217/782-2113

CONSTRUCTION PERMIT - REVISED
NSPS SOURCE

PERMITTEE

Patriot Renewable Fuels, LLC
Attn: Gene A. Griffith
101 Patriot Way
Annawan, Illinois 61234

Application No.: 06010085 I.D. No.: 073802AAD
Applicant's Designation: Date Received: May 05, 2011
Subject: Fuel Ethanol Plant
Date Issued: August 24, 2011
Location: 101 Patriot Way, Annawan, Henry County

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 130 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

a. This permit authorizes construction of a new ethanol plant to produce ethanol by fermentation of corn at the plant. After addition of denaturant, the ethanol would be loaded out from the plant for use as fuel for motor vehicles.

b. i. This revised permit authorizes modification of the two existing oxidizer/boiler systems to increase the heat input capacity of the burners to 145 million Btu/hr, each. These changes would enable the plant to increase the production of ethanol as allowed by the previously revised permit issued on September 8, 2010.

ii. This permit is issued based on the changes to oxidizer/boiler systems not being a separate project from the original construction of the plant. This is because these changes will not entail physical changes to the oxidizer/boiler systems but rather be achieved through combination of increasing the speed of combustion air fan, increasing fuel pressure, and possibly change to burner setting to increase fuel flow to the burners.

c. This permit was previously revised to increase the permitted production capacity of the plant to 130 million gallons ethanol per year, from the 110 million gallons per year authorized by

the original permit and associated increases in the permitted levels of plant emissions, amounts of grain processed, feed produced, and ethanol shipped from the plant.

d. This permit is issued based on plant with the changes still not being a major source for purposes of Prevention of Significant Deterioration (PSD), 40 CFR 52.21. In particular:

i. This is because the potential emissions of each PSD pollutant other than greenhouse gases (GHG) from the plant, as limited by the permit, would be less than the major source threshold of the PSD rules, (i.e., less than 250 tons per year). (See Table 1 of Attachment B)

ii. In addition, the oxidizer/boiler systems, as a group, are not major source of emissions for purposes of PSD because the potential emissions of each PSD pollutants other than GHG, as limited by this permit, would be less than 100 tons per year. (See Condition 2.5.6(b))

Note: For purposes of PSD rules, “fossil fuel boilers” with heat input totaling more than 250 mmBtu/hr with potential to emit 100 tons per year or more of any PSD pollutant other than GHG would be considered a “major stationary source”, as defined by 40 CFR 52.21(b)(1)(i)(a). As a result of the increase in capacity of the oxidizer/boiler systems, the combined firing rate of the boilers at the plant is now greater than 250 mmBtu/hr.

iii. The increase in emissions of GHG from the increase in capacity of the oxidizer/boiler systems is less than 75,000 tons per year of carbon dioxide equivalents.

1.1 Plant-Wide Operating Limitations

a. The amount of grain processed at this plant shall not exceed 134,000 tons/month and 1,336,030 tons/year.

b. Ethanol production from the plant, determined as denatured ethanol shipped from the loading racks, shall not exceed 13.0 million gallons/month and 130 million gallons/year.

c. The total feed production of the plant, expressed in terms of dry feed or dry feed equivalent, shall not exceed 42,000 tons/month and 422,000 tons/year.

d. Natural gas usage by the plant shall not exceed 440 million cubic feet per month and 4,320 million cubic feet per year.

e. Compliance with these annual limitations and other annual limitations or limits of this permit shall be determined from a

running total of 12 months of data, unless otherwise specified in the particular condition.

1.2 Plant-wide Emission Limitations

a. Emissions from the plant shall not exceed the limitations in Table 1 of Attachment B. 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 Table 1 of Attachment B for limits 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 practice.

1.5 Records for Required Monitoring Systems and Instrumentation

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

a. For required monitoring systems, data shall be automatically recorded by a central data system, dedicated data logging system, chart recorder or other data recording device. If an electronic data logging system is used, the recorded data shall be the hourly average value of the particular parameter for each hour. During periods when the automatic recording device is out of service, data shall be recorded at least once per shift for periods when the associated emission unit(s) is in service.

b. For required instrumentation, the measured data shall be recorded manually at least once per shift, with data and time both recorded, for periods when the associated emission unit(s) are in service, provided however that if data from an instrument is recorded automatically, the above provisions for recording of data from monitoring systems shall apply.

1.6 Retention and Availability of Records

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

1.7 Plant-Wide Reporting

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

b. i. The Permittee shall submit an Annual Emission Report in accordance with 35 IAC Part 254.

ii. With its Annual Emission Report the Permittee shall report:

A. The annual operating hours of the distillation process, fermentation process and the feed drying system, and the percentage of these operating hours, if any, that these units operated out of compliance.

B. Significant deficiencies in the condition of emission units and control systems as related to emissions identified during the detailed annual inspection of equipment.

c. i. The Permittee shall notify the Illinois EPA within 30 days of any deviation from the operating 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
5415 North University
Peoria, Illinois 61614

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

1.9 Other Requirements

a. This permit does not relieve the Permittee of the responsibility to comply with all Local, State and Federal Regulations which are part of the applicable Illinois State Implementation Plan, as well as all other applicable Federal, State and Local requirements.

b. In particular, this permit does not excuse the Permittee from the obligation to undertake further actions at the source as may be needed to eliminate air pollution, including nuisance due to odors, such as raising the height of stacks, using alternative scrubbant materials, installing back-up control systems or altering process conditions in emission units.

1.10 Authorization to Operate

a. The plant may be operated pursuant to this construction permit for a period of one year from initial startup of the feed dryers to allow for equipment shakedown and required emission testing.

b. Upon successful completion of testing in accordance with Condition 3.1-1, the Permittee may continue to operate the plant under this construction permit until the Illinois EPA takes final action on the Permittee's request for CAAPP permit, provided that plant continues to operate in compliance with applicable emission standards and that the Permittee submits its complete CAAPP permit application on timely basis as required by Section 39.5(5)(x) of the Environmental Protection Act.

Section 2: Unit Specific Conditions

2.1 Engine

2.1.1 Description

One diesel-fired engine would be used to power the fire water pump, which is installed for emergency purposes if the plant experiences a loss of electrical service from the public utility company. The engine would routinely operate for less than an hour per month, to confirm that unit is fully operational and would be available if needed for emergency purposes.

2.1.2 List of Emission Units and Pollution Control Equipment

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

2.1.3 Applicability Provisions and Applicable Regulations

a. The “affected engine” for the purpose of these unit-specific conditions, is an engine described in Conditions 2.1.1 and 2.1.2.

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

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

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

c. The emission of smoke or other particulate matter from the affected engine 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. This permit is issued based on the affected engine 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.

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

2.1.5 Operational and Production Limits and Work Practices

a. i. Distillate fuel oil shall be the only fuel fired in the affected engine.

ii. A. The operation of an 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. The operation of an affected engine shall not exceed 300 hours per year, provided, however, that the Illinois EPA may authorize temporary operation of engines in excess of 100 hours per year to address extraordinary circumstances that require operation of this device, by issuance of a separate State construction permit addressing such circumstances.

iii. Sulfur content of the fuel fired in the affected engine shall not exceed 0.05% weight.

b. The affected engine shall be operated and maintained according to manufacturer’s written instructions or procedures developed by the Permittee that are approved by the manufacturer, over entire life of the engine pursuant to 40 CFR 60 4206. In addition, the Permittee shall also comply with all applicable requirement of 40 CFR part 89, 94 and/or 1068 pursuant to 40 CFR 60.4211(a).

c. For affected engine:

i. 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).

d. At all times, the Permittee shall maintain and operate the affected engine that is subject to NSPS, including

associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions, pursuant to 40 CFR 60.11(d).

