

**AIR EMISSION PERMIT NO. 12300019- 002
IS ISSUED TO**

MINNESOTA BREWING COMPANY
882 West 7th Street
St. Paul, Ramsey County, MN 55102

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

Permit Type	Date
Major Amendment (Revised)	12/23/1999

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: Major Permit Amendment to Federal; Part 70 (Total Facility Permit : 4/15/1998)

Issue Date: March 15, 2000

Expiration: Upon re-issuance of Total Facility Permit
All Title I Conditions do not expire.

Richard J. Sandberg, Manager
Major Facilities Section
Metro District

for Karen A. Studders
Commissioner
Minnesota Pollution Control Agency

JSC:lao

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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 principal activity at the Minnesota Brewing facility is the production of malt beverages, alcoholic and non-alcoholic beverages. This facility has been modified to incorporate a dry mill ethanol production plant.

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

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
A. ETHANOL PRODUCTION LIMIT AND RECORDEDKEEPING REQUIREMENTS	hdr
Production: less than or equal to 20000000 gallons/year using 12-month Rolling Sum of fuel ethanol. Production during the first 11 months of operation is limited to 1,666,667 gallons of fuel ethanol per calendar month. For purposes of this permit, the terms "fuel ethanol" or "fuel alcohol" are interchangeable and refer to the pure ethanol produced by fermentation of corn, to be denatured and used as fuel or a fuel additive.	Title I Condition: To avoid major source classification and a major modification under 40 CFR Section 52.21
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
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
B. OPERATIONAL REQUIREMENTS	hdr
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 CE 005 & CE 008, and the minimum and maximum values for pressure drop for CE 002, CE 003, and CE 006.	Minn. R. 7007.0800, subp. 14 and Minn. R. 7007.0800, subp. 16(J)
Operating and/or production limits will be placed on emission units based on operating conditions during the compliance testing. Limits set as a result of performance test (conducted before or after permit issuance) apply until superseded as specified by Minn. R. 7017.2025 following a formal review of a subsequent performance test on the same unit.	Minn. R. 7017.2025
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
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
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)
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
Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7030.0010 - 7030.0080
The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.	Minn. R. 7007.0800, subp. 16
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)
C. MONITORING REQUIREMENTS	hdr
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)

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

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)
D. NOTIFICATION REQUIREMENTS	hdr
Shutdown Notifications: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3. At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over.	Minn. R. 7019.1000, subp. 3
Breakdown Notifications: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2. At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over.	Minn. R. 7019.1000, subp. 2
Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify the Commissioner or the state duty officer, either orally or by facsimile, of any deviation from permit conditions which could endanger human health or the environment.	Minn. R. 7019.1000, subp. 1
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: 1. the cause of the deviation; 2. the exact dates of the period of the deviation, if the deviation has been corrected; 3. whether or not the deviation has been corrected; 4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and 5. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.	Minn. R. 7019.1000, subp. 1
See Table B For Additional Notification and Submittal Requirements	hdr
E. PERFORMANCE TESTING REQUIREMENT	hdr
Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in Tables A, B, and/or C.	Minn. R. ch. 7017
F. RECORDKEEPING REQUIREMENTS	hdr
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)
G. REPORTING REQUIREMENTS	hdr
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

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

Emission Fees: due 60 days after receipt of an MPCA bill.	Minn. R. 7002.0005 through Minn. R. 7002.0095
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

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

Subject Item: GP 001 Cyclone Monitoring Requirement**Associated Items:** CE 002 Multiple Cyclone w/o Fly Ash Reinjection - Most Multiclones

CE 003 Centrifugal Collector - High Efficiency

CE 006 Centrifugal Collector - High Efficiency

What to do	Why to do it
Pressure Drop: greater than or equal to 2 inches of water column and less than or equal to 8 inches of water column or demonstrated in the most recent performance test.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Record the pressure drop at each cyclone once each day of operation.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Corrective Action: If the pressure drop is not in the range of values specified by the manufacturer, the Permittee shall take corrective action as soon as possible to return the pressure drop to within the required range.	Title I Condition: Corrective action to avoid major source classification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 14
Recordkeeping of Corrective Action: The Permittee shall keep a record of the type and date of all corrective actions taken.	Title I Condition: Recordkeeping of corrective action to avoid major source classification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 5
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

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

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

CE 004 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 009 Fabric Filter - Low Temperature, i.e., T<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.	Title I Condition: To avoid major source classification and major modification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 14
Visible Emissions: The Permittee shall check the outlet of each baghouse (SV 002, SV 005, and SV 011) for any visible emissions, once each day of operation during daylight hours. If the visible emission check is not possible due to inclement weather, the Permittee shall instead determine and record the pressure drop across the baghouse. The Pressure drop shall not exceed 6.0 inches of water column nor be less than 1.0 inches of water column.	Minn. R. 7007.0800, subp. 4
Recordkeeping of Visible Emissions: 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. 5
Recordkeeping of 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 corrective actions taken.	Title I Condition: To avoid major source classification and major modification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 14
Inspect quarterly, or as required by the manufacturing specifications, all components that are not subject to ware 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 the manufacturing specifications, all components that are subject to ware 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

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

Subject Item: GP 003 Residual Oil Combustion**Associated Items:** EU 001 Boiler #1

