

**AIR EMISSION PERMIT NO. 12900036- 004  
IS ISSUED TO**

Minnesota Energy  
777 West Borden Avenue  
Buffalo Lake, Renville County, Minnesota 55314

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):

<b>Permit Type</b>	<b>Application Date</b>
<b>Total Facility Operating Permit</b>	01/21/1998
<b>Major Amendment</b>	09/28/1998
<b>Moderate Amendment</b>	07/21/1999

This permit authorizes the permittee to operate and construct 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:** Moderate Amendment  
**Issue Date:** October 28, 1999  
**Expiration:** Permit does not expire  
All Title I Conditions do not expire.

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Rodney E. Massey, P.E.  
South Division Director

for Karen A. Studders  
Commissioner  
Minnesota Pollution Control Agency

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**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. Certain requirements which have been determined not to apply are listed in Table A of this permit.

**FACILITY DESCRIPTION:**

The Permittee operates a 14,500,000 gallon per year fuel ethanol production plant in Buffalo Lake, Renville County, Minnesota. Emissions from this facility include particulate matter from the handling of corn and handling and drying of DDGS (distillers' dried grains with solubles, a by-product consisting of solid matter from spent corn); volatile organic compounds from fermentation, distillation, storage, and loadout of ethanol; and combustion products (primarily nitrogen oxides) from combustion of natural gas and propane in the dryer and two boilers. The permit contains conditions limiting the air emissions to less than 100 tons per year for each criteria pollutant, so that the facility is considered a non-major source under 40 CFR § 52.21, 40 CFR § 70.2, and Minn. R. 7007.0200.

This moderate amendment authorizes the construction and operation of two new gasoline storage tanks (006 and 007) and also authorizes Tank 003 to change from a gasoline storage to an off-spec ethanol storage tank.

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

10/28/99

Facility Name: Minnesota Energy

Permit Number: 12900036 - 004

**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**

<b>What to do</b>	<b>Why to do it</b>
Production: less than or equal to 14500000 gallons/year using 12-month Rolling Sum of fuel ethanol (pure ethanol that has not been denatured).	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 fuel ethanol production for 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
Recordkeeping: by the 15th day of each month, calculate and record the total fuel ethanol production for the previous 12-month period (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.	Minn. R. 7007.0800, subp. 14 and Minn. R. 7007.0800, subp. 16(J)
Notification of Deviations Endangering Human Health or the Environment: Immediately after discovery, notify orally or by facsimile the Commissioner or 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 Report: Within 2 working days of discovery, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. 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 steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.	Minn. R. 7019.1000, subp. 1
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
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
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, or during checks of the monitoring systems, such as calibration checks and zero and span adjustments. If monitoring records are required, they should reflect any such periods of process shutdown or checks of the monitoring system.	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 pollutant emitted.	Minn. R. 7011.0020
Application for Permit Amendment: If a permit amendment is needed, submit an 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

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

10/28/99

Facility Name: Minnesota Energy

Permit Number: 12900036 - 004

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. Comply with all other requirements listed in Minn. R. 7011.0150.	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)
Record keeping: 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)
Record keeping: 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 the 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)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

10/28/99

Facility Name: Minnesota Energy

Permit Number: 12900036 - 004

**Subject Item:** GP 001 Temporary outdoor storage**Associated Items:** EU 025 Conveyor

FS 004 Temporary storage pile

What to do	Why to do it
Opacity: less than or equal to 5 percent opacity for fugitive emissions.	Minn. R. 7011.1005, subp. 3(A)
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)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

10/28/99

Facility Name: Minnesota Energy

Permit Number: 12900036 - 004

**Subject Item:** GP 002 Baghouse Operating & Monitoring Require**Associated Items:** CE 001 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 002 Fabric Filter - Low Temperature, i.e., T&lt;180 Degrees F

