
Plant Roads/Parking Areas	----	----	----	----
Subtotal	----	----	----	----
Totals	19.512	28.002	47.514	17.192

ATTACHMENT C

TABLE I: Summary of Source-wide Permitted Annual Emissions (Tons/Year)

Pollutant	Existing Plant	Expansion	Total
NO <sub>x</sub>	98.42	107.83	206.25
CO	113.33	107.04	220.36
VOM	121.80	121.91	243.71
PM/PM <sub>10</sub> *	57.61	56.90	114.51
SO <sub>2</sub>	93.97	94.10	188.07
Acetaldehyde	9.64	9.876	19.516
Total HAPs, Other Than Acetaldehyde	13.68	14.32	28.00
Total HAPs	23.32	24.196	47.516
Individual HAP, Other Than Acetaldehyde	4.463	8.32	12.78

\* Excludes fugitive emissions from roadways and open areas

TABLE II: Summary of Permitted Annual Emissions of the Boilers (Tons/Year)

Pollutant	Existing Plant	Expansion	Total
NO <sub>x</sub>	85.85	98.11	183.96
CO	42.93	49.06	91.99
VOM	11.80	15.87	27.67
PM/PM <sub>10</sub>	16.31	18.64	34.95
SO <sub>2</sub>	1.29	1.47	2.76

TABLE III: Summary of Current Annual Emission Limits for the Existing Plant (Tons/Year)  
 (Compilation from Construction Permits 06020041, 10070033, 10090033, 10120003, and 11040030)

Emission Unit(s)	NO <sub>x</sub>	CO	VOM	PM/PM <sub>10</sub>	SO <sub>2</sub>	Acet.	Other HAP	Total HAP	Ind. HAP
Boilers	85.85	42.93	11.80	16.31	1.29	*	*	*	*
Engine	0.52	0.03	0.01	0.01	0.06	0.001	0.002	0.003	0.001
Grain Receiving and Handling				12.79					
Grain Milling				5.26					
Fermentation (Scrubber)			46.58	0.85		5.896	0.37	6.266	0.21
Feed Dryers/Oxidizers	8.76	52.72	20.28	12.33	91.30	1.62	8.31	9.93	2.16
Feed Cooler (Baghouse)			16.60	3.75		0.61	0.55	1.16	0.30
Truck/Rail Dry Feed Loadout				1.75					
Barge Feed Loadout				3.24					
Wet Cake Transfer & Loadout			4.55	0.44					
Ethanol & Denaturant Tanks			3.19			0.001	0.09	0.091	0.09
Ethanol Loadout (Flare 1 and 2)	3.03	16.43	13.43	0.88	0.88	0.066	3.97	4.036	1.45
Bio-methanator (Flare 3)	0.26	1.22	0.17	0.44	0.44	0.002	0.03	0.032	0.002
Component Leaks			8.84			1.37	0.17	1.54	0.13
Miscellaneous Units			0.90			0.07	0.19	0.26	0.12
Subtotal	98.42	113.33	121.80	57.61	93.97	9.636	13.682	23.318	4.463
Cooling Tower				23.97					
Plant Roads/Parking Areas				65.55/12.79					
Subtotal	----	----	----	89.52/36.76	----	----	----	----	----
Totals	98.42	113.33	121.80	147.13/94.37	93.97	9.64	13.68	23.32	4.463

\* Addressed with limits for the Feed Dryer/Oxidizer

TABLE IV: Summary of Increases in Permitted Emissions of NO<sub>x</sub>, CO, VOM, PM/PM<sub>10</sub> and SO<sub>2</sub> with the Expansion Project (Tons/Year)

Emission Unit(s)	NO <sub>x</sub>	CO	VOM	PM/PM <sub>10</sub>	SO <sub>2</sub>
Boilers	98.11	49.06	15.87	18.64	1.47
Engine	----	----	----	----	----
Grain Receiving and Handling				13.04	
Grain Milling				5.26	
Fermentation (Scrubber)			46.58	0.87	
Feed Dryers/Oxidizers	8.76	52.72	20.28	12.33	91.31
Feed Cooler (Baghouse)			16.60	3.75	
Truck/Rail Dry Feed Loadout				1.69	
Barge Feed Loadout	----	----	----	----	----
Wet Cake Transfer & Loadout			4.55	0.88	
Ethanol & Denaturant Tanks			1.54		
Ethanol Loadout (Flare 1 and 2)	0.70	4.04	11.12	0.88	0.88
Bio-methanator (Flare 3)	0.26	1.22	0.17	0.44	0.44
Component Leaks			8.84		
Miscellaneous Units			0.91		
Subtotal	107.83	107.04	121.91	56.90	94.10
Cooling Tower				23.97	
Plant Roads/Parking Areas				66.40/12.96	
Subtotal	----	----	----	90.37/36.93	----
Totals	107.83	107.04	121.91	147.27/93.83	94.10

