



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

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217/785-1705

CONSTRUCTION PERMIT

PERMITTEE

Green Plains Madison, LLC
Attn: Jeremy DuMond
395 Bissell Street
Madison, Illinois 62060

Application No.: 23020028

I.D. No.: 119465AAG

Applicant's Designation:

Date Received: March 20, 2023

Subject: Ethanol Expansion Project

Date Issued: May 2, 2024

Location: 395 Bissell Street, Madison, Madison County

This Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of an ethanol expansion project, including the new emission units listed in Attachment 1, as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

PART 1: Plant and Project-Wide Conditions

1.1 Description

- a. This permit authorizes an expansion project that would increase the ethanol production capacity of this plant to 140 million gallons per year from 100 million gallons per year. This project would include construction of various new emission units as listed in Attachment 1, including a new Maximum Stillage Co-Products (MSC) System that would enable the plant to extract protein, an additional by-product, at the plant.
- b. This project would also provide for increased utilization of certain existing emission units at the plant due to the expansion project, including the grain handling operation, fermentation operation, distillation operation, feed drying and handling, storage tanks, ethanol loadout operation, and vehicle traffic on roadways.

2125 S. First Street, Champaign, IL 61820 (217) 278-5800

115 S. LaSalle Street, Suite 2203, Chicago, IL 60603

1101 Eastport Plaza Dr., Suite 100, Collinsville, IL 62234 (618) 346-5120

9511 Harrison Street, Des Plaines, IL 60016 (847) 294-4000

595 S. State Street, Elgin, IL 60123 (847) 608-3131

2309 W. Main Street, Suite 116, Marion, IL 62959 (618) 993-7200

412 SW Washington Street, Suite D, Peoria, IL 61602 (309) 671-3022

4302 N. Main Street, Rockford, IL 61103 (815) 987-7760

- c. For the purpose of this permit:
 - i. The ethanol plant with 140 million gallons per year ethanol production capacity is referred to as the "expanded plant."
 - ii. The collection of new emission units that are part of this project is referred to as the "affected units."

1.2 Operating Limits for the Expanded Plant

- a. The amount of grain processed by the expanded plant shall not exceed 134,372 tons/month and 1,343,720 tons/year.
- b. Ethanol production from the expanded plant, determined as denatured ethanol equivalent, shall not exceed 14.0 million gallons/month and 140 million gallons/year.
- c. The amount of denaturant or gasoline used for denaturing ethanol shall not exceed 274,510 gallons/month and 2,745,098 gallons/year.
- d. The total dry feed production (Dried Distillers' Grain with Solubles (DDGS)) of the expanded plant, expressed on a dry basis in terms of dry feed or dry feed equivalent, shall not exceed 31,900 tons/month and 319,000 tons/year.
- e. Natural gas usage by the expanded plant shall not exceed 543.6 million cubic feet per month and 5,436 million cubic feet per year.
- f. The total wet feed (Wet Distillers' Grain with Solubles (WDGS) or wet cake) production of the expanded plant, shall not exceed 65,000 tons/month and 650,000 tons/year.
- g. The total MSC Protein production of the expanded plant, expressed on a dry basis in terms of dry protein or dry protein equivalent, shall not exceed 9,490 tons/month and 94,900 tons/year.
- h. Compliance with the annual limitations in Conditions 1.2(a) through (g) and with other annual limitations of this permit shall be determined from a running total of 12 consecutive months of data, unless otherwise specified in the particular condition.

Note: The limits in Conditions 1.2(a) through (e) above replace the limits in Conditions 1.1(a) through (e) of Construction Permit 20080024.

1.3 Emission Standards of General Applicability

The affected units are subject to the following state emission standards of general applicability:

- a. 35 IAC 212.123(a), which provides that the emission of smoke or other particulate matter, with an opacity greater than 30 percent into the atmosphere from any emission unit, except as allowed by 35 IAC 212.123(b) or 212.124.
- b. 35 IAC 212.301 and 212.314, which provides that 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.
- c. 35 IAC 212.316(a) and (f), which provides that no person shall cause or allow fugitive particulate matter emissions to exceed an opacity of 20 percent from any emission unit located in certain areas in Illinois, including Venice Township, unless unit has been assigned a particulate matter, PM-10, or fugitive particulate matter emissions limitation elsewhere in 35 IAC 212.316 or in Part 212 Subpart R (Primary Metals and Metal Products and Machinery Manufacture) or Subpart S (Agriculture).
- d. 35 IAC 214.301, which provides that no person shall cause or allow the emissions of sulfur dioxide (SO₂) into the atmosphere from any process emission unit to exceed 2,000 ppm.

1.4 Good Air Pollution Control Practices

- a. At all times the Permittee shall, to the extent practicable, maintain and operate the affected units and associated control equipment in a manner consistent with good air pollution control practices for minimizing emissions.

1.5 Non-applicability Provisions

- a. This permit is issued based on this project not being a major project pursuant to Illinois' rules for Prevention of Significant Deterioration of Air Quality (PSD), 35 IAC Part 204. This is because the expanded plant would not be considered a major stationary source for purposes of PSD. (See Attachment 2.)
- b. This permit is issued based on this project not being a major project pursuant to Illinois' rules for Major Stationary Sources Construction and Modification (MSSCAM), 35 IAC Part 203. This is because the potential emissions of this project would not be, by itself, a new major stationary source, i.e., nitrogen oxide (NO_x) and volatile organic material (VOM) emissions associated with the project would be less than 100 tons per year for each pollutant. (See Attachments 3.)

1.6 Requirements for Existing Emissions Units Affected by this Project

- a. The uncaptured particulate matter emissions from the grain receiving, handling and storage operations shall not exceed the following limits:

Pollutant	Limits	
	Lbs/Ton	Lbs/Year
PM	0.1075	0.36
PM ₁₀	0.0334	0.11
PM _{2.5}	0.0057	0.02

Note: The above limits for grain receiving, handling and storage operations replace the limit in Condition 2.2.6(b)(ii) of Construction Permit 20080024.

- b. The VOM and HAP emissions from the units in the mash preparation area, i.e., the slurry tank, mash cooker, conversion, saccharification, mash cooler tanks, conveyor connections, centrifuge cake discharge, shall not exceed the following limits. Compliance with these limits shall be determined on a calendar year basis.

Pollutant	Limits
	Tons/Year
VOM	0.28
Acetaldehyde	0.014
Individual HAPs, other than acetaldehyde	0.014
Total HAPs, other than acetaldehyde	0.07

Note: The above limits replace the limits in Condition 2.3.6(c) of Construction Permit 20080024.

- c. i. Emissions of VOM and HAPs from the de-gas column, the beer, rectifier and stripper columns, the molecular sieves and the evaporators shall be controlled by the distillation scrubber.
- ii. The distillation scrubber shall achieve a VOM control efficiency of at least 98 percent by weight, or emissions of VOM shall not exceed 98.36 pounds/million gallons of ethanol, based on the equivalent ethanol production rate of the fermentation process.