2.1.6 Emission Limitations

Emissions nitrogen oxide (NO_x), CO, VOM, particulate matter (PM/PM_{10}), and sulfur dioxide (SO_2) from the affected engine shall not exceed the following limits. These limits are based on the information provided in the permit application including the maximum capacity of engine (300 hp), emission factors and maximum operation (300 hours per year).

Pollutant	Emission Rate	
	(Lbs/Hour)	(Tons/Year)
NO_x	3.45	0.52
CO	0.18	0.03
VOM	0.09	0.01
PM/PM_{10}	0.06	0.01
SO_2	0.39	0.06

2.1.7 Testing Requirements

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

2.1.8 Instrumentation Requirements

The Permittee shall install, operate, and maintain a non-resettable hour meter on an 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 engine:

a. A file containing:

i. Applicable emission factors for the affected engine, with supporting documentation, including a copy of the manufacturer’s specifications or guarantee for emissions from the engine.

ii. The maximum hourly emission rates from the affected engine, with supporting calculations

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

c. Records of fuel usage for the affected engine, gallons/month and gallons/yr;

d. Records of operating hours for the affected engine (hours/month and hours/year).

e. The following log(s) or other records for the affected engine:

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

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

f. Records for monthly and annual NO_x, CO, PM/PM_{10}, SO_2, and VOM emissions from the affected engine based on fuel consumption and other operating data, and appropriate emission factors, with supporting calculations.

2.1.10 Reporting Requirements

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

a. The use of fuel with a sulfur content in excess of the limit specified in this permit with the length of time this fuel was used and the effect on the emission of SO_2.

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

2.2 Grain Receiving, Handling, Milling, and Processing

2.2.1 Description

The plant includes a grain elevator at which corn is received by truck and rail car and stored in bins prior to processing. The total storage capacity of the elevator is approximately 1.1 million bushels. The initial processing of the corn occurs in the elevator, when the corn is screened or cleaned to remove cobs and other foreign matter. The cleaned grain is then transferred to a “day bin”, ground in a hammermill and conveyed to the mixer. In the mixer the ground grain is mixed with recycled process water from the cook water tank and sent to slurry tank for enzymatic processing.

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

2.2.2 List of Emission Units and Pollution Control Equipment

Process	Description	Emission Control Equipment
Grain Receiving and Storage System	Truck and Rail Dump Station	Baghouse 1
	Conveyors	
	Elevators	
	Storage Silos (1-2)	
	Cleaner	
	Grain Day Bin	
Grain Milling	Hammermill Feed Equipment	Baghouse 2
	Hammermills (1-4)	
	Hammermill Discharge Conveyors	

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 operation 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 operation 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 <u>applicable</u> requirements of Subpart S. [See Conditions 2.2.5-1(a) and (b)]

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

2.2.4 Non-Applicability of Regulations of Concern

a. 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 source's total permanent grain storage capacity will not exceed the applicability threshold of the NSPS (threshold of 2,500,000 bushels permanent storage capacity).

b. The affected grain handling operations are not subject to 35 IAC 212.321 pursuant to 35 IAC 212.461(a).

2.2.5-1 Control Requirements from Applicable Regulations

a. Housekeeping Practices. The Permittee shall implement and use the following housekeeping practices for affected grain handling operations, pursuant to 35 IAC 212.461(b):

i. Air pollution control devices shall be checked daily and cleaned as necessary to insure proper operation.

ii. Cleaning and Maintenance.

A. Floors shall be kept swept and cleaned from boot pit to cupola floor. Roof or bin decks and other exposed flat surfaces shall be kept clean of grain and dust that would tend to rot or become airborne.

B. Cleaning shall be handled in such a manner as not to permit dust to escape to the atmosphere.

C. The yard and surrounding open area, including but not limited to ditches and curbs, shall be cleaned to prevent the accumulation of rotting grain.

iii. Dump Pit.

A. Aspiration equipment shall be maintained and operated.

B. Dust control devices shall be maintained and operated.

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

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

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

b. Each individual affected grain handling operation shall comply with following applicable requirements of 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.

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 Control Requirements and Limits Restricting 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 a baghouse for affected operations shows filterable PM emissions greater than 0.0036 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 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 in 60 days, in accordance with Condition 3.3-1.

2.2.6 Emission Limitations

a. i. Fabric filters (baghouses) on affected units shall comply with an emission limit of 0.004 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. PM/PM_{10} emissions from affected operations shall not exceed the following limits. These limits are based on information provided in the application.

Operation	Emissions	
	(Lb/Hr)	(Ton/Yr)
Grain Receiving and Handling (Baghouse 1)	1.65	7.21
Grain Milling (Baghouse 2)	0.96	4.20
TOTAL		11.41

ii. The above limits do not account for uncaptured PM/PM_{10} emissions from the receiving and handling of grain, which shall not exceed 3.61 tons/year.

2.2.7 Testing Requirements

a. The Permittee shall perform emission tests as requested for affected operations as specified in Condition 3.1.

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 Instrumentation 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 operations.

ii. Records of all other data used or relied upon by the Permittee to determine the PM/PM_{10} emissions of the affected operations.

iii. PM/PM_{10} 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 immediately reported to the Illinois EPA.

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

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

The CO_2-rich gas generated by the fermentation tanks is routed through a scrubber to recover ethanol and other organic compounds in the exhaust. The fermentation scrubber is also referred to as the “CO_2 scrubber”, as it scrubs the CO_2 stream from the fermentation tanks. The wastewater generated from the scrubbing process is routed back to the cook water tank for reuse.

The emissions from some of the mash preparation units (mixer, slurry tanks, and yeast tanks), along with the emissions of certain units associated distillation process, would be controlled by the recuperative thermal oxidizer/boiler systems for the feed dryers, as further addressed in Condition 2.5. Other mash preparation units (liquifaction tanks, cook water tank, and chemical tanks), and the mash screen in the fermentation area which have only trace levels of emissions in their exhaust, would not be controlled.

2.3.2 List of Emission Units and Pollution Control Equipment

Process	Description	Emission Control Equipment
Mash Preparation	Mixer	Oxidizer/Boiler Systems
	Yeast Tanks (1-2)	
	Slurry Tanks (1-2)	
	Cook Water Tank	----
	Liquifaction Tanks (1-4)	----
	Flash Tank	Vents to Distillation
	Misc. Chemical Tanks	----
Fermentation	Fermenters (1-7)	Fermentation Scrubber
	Beer Well	
	Mash Screen	----

2.3.3 Applicability Provisions and Applicable Regulations

a. An “affected unit” for the purpose of these unit specific conditions is an emission unit described in Conditions 2.3.1 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/hr 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 units 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 and operate as batch processes.

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.

D. Type and minimum usage rate of scrubbant additive for enhancing control of acetaldehyde, e.g., sodium bisulfite additive: gallons/day.

ii. If the differential pressure across the scrubber is outside of the normal operating range as defined by the Permittee for a period of 4 hours, the Permittee shall inspect the scrubber within 24 hours and initiate appropriate corrective action to restore the pressure drop of the scrubber to the normal range.

iii. The Permittee shall operate and maintain the scrubber in accordance with written procedures developed and maintained by the Permittee.