CE 004 Fabric Filter - Low Temperature, i.e., T&lt;180 Degrees F

What to do	Why to do it
Operation and Maintenance of Fabric Filter: The Permittee shall operate and maintain the fabric filter according to the control equipment manufacturer's specifications.	Minn. R. 7007.0800, subp. 14
Visible Emissions: The Permittee shall check the outlet of each baghouse (SV 001, SV 002, SV 004) for any visible emissions, once each day of operation during daylight hours. The Permittee shall record the time and date of each visible emission inspection, and whether or not any visible emissions were observed.	Minn. R. 7007.0800, subp. 4
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.	Minn. R. 7007.0800, subp. 14
Operate the baghouses at all times when the associated emission units are in operation.	Minn. R. 7011.1015
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**

10/28/99

Facility Name: Minnesota Energy  
Permit Number: 12900036 - 004

**Subject Item:** GP 003 Tanks subject to NSPS subp. Kb

**Associated Items:** TK 001 Ethanol  
TK 002 Ethanol  
TK 003 Off-spec ethanol  
TK 004 Off-spec ethanol  
TK 005 95% ethanol/ 5% gasoline  
TK 006 Gasoline  
TK 007 Gasoline

What to do	Why to do it
Recordkeeping: Maintain records showing the dimensions of each 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**

10/28/99

Facility Name: Minnesota Energy

Permit Number: 12900036 - 004

**Subject Item:** GP 004 Boilers subject to NSPS Subpart Dc**Associated Items:** EU 015 Boiler #1

EU 016 Boiler #2

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.	40 CFR Section 60.13(l) and February 20, 1992, EPA memo to meet 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**

10/28/99

Facility Name: Minnesota Energy

Permit Number: 12900036 - 004

**Subject Item:** SV 001**Associated Items:** EU 001 Corn transfer cyclone

EU 002 Pneumatic corn transfer

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.1 grains/dry standard cubic foot , or the allowable concentration at the exhaust flow rate, as described in Minn. R. 7011.0735	Minn. R. 7011.1005, subp. 3(D)
Opacity: less than or equal to 10 percent opacity	Minn. R. 7011.1005, subp. 3(D)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

10/28/99

Facility Name: Minnesota Energy

Permit Number: 12900036 - 004

**Subject Item:** SV 002**Associated Items:** EU 003 Surge bin #1

EU 004 Surge bin #2

What to do	Why to do it
A. EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.1 grains/dry standard cubic foot , or the allowable concentration at the exhaust flow rate, as described in Minn. R. 7011.0735	Minn. R. 7011.1005, subp. 3(D)
Opacity: less than or equal to 10 percent opacity	Minn. R. 7011.1005, subp. 3(D)
B. CONTROL EQUIPMENT REQUIREMENTS	hdr
Total Particulate Matter: greater than or equal to 33.2 percent collection efficiency (CE 002).	Minn. Stat. 116.07, subd. 4a [required to meet limit under Minn. R. 7011.1005, subp. 3(D)]

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

10/28/99

Facility Name: Minnesota Energy

Permit Number: 12900036 - 004

**Subject Item:** SV 003**Associated Items:** EU 005 Hammermill

EU 006 Lime hopper

What to do	Why to do it
A. EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.17 lbs/hour (met by equipment capacity and production limitations).	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 , or the allowable concentration at the 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 0.17 lbs/hour (met by equipment capacity and production limitations).	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. CONTROL EQUIPMENT REQUIREMENTS	hdr
Total Particulate Matter: greater than or equal to 99 percent collection efficiency (CE 003).	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Particulate Matter < 10 micron: greater than or equal to 97 percent collection efficiency (CE 003).	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**

10/28/99

Facility Name: Minnesota Energy

Permit Number: 12900036 - 004

**Subject Item:** SV 004**Associated Items:** EU 021 DDGS rail loadout

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.1 grains/dry standard cubic foot , or the allowable concentration at the exhaust flow rate, as described in Minn. R. 7011.0735	Minn. R. 7011.1005, subp. 3(D)
Opacity: less than or equal to 10 percent opacity	Minn. R. 7011.1005, subp. 3(D)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