Note: This limit replaces the limit in Condition 2.4.6(a) of Construction Permit 20080024.

- iii. Emissions of VOM and HAPs from the de-gas column, the beer, rectifier and stripper columns, the molecular Sieves and the evaporators, which are controlled by the distillation scrubber, shall not exceed the following limits:

Pollutant	Limits	
	Pounds/Hour	Tons/Year
VOM	1.54	6.75
Acetaldehyde	0.40	1.75
Individual HAP, Other Than Acetaldehyde	0.03	0.13
Total HAPs, Other Than Acetaldehyde	0.03	0.13

Note: These limits replace the limits in Condition 2.4.6(b) (i) of Construction Permit 20080024.

- iv. This permit is issued based on minimal PM₁₀/PM_{2.5} emissions from the de-gas column, the beer, rectifier and stripper columns, the molecular Sieves and the evaporators, which are controlled by the distillation scrubber. For this purpose, total emissions of each pollutant from these units not exceeding 0.09 lb/hour and 0.40 tons/year.

Note: This condition replaces Condition 2.4.6(b) (ii) of Construction Permit 20080024.

- d. Emissions of the feed dryers, combined, shall not exceed the following limits:

Pollutant	Limits	
	Lbs/Hr	Tons/Yr
NOx	14.38	62.98
CO	17.75	77.75
VOM	4.24	16.91
PM	13.68	54.55
PM ₁₀ PM _{2.5}	7.39	29.46
SO ₂	3.50	15.33
Acetaldehyde	0.40	1.60
Individual HAP, Other Than Acetaldehyde	0.40	1.60
Total HAPs, Other Than Acetaldehyde	0.70	2.79

Note: These limits replace the limits in Condition 2.5.6(a) of Construction Permit 20080024.

- e. The VOM and HAP emissions from miscellaneous uncontrolled units in the stillage processing area, i.e., whole stillage tank, intermediate thin stillage tank, thin stillage tank and process condensate tank, shall not exceed the following limits. Compliance with these limits shall be determined on a calendar year basis.

Pollutant	Limits
	Tons/Year
VOM	0.14
Acetaldehyde	0.014
Individual HAP, Other Than Acetaldehyde	0.014
Total HAPs, Other Than Acetaldehyde	0.07

Note: These limits replace the limits in Condition 2.5.6(c) of Construction Permit 20080024.

- f. Emissions of VOM and HAP from the wet cake transfer, storage and loadout operations, combined, shall not exceed the following limits. These limits are based on shipping 650,000 tons/year of wet cake.

Pollutant	Limits
	Tons/Year
VOM	2.70
Acetaldehyde	0.04
Individual HAP, Other Than Acetaldehyde	0.07
Total HAPs, Other Than Acetaldehyde	0.09

Note: These limits replace the limits in Condition 2.6.6(b) (i) of Construction Permit 20080024.

- g. i. The uncaptured particulate matter emissions from the dry feed storage operations shall not exceed the following limits:

Operation	Pollutant	Limits	
		Lbs/Ton	Lbs/Year
Dry Feed Storage	PM	0.025	0.20
	PM ₁₀	0.0063	0.05
	PM _{2.5}	0.0011	0.01

Note: These limits replace the limit in Condition 2.6.6(a) (iii) of Construction Permit 20080024.

- ii. This permit is issued based on negligible PM, PM₁₀ and PM_{2.5} emissions that are not captured from the handling/shipping of the dry feed operation, i.e., emissions of each pollutant being no more than 0.01 tons/year.
- h. Emissions of VOM and HAP from the storage tanks at the expanded plant shall not exceed the following limits. Emissions from the affected storage tanks shall be determined based on operating information for the tanks and the standard methodology for determining VOM emissions from storage tanks, as developed by USEPA or other authoritative source.

Pollutant	Limits
	Tons/Year
VOM	1.75
Acetaldehyde	0.01
Individual HAP, Other Than Acetaldehyde	0.31
Total HAPs, Other Than Acetaldehyde	0.31

Note: This limit replaces the limit in Conditions 2.7.6(a) and (b) of Construction Permit 20080024.

- i.
 - i. Emissions of VOM from the loading racks shall not exceed 0.6 tons/month and 5.92 tons/year.
 - ii. 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: These limits replace the limits in Condition 2.8.6(c) (i) (A) and (B) of Construction Permit 20080024.

- j.
 - i. The VOM and HAP emissions of the piping components at the plant, including the new components, shall not exceed the following limits, total.

Pollutant	Limits
	Tons/Year
VOM	18.00
Acetaldehyde	1.18
Individual HAP, Other Than Acetaldehyde	0.04
Total HAPs, Other Than Acetaldehyde	0.12

- ii. Compliance with the limits in Condition 1.6(j) (A) shall be determined using appropriate USEPA methodology for estimating emissions from leaking components, such as a method in USEPA's *Protocol for Equipment Leak Emission Estimates*, USEPA, Office of Air Quality Planning and Standard, EPA-453/R-95-017.

Note: These limits replace the limits in Conditions 2.9.6(a), (b) and (c) of Construction Permit 20080024.

- k. Emissions of PM from the roadways and other sources of fugitive dust shall not exceed 6.07 tons per year, as PM, and 1.21 tons

per year, as PM₁₀ and 0.30 tons per year, as PM_{2.5}, as determined by use of appropriate USEPA methodology for estimating emissions of fugitive dust.

Note: These limits replace the limits in Condition 2.11.6(a) of Construction Permit 20080024.

1. For the fermentation and distillation scrubbers:
 - i. The Permittee shall install, operate, and maintain a visible and/or audible warning system that identifies when the scrubber water flow rate, rate of reagent addition or differential pressure is not within each established operating range, as established pursuant to Conditions 2.3.8(a) (i) and 2.4.8(a) (i) of the Construction Permit 20080024.
 - ii. If the scrubber water flow rate, rate of reagent addition or differential pressure for each scrubber is not within the established set points, as monitored and determined pursuant to Conditions 2.3.8(a) (i) and 2.4.8(a) (i) of the Construction Permit 20080024, the Permittee shall promptly investigate the cause of the variation in scrubber water flow rate, rate of reagent addition or differential pressure and restore the scrubber water flow rate, rate of reagent addition and differential pressure to within the established operating range for such scrubber.
 1. This scrubber water flow rate, rate of reagent addition and differential pressure shall be restored to the normal operating range within three hours of first observing the associated parameter outside the normal operating range.
 2. If the scrubber water flow rate, rate of reagent addition or differential pressure cannot be restored to within the normal operating range within 3 hours, additional raw materials shall not be introduced to the fermentation process until the scrubber is able to operate within the applicable set point ranges.
 - iii. The Permittee shall perform quarterly inspections of the chemical (reagent) additive pump and check valve to ensure that the chemical additive pump and check valve are operating properly and according to manufacturer's specifications.
 - iv. The Permittee shall ensure that at least one backup water supply pump and one chemical additive pump for each scrubber is on-site, except when a primary pump has been replaced. Immediately following the replacement of an existing primary pump, for whatever reason, the Permittee

shall begin the procurement process for a new backup pump and this pump shall be acquired by no later than 90 days following the replacement of the existing primary pump.