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 fermentation tanks and beer well, shall be controlled by at least 98 percent by weight or to not exceed 909 lb/million gallons ethanol, based on the equivalent ethanol production rate of the fermentation process.

b. i. Emissions of VOM and HAPs from the affected units that are to be controlled by fermentation scrubber shall not exceed the following limits:

Pollutant	Limits	
	(Lb/Hr)	(Ton/Yr)
VOM	13.50	59.09
Acetaldehyde	1.50	6.58
Individual HAPs, other than acetaldehyde	0.01	0.06
Total HAPs, other than acetaldehyde	0.04	0.18

ii. This permit is issued based on negligible PM emissions from the affected process emission units. For this purpose, PM/PM_{10} emissions from these units,

in total, shall not exceed 0.16 lb/hr and 0.68 tons/year.

c. The VOM and HAPs emissions from miscellaneous affected units (e.g., liquefaction tanks, cook water tank, miscellaneous chemical tanks, and mash screen) and miscellaneous affected units used in feed dewatering (e.g., thin stillage tank, syrup tank, and whole stillage tank) that are not controlled shall not exceed the following limits. Compliance with these limits shall be determined based on a calendar year basis.

Pollutant	Limits (Tons/Yr)
VOM	0.70
Acetaldehyde	0.10
Individual HAPs, other than acetaldehyde	0.05
Total HAPs, other than acetaldehyde	0.07

Note: Emissions of affected units that are to be controlled by the oxidizer/boiler systems are addressed in Condition 2.5.6.

2.3.7 Testing Requirements

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

ii. Within one year of first operating the plant at a monthly production rate of 11 million gallons of denatured ethanol or by December 31, 2012, whichever occurs first, the Permittee shall perform emission tests for affected units controlled by fermentation scrubber in accordance with 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, instantaneous 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.

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/PM_{10} 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, formaldehyde 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 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 immediately notify the Illinois EPA.

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 vacuum distillation system, to produce approximately 190 proof ethanol (95% ethanol, 5% water). The remaining water in the ethanol is removed in a molecular sieve to produce approximately 200 proof (100% ethanol). Denaturant is added to the finished product prior to storage.

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

2.4.2 List of Emission Units and Pollution Control Equipment

Process	Description	Emission Control Equipment
Distillation	Beer Column, Stripper Column, Rectifier Column - 190 Proof Condenser	Oxidizer/Boiler systems
	Molecular Sieve - 200 Proof Condenser	

2.4.3 Applicability Provisions and Applicable Regulations

a. An “affected unit” for the purpose of these unit specific conditions is an emission unit described in Conditions 2.4.1 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 affected units not being subject to either 40 CFR 60, Subpart NNN or RRR, Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry Distillation Operations, or Reactor Processes, respectively, based upon guidance from USEPA that this regulation is not applicable to processing of material produced by biological reaction.

b. This permit does not address the applicability of 35 IAC 215.301 for the affected units that are controlled by oxidizer/boiler system because the organic material

emissions of the processes are required to be controlled by greater than 85%, such that organic material emissions are less than 8.0 lbs/hour. [Refer to Condition 2.5.6(a)]

2.4.5 Operational and Production Limits and Work Practices

The affected units that are controlled by oxidizer/boiler systems shall not operate when the oxidizer/boiler systems are not in service.

2.4.6 Emission Limitations

This permit is issued based on no emissions from the operation of the affected units other than emissions that occur through the oxidizer/boiler systems, as addressed in Condition 2.5.6(a); emissions from miscellaneous units, as addressed by Condition 2.3.6(c); or emissions attributable to leaking components, as addressed in Condition 2.8.6.

2.4.7 Testing Requirements

None

2.4.8 Monitoring and Instrumentation Requirements

None

2.4.9 Recordkeeping Requirements

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

a. A file containing the values of the following operating parameters for distillation process when operating normally, hourly average, with supporting calculations and documentation:

   i. Ethanol content of Beer in the beer well.

   ii. Feed rate to beer column.

   iii. Feed rate to molecular sieve.

   iv. Condenser cooling water temperature (ºF)

b. The following logs for the affected units:

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

   ii. Inspection, maintenance and repair log(s) in accordance with Condition 3.3(d).

c. Records for any upsets in the operation of condition of affected units that could generate additional VOM or HAP emissions, with a description of the incident, an estimate of the additional VOM and HAP emissions that occurred with supporting calculations, and background information.

2.4.10 Reporting Requirements

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

i. If there are direct emissions from affected units, contrary to Condition 2.4.6, 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).

2.5 Feed Drying and Handling Operations

2.5.1 Description

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

Four gas fired feed dryers (with a nominal heat input capacity of 45 million Btu/hour, each) will be used to produce dry feed from wet cake. These dryers will have the capacity to convert all wet cake produced at the plant into dry feed. The dryers will be equipped with cyclones to minimize carry out of PM with the exhaust. Two natural gas-fired thermal oxidizer (Oxidizer/Boiler) systems will control emissions of CO, VOM, HAP and PM from the dryers. Each oxidizer will also function as the furnace for a heat recovery steam generator or boiler, which will serve to supply process steam to the plant. The burners in the oxidizers, which will be natural gas fired will have a nominal heat input capacity of 145 million Btu/hour, each.

The hot feed from the dryers is cooled in the feed cooling drum prior to storage. The feed cooling drum is controlled by a baghouse. Most of the filtered exhaust from the cooler baghouse is then vented through the oxidizer/boiler systems, where it serves as combustion air, with the remainder of the exhaust vented directly to the atmosphere.

The evaporators and centrifuges are indirectly controlled by the thermal oxidizer/boiler system, as they vent to the centrate tank, which is directly vented to the oxidizer/boiler system.

Other feed dewatering units (whole stillage tank, syrup tank, and thin stillage tank) which have only trace levels of emissions in their exhaust, would not be controlled. Emissions from these units are addressed in Condition 2.3.6(c).

The oxidizer/boiler systems also control the emissions from certain units in the fermentation area (mixer, slurry tanks, yeast tanks and cook water tank) and the distillation area (190 proof condenser and 200 proof condenser).

2.5.2 List of Emission Units and Pollution Control Equipment

Operation	Emission Unit	Emission Control Equipment
Feed Dewatering and Drying	Whole Stillage Tank	----
	Syrup Tank	----
	Thin Stillage Tank	----

Operation	Emission Unit	Emission Control Equipment
Feed Dewatering and Drying (Continued)	Evaporators, Centrifuges (1-6) - Centrate Tank	Oxidizer/Boiler Systems*
	Feed Dryers (1-4), arranged in pairs with dryers and cyclones in series)	
Feed Cooling, Storage and Loadout	Dry Feed Conveyors and Feed Cooling Drum	Baghouse (entire exhaust) and Oxidizer/Boiler Systems (partial exhaust)
	Feed Storage	----
	Truck/Rail Loadouts	Baghouse
	Wet Cake Storage Pad	----
Boilers	Oxidizer/Boiler Systems (1 and 2)*	Low-NO_x Burner
Mash Preparation	Mixer	Oxidizer/Boiler Systems
	Slurry Tanks (1-2)	
	Yeast Tanks (1-2)	
Distillation	Beer Column, Stripper Column, Rectifier Column - 190 Proof Condenser	
	Molecular Sieve - 200 Proof Condenser	

* Each oxidizer/boiler system has status both as an emission unit, as it functions to produce steam, and as a control device, as it functions to control emissions of feed dryers and other process units.