EU 002 Boiler #2

What to do	Why to do it
A. OPERATING LIMITS	hdr
Fuel Usage: less than or equal to 636,000 gallons/year using 12-month Rolling Sum of residual fuel oil burned by the boilers in GP 003.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Sulfur Content of Fuel: less than or equal to 1.5 percent by weight for residual fuel oil.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 [Also meets the SO ₂ emission requirements of Minn. R. 7011.0510, subp. 1]
B. RECORDKEEPING REQUIREMENTS	hdr
Recordkeeping: by the 15th day of each month, calculate and record the residual fuel oil use for the previous month. Records shall be based on the actual amount of fuel combusted, as measured using an in-line flow meter.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Recordkeeping: By the 15th day of each month, calculate and record the total residual fuel oil used during the previous 12-month period (12-month rolling sum).	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Recordkeeping: Maintain residual oil vendor certifications of the sulfur content in percent by weight for all residual fuel oil combusted by the boilers in GP 003.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/15/00

Facility Name: Minnesota Brewing Co
Permit Number: 12300019 - 002

Subject Item: GP 004 Tanks subject to NSPS subp. Kb
Associated Items: TK 001 Ethanol
TK 002 Ethanol
TK 003 Gasoline
TK 004 Denatured Ethanol (95% Ethanol, 5% Gasoline)
TK 005 Ethanol
TK 006 Denatured Ethanol (95% Ethanol, 5% Gasoline)

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

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

Subject Item: GP 005 Fermentation - No CO2 collection (uncontrolled VOC emissions)**Associated Items:** EU 016 Cellar A Fermenters (14) - beer

EU 018 Cellar C Fermenters (28) - beer

SV 007 Beverage Fermentation/Labeling

What to do	Why to do it
Process Throughput: less than or equal to 5600000 gallons/year using 12-month Rolling Sum of beverage alcohol beer. During the first 11 months of operation under this permit, beer production on Cellars A and C is limited to 466,700 gallons per calendar month.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Recordkeeping: by the 15th day of each month, calculate and record the beverage alcohol beer fermentation in Cellars A and C for the previous month. Beverage alcohol beer production is determined with a flow meter that measures flow into the fermenters.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Recordkeeping: by the 15th day of each month, calculate and record the beverage alcohol beer fermentation in Cellars A and C for the previous 12-month period (12-month rolling sum).	Title I Condition: To avoid major source classification under 40 CFR Section 52.21

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

Subject Item: GP 006 NOX emissions from ethanol production**Associated Items:** EU 001 Boiler #1

EU 002 Boiler #2

EU 050 Dryer

What to do	Why to do it
Nitrogen Oxides: less than or equal to 95 tons/year using 12-month Rolling Sum	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Recordkeeping - Fuel Oil Steam Production For Fuel Ethanol: Once each day record the pounds of steam produced by fuel oil combustion in the boilers (EU 001 and EU002) and used in the production of fuel ethanol during the previous day. Steam shall be measured using a steam gauge(s) or chart(s) measuring the steam that goes to the process line(s) making fuel ethanol.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Recordkeeping - Fuel Oil Total Steam Production: Once each day, record the total pounds of steam produced by the combustion of fuel oil in the boilers (EU 001 and EU 002) during the previous day.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Recordkeeping - Natural Gas Steam Production For Fuel Ethanol: Once each day, record the pounds of steam produced by the combustion of natural gas in the boilers (EU 001 and EU 002) and used in the production of fuel ethanol during the previous day. Steam shall be measured using a steam gauge(s) or chart(s) measuring the steam that goes to the process line(s) making fuel ethanol.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Recordkeeping - Natural Gas Total Steam Production: Once each day record the total pounds of steam produced by the combustion of natural gas in the boilers (EU 001 and EU 002) during the previous day.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Recordkeeping - Fuel Oil Usage: Once each day, record the gallons of fuel oil combusted in the boilers (EU 001 and EU 002) during the previous day. Fuel oil usage shall be measured using an in-line flow meter.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Recordkeeping - Boilers Natural Gas Usage: Once each day record the cubic feet of natural gas combusted in the boilers (EU 001 and EU 002) during the previous day.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Recordkeeping - Dryer Natural Gas Usage: Once each day, record the cubic feet of natural gas combusted in the dryer (EU 050) during the previous day.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Recordkeeping - Dryer Propane Usage: Once each day record the gallons of propane combusted in the dryer (EU 050) during the previous day.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Recordkeeping: By the 15th of each month, calculate and record the pounds of steam produced by the combustion of fuel oil in the boilers (EU 001 and EU 002) and used in the production of fuel ethanol during the previous month.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Recordkeeping: By the 15th of each month, calculate and record the gallons of fuel oil combusted in the boilers (EU 001 and EU 002) during the previous month.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Recordkeeping: By the 15th of each month, calculate and record the total pounds of steam produced by combustion of fuel oil in the boilers (EU 001 and EU 002) during the previous month.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Recordkeeping: By the 15th of each month, calculate and record the pounds of steam produced by the combustion of natural gas in the boilers (EU 001 and EU 002) and used in the production of fuel ethanol during the previous month.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Recordkeeping: By the 15th of each month, calculate and record the quantity of natural gas, in million cubic feet, combusted in the boilers (EU 001 and EU 002) during the previous month.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Recordkeeping: By the 15th of each month, calculate and record the total pounds of steam produced by the combustion of natural gas in the boilers (EU 001 and EU 002) during the previous month.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Recordkeeping: By the 15th of each month, calculate and record the quantity of natural gas, in million cubic feet, combusted in the dryer (EU 050) during the previous month.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Recordkeeping: By the 15th of each month, calculate and record the quantity of propane, in gallons, combusted in the dryer (EU 050) during the previous month.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Recordkeeping: By the 15th of each month, calculate and record the NOx emissions for the previous month, using the method provided in the Appendix materials.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

