217/782-2113

CONSTRUCTION PERMIT -– NSPS SOURCE

PERMITTEE

Midwest Agri-Energy, LLC
Attn: Chris Daniels
134 Locust Street
Centralia, Illinois 61801

Application No.: 06100020 I.D. No.: 121045ABQ
Applicant's Designation: ETHANOL PLANT Date Received: January 24, 2006
Subject: Ethanol Plant
Date Issued:
Location: Off County Road 800 E, South of State Route 50, Salem

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of a fuel ethanol plant with a nominal design capacity of 101.18 million gallons/year denatured ethanol, including the 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

1.1 Plant-Wide Operating Limitations

a. The amount of grain processed at this plant shall not exceed 101,800 tons/month and 1,018,100 tons/year.

b. Ethanol production from the plant, determined as denatured ethanol shipped from the loading rack, shall not exceed 10.1 million gallons/month and 101.18 million gallons/year.

c. The total feed production of the plant, expressed in terms of dry feed or dry feed equivalent, shall not exceed 28,722 tons/month and 344,664 tons/year.

d. Natural gas usage by the plant shall not exceed 368.3 million cubic feet per month 4419.4 million cubic feet per year.

e. Compliance with these annual limitations and other annual limitations 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

a. Emissions from the plant shall not exceed the limitations in Table I. 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. i. This permit is issued based on the source not being a major source for Hazardous Air Pollutants (HAP), so that this source is not subject to the requirements of Section 112(g) of the Clean Air Act.

ii. 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 Tables I for limitations for acetaldehyde emissions.

1.3 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.

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 practices.

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 units are 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 plant. Any such notification shall include the information specified in Condition 3.4.

ii. Not withstanding 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
2009 Mall Street
Collinsville, Illinois 62234

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.

Section 2: Unit Specific Conditions

2.1 Fuel Combustion Units

2.1.1 Description

Two boilers are used to generate the steam to supply the heat for the ethanol production process. Both boilers will be equipped with low-NO_x burners.

In addition, two diesel engines would be used to supply electricity to the fire water pump for emergency purposes when the plant experiences a loss of electrical service from the public utility company. These engines would routinely operate for at most a few hours per month, to confirm that the engines are fully operational and would be available if needed for emergency purposes.

2.1.2 List of Emission Units and Pollution Control Equipment

Process	Description	Emission Control Equipment
Boilers	Two Gas-Fired Boilers (143.5 mmBtu/hr, each)	Low NO_x Burners
Engines	Diesel Engine (Fire Pump Backup, 500 hp)	---

2.1.3 Applicability Provisions and Applicable Regulations

a. i. The “affected boilers” for the purpose of these unit-specific conditions, are the boilers described in Conditions 2.1.1 and 2.1.2.

ii. The “affected engines” for the purpose of these unit-specific conditions, are the engines described in Conditions 2.1.1 and 2.1.2.

b. i. The affected boilers are subject to the federal New Source Performance Standards (NSPS) for Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60, Subpart Db and related provisions in Subpart A.

The emission of nitrogen oxides (NO_x) 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.

ii. The affected engines are subject to the federal New Source Performance Standards (NSPS) for Stationary

Compression Ignition Internal Combustion Engines, 40 CFR 60, Subpart IIII and related provisions in Subpart A.

A. Each affected engine shall comply with requirements of 40 CFR 60.4205(c), which requires the following emission standards:

NMHC + NO_x	CO	PM
g/Hp-hr	g/Hp-hr	g/Hp-hr
7.8	2.6	0.4

iii. The Illinois EPA is administering NSPS in Illinois on behalf of the United States EPA under a delegation agreement.

c. The emission of carbon monoxide (CO) from each affected boiler shall not exceed 200 ppm, corrected to 50 percent excess air pursuant to 35 IAC 216.121.

d. The emission of smoke or other particulate matter from the affected units 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)]

2.1.4 Non-Applicability of Regulations of Concern

a. i. For affected boilers, there are no applicable NSPS requirements for sulfur dioxide or particulate matter pursuant to 40 CFR 60.42b or 60.43b, respectively, as the affected boilers are only firing natural gas.

ii. This permit is issued based on the affected boilers not being subject to 40 CFR 63, Subpart DDDDD, National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters based upon plant not being a major source of hazardous air pollutants, as defined in 40 CFR 63.2.

iii. This permit is issued based on the affected boilers not being subject to 35 IAC 217, Subpart U, NO_x Control and Trading Program for Specified NO_x Generating Units, because each affected boiler has a maximum design heat input that is less than 250 million Btu/hour.

b. i. This permit is issued based on the affected engines not being subject to 40 CFR 63, Subpart ZZZZ, the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Reciprocating Internal Combustion Engine, based upon the plant not being a major source of hazardous air pollutants, as defined in 40 CFR 63.2.

ii. This permit is issued based on the affected engines 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.

2.1.5 Operational and Production Limits and Work Practices

a. i. Natural gas shall be the only fuel fired in the affected boilers.

ii. The design heat input capacity of each affected boiler shall not exceed 143.5 million Btu/hour.

iii. The affected boilers shall be equipped, operated, and maintained with low NO_x combustors for natural gas firing.

b. i. Distillate fuel oil shall be the only fuel fired in the affected engines.

ii. A. The operation of each affected engine for maintenance and readiness checks shall be limited to 100 hours per year, so that the engine qualifies as an emergency for purposes of the NSPS.

B. Operation of each affected engine shall not exceed 250 hours per year, provided, however, that the Illinois EPA may authorize temporary operation of the engine in excess of 250 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. The sulfur content of the fuel fired in the affected engine shall not exceed 0.05% by weight.

c. Each 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 requirements of 40 CFR part 89, 94 and/or 1068 pursuant to 40 CFR 60.4211(a).

d. For affected engines:

i. Beginning October 1, 2007, the diesel fuel used shall comply with the requirements of 40 CFR 80.510(a).

ii. Beginning October 1, 2010, the diesel fuel used shall comply with the requirements of 40 CFR 80.510(b).

e. At all times, the Permittee shall maintain and operate each affected unit 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).

2.1.6 Emission Limitations

a. i. The low NO_x burners for each affected boiler shall be designed and operated to emit no more than 0.03 lb NO_x per million Btu.

ii. 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, the manufacturer's guaranteed data for emissions of NO_x, and CO (0.03 and 0.03 lb/mmBtu, respectively), the standard emission factor for other pollutants, and continuous operation:

Pollutant	Boiler Emissions		
	Each		Combined
	Lb/Hr	Tons/Yr	Tons/Yr
NO_x	4.305*	18.86	37.72
CO	4.305	18.86	37.72
VOM	0.79	3.46	6.91
PM	1.08	4.71	9.42
SO_2	0.09	0.38	0.76
Acetaldehyde	0.01	0.05	0.10
Individual HAP, other than acetaldehyde	0.13	0.58	1.16
Total HAPs, other than acetaldehyde	0.27	1.16	2.32

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

b. i. Emissions of the affected engines shall not exceed the following limits. These limits are based on the information provided in the permit application including the maximum capacity of the engine (500 hp), emission factors and maximum operation (250 hours per year, each).

