

AIR EMISSION PERMIT NO. 13300023- 006

IS ISSUED TO

AGRI-ENERGY LLC

Agri-Energy LLC
502 South Walnut Avenue
Luverne, Rock County, MN 56156-2260

The emission units, control equipment and emission stacks at the stationary source authorized in this permit are as described in the following permit application(s):

Permit Type	Application Date
Total Facility Operating Permit	January 17, 1997
Major Amendment	May 5, 1998
Major Amendment	October 10, 2000
Minor Amendment	July 2, 2001
Major Amendment	January 22, 2002

This permit authorizes the permittee to operate the stationary source at the address listed above unless otherwise noted in Table A. The permittee must comply with all the conditions of the permit. Any changes or modifications to the stationary source must be performed in compliance with Minn. R. 7007.1150 to 7007.1500. Terms used in the permit as defined in the state air pollution control rules unless the term is explicitly defined in the permit.

Permit Type: State; Synthetic Minor Part 70

Issue Date: May 9, 2002

Expiration: Permit does not expire
All Title I Conditions do not expire.

Ann Foss

Ann M. Foss
Major Facilities Section Manager
Majors and Remediation Division

for Karen A. Studders
Commissioner
Minnesota Pollution Control Agency

CDT:lh

TABLE OF CONTENTS

Notice to the Permittee

Permit Shield

Facility Description

Table A: Limits and Other Requirements

Table B: Submittals

Table C: Compliance Schedule

Appendix: Calculation of NO_x Emissions

NOTICE TO THE PERMITTEE:

Your stationary source may be subject to the requirements of the Minnesota Pollution Control Agency's (MPCA) solid waste, hazardous waste, and water quality programs. If you wish to obtain information on these programs, including information on obtaining any required permits, please contact the MPCA general information number at:

Metro Area	(651) 296-6300
Outside Metro Area	1-800-657-3864
TTY	(651) 282-5332

The rules governing these programs are contained in Minn. R. chs. 7000-7105. Written questions may be sent to: Minnesota Pollution Control Agency, 520 Lafayette Road North, St. Paul, Minnesota 55155-4194.

Questions about this air emission permit or about air quality requirements can also be directed to the telephone numbers and address listed above.

PERMIT SHIELD:

Subject to the limitations in Minn. R. 7007.1800, compliance with the conditions of this permit shall be deemed compliance with the specific provision of the applicable requirement identified in the permit as the basis of each condition. Subject to the limitations of Minn. R. 7007.1800 and 7017.0100, subp. 2, notwithstanding the conditions of this permit specifying compliance practices for applicable requirements, any person (including the Permittee) may also use other credible evidence to establish compliance or noncompliance with applicable requirements.

Notwithstanding the foregoing permit shield protection, the MPCA and U.S. Environmental Protection Agency (EPA) specifically reserve, and the Permittee accepts the permit knowing that the MPCA or EPA may investigate, initiate and pursue enforcement action for continuing violations or violations that occurred prior to or at the time of permit issuance and that may be addressed by conditions in this permit. Enforcement action may include, but is not limited to, further corrective action and penalties.

AMENDMENT DESCRIPTION:

This amendment allows for the installation and operation of a thermal oxidizer (CE 006) to control volatile organic compounds (VOCs) from the DDGS dryer. The permit requires the thermal oxidizer to meet a 95 percent control efficiency. A heat recovery boiler (EU 032) will also be added to recover heat from the thermal oxidizer.

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Table A contains limits and other requirements with which your facility must comply. The limits are located in the first column of the table (What To do). The limits can be emission limits or operational limits. This column also contains the actions that you must take and the records you must keep to show that you are complying with the limits. The second column of Table A (Why to do it) lists the regulatory basis for these limits. Appendices included as conditions of your permit are listed in Table A under total facility requirements.

Subject Item:	Total Facility
What to do	Why to do it
This permit shall not alter or affect the liability of an owner or operator for any violation of applicable requirements prior to or at the time of permit issuance.	Minn. R. 7007.1800 (C)(2)
Production: less than or equal to 22000000 gallons/year using 12-month Rolling Sum of ethanol (200 proof, prior to addition of denaturant). Until November 30, 2002, ethanol production is also limited to 1,833,333 gallons per calendar month.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Recordkeeping: by the 15th day of each month, calculate and record the gallons of ethanol produced during the previous month and the gallons of ethanol produced during the previous 12 months (12-month rolling sum).	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated, unless otherwise noted in Table A.	Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)
Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment. The plan shall specify the minimum values for pressure drop and water flow rate for CE003 and CE005, and the minimum and maximum values for pressure drop for CE004 and EU024.	Minn. R. 7007.0800, subp. 14 and Minn. R. 7007.0800, subp. 16(J)
General Performance Test (PT) Requirements: Performance Tests are due as outlined in Tables A and B of the permit. See Table B for additional testing requirements. PT Notification (written): due 30 days before each Performance Test PT Plan: due 30 days before each Performance Test PT Pre-test Meeting: due 7 days before each Performance Test PT Report: due 45 days after each Performance Test PT Report-Microfiche: due 105 days after each Performance Test	Minn. R. 7017.2030, subps. 1-4 and Minn. R. 7017.2035 subps. 1 and 2
Shutdowns: Notify the Commissioner at least 24 hours in advance of a planned shutdown, or as soon as possible after an unplanned shutdown of any process or control equipment, if the shutdown would cause an increase in the emission of any regulated air pollutant. At the time of notification, notify the Commissioner of the cause of the shutdown and the estimated duration. Notify the Commissioner again when the shutdown is over.	Minn. R. 7019.1000, subp. 3
Breakdowns: Notify the Commissioner within 24 hours after a breakdown of more than one hour duration of any process or control equipment if the breakdown causes an increase in the emission of any regulated air pollutant. At the time of notification or as soon thereafter as possible, the Permittee shall also notify the Commissioner of the cause of the breakdown and the estimated duration. Notify the Commissioner again when the breakdown is over.	Minn. R. 7019.1000, subp. 2
Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate.	Minn. R. 7019.1000, subp. 4
Monitoring Equipment: Install or make needed repairs to monitoring equipment within 60 days of issuance of the permit if monitoring equipment is not installed and operational on the date the permit is issued.	Minn. R. 7007.0800, subp. 4(D)
Monitoring Equipment Calibration: Annually calibrate all required monitoring equipment (any requirements applying to continuous emission monitors are listed separately in this permit).	Minn. R. 7007.0800, subp. 4(D)
Operation of Monitoring Equipment: Unless otherwise noted in Tables A, B, and/or C, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, such as for system breakdowns, repairs, calibration checks, and zero and span adjustments (as applicable). Monitoring records should reflect any such periods of process shutdown.	Minn. R. 7007.0800, subp. 4(D)
Circumvention: Do not install or use a device or means that conceals or dilutes emissions, which would otherwise violate a federal or state air pollution control rule, without reducing the total amount of pollution emitted.	Minn. R. 7011.0020

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Oral Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify orally or by facsimile the Commissioner or the state duty officer, of any deviation from permit conditions which could endanger human health or the environment.	Minn. R. 7019.1000, subp. 1
Written Notification of Deviations Endangering Human Health or the Environment: within two (2) working days after discovery, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment to the Commissioner. Include the following information in this written description: cause of the deviation; exact dates of the period of the deviation; if the deviation has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.	Minn. R. 7019.1000, subp. 1
Application for Permit Amendment: If you need a permit amendment, submit application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.	Minn. R. 7007.1150 through Minn. R. 7007.1500
Emissions Inventory Report: due 91 days after end of each calendar year (April 1st). To be submitted on a form approved by the Commissioner.	Minn. R. 7019.3000 through Minn. R. 7019.3010
Emission Fees: due 60 days after receipt of an MPCA bill.	Minn. R. 7002.0005 through Minn. R. 7002.0095
Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Do not cause or permit a building or its appurtenances or an open area to be constructed, used, repaired, or demolished without applying all such reasonable measures as may be required to prevent particulate matter from becoming airborne.	Minn. R. 7011.0150
Inspections: Upon presentation of credentials and other documents as may be required by law, allow the Agency, or its representative, to enter the Permittee's premises, to have access to and copy any records required by this permit, to inspect at reasonable times (which include any time the source is operating) any facilities, equipment, practices or operations, and to sample or monitor any substances or parameters at any location.	Minn. R. 7007.0800, subp. 9(A)
Recordkeeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007.1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350, subp. 2), including records of the emissions resulting from those changes.	Minn. R. 7007.0800, subp. 5(B)
Recordkeeping: Retain all records at the stationary source for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).	Minn. R. 7007.0800, subp. 5(C)
Extension Requests: The Permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H).	Minn. R. 7007.1400, subp. 1(H)
The Permittee is required to submit a Risk Management Plan (RMP) under the federal rule, 40 CFR pt. 68. Each owner or operator of a stationary source, at which a regulated substance is present above a threshold quantity in a process, shall design and implement an accidental release prevention program. A complete RMP must be submitted to the RMP Reporting Center, PO Box 3346, Merrifield, VA 22116. RMP submittal information may be obtained at http://www.epa.gov/swercepp or by calling 1-800-424-9346. These requirements must be complied with no later than the latest of the following dates: (1) June 21, 1999; (2) Three years after the date on which a regulated substance is first listed under 40 CFR Section 68.130; or (3) The date on which a regulated substance is first present above a threshold quantity in a process.	40 CFR pt. 68