TABLE V: Summary of Increases in Permitted Emissions of Hazardous Air  
Pollutants (HAPs)  
of the Expansion Project (Tons/Year)

Emission Unit(s)	Acet.	Other HAP	Total HAP	Ind. HAP
Boilers	0.10	4.62	4.72	4.42
Engine				
Grain Receiving and Handling				
Grain Milling				
Fermentation (Scrubber)	6.027	0.38	6.407	0.21
Feed Dryers/Oxidizers	1.62	6.15	7.77	2.33
Feed Cooler (Baghouse)	0.61	0.67	1.28	0.23
Truck/Rail Dry Feed Loadout				
Barge Feed Loadout				
Wet Cake Transfer & Loadout				
Ethanol & Denaturant Tanks	0.011	0.03	0.041	0.02
Ethanol Loadout (Flare 1 and 2)	0.066	2.07	2.136	0.77
Bio-methanator (Flare 3)	0.002	0.03	0.032	0.02
Component Leaks	1.37	0.18	1.55	0.13
Cooling Tower				
Miscellaneous Units	0.07	0.19	0.26	0.19
Plant Roads/Parking Areas				
Totals	9.876	14.32	24.196	8.32

TABLE VI: Summary of Permitted Annual Emissions Increases of the Expansion Project (Tons/Year)

Emission Unit(s)	NO <sub>x</sub>	CO	VOM	PM/PM <sub>10</sub> -PM <sub>2.5</sub>	SO <sub>2</sub>	Acet.	Other HAP	Total HAPs	Ind. HAP
<b>Emissions of New Facilities</b>									
Boilers	98.11	49.06	15.87	18.64	1.47	0.10	4.62	4.72	4.42
Grain Receiving and Handling				13.04					
Grain Milling				5.26					
Fermentation (Scrubber)			46.58	0.87		6.027	0.38	6.407	0.21
Feed Dryers/Oxidizers	8.76	52.72	20.28	12.33	91.31	1.62	6.15	7.77	2.33
Feed Cooler (Baghouse)			16.60	3.75		0.61	0.67	1.28	0.23
Truck/Rail Dry Feed Loadout				1.69					
Wet Cake Transfer & Loadout			4.55	0.88					
Ethanol & Denaturant Tanks			0.58			0.001	0.02	0.021	0.01
Bio-methanator (Flare 3)	0.26	1.22	0.17	0.44	0.44	0.002	0.03	0.032	0.02
Component Leaks			8.84			1.37	0.18	1.55	0.13
Miscellaneous Units			0.91			0.07	0.19	0.26	0.12
Subtotal	107.13	103.00	109.83	56.02	93.22	9.8	12.24	22.04	-----
Cooling Tower				23.97					
Plant Roads/Parking Areas				66.40/12.96					
New Facilities Subtotal	107.13	103.00	109.83	146.39/92.95	93.22	9.8	12.24	22.04	-----
<b>Increases at Existing Facilities</b>									
Ethanol Storage tanks			0.96			0.01	0.01	0.02	0.01
Ethanol Loadout (Flare 1 and 2)									
Subtotal	0.70	4.04	11.12	0.88	0.88	0.066	2.07	2.136	0.77
Subtotal	0.70	4.04	12.08	0.88	0.88	0.076	2.08	2.156	-----
Totals	107.83	107.04	121.91	147.27/93.83	94.10	9.876	14.32	24.196	-----

ATTACHMENT D

Applicability of General Provisions of the NESHAP, 40 CFR 63 Subpart A, to  
Operation and Units That Are Subject to the MON, 40 CFR 63 Subpart FFFF  
(adapted from Table 12 to 40 CFR 63 Subpart FFFF)