Pollutant	Engine Emissions		
	Each		Combined
	(Lb/Hr)	(Tons/Yr)	(Tons/Yr)
NO_x	15.50	1.94	3.88
CO	3.34	0.42	0.84
VOM	1.24	0.16	0.31
PM	1.10	0.14	0.28
SO_2	1.03	0.13	0.26
Acetaldehyde	0.001	0.005	0.01
Individual HAP, other than acetaldehyde	0.001	0.005	0.01
Total HAPs, other than acetaldehyde	0.001	0.005	0.01

2.1.7 Testing Requirements

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

b. Upon written request by the Illinois EPA, the Permittee shall promptly perform emission tests for the affected engine(s) in accordance with the methods and procedures specified in 40 CFR 60.4212 for the pollutant specified in the request.

2.1.8-1 Monitoring Requirements

a. The Permittee shall install, maintain, and operate a continuous emissions monitoring system on the exhaust of each boiler for NO_x 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 of each affected boiler 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 5 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 affected boiler 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_x 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_x 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 Instrumentation Requirements

a. The Permittee shall install, operate and maintain instrumentation to record natural gas usage by each boiler, which data shall be recorded on at least on a daily basis.

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

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/hr), 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_x emissions:

i. Calendar date. [40 CFR 60.49b(g)(1)]

ii. Total natural gas usage for the affected boilers (ft^3/day). [40 CFR 60.49b(d)]

iii. The average hourly NO_x emission rates (expressed in lb/million Btu heat input) measured or if parametric monitoring is approved, records shall be kept of NO_x emissions as predicted by parametric monitoring. [40 CFR 60.49b(g)(2)]

iv. The 30-day average NO_x emission rates (lb/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_x emissions as predicted by parametric monitoring, hourly NO_x 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_x emission rates are in excess of the NO_x 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. 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).

e. The following records related to emissions for each affected boiler:

i. Documentation for the emission factor(s) and maximum hourly emission rates used by the Permittee to determine CO, PM, SO_2, 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_x 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_x, lbs/hour, 30-day average, on a daily basis.

iv. Records for each boiler any hour (or for NO_x, any day) when emissions exceeded the applicable limit.

v. Records of the NO_x, CO, PM, SO_2, 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_x), emission testing date (CO) or appropriate emission factors,

with supporting calculations. These records shall be compiled on at least a quarterly basis.

f. The Permittee shall maintain records of the following items for the affected engines:

i. A file containing:

A. Applicable emission factors for affected engines, with supporting documentation, including a copy of the manufacturer's specifications or guarantee for emissions of affected engine.

B. The maximum hourly emission rates for affected engines, with supporting calculations

ii. Records for the sulfur content of fuel used in the affected engines (percent by weight), which shall be recorded for each shipment of fuel delivered to the plant.

iii. Record of fuel usage for each affected engine, gallons/month and gallons/yr.

iv. Records of operating hours for each affected engine, (hours/month and hours/year).

v. The following log(s) or other records for each affected engine:

A. An operating log, in accordance with Condition 3.3(c).

B. An inspection, maintenance and repair log, in accordance with Condition 3.3(d).

vi. Records for monthly and annual NO_x, CO, PM, SO_2, VOM and HAP emissions for the affected engines, based on fuel consumption and other operating data, and appropriate emission factors, with supporting calculations.

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 the affected units as follows. These reports shall include the information specified in Condition 3.4.

i. For NO_x emissions from the affected boilers, excess emissions are defined as any calculated 30-day rolling average NO_x emission rate, as determined under 40 CFR 60.46b(e), that exceeds either (1) the applicable NSPS standard, or (2) the hourly NO_x 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 reported to the Illinois EPA within 5 days after the deviation.

iii. The use of fuel with sulfur content in excess of the specified amount in this permit with the length of time this fuel was used and the effect on the emissions of SO_2.

iv. The deviations addressed above and all other deviations shall be reported in the quarterly compliance report.

2.2 Grain Receiving, Handling, and Milling

2.2.1 Description

The plant includes a grain elevator at which grain is received by truck and rail car and stored in bins prior to processing. The total storage capacity of the elevator would be less than 2.5 million bushels. At the elevator, the stored grain is also screened and cleaned to remove cobs and other foreign matter and transferred to a grain surge bin and ground in a hammermill, before being conveyed to the mix tank to begin the conversion to ethanol.

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. The particulate matter emissions from operations at the grain elevator are controlled by fabric filters, also known as baghouses.

2.2.2 List of Emission Units and Pollution Control Equipment

Process	Description	Emission Control Equipment
Grain Receiving and Storage	Truck Unloading Pits (1-2)	Corn Handling Baghouse
	Rail Unloading Pit	
	Conveyors	
	Elevator/Head House/Legs	
	Grain Storage Silos (1-2)	
Grain Milling	Hammermills (1-3) and Conveying System	Hammermill Baghouses (1-3)

2.2.3 Applicability Provisions and Applicable Regulations

a. i. The “affected grain handling operations” for the purpose of these unit-specific conditions, are the grain handling operations described in Conditions 2.2.1 and 2.2.2.

ii. The “affected grain milling operations” for the purpose of these unit-specific conditions, are the grain milling operations described in Conditions 2.2.1 and 2.2.2.

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 2.2.4(b) and 2.2.5-1(a) and (b)]

c. Affected grain milling operations are subject to 35 IAC 212.321, which provides 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).

2.2.4 Non-Applicability of Regulations of Concern

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 grain handling operations being exempt from the requirements of 35 IAC 212.462, as provided by Section 9 of the Environmental Protection Act. In particular, the proposed operations, when constructed, would meet the criteria for such exemption that are set forth in Section 9 of the Act.

c. This permit is issued based on the affected operations not being subject to 40 CFR 60, Subpart DD: Standards of Performance for Grain Elevators, because the plant’s total permanent grain storage capacity will not exceed the applicability threshold of the NSPS (threshold of 2,500,000 bushels permanent storage capacity).