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Subject Item: GP 001 Boiler, Dryer and Thermal Oxidizer fuel use

Associated Items: CE 006 Thermal Oxidizer

EU 015 DDGS Dryer/Burner

EU 018 Boiler

SV 004 DDGS Dryer (CE 004, CE 006)

SV 011 Boiler

What to do	Why to do it
Nitrogen Oxides: less than or equal to 92 tons/year using 12-month Rolling Sum	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Recordkeeping: By the 15th of each month, calculate and record the GP 001 NOx emissions for the previous month, and the GP 001 NOx emissions from the previous 12 months (12-month rolling sum). To calculate the monthly NOx emissions, use the recordkeeping requirements described below and Equation 1 in the Appendix to this permit.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Recordkeeping - Fuel Usage: Once each day, record the following: a. cubic feet of natural gas combusted in the DDGS dryer and the boiler (EU 018) during the previous day; b. gallons of propane combusted in the DDGS dryer, the boiler (EU 018) and the thermal oxidizer during the previous day; c. cubic feet of natural gas combusted in the thermal oxidizer during the previous day.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Recordkeeping - By the 15th of each month, calculate and record the following: a. cubic feet of natural gas combusted in the DDGS dryer and the boiler (EU 018) during the previous month; b. gallons of propane combusted in the DDGS dryer, the boiler (EU 018) and the thermal oxidizer during the previous month; c. cubic feet of natural gas combusted in the thermal oxidizer during the previous month.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Fuel Burned - Natural gas and propane only	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Subject Item: GP 002 Baghouse Monitoring Requirements

Associated Items: CE 001 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 002 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 001 Grain/DDGS Handling (CE 001)

SV 002 Hammermill (CE 002)

What to do	Why to do it
Operation and Maintenance of Fabric Filter: The Permittee shall operate and maintain the fabric filters according to the control equipment manufacturer's specifications.	Title I Condition: to avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 14
Visible Emissions: The Permittee shall check each baghouse stack/vent (SV 001 and SV 002) for any visible emissions, once each day of operation during daylight hours. Record the time and date of the inspection, and whether or not any visible emissions were observed.	Title I Condition: to avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 14
Corrective actions: If visible emissions are observed, the Permittee shall follow the Operation and Maintenance plan for the fabric filter and take corrective actions as soon as possible to eliminate the visible emissions. The Permittee shall keep a record of the type and date of all corrective actions taken.	Title I Condition: to avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 14
Inspect quarterly, or as required by manufacturing specifications, all components that are not subject to wear or plugging, including structural components, housing, ducts, and hoods. Maintain a written record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subp. 2 and subp. 14
Inspect monthly, or as required by manufacturing specifications, all components that are subject to wear or plugging. Maintain a written record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subp. 2 and subp. 14

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Subject Item: GP 003 Scrubber Monitoring Requirements

Associated Items: CE 003 Packed-Gas Adsorption Column

CE 005 Packed-Gas Adsorption Column

What to do	Why to do it
Record the pressure drop and water flow rate of each scrubber once each day of operation.	Title I Condition: Monitoring of equipment operating parameters to avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Corrective actions: If the pressure drop and/or water flow rate are not equal to or greater than the minimum values specified in the Operation and Maintenance Plan, the Permittee shall take corrective actions as soon as possible to achieve the required operating parameters. The Permittee shall keep a record of the type and date of all corrective actions taken.	Title I Condition: to avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 14
Inspect quarterly, or as required by manufacturing specifications, all components that are not subject to wear or plugging, including structural components, housing, ducts, and hoods. Maintain a written record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subp. 2 and subp. 14
Inspect quarterly, or as required by manufacturing specifications, all components that are subject to wear or plugging. Maintain a written record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subp. 2 and subp. 14
Calibrate the gauges annually, or as often as required by manufacturing specifications, and maintain a written record of the calibration and any action resulting from the calibration.	Minn. R. 7007.0800, subp. 2 and subp. 14

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Subject Item: GP 004 Cyclone Monitoring Requirements

Associated Items: CE 004 Multiple Cyclone w/o Fly Ash Reinjection - Most Multiclones

EU 024 Cooling Cyclone

What to do	Why to do it
Record pressure drop at each cyclone once each day of operation.	Title I Condition: Monitoring of equipment operating parameter to avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Corrective actions: If the pressure drop is not within the range of values specified in the Operation and Maintenance Plan, the Permittee shall take corrective actions as soon as possible to achieve the required operating parameters. The Permittee shall keep a record of the type and date of all corrective actions taken.	Title I Condition: to avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 14
Inspect quarterly, or as required by manufacturing specifications, all components that are not subject to wear or plugging, including structural components, housing, ducts, and hoods. Maintain a written record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subp. 2 and subp. 14
Inspect quarterly, or as required by manufacturing specifications, all components that are subject to wear or plugging. Maintain a written record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subp. 2 and subp. 14
Calibrate the pressure gauge annually, or as often as required by manufacturing specifications and maintain a written record of the calibration and any action resulting from the calibration.	Minn. R. 7007.0800, subp. 2 and subp. 14

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Subject Item: GP 005 Ethanol Storage Tanks Subject to NSPS Subpart Kb**Associated Items:** TK 006 Ethanol (CAS #64-17-5), 95%

TK 007 Ethanol (CAS #64-17-5), 100%

What to do	Why to do it
Recordkeeping: Maintain records showing the dimensions of the tank and an analysis showing the tank capacity.	40 CFR Section 60.116b(b); Minn. R. 7011.1520 (C)
Recordkeeping: Maintain a record of the volatile organic liquid stored, the period of storage, and the maximum true vapor pressure during the respective storage period.	40 CFR Section 60.116b(c); Minn. R. 7011.1520(C)
Notification: Notify the Administrator within 30 days when the maximum true vapor pressure exceeds 5.2 kPa.	40 CFR Section 60.116b(d), Minn. R. 7011.1520 (C)

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Subject Item: GP 006 Denatured Ethanol Tanks Subject to NSPS Subpart Kb

Associated Items: TK 009 Ethanol (CAS #64-17-5), 95%; Unleaded Gas (CAS #8006-61-9), 5%