10/28/99

Facility Name: Minnesota Energy

Permit Number: 12900036 - 004

**Subject Item:** SV 005**Associated Items:** EU 017 DDGS Dryer

EU 018 Cooling cyclone

What to do	Why to do it
A. EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 17.84 lbs/hour	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Total Particulate Matter: less than or equal to 0.055 grains/dry standard cubic foot , or the allowable concentration at the 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 17.84 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
Volatile Organic Compounds: less than or equal to 3.0 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
Opacity: less than or equal to 10 percent opacity	Minn. R. 7011.1005, subp. 3(D)
B. CONTROL EQUIPMENT REQUIREMENTS	hdr
Total Particulate Matter: greater than or equal to 96.5 percent collection efficiency (CE 005).	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Particulate Matter < 10 micron: greater than or equal to 96.5 percent collection efficiency (CE 005).	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 30 days after end of each 60 months starting 04/01/2003 to measure PM10 and VOC emissions. The first test is due on or before 04/01/2003. The tests shall be conducted at an interval not to exceed 60 months between test dates.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; Minn. R. 7017.2020, subp. 1; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Performance Test Pre-test Meeting: due 7 days before end of each 60 months starting 04/01/2003 (7 days before each PM10 and VOC Performance Test)	Minn. R. 7017.2030, subp. 4
Performance Test: due before end of each 36 months starting 11/01/2000 to measure Opacity and Total Particulate Matter (PM) emissions. The first test is due on or before 11/01/2000. The tests shall be conducted at an interval not to exceed 36 months between test dates.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; Minn. R. 7017.2020, subp. 1; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Performance Test Pre-test Meeting: due 7 days before end of each 36 months starting 11/01/2000 (7 days before each PM and Opacity Performance Test)	Minn. R. 7017.2030, subp. 4

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

10/28/99

Facility Name: Minnesota Energy

Permit Number: 12900036 - 004

**Subject Item:** SV 010

**Associated Items:** EU 007 Fermenter A  
 EU 008 Fermenter B  
 EU 009 Fermenter C  
 EU 010 Fermenter D  
 EU 011 Beer well  
 EU 012 Beer stripper  
 EU 013 Rectifier  
 EU 014 Molecular sieve

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 6.0 lbs/hour at outlet of control device.	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. CONTROL EQUIPMENT REQUIREMENTS	hdr
Volatile Organic Compounds: greater than or equal to 97.4 percent collection efficiency (CE 006).	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 end of each 60 months starting 11/01/2002 to measure VOC emissions. The first test is due on or before 11/01/2002. The tests shall be conducted at an interval not to exceed 60 months between test dates.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before end of each 60 months starting 11/01/2002 (7 days before each VOC Performance Test)	Minn. R. 7017.2030, subp. 4



**TABLE A: LIMITS AND OTHER REQUIREMENTS**

10/28/99

Facility Name: Minnesota Energy  
Permit Number: 12900036 - 004

**Subject Item:** EU 017 DDGS Dryer

**Associated Items:** CE 005 Multiple Cyclone w/o Fly Ash Reinjection - Most Multiclones  
SV 005

What to do	Why to do it
Fuel Burned: Natural gas and propane only.	Minn. Stat. 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

10/28/99

Facility Name: Minnesota Energy

Permit Number: 12900036 - 004

**Subject Item:** EU 026 Temporary (back-up) boiler**Associated Items:** SV 011 Backup Boiler

What to do	Why to do it
A. OPERATING REQUIREMENTS	hdr
Operating Hours: less than or equal to 1500 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
Fuel Burned: Natural gas only.	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2
B. RECORDKEEPING REQUIREMENTS	hdr
Recordkeeping: by the 15th day of each month, calculate and record the hours of boiler operation (EU 026 only) for 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
Recordkeeping: by the 15th day of each month, calculate and record the total operating hours of EU 026 for the previous 12-month period (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: 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.	40 CFR Section 60.13(l) and February 20, 1992, EPA memo to meet 40 CFR Section 60.48c(g) and (l); Minn. R. 7011.0570

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

10/28/99

Facility Name: Minnesota Energy

Permit Number: 12900036 - 004

**Subject Item:** CE 003 Fabric Filter - Low Temperature, i.e., T<180 Degrees F**Associated Items:** EU 005 Hammermill

EU 006 Lime hopper

What to do	Why to do it
Operation and Maintenance of Fabric Filter: The Permittee shall operate and maintain the fabric filter 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 the outlet of the baghouse (SV 003) for any visible emissions, once each day of operation during daylight hours. The Permittee shall record the time and date of each visible emission 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 were 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
Operate the baghouse at all times when the associated emission units are in operation.	Minn. R. 7011.1015
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**