2.2.5-1 Operational and Control Requirements Pursuant to Regulation

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 source shall be asphalted, oiled or equivalently treated to control dust. [See Condition 2.11.3(c)]

b. If the plant or an individual affected grain handling operation ceases to meet the criteria for exemption from the requirements of 35 IAC 212.462, either all affected operations or the particular affected operation, as appropriate, shall comply with applicable requirements of 35 IAC 212.246, as set forth below. For example, the grain receiving operations shall comply with applicable requirements of 35 IAC 212.462(b) (Condition 2.2.5(e)(ii)), if a certified investigation performed by the Illinois EPA determines that such operation is causing or tending to cause air pollution. [Section 9 of the Environmental Protection Act and 35 IAC 212.462]

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; or

D. Any equivalent method, technique, system, or combination thereof adequate 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 2.2.5(f)(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.

2.2.5-2 Operational and Control 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 operations 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.

d. i. If initial emission testing of the baghouse(s) for affected operations shows filterable PM emissions greater than 0.0045 gr/scf, the Permittee shall implement a Control Improvement Program for the baghouse(s) with the objective of meeting this value.

ii. The Permittee shall submit a copy of the program to the Illinois EPA for its review and comments within 30 days after receiving test results that triggers this requirement for a Control Improvement Program.

iii. The Control Improvement Program shall be completed in six months.

iv. Following completion of the Program, the Permittee shall again test PM emissions from the baghouse(s) in 60 days, in accordance with Condition 3.3-1.

2.2.6 Emission Limitations

a. i. 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.

	Emissions		
	Each		Combined
Operation	(Lbs/Hr)	(Tons/Yr)	(Tons/Yr)
Grain Receiving and Storage (Baghouse)	1.41	6.19	---
Hammermill (Baghouses 1-3)	0.28	1.22	3.66

ii. The above limits do not account for uncaptured particulate matter emissions from the receiving and handling of grain, which shall not exceed 5.44 tons/year.

2.2.7 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.

2.2.8 Instrumentations Requirements

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

2.2.9 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 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 2.2.5-2(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 2.2.5-2(c)(ii).

f. The following records related to emissions:

i. Documentation for the PM emission factor(s) and maximum hourly emissions rates used by the Permittee to determine emissions of the various affected operation.

ii. Records of all other data used or relied upon by the Permittee to determine the PM emissions of affected operations.

iii. PM emissions from affected operations (tons/month and tons/year) based on appropriate emission factors and operating data, 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 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 reported to the Illinois EPA within 5 days of such deviation.

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

2.3 Mash Preparation and Fermentation

2.3.1 Description

In the mix tank the ground grain is mixed with fresh and/or recycled process water and sent to mash cooker and then to conversion tanks for enzymatic processing. 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 fermentation process.

The CO_2-rich gas generated by the fermentation tanks is routed through the scrubbers to recover ethanol and other organic compounds in the exhaust. The fermentation scrubber is also referred to as the “CO_2 scrubber”, as it scrubs the CO_2 stream from the fermentation tanks. The Permittee expects that the scrubbed CO_2 stream would then be sold to the CO_2 processing plant to be located adjacent to the complex, which would operate under long-term contract with the Permittee, to purchase and then process the CO_2 for sale. The feed water to the scrubber would be treated through a reverse osmosis system to improve water quality and sodium bisulfite would be injected to reduce the emissions.

The emissions from the fermentation units (pre fermentation tank, fermentation tanks, and beer well) would be controlled by the fermentation scrubber.

2.3.2 List of Emission Units and Pollution Control Equipment

Process	Description	Emission Control Equipment
Mash Preparation	Cook Water Tank	----
	Mix Tank	
	Cook Tube	
	Flash Tank	
	Conversion Tanks (1-2)	
	Mash Cooling	
	Misc. Chemical Tanks	----
	Yeast Tank	----
Fermentation	Pre-Fermenter Tank	Fermentation Scrubber
	Fermentation Tanks (1-6)	
	Beer Well	

2.3.3 Applicability Provisions and Applicable Regulations

a. The “affected units” for the purpose of these unit specific conditions are the emission units described in Conditions 2.3.1 and 2.3.2.

b. The affected units are subject to 35 IAC 212.321. [Refer to Condition 2.2.3(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.

2.3.4 Non-Applicability of Regulations of Concern

a. This permit is issued based on the affected fermentation tanks not being subject to the NSPS for VOC Emissions from SOCMI Reactor Process, 40 CFR 60 Subpart RRR, because the fermentation tanks involve biological reaction.

2.3.5 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. Maximum scrubber water outlet temperature: °F, hourly average.

C. Maximum scrubber exhaust gas outlet temperature: °F, hourly average.

ii. If the differential pressure across the fermentation 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 fermentation scrubber in accordance with written procedures developed and maintained by the Permittee.

b. i. If initial emission testing of the fermentation scrubber shows compliance with requirements for VOM by less than a 20 percent margin, the Permittee shall

implement a Control Improvement Program for the scrubber with the objective of achieving compliance by a margin of at least 20 percent.

ii. The Permittee shall submit a copy of the program to the Illinois EPA for its review and comments within 30 days after receiving test results that triggers this requirement for a Control Improvement Program.

iii. A. If the emission testing demonstrated that the compliance margin was between 10 and 20 percent, the Control Improvement Program shall be completed in one year.

B. If the emission testing demonstrated the compliance margin was less than 10 percent, the Control Improvement Program shall be completed in six months.

C. Following completion of the Control Improvement Program, the Permittee shall again test VOM emissions from the scrubber in 60 days, in accordance with Condition 3.3-1.

2.3.6 Emission Limitations

a. The VOM emissions from the affected units that are to be controlled by the fermentation scrubber, i.e., the pre-fermenter tank, fermentation tanks and beer well, shall not exceed 945 lbs/million gallons ethanol or be controlled by at least 99.4 percent weight, 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	Emissions	
	(Lbs/Hr)	(Tons/Yr)
VOM	10.39	45.51
Acetaldehyde	0.50	2.00
Individual HAP, Other Than Acetaldehyde	0.002	0.01
Total HAPs, Other Than Acetaldehyde	0.005	0.03

ii. This permit is issued based on negligible PM emissions from the affected units. For this purpose, PM emissions from these units, in total, shall not exceed 0.1 lbs/hour and 0.44 tons/year.

c. i. The VOM and HAPs emissions from miscellaneous units that are not controlled shall not exceed the following limits Compliance with this limit shall be determined based on annual basis:

Pollutant	(Tons/Yr)
VOM	1.00
Acetaldehyde	0.10
Individual HAP, other than acetaldehyde	0.10
Total HAPs, other than acetaldehyde	0.15

2.3.7 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 for the units and pollutants specified in the request.

2.3.8 Monitoring Requirements

a. 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, 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.

b. 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, measurements shall be manually recorded at least twice per shift.

2.3.9 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 2.3.5(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_2 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 and PM 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.