TK 010 Ethanol (CAS #64-17-5), 95%; Unleaded Gas (CAS #8006-61-9), 5%

What to do	Why to do it
A. POLLUTION CONTROL REQUIREMENTS	hdr
The storage vessel shall be equipped with a fixed roof in combination with an internal floating roof meeting the specifications of paragraph (a)(1) of Section 60.112b.	40 CFR Section 60.112b(a); Minn. R. 7011.1520 (C)
The internal floating roof shall be equipped with the following closure devices between the wall of the storage vessel and the edge of the internal floating roof: (B) 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.	40 CFR Section 60.112b(a)(1)(ii)(B); Minn. R. 7011.1520 (C)
B. MONITORING REQUIREMENTS	hdr
Visually inspect the internal floating roof, the primary seal, and the secondary seal, prior to filling the storage vessel with volatile organic liquid (VOL). If there are holes, tears, or other openings in the primary seal, the secondary seal, or the seal fabric or defects in the internal floating roof, or both, the owner or operator shall repair the items before filling the storage vessel.	40 CFR Section 60.113b(a)(1); Minn. R. 7011.1520 (C)
Visually inspect the internal floating roof, the primary seal, and the secondary seal through manholes and roof hatches on the fixed roof at least once every 12 months after initial fill as required by this paragraph.	40 CFR Section 60.113b(a)(3)(ii); Minn. R. 7011.1520 (C)
Visually inspect the internal floating roof, the primary seal, the secondary seal, gaskets, slotted membranes and sleeve seals (if any) each time the storage vessel is emptied and degassed as required by this paragraph. In no event shall inspections conducted in accordance with this provision occur at intervals greater than 5 years.	40 CFR Section 60.113b(a)(3)(i); Minn. R. 7011.1520 (C)
C. RECORDKEEPING REQUIREMENTS	hdr
Recordkeeping: Maintain records showing the dimensions of the tank and an analysis showing the tank capacity.	40 CFR Section 60.116b(b); Minn. R. 7011.1520 (C)
Keep a record of each inspection performed as required by 40 CFR Section 60.113b(a)(1), (a)(2), (a)(3), and (a)(4). Each record shall identify the storage vessel on which the inspection was performed and shall contain the date the vessel was inspected and the observed condition of each component of the control equipment (seals, internal floating roof, and fittings).	40 CFR Section 60.115b(a)(2); Minn. R. 7011.1520 (C)
Recordkeeping: Maintain a record of the volatile organic liquid stored, the period of storage, and the maximum true vapor pressure during the respective storage period.	40 CFR Section 60.116b(c); Minn. R. 7011.1520(C)
D. REPORTING REQUIREMENTS	hdr
After each inspection required by 40 CFR Section 60.113b(a)(3) that finds holes or tears in the seal or seal fabric, or defects in the internal floating roof, or other control equipment defects listed in 40 CFR Section 60.113b(a)(3)(ii), a report shall be furnished to the Administrator within 30 days of the inspection. The report shall identify the storage vessel and the reason it did not meet the specifications of 40 CFR Section 60.112b(a)(1) or 40 CFR Section 60.113b(a)(3)(ii) and list each repair made.	40 CFR Section 60.115b(a)(4); Minn. R. 7011.1520 (C)
Notification: If an inspection is required (under 40 CFR Section 60.113b(a)(1) or 40 CFR Section 60.113b(a)(3)(i)), notify the Administrator in writing at least 30 days prior to the filling or refilling of the storage vessel, to afford the Administrator the opportunity to have an observer present. If the inspection is not planned and the owner or operator could not have known about the inspection 30 days in advance of refilling the tank, the owner or operator shall notify the Administrator at least 7 days prior to the refilling of the storage vessel. Notification shall be made by telephone immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, this notification including the written documentation may be made in writing and sent by express mail so that it is received by the Administrator at least 7 days prior to refilling.	40 CFR Section 60.113b(a)(5); Minn. R. 7011.1520 (C)

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Subject Item: GP 007 Thermal Oxidizer and Heat Recovery Boiler**Associated Items:** CE 006 Thermal Oxidizer

EU 032 Heat Recovery Boiler

What to do	Why to do it
Recordkeeping: Record and maintain records of the amounts of each fuel combusted in the thermal oxidizer (CE 006) on a monthly basis. These records may consist of purchase records or receipts.	40 CFR Section 60.13(i) and 2/20/92 EPA memo to meet the requirements of 40 CFR 60.48c(g) and (i); Minn. R. 7011.0570
Fuel Burned: Natural gas and propane only. This fuel use restriction applies to fuel combusted in the thermal oxidizer, which supplies heat for the heat recovery boiler.	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Subject Item: SV 001 Grain/DDGS Handling (CE 001)

- Associated Items:** EU 001 Corn Dump Pit/Auger
 EU 002 Corn Elevator
 EU 003 Scalper
 EU 004 Corn Bin
 EU 005 Corn Bin
 EU 006 Corn Bin
 EU 007 Corn Bin
 EU 016 DDGS Dump Pit/Auger
 EU 017 DDGS Elevator
 EU 020 Rail Load Spout
 EU 021 Screw Conveyor
 EU 022 Truck Load Spout
 GP 002 Baghouse Monitoring Requirements

What to do	Why to do it
A. EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 1.5 lbs/hour	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Total Particulate Matter: less than or equal to 0.093 grains/dry standard cubic foot of exhaust air, or the allowable concentration at the actual exhaust flow rate, as described in Minn. R. 7011.0735.	Minn. R. 7011.1005, subp. 3(D)
Particulate Matter < 10 micron: less than or equal to 1.5 lbs/hour	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200.
Opacity: less than or equal to 10 percent opacity	Minn. R. 7011.1005, subp. 3(D)
B. POLLUTION CONTROL REQUIREMENTS	hdr
Total Particulate Matter: less than or equal to 94.4 percent collection efficiency (See GP 002 for CE 001 monitoring and maintenance requirements.)	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Particulate Matter < 10 micron: less than or equal to 88.6 percent collection efficiency (See GP 002 for CE 001 monitoring and maintenance requirements.)	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Subject Item: SV 002 Hammermill (CE 002)

Associated Items: EU 008 Hammermill/Belt Scale

GP 002 Baghouse Monitoring Requirements

What to do	Why to do it
A. EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.69 lbs/hour	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Total Particulate Matter: less than or equal to 0.1 grains/dry standard cubic foot of exhaust air, or the allowable concentration at the actual exhaust flow rate, as described in Minn. R. 7011.0735.	Minn. R. 7011.1005, subp. 3(D)
Particulate Matter < 10 micron: less than or equal to 0.69 lbs/hour	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Opacity: less than or equal to 10 percent opacity	Minn. R. 7011.1005, subp. 3(D)
B. POLLUTION CONTROL REQUIREMENTS	hdr
Total Particulate Matter: less than or equal to 97.9 percent collection efficiency (See GP 002 for CE 002 monitoring and maintenance requirements.)	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Particulate Matter < 10 micron: less than or equal to 95.8 percent collection efficiency (See GP 002 for CE 002 monitoring and maintenance requirements.)	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Subject Item: SV 003 Fermentation scrubber (CE 003)

Associated Items: EU 025 Fermenter

EU 026 Fermenter

EU 027 Fermenter

EU 028 Beer Well

What to do	Why to do it
A. EMISSION LIMITS	hdr
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
Volatile Organic Compounds: less than or equal to 7.0 lbs/hour	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
B. POLLUTION CONTROL REQUIREMENTS	hdr
Volatile Organic Compounds: less than or equal to 96.3 percent control efficiency (See GP 003 for CE 003 monitoring and maintenance requirements.)	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
C. TESTING REQUIREMENTS	hdr
Initial Performance Test: due before 09/15/2001 to measure volatile organic compound emissions.	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Subject Item: SV 004 DDGS Dryer (CE 004, CE 006)

Associated Items: EU 015 DDGS Dryer/Burner

EU 032 Heat Recovery Boiler

GP 001 Boiler, Dryer and Thermal Oxidizer fuel use

What to do	Why to do it
A. EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 11.41 lbs/hour	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0610, subp. 1(A)(1)
Particulate Matter < 10 micron: less than or equal to 11.41 lbs/hour	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0610, subp. 1(A)(2)
Volatile Organic Compounds: less than or equal to 5.0 lbs/hour	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
B. POLLUTION CONTROL REQUIREMENTS	hdr
Total Particulate Matter: greater than or equal to 80 percent control efficiency (See GP004 for CE004 monitoring and maintenance requirements).	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Particulate Matter < 10 micron: greater than or equal to 80 percent control efficiency (See GP004 for CE004 monitoring and maintenance requirements).	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Thermal Oxidizer Installation: The thermal oxidizer (CE 006) shall be installed and operational within 120 days of Permit Issuance.	Minn. R. 7007.0800, subp. 2
Volatile Organic Compounds: greater than or equal to 95 percent control efficiency once the thermal oxidizer (CE 006) is in service.	Minn. R. 7007.0800, subp. 2
C. TESTING REQUIREMENTS	hdr
Performance Test: due 60 days after Initial Startup of the thermal oxidizer to measure emissions of total particulate matter (PM). See "General Performance Test Requirements" in Subject Item "Total Facility" in Table A for additional performance test requirements.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; Minn. R. 7017.2020, subp. 1
Performance Test: due 60 days after Initial Startup of the thermal oxidizer to measure emissions of particulate matter <10 microns (PM10). See "General Performance Test Requirements" in Subject Item "Total Facility" in Table A for additional performance test requirements.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7017.2020, subp. 1
Performance Test: due 60 days after Initial Startup of the thermal oxidizer to measure volatile organic compound (VOC) emissions and the VOC destruction efficiency of the thermal oxidizer. Destruction efficiency will be determined by inlet and outlet testing. See "General Performance Test Requirements" in Subject Item "Total Facility" in Table A for additional performance test requirements.	Minn. R. 7017.2020, subp. 1
Performance Test: due 60 days after Initial Startup of the thermal oxidizer to measure opacity. See "General Performance Test Requirements" in Subject Item "Total Facility" in Table A for additional performance test requirements.	Minn. R. 7017.2020, subp. 1
D. EMISSION UNIT OPERATION (EU 015)	hdr
Process Throughput: less than or equal to 18,000 lbs/hour using 24-hour Block Average of dryer solids. This limit is applicable to the DDGS dryer (EU 015). Downtime of 15 or more minutes is not to be counted as operating time. This process throughput limit may not be exceeded unless a new limit is established pursuant to Minn. R. 7017.2025, subp. 3, based on the throughput during the most recent MPCA approved performance test where compliance with an emission limit for EU 015 is demonstrated.	Minn. R. 7017.2025