Provision in 40 CFR 63 Subpart A	Subject	Applicability
63.1	Applicability	Yes
63.2	Definitions	Yes
63.3	Units and Abbreviations	Yes
63.4	Prohibited Activities	Yes
63.5	Construction/Reconstruction	Yes
63.6(a)	Applicability	Yes
63.6(b) (1) - (4)	Compliance Dates for New & Reconstructed Sources	Yes
63.6(b) (5)	Notification	Yes
63.6(b) (7)	Compliance Dates for New & Reconstructed Area Sources That Become Major	Yes
63.6(e) (1) - (2)	Operation & Maintenance	Yes
63.6(e) (3) (i), (ii), & (v)-(viii)	Startup, Shutdown & Malfunction Plan (SSMP)	Yes, except Group 2 emission points & equipment leaks not required in SSMP
63.6(e) (3) (iii) & (iv)	SSMP incorporation into Title V Permit	Yes
63.6(f) (1)	Compliance Except During SSM	Yes
63.6(f) (2) - (3)	Methods for Determining Compliance	Yes
63.6(g) (1) - (3)	Alternative Standard	Yes
63.6(h)	Opacity/Visible Emission (VE) Standards	Only for flares for which Method 22 observations are required as part of a flare compliance assessment.
63.6(i) (1) - (14)	Compliance Extension	Yes
63.6(j)	Presidential Compliance Exemption	Yes
63.7(a) (1) - (2)	Performance Test Dates	Yes, except substitute 150 days for 180 days
63.7(a) (3)	Section 114 Authority	Yes, as well as flare compliance assessments under §63.997(b) (2)
63.7(b) (1)	Notification of Performance Test	Yes
63.7(b) (2)	Notification of Rescheduling	Yes

Provision in 40 CFR 63 Subpart A	Subject	Applicability
63.7(c)	Quality Assurance/Test Plan	Yes, except test plan must be submitted with notification of performance test if control device controls batch process vents.
63.7(d)	Testing Facilities	Yes
63.7(e) (1) - (3)	Conditions for Conducting Performance Tests & Test Run Duration	Yes, except batch process vents must be tested under worst-case conditions as specified in §63.2460
63.7(f)	Alternative Test Method	Yes
63.7(g)	Performance Test Data Analysis	Yes
63.7(h)	Waiver of Tests	Yes
63.8(a) (1)	Applicability of Monitoring Requirements	Yes
63.8(a) (2)	Performance Specifications	Yes
63.8(a) (4)	Monitoring with Flares	Yes
63.8(b) (1)	Monitoring	Yes
63.8(b) (2) - (3)	Multiple Effluents and Multiple Monitoring Systems	Yes
63.8(c) (1)	Monitoring System Operation & Maintenance	Yes
63.8(c) (1) (i)	Routine and Predictable SSM	Yes
63.8(c) (1) (ii)	SSM not in SSMP	Yes
63.8(c) (1) (iii)	Compliance with Operation & Maintenance Requirements	Yes
63.8(c) (2) - (3)	Monitoring System Installation	Yes
63.8(f) (1) - (5)	Alternative Monitoring Method	Yes, except approval may be requested using pre-compliance report.
63.9(a)	Notification Requirements	Yes
63.9(b) (1) - (5)	Initial Notifications	Yes
63.9(c)	Request for Compliance Extension	Yes
63.9(d)	Notification of Special Compliance Requirements for New Source	Yes
63.9(e)	Notification of Performance Test	Yes
63.9(i)	Adjustment of Submittal Deadlines	Yes
63.9(j)	Change in Previous Information	Yes
63.10(a) & (b) (1)	Recordkeeping/Reporting	Yes



Provision in 40 CFR 63 Subpart A	Subject	Applicability
63.10(b)(2)(iii)	Records related to maintenance of air pollution control equipment	Yes
63.10(b)(2)(vii)-ix), (xii), (xiv) & (b)(3)	Records	Yes
63.10(d)(1)	General Reporting Requirements	Yes
63.10(d)(2)	Performance Test Results Report	Yes
63.10(d)(4)	Progress Reports	Yes
63.10(e)(1)	Additional CEMS Reports	Yes
63.10(f)	Waiver for Recordkeeping/Reporting	Yes
63.11	Control device requirements for flares and work practice requirements for equipment leaks	Yes
63.12	Delegation	Yes
63.13	Addresses	Yes
63.14	Incorporation by Reference	Yes
63.15	Availability of Information	Yes

Notes:

1. Subpart FFFF has no opacity or visible emission limits so the General Applicability requirements for continuous opacity monitoring systems has not been included in Table 12.
2. Requirements for continuous emissions monitoring systems (CEMS), if applicable, and Continuous Process Monitoring Systems (CPMS) are specified and referenced within Subpart FFFF so related provisions of Subpart A do not apply.

MVP:10110032:psj