- v. The Permittee shall ensure that at least one backup check valve for the piping between the chemical additive pump and each scrubber is always on-site, except when a primary check valve for the chemical additive pump has been replaced. Immediately following the replacement of an existing primary check valve, for whatever reason, the Permittee shall begin the procurement process for a new backup check valve and this check valve shall be acquired by no later than 90 days following the replacement of the existing primary check valve.

- m. Within 180 days of issuance of this permit, the Permittee shall install, maintain and operate a redundant cooling tower level transmitter that continuously monitors the water level in the basin serving the cooling tower.

- n. The Permittee shall operate and maintain a heat trace device on the level transmitter for the plant's raw water tank to prevent freezing during cold weather. This device shall be operated at a minimum 6.1 Watts/foot.

- o.
 - i. The Permittee shall install, operate and maintain instrumentation for the sulfuric acid pump to continuously measure (readings at least every 15 minutes) the sulfuric acid injection rate (gallons/hour) to the evaporator and beer well feeds. This monitoring data shall then be converted to 3-hour averages.

 - ii. The Permittee shall establish and maintain an appropriate set point for the sulfuric acid injection rate at the sulfuric acid pump. The set point shall be equal to the sulfuric acid injection rate at which compliance with the SO₂ emission limits for the RTOs was demonstrated in the most recent compliance test.

 - iii. The Permittee shall install, operate, and maintain a visible and/or audible warning system that indicates when the 3-hour average sulfuric acid injection rate is greater than the set point established pursuant to Condition 1.6(o)(ii).

 - iv. If the sulfuric acid injection rate is above the established set point, as monitored and determined pursuant to Condition 1.6(o)(ii), the Permittee shall promptly investigate the cause of the sulfuric acid injection rate exceedance and restore the sulfuric acid injection rate to a level equal to or less than the set point established in Condition 1.6(o)(ii).

- A. The sulfuric acid injection rate shall be restored to the established set point or below within three hours of first observing the injection rate above the established set point.
 - B. If the sulfuric acid injection rate cannot be restored at or below the established set point within three hours, the DDGS Dryer and the MSC Protein Dryer shall be shut down until the sulfuric acid injection rate returns to a rate equal to or less than the established set point.
- p. Except as indicated above, this permit does not affect the applicable emission standards and other requirements that currently apply to the above existing emission units and operations in Permit 20080024.

1.7-1 General Recordkeeping Requirements for the Expanded Plant

- a. The Permittee shall maintain records of the following operational information for the expanded plant, with data recorded for each individual calendar month and for each period of consecutive calendar 12 months.
 - i. The amount of grain processed at the plant, in tons.
 - ii. The ethanol production from the plant, determined as denatured ethanol or denatured ethanol equivalent, in gallons.
 - iii. The amount of denaturant or gasoline used at the plant for denaturing ethanol, in gallons.
 - iv. The total dry feed (DDGS) production of the plant, expressed on a dry basis in terms of dry feed or dry feed equivalent, in tons.
 - v. The total natural gas usage by the plant, in cubic feet.
 - vi. The total wet feed (WDGS) production of the plant, expressed in terms of wet cake equivalent, in tons.
 - vii. The total MSC Protein production of the plant, expressed on a dry basis in terms of dry MSC Protein or dry MSC Protein equivalent, in tons.

Note: These recordkeeping requirements replace the recordkeeping requirements in Condition 1.5-1(a) of Construction Permit 20080024.

- b. The Permittee shall maintain records related to the actual date when the expanded plant commences operation.

1.7-2 General Recordkeeping for Monitoring Systems and Instrumentation

- a. 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:
 - i. 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 operating shift for periods when the associated emission units are in service.
 - ii. For required instrumentation, the measured data shall be recorded manually at least once per shift, with date 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.

1.8 Retention 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.

1.9 Notification Requirements

- a. If there is a deviation from the requirements of this permit, the Permittee shall submit a report to the Illinois EPA within 30 days after the deviation. The report shall describe the deviation, provide the probable cause, the corrective actions that were taken, and any action taken to prevent future occurrences.

1.10 Submission of Reports

- a. All notification and reports required by this permit shall be sent to:

Illinois Environmental Protection Agency
Bureau of Air
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

- b. One electronic copy of reports and notifications concerning emission testing or emissions monitoring shall be sent to EPA.BOA.SMU@Illinois.gov. For large files, the Permittee may request to use the Illinois EPA OneDrive Request File or another approved method. The Permittee shall include the facility's ID Number on all correspondence.

1.11 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.

1.12 Authorization to Operate

- a. The Permittee may operate the expanded plant pursuant to this construction permit until a Clean Air Act Permit Program (CAAPP) permit is issued that addresses the operation of the expanded plant provided that the emissions testing for the expanded plant required by this permit is completed in a timely manner and the Permittee submits a timely and complete application for a CAAPP permit to address the expanded plant in accordance with Section 39.5(5)(x) of the Environmental Protection Act. This condition supersedes Standard Condition 6.

PART 2: Unit-Specific Conditions for New Operations

2.1 Grain Milling

2.1.1 Description

- a. Two new hammermills (hammermills 3 and 4), two new baghouses (baghouses 3 and 4) and associated conveyors would be installed. Each new hammermill would have capacity of 35,000 bushel per day. The new hammermills, baghouses and associated conveyors would replace two of the four existing hammermills currently in operation at the plant. The new hammermills would increase the milling capacity of the plant to 126,000 bushels of corn per day from 112,0000 bushels of corn per day.
- b. For the purpose of this permit, the grain milling operations described in Condition 2.1.1(a) are referred to as the "affected grain milling operations."

2.1.2 Applicable Emission Standards

- a. Affected grain milling operations are subject to 35 IAC 212.321, which provides that no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit, either alone or in combination with the emission of particulate matter from all other similar process emission unit for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in 35 IAC 212.321(c).

2.1.3 Operational Requirements

- a.
 - i. The maximum design air flow rate of the baghouses 3 and 4 shall not exceed 9,000 scfm, each.
 - ii. The filtering area of the baghouses 3 and 4 shall not exceed 7,500 ft², each.
 - iii. The maximum outlet grain loading concentration for baghouses 3 and 4 shall not exceed 0.005 grains per standard cubic foot (gr/scf), each.
- b. The Permittee shall operate the baghouses 3 and 4 within pressure drop in compliance with the set points established in Condition 2.1.6(b).
- c. The Permittee shall operate and maintain the affected grain milling operations in a manner consistent with good air pollution control practice to minimize emissions.