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Recordkeeping of Throughput (EU 015): Each day, record the dryer solids throughput for the DDGS dryer for the previous day, in pounds per day. Divide the total amount of dryer solids by the hours of operating time. Do not count downtime of 15 minutes or more as operating time.	Minn. R. 7007.0800, subp. 5
---	-----------------------------

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Subject Item: SV 010 Distillation scrubber (CE 005)

- Associated Items:** EU 009 Beer Stripper
 EU 010 Rectifier
 EU 011 Side Stripper
 EU 012 Molecular Sieve
 EU 014 Evaporator
 EU 031 bushel corn bin

What to do	Why to do it
A. EMISSION LIMITS	hdr
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
Volatile Organic Compounds: less than or equal to 0.8 lbs/hour	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
B. POLLUTION CONTROL REQUIREMENTS	hdr
Volatile Organic Compounds: greater than or equal to 98.4 percent control efficiency (See GP 003 for CE 005 monitoring and maintenance requirements.)	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
C. TESTING REQUIREMENTS	hdr
Performance Test: due before 09/15/2001 to measure volatile organic compound emissions. See "General Performance Test Requirements" in Subject Item "Total Facility" in Table A for additional performance test requirements.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7017.2020, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Subject Item: SV 014 Cooling cyclone

Associated Items: EU 024 Cooling Cyclone

What to do	Why to do it
A. EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 1.61 lbs/hour	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas, unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0610, subp. 1(A)(1)
Particulate Matter < 10 micron: less than or equal to 1.61 lbs/hour	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0610, subp. 1(A)(2)
B. TESTING REQUIREMENTS	hdr
Performance Test: due before 09/15/2001 to measure emissions of total particulate matter (PM). See "General Performance Test Requirements" in Subject Item "Total Facility" in Table A for additional performance test requirements.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; Minn. R. 7017.2020, subp. 1
Performance Test: due before 09/15/2001 to measure emissions of particulate matter <10 micron (PM10). See "General Performance Test Requirements" in Subject Item "Total Facility" in Table A for additional performance test requirements.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7017.2020, subp. 1
Performance Test: due before 09/15/2001 to measure opacity. See "General Performance Test Requirements" in Subject Item "Total Facility" in Table A for additional performance test requirements.	Minn. R. 7017.2020, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Subject Item: SV 016 Flare**Associated Items:** EU 030 Bio-Digester Flare

What to do	Why to do it
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Subject Item: EU 018 Boiler**Associated Items:** GP 001 Boiler, Dryer and Thermal Oxidizer fuel use
SV 011 Boiler

What to do	Why to do it
Recordkeeping: Record and maintain records of the amounts of each fuel combusted on a monthly basis for the previous calendar month. These records may consist of fuel bills or meter readings.	February 20, 1992, EPA memorandum and 40 CFR Section 60.13(l) to meet requirements of 40 CFR Section 60.48c(g) and (l); Minn. R. 7011.0570
Fuel Burned: Natural gas and propane only.	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Subject Item: EU 029 Grain Dryer

Associated Items: SV 015 Grain Dryer

What to do	Why to do it
A. EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011. 0735.	Minn. R. 7011.0610, subp. 1(A)(1)
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0610, subp. 1(A)(2)
B. POLLUTION CONTROL REQUIREMENTS	hdr
The perforations of a column dryer screen must not exceed 3/32 inches in diameter.	Minn. R. 7011.1005, subp. 5(A)
C. OPERATING REQUIREMENTS	hdr
Operating Hours: less than or equal to 2308 hours/year using 12-month Rolling Sum	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Recordkeeping: At the end of the last day of each month, record the reading on the dryer operating hours meter.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Recordkeeping - By the 15th day of each month, calculate and record the number of hours the dryer has operated during the previous month and during the previous 12 months (12-month rolling sum).	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Fuel Burned - Natural gas only	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Subject Item: CE 006 Thermal Oxidizer

Associated Items: EU 015 DDGS Dryer/Burner
 GP 001 Boiler, Dryer and Thermal Oxidizer fuel use
 GP 007 Thermal Oxidizer and Heat Recovery Boiler

What to do	Why to do it
Temperature: greater than or equal to 1250 degrees F as a three-hour rolling average at the Combustion Chamber unless a new minimum is set pursuant to Minn. R. 7017.2025, subp. 3, based on the average temperature recorded during the most recent MPCA approved performance test where compliance for VOC emissions was demonstrated. If the three-hour rolling average temperature drops below the minimum temperature limit, VOC emissions during that time shall be considered uncontrolled until the average minimum temperature limit is once again achieved. This shall be reported as a deviation.	Minn. R. 7007.0800, subp. 2
The Permittee shall operate and maintain the thermal oxidizer any time that any process equipment controlled by the thermal oxidizer is in operation.	Minn. R. 7007.0800, subp. 2 and 14
The Permittee shall maintain a continuous hard copy readout or computer disk file of the temperature readings and calculated three hour rolling average temperatures for the combustion chamber.	Minn. R. 7007.0800, subp. 2
Daily Monitoring: The Permittee shall physically check the temperature recording device at least once each operating day to verify that it is working and recording properly.	Minn. R. 7007.0800, subp. 4 and 5
Monitoring Equipment: The Permittee shall install and maintain thermocouples to conduct temperature monitoring required by this permit. The monitoring equipment must be installed, in use, and properly maintained whenever operation of the monitored control equipment is required.	Minn. R. 7007.0800, subp. 4
Thermocouple Monitoring: The Permittee shall maintain and operate a thermocouple monitoring device that continuously indicates and records the combustion chamber temperature of the thermal oxidizer. The monitoring device shall have a margin of error less than the greater of +/- 0.75 percent of the temperature being measured or +/- 2.5 degrees Celsius. The recording device shall also calculate the three-hour rolling average combustion chamber temperature.	Minn. R. 7007.0800, subp. 4 and 5
Annual Inspections: At least annually, the Permittee shall inspect the control equipment internal and external system components, including but not limited to the refractory, heat exchanger, and electrical systems. The Permittee shall maintain a written record of the inspection and any corrective actions taken resulting from the inspection.	Minn. R. 7007.0800, subp. 4, 5 and 14
Annual Calibration: The Permittee shall calibrate the temperature monitor at least annually and shall maintain a written record of the calibration and any action resulting from the calibration.	Minn. R. 7007.0800, subp. 4, 5, and 14
Corrective Actions: If the temperature is below the minimum specified by this permit or if the thermal oxidizer or any of its components are found during the inspections to need repair, the Permittee shall take corrective action as soon as possible. Corrective actions shall return the temperature to at least the permitted minimum and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the thermal oxidizer. The Permittee shall keep a record of the type and date of any corrective action taken.	Minn. R. 7007.0800, subp. 4, 5 and 14
Nitrogen Oxides: less than or equal to 39.0 tons/year using 12-month Rolling Sum . This limit applies to emissions from fuel (natural gas and propane) combusted in the thermal oxidizer.	Title I Condition: To avoid classification as a major modification under 40 CFR Section 52.21
Recordkeeping: By the 15th day of each month, calculate and record: a) the NOx emissions from the combustion of fuel in the thermal oxidizer (CE 006) for the previous month, and b) the NOx emissions from the combustion of fuel in the thermal oxidizer for the previous 12 months (12-month rolling sum). To calculate the monthly NOx emissions, use the recordkeeping requirements described below and Equation 1 in the Appendix to this permit.	Title I Condition: To avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 5
Recordkeeping - Fuel Usage: Once each day, record the following: a. gallons of propane combusted in the thermal oxidizer during the previous day; b. cubic feet of natural gas combusted in the thermal oxidizer during the previous day.	Title I Condition: To avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 5
Recordkeeping - By the 15th day of each month, calculate and record the following: a. gallons of propane combusted in the thermal oxidizer during the previous month; b. cubic feet of natural gas combusted in the thermal oxidizer during the previous month.	Title I Condition: To avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Low NOx burners: The thermal oxidizer shall only be equipped with burners designed to emit less than 0.5 pounds of NOx per million Btu of heat input when burning natural gas.	Title I Condition: To avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 2
--	--

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Subject Item: TK 008 Unleaded Gas (CAS #8006-61-9), 100%

What to do	Why to do it
Recordkeeping: Maintain records showing the dimensions of the tank and an analysis showing the tank capacity.	40 CFR Section 60.116b(b); Minn. R. 7011.1520 (C)

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Subject Item: FS 001 Truck Traffic