Recordkeeping: By the 15th of each month, calculate the NOx emissions for the previous 12 months (12-month rolling sum).	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
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TABLE A: LIMITS AND OTHER REQUIREMENTS

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

Subject Item: SV 001 Boiler Exhaust**Associated Items:** EU 001 Boiler #1

EU 002 Boiler #2

What to do	Why to do it
Total Particulate Matter: less than or equal to 18.18 lbs/hour when combusting residual oil.	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2 [Based on physical capacity of equipment]
Total Particulate Matter: less than or equal to 2.22 lbs/hour when combusting natural gas	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2 [Based on physical capacity of equipment]
Total Particulate Matter: less than or equal to 0.4 lbs/million Btu heat input (applies individually to each boiler).	Minn. R. 7011.0510, subp. 1
Sulfur Dioxide: less than or equal to 2.0 lbs/million Btu heat input when combusting residual fuel oil (applies individually to each boiler and is met by fuel oil sulfur limit in GP 003).	Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent opacity except that a maximum of 60 percent opacity shall be permissible for four minutes in any 60-minute period and that a maximum of 40 percent opacity shall be permissible for four additional minutes in any 60-minute period (applies individually to each boiler).	Minn. R. 7011.0510, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

Subject Item: SV 002 Beverage Grain Handling

Associated Items: EU 004 Grain Receiving

EU 005 Elevator leg

EU 006 Grain Silo/Bin

EU 007 Grain Silo/Bin

EU 008 Grain Silo/Bin

EU 009 Grain Silo/Bin

EU 010 Barley Silo

EU 011 Barley Silo

EU 012 Barley Silo

EU 013 Barley Silo

EU 014 Barley Silo

What to do	Why to do it
A. EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 1.07 lbs/hour (met by equipment capacity and production limitations).	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Particulate Matter < 10 micron: less than or equal to 1.07 lbs/hour (met by equipment capacity and production limitations).	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
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 98.7 percent collection efficiency (CE 001).	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Particulate Matter < 10 micron: greater than or equal to 94.8 percent collection efficiency (CE 001).	Title I Condition: To avoid major source classification under 40 CFR Section 52.21

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

Subject Item: SV 003 DDGS Dryer**Associated Items:** EU 050 Dryer

What to do	Why to do it
A. EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 10.62 lbs/hour	Title I Condition: To avoid major source classification and major modification under 40 CFR Section 52.21
Particulate Matter < 10 micron: less than or equal to 10.62 lbs/hour	Title I Condition: To avoid major source classification and major modification under 40 CFR Section 52.21
Volatile Organic Compounds: less than or equal to 7.7 lbs/hour	Title I Condition: To avoid major source classification and major modification under 40 CFR Section 52.21
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 002).	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 002).	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
C. TESTING REQUIREMENTS	hdr
Initial Performance Test: due 180 days after Initial Startup of dryer (EU 050) to measure total particulate matter emissions.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; Minn. R. 7017.2020, subp. 1
Initial Performance Test: due 180 days after Initial Startup of dryer to measure emissions of particulate matter <10 microns.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; Minn. R. 7017.2020, subp. 1
Initial Performance Test: due 180 days after Initial Startup of dryer to measure emissions of volatile organic compounds.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; Minn. R. 7017.2020, subp. 1
Initial Performance Test: due 180 days after Initial Startup of dryer to measure opacity.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Initial Performance Test	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

Subject Item: SV 004 DDGS Handling**Associated Items:** EU 052 DDGS Elevator

EU 053 DDGS Loadout Spout

EU 054 DDGS Loadout Pit

What to do	Why to do it
A. EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 lbs/hour (met by equipment capacity and production limitations).	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Particulate Matter < 10 micron: less than or equal to 0.3 lbs/hour (met by equipment capacity and production limitations).	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
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 95.5 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 82.3 percent collection efficiency (CE 003).	Title I Condition: To avoid major source classification under 40 CFR Section 52.21

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

Subject Item: SV 005 Hammermill**Associated Items:** EU 015 Hammermill (Corn)

What to do	Why to do it
A. EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 2.19 lbs/hour (met by equipment capacity and production limitations).	Title I Condition: To avoid major source classification under 40 CFR Section 52.21[Also meets the requirements of Minn. R. 7011.1005, subp. 3(D)]
Particulate Matter < 10 micron: less than or equal to 2.19 lbs/hour (met by equipment capacity and production limitations).	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
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 89.5 percent collection efficiency (CE 004).	Title I Conditions: To avoid major source classification under 40 CFR Section 52.21
Particulate Matter < 10 micron: greater than or equal to 79 percent collection efficiency (CE 004).	Title I Condition: To avoid major source classification under 40 CFR Section 52.21

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

Subject Item: SV 006 Distillation

Associated Items: EU 043 Whole Stillage Surge Tank
 EU 044 Thin Stillage Surge Tank
 EU 045 Process Condensate Storage Tank
 EU 048 Evaporator Separator
 EU 056 Beer Stripper
 EU 057 Rectifier
 EU 058 Side Stripper
 EU 059 Molecular Seive