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. Each affected oxidizer/boiler system is subject to the New Source Performance Standards (NSPS) for Industrial-Commercial-Institutional Steam Generating units, 40 CFR 60, Subpart Db and related provisions in 40 CFR 60, Subpart A General Provisions. The Illinois EPA is administering NSPS in Illinois on behalf of the United States EPA under a delegation agreement.

i. The emission of nitrogen oxides (NO_x) from each oxidizer/boiler system, including period of startup, malfunction, and breakdown shall not exceed 0.1 lb/mmBtu, pursuant to the provisions of 40 CFR 60.44b(a)(1)(i), for low heat release steam generating units and with compliance determined in

accordance with applicable compliance procedures of the NSPS.

ii. At all times, the Permittee shall maintain and operate the oxidizer/boiler systems, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions, pursuant to 40 CFR 60.11(d).

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

d. 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 oxidizer/boiler systems, there are no applicable NSPS control requirements for emissions of PM or SO_2, pursuant to 40 CFR 60.43b or 60.42b, respectively, as the oxidizer/boiler systems only fire natural gas.

b. For the affected units that are controlled by the oxidizer/boiler systems, 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.

c. This permit is issued based on the oxidizer/boiler systems not being subject to NSPS or state emission standards for steam generating units with a heat input capacity of 250 million Btu/hour or more because the capacity of each oxidizer/boiler system, excluding the feed dryers, is below this rate.

Note: Even if the capacity of the dryers was included, the total heat input capacity of each system would be less than 250 mmBtu/hour (145 + 45 + 45 = 235, <250).

2.5.5-1 Operational Limits and Work Practices for the Feed Dryers and Oxidizer/Boiler Systems

a. i. A. Natural gas and biogas from the bio-methanator shall be the only fuel fired in the feed dryers.

B. Natural gas shall be the only fuel fired in the oxidizer/boiler systems.

ii. A. The rated heat input of each feed dryers shall not exceed 45 million Btu/hour.

B. The rated heat input of the burners in each oxidizer/boiler system shall not exceed 145 million Btu/hour.

iii. The feed dryers and oxidizer/boiler systems shall be equipped, operated, and maintained with low NO_x burner technology.

b. The cyclone for the feed dryers shall be designed so as to be able to be operated to maintain effective control of emissions across the full range of operation of the dryers, such that control of emissions is not significantly degraded by the operating rate of the dryers, as related to the control of PM provided by the cyclones, or the steam demands of the plant as related to the firing rate of the oxidizer/boiler systems and the control provided for VOM and CO.

c. i. During operation of the feed dryers, the maximum temperature at the inlet of each feed dryer shall be maintained at levels that are consistent with levels at which emission testing demonstrated compliance with applicable requirements for PM emissions.

ii. During periods when feed is present in the dryers or emissions from other units are vented to the oxidizer/boiler systems, the minimum combustion chamber temperature of each oxidizer/boiler system shall be maintained at a temperature that is consistent with the temperature at the manufacturer’s recommended temperature or at which emission testing demonstrated compliance with applicable requirements.

iii. The combustion chamber of each oxidizer/boiler system shall be preheated to the manufacturer’s recommended temperature or a temperature that is consistent with the most recent emission test in which compliance was demonstrated, prior to sending the wet cake to the feed dryers or venting other units to the oxidizer/boiler systems.

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

d. The Permittee shall operate and maintain the feed dryers and associated oxidizer/boiler 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.

e. i. If additional emission testing of either feed dryer system and associated oxidizer/boiler system shows compliance with requirements for NO_x, CO, or VOM emission by less than 20 percent of the permitted emissions, the Permittee shall implement a Control Improvement Program for the dryer-oxidizer/boiler system(s) 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 in accordance with Condition 3.3-1.

2.5.5-2 Operational Requirements for Other Affected Units and Baghouses

a. The Permittee shall operate the baghouses for the affected units with a pressure drop that is within a range that is consistent with manufacturer's recommended levels or that during emission testing that demonstrated compliance with applicable requirements.

b. 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 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. i. If initial emission testing of a baghouse for affected units shows filterable PM emissions greater than 0.0036 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.

2.5.5-3 Additional Operational Requirements for the Feed Cooling Drum

a. i. The maximum flow rate of the direct discharge to the atmosphere (cfm, hourly average) from the feed cooler shall be maintained at a level that is consistent with the level at which emissions testing demonstrated compliance with applicable limits for VOM and PM

ii. For this purpose, if emissions testing demonstrates compliance with both VOM and PM limits by a margin

greater than 20 percent, the maximum flow rate of this discharge shall not exceed a value calculated as the product of the measured flow rate during testing and the ratio of 80 percent the applicable limit and the measured emissions for VOM or PM, whichever pollutant is more constraining

2.5.6 Emission Limitations

a. i. The VOM emissions from the affected units controlled by the oxidizer/boiler systems shall be controlled by at least 98 weight percent or to a concentration of no more than 10 ppmv, whichever is less stringent.

ii. The CO emissions from the affected units controlled by the oxidizer/boiler systems shall be controlled by at least 90 weight percent or to a concentration of no more than 100 ppmv, whichever is less stringent.

iii. Compliance with the above control efficiency requirements shall be determined from the “uncontrolled” emissions entering the oxidizer/boiler system and the emissions from the system, without consideration of any uncontrolled emissions introduced to the system with combustions air.

b. Emissions of affected processes controlled by oxidizer/boiler systems shall not exceed the following limits:

Pollutant	Each Oxidizer/Boiler		Combined
	(lb/hr)	(tons/year)	(tons/year)
NO_x	17.12*	75.00	150.00
CO	13.44	58.86	117.73
VOM	3.61	15.82	31.63
PM/PM_{10}	4.09	17.93	35.85
SO_2	10.98	48.07	96.13
Acetaldehyde	0.18	0.79	1.58
Individual HAP, other than Acetaldehyde	0.42	1.86	3.71
Total HAP, other than Acetaldehyde	0.79	3.48	6.96

* Compliance with this limit shall be determined on a 30-day rolling average, using the methodology of the NSPS.

Note: Approximately 38 percent of the NO_x emissions of the oxidizer/boiler systems are attributable to the dryers that discharge through the oxidizer/boiler systems. [(4x45) / (4x45) + (2x145) = 38.3 percent]. The amount of

NO_x emissions attributable to the oxidizer/boiler systems themselves is 93 tons/year. [150 tons/yr x (1-0.383) = 93 tons/yr]. Conservatively assuming 38 percent of the CO emissions of the oxidizer/boiler systems are also attributable to the dryers, the amount of CO emissions attributable to the oxidizer/boiler systems is 73 tons/yr.

c. i. The fabric filter (baghouse) on the feed cooler and dry feed conveyors shall comply with emission limits of 0.004 grains per standard cubic feet (gr/scf).

ii. Emissions of VOM, HAPs and PM/PM_{10} from feed cooler and dry feed conveyors (baghouse) shall not exceed the following limits:

Pollutant	(Lbs/Hour)	(Tons/Year)
VOM	2.41	10.54
PM/PM_{10}	0.69	3.00
Acetaldehyde	0.14	0.63
Individual HAP, other than acetaldehyde	0.27	1.18
Total HAP, other than acetaldehyde	0.81	3.54

Note: This limit does not address emissions from these units that are routed to feed dryers or oxidizer/boiler systems, which are addressed in Condition 2.5.6(b).

d. i. The fabric filter (baghouse) on dry feed loadout shall comply with an emission limit of 0.004 grain per standard cubic feet (gr/scf).

ii. Emissions of PM/PM_{10} from dry feed loadout shall not exceed 0.31 lb/hour and 1.37 tons/year.

iii. The above limits do not account for uncaptured PM/PM_{10} emissions from the feed storage and feed loadout, which shall not exceed 0.04 tons/year.

e. i. A. Emissions of VOM from the wet cake transfer and loadout operation shall not exceed 0.87 tons/month, 4.0 tons/year, and 0.042 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-months period, the annual VOM emissions from the dryers and feed cooler as allowed by Conditions 1.5.6(b) and (c), shall each be reduced by 0.021 tons (0.042 tons, total)

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 lb/hour and 0.44 tons/year.