10/28/99

Facility Name: Minnesota Energy

Permit Number: 12900036 - 004

**Subject Item:** CE 005 Multiple Cyclone w/o Fly Ash Reinjection - Most Multiclones**Associated Items:** EU 017 DDGS Dryer

EU 018 Cooling cyclone

What to do	Why to do it
Pressure Drop: greater than or equal to 1 inches of water column and less than or equal to 4 inches of water column , or as determined during most recent performance test demonstrating compliance.	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.
Record the pressure drop at the cyclone once each day of operation.	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
Corrective Action: If the pressure drop is not within the specified range of values, the Permittee shall take corrective action as soon as possible to return the pressure drop to within the required range. 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
Calibrate the pressure drop gauge annually, or as often as required by manufacturer's 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
Operate the cyclone at all times when the associated emission units are in operation.	Minn. R. 7011.1015

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

10/28/99

Facility Name: Minnesota Energy

Permit Number: 12900036 - 004

**Subject Item:** CE 006 Gas Scrubber (General, Not Classified)**Associated Items:** EU 007 Fermenter A

EU 008 Fermenter B

EU 009 Fermenter C

EU 010 Fermenter D

EU 011 Beer well

EU 012 Beer stripper

EU 013 Rectifier

EU 014 Molecular sieve

What to do	Why to do it
Pressure Drop: greater than or equal to 10 inches of water column and less than or equal to 14 inches of water column , or as determined during most recent performance test demonstrating compliance.	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.
Water flow rate: greater than or equal to 66 gallons/minute (nominal) with 1 to 2 gallons per minute makeup.	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
Record the pressure drop and water flow rate once each day of operation.	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
Corrective Action: If the pressure drop and/or the water flow rate are not within the ranges specified herein, the Permittee shall take corrective action as soon as possible to achieve the required operating values. 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
Calibrate the gauges annually, or as often as required by manufacturer's 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**

10/28/99

Facility Name: Minnesota Energy

Permit Number: 12900036 - 004

**Subject Item:** TK 005 95% ethanol/ 5% gasoline**Associated Items:** GP 003 Tanks subject to NSPS subp. Kb

What to do	Why to do it
<b>A. POLLUTION CONTROL REQUIREMENTS</b>	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 this section.	40 CFR Section 60.112b(a); Minn. R. 7011.1520 (C)
The internal 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>B. MONITORING REQUIREMENTS</b>	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 twelve (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 five (5) years.	40 CFR Section 60.113b(a)(3)(i); Minn. R. 7011.1520 (C)
<b>C. RECORDKEEPING REQUIREMENTS</b>	hdr
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)
<b>D. REPORTING REQUIREMENTS</b>	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 thirty (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 thirty (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 refilling 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 60.115b(a)(5); Minn. R. 7011.1520 (C)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

10/28/99

Facility Name: Minnesota Energy  
Permit Number: 12900036 - 004

**Subject Item: FS 001 Uncaptured DDGS emissions**

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**

10/28/99

Facility Name: Minnesota Energy

Permit Number: 12900036 - 004

**Subject Item: FS 003 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 B: SUBMITTALS

10/28/99

Facility Name: Minnesota Energy  
Permit Number: 12900036 - 004

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**

10/28/99

Facility Name: Minnesota Energy

Permit Number: 12900036 - 004

What to send	When to send	Portion of Facility Affected
Notification of the Actual Date of Initial Startup	due 15 days after Initial Startup	EU026
Notification of the Anticipated Date of Initial Startup	due 30 days before Anticipated Date of Initial Startup	EU026
Notification of the Date Construction Began	due 30 days after Start Of Construction	EU026
Notification	due 14 days after Equipment Removal and/or Dismantlement. Notification shall include the date that the boiler was removed from the site.	EU026
Notification	due 14 days before Resuming Operation of the boiler, in the event that it is brought back on site after it has been removed. Notification shall include the date that the boiler was brought back on site, and the date operation is expected to resume.	EU026