2.3.10 Reporting Requirements

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

i. If there is an exceedance of an applicable operating parameter requirement for the fermentation scrubber by more than 2.0 percent, as determined by the monitoring required by Condition 2.3.8, that lasts longer than three hours, the Permittee shall notify the Illinois EPA within 5 days of such deviation.

ii. The deviations addressed above and all other deviations 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 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).

2.4 Distillation

2.4.1 Description

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

Stillage from the bottom of the distillation system is routed to centrifuge decanter for de-watering. The recovered water or “thin stillage” from the centrifuges is processed in a steam driven evaporator to produce thick syrup. The wet cake from the centrifuges and the syrup solubles from the evaporator are mixed and conveyed to the feed operations to either be shipped out as wet cake or be further processed by drying.

Emissions from distillation units and certain emission units associated with feed dewatering (thin stillage tank, light evaporator, and intermediate stillage tanks) would be controlled by distillation (Vent Gas) scrubber. Emissions from other emission units in feed dewatering area (whole stillage tank, centrifuge decanter, final evaporation concentrators, and syrup tanks) are controlled by the oxidizers (See condition 2.5).

2.4.2 List of Emission Units and Pollution Control Equipment

Process	Description	Emission Control Equipment
Distillation	Beer Stripper	Vent Gas Scrubber
	Stripper Column	
	Rectifier Column	
	Molecular Sieves	
Solid Separation and Evaporation	Whole Stillage Tank	Oxidizers (See Condition 2.5)
	Centrifuge Decanter	
	Thin Stillage Tank	Vent Gas Scrubber
	Light Evaporator	
	Intermediate Stillage Tank	
	Final Evaporation Concentrators	Oxidizers (See Condition 2.5)
	Syrup Tank	

2.4.3 Applicability Provisions and Applicable Regulations

a. The “affected units” for the purpose of these unit specific conditions are the emission units described in Conditions 2.4.1 and 2.4.2.

b. The affected units are subject to 35 IAC 212.321. [Refer to Condition 2.2.3(c)]

c. The affected units are subject to 35 IAC 215.301. [Refer to Condition 2.3.3(c)]

2.4.4 Non-Applicability of Regulations of Concern

a. This permit is issued based on the distillation operation 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 does not address the applicability of 35 IAC 215.301 for the affected units that are controlled by the vent gas scrubber or oxidizers because the organic material emissions of the processes are required to be controlled by greater than 85 percent, such that organic material emissions are less than 8.0 lbs/hour.

2.4.5 Operational and Production Limits and Work Practices

a. i. The key operating parameters of the vent gas 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. Maximum scrubber water outlet temperature: °F, hourly average.

C. Maximum scrubber exhaust gas outlet temperature: °F, hourly average.

ii. If the differential pressure across the vent gas 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 vent gas scrubber in accordance with written procedures developed and maintained by the Permittee.

b. i. If initial emission testing of the vent gas scrubber shows compliance with requirements for VOM by less than a 20 percent margin, the Permittee shall implement a Control Improvement Program for the scrubber with the objective of achieving compliance by a margin of at least 20 percent.

ii. The Permittee shall submit a copy of the program to the Illinois EPA for its review and comments within 30 days after receiving test results that triggers this requirement for a Control Improvement Program.

iii. A. If the emission testing demonstrated that the compliance margin was between 10 and 20 percent, the Control Improvement Program shall be completed in one year.

B. If the emission testing demonstrated the compliance margin was less than 10 percent, the Control Improvement Program shall be completed in six months.

C. Following completion of the Control Improvement Program, the Permittee shall again test VOM emissions from the scrubber in 60 days, in accordance with Condition 3.3-1.

2.4.6 Emission Limitations

a. The VOM emissions from the affected units that are to be controlled by the vent gas scrubber shall not exceed 62 lbs/million gallons ethanol or be controlled by at least 99.67 percent weight, 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 vent gas scrubber shall not exceed the following limits:

Pollutant	Emissions	
	(Lbs/Hr)	(Tons/Yr)
VOM	0.68	2.96
Acetaldehyde	0.20	1.00
Individual HAP, Other Than Acetaldehyde	0.002	0.01
Total HAPs, Other Than Acetaldehyde	0.022	0.03

ii. This permit is issued based on negligible PM emissions from the affected units. For this purpose,

PM emissions from these units, in total, shall not exceed 0.1 lbs/hour and 0.44 tons/year.

2.4.7 Testing Requirements

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

2.4.8 Monitoring and Instrumentation Requirements

a. The Permittee shall equip the vent gas scrubber with continuous monitoring devices for the scrubber water flow rate, scrubbant discharge temperature at the bottom of the scrubber, 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.

b. 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, measurements shall be manually recorded at least twice per shift.

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 for distillation process when operating normally, hourly average, with supporting calculations and documentation:

A. Ethanol content of beer in the beer well.

B. Feed rate to beer column.

C. Feed rate to molecular sieve.

D. Condenser cooling water temperature (°F).

ii. The values of the key operating parameters and range of pressure drop for the vent gas 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 vent gas 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 the affected units and the vent gas 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 operation or condition of affected units 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 distillation process that contributes to SO_2 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 and PM emissions from the affected units that are to be controlled by the vent gas scrubber (tons/month and 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 operating parameter requirement for the vent gas 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 notify the Illinois EPA within 5 days of such deviation.

ii. The deviations addressed above and all other deviations 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 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 Feed Drying Operations

2.5.1 Description

Two natural gas fired dryers would be used to produce dry feed from wet cake. These dryers would have the capacity to convert all wet cake produced at the facility into dry feed. Each dryer would be equipped with cyclones/multi-clones to minimize carry of PM with the exhaust. Each dryer would also be equipped with natural gas-fired regenerative thermal oxidizer (oxidizers) (with nominal rated burner capacity of 12 million Btu/hour) for controlling emissions of CO, VOM, HAP and PM from the dryers.

The oxidizers also control the emissions from certain units in the solid separation and evaporation area (whole stillage tank, centrifuge decanter, final evaporator concentrator, and syrup tank).

2.5.2 List of Emission Units and Pollution Control Equipment

Process	Description	Emission Control Equipment
Solid Separation and Evaporation	Whole Stillage Tank, Centrifuge Decanter, Final Evaporator Concentrator, and Syrup Tank	Oxidizers
Feed Drying	Two Natural Gas Fired Dryers With Integral Cyclone	

2.5.3 Applicability Provisions and Applicable Regulations

a. The “affected units” for the purpose of these unit specific conditions are the emission units described in Conditions 2.5.1 and 2.5.2.

b. The affected units are subject to 35 IAC 212.321. [Refer to Condition 2.2.3(c)]

c. The affected units are subject to 35 IAC 215.301. [Refer to Condition 2.3.3(c)]

2.5.4 Non-Applicability of Regulations of Concern

a. For the affected units that are controlled by the oxidizers, 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.