2.5.7 Testing Requirements

a. i. The Permittee shall perform emission tests for affected units as specified in Condition 3.1.1.

ii. Within one year of first operating the plant at a monthly production rate of 11 million gallons of denatured ethanol or by December 31, 2012, whichever occurs first, the Permittee shall perform emission tests for each oxidizer in accordance with 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.

2.5.8-1 Monitoring Requirements for the Dryers and Oxidizer/Boiler Systems

a. The Permittee shall install, calibrate, operate, and maintain the following monitoring devices for the feed dryers, which shall be operated at all times that the feed 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 each feed dryer.

ii. Negative air pressure in each feed dryer.

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

b. The Permittee shall equip each oxidizer/boiler system with a continuous monitoring device for combustion chamber temperature, which shall be operated at all times that the oxidizer/boiler 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 exhaust streams from certain mash preparation, distillation, and dewatering units to the oxidizer/boiler systems, 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. The Permittee shall install, calibrate, operate, and maintain a continuous emissions monitoring system on each oxidizer/boiler system for NO_x emissions. This system shall be operated during all periods of operation of the affected oxidizer/boiler system except for continuous monitoring system breakdowns and repairs. Data is to be recorded during calibration checks, and zero and span adjustments. [40 CFR 60.48b]

ii. The Permittee shall install, calibrate, operate, and maintain a CO continuous monitoring system(s) on the oxidizer/boiler system(s) 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 oxidizer/boiler systems normally comply by a margin of at least 20 percent with the CO emission limit in this permit or the Illinois EPA approves further time for the Permittee to achieve this level of performance.

iii. A. These monitoring systems shall be operated during all periods of operation of the affected oxidizer/boiler system except for continuous monitoring system maintenance, breakdowns and repairs. The Permittee shall comply with applicable requirements of the NSPS for continuous emission monitoring, including any requirements that USEPA may approve on a case-by-case basis pursuant to 40 CFR 60.13(i) to supplement or substitute for generally applicable regulatory requirements for NO_x monitoring, as might be needed to address the NO_x contained in the exhaust from the dryers that enters the system.

B. The Permittee shall maintain records for the continuous monitoring system, including recorded emission concentrations and records of maintenance, calibration, and operational activity associated with the system.

C. 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.

iv. Following the shakedown period, as provided for by 40 CFR 60.48b(g)(2) and 60.49b(c) and (j), NO_x continuous emission monitoring on the oxidizer/boiler systems 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.

v. 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.

2.5.8-2 Monitoring Requirements for the Feed Cooler

The Permittee shall install, operate, and maintain a device to monitor the flow rate (cfm) of the direct discharge to the atmosphere from the feed cooler baghouse (which is not used as combustion air for the oxidizer/boiler systems), which system shall be operated at all times that the feed cooler is in operation.

2.5.8-3 Instrumentation Requirements

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

ii. The Permittee shall install, operate, and maintain instrumentation to record natural gas usage by each pair of feed dryers, which data shall be recorded on at least monthly basis.

b. The Permittee shall install, operate, and maintain instrumentation on each baghouse for the affected units to measure pressure drop across the baghouse, which data shall be recorded on at least a daily basis.

2.5.9 Recordkeeping Requirements

a. A file containing:

i. Design information for the feed dryers and oxidizer/boiler systems, with supporting documentation:

A. The design heat input capacity of each feed dryer (million Btu/hour).

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

C. The design heat input capacity of each oxidizer/boiler system (million Btu/hour).

ii. The values of the operating parameters for the feed dryers and oxidizer/boiler systems within which equipment will be operated, as required by Condition 2.5.5-1(c) and (d), with explanation and supporting documentation.

iii. For the baghouses used to control affected units:

A. A copy of the manufacturer's specifications and recommended operating and maintenance procedures for each baghouse.

B. The range of pressure drop within which each baghouse will be operated, as required by Condition 2.5.5-2(a), if not the range recommended by the manufacturer, with explanation and supporting documentation.

iv. For the feed cooler baghouse, the value for the maximum flow rate of the direct discharge to the atmosphere (cfm, hourly average), within which the feed cooler will be operated, as required by Condition 2.5.5-3(a), with explanation and supporting documentation.

b. Records required to be kept for each operating day, pursuant to the NSPS, 40 CFR 60, Subpart Db, for each affected oxidizer/boiler system, including the following:

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

ii. Natural gas usage for the affected system (ft^3/day) [40 CFR 60.49b(d)];

iii. The average hourly NO_x emission rates (expressed in lbs/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 (lbs/million Btu heat input) calculated at the end of each operating date from the measured or if parametric monitoring is approved, records shall be kept of NO_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)]; and

xi. Any other records required in conjunction with source-specific compliance procedures for the system approved by USEPA pursuant to 40 CFR 60.13(i).

c. Calculations of the annual capacity factor of each oxidizer/boiler system, determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar quarter, per quarter [40 CFR 60.49b(d)];

d. Records for the operating hours of each affected oxidizer/boiler system (hours/month and hours/year).

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

f. Natural gas usage (scf/month and scf/year) for the feed dryers.

g. The following logs for each affected unit:

   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).

h. The following records related to emissions:

   i. Documentation for the emission factor(s) and maximum hourly emission rates used by the Permittee to determine CO, PM, SO_2, VOM and HAP emissions of the affected oxidizer/boiler systems and the various other 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, including hourly NO_x and CO emission data for the affected oxidizer/boiler systems as determined by continuous emission monitoring, if applicable.

   iii. Records for each oxidizer/boiler system of the emissions of NO_x, lbs/hour, 30-day average, on a daily basis.

   iv. Records for upsets in the operation of the feed dryers, oxidizer/boiler systems, or other affected units that could generate additional emissions, with a description of the incident, explanation, and corrective actions and any preventative measures taken, and an estimate of the additional emissions that occurred, with supporting calculations and background information.

   v. Records of the NO_x, CO, PM, SO_2, VOM, and HAP emissions from the feed dryers and other units controlled by each oxidizer/boiler system (tons/month and tons/year), based on appropriate operating data for the oxidizer/boiler systems 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.

   vi. Records of the monthly and annual PM, VOM, and HAP emissions from the affected feed cooler and conveyors, not including emissions that are vented

through the oxidizer/boiler systems, with supporting calculations.

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

viii. 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, formaldehyde and other organic HAPs emitted from the affected units addressed during emissions testing.