What to do	Why to do it
Fugitive Emissions: Do not cause or permit the transporting of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Do not cause or permit a road or a driveway to be constructed, used, repaired, or demolished without applying all such reasonable measures as may be required to prevent particulate matter from becoming airborne.	Minn. R. 7011.0150

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Subject Item: FS 002 Grain Handling

What to do	Why to do it
Clean up commodities spilled on the driveway and other facility property as required to minimize fugitive emissions to a level consistent with RACT (Reasonably Available Control Technology).	Minn. R. 7011.1005, subp. 1(A)
Opacity: less than or equal to 5 percent opacity for fugitive emissions from truck unloading of grain or grain handling activities.	Minn. R. 7011.1005, subp. 3(A)

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Subject Item: FS 004 DDGS Handling

What to do	Why to do it
Clean up commodities spilled on the driveway and other facility property as required to minimize fugitive emissions to a level consistent with RACT (Reasonably Available Control Technology).	Minn. R. 7011.1005, subp. 1(A)
Opacity: less than or equal to 5 percent opacity for fugitive emissions from railcar loading of DDGS or DDGS handling activities.	Minn. R. 7011.1005, subp. 3(A)
Opacity: less than or equal to 10 percent opacity for fugitive emissions from DDGS truck loading.	Minn. R. 7011.1005, subp. 3(B)

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Subject Item: FS 005 Tank Valve, Flange, Seal Leaks

What to do	Why to do it
A. STANDARDS: PUMPS	hdr
<p>Pumps in light liquid service:</p> <p>(a)(1) Each pump in light liquid service shall be monitored monthly to detect leaks by the methods specified in 40 CFR 60.485(b), except as provide in 40 CFR 60.482-1(c) and paragraphs (d), (e), and (f).</p> <p>(2) Each pump in light liquid service shall be checked by visual inspection each calendar week for indications of liquids dripping from the pump seal</p>	40 CFR 60.482-2
<p>(b)(1) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.</p> <p>(2) If there are indications of liquids dripping from the pump seal, a leak is detected.</p> <p>(c)(1) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in 40 CFR 60.482-9.</p> <p>(2) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.</p>	40 CFR 60.482-2(b) and (c)
B. STANDARDS: COMPRESSORS	hdr
<p>(a) Each compressor shall be equipped with a seal system that includes a barrier fluid system and that prevents leakage of VOC to the atmosphere, except as provided in 40 CFR 60.482-1(c) and 40 CFR 60.482-3(h) and (i).</p>	40 CFR 60.482-3(a)
<p>(b) Each compressor seal system shall be:</p> <p>(1) operated with the barrier fluid at a pressure that is greater than the compressor stuffing box pressure; or</p> <p>(2) Equipped with a barrier fluid system that is connected by a closed vent system to a control device that complies with the requirements of 40 CFR 60.482-10; or</p> <p>(3) Equipped with a system that purges the barrier fluid into a process stream with zero VOC emissions to the atmosphere.</p>	40 CFR 60.482-3(b)
<p>(c) The barrier fluid system shall be in heavy liquid service or shall not be in VOC service.</p> <p>(d) Each barrier fluid system shall be equipped with a sensor that will detect failure of the seal system, barrier fluid system, or both.</p>	40 CFR 60.482-3(c) and (d)
<p>(e) (1) Each sensor shall be checked daily or shall be equipped with an audible alarm.</p> <p>(2) The owner or operator shall determine, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.</p>	40 CFR 60.482-3(e)
<p>(f) If the sensor indicates failure of the seal system, the barrier system, or both based on the criterion determined under paragraph (e)(2), a leak is detected.</p>	40 CFR 60.482-3(f)
<p>(g) (1) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected except as proved in 40 CFR 60.482-9 (delay of repair)</p> <p>(2) A first attempt at repair shall be made no later than 15 calendar days after it is detected, except as provided in 40 CFR 60.482-9.</p>	40 CFR 60.482-3(g)
C. STANDARDS: PRESSURE RELIEF DEVICES IN GAS/VAPOR SERVICE	hdr
<p>(a) Except during pressure releases, each pressure relief device in gas/vapor service shall be operated with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background as determined by the methods specified in 40 CFR 60.485(c).</p>	40 CFR 60.482-4(a)
<p>(b)(1) After each pressure release, the pressure relief device shall be returned to a condition of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as soon as practicable, but no later than 5 calendar days after the pressure release, except as provided in 40 CFR 60.482-9.</p> <p>(2) No later than 5 calendar days after the pressure release, the pressure relief device shall be monitored to confirm the conditions of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, by the methods specified in 40 CFR 60.485(c).</p>	40 CFR 60.482-4(b)

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

D. STANDARDS: SAMPLING CONNECTION SYSTEMS	hdr
(a) Each sampling connection system shall be equipped with a closed-purged, closed-loop, or closed-vent system, except as provided in 40 CFR 60.482-1(c).	40 CFR 60.482-5(a)
(b) Each closed-purge, closed-loop, or closed-vent system shall: (1) Return the purged process fluid directly to the process line; or (2) Collect and recycle the purged process fluid to a process; or (3) Be designed and operated to capture and transport all the purged process fluid to a control device that complies with the requirements of 40 CFR 60.482-10.	40 CFR 60.482-5(b) and (c)
(c) In situ sampling systems are exempt from these requirements.	
E. STANDARDS: OPEN ENDED VALVES OR LINES	hdr
(a)(1) Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve, except as provided in 40 CFR 60.482-1(c). (2) The cap, blind flange, plug, or second valve shall seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line.	40 CFR 60.482-6(a)
(b) Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed. (c) When a double block and bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with paragraph (a) at all other times.	40 CFR 60.482-6(b) and (c)
F. STANDARDS: VALVES	hdr
(a) Each valve shall be monitored monthly to detect leaks by the methods specified in 40 CFR 60.485(b).	40 CFR 60.482-7(a)
(b) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected. (c)(1) Any valve for which a leak is not detected for 2 successive months may be monitored the first month of every quarter, beginning with the next quarter, until a leak is detected. (2) If a leak is detected, the valve shall be monitored monthly until a leak is not detected for 2 successive months.	40 CFR 60.482-7(b) and (c)
(d)(1) When a leak is detected, it shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected, except as provide in 40 CFR 60.482-9. (2) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.	40 CFR 60.482-7(d)
(e) First attempts at repair include, but are not limited to, the following best practices where practicable: (1) Tightening of bonnet bolts; (2) Replacement of bonnet bolts; (3) Tightening of packing gland nuts; (4) Injection of lubricant into lubricated packing	40 CFR 60.482-7(e)
G. STANDARDS: PUMPS AND VALVES IN HEAVY LIQUID SERVICE, PRESSURE RELIEF DEVICES IN LIGHT LIQUID OR HEAVY LIQUID SERVICE, AND FLANGES AND OTHER CONNECTORS.	hdr
(a) Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service and flanges and other connectors shall be monitored within 5 days by the method specified in 40 CFR 60.485(b) if evidence of a potential leak is found by visual, audible, olfactory, or any other detection method.	40 CFR 60.482-8(a)
(b) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected. (c)(1) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in 40 CFR 60.482-9 (delay of repair). (2) The first attempt at repair shall be made no later than 5 calendar days after each leak is detected.	40 CFR 60.482-8(b) and (c)
(d) First attempts at repair include, but are not limited to, the best practices described under 40 CFR 60.482-7(e).	40 CFR 60.482-8(d)
H. DELAY OF REPAIR	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