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 1.80 lbs/hour at outlet of control device.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
B. CONTROL EQUIPMENT REQUIREMENTS	hdr
Volatile Organic Compounds: greater than or equal to 98 percent collection efficiency (CE005).	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
C. TESTING REQUIREMENTS	hdr
Initial Performance Test: due 180 days after Initial Startup of CE005 to measure emissions of volatile organic compounds.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Initial Performance Test	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

Subject Item: SV 008 Cooling Cyclone**Associated Items:** EU 055 Cooling/Separating Cyclone

What to do	Why to do it
A. EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 1.0 lbs/hour	Title I Condition: To avoid major source classification under 40 CFR Section 52.21[Also meets the requirements of Minn. R. 7011.1005, subp. 3(D)]
Particulate Matter < 10 micron: less than or equal to 1.0 lbs/hour	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
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 006).	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 006).	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
C. TESTING REQUIREMENTS	hdr
Initial Performance Test: due 180 days after Initial Startup of dryer to measure total particulate matter emissions.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; Minn. R. 7017.2020, subp. 1
Initial Performance Test: due 180 days after Initial Startup of dryer to measure emissions of particulate matter <10 microns.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; Minn. R. 7017.2020, subp. 1
Initial Performance Test: due 180 days after Initial Startup of dryer to measure opacity.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Initial Performance Test	Minn. R. 7017.2030, subp. 4
D. MONITORING REQUIREMENTS	hdr
Pressure Drop: greater than or equal to 1 inches of water column and less than or equal to 6 inches of water column , or as demonstrated in the most recent performance test.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Record the pressure drop at each cyclone once each day of operation.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
Corrective Action: If the pressure drop is not in the range of values specified by the manufacturer, the Permittee shall take corrective action as soon as possible to return the pressure drop to within the required range.	Title I Condition: Corrective action to avoid major source classification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 14
Recordkeeping of Corrective Action: The Permittee shall keep a record of the type and date of all corrective actions taken.	Title I Condition: Recordkeeping of corrective action to avoid major source classification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 5
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

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

Subject Item: SV 010 Ethanol Fermentation

Associated Items: EU 022 Cellar 34 Fermenters (3) - ethanol
 EU 023 Cellar 35 Fermenters (11) - ethanol
 EU 030 Cellar 35 Ruh/Ferm Tanks (12) - ethanol
 EU 041 Liquification Tank
 EU 042 Saccharification Tank
 EU 046 Slurry Mix Tank
 EU 047 Degasser
 EU 049 Yeast Tank
 EU 065 CO2 Recovery

What to do	Why to do it
A. EMISSION LIMITS	hdr
Volatile Organic Compounds: less than or equal to 6.82 lbs/hour at outlet of control device.	Title I Condition: To avoid major source classification and major modification under 40 CFR Section 52.21
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
B. CONTROL EQUIPMENT REQUIREMENTS	hdr
Volatile Organic Compounds: greater than or equal to 98 percent collection efficiency (CE008).	Title I Condition: To avoid major source classification and major modification under 40 CFR Section 52.21
C. TESTING REQUIREMENTS	hdr
Initial Performance Test: due 180 days after Initial Startup of CE008 to measure emissions of volatile organic compounds.	Title I Condition: To avoid major source classification and major modification under 40 CFR Section 52.21; Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Initial Performance Test	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

Subject Item: SV 011 Ethanol Grain Handling**Associated Items:** EU 060 Ethanol Corn Dump Pit/Auger

EU 061 Ethanol Corn Elevator

EU 062 Ethanol Corn Scalper

EU 063 Ethanol Corn Bin

What to do	Why to do it
Total Particulate Matter: less than or equal to 2.0 lbs/hour	Title I Condition: Limit to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 2
Particulate Matter < 10 micron: less than or equal to 0.7 lbs/hour	Title I Condition: Limit to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 2
Opacity: less than 10 percent opacity	Minn. R. 7011.1005, subp. 3(D)
Control Equipment Efficiency (by weight) for Total Particulate Matter: greater than or equal to 80 percent collection efficiency	Minn. R. 7011.1005, subp. 3(E)
Fugitive emissions from truck unloading, or handling operation exhibit Opacity: less than or equal to 5 percent opacity	Minn. R. 7011.1005, subp. 3(A)
Initial Performance Test: due 180 days after Permit Issuance to measure Total Particulate Matter (PM) emissions, and Particulate Matter < 10 micron (PM10) emissions .	Minn. R. 7017.2020, subp. 1 and Minn. R. 7017.2030, subp. 4
Performance Test Pre-test Meeting: due 7 days before each performance test.	