**TABLE B: RECURRENT SUBMITTALS**

10/28/99

Facility Name: Minnesota Energy

Permit Number: 12900036 - 004

What to send	When to send	Portion of Facility Affected
Semiannual Deviations Report	due 30 days after end of each calendar half-year following Permit Issuance . The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31. If no deviations occur, Permittee shall submit a report stating that no deviations occurred.	Total Facility
Compliance Certification	due 30 days after end of each calendar year following Permit Issuance (for the previous calendar year). To be submitted on a form approved by the Commissioner. The report covers all deviations experienced during the calendar year.	Total Facility
Emissions Inventory Report	due 91 days after end of each calendar year following Permit Issuance (April 1). To be submitted on a form approved by the Commissioner.	Total Facility
Performance Test Notification (written)	due 30 days before end of each 36 months starting 11/01/2000 (30 days before each PM and Opacity Performance Test)	SV005
Performance Test Plan	due 30 days before end of each 36 months starting 11/01/2000 (30 days before each PM and Opacity Performance Test)	SV005
Performance Test Report - Microfiche Copy	due 105 days after end of each 36 months starting 11/01/2000 (105 days after each PM and Opacity Performance Test)	SV005
Performance Test Report	due 45 days after end of each 36 months starting 11/01/2000 (45 days after each PM and Opacity Performance Test)	SV005
Performance Test Notification (written)	due 30 days before end of each 60 months starting 04/01/2003 (30 days before each PM10 and VOC Performance Test)	SV005
Performance Test Notification (written)	due 30 days before end of each 60 months starting 11/01/2002 (30 days before each VOC Performance Test)	SV010
Performance Test Plan	due 30 days before end of each 60 months starting 04/01/2003 (30 days before each PM10 and VOC Performance Test)	SV005
Performance Test Plan	due 30 days before end of each 60 months starting 11/01/2002 (30 days before each VOC Performance Test)	SV010
Performance Test Report - Microfiche Copy	due 105 days after end of each 60 months starting 04/01/2003 (105 days after each PM10 and VOC Performance Test)	SV005
Performance Test Report - Microfiche Copy	due 105 days after end of each 60 months starting 11/01/2002 (105 days after each VOC Performance Test)	SV010
Performance Test Report	due 45 days after end of each 60 months starting 04/01/2003 (45 days after each PM10 and VOC Performance Test)	SV005
Performance Test Report	due 45 days after end of each 60 months starting 11/01/2002 (45 days after each VOC Performance Test)	SV010

**TECHNICAL SUPPORT DOCUMENT**  
**For**  
**DRAFT AIR EMISSION PERMIT NO. 12900036-004**

This technical support document is for all the interested parties of the draft permit. The purpose of this document is to set forth the legal and factual basis for the draft 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 (list both if different)	Facility Address (SIC Code: 2869)
Minnesota Energy P.O. Box 218 Buffalo Lake, Minnesota 55314  Contacts: Jennifer Kenney (Tech. Adm. Ass) Robert Johansen (General Manager) (320) 833-5939 (320) 833-5934 – fax	Minnesota Energy 777 Borden Avenue West Buffalo Lake, Renville County, Minnesota

1.2. Description of the Facility

The Permittee operates a 14,500,000-gallon per year fuel ethanol production plant in Buffalo Lake, Renville County, Minnesota. Emissions from this facility include particulate matter from the handling of corn and handling and drying of DDGS (distillers dried grains with solubles, a by-product consisting of solid matter from spent corn); volatile organic compounds from fermentation, distillation, storage, and loadout of ethanol; and combustion products (primarily nitrogen oxides) from combustion of natural gas and propane in the dryer and the two boilers. The existing permit contains conditions limiting the air emissions to less than 100 tons per year for each criteria pollutant, so that the facility is considered a non-major source under 40 CFR 52.21, 40 CFR 70.2, and Minn. R. 7007.0200.