(a) Delay of repair of equipment for which leaks have been detected will be allowed if the repair is technically infeasible without a process unit shutdown. Repair of this equipment shall occur before the end of the next process unit shutdown.	40 CFR 60.482-9(a) and (b)
(b) Delay of repair of equipment will be allowed for equipment which is isolated from the process and which does not remain in VOC service.	
(c) Delay of repair for valves will be allowed if: (1) The owner or operator demonstrates that emissions of purged material resulting from the immediate repair are greater than the fugitive emissions likely to result from delay of repair, and (2) When repair procedures are effected, the purged material is collected and destroyed or recovered in a control device complying with 40 CFR 60.482-10.	40 CFR 60.482-9(c)
(d) Delay of repair for pumps will be allowed if: (1) Repair required the use of a dual mechanical seal system that includes a barrier fluid system, and (2) Repair is completed as soon as practicable, but not later than 6 months after the leak was detected.	40 CFR 60.482-9(d)
(e) Delay of repair beyond a process unit shutdown will be allowed for a valve, if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than 6 months after the first process unit shutdown.	40 CFR 60.482-9(e)
I. TESTING PROCEDURES	hdr
Compliance shall be determined by the methods specified in 40 CFR 60.485.	40 CFR 60.485
J. RECORDKEEPING	hdr
(b) When each leak is detected, the following requirements apply: (1) A weatherproof and readily visible identification, marked with the equipment identification number, shall be attached to the leaking equipment. (2) The identification on a valve may be removed after it has been monitored for 2 successive months as specified in 40 CFR 60.482-7(c) and no leak has been detected during those 2 months. (3) The identification on equipment except on a valve, may be removed after it has been repaired.	40 CFR 60.486(b)
(c) When each leak is detected the following information shall be recorded in a log and shall be kept for 2 years in a readily accessible location: (1) The instrument and operator identification numbers and the equipment identification number. (2) The date the leak was detected and the dates of each attempt to repair the leak. (3) Repair methods applied in each attempt to repair the leak. (4) Above 10,000 is the maximum instrument reading measured by the methods specified in 40 CFR 60.485(a) after each repair attempt is equal to or greater than 10,000 ppm.	40 CFR 60.486(c)(1) - (4)
(5) Repair delayed and the reason for the delay if a leak is not repaired within 15 calendar days after discover of the leak. (6) The signature of the owner or operator whose decision it was that the repair could not be effected without a process shutdown. (7) The expected date of successful repair of the leak if a leak is not repaired within 15 days. (8) Dates of process unit shutdown that occur while the equipment is unrepaired. (9) The date of successful repair of the leak.	40 CFR 60.486(c)(5) - (9)
K. REPORTING REQUIREMENTS	hdr
(a) Each owner or operator subject to the provisions of this subpart shall submit semiannual reports to the Administrator beginning six months after the initial startup date.	40 CFR 60.487(a)
(b) The initial semiannual report to the Administrator shall include the following information: (1) Process unit identification, (2) Number of valves subject to the requirements of 40 CFR 60.482-7, (3) Number of pumps subject to the requirements of 40 CFR 60.482-2, (4) Number of compressors subject to the requirements of 40 CFR 60.482-3	40 CFR 60.487(b)

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

<p>(c) All semiannual reports to the Administrator shall include the following information, summarized from the information in 40 CFR 60.486;</p> <p>(1) Process unit identification. (2) For each month during the semiannual reporting period, (i) Number of valves for which leaks were detected as described in 40 CFR 60.482(7)(b) or 40 CFR 60.483-2 (ii) Number of valves for which leaks were not repaired as required in 40 CFR 60.482-7(d)(1), (iii) Number of pumps for which leaks were detected as described in 40 CFR 60.482-2(b) and (d)(6)(i), (iv) Number of pumps for which leaks were not repaired as required in 40 CFR 60.482-2(c)(1) and (d)(6)(ii),</p>	<p>40 CFR 60.487(c)(1) and (2)(i) - (2)(iv)</p>
<p>(v) Number of compressors for which leaks were detected as described in 40 CFR 60.482-3(f), (vi) Number of compressors for which leaks were not repaired as required in 40 CFR 60.482-3(g)(1) (vii) The facts that explain each delay of repair and, where appropriate, why a process unit shutdown was technically infeasible.</p>	<p>40 CFR 60.487(c)(v) - (vii)</p>
<p>(3) Dates of process unit shutdowns which occurred within the semiannual reporting period. (4) Revisions to items reported according to paragraph (b) if changes have occurred since the initial report or subsequent revisions to the initial report.</p>	<p>40 CFR 60.487(c)(3) and (4)</p>
<p>(e) Report the results of all performance tests in accordance with 40 CFR 60.8. The provisions of 40 CFR 60.8(d) do not apply to affected facilities subject to the provisions of this subpart except that an owner or operator must notify the Administrator of the schedule for the initial performance tests at least 30 days before the initial performance tests.</p>	<p>40 CFR 60.487(e)</p>

TABLE B: SUBMITTALS

05/09/02

Facility Name: Agri-Energy LLC
Permit Number: 13300023 - 006

Table B lists most of the submittals required by this permit. Please note that some submittal requirements may appear in Table A or, if applicable, within a compliance schedule located in Table C. Table B is divided into two sections in order to separately list one-time only and recurrent submittal requirements.

Each submittal must be postmarked or received by the date specified in the applicable Table. Those submittals required by parts 7007.0100 to 7007.1850 must be certified by a responsible official, defined in Minn. R. 7007.0100, subp. 21. Other submittals shall be certified as appropriate if certification is required by an applicable rule or permit condition.

Send any application for a permit or permit amendment to:

Permit Technical Advisor
Permit Section
Air Quality Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Also, where required by an applicable rule or permit condition, send to the Permit Technical Advisor notices of:

- accumulated insignificant activities,
- installation of control equipment,
- replacement of an emissions unit, and
- changes that contravene a permit term.

Unless another person is identified in the applicable Table, send all other submittals to:

Supervisor
Compliance Determination Unit
Air Quality Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Send submittals that are required to be submitted to the U.S. EPA regional office to:

Mr. George Czerniak
Air and Radiation Branch
EPA Region V
77 West Jackson Boulevard
Chicago, Illinois 60604

Send submittals that are required by the Acid Rain Program to:

U.S. Environmental Protection Agency
Clean Air Markets Division
1200 Pennsylvania Avenue NW (6204N)
Washington, D.C. 20460

TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

What to send	When to send	Portion of Facility Affected
Notification of the Actual Date of Initial Startup	due 15 days after Initial Startup	GP007
Notification of the Anticipated Date of Initial Startup	due 30 days before Anticipated Date of Initial Startup	GP007
Notification of the Date Construction Began	due 30 days after Start Of Construction	GP007
Performance Test Report - Microfiche Copy	due 105 days after Performance Test	SV003, SV004, SV010, SV014
Performance Test Report	due 45 days after Performance Test	SV003, SV004, SV010, SV014
Report	due 270 days after Submittal of the Emission Characterization Plan. The Report shall identify, quantify, and chemically characterize all emission sources, including fugitive emission sources, at the Facility. The Report shall be submitted to Mr. Daniel Pena of the Minnesota Department of Health.	Total Facility
Submittal	due 90 days after 12/14/2000. This submittal shall be an Emission Characterization Plan based on and meeting the requirements of Minnesota Department of Health guidance. The Plan shall describe how the Permittee will identify, quantify, and chemically characterize the emissions from all emission sources, including fugitive sources, at the Facility. The Plan shall be submitted to Mr. Daniel Pena, SAC Unit, Environmental Health Division, Minnesota Department of Health, 121 East 7th Place Suite 220, PO Box 64975, St. Paul, MN 55101-0975. Telephone No. (651) 215-0774.	Total Facility
Testing Frequency Plan	due 60 days after Performance Test for PM and PM10 emissions. The plan shall specify a testing frequency based on results of the PM and PM10 testing (required by this permit) and MPCA guidance. Future performance tests based on year (12-month), 36-month, and 60-month intervals, or as applicable, shall be required on written approval by the MPCA per Minn. R. 7017.2020, subp. 1.	SV014
Testing Frequency Plan	due 60 days after Performance Test for PM, PM10, and VOC emissions. The plan shall specify a testing frequency based on the results of SV 004 PM, PM10, and VOC testing (required by this permit) and MPCA guidance. Future performance tests based on year (12-month), 36-month, and 60-month intervals, or as applicable, shall be required on written approval by the MPCA per Minn. R. 7017.2020, subp. 1.	SV004
Testing Frequency Plan	due 60 days after Performance Test for volatile organic compound (VOC) emissions. The plan shall specify a testing frequency based on results of the SV 003 VOC testing (required by this permit) and MPCA guidance. Future performance tests based on year (12-month), 36-month, and 60-month intervals, or as applicable, shall be required on written approval by the MPCA per Minn. R. 7017.2020, subp. 1.	SV003
Testing Frequency Plan	due 60 days after Performance Test for volatile organic compound (VOC) emissions. The plan shall specify a testing frequency based on results of the VOC testing (required by this permit) and MPCA guidance. Future performance tests based on year (12-month), 36-month, and 60-month intervals, or as applicable, shall be required on written approval by the MPCA per Minn. R. 7017.2020, subp. 1.	SV010

TABLE B: RECURRENT SUBMITTALS

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

What to send	When to send	Portion of Facility Affected
Semiannual Deviations Report	due 30 days after end of each calendar half-year following Initial Startup of the facility. The first report covers January 1st - June 30th. The second report covers July 1st - December 31st.	Total Facility
Compliance Certification	due 30 days after end of each calendar year following Initial Startup of the facility. The report covers all deviations experienced during the calendar year.	Total Facility

TABLE C: COMPLIANCE SCHEDULE

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Table C contains the compliance schedule as required by Minn. R. 7007.0500, subp. 2 (K). You must complete the actions required in Table C by the dates listed in the table. All submittals must be postmarked or received by the date specified in the table, and certified by a responsible official, defined in Minn. R. 7007.0100, subp. 21.