2.1.4 Emission Limits

- a. Emissions of PM, PM₁₀ and PM_{2.5}, each, from affected grain milling operations shall not exceed the following limits:

Operation	PM		PM ₁₀ /PM _{2.5}	
	Lbs/Hr	Tons/Yr	Lbs/Hr	Tons/Yr
Hammermill 3 (Baghouse 3)	0.39	1.69	0.21	0.91
Hammermill 4 (Baghouse 4)	0.39	1.69	0.21	0.91

2.1.5 Testing Requirements

- a. The Permittee shall comply with the testing requirements specified by Condition 3.1-1 for affected grain milling operations.
- b. In conjunction with the testing required by Condition 2.1.5(a):
 - i. The Permittee shall perform a quarterly visual determination of emissions from the hammermill 3 and 4 using USEPA Method 22.
 - ii. If visible emissions, as determined by USEPA Method 22, are present when the hammermill 3 and 4 are operating, the Permittee shall take corrective action(s) for the subject unit(s) within 4 hours of such observation.
 - iii. Upon completion of corrective action(s), the Permittee shall perform a visual determination of emissions from the subject unit using USEPA Method 22.
 - iv. If, after completion of the visual determination of emissions required by Condition 2.1.5(b) (iii), visible emissions are present, the Permittee shall perform opacity observations for the subject unit in accordance with Condition 3.2-1, i.e., USEPA Method 9.

2.1.6 Instrumentation Requirements

- a. The Permittee shall install, operate and maintain instrumentation on baghouse 3 and 4 to continuously measure pressure drop across each baghouse on a 15-minute block average.
- b. The Permittee shall establish and maintain appropriate set points for the pressure drop across each baghouse that is consistent with the levels achieved during emission testing that demonstrated compliance with applicable requirements. Prior to completion of the emission testing, the set points shall be established based on manufacturer's recommended levels.
- c. The Permittee shall install, operate, and maintain a visible and/or audible warning system that sounds an alarm when the

pressure drop across a baghouse is not within each established pressure drop operating range, as established pursuant to Condition 2.1.6(b).

- d. If the pressure drop at a baghouse is not within the established pressure drop set points, as monitored and determined pursuant to Condition 2.1.6(b), the Permittee shall promptly investigate the cause of the variation in pressure drop and restore the pressure drop to within the established operating range for such baghouse.
 - i. This pressure drop shall be restored to the normal operating range within 24 hours of first observing the pressure drop outside the normal operating range.
 - ii. If the pressure drop cannot be restored to within the normal operating range within 24 hours, the associated hammermill shall be shut down until the control equipment can be operated within the normal operating range.

2.1.7 Recordkeeping Requirements

- a. 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 2.1.6(b), with supporting documentation.
- b. Records of the differential pressure of each baghouse in accordance with Condition 2.1.6(a).
- c. The following records related to emissions:
 - i. Documentation for the PM, PM₁₀ and PM_{2.5} emission factor(s) and maximum hourly emissions rates used by the Permittee to determine emissions of the affected grain milling operations.
 - ii. Records of all other data used or relied upon by the Permittee to determine the PM, PM₁₀ and PM_{2.5} emissions of affected grain milling operations.
 - iii. PM, PM₁₀ and PM_{2.5} emissions from affected grain milling operations (tons/month and tons/year) based on appropriate emission factors and operating data, with supporting calculations.

2.2 Fermentation Operation

2.2.1 Description

As part of the expansion an additional fermentation tank would be added to the existing fermentation operation. The new fermentation tank with six existing fermentation tanks would enable the plant to process increased "mash" material. The new fermentation tank would be controlled by the existing fermentation scrubber along with existing fermentation tanks and other units.

2.2.2 Applicable Emission Standards

- a. The new fermentation tank is subject to 35 IAC 212.321, which provides that no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in 35 IAC 212.321(c).
- b. The new fermentation tank is subject to 35 IAC 219.301, which provides that no person shall cause or allow the discharge of more than 8 lbs/hour of organic material from an emission source, unless either emissions are controlled by at least 85 percent, as provided in 35 IAC 219.302, 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.

Note: While ethanol is considered organic material, it is not a photochemically reactive material as defined by 35 IAC 211.4690.

- c. The new fermentation tank and other existing units that are served by the fermentation scrubber are subject to 35 IAC 219.966(a), which provides that the owner or operator of a subject unit that complies with 35 IAC 219.966 by means of add-on air pollution control equipment shall operate capture and control equipment that achieves an overall reduction in uncontrolled VOM emissions of at least 81 percent from such units.

2.2.3 Non-applicability Provisions

- a. This permit is issued based on the new fermentation tank not being subject to the NSPS for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes, 40 CFR 60 Subpart RRR. This because based on guidance from USEPA this regulation is not applicable to processing of material produced by biological reaction. (See also U.S. Environmental Protection Agency Applicability Determination Index Control Number 010076).

2.2.4 Operational Requirements

- a. The Permittee shall operate and maintain the new fermentation tank and the associated fermentation scrubber in accordance with good air pollution control practice to minimize emissions, including operating and maintaining the fermentation scrubber in accordance with written procedures developed and maintained by the Permittee.
- b. This permit does not affect the requirements of the existing fermentation scrubber addressed in Condition 2.3 of Construction Permit 20080024.

2.2.5 Emission Limits

- a. The fermentation scrubber shall achieve a VOM and HAP control efficiency of at least 98 percent by weight or emissions of VOM from the fermentation scrubber shall not exceed 533 lb/million gallons ethanol, based on the equivalent ethanol production rate of the fermentation process.

Note: This limit replaces the limit in Condition 2.3.6(a) of Construction Permit 20080024.

- b. Emissions of VOM and HAPs from the new fermentation tank, the existing fermentation tanks and the beer well shall not exceed the following limits:

Pollutant	Limits	
	Lbs/Hour	Tons/Year
VOM	8.35	36.57
PM	0.20	0.88
PM ₁₀ /PM _{2.5}	0.14	0.61
Acetaldehyde	0.40	1.75
Individual HAP, Other Than Acetaldehyde	0.16	0.70
Total HAPs, Other Than Acetaldehyde	0.33	1.45

Note: These limits replace the limits in Condition 2.3.6(b) (i) and (ii) of Construction Permit 20080024.

2.2.6 Testing Requirements

- a. The Permittee shall comply with the testing requirements specified by Condition 3.1 for the new fermentation tank controlled by the existing fermentation scrubber.

2.2.7 Recordkeeping Requirements

- a. The Permittee shall maintain a file or other records containing the values of the following operating parameters of the

fermentation operation, with supporting calculations and documentation:

- i. Mash feed rate to the fermentation tanks (gallons/hour).
- ii. Total rate of mash fed into the fermentation tank per day.
- iii. Fermentation tank average residence time (hours/day).