2.5.5 Operational and Production Limits and Work Practices

a. i. Natural gas shall be the only fuel fired in the dryers.

ii. The rated heat input of each dryer shall not exceed 82.6 million Btus/hour.

iii. Each dryer shall be equipped, operated, and maintained with low NO_x burner technology.

b. i. Natural gas shall be the only fuel fired in the oxidizers.

ii. The rated heat input of each oxidizer shall not exceed 12 million Btus/hour.

iii. The total usage of natural gas in each oxidizer shall not exceed 17.8 million cubic feet per month and 214.3 million cubic feet per year.

iv. Each oxidizer systems shall be equipped, operated, and maintained with low NO_x burner technology.

c. The cyclones for the dryers and the oxidizer systems 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 dryer/cyclone, such that control of emissions is not significantly degraded by the operating rate of the dryer/cyclone, as related to the control of PM provided by the cyclones.

d. i. During operation of the affected dryer/cyclone, the key operating parameters shall be maintained at levels that are consistent with levels at which emission testing demonstrated compliance with applicable requirements, including the following:

A. Maximum temperature at inlet of affected dryer: °F.

B. Minimum Pressure drop across the cyclones: inches H_2O.

ii. During periods when feed is present in dryer or emissions from other units are vented to the oxidizer(s), the minimum oxidizer combustion chamber temperature shall be maintained at the manufacturer's recommended temperature or a temperature that is consistent with the temperature at which emission testing demonstrated compliance with applicable requirements. Notwithstanding the above, during

shutdown of dryers and other units served by the oxidizer(s), 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(s) and associated units.

iii. The combustion chamber of each 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 dryer or venting other units to oxidizer.

iv. Notwithstanding the above, for the purpose of evaluation of the oxidizers and further emission testing, the Permittee may operate the oxidizers at different operating parameters in accordance with a detailed plan describing the evaluation and testing program submitted to and approved by the Illinois EPA.

e. i. When feed is present in the affected dryer, the dryer shall be vented to the bypass stack for the oxidizers only as necessary for operating safety, e.g., purge and reignition of the dryer/oxidizer system in the event of a burner flameout or orderly shutdown of the dryer.

ii. Other units controlled by the oxidizers shall be vented either to the oxidizers or to their existing control equipment and stacks.

f. 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 system.

g. i. If initial emission testing of either feed dryer and associated oxidizer shows compliance with requirements for VOM emission by less than 20 percent of the permitted VOM emissions, the Permittee shall implement a Control Improvement Program for the affected dryer and oxidizer system with the objective

of achieving compliance by a margin of at least 20 percent.

ii. The Permittee shall submit a copy of the Control Improvement Program to the Illinois EPA for its review and comments within 30 days after receiving test results that trigger this requirement for a Control Improvement Program.

iii. A. If the emission testing demonstrated that the compliance margin was between 10 and 20 percent, the Control Improvement Program shall be completed in one year.

B. If the emission testing demonstrated the compliance margin was less than 10 percent, the Control Improvement Program shall be completed in six months.

C. Following completion of the Control Improvement Program, the Permittee shall again test VOM emissions from the affected unit within 60 days or such later date agreed to by the Illinois EPA in accordance with Condition 3.3-1.

2.5.6 Emission Limitations

a. i. The VOM emissions from the affected units controlled by each oxidizer shall be controlled by at least 99 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 shall be controlled by at least 98 weight percent or to a concentration of no more than 100 ppmv, whichever is less stringent.

b. i. Emissions of affected units controlled by each oxidizer shall not exceed the following limits:

	Each Oxidizer		Combined
Pollutant	(Lbs/Hr)	(Tons/Yr)	(Tons/Yr)
NO_x	3.77	16.50	33.00
CO	1.14	5.00	10.00
VOM	2.27	9.95	19.90
PM/PM_{10}	4.59	20.10	40.20
SO_2	0.057	0.25	0.50
Acetaldehyde	0.304	1.33	2.65
Individual HAP, Other Than Acetaldehyde	0.007	0.03	0.06
Total HAPs,	0.011	0.05	0.10

Other Than Acetaldehyde			

2.5.7 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.

2.5.8 Monitoring Requirements

a. The Permittee shall install, operate, and maintain the following monitoring devices for affected units, which shall be operated at all times that the affected 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.

i. Inlet temperature and outlet temperature of the dryers.

ii. Differential pressure (pressure drop) across the cyclones.

b. The Permittee shall equip each oxidizer with a continuous monitoring device for combustion chamber temperature, which shall be operated at all times that the oxidizer system is in use and maintained within an accuracy of ±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. i. These devices shall be installed, operated, maintained and calibrated in accordance with good air pollution control practice for reliable operation and accurate data. The Permittee shall maintain logs for the maintenance and repair of these devices.

ii. The temperature monitor shall be maintained within an accuracy of 1 percent.

2.5.8-2 Instrumentation Requirements

a. i. The Permittee shall install, operate and maintain instrumentation to record total natural gas usage by the oxidizers, which data shall be recorded on at least a monthly basis.

ii. The Permittee shall install, operate and maintain instrumentation to record total natural gas usage by the dryers, which data shall be recorded on at least a monthly basis.

2.5.9 Recordkeeping Requirements

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

a. A file containing:

i. Design information for the dryers and oxidizers, with supporting documentation:

A. The design heat input capacity of each dryer.

B. Moisture removal capacity of each dryer, lbs water/hour.

C. The design heat input capacity of each oxidizer.

ii. The values of the operating parameters for the feed dryers and oxidizers within which equipment will be operated, as required by Condition 2.5.5(c) and (e), with explanation and supporting documentation.

b. Natural gas usage (scf/month and scf/year) for the dryers and oxidizers.

c. Records for feed production from the plant (tons/month and tons/year, as shipped, by type of feed, e.g., dry or wet).

d. The following logs for each affected units and associated oxidizer:

i. An operating log, in accordance with Condition 3.3(c), which shall also include:

A. For affected units controlled by an oxidizer, (including affected solid separation and evaporation 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. An inspection, maintenance and repair log, in accordance with Condition 3.3(d).

e. The following records related to emissions:

i. Documentation for the emission factor(s) and maximum hourly emission rates used by the Permittee to determine NO_x, CO, PM, SO_2, VOM and HAP emissions of the affected oxidizers.

ii. Records of all other data used or relied upon by the Permittee to determine emissions of the affected units.

iii. Records for upsets in the operation of the feed dryers and 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_x, CO, PM, SO_2, VOM, and HAP emissions from the feed dryers and other affected units controlled by each oxidizer, based on appropriate operating data for the oxidizer, emission testing data or appropriate emission factors, with supporting calculations. These records shall be compiled on at least a quarterly basis.