Subject Item: SV 003 Fermentation scrubber (CE 003)**Associated Items:** EU 025 Fermenter

EU 026 Fermenter

EU 027 Fermenter

EU 028 Beer Well

Citation	Corrective Action	When to complete the action
Minn. R. 7007.0800, subp. 2	Performance Test	due 180 days after Permit Issuance to measure volatile organic compound emissions. See "General Performance Test Requirements" in Subject Item "Total Facility" in Table A for additional performance test requirements.

TABLE C: COMPLIANCE SCHEDULE

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Subject Item: SV 010 Distillation scrubber (CE 005)

- Associated Items:** EU 009 Beer Stripper
 EU 010 Rectifier
 EU 011 Side Stripper
 EU 012 Molecular Sieve
 EU 014 Evaporator
 EU 031 bushel corn bin

Citation	Corrective Action	When to complete the action
Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7017.2020, subp. 1	Performance Test	due 180 days after Permit Issuance to measure volatile organic compound emissions. See "General Performance Test Requirements" in Subject Item "Total Facility" in Table A for additional performance test requirements.

TABLE C: COMPLIANCE SCHEDULE

05/09/02

Facility Name: Agri-Energy LLC

Permit Number: 13300023 - 006

Subject Item: SV 014 Cooling cyclone

Associated Items: EU 024 Cooling Cyclone

Citation	Corrective Action	When to complete the action
Title I Condition: To avoid major source classification under 40 CFR Section 52.21; Minn. R. 7017.2020, subp. 1	Performance Test	due 180 days after Permit Issuance to measure total particulate matter emissions. See "General Performance Test Requirements" in Subject Item "Total Facility" in Table A for additional performance test requirements.
Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7017.2020, subp. 1	Performance Test	due 180 days after Permit Issuance to measure emission of particulate matter < 10 micron (PM10). See "General Performance Test Requirements" in Subject Item "Total Facility" in Table A for additional performance test requirements.
Minn. R. 7017.2020, subp. 1	Performance Test	due 180 days after Permit Issuance to measure opacity. See "General Performance Test Requirements" in Subject Item "Total Facility" in Table A for additional performance test requirements.

APPENDIX -- Calculation of NO_x Emissions

Facility Name: Agri-Energy, LLC

Permit Number: 13300023-006

Step 1: Calculate monthly NO_x emissions using the following equation:

Equation 1: $(A \times EF_{NG}) + (B \times EF_P) + (C \times EF_{NG-LOW}) = N$

Where:

A = The quantity of natural gas combusted in the DDGS dryer and the boiler (EU 018) during the previous month, in million cubic feet

B = The quantity of propane combusted in the DDGS dryer, boiler (EU 018) and the thermal oxidizer (CE 006) during the previous month, in gallons

C = The quantity of natural gas combusted in the thermal oxidizer during the previous month, in million cubic feet

EF_{NG}= The most current AP-42 emission factor for uncontrolled nitrogen oxide emissions from the combustion of natural gas, in tons of NO_x per million cubic feet of natural gas. At the time of permit issuance, the most current AP-42 emission factor is 0.05 tons of NO_x per million cubic feet of natural gas, but may change over the life of this permit.

EF_P= The most current AP-42 emission factor for uncontrolled nitrogen oxide emissions from the combustion of propane, in tons of NO_x per gallon of propane. At the time of permit issuance, the most current AP-42 emission factor is 9.5×10^{-6} tons of NO_x per gallon of propane, but may change over the life of this permit.

EF_{NG-LOW} = The most current AP-42 emission factor for nitrogen oxide emissions from the combustion of natural gas in a low NO_x burner, in tons of NO_x per million cubic feet of natural gas. At the time of permit issuance, the most current AP-42 emission factor is 0.025 tons of NO_x per million cubic feet of natural gas, but may change over the life of this permit.

N = NO_x emissions, in tons, for the previous month

Step 2: Calculate annual NO_x emissions, using a 12-month rolling sum.

Each month, add together the NO_x emissions from the previous 12 months.

TECHNICAL SUPPORT DOCUMENT
For
AIR EMISSION PERMIT NO. 13300023-006

This technical support document is for all the interested parties of the permit. The purpose of this document is to set forth the legal and factual basis for the permit conditions, including references to the applicable statutory or regulatory provisions.

1. General Information

1.1. Applicant and Stationary Source Location:

Owner/Operator Address and Phone Number	Facility Address (SIC Code: 2869)
Agri-Energy, LLC 502 South Walnut Avenue Luverne, Minnesota 56156	Agri-Energy, LLC 502 South Walnut Avenue Luverne, Rock County, Minnesota Contact: Rick Serie, General Manager Phone: (507) 283-9297

1.2. Description Of The Facility

The facility produces fuel ethanol and Distiller's Dried Grain and Solubles (DDGS) from corn. Corn is received by truck and is cleaned, ground and fermented to produce a mixture of ethanol and water. After fermentation, pure ethanol is produced by distillation. The ethanol is then denatured with unleaded gasoline and stored in tanks prior to shipping. The remaining fermented corn is dried to produce DDGS. The DDGS is stored and then shipped by truck or railcar.

1.3 Description of the Activities Allowed By This Permit Action

This amendment allows for the installation of a thermal oxidizer (CE 006) to control volatile organic compound (VOC) emissions from the DDGS dryer at the facility. The thermal oxidizer (TO) has a maximum rated heat input capacity of 95 million Btu/hr and will be fired primarily on natural gas, with propane as a back-up fuel. The permit requires the thermal oxidizer (TO) to achieve 95 percent control of VOC emissions. A heat recovery boiler (EU 031) will also be added to recover heat from the thermal oxidizer. The permit requires that the thermal oxidizer be installed and operated within 120 days of permit issuance.

1.4. Facility Emissions:

	PM Tpy	PM10 Tpy	SO2 tpy	NOx tpy	CO tpy	VOC tpy	Single HAP tpy	All HAPs tpy
Oxidizer Potential Emissions	3.1	3.1	0.5	39.0 ¹	34.3	2.3	0.75 ²	0.79
Total Facility Limited Potential Emissions	90.8	73.5	0.6	93.8	86.5	79.8	7.84 ³	12.36

1 The permit restricts NOx emissions from the thermal oxidizer to 39.0 tons/year.

2 Acetaldehyde.

3 Hexane.

Table 3. Permit Action Classification

Classification	Major/Affected Source	*Synthetic Minor	*Minor
PSD		NOx, VOCs, PM, PM10	SO2, HAPs, CO
NAAR Not Applicable			
Part 70 Permit Program		NOx, VOCs, PM10	SO2, HAPs, CO

* Refers to potential emissions that are less than those specified as major by 40 CFR 52.21, 40 CFR pt. 51 Appendix S, and 40 CFR pt. 70.

2. Regulatory and/or Statutory Basis

Summary Regulatory and/or Statutory Basis of the Emission or operational Limit

Regulatory Overview of Units Affected by the Modification

Table 4. Regulatory Overview

EU, GP, or SV #	Applicable Regulations	Comments
GP 001	40 CFR 52.21, 40 CFR 70.2	The sources in GP 001 include the DDGS dryer (EU 015), the existing boiler (EU 018) and the thermal oxidizer (CE 006). To avoid classification as a major source under 40 CFR 52.21 and 40 CFR 70.2, the permit limits NOx emissions from the sources in GP 001 to 92 tons/year. This limit is not being changed with this amendment.
SV 004	40 CFR 52.21, 40 CFR 70.2	Emissions from the thermal oxidizer (CE 006) and the DDGS dryer (EU 015) vent to SV 004. To avoid classification as a major source under 40 CFR 52.21 and 40 CFR 70.2, the existing permit establishes PM, PM10 and VOC emission limits for SV 004. This permit action

		does not change the PM and PM10 emission limits. The VOC emission limit is being reduced from 9.0 lb/hr to 5.0 lb/hr. The permit also requires that the thermal oxidizer meet a 95% VOC destruction efficiency.
CE 006	40 CFR 52.21, 40 CFR 70.2	To avoid possible classification as a major modification under PSD, the permit limits NOx emissions from fuel combusted in the thermal oxidizer to 39.0 tons/year.

3. Technical Information

3.1 Federal New Source Review

The current permit establishes emission limits which limit emissions of all pollutants to less than 100 tons/year to avoid classification as a “major stationary source” under the Prevention of Significant Deterioration (PSD) rules. However, it is possible that actual VOC emissions from the facility have exceeded the 100 ton/year PSD major source level. For the purposes of this analysis, it is assumed that the facility is currently a major stationary source under PSD.