Note: This condition replaces Condition 2.3.9(a)(i) of Construction Permit 20080024.

- b. Documentation for the emission rates or factors and the maximum hourly emission rates for emissions of VOM and HAP used by the Permittee to calculate the emissions of the fermentation operation.

2.3 Maximum Stillage Co-Products (MSC) System

2.3.1 Description

- a. The new MSC system would process whole stillage from the distillation system to produce a new coproduct, i.e., high protein solids, in addition to the Distillers' Dry Grain and Solubles (DDGS).

In the new MSC Process, whole stillage from the existing distillation system would be separated into protein slurry and fiber slurry in an MSC Process Building. The MSC Process would include a stillage separation system, which includes combination of screening equipment. Emissions from the units in the MSC Process Building would be controlled by a new control system consisting of a particulate scrubber followed by a regenerative thermal oxidizer (Protein RTO).

Protein product from the protein slurry is sent to a new ring dryer for drying. Emissions from the new ring dryer would also be controlled by the new control system. High protein solids from the ring dryer would be cooled in a new pneumatic cooling system prior to transfer to a new storage silo for loadout of protein product. Particulate emissions from the protein cooler, the pneumatic transfer system, storage silo and the protein loadout operation would be controlled by three separate baghouses.

Solid from the centrifuges for the fiber slurry are dried in the existing feed Dryer to produce DDGS.

Liquid streams from protein slurry and fiber slurry centrifuges would be sent to existing evaporation system for further processing.

- b. For the purpose of this Unit Specific Conditions:
 - i. The emission units associated with the new MSC Process are referred as the "affected units."
 - ii. The fiber slurry tank, pressure screen feed tank, MSC acid wash tank, clarifier feed tank, clarifier underflow tank, clarifier overflow tank, five protein decanters, four protein collection conveyors, slurry water tank, three fiber decanters, fiber centrate tank and fiber blowdown tank, that are controlled by the Protein Wet Scrubber and Protein RTO, are referred as the "affected other units."

2.3.2 Applicable Emission Standards

- a. Each affected unit is subject to 35 IAC 219.301, which provides that no person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from

any emission unit unless no odor nuisance exists and non-photochemically reactive materials are used.

- b. The new ring dryer and affected other units that are served by the Protein RTO are subject to 35 IAC 219.980(a), which provides that the owner or operator of a subject unit that complies with 35 IAC 219.980 by means of add-on air pollution control equipment shall operate capture and control equipment that achieves an overall reduction in uncontrolled VOM emissions of at least 81 percent from such units.
- c. Each affected unit is subject to 35 IAC 212.123(a), which generally provides that 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 a subject unit except as provided by 35 IAC 212.123(b).
- d. Each affected unit is subject to 35 IAC 212.301, which provides that the emissions of fugitive particulate matter (PM) from any process, including any material handling or storage activity shall not be visible by an observer looking generally toward the zenith at a point beyond the property line of the source, except when the wind speed exceeds 25 miles per hour, as provided by 35 IAC 212.314.
- e. Each affected unit is subject to 35 IAC 212.321, which provides that no person shall cause or allow the emission of particulate matter into the atmosphere in any one-hour period from any new process emission unit, either alone or in combination with the emission of particulate matter from all other similar new process emission units for which construction or modification commenced on or after April 14, 1972, at or source or premises, exceeds the allowable emission rates specified in 35 IAC 212.321(c).

2.3.3 Non-applicability Provisions

- a. This permit is issued based on 35 IAC 219.986(a) not being applicable to the protein cooler that is served by the vacuum cooling baghouse. This is because this unit qualifies for the exemption from this emission standard at 35 IAC 219.980(c). This exemption provides that 35 IAC 219.986 does not apply to an emission unit to which it would otherwise apply if the VOM emissions of the unit are less than or equal to 2.5 tons per calendar year and the total VOM emissions of the unit and other units (miscellaneous units addressed by Conditions 1.6(b), 1.6(e) and vacuum cooling baghouse) that rely on this exemption to not comply with 35 IAC 219.986 to not exceed 5.0 tons per calendar year. For purpose of this, there are no other emission units that rely of this exemption.
- b. This permit is issued based on the protein ring dryer not being subject to 35 IAC 219.980(a) during the startup/shutdown mode

when there are no protein solids present in the dryer. This is because the control requirements of 35 IAC 219.986 are not applicable to fuel combustion units pursuant to 35 IAC 219.980(e).

2.3.4 Operational Requirements

- a.
 - i. Natural gas shall be the only fuel fired in the ring dryer and the protein RTO.
 - ii. The burners in the ring dryer and protein RTO shall be a low-NO_x design.
- b.
 - i. The maximum design firing rate of protein ring dryer shall not exceed 55 million Btu per hour (mmBtu/hr).
 - ii. The maximum design firing rate of the protein RTO shall not exceed 18 mmBtu/hr.
- c. During operation of the protein ring dryer:
 - i. The temperature in the combustion chamber of the Protein RTO shall be maintained at a minimum temperature, on a three hour rolling average, that is consistent with the level at which emission testing demonstrated compliance with applicable requirements for VOM and HAPs, provided however, that until initial emission testing is performed pursuant to this permit, this temperature shall be maintained at least at the temperature recommended by the manufacturer of the RTO.
 - ii. Notwithstanding the above, for the purpose of evaluation of the RTO and further emission testing, the Permittee may operate the RTO at different temperatures in accordance with a detailed plan describing the evaluation and testing program submitted to and approved by the Illinois EPA.
- d. The combustion emissions from the protein ring dryer during the startup/shutdown mode when there are no protein solids present in the dryer may directly vent to the atmosphere, i.e., bypassing the Protein RTO, for no more than 250 hours/year.
- e.
 - i. The outlet grain loading concentration of the vacuum cooling baghouse, the protein silo baghouse and the protein loadout baghouse shall not exceed 0.005 grain per standard cubic foot (gr/scf), each.
 - ii. The maximum design air flow rate of the vacuum cooling baghouse shall not exceed 21,859 scfm.
 - iii. The maximum design air flow rate of the protein silo baghouse shall not exceed 6,088 scfm.

- iv. The maximum design air flow rate of the protein loadout baghouse shall not exceed 18,732 scfm.
- f. The Permittee shall operate the vacuum cooling baghouse, the protein silo baghouse and the protein loadout baghouse within pressure drop in compliance with the set points established in Condition 2.3.6(c) (ii).
- g. At all times the Permittee shall, to the extent practicable, maintain and operate the affected MSC units and associated control equipment in a manner consistent with good air pollution control practices for minimizing emissions.