1.3 Description of the Activities Allowed By This Permit Action

This permit action authorizes the installation and operation of two new 15, 000 gallon tanks (006 and 007) for the storage of ethanol denaturant (a.k.a. gasoline) and authorizes the facility to use Tank 003, formerly a gasoline storage tank, as an off-specification ethanol storage tank. This moderate permit amendment did not result in any change in the permit status for the facility. The addition of the new tanks will not increase the potential to emit for any constituents at the facility since the ethanol production capacity did not change.

#### 1.4. Facility Emissions:

**Table 1**  
**Emissions Associated with the Modification**

Pollutant	Potential to Emit from the modification  (lb/hr)	Potential to Emit from the modification  (TPY)	*Emission Increases Authorized with this Permit Action	*Emission Decreases Authorized with this Permit Action	**Other contemporaneous emission increases/decreases (TPY)	Net Emission Change  (TPY)	NSR/ 112(g) Threshold Level  (TPY)	NSR/ MACT Review Required  (Yes/No)
VOC	128 <sup>1</sup>	2.72 <sup>2</sup>	2.72	NA	NA	+ 2.72	NA	No
HAPs (add as needed)	NA	NA	NA	NA	NA	NA	< 10 / 25	No

\*Emission increases allowed with the permit action include additions and subtractions associated with netting. If netting is done, this will be different from the potential to emit from the modification.

\*\*Other emission changes during the contemporaneous period as defined by 40 CFR 52.21, 40 CFR 52.24 or 40 CFR 51.

1. This number was calculated for a 9,000-gallon tanker filling the tank in 20 minutes. The estimated emissions pushed the modification from minor to moderate.
2. This calculation does not correspond to company's PTE calculation provided with the permit amendment application. The number above was calculated using gas a throughput that corresponding to the maximum permitted production capacity of 14,500,000 gallons. No reductions in emissions were considered from the change in the storage of gas to ethanol in Tank 003.

**Table 2**  
**\*Total Facility Potential to Emit Summary**

	PM (tpy)	PM10 (tpy)	SO2 (tpy)	NOx (tpy)	CO (tpy)	VOC (tpy)	Single HAP (tpy)	All HAPs (tpy)
Total Facility Limited Potential Emissions	92.0	84.6	0.27	89.5	37.7	60.9	0.037	0.037

\* None of the PTE's change due to the fact that the production capacity of the facility has not changed.

**Table 3**  
**\* Permit Action Classification**

<b>Classification</b>	<b>Major/Affected Source</b>	<b>Synthetic Minor</b>	<b>Minor</b>
PSD		NO <sub>x</sub> , PM, PM <sub>10</sub> , VOC	CO, SO <sub>2</sub>
NAAR - N/A			
Part 70 Permit Program		PM <sub>10</sub> , VOC, NO <sub>x</sub>	CO, SO <sub>2</sub> , HAPs

\* As a result of the moderate permit amendment, there was no change in the permitted status of this facility.

## 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**

<b>EU, GRP, or SV #</b>	<b>Applicable Regulations</b>	<b>Comments</b>
GP 003	40 CFR 60 Subp. Kb	Tanks 006 and 007 have been added to this group. The contents for tank 003 have been changed from gasoline to off-spec ethanol.

## 3. Technical Information

Calculations by the facility were corrected to worst case scenario of 14.5 M production. These calculations were different than the facility's which were estimated using EPA's TANKS model. For the two new tanks, the *VOC Emissions for Storage Tank, Fixed Roof* worksheet was used to verify the MN energy results. At 14.5 M, total VOC losses was estimated to be 2.72 ton/year. This was calculated using a 5 percent mix of gasoline.

The calculation to determine if this amendment was minor or moderate was done using the Working Loss portion of the worksheet noted above. Using facility information (9,000 gallon tanker, 20 minute fill-time) and an ambient temperature of 95 F, the working loss for a fill came out to be 128 pound/hour clearly exceeding the threshold of 9.15 pound/hour making it a moderate modification.

## 4. Conclusion

Permit Action Number: 12900036-004

Date: 2/5/2004

Based on the information provided by Minnesota Energy the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 12900036-004 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: Joseph Carruth, Dave Beil, Glenn Giefer, Marshall Cole

Attachments: *VOC Emissions for Storage Tank, Fixed Roof*