Assuming major source classification under PSD, it is necessary to demonstrate that a proposed modification is not a “major modification” under the PSD rules. Installation of the TO is considered a modification to the facility. Under PSD, any modification which increases emissions by more than the “significant levels” established under PSD is classified as a major modification and must complete a Best Available Control Technology (BACT) analysis.

Emissions from the TO alone are shown below (calculations are attached):

Potential Emissions Increase (Thermal Oxidizer Only)

Pollutant	Emissions Increase (tons/year)	PSD Significant Level (tons/year)
PM	3.1	25
PM10	3.1	15
VOC	2.3	40
CO	34.1	100
Nox	87.4 ¹	40
SO2	0.45	40

¹ Assuming propane combustion. Maximum potential emissions when combusting natural gas are 20.8 tons/year.

As can be seen from the above table, emissions of NOx from the TO exceed the PSD significant level of 40 tons/year. To avoid classification as a major modification under PSD, a condition is added to the permit which limits NOx emissions from the TO to 39.0 tons/year. The Permittee is required to record the amount of natural gas and propane combusted and calculate the monthly and the 12-month rolling sum of NOx emissions from the TO.

Although the TO will produce emissions from the combustion of natural gas and propane, facility-wide emissions from the combustion of natural gas and propane are not expected to increase significantly as a result of the TO installation and operation. This is due to the fact that installation and operation of the TO is not expected to result in increased utilization of any equipment at the facility and the heat generated by the TO will be recovered by a new heat recovery boiler. Recovery of the heat produced by the TO should result in a near-proportionate decrease in the amount of natural gas and propane burned in the existing 83.7 million Btu/hr boiler at the facility. The TO will be equipped with low-NO_x burners with emissions of less than 0.5 lb/million Btu NO_x when burning natural gas. Based on AP-42, the current boiler is expected to emit approximately 0.1 lb/million Btu when burning natural gas. Based upon these factors, it is estimated that the TO (when combusting natural gas) will emit approximately 50% less NO_x on a lb/million Btu basis when compared to the existing boiler. For pollutants other than NO_x, emissions from the TO are expected to be similar on a lb/million Btu basis as emissions from the existing boiler.

3.2 Projected VOC and Hazardous Air Pollutant (HAP) Emission Reductions

The TO will be required to reduce VOC emissions from the DDGS dryer stack by 95%. Although no valid stack test data exists for pre-modification VOC and HAP emissions, pre-modification VOC and HAP emissions can be estimated based upon the November 2001 stack test results. This stack test was conducted while emissions were controlled by a packed bed sodium hydroxide solution scrubber; therefore, emissions of VOCs and HAPs cannot be considered to be uncontrolled. However, uncontrolled emissions can be estimated as follows:

$$\begin{aligned} \text{VOC emission rate (controlled)} &= 7.53 \text{ lb/hr} \\ \text{Total HAP emission rate (controlled)} &= 3.92 \text{ lb/hr} \end{aligned}$$

$$\text{VOC control} = 60\% \text{ (assumed)}$$

$$\begin{aligned} \text{VOC emission rate (uncontrolled)} &= (7.53 \text{ lb/hr}) / (1-0.60) = 18.83 \text{ lb/hr} \\ \text{HAP emission rate (uncontrolled)} &= (3.92 \text{ lb/hr}) / (1-0.60) = 9.80 \text{ lb/hr} \end{aligned}$$

$$\begin{aligned} \text{VOC emission rate (controlled by TO)} &= 18.83 \text{ lb/hr} (1-0.95) = 0.92 \text{ lb/hr} \\ \text{HAP emission rate (controlled by TO)} &= 9.80 \text{ lb/hr} (1-0.95) = 0.49 \text{ lb/hr} \end{aligned}$$

$$\begin{aligned} \text{VOC potential emission reduction} &= (18.83-0.92) \text{ lb/hr} = 17.91 \text{ lb/hr} \\ \text{HAP potential emission reduction} &= (9.80-0.49) \text{ lb/hr} = 9.31 \text{ lb/hr} \end{aligned}$$

Assuming 8,760 hours/year of operation at maximum production, emissions from the dryer stack are expected to decrease by approximately 78 tons/year of VOCs and 40 tons/year of HAPs. Changed in allowable VOC/HAP emissions are discussed in Section 3.3.

3.3 VOC/HAP Emissions

VOC/HAP emissions from the DDGS dryer stack (SV 004) are expected to be reduced significantly as a result of the addition of the thermal oxidizer. The current permit limits emissions of VOCs to 9.0 lb/hr. The most recent VOC testing was conducted on November 28 and 29, 2001 and showed compliance with the VOC limit with emissions being controlled by a packed sodium hydroxide solution scrubber with a pH of 6.1. During this testing, method 25A resulted in a VOC emission rate of 8.44 lb/hr, while modified method 5 (MM5) testing resulted in a VOC emission rate of 7.53 lb/hr. During the MM5 testing, the VOC emissions were speciated and resulted in the following emission rates:

DDGS Dryer Stack (SV 004) Test Results

Pollutant	Emission Rate (lb/hr)
Ethanol	0.95
Acetic Acid	2.08
Formaldehyde*	0.76
Methanol*	<= 0.11
Acetaldehyde*	2.69
Acrolein*	0.36
2-Furfuraldehyde	<= 0.36
Lactic Acid	<= 0.22
Total VOCs	7.53

* Hazardous Air Pollutants (HAPs)

To avoid classification as a major source of HAPs under Part 70 and 40 CFR 63, emissions of any individual HAP must be restricted to less than 10 tons/year and emissions of total HAPs must be restricted to less than 25 tons/year. Currently, VOC emissions are restricted to 9.0 lb/hr from the DDGS dryer stack. At a VOC emission limit of 9.0 lb/hr, the acetaldehyde emission rate can be estimated by multiplying by the acetaldehyde/VOC ratio from the performance test. This results in an estimated acetaldehyde emission rate of 9.0 lb/hr $(2.69/7.53) = 3.22$ lb/hr. Assuming 8,760 hours/year of operation, this results in an acetaldehyde annual potential emission rate of 3.22 lb/hr $(8,760 \text{ hr/yr})(1 \text{ ton}/2,000 \text{ lb}) = 14.1$ ton/year, which is above the major source level for HAPs of 10 ton/year. To restrict HAP emissions, allowable VOC emissions from the DDGS dryer stack will be reduced from 9.0 lb/hr to 5.0 lb/hr. With an allowable VOC emission rate of 5.0 lb/hr, the VOC speciation is estimated as follows:

Post-Modification Estimated Maximum Emission Rates (SV 004)

Pollutant	Emission Rate (lb/hr)	Emission Rate (ton/year)
Ethanol	0.63	2.76
Acetic Acid	1.38	6.04
Formaldehyde*	0.51	2.23
Methanol*	<= 0.07	<= 0.31
Acetaldehyde*	1.79	7.84
Acrolein*	0.24	1.05
2-Furfuraldehyde	<= 0.24	<= 1.05
Lactic Acid	<= 0.15	<= 0.66
Max. Individual HAP (acetaldehyde)	1.79	7.84
Total (HAPs)	2.61	11.43
Total (VOCs)	5.0	21.90

* Hazardous Air Pollutants (HAPs)

The above emission rates were calculated by assuming that the ratios of speciated VOCs will remain constant. A sample calculation is shown below:

$$\text{Ethanol emission rate (lb/hr)} = 5.0 \text{ lb/hr} (0.95/7.53)^* = 0.63 \text{ lb/hr}$$

* Represents the ratio of the tested ethanol emission rate of 0.95 lb/hr to the tested total VOC emission rate of 7.53 lb/hr.

Maximum individual HAP (acetaldehyde) emissions from the facility are 7.84 tons/year, which is below the Part 70 and 40 CFR 63 major source level of 10 tons/year for any individual HAP. There are no other known significant sources of acetaldehyde emissions at the facility, so acetaldehyde emissions from the dryer stack are equal to acetaldehyde emissions from the facility.

Total HAP emissions from the entire facility are estimated by summing total HAP emissions from the storage tanks (0.14 tpy), total HAP emissions from combustion sources (0.79 tpy) and total HAP emissions from the DDGS dryer (11.43 tpy), which results in total estimated HAP emissions of 12.36 tons/year. Total HAP emissions are less than the Part 70 and 40 CFR 63 major source level for total HAPs of 25 tons/year.

4. Conclusion

Based on the information provided by Agri-Energy, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 13300023-006 and this technical support document, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team: Craig Thorstenson, A-Jelil Abdella, Rhonda Land

Peer Review: John Chikkala

Attachment: Calculations
Facility Description Forms