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

2.5.10 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 2.5.8 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. Excess opacity from the affected units that lasts more than 24 minutes (four 6-minute averaging periods) shall be reported to the Illinois EPA within 5 days of such deviation.

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).

2.5.11 Compliance Procedures

a. For VOM and CO emissions from the oxidizers, periods of excess emissions shall include any 1-hour period when the 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.

2.6 Feed Handling and Loadout Operations

2.6.1 Description

The dried feed from the dryers is conveyed to feed cooler and cooled prior to sending to feed storage area for shipping to the customers. The feed cooler exhaust would be routed through a baghouse to remove the particulate matter and then used as combustion air to the dryer burners. Dried feed is stored within an enclosure, and PM emissions from feed handling and loadout operation are controlled by a separate baghouse.

2.6.2 List of Emission Units and Pollution Control Equipment

Process	Description	Emission Control Equipment
Feed Cooling, Storage and Loadout	Feed Cooler	Baghouse and Dryers
	Feed Storage	Building
	Conveyors	Feed Baghouse
	Feed Loadout (Truck and Rail)	
	Wet Feed Storage Pad	----

2.6.3 Applicability Provisions and Applicable Regulations

a. The “affected units” for the purpose of these unit specific conditions are the emission units described in Conditions 2.6.1 and 2.6.2.

b. The affected units are subject to 35 IAC 212.321. [Refer to Condition 2.2.3(c)]

c. The affected units are subject to 35 IAC 215.301. [Refer to Condition 2.3.3(c)]

2.6.4 Nonapplicability

None

2.6.5 Operational Requirements

a. The Permittee shall operate each baghouse 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. PM emissions from feed loadout shall be controlled by partial enclosure and loadout practices to minimize loss of dust.

c. The Permittee shall operate and maintain the 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.

d. The feed cooler discharge shall be routed through a baghouse to remove particulate matter and then used as combustion air to the dryer burners. There shall be no direct discharge from the feed cooler or baghouse to the atmosphere.

e. i. If initial emission testing of a baghouse for affected feed loadout operation shows filterable PM emissions greater than 0.0045 gr/scf, the Permittee shall implement a Control Improvement Program for the baghouse with the objective of meeting this value.

ii. The Permittee shall submit a copy of the program to the Illinois EPA for its review and comments within 30 days after receiving test results that trigger this requirement for a Control Improvement Program.

iii. The Control Improvement Program shall be completed in six months.

iv. Following completion of the Program, the Permittee shall again test PM emissions from the baghouse in 60 days, in accordance with Condition 3.3-1.

2.6.6 Emission Limitations

a. i. Baghouses on affected units shall comply with an emission limit of 0.005 grain per standard cubic foot (gr/scf).

ii. PM Emission from the affected units shall not exceed the following limits. These limits are based on the information provided in the permit application.

Units	Lbs/Hr	Tons/Yr
Feed Handling and Loadout (Baghouse)	0.17	0.75

iii. The above limits do not account for uncaptured PM emissions from the dry feed storage building and dry feed loadout, which shall not exceed 0.55 tons/year.

b. i. A. Emissions of VOM from the wet cake transfer and loadout operation shall not exceed 0.17 tons/month, 1.69 tons/year and 0.22 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 2.5.6, shall be reduced by 0.22 tons.

ii. This permit is issued based on negligible PM emissions from the wet cake transfer and loadout operation. For this purpose, PM emissions shall not exceed 0.1 lbs/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 Instrumentations Requirements

a. 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 for Affected Units

The Permittee shall maintain the following records for the 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(a), if not the range recommended by the manufacturer, with explanation and supporting documentation.

c. The following logs for each affected units and associated control devices:

   i. An operating log (s), in accordance with Condition 3.3(c).

   ii. An inspection, maintenance and repair log, in accordance with Condition 3.3(d), which also specifically identify performance of the inspections required by Condition 2.6.5(c)(ii).

d. The following records related to emissions:

   i. Documentation for the emission factor(s) and maximum hourly emission rates used by the Permittee to determine PM and VOM emissions of the various affected units.

   ii. Records of all other data, not addressed above, used or relied upon by the Permittee to determine emissions of the affected units.

   iii. Records of the monthly and annual PM emissions from the affected feed load out system, with supporting calculations.

   iv. Records of the monthly and annual VOM and HAP 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. Excess opacity from the affected units that lasts more than 24 minutes (four 6-minute averaging periods) shall be

reported to the Illinois EPA within 5 days of such deviation.

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

2.7 Ethanol and Denaturant Storage Tanks

2.7.1 Description

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

2.7.2 List of Emission Equipment and Pollution Control Equipment

Process	Description	Emission Control Equipment
Storage Tanks	Two Anhydrous Ethanol Shift Tanks (180,000 Gallons, each)	Internal Floating Roof with Primary Seal
	One Off-Spec Ethanol Tank (180,000 Gallons)	Internal Floating Roof with Primary Seal
	One Denaturant Tank (60,000 Gallons)	Internal Floating Roof with Primary Seal
	Two Denatured Ethanol Tanks (1,000,000 gallons, each)	Internal Floating Roof with Primary Seal

2.7.3 Applicability Provisions

a. The “affected tanks,” for the purposes of these unit specific conditions are the storage tanks 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)]

2.7.4 Non-Applicable Regulations

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.

2.7.5 Control Requirements

Each affected tank shall be equipped with 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).

2.7.6 Emission Limitations

a. Emissions of VOM from the affected tanks shall not exceed 2.03 tons/year. Emissions from the affected tanks shall be determined based on operating information for the tanks and the USEPA's TANKS program.

b. i. The acetaldehyde emissions from affected tanks shall not exceed 0.01 tons/year.

ii. The emissions of individual HAPs, other than acetaldehyde, from the affected tanks shall not exceed 0.01 tons/year.

iii. The emissions of total HAPs, other than acetaldehyde, from the affected tanks shall not exceed 0.05 tons/year.

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 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 primary seal, 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 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 3.5.

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 notify the Illinois EPA within 5 days of such deviation.

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 and railcars for shipment. VOM emissions occur from the VOM-laden air displaced from the transport tank when material is loaded. Emissions are controlled by capturing the displaced air with a vapor collection system and ducting to the flare.

2.8.2 List of Emission Units and Pollution Control Equipment

Process	Description	Emission Control Equipment
Ethanol Loadout	Truck Loadout	Vapor Collection Systems and Flare
	Rail Loadout	

2.8.3 Applicability Provisions and Applicable Regulations

a. The “affected loading racks” for the purpose of these unit-specific conditions, are the loading racks described in Conditions 2.8.1 and 2.8.2.