2.5.10 Reporting Requirements

a. The Permittee shall fulfill all applicable notification and reporting requirements of the NSPS for each affected oxidizer/boiler system 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 notifications shall include the information specified by Condition 3.4.

i. For NO_x emissions from the affected oxidizer/boiler systems, 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. If there is an exceedance of applicable requirements for the oxidizer/boiler systems, 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 that lasts more than 24 minutes (four 6-minute averaging periods) shall be immediately reported to the Illinois EPA.

iii. The deviations addressed above and all other deviations 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 oxidizer/boiler systems, periods of excess emissions shall include any 1-hour period when the feed dryers are operating in which the average combustion temperature is more than 50°F below the temperature during testing that demonstrated compliance with applicable requirements. Additional provisions or revised provisions defining excess emissions may be included in subsequent permits based on actual operating data and experience.

b. Compliance with the emission limits of Condition 2.5.6 for other pollutants from the oxidizer/boiler systems and other affected units shall be based on the equipment operation, as addressed by the records required by Condition 2.5.9, and appropriate emissions factors based on emission testing of the affected units.

2.6 Ethanol and Denaturant Storage Tanks

2.6.1 Description

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

2.6.2 List of Emission Equipment and Pollution Control Equipment

Process	Description	Emission Control Equipment
Storage Tanks	Two Denatured Ethanol Tanks (1,500,000 Gallons, each)	Internal Floating Roof with Primary and Secondary Seals
	200 Proof Ethanol Tank (200,000 Gallons)	Internal Floating Roof with Primary and Secondary Seals
	190 Proof Ethanol Tank (200,000 Gallons)	Internal Floating Roof with Primary and Secondary Seals
	Gasoline Denaturant Tank (200,000 Gallons)	Internal Floating Roof with Primary and Secondary Seals
	Corrosive Inhibitor Tank (3,000 Gallons)	----

2.6.3 Applicability Provisions

a. An “affected tank,” for the purposes of these unit specific conditions is a storage tank described in Conditions 2.6.1 and 2.6.2.

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)]

2.6.4 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.

2.6.5 Control Requirements

Each affected tank shall be equipped with the following closure devices between the wall of the storage vessel and the edge of

the internal floating roof or other device complying with the NSPS [40 CFR 60.112b(a)(1)(ii)]:

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

2.6.6 Emission Limitations

Emissions of VOM from the affected tanks shall not exceed 2.83 tons/year. Emissions from the affected storage tanks shall be determined based on operating information for the tanks and the USEPA's TANKS program.

2.6.7 Operating Requirements

a. Each affected tank is limited to the storage of ethanol or denaturant.

b. Each affected tank shall be operated in compliance with the operating requirements of 40 CFR 60.112b(a)(1) and 60.113b(a), as follows:

i. The internal floating roof shall float on the liquid surface at all times, except during those intervals when the storage tank is being completely emptied and subsequently refilled and the roof rests on its leg supports. When the roof is resting on its leg supports, the process of emptying or refilling shall be continuous and shall be accomplished as rapidly as possible [40 CFR 60.112b(a)(1)(i)]

ii. Each opening in a non-contact internal floating roof except for automatic bleeder vents (vacuum breaker vents) and the rim space vents shall provide a projection below the liquid surface. [40 CFR 60.112b(a)(1)(iii)]

iii. Each opening in the internal floating roof except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains shall be equipped with a cover or lid which is maintained in a closed position at all times (i.e., no visible gaps) except when the device is in actual use. The cover or lid shall be equipped with a gasket. Covers on each access hatch and automatic gauge float well shall be bolted except when they are in use. [40 CFR 60.112b(a)(1)(iv)]

iv. Automatic bleeder vents shall be equipped with a gasket and be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports. [40 CFR 60.112b(a)(1)(v)]

v. Rim space vents shall be equipped with a gasket and be set to open only when the internal floating roof is not floating or at the manufacturer's recommended setting. [40 CFR 60.112b(a)(1)(vi)]

vi. Each penetration of the internal floating roof for the purpose of sampling shall be a sample well. The sample well shall have a slit fabric cover that covers at least 90 percent of the opening. [40 CFR 60.112b(a)(1)(vii)]

vii. Each penetration of the internal floating roof that allows for the passage of a column supporting the fixed roof shall have a flexible fabric sleeve seal or a gasketed sliding cover. [40 CFR 60.112b(a)(1)(viii)]

viii. Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover. [40 CFR 60.112b(a)(1)(ix)]

ix. A tank that is in-service shall be repaired or emptied upon identification in an inspection that the floating roof is not resting on the surface of the VOL, there is liquid accumulated on the roof, the seal is detached, or there are holes or tears in the seal fabric. These actions shall be completed within 45 days of the inspection unless an extension is granted. [40 CFR 60.113b(a)(2) and (a)(3)(ii)]

x. A tank that is empty shall be repaired prior to refilling the tank upon identification in an inspection that the floating roof has defects, the primary seal has holes, tears or other openings in the seal or seal fabric, or the secondary seal has holes, tears or other openings in the seal or seal fabric, or the gaskets no longer close off. [40 CFR 60.113b(a)(3)(ii) and (a)(4)]

2.6.8 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 2.6.10 (40 CFR 60.115b(a)(3)). Such a request for an extension must document that alternate storage capacity is unavailable and specify a schedule of actions the company will take that will assure that the control equipment will be repaired or the storage tank will be emptied as soon as possible. [40 CFR 60.113b(a)(2)]

b. As applicable for tanks equipped with both primary and secondary seals, visually inspect each affected tank as follows: [40 CFR 60.113b(a)(3)]

   i. Visually inspect the tank as specified by 40 CFR 60.113(a)(4) at least every 5 years; or

   ii. Visually inspect the tank as specified by 40 CFR 60.113(a)(2) at least once every 12 months.

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

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

2.6.9 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 2.6.8. [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 2.6.8(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 ton/year in accordance with the Condition 2.6.6 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 1 of Attachment B.

2.6.10 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 2.6.8(c) are detected during the annual visual inspection required in Condition 2.6.8, 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 2.6.8 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 immediately notify the Illinois EPA.

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

2.6.11 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.

2.7 Loading Racks

2.7.1 Description

The loading rack transfers ethanol into tank trucks or railcars for shipment. VOM emissions occur from the VOM-laden air displaced from the tank when material is loaded. Emissions are controlled by capturing the displaced air with a vapor collection system and ducting it to the flare.

2.7.2 List of Emission Units and Pollution Control Equipment

Process	Description	Control Equipment
Ethanol Loadout	Truck Loading Rack	Vapor Collection System and Flare 1
	Railcar Loading Rack	

2.7.3 Applicability Provisions and Applicable Regulations

a. An “affected loading racks” for the purpose of these unit-specific conditions, are the loading racks described in Conditions 2.7.1 and 2.7.2.

2.7.4 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 racks must be equipped and operated with vapor collection and control equipment.

2.7.5 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 system.

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 system shall be operated in accordance with good air pollution control practice to minimize emissions of VOM, 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 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 care repaired or replaced, as appropriate.

iii. Record the completion of the repair, including the nature of the repair(s) and when it was completed.

e. i. The Permittee shall operate and maintain the affected loading racks and associated control systems in accordance with written procedures developed and maintained by the Permittee. These procedures may incorporate or reference other printed procedures, e.g., those provided by the equipment supplier or the company operating the transport vehicles.

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

f. The amount of ethanol loaded out to trucks shall not exceed 13 million gallons per year, and the amount of denaturant unloaded from truck shall not exceed 5.5 million gallons per year.

2.7.6 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 (controlled) from the affected loading racks shall not exceed 0.2310 and 0.0244 pounds per 1000 gallons of material loaded to truck and railcars, respectively. This rate shall 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 13 million gallons per year, 5.5 million gallons denaturant, and nominal captured and control efficiencies as listed in Condition 2.7.6(a).