2.3.5 Emission Limits

- a. i. Emissions of the protein ring dryer and affected other units that are controlled by the Protein RTO shall not exceed the following limits. These limits are based on the information provided in the permit application:

Pollutant	Limits	
	Lbs/Hr	Tons/Yr
NOx	4.10	17.96
CO	3.90	17.07
VOM	15.60	68.33
PM	2.62	11.50
PM ₁₀ /PM _{2.5}	2.62	11.50
SO ₂	3.50	15.33
Acetaldehyde	0.37	1.64
Individual HAP, Other Than Acetaldehyde	0.27	1.18
Total HAPs, Other Than Acetaldehyde	0.59	2.58

- ii. This permit is issued based on negligible emissions from the protein ring dryer vented through dryer startup/shutdown stack, i.e., NOx and CO emissions from protein ring dryer of no more than 0.16 and 0.13 tons/year, respectively.
- b. Emissions of the protein cooler/vacuum cooling baghouse shall not exceed the following limits:

Pollutants	Limits	
	Lbs/Hour	Tons/Year
VOM	0.57	2.50
PM	0.94	4.10
PM ₁₀ /PM _{2.5}	0.51	2.22
Acetaldehyde	0.36	1.58
Total HAPs, Other Than Acetaldehyde	0.21	0.92

Maximum Individual HAP, Other Than Acetaldehyde	0.11	0.48
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- c.
 - i. Emissions of PM from the protein silo baghouse shall not exceed 0.26 lb/hr and 1.14 tons/year.
 - ii. This permit is issued based on negligible PM₁₀/PM_{2.5} emissions from the protein silo baghouse, i.e., emissions of no more than 0.08 lb/hr and 0.33 tons/year.
- d.
 - i. Emissions of PM from the protein loadout baghouse shall not exceed 0.80 lb/hr and 3.52 tons/year.
 - ii. This permit is issued based on negligible PM₁₀/PM_{2.5} emissions from the protein loadout baghouse, i.e., emissions of no more than 0.19 lb/hr and 0.85 tons/year.
- e. Emissions of PM, PM₁₀ and PM_{2.5} from the new roads associated with protein operation shall not exceed 0.37, 0.07 and 0.02 tons/year, respectively.

2.3.6 Testing Requirements

- a. The Permittee shall comply with the testing requirements specified by Condition 3.1-1 for the MSC Protein System.

2.3.7 Monitoring Requirements

- a. The Permittee shall install, operate and maintain a continuous monitoring device on the Protein RTO for the temperature in the combustion chamber of the RTO. This monitoring device shall record discrete data at least every five minutes and average data on an hourly basis. During any period when measurements are not recorded by the computerized data logging system, instantaneous measurements shall be manually recorded on at least an hourly basis.
- b. The Permittee shall install, operate, and maintain instrumentation to record natural gas usage by the Protein RTO, which data shall be recorded on at least monthly basis.
- c.
 - i. The Permittee shall install, operate and maintain instrumentation on the vacuum cooling baghouse, the protein silo baghouse and the protein loadout baghouse to continuously measure pressure drop across each baghouse on a 15-minute block average.
 - ii. The Permittee shall establish and maintain appropriate set points for the pressure drop across each baghouse that is consistent with the levels achieved during emission testing that demonstrated compliance with applicable requirements. Prior to completion of the emission testing, the set points

shall be established based on manufacturer's recommended levels.

- iii. The Permittee shall install, operate, and maintain a visible and/or audible warning system that sounds an alarm when the pressure drop across a baghouse is not within each established pressure drop operating range, as established pursuant to Condition 2.3.7(c)(ii).
- iv. If the pressure drop at a baghouse is not within the established pressure drop set points, as monitored and determined pursuant to Condition 2.3.7(c)(i), the Permittee shall promptly investigate the cause of the variation in pressure drop and restore the pressure drop to within the established operating range for such baghouse.
 - A. This pressure drop shall be restored to the normal operating range within 24 hours of first observing the pressure drop outside the normal operating range.
 - B. If the pressure drop cannot be restored to within the normal operating range within 24 hours, the associated operation shall be shut down until the control equipment can be operated within the normal operating range.

2.3.8 Recordkeeping Requirements

- a. The Permittee shall maintain the records for the amount of protein solids produced (tons/month and tons/year).
- b. The Permittee shall maintain a file containing records of the following items for the baghouses:
 - i. A copy of the manufacturer's specifications, including design airflow and exit PM grain loading (gr/scf), and recommended operating and maintenance procedures for baghouses.
 - ii. The range of pressure drop within which baghouses will be operated, as required by Condition 2.3.7(c)(ii), with supporting documentation.
- c. The Permittee shall maintain records of the differential pressure of baghouses in accordance with Condition 2.3.7(c).
- d. The Permittee shall maintain the following records for each event when protein ring dryer is venting through dryer startup/shutdown stack, i.e., bypassing the protein RTO:
 - i. Date, time, and duration of event.

- ii. Total duration of events in hours (running 12-month total).
 - iii. Description of event.
 - iv. Records of emissions of NO_x, CO, SO₂, PM, PM₁₀/PM_{2.5} and VOM for each event, with supporting calculations (tons/month and tons/year).
- e. The Permittee shall maintain the following records related to emissions of the affected units:
- i. The emission factors and maximum hourly emission rates used by the Permittee to determine emissions of the units, with supporting documentation.
 - ii. Records of emissions of NO_x, CO, SO₂, PM, PM₁₀/PM_{2.5}, VOM and HAP emissions from the protein ring dryer and affected other units controlled by the Protein RTO, with supporting calculations (tons/month and tons/year).
 - iii. Records of emissions of PM, PM₁₀/PM_{2.5}, VOM and HAP emissions from the protein cooler/vacuum cooling baghouse, with supporting calculations (tons/month and tons/year).
 - iv. Records of emissions of PM and PM₁₀/PM_{2.5} from the protein silo baghouse, protein loadout baghouse and protein loadout operation, with supporting calculations (tons/month and tons/year).

Part 3: General Conditions

3.1-1 Emission Testing

- a. i. The Permittee shall have emissions testing of selected units completed in accordance with the schedule in Condition 3.1-1(a)(ii) as specified in the following table, measured during maximum representative operating conditions, i.e., those conditions that reflect the highest relevant emissions expected to be vented to the control device or emitted to atmosphere. For hammermill baghouse 3, hammermill baghouse 4, vacuum cooling baghouse, protein silo baghouse, protein loadout baghouse and protein loadout operation, observation of opacity shall also be made in conjunction with measurements of emissions of particulate matter emissions. For Protein RTO, the testing for the VOM control efficiency shall be done to measure both capture and control efficiency.