2.8.4 Non-Applicability of Regulations of Concern

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. 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 and rail cars) shall be conducted using bottom filling or submerged loading.

ii. The vapor displaced from the transport tanks by ethanol loadout shall be vented to the flare systems.

b. The flare shall be designed and be operated to comply with applicable requirements of 40 CFR 60.18, including:

i. The flare shall be operated by the Permittee 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. The flare shall be operated by the Permittee 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. The 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. The flare shall be operated by the Permittee 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. The Permittee shall monitor the flare 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 and flare systems 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, 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. The amount of ethanol loaded out to trucks shall not exceed 50 million gallons per year.

2.8.6 Emission Limitations

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

i. 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.

ii. Vapor collection system for rail cars: 95 percent capture efficiency.

iii. Flare: 98 percent destruction efficiency.

b. i. The total organic compound emissions from the affected loading racks shall not exceed 0.3 pounds per 1000 gallons of material loaded to truck and railcars, respectively. These rates shall also include those emissions not captured or controlled.

ii. Emissions of VOM and HAP from the affected loading racks shall not exceed the following limits. These limits are based on the information provided in the permit application including emissions from combustions of fuel in the flare, maximum ethanol

loadout to the truck of 50million gallons per year, and nominal captured and control efficiencies as listed in Condition 2.8.6(a).

	Emission Limits	
Pollutant	(Tons/Month)	(Tons/Yr)
VOM	0.74	7.37
Acetaldehyde	0.004	0.04
Individual HAP, other than Acetaldehyde	0.001	0.01
Total HAPs, other than Acetaldehyde	0.003	0.03

iii. 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, 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 is not established because standard practice for handling of ethanol by rail 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.

c. Emissions of NO_x and CO from the flare associated with the affected loading racks shall not exceed the following limits:

	Emission Limits	
Pollutant	(Tons/Month)	(Tons/Yr)
NO_x	0.89	3.90
CO	1.49	6.54

d. This permit is issued based on minimal emissions of PM and SO_2 from the flare. For this purpose, emissions of each pollutant shall not exceed a nominal emission rate of 0.44 tons/year.

2.8.7 Testing Requirements

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

2.8.8 Monitoring 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).

   iv. Records for loadout to transport vehicles other railcars, if the Permittee elects to maintain such records as related to Condition 2.8.6(b)(ii)(B).

b. Records for each event when ethanol loadout continues when the vapor collection system or 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 the oxidizers, 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_x and HAP from the affected loading racks, with supporting calculations.

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 are direct emissions from an affected loading rack, contrary to Condition 2.8.6, 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. 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).

2.8.11 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 rack.

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.

2.9.4 Non-Applicable Regulations

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.

2.9.5 Control Requirements

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.

2.9.6 Emission Limitations

a. Emissions of VOM from the affected components shall not exceed 9.35 tons per year, total, as determined by use of appropriate USEPA methodology for estimating emissions from leaking components.

b. i. The acetaldehyde emissions from affected components shall not exceed 0.02 tons/year.

ii. The emissions of individual HAPs, other than acetaldehyde, from the affected components shall not exceed 0.01 tons/year.

iii. The emissions of total HAPs, other than acetaldehyde, from the affected components shall not exceed 0.02 tons/year.

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 Cooling Tower

2.10.1 Description

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.

2.10.2 List of Emission Units and Pollution Control Measures

Process	Description	Control Measure
Cooling Tower	Non-Contact Cooling Tower	Drift Eliminators

2.10.3 Applicable Regulations

a. The cooling tower is subject to 35 IAC 212.321. [Refer to Condition 2.2.3(c)]

2.10.4 Non-Applicability of Regulations of Concern

None

2.10.5 Operational and Production Limits and Work Practices

a. The cooling tower shall be equipped with drift eliminators with a design draft loss efficiency of at least 0.005 percent.

b. The total dissolved solids (TDS) content of water circulated in the cooling tower shall not exceed 2500 ppm, annual average.

c. i. Only non-VOC additives shall be used in the cooling tower.

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

2.10.6 Emission Limitations

Emissions of PM from the affected cooling tower shall not exceed 11.64 tons per year.

2.10.7 Testing Requirements

None

2.10.8 Sampling and Analysis Requirement

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.

2.10.9 Recordkeeping Requirements

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

a. A file containing:

i. The manufacturer’s specification 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 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 (if other than NPDES Procedures) 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 cooling tower:

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 emissions from the cooling tower (tons/month and tons/year), 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 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 notify the Illinois EPA within 5 days of such deviation.

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

2.11 Roadways and Other Sources of Fugitive Dust

2.11.1 Description

Fugitive dust/particulate matter emissions are generated by vehicle traffic on roadways and parking lots at the plant. The plant would have approximately 1.1 miles of roadways, to receive and ship materials and provide access to the facilities. Emissions of PM will be controlled by paving major roadways, which handle all the traffic coming into or leaving the plant, and by a dust control program for all roadways.

2.11.2 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

2.11.3 Applicable Regulations

a. The “affected operations” for the purpose of these unit-specific conditions are the operations described in Condition 2.11.1 and 2.11.2.

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 elevator shall be asphalted, oiled or equivalently treated to control dust pursuant to 35 IAC 212.461(b)(vi).

2.11.4 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]

2.11.5 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 minimize fugitive dust from plant roads, parking areas, and other open areas of the plant. 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 2.11.3, 2.11.5(a) and 2.11.6, 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 routinely implemented; (3) triggers for implementation of additional control, e.g., observation of extended dust plumes following passage of vehicles; and (4) the estimated effectiveness of the various control techniques in reducing PM emissions, with supporting documentation.

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 2.11.8 shall be submitted if:

I. The average silt loading on roadways, as measured pursuant to Condition 2.11.6, exceeds 0.4 grams/square meter;

II. The projected maximum total PM emissions, based on the records required by Condition 2.11.9(a)(ii) are more than 90 percent of a limit in Condition 2.11.6; or

III. Total PM emissions from the affected operations exceed the limit in Condition 2.11.8.

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.

2.11.6 Emission Limitations

Emissions of PM from the affected operations shall not exceed 10.8 tons per year, as PM, and 2.2 tons per year, as PM_{10}, as determined by use of appropriate USEPA methodology for estimating emissions of fugitive dust.

2.11.7 Testing Requirements

None

2.11.8 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. Measurements shall first be completed no later than 30 days after the date that initial emission testing of the feed dyers is performed, as required by Condition 2.6.7.

ii. Measurements shall be repeated within 30 days in the event of changes involving affected units that would act to increase silt loading (so that data that is representative of the current circumstances of the affected units has not been collected), including changes in the amount or type of traffic on affected units, changes in the standard operating practices for affected units, such as application of salt or traction material during cold weather, and changes in the operating program for affected units.

iii. 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.