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/15/00

Facility Name: Minnesota Brewing Co
Permit Number: 12300019 - 002

Subject Item: EU 050 Dryer

Associated Items: CE 002 Multiple Cyclone w/o Fly Ash Reinjection - Most Multiclones
GP 006 NOX emissions from ethanol production
SV 003 DDGS Dryer

What to do	Why to do it
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

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

Subject Item: CE 005 Packed-Gas Adsorption Column

Associated Items: EU 043 Whole Stillage Surge Tank
 EU 044 Thin Stillage Surge Tank
 EU 045 Process Condensate Storage Tank
 EU 048 Evaporator Separator
 EU 056 Beer Stripper
 EU 057 Rectifier
 EU 058 Side Stripper
 EU 059 Molecular Sieve

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 8 inches of water column and water flow rate of 6 gallons per minute or as demonstrated in the most recent performance test.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21
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
Corrective Action: If the pressure drop and/or water flow rate are not equal to or greater than the minimum values specified in this permit and the Operation and Maintenance Plan, the Permittee shall take corrective action as soon as possible to to achieve the required operating values.	Title I Condition: Corrective action to avoid major source classification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 14
Recordkeeping of Corrective Action: The Permittee shall keep a record of the type and date of all corrective actions taken.	Title I Condition: Recordkeeping of corrective action to avoid major source classification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 5
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

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

Subject Item: CE 008 Packed-Gas Adsorption Column

Associated Items: EU 022 Cellar 34 Fermenters (3) - ethanol
 EU 023 Cellar 35 Fermenters (11) - ethanol
 EU 030 Cellar 35 Ruh/Ferm Tanks (12) - ethanol
 EU 041 Liquification Tank
 EU 042 Saccharification Tank
 EU 046 Slurry Mix Tank
 EU 047 Degasser
 EU 049 Yeast Tank

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 10 inches of water column and water flow rate of 16 gallons per minute or as demonstrated in the most recent performance test.	Title I Condition: To avoid major source classification and major modification under 40 CFR Section 52.21
Record the pressure drop and water flow rate once each day of operation.	Title I Condition: To avoid major source and major modification classification under 40 CFR Section 52.21
Corrective Action: If the pressure drop and/or water flow rate are not equal to or greater than the minimum values specified in this permit and the Operation and Maintenance Plan, the Permittee shall take corrective action as soon as possible to achieve the required operating values.	Title I Condition: Corrective action to avoid major source classification and major modification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 14
Recordkeeping of Corrective Action: The Permittee shall keep a record of the type and date of all corrective actions taken.	Title I Condition: Recordkeeping of corrective action to avoid major source classification and major modification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 5
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

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

Subject Item: TK 004 Denatured Ethanol (95% Ethanol, 5% Gasoline)**Associated Items:** GP 004 Tanks subject to NSPS subp. Kb

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 this section.	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, then 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 each 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)
C. RECORDKEEPING REQUIREMENTS	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)
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 each 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

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

Subject Item: TK 006 Denatured Ethanol (95% Ethanol, 5% Gasoline)**Associated Items:** GP 004 Tanks subject to NSPS subp. Kb

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 this section.	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, then 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 each 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)
C. RECORDKEEPING REQUIREMENTS	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)
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 each 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

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

Subject Item: FS 001 Uncaptured Grain 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 truck unloading of grain or grain handling activities.	Minn. R. 7011.1005, subp. 3(A)

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

Subject Item: FS 002 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

03/15/00

Facility Name: Minnesota Brewing Co
Permit Number: 12300019 - 002

Subject Item: FS 005 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

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

Subject Item: FS 006 Uncontrolled Truck/Railcar loadout

What to do	Why to do it
Clean up commodities spilled on the driveway or 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 10 percent opacity	Minn. R 7011.1005, subp. 3(B)

TABLE B: SUBMITTALS

03/15/00

Facility Name: Minnesota Brewing Co
Permit Number: 12300019 - 002

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

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

What to send	When to send	Portion of Facility Affected
Computer Dispersion Modeling Protocol	due 1,096 days after Permit Issuance for Nitrogen Oxides. This protocol will describe the proposed modeling methodology and input data, in accordance with all requirements of 40 CFR pt. 51, App. W.	Total Facility
Computer Dispersion Modeling Results	due 1,462 days after Permit Issuance for Nitrogen Oxides. Results shall be submitted after MPCA review and approval of the modeling protocol.	Total Facility
Notification of the Actual Date of Initial Startup	due 15 days after Initial Startup	CE005, CE008, EU050
Performance Test Notification (written)	due 30 days before Initial Performance Test	SV003, SV006, SV008, SV010
Performance Test Notification (written)	due 30 days before Initial Performance Test to measure Total Particulate Matter (PM) emissions, and Particulate Matter < 10 micron (PM10) emissions. This requirement also includes submittal of a written Performance Test Plan.	SV011
Performance Test Plan	due 30 days before Initial Performance Test	SV003, SV006, SV008, SV010
Performance Test Report - Microfiche Copy	due 105 days after Initial Performance Test	SV003, SV006, SV008, SV010
Performance Test Report - Microfiche Copy	due 105 days after Initial Performance Test to measure Total Particulate Matter (PM) emissions, and Particulate Matter < 10 micron (PM10) emissions.	SV011
Performance Test Report	due 45 days after Initial Performance Test	SV003, SV006, SV008, SV010
Performance Test Report	due 45 days after Initial Performance Test to measure Total Particulate Matter (PM) emissions, and Particulate Matter < 10 micron (PM10) emissions.	SV011
Testing Frequency Plan	due 60 days after Initial Performance Test for emissions of total particulate matter and particulate matter <10 microns. The plan shall specify a testing frequency using the test data 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 of MPCA per Minn. R. 7017.2020, subp. 1.	SV008
Testing Frequency Plan	due 60 days after Initial Performance Test for Total Particulate Matter (PM) emissions, and Particulate Matter < 10 micron (PM10) emissions .	SV011
Testing Frequency Plan	due 60 days after Initial Performance Test for total particulate matter, particulate matter <10 microns and volatile organic compound emissions. The plan shall specify a testing frequency using the test data 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 of MPCA per Minn. R. 7017.2020, subp. 1.	SV003
Testing Frequency Plan	due 60 days after Initial Performance Test for volatile organic compound emissions. The plan shall specify a testing frequency using the test data 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 of MPCA per Minn. R. 7017.2020, subp. 1.	SV006

TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

Testing Frequency Plan	due 60 days after Initial Performance Test for volatile organic compound emissions. The plan shall specify a testing frequency using the test data 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 of MPCA per Minn. R. 7017.2020, subp. 1.	SV010
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TABLE B: RECURRENT SUBMITTALS

03/15/00

Facility Name: Minnesota Brewing Co

Permit Number: 12300019 - 002

What to send	When to send	Portion of Facility Affected
Semiannual Deviations Report	due 30 days after end of each calendar half-year starting 04/15/1998. 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.	Total Facility
Compliance Certification	due 31 days after end of each calendar year starting 04/15/1998 (for the previous calendar year). To be submitted on a form approved by the Commissioner, both to the Commissioner, and to the U.S. EPA regional office in Chicago. This report covers all deviations experienced during the calendar year. The EPA copy shall be sent to: Mr. George Czerniak, Chief, Air Enforcement and Compliance Assurance Branch, Air and Radiation Division, EPA Region V, 77 West Jackson Boulevard, Chicago, Illinois 60604.	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

APPENDIX MATERIAL

Facility Name: Minnesota Brewing Co

Permit Number: 12300019-002

Note: This document is incorporated from the Total Facility Permit 12300019-001

Calculation of NO_x emissions generated due to the production of fuel ethanol

NO_x emissions are to be calculated monthly, as follows:

Step 1: Calculate NO_x emissions for the previous month, using the following equation:

$$\left(A \times \frac{B}{C} \times EF_{NOXFO}\right) + \left(D \times \frac{E}{F} \times EF_{NOXNG}\right) + (G \times EF_{NOXNG}) + (H \times EF_{NOXP}) = N$$

Where:

A = The quantity of steam generated by the combustion of fuel oil in the boilers and used in the production of ethanol during the previous month, in pounds

B = The total quantity of fuel oil combusted in the boilers during the previous month, in gallons

C = The total quantity of steam produced by the combustion of fuel oil in the boilers during the previous month, in pounds

D = The quantity of steam generated by the combustion of natural gas in the boilers and used in the production of ethanol during the previous month, in pounds

E = The total quantity of natural gas combusted in the boilers during the previous month, in million cubic feet

F = The total quantity of steam produced by the combustion of natural gas in the boilers during the previous month, in pounds

G = The quantity of natural gas combusted in the dryer during the previous month, in million cubic feet

H = The quantity of propane combusted in the dryer during the previous month, in gallons

EF_{NOXFO} = The appropriate emission factor for nitrogen oxide emissions from the combustion of fuel oil, in tons of NO_x per gallon of fuel oil. The appropriate emission factor is either

1. A site-specific emission factor obtained from an MPCA approved stack test, or
2. The most current emission factor from AP-42. At the time of permit issuance, the most current AP-42 emission factor is 2.75×10^{-5} tons of NO_x per gallon of oil, but may change over the life of this permit.

EF_{NOXNG} = The appropriate emission factor for nitrogen oxide emissions from the combustion of natural gas, in tons of NO_x per million cubic feet of natural gas. The appropriate emission factor is either

1. A site-specific emission factor obtained from an MPCA approved stack test, or
2. The most current emission factor from AP-42. At the time of permit issuance, the most current AP-42 emission factor is 0.07 tons of NO_x per million cubic feet of natural gas, but may change over the life of this permit.

EF_{NO_xP} = The appropriate emission factor for nitrogen oxide emissions from the combustion of propane, in tons of NO_x per gallon of propane. The appropriate emission factor is either

1. A site-specific emission factor obtained from an MPCA approved stack test, or
2. The most current emission factor from AP-42. 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.

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
DRAFT AIR EMISSION PERMIT NO. 12300019-002

This Technical Support Document (TSD) 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

Facility Address and Contact Information (SIC Codes: 2082, 2869)
Minnesota Brewing Company 882 West 7th Street St. Paul, Minnesota Ramsey County Susie Johnson, (651) 290-8234

1.2. Description of the Facility

The principal activity at the Minnesota Brewing facility is the production of malt beverages, alcoholic and non-alcoholic beverages. This facility has been modified to incorporate a dry mill ethanol production plant.

1.3. Description of the Activities Allowed By This Permit Action

This major permit amendment allows the Permittee to:

- 1) increase ethanol production from 18,000,000 gallons per year to 20,000,000 gallons per year (increase by 2,000,000 gallons per year than the existing permit limit);
- 2) install a separate grain handling units (EU 060 – 063) for the ethanol plant (ethanol corn dump pit/auger, ethanol corn elevator, ethanol corn scalper, and ethanol corn bin);
- 3) install a new 250,000 gallon denatured ethanol storage tank (TK 006) with a floating roof, and a new 19,000 gallon ethanol day tank (TK 005);
- 4) install a new bio-digester flare (EU 064);
- 5) install a new CO₂ recovery system for the ethanol fermentation process (EU 065);
- 6) reroute the ethanol fermentation exhaust through a scrubber (CE 008)

1.4. Facility Emissions:

Table 1. Emissions Associated With the Modification
(Emissions associated with the production of ethanol)

Pollutant	Potential to Emit from the mod (lb/hr)	Potential to Emit from the mod (TPY)	*Emission Increases Authorized with this Permit Action (TPY)	*Emission Decreases Authorized with this Permit Action (TPY)	**Other contemporaneous emission increases/decreases (TPY)	Net Emission Change (TPY)	NSR/ 112(g) Threshold Level (TPY)	NSR/ MACT Review Required (Yes or No)
PM	2.94	5.7	5.7	None	None	5.7	100	NO
PM10	1.64	4.5	4.5	None	None	4.5	100	NO
SO2	0.0	0.0	0.0	None	None	0.0	100	NO
NOx	0.0	0.0	0.0	None	None	0.0	100	NO
VOC	7.07	30.97	30.97	11.39	None	19.58	100	NO
CO	0.0	0.0	0.0	None	None	0.0	100	NO
Lead	0.0	0.0	0.0	None	None	0.0	100	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 40CFR pt. 51

Table 2. Permit Action Classification

Classification (put x in appropriate box)	Major/Affected Source	*Synthetic Minor	*Minor
PSD (list pollutant)	N/A	N/A	PM, PM ₁₀ , VOC
NAAR (list pollutant)	N/A	N/A	N/A
Part 70 Permit Program (list pollutant)	N/A	N/A	PM ₁₀ , VOC

* 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.

Note: Revision of several Title I Conditions (including ethanol production increase) from the previous permit make this a Major Permit Amendment to the Total Facility Permit.

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 3. Regulatory Overview

*EU, SV GRP, or CE, TK	Applicable Regulations	Comments
FC (Total Facility Limit)	Title I Condition : To avoid a major source classification and a major modification under 40 CFR § 52.21	Ethanol Production: less than or equal to 20,000,000 gallons per year (calculated as a 12-month Rolling Sum. Production during the first 11 months of operation is limited to 1,666,667 gallons of fuel ethanol per calendar month. Recordkeeping Requirements.
GP 001	Title I Condition : To avoid a major source classification and a major modification under 40 CFR 52.21	Cyclone Monitoring Requirements: Pressure Drop
GP 002	Title I Condition : To avoid a major source classification and a major modification under 40 CFR § 52.21	Baghouse Monitoring Requirements: Visible Emissions (VE) Check and Recordkeeping of Corrective Actions.
GP 004	40 CFR Section 60.116b(b); Minn. R. 7011.1520(C)	New Source Performance Standards for Tanks (Subpart Kb); Recordkeeping of tank dimensions and capacity.
SV 003	Title I Condition : To avoid a major source classification and a major modification under 40 CFR § 52.21	Emission Limits for Total Particulate Matter (PM) of 10.62 lbs/hr, Particulate Matter < 10 microns (PM ₁₀) of 10.62 lbs/hr, and Volatile Organic Compounds (VOC) of 7.7 lbs/hr. Opacity: less than or equal to 10 percent opacity. PM and PM ₁₀ collection efficiency greater than 96.5 percent. Initial Performance Test Requirements.
SV010	Title I Condition : To avoid a major source classification and a major modification under 40 CFR § 52.21	Emission Limits for Volatile Organic Compounds (VOC) of 7.7 lbs/hr. Opacity: less than or equal to 20 percent opacity. VOC collection efficiency greater than 98 percent. Initial Performance Test Requirements.
SV011	Title I Condition : To avoid a major source classification and a major modification under 40 CFR § 52.21	Emission Limits for Total Particulate Matter (PM), and Particulate Matter < 10 microns (PM ₁₀) Opacity: less than or equal to 5 percent opacity (fugitive emissions) from truck unloading , or handling operation. Initial Performance Test Requirements.
CE 008	Title I Condition : To avoid a major source classification and a major modification under 40 CFR § 52.21	New Scrubber for CO ₂ Recovery: Pressure Drop Monitoring
TK 006	40 CFR § 60.112b(a); Minn. R. 7011.1520 (C)	New Source Performance Standards for Tanks containing Volatile Organic Liquids (VOLs). Visual Inspection of Internal Floating Roof and Recordkeeping Requirements.

* EU = Emission Unit, GRP = Group, SV = Stack/Vent, CE = Control Equipment, TK = Tank

3. Technical Information

Emissions due to ethanol production increase from 18 million gallons per year to 20 million gallons per year:

PM: DDGS Dryer (EU 050), SV 003; total feed = 32,877 lb/hr

Particulate emission rate = $3.59 * (32,877 \text{ lb/hr} * 0.35 * 1/2000) * 0.62 = 10.62 \text{ lb/hr}$ (**revised limit for SV 003**); previous limit = 9.68 lb/hr, increase = **0.94 lb/hr**

PM₁₀: **10.62 lb/hr (revised limit for SV 003)**; previous limit = 9.68 lb/hr, increase = **0.94 lb/hr**

VOC: $32,877 \text{ lb/hr} * 0.65 \text{ lb H}_2\text{O per lb dryer feed} = 21,370 \text{ lb H}_2\text{O/hr} * 0.00056 \text{ lb ethanol/ lb H}_2\text{O} = 11.97 \text{ lb/hr ethanol}$ (**revised limit for SV 003**); previous limit = 10.3 lb/hr, increase = **1.67 lb/hr**

Note: The Permittee is proposing a new limit for VOCs from EU 050 which is lower than the existing limit; the new limit for VOCs from EU 050 is 7.7 lb/hr or 33.73 tpy

The following explanation was e-mailed by the consultant:

MBC has requested a lower VOC emission limit on the DDGS dryer (S/V003) than on the current air permit. The facility requested that the limit be changed from 10.47 lbs/hr VOC to 7.7 lbs/hr VOC. The previous permit limit was based on mass balance calculations without any credit for VOC reduction in the dryer due to exhaust recirculation. Exhaust recycle will allow a percentage of the VOC emissions to be combusted in the inlet section of the dryer. It is not known how much reduction can be expected, but significant reduction does occur. The proposed volatile organic compound (VOC) permit limit of 7.7 lbs/hour is based on approximately 25% VOC reduction due to the exhaust recirculation and comparison to recent stack test results at similar facilities. Without specifying the facilities individually, some facilities tested in 1999 had emission rates from 1.9 lbs/hr VOC to 7.9 lbs/hr VOC. Therefore, the 7.7 lbs/hr VOC emission rate was considered a reasonable emission limit for the source.

Emissions from the grain handling units: EU 060 through EU 063, using AP-42 factors
Assuming a control efficiency of 99% for the fabric filters, for a maximum capacity of 182 tons/hr

Ethanol Corn Dump Pit/Auger:

PM emissions = $182 \text{ tons/hr} * 0.035 \text{ lb/ton} * (1 - (80\%) * (99\%)) = 1.32 \text{ lb/hr}$

PM₁₀ emissions = $182 \text{ tons/hr} * 0.0078 \text{ lb/ton} * (1 - (80\%) * (99\%)) = 0.29 \text{ lb/hr}$

Ethanol Corn Elevator:

PM emissions = $182 \text{ tons/hr} * 0.081 \text{ lb/ton} * (1 - (100\%) * (99\%)) = 0.147 \text{ lb/hr}$

PM₁₀ emissions = $182 \text{ tons/hr} * 0.039 \text{ lb/ton} * (1 - (100\%) * (99\%)) = 0.08 \text{ lb/hr}$

Ethanol Corn Scalper:

PM emissions = $182 \text{ tons/hr} * 0.375 \text{ lb/ton} * (1 - (100\%) * (99\%)) = 0.68 \text{ lb/hr}$

PM₁₀ emissions = $182 \text{ tons/hr} * 0.094 \text{ lb/ton} * (1 - (100\%) * (99\%)) = 0.17 \text{ lb/hr}$

Ethanol Corn Bin:

PM emissions = $182 \text{ tons/hr} * 0.205 \text{ lb/ton} * (1 - (100\%) * (99\%)) = 0.37 \text{ lb/hr}$

PM₁₀ emissions = $182 \text{ tons/hr} * 0.05 \text{ lb/ton} * (1 - (100\%) * (99\%)) = 0.09 \text{ lb/hr}$

Total PM emissions increase due to corn handling units (SV 011) = 2.52 lb/hr

Total PM₁₀ emissions increase due to corn handling units (SV 011) = 0.63 lb/hr

The proposed limit of 2.0 lb/hr for PM and 0.7 for PM₁₀ for SV 011

The ethanol plant grain handling capacity after modification = 25.6 tons/hr , PM = 0.36 lb/hr or 1.57 tons/yr
PM₁₀ = 0.09 tons/yr

Note: The permit limits for PM and PM₁₀ at SV 002 are not revised due to the insignificant emission increase from ethanol production increase

Tank emissions: Tanks Program 4.0

New Day Tank (20,000 gallons of ethanol) – TK 005 – Fixed roof

Ethyl Alcohol emissions = **1826.77 lbs/yr or 0.91 tpy**

New Denatured Ethanol Tank (250,000 gallons) emissions – TK 006 – Floating roof

Ethyl Alcohol emissions = **349.49 lbs/yr or 0.175 tpy**

Fugitive Emissions:

Note: Emissions from equipment leaks may not increase due to ethanol production increase

Bio-digester Flare: Insignificant emissions

Flare is the backup when DDGS dryer is not operating. The emissions from the natural gas combustion are very minimal.

CO₂ Recovery System:

Reroute VOC emissions from ethanol production to CE 008, SV 010 – New permit limit

VOC emission limit = 17,768 lb/hr of CO₂

VOC concentration = 0.0192 lb VOC/lb CO₂

Assuming a scrubber efficiency of 98%

Controlled VOC emissions = 17,768 lb/hr of CO₂ * 0.0192 lb VOC/lb CO₂ * (1-0.98)
= **6.82 lb/hr** or 29.9 tons/yr

Total ethanol plant emissions (PTE) after modification:	PM = 95.4 tons/year
	PM ₁₀ = 83.3 tons/year
	SO ₂ = 75.59 tons/year
	NO _x = 95.0 tons/year
	VOCs = 93.84 tons/year
	CO = 34.01 tons/year

4. Conclusion

Based on the information provided by Minnesota Brewing Company, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 12300019-002 and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team: John Chikkala, Rhonda Land, and Steve Sommer

Attachment: CD-01 Forms
Others specified in section 3