Emission Unit(s)	Applicable Pollutant							VOM Control Efficiency
	PM	PM ₁₀ /PM _{2.5}	VOM	NOx	CO	SO ₂	HAP	
Fermentation (Scrubber)	X	-	X	-	-	-	X	X
Distillation (Scrubber)	X	-	X	-	-	-	X	X
Feed Dryers (RTO)	X	X	X	X	X	X	X	-
Hammermill Baghouse 3 and 4	X	X	-	-	-	-	-	-
Protein RTO	X	X	X	X	X	X	X	X
Vacuum Cooling Baghouse	X	X	X	-	-	-	X	-
Protein Silo Baghouse	X	X	X	-	-	-	-	-
Protein Loadout Baghouse	X	X	X	-	-	-	-	-

- ii. A. Testing for Hammermill Baghouse 3 and Hammermill Baghouse 4 shall be completed within one year after beginning operation of each respective new hammermill.
- B. Testing for the Fermentation Scrubber, Distillation Scrubber, and Feed (DDGS) Dryers RTO shall be completed within one year of first operating the plant at a monthly production rate of 12 million gallons of denatured ethanol or by March 31, 2025.

- C. Testing for the Protein RTO, Vacuum Cooling Baghouse, and Protein Silo Baghouse shall be completed within one year after beginning operation of the MSC Protein Ring Dryer.
- D. Testing for the Protein Loadout Baghouse shall be completed within one year after beginning operation of the MSC Protein truck and rail loadout equipment.
- iii. Thereafter, testing required by Condition 3.1-1(a)(i) shall also be performed every 60 months from the first test completed pursuant to Condition 3.1-1(a)(i) and (ii).
 - b. i. For purpose of demonstrating compliance with overall reduction in uncontrolled VOM emissions by units controlled by protein RTO as required by 35 IAC 219.986, testing shall be conducted in accordance with applicable test method and procedures specified in 35 IAC 219.105.
 - ii. For other emission testing, the following methods and procedures shall be used for testing of emissions, unless another method is approved by the Illinois EPA. Refer to 40 CFR 51 and 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
PM ₁₀ /PM _{2.5}	USEPA Methods 201A ^a and 202
Sulfur Dioxide	USEPA Methods 6, 6a, 6b, or 6c
Nitrogen Oxides	USEPA Methods 7, 7E, or 19
Opacity	USEPA Method 9 ^b
Carbon Monoxide	USEPA Method 10
Volatile Organic Material	USEPA Methods 18 and 25/25A ^{c,d}
Hazardous Air Pollutants	USEPA Method 18 ^{c,d}

Notes:

- a. In lieu of using method 201A, the Permittee may propose use of USEPA Method 5 if all filterable PM is assumed to also be PM₁₀/PM_{2.5}.
- b. Observation of opacity shall be made in conjunction with measurements of emissions of particulate matter.
- c. Testing of the feed dryers shall also be conducted in accordance with USEPA Method 207, an industry-specific test method developed by USEPA for testing VOM and HAP emissions from certain process units at corn wet-milling plants.
- d. USEPA Method 320 may be used as an alternative to Method 18.

- c. i. The Permittee shall submit a written test plan to the Illinois EPA for review at least 30 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 would be considered maximum representative operating conditions and any changes in the means or manner by which the operating parameters for the emission unit and any control equipment will be determined.
 - C. The specific determinations of emissions and operation that is intended to be made, including sampling and monitoring locations.
 - D. The test method(s) that will be used, with the specific analysis method, if the method can be used with different analysis methods.
- ii. As part of the approval of a test plan, the Permittee may request and the Illinois EPA may approve a program to evaluate alternative levels of operating parameters for a control device, leading to testing at new values for operating parameters. In such case, the provisions of the approved test plan shall supersede the particular provisions of this permit with respect to the required level of operating parameters for the affected unit(s).
- d. The Permittee shall notify the Illinois EPA prior to these tests to enable the Illinois EPA to observe these tests.
 - i. Notification of the expected date of testing shall be submitted a minimum of 30 days prior to the expected date.
 - ii. 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 or otherwise as soon as is practical provided that this shorter advance notification does not interfere with the Illinois EPA's ability to observe testing.
- e. The Permittee shall submit copies of the Final Reports for these tests to the Illinois EPA within 30 days after the test results are compiled and finalized but no later than 90 days after completion of sampling. The Final Report shall include as a minimum:

- i. A summary of results.
 - ii. General information.
 - iii. Operating data for the unit(s) and associated control devices during testing, including data both for parameters for which operation will be restricted based upon the value of operating parameters during testing and for parameters that are needed to more fully describe operating conditions during testing.
 - iv. Description of test method(s), including description of sampling points, sampling train, analysis equipment, and test schedule.
 - v. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration.
- f. The Permittee shall retain copies of emission test reports for at least three years after the date that an emission test is superseded by a more recent test.

3.1-2 Opacity Observations

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

- f. The Permittee shall submit a written report for this testing within 15 days of the date of testing. This report shall include:
 - i. Date and time of testing.
 - ii. Name and employer of qualified observer.
 - iii. Copy of current certification.
 - iv. Description of observation condition, including recent weather.
 - v. Description of the operating conditions of the affected operation or unit.
 - vi. Raw data.
 - vii. Opacity determinations.
 - viii. Conclusions.
- g. The Permittee shall retain copies of test reports for at least three years after the date that a test is superseded by a more recent test.

3.2 Operation and Maintenance Procedures

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

3.3 General Requirements for Logs

- a. The logs required by this permit may be kept in manual or electronic form and may be part of a larger information database maintained by the Permittee provided that the information required to be kept in a log is readily accessible.
- b. The Permittee shall maintain logs for the operation and maintenance and repair of monitoring devices and other instrumentation required by this permit.

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

3.4 Reporting of Deviations

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

- c. If there are no deviations during the calendar quarter, the Permittee shall still submit a compliance report, which report shall state that no deviations occurred during the reporting period

If you have any questions on this permit, please contact Minesh Patel at 217/785-5152.

William D. Marr JMS 5/2/2024

William D. Marr
Manager, Permit Section
Bureau of Air

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Attachment 1: Listing of New Emission Units

Operation	Emission Unit/Process Equipment	Emission Control Measures
Grain Milling	Two Hammermills (3-4)	Hammermill Baghouses (3-4)
Fermentation Operation	One New Fermentation Tank	Fermentation Scrubber (Existing)
	Fiber Slurry Tank	
	Pressure Screen Feed Tank	
	Fiber Blowdown Tank	
	MSC Acid Wash Tank	
MSC Protein Solid Separation	Clarifier Feed Tank	Particulate Scrubber and Protein Regenerative Thermal Oxidizer (Protein RTO)
	Clarifier Underflow Tank	
	Clarifier Overflow Tank	
	Protein Decanters 1-5	
	Protein Collection Conveyors (4)	
	Slurry Water Tank	
	Fiber Decanters 1-3	
Fiber Centrate Tank		
MSC Protein Drying	Protein Ring Dryer	Vacuum Cooling Baghouse
	Pneumatic Conveyance	
MSC Protein Cooling	Off-Spec Protein Cyclone	Protein Silos Baghouse
MSC Protein Storage	Protein Storage Silos (1-2)	
	Reclaim Drag Conveyor	
	Reclaim Bucket Elevator	
	Transfer Drag Conveyor	
MSC Protein Loadout	Truck Loadout Screw Conveyor	Protein Loadout Baghouse
	Truck Loadout Chutes (4)	
	Loadout Screw Conveyor	

Attachment 2: Summary of the Permitted Emissions of the Expanded Plant (Tons/Year)

Emission Unit(s)	NO _x	CO	VOM	PM	PM ₁₀ /PM _{2.5}	SO ₂	Hazardous Air Pollutants (HAP)		Total
							Max. Ind. HAP (Acet.)		
New Emissions Units									
Hammermill 3 and 4 (Baghouses)	-	-	-	3.38	1.82	-	-	-	-
Protein Ring Dryer and Units in MSC Building (Protein RTO)	17.96	17.07	68.33	11.50	11.50	15.33	1.64	-	4.80
Dryer Startup/Shutdown Stack	0.16	0.13	0.01	0.01	0.01	0.01	<0.01	-	<0.01
Protein Cooler (Baghouse)	-	-	2.50	4.10	2.22	-	1.58	-	2.50
Protein Silo (Baghouse)	-	-	-	1.14	0.33	-	-	-	-
Protein Loadout (Baghouse)	-	-	-	3.52	0.85	-	-	-	-
New Roads	-	-	-	0.37	0.07/0.02	-	-	-	-
Existing Emission Units									
Boilers	32.38	22.66	8.90	12.30	12.30	8.74	0.05	-	4.20
Fire Pump Backup Engine	1.29	0.12	0.02	0.02	0.02	0.24	0.005	-	0.015
Electrical System Backup Engine	2.03	0.53	0.08	0.05	0.05	1.81	0.005	-	0.015
Grain Receiving & Handling	-	-	-	7.70	2.24/2.15	-	-	-	-
Grain Milling (Baghouses)	-	-	-	2.26	1.22	-	-	-	-
Cage Mill Crusher (Baghouse)	-	-	-	1.75	1.75	-	-	-	-
Fermentation (Scrubber)	-	-	36.57	0.88	0.61	-	1.75	-	3.20
Distillation (Scrubber)	-	-	6.75	0.57	0.40	-	1.75	-	1.88
Corn Oil Separation	-	-	0.44	-	-	-	0.005	-	0.01
Feed Dryers (RTO)	62.98	77.75	16.91	54.55	29.46	15.33	1.60	-	4.39
Dry Feed Storage and Handling	-	-	-	0.95	0.23/0.19	-	-	-	-
Wet Cake Transfer & Loadout	-	-	2.70	0.44	-	-	0.04	-	0.13
Ethanol & Denaturant Storage	-	-	1.75	-	-	-	<0.01	-	0.31
Ethanol Loadout	-	-	5.92	-	-	-	<0.01	-	0.03
Miscellaneous (Mash Preparation)	-	-	0.28	-	-	-	0.01	-	0.08
Miscellaneous (Stillage Handling)	-	-	0.14	-	-	-	0.01	-	0.08
Piping Components	-	-	18.00	-	-	-	1.18	-	1.30
Cooling Tower	-	-	-	3.93	2.75	-	-	-	-
Plant Roads/Parking Areas	-	-	-	6.07	1.21/0.30	-	-	-	-
Totals:	116.79	118.26	169.3	115.48	69.04/67.95	41.46	9.65	41.46	22.96

Attachment 3: Summary of Increases for the Project

Emission Unit(s)	MSSCAM			PSD				
	NOx	VOM	NOx	CO	PM	PM ₁₀ /PM _{2.5}	SO ₂	
New Emissions Units	18.11	70.84	18.11	17.20	24.02	16.8/16.75	15.34	
Existing Emission Units*	5.88	0.02	5.88	7.96	2.87	**	11.72	
Total:	23.99	70.86	23.99	25.16	26.89	-/-	27.06	
Major Source Threshold	100	100	250	250	250	250/250	250	
Project Major Source	No	No	No	No	No	No/No	No	

Notes:

* Change in emissions of existing units are determined from the difference between the permitted emissions of the existing emission units as allowed by this permit and permitted emission of the existing units as previously allowed by Construction Permit 20080024.

** The Permitted emissions of PM₁₀/PM_{2.5} of the existing emission units are lower than Construction Permit 20080024 by 16.87/17.91.



STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
P. O. BOX 19506
SPRINGFIELD, ILLINOIS 62794-9506

**STANDARD CONDITIONS FOR CONSTRUCTION/DEVELOPMENT PERMITS
ISSUED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY**

July 1, 1985

The Illinois Environmental Protection Act (Illinois Revised Statutes, Chapter 111-1/2, Section 1039) authorizes the Environmental Protection Agency to impose conditions on permits which it issues.

The following conditions are applicable unless superseded by special condition(s).

1. Unless this permit has been extended or it has been voided by a newly issued permit, this permit will expire one year from the date of issuance, unless a continuous program of construction or development on this project has started by such time.
2. The construction or development covered by this permit shall be done in compliance with applicable provisions of the Illinois Environmental Protection Act, and Regulations adopted by the Illinois Pollution Control Board.
3. There shall be no deviations from the approved plans and specifications unless a written request for modification, along with plans and specifications as required, shall have been submitted to the Agency and a supplemental written permit issued.
4. The Permittee shall allow any duly authorized agent of the Agency upon the presentation of credentials, at reasonable times:
 - a. to enter the Permittee's property where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit,
 - b. to have access to and copy any records required to be kept under the terms and conditions of this permit,
 - c. to inspect, including during any hours of operation of equipment constructed or operated under this permit, such equipment and any equipment required to be kept, used, operated, calibrated and maintained under this permit,
 - d. to obtain and remove samples of any discharge or emission of pollutants, and
 - e. to enter and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.
5. The issuance of this permit:
 - a. shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located,
 - b. does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities,
 - c. does not release the Permittee from compliance with the other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations,
 - d. does not take into consideration or attest to the structural stability of any units or parts of the project, and

- e. in no manner implies or suggests that the Agency (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.
- 6.
- a. Unless a joint construction/operation permit has been issued, a permit for operation shall be obtained from the Agency before the equipment covered by this permit is placed into operation.
 - b. For purposes of shakedown and testing, unless otherwise specified by a special permit condition, the equipment covered under this permit may be operated for a period not to exceed thirty (30) days.
7. The Agency may file a complaint with the Board for modification, suspension or revocation of a permit:
- a. upon discovery that the permit application contained misrepresentations, misinformation or false statements or that all relevant facts were not disclosed, or
 - b. upon finding that any standard or special conditions have been violated, or
 - c. upon any violations of the Environmental Protection Act or any regulation effective thereunder as a result of the construction or development authorized by this permit.