2.11.9 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_{10}), 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 pursuant to Condition 2.11.8), and the effectiveness of the current fugitive dust control program (as addressed in Condition 2.11.5(b).

b. 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 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.

2.11.10 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 2.11.3(b) that lasts longer than one hour, the Permittee shall notify the Illinois EPA within 5 days of such deviation.

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. Within 180 days of initial startup of feed dryers, the Permittee shall have emissions of selected units as specified in the following table, shall be measured during conditions which are representative of maximum emissions:

	Emissions						Efficiency	
Emission Unit/Process	PM	VOM	NO_x	CO	SO_2	HAP	VOM	CO
Boilers	X	X	X	X				
Grain Receiving and Storage (Baghouse)	X							
Hammermilling (Baghouses)	X							
Fermentation (Scrubber)	X	X				X	X	
Distillation (Scrubber)	X	X						
Oxidizer	X	X	X	X	X**	X	X	X*
Oxidizer	X	X	X	X	X**	X	X	X*
Feed Loadout (Baghouse)	X							

* Efficiency testing need not be performed if the Permittee is demonstrating compliance based on the concentration of CO in the exhaust.

** Emissions testing of the oxidizers shall be conducted on one oxidizer, either chosen at random or as selected by the Illinois EPA.

ii. 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. 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[a] or 202[b]
Sulfur Dioxide	USEPA Methods 6, 6a, 6b, or 6c
Nitrogen Oxides	USEPA Methods 7, 7e, or 19
Opacity	USEPA Method 9[c]
Carbon Monoxide	USEPA Method 10
Volatile Organic Material	USEPA Methods 18 and 25/25[a,d]
Hazardous Air Pollutants	USEPA Method 18[d,e]

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. i. 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:

A. The person(s) who will be performing sampling and analysis and their experience with similar tests.

B. 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.

C. The specific determinations of emissions and operation that is intended to be made, including sampling and monitoring locations.

D. The test method(s) that will be used, with the specific analysis method, if the method can be used with different analysis methods.

ii. 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. 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 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 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.

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

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

ECB:MVP:

cc: Region 3

ATTACHMENT A

Listing of Identified Emission Units and Process Equipment

Operation	Emission Unit/Process Equipment	Emission Control Equipment
Boilers	Two Gas-Fired Boilers (143.5 mmBtu/hr, each)	Low NO_x Burners
Engines	Diesel Engine (Fire Pump Backup, 500 hp)	----
Grain Receiving and Storage	Truck Unloading Pits (1-2)	Corn Handling Baghouse
	Rail Unloading Pit	
	Conveyors	
	Elevator/Head House/Legs	
	Grain Storage Silos (1-2)	
Grain Milling	Hammermills (1-3) and Conveying System	Hammermill Baghouses (1-3)
Mash Preparation	Cook Water Tank	----
	Mix Tank	
	Cook Tube	
	Flash Tank	
	Conversion Tanks (1-2)	
	Mash Cooling	
	Misc. Chemical Tanks	---
	Yeast Tank	Fermentation Scrubber
Fermentation	Pre-Fermenter Tank	
	Fermenters (1-6)	
	Beer Well	
Distillation	Beer Stripper	Vent Gas Scrubber
	Stripper Column	
	Rectifier Column	
	Molecular Sieves	
Solid Separation and Evaporation	Whole Stillage Tank	Oxidizers
	Centrifuge Decanter	
	Thin Stillage Tank	Vent Gas Scrubber
	Light Evaporator	
	Intermediate Stillage Tank	
	Final Evaporation Concentrators	Oxidizers
	Syrup Tank	
Feed Drying	Two Natural Gas Fired Dryers With Integral Cyclone	Oxidizers
Feed Cooling, Storage and Loadout	Feed Coolers	Baghouse and Dryers
	Feed Storage	Building
	Conveyors	Feed Baghouse
	Feed Loadout (Truck and Rail)	
	Wet Feed Storage Pad	----

Operation	Emission Unit/Process Equipment	Emission Control Equipment
Storage Tanks	Two Anhydrous Ethanol Shift Tanks (180,000 Gallons, each)	Internal Floating Roof with Primary Seal
	One Off-Spec Ethanol Tank (180,000 Gallons)	Internal Floating Roof with Primary Seal
	One Denaturant Tank (60,000 Gallons)	Internal Floating Roof with Primary Seal
	Two Denatured Ethanol Tanks (1,000,000 gallons, each)	Internal Floating Roof with Primary Seal
Ethanol Loadout	Truck Loadout	Vapor Collection Systems and Flare
	Rail Loadout	
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
Cooling Tower	Non-Contact Cooling Tower	Drift Eliminators
Fugitive Dust	Plant Roads and Parking Lots and Vehicle Traffic	Paving and Sweeping

TABLE I

Annual Emission Limitations (Tons/Year)

Emission Unit(s)	NO_x	CO	VOM	PM/PM_{10}	SO_2	Acet.	Other HAPs	Total HAPs	Ind. HAP
Boilers (1-2)	37.72	37.72	6.91	9.42	0.76	0.10	2.32	2.42	1.16
Engines	3.88	0.84	0.31	0.28	0.26	0.01	0.01	0.02	0.01
Grain Receiving and Handling (Baghouses and Uncaptured)				11.63					
Grain Milling (Baghouses)				3.66					
Fermentation (Scrubber)			45.51	0.44		2.00	0.03	2.03	0.01
Distillation (Scrubber)			2.96	0.44		1.00	0.03	1.03	0.01
Oxidizers (Solid Separation and Evaporation and Feed Dryers)	33.00	10.00	19.90	40.20	0.50	2.65	0.10	2.75	0.06
Dry Feed Storage and Loadout (Baghouse and Uncaptured)				1.30					
Wet Cake Transfer & Loadout[1]			1.69	0.44		0.04	0.07	0.11	0.04
Ethanol & Denaturant Tanks			2.03			0.01	0.05	0.06	0.01
Ethanol Loadout (Flare and Uncaptured)	3.90	6.54	7.37	0.44	0.44	0.04	0.03	0.07	0.01
Miscellaneous Units			1.00			0.10	0.15	0.25	0.10
Component Leaks			9.35			0.02	0.02	0.04	0.01
Cooling Tower				11.64					
Plant Roads / Parking Areas[2]				10.80					
Totals	78.50	55.10	95.34	90.25	1.96	5.93	2.74	8.76	1.38

Notes:

1. Emissions from handling and loadout of wet cake are offset the emissions by a greater reduction in emissions from the Feed Dryers, so that they do not add to total plant emissions.

2. Annual PM emissions, measured as PM_{10}, shall not exceed 2.20 tons from roads and parking areas and 81.65 tons, total from the plant.

MVP: