

AIR EMISSION PERMIT NO. 06700061- 001

IS ISSUED TO

Bushmills Ethanol

Bushmills Ethanol
Intersection of West Highway 12 and 123
Atwater, Kandiyohi County, MN 56209

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

Permit Type	Application Date
Total Facility Operating Permit	03/15/2004

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 are as defined in the state air pollution control rules unless the term is explicitly defined in the permit.

Permit Type: State; Limits to Avoid Pt 70/Limits to Avoid NSR

Issue Date: October 1, 2004

Expiration: Permit does not expire

All Title I Conditions do not expire.

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

for Sheryl Corrigan
Commissioner
Minnesota Pollution Control Agency

GK:lmg

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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. Subject to the limitations of Minn. R. 7007.1800 and 7017.0100, subp. 2, notwithstanding the conditions of this permit specifying compliance practices for applicable requirements, any person (including the Permittee) may also use other credible evidence to establish compliance or noncompliance with applicable requirements.

FACILITY DESCRIPTION:

Bushmills Ethanol, is a fuel-grade ethanol (ethyl alcohol) production plant located just west of Atwater, Minnesota at the intersection of West Highway 12 and 123. The plant will also produce distillers dried grains and solubles (DDGS) and wetcake for animal feed as a by-product of the ethanol production process. The primary emissions are VOCs, PM/PM₁₀, NO_x, and CO. Volatile organic compounds (VOCs) are emitted by fermentation, distillation, DDGS drying, ethanol loading, and VOC liquid storage and piping. Particulate matter (PM/PM₁₀) is emitted by DDGS handling and drying, corn receiving and handling, and vehicle traffic. Nitrogen oxides (NO_x) and carbon monoxide (CO) are emitted by combustion sources. The plant is designed to produce 49 million gallons of denatured ethanol annually.

The primary pieces of control equipment are the Fermentation Scrubber (CE 004) and the Thermal Oxidizer (CE 001). The scrubber controls emissions from the Fermenters (EU 019, EU 020, and EU 021) and the Beer Well (EU 022); and the thermal oxidizer controls emissions from the Dryers (EU 001 and EU 002), the Mixer (EU 023), various fermentation process tanks (EU 024 to EU 031), and numerous distillation process units (EU 032 to EU 050). Baghouses control PM/PM₁₀ from the corn and DDGS handling and storage systems and the Truck/Rail Loadout area. There are five large, internal floating roof tanks for ethanol, denaturant, and gasoline and one smaller tank for corrosion inhibitor. Emissions from process valves and piping will be controlled through an inspection and maintenance program.

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FACILITY DESCRIPTION:

Bushmills Ethanol, is a fuel-grade ethanol (ethyl alcohol) production plant located just west of Atwater, Minnesota at the intersection of West Highway 12 and 123. The plant will also produce distillers dried grains and solubles (DDGS) and wetcake for animal feed as a by-product of the ethanol production process. The primary emissions are VOCs, PM/PM₁₀, NO_x, and CO. Volatile organic compounds (VOCs) are emitted by fermentation, distillation, DDGS drying, ethanol loading, and VOC liquid storage and piping. Particulate matter (PM/PM₁₀) is emitted by DDGS handling and drying, corn receiving and handling, and vehicle traffic. Nitrogen oxides (NO_x) and carbon monoxide (CO) are emitted by combustion sources. The plant is designed to produce 49 million gallons of denatured ethanol annually.

The primary pieces of control equipment are the Fermentation Scrubber (CE 004) and the Thermal Oxidizer (CE 001). The scrubber controls emissions from the Fermenters (EU 019, EU 020, and EU 021) and the Beer Well (EU 022); and the thermal oxidizer controls emissions from the Dryers (EU 001 and EU 002), the Mixer (EU 023), various fermentation process tanks (EU 024 to EU 031), and numerous distillation process units (EU 032 to EU 050). Baghouses control PM/PM₁₀ from the corn and DDGS handling and storage systems and the Truck/Rail Loadout area. There are five large, internal floating roof tanks for ethanol, denaturant, and gasoline and one smaller tank for corrosion inhibitor. Emissions from process valves and piping will be controlled through an inspection and maintenance program.

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol
 Permit Number: 06700061 - 001

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
SOURCE-SPECIFIC REQUIREMENTS	hdr
Comply with Fugitive Emission Control Plan: The Permittee shall follow the actions and recordkeeping specified in the control plan. The plan may be amended by the Permittee with the Commissioner's approval. If the Commissioner determines the Permittee is out of compliance with Minn. R. 7011.0150 or the fugitive control plan, then the Permittee may be required to amend the control plan and/or to install and operate particulate matter ambient monitors as requested by the Commissioner.	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2
Follow the Odor Action Plan which is attached to this permit.	Minn. R. 7007.0800, subp. 2
OPERATIONAL LIMITS	hdr
Production: less than or equal to 49.0 million gallons/year using 12-month Rolling Average of denatured ethanol.	Title I Condition: To limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
Process Throughput: less than or equal to 500,000 tons/year using 12-month Rolling Sum of grain assuming 56 pounds per bushel of grain.	Title I Condition: To limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
Process Throughput: less than or equal to 162,218 tons/year using 12-month Rolling Sum of distillers dry grains (DDGS).	Title I Condition: To limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
FUEL USE RESTRICTIONS	hdr
Fuel Use: Fuel used in all production units is limited to natural gas, except for Dryer A (EU 001) which is authorized to use biogas from the Methanators (EU 049 and EU 050).	Title I Condition: To limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
PARAMETERS USED IN MODELING	hdr
Parameters Used in Modeling: The parameters used in the modeling performed for the Environmental Assessment Worksheet under Minn. R. ch. 4410 and for determining emission and/or operational limits for this facility are listed in Appendix 3 of this permit. If the Permittee intends to change any of these parameters, the Permittee must submit the revised parameters to the Commissioner and receive written approval before making any changes. The revised parameter information submittal must include, but is not limited to: the locations, heights and diameters of the stacks; locations and dimensions of nearby buildings; velocity and temperatures of the gases emitted; and the emission rates. (continued below)	Minn. R. 7009.0020; Minn. R. 7007.0800, subp. 2
(continued) The plume dispersion characteristics due to the parameter revisions must equal or exceed the dispersion characteristics modeled for this permit, and the Permittee shall demonstrate this in the proposal. If the information does not demonstrate equivalent or better dispersion characteristics, or if a conclusion cannot readily be made about the dispersion, the Permittee must remodel. (continued below)	Minn. R. 7009.0020; Minn. R. 7007.0800, subp. 2
(continued) Pollutant Emission Rates: If the Permittee proposes to emit any pollutant in addition to those listed in Appendix 3 of this permit, or proposes to increase the emission rate of any pollutant listed in Appendix 3, the Permittee shall first use the Bushmills Ethanol Air Emissions Risk Analysis (AERA) report as a template for recalculating the risk due to the change in emissions. The Permittee shall submit a report to the MPCA of the proposed change and demonstrate that the recalculated risk for all pollutants emitted from the facility does not exceed the acceptable risk criteria used in the Bushmills AERA report. The Permittee must receive written approval from the MPCA before making any changes. For changes that do not involve an increase in an emission rate and that do not require a permit amendment, the proposal must be submitted as soon as practicable, but no less than 60 days before making the change to any parameter. (continued below)	Minn. R. 7009.0020; Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol
 Permit Number: 06700061 - 001

(continued) For changes involving increases in emission rates and that require a minor permit amendment, the proposal must be submitted as soon as practicable, but no less than 60 days before making the change to any parameter. For changes involving increases in emission rates and that require a permit amendment other than a minor amendment, the proposal must be submitted prior to or with the permit amendment application. This is a state only requirement and is not enforceable by the EPA Administrator and citizens under the Clean Air Act.	Minn. R. 7009.0020; Minn. R. 7007.0800, subp. 2
OPERATIONAL REQUIREMENTS	hdr
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
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. At a minimum, the O & M plan shall identify all air pollution control equipment and shall include a preventative maintenance program for that equipment, a description of (the minimum but not necessarily the only) corrective actions to be taken to restore the equipment to proper operation to meet applicable permit conditions, a description of the employee training program for proper operation and maintenance of the control equipment, and the records kept to demonstrate plan implementation.	Minn. R. 7007.0800, subp. 14 and Minn. R. 7007.0800, subp. 16(J)
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
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
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
Inspections: The Permittee shall comply with the inspection procedures and requirements as found in Minn. R. 7007.0800, subp. 9(A).	Minn. R. 7007.0800, subp. 9(A)
The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.	Minn. R. 7007.0800, subp. 16
PERFORMANCE TESTING	hdr
Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in Tables A and/or B.	Minn. R. ch. 7017
Performance Test Notifications and Submittals: Performance Tests are due as outlined in Tables A and B of the permit. See Table B for additional testing requirements. Performance Test Notification (written): due 30 days before each Performance Test Performance Test Plan: due 30 days before each Performance Test Performance Test Pre-test Meeting: due 7 days before each Performance Test Performance Test Report: due 45 days after each Performance Test Performance Test Report - Microfiche Copy: due 105 days after each Performance Test The Notification, Test Plan, and Test Report may be submitted in alternative format as allowed by Minn. R. 7017.2018.	Minn. Rs. 7017.2030, subp. 1-4, 7017.2018 and Minn. R. 7017.2035, subp. 1-2
Limits set as a result of a performance test (conducted before or after permit issuance) apply until superseded as specified by Minn. R. 7017.2025 following formal review of a subsequent performance test on the same unit.	Minn. R. 7017.2025
MONITORING REQUIREMENTS	hdr
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)

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol

Permit Number: 06700061 - 001

<p>Operation of Monitoring Equipment: Unless otherwise noted in Tables A and/or B, 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.</p>	<p>Minn. R. 7007.0800, subp. 4(D)</p>
<p>RECORDKEEPING</p>	<p>hdr</p>
<p>Recordkeeping: Retain all records at the stationary source for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original 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).</p>	<p>Minn. R. 7007.0800, subp. 5(C)</p>
<p>Recordkeeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007.1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350 subp. 2), including records of the emissions resulting from those changes.</p>	<p>Minn. R. 7007.0800, subp. 5(B)</p>
<p>REPORTING/SUBMITTALS</p>	<p>hdr</p>
<p>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 Permittee 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.</p> <p>At the time of notification, the Permittee shall inform the Commissioner of the cause of the shutdown and the estimated duration. The Permittee shall notify the Commissioner when the shutdown is over.</p>	<p>Minn. R. 7019.1000, subp. 3</p>
<p>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.</p> <p>At the time of notification or as soon as possible thereafter, the Permittee shall inform the Commissioner of the cause of the breakdown and the estimated duration. The Permittee shall notify the Commissioner when the breakdown is over.</p>	<p>Minn. R. 7019.1000, subp. 2</p>
<p>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.</p>	<p>Minn. R. 7019.1000, subp. 1</p>
<p>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:</p> <ol style="list-style-type: none"> 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. 	<p>Minn. R. 7019.1000, subp. 1</p>
<p>Fugitive Emissions Control Plan: The Permittee shall submit a fugitive emissions control plan within 60 days of the date of permit issuance for review and approval by the Commissioner. The plan shall identify all fugitive emission sources, primary and contingent control measures, and recordkeeping. The Permittee shall follow the actions and recordkeeping specified in the control plan. The plan may be amended by the Permittee with the Commissioner's approval. If the Commissioner determines the permittee is out of compliance with Minn. R. 7011.0150 or the fugitive emission control plan, then the Permittee may be required to amend the control plan and/or to install and operate particulate matter ambient monitors.</p>	<p>Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2</p>
<p>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.</p>	<p>Minn. R. 7007.1150 through Minn. R. 7007.1500</p>
<p>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).</p>	<p>Minn. R. 7007.1400, subp. 1(H)</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol

Permit Number: 06700061 - 001

Emission 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.	Minn. R. 7019.3000 through Minn. R. 7019.3100
Emission Fees: due 60 days after receipt of an MPCA bill.	Minn. R. 7002.0005 through Minn. R. 7002.0095

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol
 Permit Number: 06700061 - 001

Subject Item: GP 001 Dry Bulk Commodity Facility

- Associated Items:** EU 005 Truck Receiving 1
 EU 006 Truck Receiving 2 & Rail Receiving
 EU 007 Conveyor
 EU 008 Grain Elevator 1
 EU 009 Grain Bin 1
 EU 010 Grain Bin 2
 EU 011 Grain Bin 3
 EU 012 Grain Bin 4
 EU 013 Emptying Conveyor
 EU 014 Grain Elevator 2
 EU 015 Grain Day Bin
 EU 016 Hammermill Feed Conveyor
 EU 017 Hammermill 1
 EU 018 Hammermill 2

What to do	Why to do it
EMISSION LIMITS	hdr
Opacity: less than or equal to 5.0 percent opacity	Minn. R. 7011.1005, subp. 3(A)
OPERATIONAL LIMITS	hdr
Process Throughput: less than or equal to 500,000 tons/year using 12-month Rolling Sum of grain assuming 56 pounds per bushel of grain.	Title I Condition: To limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
POLLUTION CONTROL REQUIREMENTS	hdr
Vent all captured emissions through a baghouse. See Group 2 and Group 3 (GP 002 and GP 003) for requirements for baghouse operation and maintenance.	Title I Condition: to limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2.
Clean up commodities spilled on the driveway and other facility property as required to minimize fugitive emissions; maintain air pollution control equipment in proper operating conditions and utilize the air pollution control systems as designed.	Minn. R. 7011.1005, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol
 Permit Number: 06700061 - 001

Subject Item: GP 002 Dry Bulk Commodity Control Equipment Vents

Associated Items: SV 002 Grain Unloading Baghouse
 SV 003 Hammermilling Baghouse
 SV 007 DDGS Cooling Cyclone/Baghouse
 SV 010 DDGS Loadout Baghouse

What to do	Why to do it
LIMITS	hdr
Particulate Matter < 10 micron: less than or equal to 0.005 grains/dry standard cubic foot	Title I Condition: To limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
Total Particulate Matter: less than or equal to 0.005 grains/dry standard cubic foot	Title I Condition: To limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
Opacity: less than or equal to 10 percent opacity	Minn. R. 7011.1005, subp. 3(D)
PERFORMANCE TESTING REQUIREMENTS	hdr
Initial Performance Test: due 180 days after Initial Startup for PM/PM10.	Title I Condition: to limit potential emission to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
VISIBLE EMISSIONS	hdr
Visible Emissions: The Permittee shall check the fabric filter stacks for any visible emissions once each day of operation during daylight hours, or the pressure drop across the fabric filter once each day of operation if inclement weather prohibits a visible emissions check.	Title I Condition: to limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2.
Recordkeeping of Visible Emissions and Pressure Drop. The Permittee shall record the time and date of each visible emission inspection and pressure drop reading, and whether or not any visible emissions were observed, and whether or not the observed pressure drop was within the range specified in this permit.	Title I Condition: to limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2.
Corrective Action: If visible emissions are observed, and/or if the pressure drop is outside the permitted range specified in this subject item, 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 and/or return the pressure drop to within the permitted range. The Permittee shall keep a record of the type and date of all corrective actions taken.	Title I Condition: to limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2.

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol
 Permit Number: 06700061 - 001

Subject Item: GP 003 Baghouses
Associated Items: CE 002 Unloading/Loading Baghouse
 CE 003 Milling Baghouse
 CE 007 DDGS Baghouse
 CE 009 DDGS Loadout Baghouse

What to do	Why to do it
POLLUTION CONTROL REQUIREMENTS	hdr
The Permittee shall operate and maintain the control equipment such that it achieves an overall capture efficiency for Particulate Matter < 10 micron: greater than or equal to 99 percent capture efficiency	Title I Condition: to limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2.
The Permittee shall operate and maintain the control equipment such that it achieves an overall capture efficiency for Total Particulate Matter: greater than or equal to 99 percent capture efficiency	Title I Condition: to limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2.
Pressure Drop: greater than or equal to 1 inches of water column and less than or equal to 6 inches of water column	Title I Condition: to limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2.
Operation and Maintenance of Fabric Filter: The Permittee shall operate and maintain each fabric filter according to the control equipment manufacturer's specifications.	Title I Condition: to limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2.
Visible Emissions: The Permittee shall check the fabric filter stacks for any visible emissions once each day of operation during daylight hours. During inclement weather, the Permittee shall read and record the pressure drop across the fabric filter, once each day of operation.	Title I Condition: Monitoring for Limit taken to avoid classification as a major source and modification under 40 CFR Section 52.21; to avoid classification as a major source under 40 CFR Section 70.2
Recordkeeping of Visible Emissions and Pressure Drop. The Permittee shall record the time and date of each visible emission inspection and pressure drop reading, and whether or not any visible emissions were observed, and whether or not the observed pressure drop was within the range specified in this permit.	Title I Condition: Monitoring for Limit taken to avoid classification as a major source and modification under 40 CFR Section 52.21; to avoid classification as a major source under 40 CFR Section 70.2
<p>Corrective Actions: The Permittee shall take corrective action as soon as possible if any of the following occur:</p> <ul style="list-style-type: none"> - visible emissions are observed; - the recorded pressure drop is outside the required operating range; or - the fabric filter or any of its components are found during the inspections to need repair. <p>Corrective actions shall return the pressure drop to within the permitted range, eliminate visible emissions, and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the fabric filter. The Permittee shall keep a record of the type and date of any corrective action taken for each filter.</p>	Title I Condition: Monitoring for Limit taken to avoid classification as a major source and modification under 40 CFR Section 52.21; to avoid classification as a major source under 40 CFR Section 70.2
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 manufacturing specifications and maintain a written record of the calibration and any action resulting from the calibration.	Minn. R. 7007.0800, subp. 2 and subp. 14

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol

Permit Number: 06700061 - 001

Subject Item: GP 004 Fermentation Units Venting to Fermentation Scrubber CE 004

Associated Items: CE 004 Fermentation Scrubber

EU 019 Fermenter 1

EU 020 Fermenter 2

EU 021 Fermenter 3

EU 022 Beerwell

SV 004 Fermentation Scrubber

What to do	Why to do it
POLLUTION CONTROL REQUIREMENTS	hdr
Vent all emissions to the Fermentation Scrubber (CE004). See Fermentation Scrubber (CE004) for operation and maintenance requirements for the scrubber.	Title I Condition: to limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
OPERATIONAL LIMITS	hdr
Total Fermentation Tank Volume: Limited to 2,190,000 gallons.	Minn. R. 4410

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol
 Permit Number: 06700061 - 001

Subject Item: GP 005 Distillation and Units Venting to the Thermal Oxidizer

- Associated Items:** CE 001 Thermal Oxidizer/Heat Recover
 EU 023 Mixer
 EU 024 Slurry Tank 1
 EU 025 Slurry Tank 2
 EU 026 Cook Tube
 EU 029 Liquifaction Tank 1
 EU 030 Liquifaction Tank 2
 EU 031 Yeast Tank
 EU 032 Beer Column
 EU 033 Side Stripper
 EU 034 Rectifier Column
 EU 035 190 Proof Condenser
 EU 036 Molecular Sieve
 EU 037 200 Proof Condenser
 EU 038 Centrifuge 1
 EU 039 Centrifuge 2
 EU 040 Centrifuge 3
 EU 041 Evaporators 1
 EU 042 Evaporators 2
 EU 043 Evaporators 3
 EU 044 Evaporators 4
 EU 045 Evaporators 5
 EU 046 Evaporators 6
 EU 047 Evaporators 7
 EU 048 Evaporators 8
 EU 049 Methanator 1
 EU 050 Methanator 2
 SV 001 Thermal Oxidizer HRSG Stack
 TK 007 Centrate Tank

What to do	Why to do it
POLLUTION CONTROL REQUIREMENTS	hdr
Vent all emissions to the Thermal Oxidizer (CE001). See Thermal Oxidizer (CE001) for operation and maintenance requirements for the Thermal Oxidizer.	Title I Condition: to limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol

Permit Number: 06700061 - 001

Subject Item: GP 006 Dryers

Associated Items: EU 001 Dryer A

EU 002 Dryer B

What to do	Why to do it
LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011. 0735.	Minn. R. 7011.0610, subp. 1(A)(1)
Opacity: less than or equal to 20.0 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0610, subp. 1(A)(2)
OPERATIONAL REQUIREMENTS	hdr
Process Throughput: Limited to a maximum sum of 19.0 tons/hour for both dryers, or the maximum product throughput during the most recent stack emissions testing that demonstrated compliance.	Title I Condition: to limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
Dryer temperature: Limited to a temperature range of 205 to 300 degrees F, or to the temperature range determined during the most recent stack emissions testing that demonstrated compliance.	Title I Condition: to limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
The dryer temperature shall be measured between the dryers and the thermal oxidizer (CE 001).	
Beer feed rate limited to a maximum of 750 gpm, or to the maximum feed rate measured during the last stack emissions testing that demonstrated compliance.	Title I Condition: to limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
Syrup feed rate: limited to a maximum of 65 gpm, or the highest feed rate measured during the most recent stack emissions testing that limits compliance.	Title I Condition: to limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
POLLUTION CONTROL REQUIREMENTS	hdr
Vent all emissions to a thermal oxidizer (CE001). See CE 001 for emission limits, testing requirements and operation and maintenance requirements for the thermal oxidizer.	Title I Condition: to limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
PROCESS MONITORING	hdr
Measure and record the process throughput, beer feed rate, and syrup feed rate on an hourly basis.	Title I Condition: to limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
Monitoring Equipment: The Permittee shall install and maintain thermocouples to conduct temperature monitoring required by this permit. The monitoring equipment must be installed, in use, and properly maintained whenever operation of the monitored equipment is required.	Minn. R. 7007.0800, subp. 4
The Permittee shall maintain a continuous hard copy readout or computer disk file of the temperature readings and calculated three hour rolling average temperatures for the dryer chamber.	Title I Condition: to limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
Daily Monitoring: The Permittee shall physically check the temperature recording device at least once each operating day to verify that it is working and recording properly.	Minn. R. 7007.0800, subp. 4 and 5
Annual Calibration: The Permittee shall calibrate the temperature monitor at least annually and shall maintain a written record of the calibration and any action resulting from the calibration.	Minn. R. 7007.0800, subp. 4, 5, and 14
The Permittee shall install, maintain and operate a thermocouple monitoring device that continuously indicates and records the inlet temperature of each dryer. The monitoring device shall have a margin of error less than the greater of +/- 0.75 percent of the temperature being measured or +/- 2.5 degrees Celcius. The recording device shall also calculate the three-hour rolling average inlet temperature.	Minn. R. 7007.0800, subp. 4 and 5
The Permittee shall maintain a continuous hard copy readout or computer disk file of the temperature readings and calculated three-hour rolling average temperature for the inlet of each dryer.	Title I Condition: to limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2; Minn. R. 7007.0800, subp. 4 and 5
Corrective Actions: If the temperature is below the minimum specified by this permit or if the thermal oxidizer or any of its components are found during the inspections to need repair, the Permittee shall take corrective action as soon as possible. Corrective actions shall return the temperature to at least the permitted minimum and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the thermal oxidizer. The Permittee shall keep a record of the type and date of any corrective action taken.	Minn. R. 7007.0800, subp. 4, 5 and 14

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol

Permit Number: 06700061 - 001

The Permittee shall operate and maintain each dryer in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff.	Minn. R. 7007.0800, subp. 14
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TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol

Permit Number: 06700061 - 001

Subject Item: GP 007 Tanks

Associated Items: TK 001 190 Proof Ethanol

TK 002 200 Proof Ethanol

TK 004 Denatured Ethanol #1

TK 005 Denatured Ethanol #2

TK 006 Natural Gasoline

What to do	Why to do it
POLLUTION CONTROL REQUIREMENTS	hdr
The storage vessels shall be equipped with a fixed roof in combination with an internal floating roof meeting the requirements of 40 CFR Section 60.112b(a)(1).	40 CFR Section 60.112b(a); Minn. R. 7011.1520(C)
Internal Floating Roof Seal Requirement: Each internal roof shall be equipped with one of the closure devices between the wall of the storage vessel and the edge of the internal floating roof as described in Section 60.112b(a)(1)(ii).	40 CFR Section 60.112b(a)(1)(ii); Minn. R. 7011.1520(C)
MONITORING REQUIREMENTS	hdr
Inspection - Prior to initial fill of tanks: Visually inspect the internal floating roof, the primary seal, and the secondary seal (if one is in service), 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 Permittee shall repair the items before filling the storage vessel.	40 CFR Section 60.113b(a)(1); Minn. R. 7011.1520(C)
Inspection - Annual: Visually inspect the internal floating roof, the primary seal, and the secondary seal (if one is in service) through manholes and roof hatches on the fixed roof at least once every twelve (12) months after initial fill as required by Section 60.113b(a)(2).	40 CFR Section 60.113b(a)(2) and (4); Minn. R. 7011.1520(C)
Inspection - Tank Empty and Degassed: Visually inspect the internal floating roof, the primary seal, and the secondary seal (if one is in service), gaskets, slotted membranes and sleeve seals (if any) each time the tank is emptied and degassed as required by Section 60.113b(a)(4). In no event shall inspections conducted in accordance with this provision occur at intervals greater than 10 years.	40 CFR Section 60.113b(a)(2) and (4); Minn. R. 7011.1520(C)
RECORDKEEPING REQUIREMENTS	hdr
Keep a record of each inspection performed as required by 40 CFR Section 60.113b(a). Each record shall identify the storage vessel on which the inspection was performed and shall contain the date the vessel was inspected and the observed condition of each component of the control equipment (seals, internal floating roof, and fittings.)	40 CFR Section 60.115b(a)(2); Minn. R. 7011.1520(C)
Recordkeeping: Maintain records showing the dimensions of each tank and an analysis showing tank capacity.	40 CFR Section 60.116b(c); Minn. R. 7011.1520(C)
Recordkeeping: Maintain records of the volatile organic liquid (VOL) stored, the period of storage, and the maximum true vapor pressure of the VOL during the respective storage period, calculated as described in 40 CFR Section 60.116b(e).	40 CFR Section 60.116b(c); Minn. R. 7011.1520(C)
REPORTING REQUIREMENTS	hdr
Notification: Notify the Commissioner in writing at least 30 days prior to the filling or refilling of each tank for which an inspection is required by 40 CFR Section 60.113b(a)(1) and (a)(4) to afford the Commissioner the opportunity to have an observer present. If the inspection required by 40 CFR 6.113b(a)(4) is not planned and the Permittee could not have known about the inspection 30 days in advance of refilling the tank, the Permittee shall notify the Administrator at least 7 days prior to the refilling of the tank. Notification shall be made by telephone 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 Commissioner at least 7 days prior to the refilling.	40 CFR Section 60.113b(a)(5); Minn. R. 7011.1520(C)
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 - Control Equipment Installation and Certification: After installing the internal floating roofs, furnish the Administrator with a report describing the control equipment (fixed roof/internal floating roof combination) and certifying that the control equipment meets the specifications of Sections 60.112b(a)(1) and 60.113b(a)(1). This report shall be attached to the initial startup notification required by Section 60.7(a)(3) and located in Table B of this permit.	40 CFR Section 60.115b(a)(1); Minn. R. 7011.1520(C)

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol

Permit Number: 06700061 - 001

<p>Reporting - Annual Inspection Results: If any of the conditions described in 40 CFR Section 60.113b(a)(2) are detected during the annual visual inspection required by 40 CFR Section 60.113b(a)(2), a report shall be furnished to the Administrator within 30 days of the inspection. Each report shall identify the tank, the nature of the defects, and the date the tank was emptied or the nature of and date the repair was made.</p>	<p>40 CFR Section 60.115b(a)(3); Minn. R. 7011.1520(C)</p>
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TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol

Permit Number: 06700061 - 001

Subject Item: GP 008 Grain Receiving and DDGS Loadout

Associated Items: CE 002 Unloading/Loading Baghouse

CE 007 DDGS Baghouse

EU 005 Truck Receiving 1

EU 006 Truck Receiving 2 & Rail Receiving

EU 058 DDG Loadout

What to do	Why to do it
If visible dust emissions are observed exiting the loadout area, the Permittee shall keep all doors in the grain receiving area and DDGS loadout area closed while receiving grain or loading out DDGS.	Title I Condition: Requirement to limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
Vent all captured emissions from the grain receiving area to the Unloading/Loading Baghouse CE 002 and all emissions from the DDGS Loadout Area to the DDGS Baghouse CE 007.	Title I Condition: Requirement to limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol
 Permit Number: 06700061 - 001

Subject Item: GP 009 Hammermills
Associated Items: CE 003 Milling Baghouse
 EU 016 Hammermill Feed Conveyor
 EU 017 Hammermill 1
 EU 018 Hammermill 2
 SV 003 Hammermilling Baghouse

What to do	Why to do it
Particulate Matter < 10 micron: less than or equal to 0.005 grains/dry standard cubic foot	Title I Condition: To limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
Total Particulate Matter: less than or equal to 0.005 grains/dry standard cubic foot	Title I Condition: To limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
Opacity: less than or equal to 5.0 percent opacity	Minn. R. 7011.1005, subp. 3(A)
Periodic monitoring requirements for baghouses can be found under GP 003 Baghouses.	Minn. R. 7007.0800, subp. 4.B.
OPERATIONAL LIMITS	hdr
Process Throughput: less than or equal to 500,000 tons/year using 12-month Rolling Sum of grain assuming 56 pounds per bushel of grain.	Title I Condition: To limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
POLLUTION CONTROL REQUIREMENTS	hdr
Vent all emissions through a baghouse when grain is being ground. See GP 003 for requirements for baghouse operation and maintenance.	Title I Condition: To limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol

Permit Number: 06700061 - 001

Subject Item: GP 010 Flaring

Associated Items: CE 005 Flaring

CE 006 Flaring

EU 051 Methanator Flare

EU 054 Fuel Loadout Flare

SV 005 Truck Loadout Flare

SV 006 Methanator Flare

What to do	Why to do it
EMISSION LIMITS	hdr
Flares must be designed for and operated with no visible emissions except for a period not to exceed a total of 5 minutes during any 2 consecutive hours.	40 CFR Section 60.18(c)(1)
OPERATING REQUIREMENTS	hdr
Records Requirement: Keep a record of any startup, shutdown, or malfunction in the affected facility or malfunction of the air pollution control equipment.	NSPS Subpart A 40 CFR Section 60.7(b)
Summary Report: Submit report quarterly, postmarked by the 30th day following the end of each calendar quarter. Summary report content and format is defined in 40 CFR Section 60.7(d).	40 CFR Section 60.7(c)
Summary report submittal frequency may be reduced according to compliance status and notification procedures defined in 40 CFR Section 60.7(e).	40 CFR Section 60.7(e)
Recordkeeping: Maintain a file of all measurements, CMS performance evaluations, calibration checks, adjustments and maintenance, and all other information required by this part in permanent form, suitable for inspection for at least two years following the date of such measurements, maintenance, and records.	40 CFR Section 60.7(f)
Compliance Requirement: For opacity standards, use Reference Method 9 to determine initial compliance, the minimum total time of observations shall be 3 hours (30-6 minute averages) for the performance test or other set of observations (meaning those fugitive type emission sources subject only to an opacity standard).	40 CFR Section 60.11(b)
Operation Requirement: At all times, including periods of startup, shutdown, and malfunction, owners shall maintain and operate any affected facility in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.	40 CFR Section 60.11(d)
Performance and Opacity Tests: Results shall be sent to the Commissioner.	40 CFR Section 60.11(e)(2)
Operating Requirement: Flares shall be operated with a flame present at all times.	40 CFR Section 60.18(c)(2)
Operating Requirement: Flares must be used only if the combustion gas has a heating value of 300 Btu/scf or greater.	40 CFR Section 60.18(c)(3)
Construction and Operation Requirement: Steam assisted flares designed and operated with an exit velocity less than Vmax (as determined by the method specified in 40 CFR 60.18(f)(5)) and less than 400 ft/sec are allowed.	40 CFR Section 60.18(c)(4)(iii)
Construction Requirement: Flares used to comply with this section shall be steam assisted, air assisted, or nonassisted.	40 CFR Section 60.18(c)(6)
Operation Requirement: Flares shall be monitored to ensure that they are operated and maintained in conformance with their design.	40 CFR Section 60.18(d)
Operation Requirement: Flares shall be operated at all times when emissions may be vented to them.	40 CFR Section 60.18(e)
Compliance Requirement: Reference Method 22 shall be used to determine the compliance of flares with the visible emissions provisions of this subpart.	40 CFR Section 60.18(f)(1)
Operation Requirement: Flame presence shall be monitored using a thermocouple or any other equivalent device.	40 CFR Section 60.18(f)(2)

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol

Permit Number: 06700061 - 001

Subject Item: GP 012 Ethanol Loadout**Associated Items:** EU 053 Fuel Loadout Truck

EU 055 Fuel Loadout Rail

What to do	Why to do it
Vent all emissions when loading ethanol into trucks to a flare. See GP 010 for requirements for the flare.	Title I Condition: to limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
All rail cars must be dedicated fleet (carry only ethanol). No loadout controls are required for the dedicated fleet rail cars. To be considered dedicated, the rail cars must be placarded as ethanol transportation cars.	Title I Condition: to limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol

Permit Number: 06700061 - 001

Subject Item: GP 013 Methanators**Associated Items:** EU 049 Methanator 1

EU 050 Methanator 2

What to do	Why to do it
Vent all emissions to the flare or to Dryer A (EU 001). See CE 001 and GP 010 for requirements for the control equipment.	Title I Condition: to limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol

Permit Number: 06700061 - 001

Subject Item: EU 060 190hp IC Engine

What to do	Why to do it
EMISSION LIMITS	hdr
Opacity: less than or equal to 20.0 percent opacity once operating temperatures have been attained.	Minn. R. 7011.2300, subp. 1
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input	Minn. R. 7011.2300, subp. 2
OPERATING REQUIREMENTS	hdr
Operating Hours: less than or equal to 60 hours/year using 12-month Rolling Sum for the generator for routine testing and maintenance. The sum is to be calculated by the 15th day of each month.	Title I Condition: To limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
Operating Hours: less than or equal to 440 hours/year using 12-month Rolling Sum for hours qualifying as emergency use under the U.S. EPA memorandum entitled "Calculating Potential to Emit (PTE) for Emergency Generators" dated September 6, 1995; to be calculated by the 15th day of each month.	Title I Condition: To limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
RECORDKEEPING	hdr
Hours of Operation: The Permittee shall record each day of operation, the number of hours of operation of the generator and a monthly record of 12-month rolling sum of hours of operation.	Title I Condition: To limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
Hours of Operation: The Permittee shall maintain documentation on site that the unit is an emergency diesel generator by design that qualifies under the U.S. EPA memorandum entitled "Calculating Potential to Emit (PTE) for Emergency Generators" dated September 6, 1995, limiting operation to 500 hours per year.	Minn. R. 7007.0800, subp. 4 & 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol
 Permit Number: 06700061 - 001

Subject Item: EU 061 Wet Cake Storage and Loadout

What to do	Why to do it
Volatile Organic Compounds: less than or equal to 12.1 tons/year using 12-month Rolling Sum . During the first 12 months of operation VOCs will be limited on the following monthly rolling sum basis. Month 1: 5 tons Month 2: 6.5 tons Month 3: 7.5 tons Month 4: 8.5 tons Month 5: 9.25 tons Month 6: 9.5 Tons Month 7: 10 Tons Month 8: 10.5 Tons Month 9: 11 Tons Month 10: 11.5 Tons Month 11: 12 Tons	Title I Condition: To limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
Within 30 days of Permit Issuance the Permittee shall submit a methodology for determining the total VOC emissions and speciated VOC emissions including acetaldehyde, acrolein, formaldehyde, methanol, and furancarboxaldehyde (furfuraldehyde) from wetcake production, storage and loadout to the Commissioner for approval.	Minn. R. 7007.0800, subp. 2
Within 60 days after MPCA approval of the methodology for determining total VOC emissions and speciated VOC emissions including acetaldehyde, acrolein, formaldehyde, methanol, and furancarboxaldehyde (furfuraldehyde) from wetcake production, storage and loadout; the Permittee will conduct the testing according to the approved methodology.	Minn. R. 7007.0800, subp. 2
Within 60 days after conducting testing for determining total VOC emissions and speciated VOC emissions including acetaldehyde, acrolein, formaldehyde, methanol, and furancarboxaldehyde (furfuraldehyde) from wetcake production, storage and loadout according to the approved methodology; the Permittee shall submit the results of the testing to the MPCA for approval including an emission factor in pounds of VOC per ton of wetcake produced, stored and loaded.	Minn. R. 7007.0800, subp. 2
At least 60 days prior to the anticipated startup of wetcake production, the Permittee shall submit an administrative amendment application to the MPCA to add the appropriate monitoring and recordkeeping requirements to the permit to ensure compliance with the VOC limits.	Minn. R. 7007.1150 through Minn. R. 7007.1500
If it is determined that the production of wetcake needs to be limited to remain a minor source for VOCs, the Permittee shall submit the appropriate permit amendment application to the MPCA at least 120 days prior to the anticipated startup of wetcake production.	Minn. R. 7007.1150 through Minn. R. 7007.1500
Upon MPCA approval of an emission factor in pounds of VOC per ton of wetcake produced, stored and loaded; the Permittee may produce wetcake as part of its normal operations.	Minn. R. 7007.0800, subp. 2
Prior to MPCA approval of the wetcake emission factor the Permittee shall not produce wetcake except under conditions of shutdown or breakdown of the dryer or associated air pollution control equipment.	Minn. R. 7019.1000, subp. 4; Minn. R. 7007.0800, subp. 2
Within 60 days after startup of wetcake production, the Permittee shall submit a plan and schedule to MPCA to verify the emission factor for the Atwater facility.	Minn. R. 7007.0800, subp. 2
When wetcake by-product is produced, it will be stored for no more than 72 hours on-site unless the outside temperature is less than 55 degrees F. In all cases, the wetcake will be moved off-site as soon as possible.	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol
 Permit Number: 06700061 - 001

Subject Item: CE 001 Thermal Oxidizer/Heat Recover

- Associated Items:** EU 001 Dryer A
 EU 002 Dryer B
 EU 003 Thermal Oxidizer
 EU 004 Process/Distillation Vents
 EU 023 Mixer
 EU 024 Slurry Tank 1
 EU 025 Slurry Tank 2
 EU 026 Cook Tube
 EU 027 Flash Tank
 EU 028 Receiver Tank
 EU 029 Liquifaction Tank 1
 EU 030 Liquifaction Tank 2
 EU 031 Yeast Tank
 EU 032 Beer Column
 EU 033 Side Stripper
 EU 034 Rectifier Column
 EU 035 190 Proof Condenser
 EU 036 Molecular Sieve
 EU 037 200 Proof Condenser
 EU 038 Centrifuge 1
 EU 039 Centrifuge 2
 EU 040 Centrifuge 3
 EU 041 Evaporators 1
 EU 042 Evaporators 2
 EU 043 Evaporators 3
 EU 044 Evaporators 4
 EU 045 Evaporators 5
 EU 046 Evaporators 6
 EU 047 Evaporators 7
 EU 048 Evaporators 8
 EU 049 Methanator 1
 EU 050 Methanator 2
 GP 005 Distillation and Units Venting to the Thermal Oxidizer

What to do	Why to do it
EMISSIONS LIMITS	hdr
Nitrogen Oxides: less than or equal to 0.10 lbs/million Btu heat input using 30-day Rolling Average	40 CFR Setcion 60.44b
Total Particulate Matter: less than or equal to 5.0 lbs/hour	Title I Condition: To limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
Particulate Matter < 10 micron: less than or equal to 5.0 lbs/hour	Title I Condition: To limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
Carbon Monoxide: less than or equal to 21.5 lbs/hour	Title I Condition: To limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
Volatile Organic Compounds: less than or equal to 2.8 lbs/hour using 3-hour Rolling Average	Title I Condition: To limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol

Permit Number: 06700061 - 001

OPERATING REQUIREMENTS	hdr
Temperature: greater than or equal to 1500 degrees F as a three-hour rolling average at the Combustion Chamber unless a new minimum is set pursuant to Minn. R. 7017.2025, subp. 3, based on the average temperature recorded during the most recent MPCA approved performance test where compliance for VOC emissions was demonstrated. If the three-hour rolling average temperature drops below the minimum temperature limit, the VOC used during that time shall be considered uncontrolled until the average minimum temperature limit is once again achieved. This shall be reported as a deviation.	Title I Condition: to limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
The Permittee shall operate and maintain the thermal oxidizer any time that any process equipment controlled by the thermal oxidizer is in operation.	Title I Condition: to limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
Quarterly Inspections: At least once per calendar quarter, the Permittee shall inspect the control equipment external system components, including but not limited to the heat exchanger, and electrical systems. The Permittee shall maintain a written record of the inspection and any corrective actions taken resulting from the inspection. The Permittee shall inspect the control equipment internal components during all planned shutdowns and not less than annually, including, but not limited to, the refractory.	Minn. R. 7007.0800, subp. 4, 5 and 14
Corrective Actions: If the temperature is below the minimum specified by this permit or if the thermal oxidizer or any of its components are found during the inspections to need repair, the Permittee shall take corrective action as soon as possible. Corrective actions shall return the temperature to at least the permitted minimum and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the thermal oxidizer. The Permittee shall keep a record of the type and date of any corrective action taken.	Minn. R. 7007.0800, subp. 4, 5 and 14
The Permittee shall operate and maintain the thermal oxidizer in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff.	Minn. R. 7007.0800, subp. 14
PERFORMANCE TESTING REQUIREMENTS	hdr
Performance Test: due 180 days after Initial Startup for PM/PM10, carbon monoxide, and total mass VOC emissions.	Title I Condition: To limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
MONITORING REQUIREMENTS	hdr
Monitoring Equipment: The Permittee shall install and maintain thermocouples to conduct temperature monitoring required by this permit. The monitoring equipment must be installed, in use, and properly maintained whenever operation of the monitored equipment is required.	Minn. R. 7007.0800, subp. 4
The Permittee shall maintain a continuous hard copy readout or computer disk file of the temperature readings and calculated three hour rolling average temperatures for the dryer chamber.	Title I Condition: To limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
Daily Monitoring: The Permittee shall physically check the temperature recording device at least once each operating day to verify that it is working and recording properly.	Minn. R. 7007.0800, subp. 4 and 5
Annual Calibration: The Permittee shall calibrate the temperature monitor at least annually and shall maintain a written record of the calibration and any action resulting from the calibration.	Minn. R. 7007.0800, subp. 4, 5 and 14
The Permittee shall maintain and operate a thermocouple monitoring device that continuously indicates and records the combustion chamber temperature of the thermal oxidizer. The monitoring device shall have a margin of error less than the greater of +/- 0.75 percent of the temperature being measured or +/- 2.5 degrees Celsius. The recording device shall also calculate the three-hour rolling average combustion chamber temperature.	Minn. R. 7007.0800, subp. 4 and 5
RECORDKEEPING AND REPORTING	hdr
Recordkeeping: Record and maintain records of the amounts of fuel combusted on a monthly basis. These records may consist of purchase records or receipts.	40 CFR Section 60.13(i) and February 20, 1992, EPA memorandum to meet the requirements of 40 CFR Section 60.48c(g) and (i)
Maintain records of the fuel combusted each day and calculate annual capacity factors for each fuel.	40 CFR Section 60.49b(d)

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol
 Permit Number: 06700061 - 001

<p>Maintain the following records for each operating day, and submit the information to the Agency quarterly:</p> <ol style="list-style-type: none"> 1. Calendar date. 2. Average hourly nitrogen oxides emission rates expressed as NO2. 3. The 30-day average nitrogen oxides emission rate in lb/mmBtu calculated at the end of each operating day. 4. Identification of the operating days when the calculated 30-day average nitrogen oxides emission rates are in excess of the standards in this permit. 5. Identification of the operating days for which pollutant data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken. 6. Identification of the times when emission data have been excluded from the calculation of average emission rates and reasons for excluding the data. 	<p>40 CFR Section 60.49b(g) and (h)</p>
<p>The Permittee subject to the nitrogen oxides standard of 40 CFR Section 60.44b who seeks to demonstrate compliance with those standards through the monitoring of steam generating unit operating conditions under the provisions of 40 CFR Section 60.48b(g)(2) shall submit to the Administrator for approval a plan that identifies the operating conditions to be monitored under 40 CFR Section 60.48b(g)(2) and the records to be maintained under 40 CFR Section 60.49b(j). This plan shall be submitted to the Administrator for approval within 360 days of the initial startup of the affected facility. The plan shall:</p> <p>(continued below)</p>	<p>40 CFR Section 60.49b(c)</p>
<p>(continued)</p> <ol style="list-style-type: none"> 1. Identify the specific operating conditions to be monitored and the relationship between these operating conditions and nitrogen oxides emission rates (i.e., ng/J or lbs/million Btu heat input). Steam generating unit operating conditions include, but are not limited to, the degree of staged combustion (i.e., the ratio of primary air to secondary and/or tertiary air) and the level of excess air (i.e., flue gas oxygen level); 2. Include the data and information that the Permittee used to identify the relationship between nitrogen oxides emission rates and these operating conditions; <p>(continued below)</p>	<p>40 CFR Section 60.49b(c) (continued)</p>
<p>(continued)</p> <ol style="list-style-type: none"> 3. Identify how these operating conditions, including steam generating unit load, will be monitored under 40 CFR Section 60.48b(g) on an hourly basis by the Permittee during the period of operation of the affected facility; the quality assurance procedures or practices that will be employed to ensure that the data generated by monitoring these operating conditions will be representative and accurate; and the type and format of the records of these operating conditions, including steam generating unit load, that will be maintained by the permittee under 40 CFR Section 60.49b(j). If the plan is approved, the Permittee shall maintain records of predicted nitrogen oxide emission rates and the monitored operating conditions, including steam generating unit load, identified in the plan. 	<p>40 CFR Section 60.49b(c) (continued)</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol

Permit Number: 06700061 - 001

Subject Item: CE 004 Fermentation Scrubber

Associated Items: EU 019 Fermenter 1

EU 020 Fermenter 2

EU 021 Fermenter 3

EU 022 Beerwell

GP 004 Fermentation Units Venting to Fermentation Scrubber CE 004

What to do	Why to do it
LIMITS	hdr
Total Particulate Matter: less than or equal to 0.0014 grains/dry standard cubic foot	Title I Condition: To limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
Volatile Organic Compounds: less than or equal to 10.0 lbs/hour using 3-hour Rolling Average	Title I Condition: To limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
OPERATIONAL REQUIREMENTS	hdr
Pressure Drop: Greater than or equal to 4.0 inches of water column and less than 8.0 inches of water column, or as measured during the most recent stack emissions test that demonstrated compliance.	Title I Condition: To limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
Scrubber Water Flow Rate: The Permittee shall operate the scrubber with a scrubber water flow rate of 35 gpm or more, or as measured during the most recent stack emissions test that demonstrated compliance.	Title I Condition: To limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
If the pressure drop or the water flow rate is not equal to or greater than the minimum value 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 limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2
Calibrate the gauges annually, or as often as required by manufacturing specifications and maintain a written record of the calibration and any action resulting from the calibration.	Minn. R 7007.0800, subp. 2 and 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 14
PERFORMANCE TESTING REQUIREMENTS	hdr
Performance Test: due 180 days after Initial Startup for total mass VOC emissions.	Title I Condition: To limit potential emissions to less than major source levels as defined by 40 CFR Section 52.21 and 40 CFR Section 70.2

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol

Permit Number: 06700061 - 001

Subject Item: FS 001 Truck Traffic

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

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol
 Permit Number: 06700061 - 001

Subject Item: FS 002 Equipment Leaks

What to do	Why to do it
STANDARDS: PUMPS	hdr
<p>Pumps in light liquid service:</p> <p>Each pump in light liquid service shall be monitored monthly to detect leaks by the methods specified in 40 CFR 60.485(b), except as provided in 40 CFR 60.482-1(c) and paragraphs (d), (e), and (f).</p> <p>Each pump in light liquid service shall be checked by visual inspection each calendar week for indications of liquids dripping from the seal.</p>	40 CFR 60.482-2
<p>If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.</p> <p>If there are indications of liquids dripping from the pump seal, a leak is detected.</p> <p>When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in 40 CFR 60.482-9 (Delay of Repair).</p> <p>A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.</p>	40 CFR 60.482-2(b) and (c)
STANDARDS: COMPRESSORS	hdr
<p>Each compressor shall be equipped with a seal system that includes a barrier fluid system that prevents leakage of VOC to the atmosphere, except as provided in 40 CFR 60.482-1(c) and 40 CFR 60.482-3(h) and (i).</p>	40 CFR 60.482-3(a)
<p>Each compressor seal system shall be:</p> <ul style="list-style-type: none"> - Operated with the barrier fluid at a pressure that is greater than the compressor stuffing box pressure; or - Equipped with a barrier fluid system that is connected by a closed vent system to a control device that complies with the requirements of 40 CFR 60.482-10; or - Equipped with a system that purges the barrier fluid into a process stream with zero VOC emissions to the atmosphere. 	40 CFR 60.482-3(b)
<p>The barrier fluid system shall be in heavy liquid service or shall not be in VOC service.</p> <p>Each barrier fluid system shall be equipped with a sensor that will detect failure of the seal system, barrier fluid system, or both.</p>	40 CFR 60.482-3(c) and (d)
<p>Each sensor shall be checked daily or shall be equipped with an audible alarm.</p> <p>The Permittee shall determine, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.</p>	40 CFR 60.482-3(e)
<p>If the sensor indicates failure of the seal system, the barrier system, or both based on the criterion determined under paragraph 40 CFR 60.482-3(e)(2), a leak is detected.</p>	40 CFR 60.482-3(f)
<p>When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected except as provided in 40 CFR 60.482-9 (Delay of Repair).</p> <p>A first attempt at repair shall be made no later than 5 calendar days after it is detected, except as provided in 40 CFR 60.482-9.</p>	40 CFR 60.482-3(g)
STANDARDS: PRESSURE RELIEF DEVICES IN GAS/VAPOR SERVICE	hdr
<p>Except during pressure releases, each pressure relief device in gas/vapor service shall be operated with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background as determined by the methods specified in 40 CFR 60.485(c).</p>	40 CFR 60.482-4(a)
<p>After each pressure release, the pressure relief device shall be returned to a condition of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as soon as practicable, but no later than 5 calendar days after the pressure release, except as provided in 40 CFR 60.482-9 (Delay of Repair).</p>	40 CFR 60.482-4(b)
STANDARDS: VALVES	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/01/04

Facility Name: Bushmills Ethanol

Permit Number: 06700061 - 001

<p>Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve, except as provided in 40 CFR 60.482-1(c).</p> <p>The cap, blind flange, plug, or second valve shall seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line.</p>	40 CFR 60.482-6(a)
<p>Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed.</p> <p>When a double block and bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with 40 CFR 60.482-6(a) at all other times.</p>	40 CFR 60.482-6(b) and (c)

TABLE B: SUBMITTALS

10/01/04

Facility Name: Bushmills Ethanol
Permit Number: 06700061 - 001

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:

AQ Permit Technical Advisor
Industrial 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:

AQ Compliance Tracking Coordinator
Industrial 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

10/01/04

Facility Name: Bushmills Ethanol
 Permit Number: 06700061 - 001

What to send	When to send	Portion of Facility Affected
Application for Permit Reissuance	due 180 days before expiration of Existing Permit	Total Facility
Monitoring Plan	due 365 days after Initial Startup for nitrogen oxides.	CE001
Notification of the Actual Date of Initial Startup	due 15 days after Initial Startup	GP007, Total Facility
Notification of the Actual Date of Initial Startup	due 15 days after Initial Startup. The notification shall include: (1) the annual heat input capacity of the thermal oxidizer and identification of the fuels to be combusted, the annual capacity factor anticipated based on each fuel fired and individual fuels fired.	CE001
Notification of the Date Construction Began	due 30 days after Start Of Construction. Submit the name and number of each unit and the date construction of each unit began.	CE001, GP007
Testing Frequency Plan	due 60 days after Initial Performance Test for PM, PM10, VOC and CO emissions. The plan shall specify a testing frequency based on one year (12 month), 36 month, and 60 month intervals, or as applicable, shall be required upon written approval of the MPCA. A new testing frequency plan shall be submitted if any subsequent or future testing would change the testing frequency requirements under MPCA guidance.	CE001
Testing Frequency Plan	due 60 days after Initial Performance Test for PM/PM10. The plan shall specify a testing frequency based on the test data and MPCA guidance. Future performance tests based on one-year (12 month), 36 month, and 60 month intervals, or as applicable, shall be required upon written approval of the MPCA. A new testing frequency plan shall be submitted if any subsequent or future testing would change the testing frequency requirements under MPCA guidance.	GP002
Testing Frequency Plan	due 60 days after Initial Performance Test. The plan shall specify a testing frequency based on one year (12 month), 36 month, and 60 month intervals, or as applicable, shall be required upon written approval of the MPCA. A new testing frequency plan shall be submitted if any subsequent or future testing would change the testing frequency requirements under MPCA guidance.	CE004

TABLE B: RECURRENT SUBMITTALS

10/01/04

Facility Name: Bushmills Ethanol

Permit Number: 06700061 - 001

What to send	When to send	Portion of Facility Affected
Excess Emissions/Downtime Reports (EER's)	due 30 days after end of each calendar quarter following Initial Startup of the Monitor	CE001
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 have occurred, the Permittee shall submit the report stating no deviations.	Total Facility
Compliance Certification	due 31 days after end of each calendar year following Permit Issuance (for the previous calendar year). To be submitted to the Commissioner on a form approved by the Commissioner. This report covers all deviations experienced during the calendar year.	Total Facility

TECHNICAL SUPPORT DOCUMENT
For
AIR EMISSION PERMIT NO. 06700061-001

This technical support document is intended for all parties interested in the permit and to meet the requirements that have been set forth by the federal and state regulations (40 CFR § 70.7(a)(5) and Minn. R. 7007.0850, subp.1). The purpose of this document is to provide the legal and factual justification for each applicable requirement or policy decision considered in the determination to issue the permit.

1. General Information

1.1. Applicant and Stationary Source Location:

Applicant/Address	Stationary Source/Address (SIC Code: 2869)
Bushmills Ethanol PO Box 628, West Highway 12 Atwater, Minnesota 56209	Highway 12 and 123 Atwater Kandiyohi County
Contact: William Roddy Phone: (316) 866-3232	

1.2. Description of the Permit Action

Bushmills Ethanol, is a fuel-grade ethanol (ethyl alcohol) production plant in Atwater, Minnesota. The plant will also produce distillers dried grains and solubles (DDGS) and wetcake for animal feed as a by-product of the ethanol production process. The primary emissions are VOCs, PM/PM₁₀, NO_x, and CO. Volatile organic compounds (VOCs) are emitted by fermentation, distillation, DDGS drying, wetcake production and storage, ethanol loading, and VOC liquid storage and piping. Particulate matter (PM/PM₁₀) is emitted by DDGS handling and drying, corn receiving and handling, and vehicle traffic. Nitrogen oxides (NO_x) and carbon monoxide (CO) are emitted by combustion sources. The plant is designed to produce 49 million gallons of denatured ethanol annually.

The primary pieces of control equipment are the Fermentation Scrubber (CE 004) and the Thermal Oxidizer (CE 001). The scrubber controls emissions from the Fermenters (EU 019, EU 020, and EU 021) and the Beer Well (EU 022); and the thermal oxidizer controls emissions from the Dryers (EU 001 and EU 002), the Mixer (EU 023), various fermentation process tanks (EU 024 to EU 031), and numerous distillation process units (EU 032 to EU 050). Baghouses control PM/PM₁₀ from the corn and DDGS handling and storage systems and the Truck/Rail Loadout area. There are five large, internal floating roof tanks for ethanol, denaturant, and gasoline and one smaller tank for corrosion inhibitor. Emissions from process valves and piping will be controlled through an inspection and maintenance program.

Bushmills requested that they be allowed to produce wetcake as a part of normal operation rather than only under the conditions of shutdown and breakdown. The Minnesota Pollution Control Agency (MPCA) had allowed other new synthetic minor ethanol facilities to only produce wetcake as a result of a shutdown and breakdown of the dryers or the thermal oxidizer. The reasons behind this decision were that there were no reliable emission factors for the production, storage and loadout of wetcake and emissions that would normally be controlled by a thermal oxidizer would now be emitted as uncontrolled fugitive emissions. MPCA added requirements to the permit to require Bushmills to develop and/or submit an emission factor for wetcake for MPCA approval prior to the startup of production of wetcake. It is anticipated that Bushmills or the Ethanol industry as a whole will work with MPCA to develop a methodology for determining VOC emissions from wetcake. The permit is structured in such a way that MPCA must approve the methodology and a final emission factor prior to the startup of wetcake production at the Atwater facility. It is fully anticipated that the methodology and the emission factor will be developed and approved prior to startup of the Atwater facility and that the facility will be able to produce wetcake upon facility startup. Within 60 days of startup of wetcake production, the facility is required to submit a schedule and a plan to verify the emission factor at the Atwater facility. It is not expected that the facility conduct the same level of testing or sampling used to develop the emission factor, but will confirm that the material and/or the conditions are similar to those used to develop the emission factor.

1.3 Description of any Changes Allowed with this Permit Issuance

This permit authorizes the construction and operation of the proposed facility.

1.4. Facility Emissions:

Table 1. Total Facility Potential to Emit Summary

	PM tpy	PM ₁₀ tpy	SO ₂ tpy	NO _x tpy	CO tpy	VOC tpy	Single HAP tpy	All HAPs tpy
Total Facility Limited Potential Emissions	39.14	27.1	37.14	91.4	95.1	95	8.48	12.5

Table 2. Facility Classification

Classification	Major/Affected Source	Synthetic Minor*	Minor
PSD		VOC, PM, PM ₁₀ , NO _x , CO	SO ₂ , Pb
Part 70 Permit Program		PM ₁₀ , VOC, NO _x , CO	HAPs

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

2. Regulatory and/or Statutory Basis

Table 3. Regulatory Overview of Facility

EU, GP, or SV	Applicable Regulations	Comments:
FC	40 CFR 52.21 40 CFR 70.2 Minn. R. 7011.0150	Limits set on throughput and production to prevent potential emissions from exceeding major source levels. Preventing Particulate Emissions from Becoming Airborne
GP001	40 CFR 52.21 40 CFR 70.2 Minn. R. 7011.1005	Grain handling emissions, DDGS handling emissions and hammermill emissions are to be controlled by baghouse to prevent potential emissions from exceeding major source levels. Minnesota Performance Standards for Bulk Agricultural Commodity Facilities
GP002	40 CFR 52.21 40 CFR 70.2	Control of PM, PM10, and opacity from commodity loading and unloading operations in baghouses. Compliance demonstration is by performance testing and performing visible emissions checks.
GP003	40 CFR 52.21 40 CFR 70.2	99 % capture efficiency of PM and PM10. Compliance demonstration is by maintaining pressure drop, O&M plan and inspections.
GP004	40 CFR 52.21 40 CFR 70.2	Requirement for venting fermentation and Beerwell emissions to the Fermentation Scrubber (CE 004) for control. Emission limits set at the scrubber stack for PM, PM10, and VOC to prevent potential emissions from exceeding major source levels.
GP005	40 CFR 52.21 40 CFR 70.2	Requirement for venting various dryers and process vents to the thermal oxidizer (CE 001) for control. Emission limits set at the thermal oxidizer stacks for PM, PM10, and VOC to prevent potential emissions from exceeding major source levels.
GP006	Minn. R. 7011.0610 40 CFR 52.21 40 CFR 70.2	Standards of Performance for Fossil Fuel Burning Direct Heating Equipment. Operational requirements and monitoring to prevent potential emissions from exceeding major source levels.
GP007	40 CFR Subp. Kb	Standards of Performance for Petroleum Storage Vessels
GP008	40 CFR 52.21 40 CFR 70.2	Vent all captured emissions to a baghouse and close doors if visible emissions are detected.
GP010	40 CFR 60.18	New Source Performance Standard for General Control Devices

GP012	40 CFR 52.21 40 CFR 70.2	Vent all emissions to a flare.
GP013	40 CFR 52.21 40 CFR 70.2	Vent all emissions to a flare or the thermal oxidizer.
CE001	40 CFR 60, subp. Db	Standards of Performance for Steam Generating Units
CE004	40 CFR 52.21 40 CFR 70.2	Maintain and monitor pressure drop and water flow rate to control particulate matter.
EU048	40 CFR 52.21	Ethanol loadout emissions are to be vented to a flare to prevent potential VOC emissions from exceeding major source levels
FS002	40 CFR 60, Subp. VV	Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry

The language 'This is a state-only requirement and is not enforceable by the U.S. Environmental Protection Agency (EPA) Administrator and citizens under the Clean Air Act' refers to permit requirements that are mandated by state law rather than by the federal Clean Air Act. The language is to clarify the distinction between permit conditions that are required by federal law and those that are required by state law. State law requirements are not enforceable by EPA or by citizens under the federal Clean Air Act, but are fully enforceable by the MPCA and citizens under provisions of state law.

Federal New Source Review: The permit contains limits on fuel use, and ethanol DDGS production that restrict annual emissions of Particulate Matter (PM), Particulate Matter less than 10 um in size (PM₁₀), Nitrogen Oxides (NO_x), carbon monoxide (CO), Sulfur Dioxide (SO₂), and Volatile Organic Compounds (VOC) to less than 100 tons per year. VOCs are measured, and compliance is determined by, total VOCs by mass.

Federal New Source Performance Standards: The tanks are subject to 40 CFR pt. 60, subp. Kb., The fluid handling equipment is subject to 40 CFR pt 60, subp. VV, and the thermal oxidizer is subject to 40 CFR 60, subp. Db.

Minnesota Performance Standards: As noted above, the entire facility is subject to requirements for controlling fugitive particulate matter, Minn. R. 7011.0150, the grain and DDGS handling portions of the facility are subject to Minnesota Performance Standards for Bulk Agricultural Handling Facilities, and the dryers are subject to Minn. R. 7011.0610, Standards of Performance for Fossil Fuel Burning Direct Heating Equipment.

Environmental Review: An Environmental Assessment Worksheet (EAW) is mandatory if potential emissions are greater than 100 tons of any air pollutant. The facility's emissions potential will not exceed 100 tons per year, however any plant that is built that has the capacity to produce more than 5 million gallons of ethanol per year is a source for which an EAW is required to be completed. That EAW was publicly noticed on August 16, 2004.

NESHAPs: The facility has limited potential Hazardous Air Pollutant (HAP) emissions of less than 10 tons per year of a single HAP, and less than 25 tons total HAPs. It is, therefore, not considered a major source of hazardous air pollutants.

Title IV, Acid Rain Program: The facility is not subject to the Acid Rain Program codified at 40 CFR pt. 72. The Acid Rain Program is applicable to electric utilities only.

CAM Applicability: 40 CFR pt. 64, Compliance Assurance Monitoring (CAM) addresses emission sources having major emissions of regulated air pollutants under Title V at major Title V sources. Since the source is not a major Part 70 source, CAM is not applicable.

Nevertheless, the permit does require compliance demonstration. Compliance with the annual throughput limits is determined monthly, on a 12 month rolling sum using records. The largest emission sources are required to perform periodic stack emissions testing, based on the outcome of the initial performance tests. It is currently MPCA policy to require testing annually if initial performance test results are 90% or greater of the emission limit, every third year if the results are 60 – 90% of the emission limit, and every five years if the test results are less than 60% of the emission limit. A nitrogen oxides predictive emission monitoring system is required for the thermal oxidizer by 40 CFR 60, Subp. Db.

The permit also specifies operating conditions for pollution control equipment, as well as inspection and maintenance.

3. Technical Information

3.1. VOC/HAP/Odor Control

The Bushmills Ethanol facility proposes to control VOC and HAP emissions and reduce odor from some of the fermentation processes and most of the distillation processes by routing all emissions from these emissions units through a thermal oxidizer. Bushmills is estimating that the thermal oxidizer will achieve 97 % overall control efficiency.

The following emissions units are controlled by the thermal oxidizer (CE 008):

- Dryers A and B (EU 001 and EU 002)
- Mixer (EU 023)
- Slurry Tanks (EU 024 and EU 025)
- Cook Tube (EU 026)
- Liquifaction Tanks (EU 029 and EU 030)
- Yeast Tank (EU 031)
- Beer Column (EU 032)
- Side Stripper (EU 033)
- Rectifier Column (EU 034)
- 190 Proof Condenser (EU 035)

- Molecular Sieve (EU 036)
- 200 Proof Condenser (EU 037)
- Centrifuges (EU 038, EU 039 and EU 040)
- Evaporators (EU 041 through EU 048)
- Methanators (EU 049 and EU 050)
- Centrate Tank

Bushmills also proposes to control VOC and HAP emissions and reduce odor from the fermentation tanks (EU 019, EU 020, and EU 021 and the Beer Well EU 022) by routing all emissions from these emissions units through a packed tower wet scrubber. Bushmills is assuming that the scrubber will achieve 98 % overall control efficiency.

3.2. Air Emissions Risk Assessment (AERA)

In accordance with MPCA instructions, Bushmills Ethanol completed the Risk Assessment Spread Sheet (RASS) of the AERA. Under this analysis, the Bushmills Ethanol facility does not present an unacceptable risk.

3.3 Emission Calculations

All grain handling emission factors originated from AP-42 (Table 4-12, 4-13, 9.9.1-1).

Type II Cooling Cyclone emissions are from Russell Test data which is attached.

Cooling Tower emissions estimates were from the manufacturer's guarantee of 0.005% drift loss (letter attached).

Dryer System (w/TO) based on stack testing. Attached find stack test summary of GLE's TO test data. SO₂ test data attached. Uncontrolled Dryer VOC and HAP test data also attached.

Fermentation Scrubber. Attached find test summary of Russell testing that shows the high & low range from the ICM fermentation scrubber emission factor guidance document. Fermentation scrubber speciation calculations are also attached.

Fugitives Components are based on EPA-453/R-95-017, November 1995, Table 2-1 and 5-2.

Methanator Flare (AP-42 Table 13.5-1 for the industrial flare itself, and AP-42 1.4 for natural gas used for the pilot). Note, 98% VOC destruction efficiency can be achieved -- since flare is designed to 40CFR60.18.

Paved Roads (AP-42, 13.2.1.1). Sample calculation attached for derivation of emission factor used in the spreadsheet.

Truck loadout flare (same emission factors as methanator flare).

Rail car loadout (Calculated from AP-42 Section 5.2.2 equation). The excel spreadsheet shows the equation and variables (vapor pressure, molar mass and product temperature) which were obtained from Tanks 4.09 software at the MSP latitude in Minnesota.

Storage Tanks - EPA Tanks 4.09 software based on Minneapolis St Paul Latitude (printouts are in the application EI).

Wet DGS - since the application is based on 100% capability DDGS (with wet as well), the DDGS PM/PM10 emissions are assumed worst case and wetcake therefore zero so as not to double count.

Emergency Fire water pump (diesel IC engine). AP-42 Chapter 3.3 emission factors for uncontrolled diesel engines (10/96).

3.4 Calculations of Potential to Emit

Attachment 1 to this TSD contains Form GI-07, which summarizes the PTE of the Facility. Attachment 2 contains detailed supporting information prepared by the Permittee.

3.5 Periodic Monitoring

In accordance with the Clean Air Act, it is the responsibility of the Permittee of a facility to have sufficient knowledge of the facility to certify that the facility is in compliance with all applicable requirements.

In evaluating the monitoring included in the permit, the MPCA considers the following:

- The likelihood of violating the applicable requirements.
- Whether add-on controls are necessary to meet the emission limits.
- The variability of emissions over time.
- The type of monitoring, process, maintenance, or control equipment data already available for the emission unit.
- The technical and economic feasibility of possible periodic monitoring methods.
- The kind of monitoring found on similar units elsewhere:

Table 5 summarizes the periodic monitoring requirements for those emission units for which the monitoring required by the applicable requirement is nonexistent or inadequate.

Table 5. Periodic Monitoring

Emission Unit or Group	Requirement (basis)	Additional Monitoring	Discussion
Total Facility	Production Limits for Title I Condition	Recordkeeping	Production and Processing records of Ethanol produced, corn processed and DDGS produced.
Dry Bulk Commodity Control Equipment Vents GP002	PM/PM ₁₀ ≤ 0.005 grains/dry standard cubic foot.	Performance tests and recordkeeping	This stack vents emissions from several emissions units. The initial performance tests and subsequent performance tests (in accordance with MPCA policy) will ensure compliance with the limits. Emissions from these stacks are dependent upon the throughput of grains and the quantity of alcohol produced. Bushmills is required to maintain monthly records of the 12-month rolling sum of corn processed and alcohol produced.
Baghouses: GP003	Title I Condition	Recordkeeping	Read and record the pressure drop of the baghouses and maintain and inspect the control equipment such that they achieve a 99 % overall capture efficiency.
Dryers: GP006	PM ≤ 0.3 grains/dry standard cubic foot, Opacity.	Performance tests and recordkeeping	Measurement of process throughputs and dryer temperature.
190hp IC Engine: EU060	SO ₂ and Opacity	Recordkeeping: Daily records of hours of operation, Monthly record of 12-month rolling sum of hours of operation.	The draft permit allows the Permittee to operate each generator up to 50 hours / 12-month period. The Permittee is required to maintain monthly records of the 12-month rolling sum of number of hours of operation of each generator.

3.6 Insignificant Activities

Bushmills listed several tanks and storage piles in the permit application. These emissions units have the potential to emit less than one ton of pollutants each. For this reason, periodic monitoring is unnecessary.

3.7 Permit Organization

Emissions units, control equipment and stack/vents are grouped by common requirements. The emission limits are placed at the SV level. Operating requirements are placed at the EU or GP level.

3.8 Comments Received

MPCA received one comment letter regarding the air permit. The letter was from the Mille Lacs Band of the Ojibwe DNRE Air Quality Program and commented on the operation of the scrubber system, emissions from the production of wetcake, the use of pesticides, and asks whether an Environmental Impact Study was completed for the facility. MPCA sent a written reply to address the issues raised in the letter.

4. Conclusion

Based on the information provided by [Bushmills](#), the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 06700061-001 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: Greg Kvaal (permit writer/engineer)
 Scott Parr (enforcement)
 Dan Brady (stack testing)
 Mike Mondloch (peer reviewer)

Attachments: 1. Emissions Calculations
 2. General Information (GI) Forms
 3. Parameters Used in Modeling
 4. Odor Action Plan
 5. Public Notice Comment Letters Received