Pollutant	Emission Limits	
	(Tons/Month)	(Tons/Year)
VOM	0.64	6.40
Acetaldehyde	0.01	0.01
Individual HAP, Other Than Acetaldehyde	0.05	0.46
Total HAPs, Other Than Acetaldehyde	0.12	1.22

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:

Pollutant	Emission Limits	
	(Tons/Month)	(Tons/Year)
NO_x	0.4	3.74
CO	2.0	20.13

d. This permit is issued based on minimal emissions of PM/PM_{10} and SO_2 from the flare. For this purpose, emissions shall not exceed a nominal emission rate of 0.1 pound/hour and 0.44 tons/year.

2.7.7 Testing Requirements

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

2.7.8 Inspection Requirements

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.

2.7.9 Recordkeeping Requirements

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

a. Operating records for each day on which ethanol loadout is conducted, as follow:

i. Date and amount of ethanol loaded.

ii. Confirmation that established operating procedures were followed.

iii. Confirmation that the flare functioned properly, i.e., a flame was present and no visible emissions

were observed except as allowed by 40 CFR 60.18(c)(1).

b. Records for each event when ethanol loadout continues when 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 flare system, which lists activities that are performed, with date and responsible individual(s).

d. A file containing emission factors, developed using published USEPA emissions estimation methodology, and standard USEPA emission factors, as control systems are properly operated.

e. Monthly and annual records of the emissions of VOM, CO, NO_x and HAP from the affected loading racks, with supporting calculations. For this purpose, standard emission factors shall be used for periods when the flare operates properly, e.g., 98 percent destruction of VOM. For periods when the flare does not operate properly, specific estimates of emissions shall be made, accompanied by written justification or explanation.

2.7.10 Reporting Requirements

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

i. If there is an exceedance of applicable requirements during loadout of ethanol that lasts longer than one hour, the Permittee shall immediately notify the Illinois EPA. For this purpose, an exceedance shall be considered to continue even if operation of the

loading rack is interrupted if the exceedance condition is still present when operation is resumed.

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

2.7.11 Operational Flexibility/Anticipated Operating Scenarios

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

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

2.8 Leaking Components

2.8.1 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.

2.8.2 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

2.8.3 Applicability Provisions

a. The "affected components" are equipment components, described in Condition 2.8.1 and 2.8.2 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.

2.8.4 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.

2.8.5 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.

2.8.6 Emission Limitations

a. Emissions of VOM from the affected components shall not exceed 6.04 tons per year, total, as determined by use of appropriate USEPA methodology for estimating emissions from leaking components.

2.8.7 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).

2.8.8 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.

2.8.9 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.

2.8.10 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.

2.8.11 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.

2.9 Bio-Methanator

2.9.1 Description

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

2.9.2 List of Emission Units and Pollution Control Measures

Emission Unit Description	Emission Control Equipment
Bio-methanator	Flare 2

2.9.3 Applicable Regulations

The bio-methanator is subject to 35 IAC 212.321. (Refer to Condition 2.4.2(b).)

2.9.4 Non-Applicability of Regulations of Concern

None

2.9.5 Operational and Production Limits and Work Practices

a. The exhaust from the bio-methanator shall be vented to the flare if bio-gas generated is not used as fuel at the plant.

2.9.6 Emission Limitations

a. Emissions from the bio-methanator, excluding emissions associated with use of bio-gas in the dryer, shall each not exceed the following limits:

Pollutant	Emission Factor	Emission Rate	
	(Lb/million Btu)	(Lb/hr)	(Tons/yr)
NO_x	0.068	0.44	1.95
CO	0.370	2.37	10.41
VOM	0.052	0.33	1.46

These limits are based on the information provided in the permit application including standard emission factors and annual operation of the flare for disposal of bio-gas with 100 percent capacity factor.

b. This permit is issued based on minimal emissions of PM and SO_2 from the flare. For this purpose, emissions shall not

exceed a nominal emission rate of 0.1 pound/hour and 0.44 tons/year.

2.9.7 Testing Requirements

None

2.9.8 Monitoring Requirement

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

2.9.9 Recordkeeping Requirements

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

a. A file containing estimates of the maximum and typical rates of bio-gas generation, (cubic feet and million Btu/hr) and the typical heat content of the bio-gas (BTU/scf), with supporting data and calculations.

b. A file containing an estimate of the typical rate of gas consumed by the pilot flame for the flare, if any.

c. Records for the amount of bio-gas generated by the bio-methanator (scf/month and scf/year), with supporting calculations.

d. The following records related to flaring of bio-gas:

i. Each period when bio-gas is flared, with date, duration and explanation.

ii. The actual amount of bio-gas directed to the flare during these periods, if the Permittee estimates emissions from the bio-methanator for only bio-gas actually directed to the flare (rather than assuming that all bio-gas that is generated is flared), with supporting calculations.

iii. Each period when the flare operated without a flame present in the flare, including explanation and the amount of bio-gas exhausted through the flare during such period, with supporting calculations.

e. Records on at least an annual basis of the VOM, CO and NO_x emissions from the bio-methanator, with supporting documentation and calculations.

2.9.10 Reporting Requirements

a. The Permittee shall promptly notify the Illinois EPA of any deviations from the requirements of this permit for the bio-methanator as follows. These notifications shall include the information specified by Condition 3.5.

   i. If the bio-methanator is damaged so there is a deviation from an applicable requirements that is not repaired or otherwise corrected within 12 hours, the Permittee shall then immediately notify the Illinois EPA.

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

2.10 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 (4 cells)	Drift Eliminators

2.10.3 Applicable Regulations

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

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 0.001 percent.

b. The total dissolved solids (TDS) content of water circulated in the cooling tower shall not exceed 5,000 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/PM_{10} from the cooling tower shall not exceed 5.48 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 specifications or design data for the cooling tower, including water circulation rate (gallons/hour) and design loss rate of the drift eliminators (percent), with supporting documentation.

ii. The maximum PM emissions from the cooling tower (tons/year), based on maximum operating rate of the cooling tower and factors that with greatest loss of PM as emissions, with supporting calculations.

b. Records for the actions used to routinely verify the solids contents of the water circulating in the cooling tower, such as sampling and analysis in accordance with the NPDES permit, periodic grab sampling and analysis, conductivity measurements, etc., including:

i. If routine verification will not be conducted pursuant to the NPDES permit, a written description of the procedures, with explanation of how they act to address compliance.

ii. Records for implementation of the procedure, including measured value(s) of relevant parameter(s).

c. Records for the amount of water circulated in the cooling tower, gallons/month, with supporting calculations.

d. The following logs for the affected units:

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

ii. Inspection, maintenance and repair log(s) in accordance with Condition 3.3(d).

e. Records for the PM/PM_{10} emissions from the cooling tower (ton/month and ton/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 then immediately notify the Illinois EPA.

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

2.11 Roadways And Other Sources Of Fugitive Dust

2.11.1 Description

Fugitive dust (PM emissions) are generated by vehicle traffic on roadways and parking lots at the plant. The plant would have approximately 1 mile 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 grain receiving and storage facility shall be asphalted, oiled or equivalently treated to control dust pursuant to 35 IAC 212.461(b)(5).

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 be 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 2.5 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 143.37 tons per year, as PM, and 27.97 tons/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 2.5.7.

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 the treatment vehicle or equipment; and a description of any unusual observations or events related to control of dust that occurring during treatment.

ii. A log recording incidents when control measures were not carried out as scheduled or were not fully implemented and incidents when additional control measures were carried out, with description of each such incident and explanation. This log shall address any adjustments to the scheduling of control measures made by the Permittee due to weather conditions that either acted to reduce or increase the level of potential dust, such as precipitation or extended periods of dry weather.

c. Records of the amount of different material received or shipped from the plant by rail (gallons or tons, by type of material).

d. Records on at least an annual basis of the PM and PM_{10} 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 immediately notify the Illinois EPA.

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

b. With the Quarterly Emission Report, the Permittee shall submit the following information to the Illinois EPA:

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

Section 3: General Conditions

3.1-1 Emission Testing

a. i. 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
Grain Receiving and Handling	X							
Milling Baghouse	X							
Fermentation Scrubber	X	X				X	X	
Oxidizer/Boiler 1	X	X	X	X	X*	X	X	X**
Oxidizer/Boiler 2	X	X	X	X	X*	X	X	X**
DDGS Loading Baghouse	X							
Feed Cooling Baghouse	X	X				X		

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

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

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]
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 25/25A[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 ºF, such as grain handling operations, but not including oxidizer/boiler systems, 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. Compliance shall generally be determined from the average of valid test runs, subject to the limitations and conditions contained in 35 IAC Part 283.

ii. For purposes of determining compliance of each oxidizer/boiler system with the NO_x standard of the NSPS and the NO_x limits of Condition 2.5.6(b):

A. The emission tests for each oxidizer/boiler system shall be conducted and data collected in accordance with 40 CFR 60.8 and the test methods and procedures specified in 40 CFR 60.46(e) or the test methods and procedures approved by USEPA on case-by-case basis pursuant to 40 CFR 60.8(a), to address the NO_x contained in the exhaust stream from the feed dryers that enters the boiler.

B. NO_x emissions shall be monitored for 30 successive oxidizer/boiler system operating days and the 30-day average emission rate is used to determine compliance of each oxidizer/boiler system with the NSPS standard. The 30-day average emission rate is calculated as the average of all hourly emissions data recorded by the monitoring system during the 30-

day test period, unless USEPA approves alternative procedures to demonstrate compliance with the NSPS pursuant to 40 CFR 60.13(i).

d. i. The Permittee shall submit a written test plan shall be submitted 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).

e. 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.

f. 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

g. The Permittee shall retain copies of emission test reports shall be retained 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.

This permit is revised to allow an increase in the heat input capacity of the burners in existing oxidizer/boiler systems.

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

Edwin C. Bakowski, P.E. Date Signed: _____
Manager, Permit Section
Division of Air Pollution Control

ECB:MVP:jws

cc: Region 2

ATTACHMENT A

Listing of Identified Emission Units and Process Equipment

Operation	Emission Unit/Process Equipment	Emission Control Equipment
Boiler	Oxidizer/Boiler Systems (1 and 2)	Low-NO_x Burner
	Feedwater Tank	----
Engine	Diesel-Fired Engine	----
Grain Receiving and Storage System	Truck and Rail Dump Station	Baghouse 1
	Conveyors	
	Elevators	
	Storage Silos (1-2)	
	Cleaner	
	Grain Day Bin	
Grain Milling	Hammermill Feed Equipment	Baghouse 2
	Hammermills (1-4)	
	Hammermill Discharge Conveyors	
Mash Preparation	Mixer	Oxidizer/Boiler Systems
	Slurry Tanks (1-2)	
	Yeast Tanks (1-2)	
	Liquifaction Tanks (1-4)	----
	Cook Water Tank	----
	Flash Tank	Vents to Distillation
	Misc. Chemical Tanks	----
Fermentation	Fermenters (1-7)	Fermentation Scrubber
	Beer Well	
	Mash Screen	----
Distillation	Beer Column, Stripper Column Rectifier Column - 190 Proof Condenser	Oxidizer/Boiler Systems
	Molecular Sieve - 200 Proof Condenser	
Feed Dewatering and Drying	Whole Stillage Tank	----
	Syrup Tank	----
	Thin Stillage Tank	----
	Evaporators, Centrifuges (1-6) - Centrate Tank	Oxidizer/Boiler Systems
	Feed Dryers (1-4), arranged in pairs with dryers and cyclones in series)	
Feed Cooling, Storage and Loadout	Dry Feed Conveyors and Feed Cooling Drum	Baghouse (entire exhaust) and Oxidizer/Boiler Systems (partial exhaust)
	Feed Storage	----
	Truck/Rail Loadouts	Baghouse
	Wet Cake Storage Pad	----

Operation	Emission Unit/Process Equipment	Emission Control Equipment
Storage Tanks	Two Denatured Ethanol Tank	Internal Floating Roof with Primary and Secondary Seals
	200 Proof Ethanol Tank	Internal Floating Roof with Primary and Secondary Seals
	190 Proof Ethanol Tank	Internal Floating Roof with Primary and Secondary Seals
	Gasoline Denaturant Tank	Internal Floating Roof with Primary and Secondary Seals
	Corrosive Inhibitor Tank	----
Ethanol Loadout	Truck Loading Rack	Flare 1
	Rail Loading Rack	
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
Bio-methanator	Bio-methanator	Flare 2
Cooling Tower	Non-Contact Cooling Tower (4 cells)	Drift Eliminators
Fugitive Dust	Plant Roads and Parking Lots and Vehicle Traffic	Paving and Sweeping

ATTACHMENT B

TABLE 1: Annual Emission Limitations (Tons/Year)

Emission Unit(s)	NO_x	CO	VOM	PM/PM_{10}	SO_2	Acet.	Total Other HAP	Total HAP	Indiv. Other HAP
Fuel Ethanol Plant									
Engine	0.52	0.03	0.01	0.01	0.06	0.001	0.002	0.003	0.001
Grain Receiving, Handling and Fugitives	---	---	---	10.82	---	---	---	---	---
Grain Milling	---	---	---	4.20	---	---	---	---	---
Fermentation (Scrubber)	---	---	59.09	0.68	---	6.58	0.18	6.76	0.06
Oxidizer/Boiler Systems (Distillation/Feed Dryers/Cooler)	150.00	117.73	31.63	35.85	96.13	1.58	6.96	8.54	3.71
Cooler Baghouse	---	---	10.54	3.00	---	0.63	3.54	4.17	1.18
Dry Feed Loadout and Fugitives	---	---	---	1.41	---	---	---	---	---
Wet Cake Transfer & Loadout[1]	---	---	4.00	0.44	---	0.40	0.60	1.00	0.40
Ethanol & Denaturant Tanks	---	---	2.83	---	---	0.01	0.39	0.40	0.12
Ethanol Loadout Rack (Flare)	3.74	20.13	6.40	0.44	0.44	0.01	1.22	1.23	0.46
Bio-methanator Flare	1.95	10.41	1.46	0.44	0.44	0.04	0.06	0.10	0.04
Component Leaks	---	---	6.04	---	---	0.85	0.12	0.97	0.13
Cooling Tower	---	---	---	5.48	---	---	---	---	---
Miscellaneous Units	---	---	0.70	---	---	0.10	0.07	0.17	0.05
Subtotal	156.21	148.30	118.70	62.33	97.07	9.801	12.542	22.343	6.15
Other									
Plant Roads/Parking Areas	---	---	---	143.37[2]	---	---	---	---	---
Totals	156.21	148.30	118.70	205.70[2]	97.07	9.801	12.542	22.343	6.15

Notes:

1. Emissions from handling and loadout of wet cake 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 27.97 tons from roads and parking areas and 90.30 tons, total from the plant.