

AIR EMISSION PERMIT NO. 01900001- 001

IS ISSUED TO

Bongards' Creameries

BONGARDS' CREAMERIES

13200 County Road 51
Norwood, Carver County, MN 55368-9743

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

Permit Type	Application Date
Total Facility Operating Permit	January 20, 1995
Total Facility Operating Permit update	April 29, 2002

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: Federal; Pt 70/Limits to avoid NSR

Issue Date: November 7, 2003

Expiration: November 7, 2008
All Title I Conditions do not expire.

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

for Sheryl A. Corrigan
Commissioner
Minnesota Pollution Control Agency

TABLE OF CONTENTS

Notice to the Permittee

Permit Shield

Facility Description

Table A: Limits and Other Requirements

Table B: Submittals

Appendices: Attached and Referenced in Table A

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:

The Permittee owns and operates a cheese and whey powder facility consisting of a variety of equipment including boilers (which burn natural gas, #2 fuel oil and #6 fuel oil), dryers, and baggers. The facility is a major source of NO_x, CO and SO_x emissions from fuel-burning equipment (boilers and dryers). The source is also a significant PM source, but it is equipped with baghouses and cyclones that recover much of the PM emissions (their product). The Permittee is proposing to install a new 100 MMBtu/hr boiler in 2003. It will be capable of burning natural gas and distillate fuel oil. It is subject to New Source Performance Standards, subpart Dc. This boiler will replace a boiler that is capable of burning #6 fuel oil, will have a 0.3 percent fuel sulfur content limit and annual usage limits on the amount of distillate oil allowed to be burned.

TABLE A: LIMITS AND OTHER REQUIREMENTS

11/07/03

Facility Name: Bongards' Creameries

Permit Number: 01900001 - 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
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, B, and/or C.	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 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

11/07/03

Facility Name: Bongards' Creameries

Permit Number: 01900001 - 001

Operation of Monitoring Equipment: Unless otherwise noted in Tables A, B, and/or C, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, or during checks of the monitoring systems, such as calibration checks and zero and span adjustments. If monitoring records are required, they should reflect any such periods of process shutdown or checks of the monitoring system.	Minn. R. 7007.0800, subp. 4(D)
MODELING REQUIREMENTS	hdr
See Table B for modeling submittal	hdr
RECORDKEEPING	hdr
Record keeping: Retain all records at the stationary source for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).	Minn. R. 7007.0800, subp. 5(C)
Recordkeeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007.1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350 subp. 2), including records of the emissions resulting from those changes.	Minn. R. 7007.0800, subp. 5(B)
REPORTING/SUBMITTALS	hdr
Shutdown Notifications: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3. At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over.	Minn. R. 7019.1000, subp. 3
Breakdown Notifications: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2. At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over.	Minn. R. 7019.1000, subp. 2
Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify the Commissioner or the state duty officer, either orally or by facsimile, of any deviation from permit conditions which could endanger human health or the environment.	Minn. R. 7019.1000, subp. 1
Notification of Deviations Endangering Human Health or the Environment Report: Within 2 working days of discovery, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. Include the following information in this written description: 1. the cause of the deviation; 2. the exact dates of the period of the deviation, if the deviation has been corrected; 3. whether or not the deviation has been corrected; 4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and 5. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.	Minn. R. 7019.1000, subp. 1
Application for Permit Amendment: If a permit amendment is needed, submit an application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.	Minn. R. 7007.1150 through Minn. R. 7007.1500
Extension Requests: The Permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H).	Minn. R. 7007.1400, subp. 1(H)
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. 7019.3010
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

11/07/03

Facility Name: Bongards' Creameries

Permit Number: 01900001 - 001

Subject Item: GP 001 Spray Dryers

- Associated Items:**
- CE 001 Centrifugal Collector - Medium Efficiency
 - CE 002 Centrifugal Collector - Medium Efficiency
 - CE 003 Centrifugal Collector - Medium Efficiency
 - CE 004 Centrifugal Collector - Medium Efficiency
 - EU 003 Spray Dryer 1
 - EU 004 Spray Dryer 2
 - EU 005 Spray Dryer 3
 - EU 006 Spray Dryer 4
 - SV 004 Spray Dryer 1
 - SV 005 Spray Dryer 2
 - SV 006 Spray Dryer 3
 - SV 007 Spray Dryer 4

What to do	Why to do it
LIMITS	hdr
Total Particulate Matter: less than or equal to 0.094 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. Limit applies to each dryer individually. (Recent performance test showed 0.083 gr/dscf.)	Minn. R. 7011.0610, subp. 1(A)(1)
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Limit applies to each dryer individually.	Minn. R. 7011.0610, subp. 1(A)(2)
Process Throughput: less than or equal to 3787 lbs/hour using 8-hour Block Average. This limit applies to each spray dryer individually.	Minn. R. 7017.2025, subp. 3
OTHER REQUIREMENTS	hdr
Visible Emissions: The Permittee shall check CE001, CE002, CE003 and CE004's stacks (SV004, SV005, SV006 and SV007) for any visible emissions once each day of operation during daylight hours.	Minn. R. 7007.0800, subp. 4(B)
Corrective Actions: The Permittee shall take corrective action as soon as possible if any of the following occur: - visible emissions are observed; - the cyclones or any of their components are found during the inspections to need repair. Corrective actions shall 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 cyclones. The Permittee shall keep a record of the type and date of any corrective action taken for CE001, CE002, CE003 or CE004.	Minn. R. 7007.0800, subp. 4, 5 and 14
Periodic Inspections: At least once per calendar quarter, or more frequently as required by the manufacturer's specifications, the Permittee shall inspect CE001, CE002, CE003 and CE004's components. The Permittee shall maintain a written record of these inspections.	Minn. R 7007.0800, subp. 4, 5 and 14
MONITORING, RECORDKEEPING AND REPORTING	hdr
Hourly recordkeeping: A written hourly log shall be maintained for each dryer while it is operational that includes the recorded temperature and the operating pressure of the feed pump. The operating temperature is to be recorded on a 24-hr chart recorder for each dryer.	Minn. R. 7007.0800, subp. 4
Calculation Method for spray dryers: OC (gal/hr) x 0.5 wt% solids x 10.1 lb/gal = Process Throughput rate (lb/hr) where: OC = Operating capacity of pump in gallons/hour (8-hr block average)	Minn. R. 7007.0800, subp. 5
PERFORMANCE TESTING	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS

11/07/03

Facility Name: Bongards' Creameries

Permit Number: 01900001 - 001

<p>Performance Test: due 1,095 days after Permit Issuance on one representative unit that has not been tested in the previous 3 years to measure total particulate matter emissions. The tests shall be conducted at an interval not to exceed 36 months between test dates.</p> <p>Limits set as result of this test apply until to all units in group individually until new limits are set following formal review of a performance test.</p>	<p>Minn. R. 7017.2020, subp.1</p>
<p>Performance Test: due 1,095 days after Permit Issuance for Opacity.</p>	<p>Minn. R. 7017.0610, subp. 1(A)(2)</p>
<p>Performance Test: due 1,095 days after Permit Issuance to measure VOC emission factor from spray dryers on one representative unit.</p> <p>Information from this test will apply to all units in the group individually.</p>	<p>Minn. R.</p>
<p>Performance Test Notifications and Submittals;</p> <p>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 day before each Performance Test Performance Test Report: due 45 days after each Performance Test Performance Test Report - Microfiche Copy: due 105 day after each Performance Test. The Notification, Test Plan, and Test Report may be submitted in alternative format as allowed by Minn. R. 7017.2018.</p>	<p>Minn. R. 7017.2030, subp. 1-4; Minn. R. 7017.2018 and Minn. R. 7017.2035, subp. 1-2</p>
<p>Operating and/or production limits will be placed on emission units based on operating conditions during performance testing. Limits set as a result of a performance test (conducted before or after permit issuance) apply until new operating/production limits are set following formal review of a performance test as specified by Minn. R. 7017.2025.</p>	<p>Minn. R. 7017.2025, subp. 3</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS

11/07/03

Facility Name: Bongards' Creameries

Permit Number: 01900001 - 001

Subject Item: GP 002 Drum Dryers

- Associated Items:** CE 007 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 CE 008 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 CE 009 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 CE 010 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 EU 011 Drum Dryer 1
 EU 012 Drum Dryer 2
 EU 013 Drum Dryer 3: fluid bed
 EU 014 Drum Dryer 4
 SV 008 Drum Dryer 1
 SV 009 Drum Dryer 2
 SV 010 Drum Dryer 3
 SV 011 Drum Dryer 4

What to do	Why to do it
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 (potential to emit is 0.067 gr/dscf). Limit applies to each dryer individually.	Minn. R. 7011.0610, subp. 1(A)(1)
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Limit applies to each dryer individually.	Minn. R. 7011.0610, subp. 1(A)(2)
OTHER REQUIREMENTS	hdr
Visible Emissions: The Permittee shall check CE007, CE008, CE009 and CE010's stacks (SV008, SV009, SV010 and SV011) for any visible emissions once each day of operation during daylight hours.	Minn. R. 7007.0800, subp. 4(B)
<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 baghouses or any of their components are found during the inspections to need repair. <p>Corrective actions shall 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 baghouses. The Permittee shall keep a record of the type and date of any corrective action taken for CE007, CE008, CE009 or CE010.</p>	Minn. R. 7007.0800, subp. 4, 5 and 14
Periodic Inspections: At least once per calendar quarter, or more frequently as required by the manufacturer's specifications, the Permittee shall inspect CE007, CE008, CE009 and CE010's components. The Permittee shall maintain a written record of these inspections.	Minn. R 7007.0800, subp. 4, 5 and 14

TABLE A: LIMITS AND OTHER REQUIREMENTS

11/07/03

Facility Name: Bongards' Creameries

Permit Number: 01900001 - 001

Subject Item: GP 003 Caterpillar Generators

Associated Items: EU 016 Diesel Generator

EU 017 Diesel Generator

SV 022 Caterpillar Generator 1

SV 023 Caterpillar Generator 2

What to do	Why to do it
EMISSION LIMITS	hdr
Nitrogen Oxides: less than or equal to 58.7 lbs/hour	Title I Condition: To remain a nonmajor modification under 40 CFR Section 52.21
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input	Minn. R. 7011.2300, subp. 2
Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained.	Minn. R. 7011.2300, subp. 1
OTHER LIMITS	hdr
Operating Hours: less than or equal to 625 hours/year using 12-month Rolling Sum calculated by the 15th day of the following month..	Title I Condition: To remain a nonmajor modification under 40 CFR Section 52.21
Sulfur Content of Fuel: less than or equal to 0.15 percent by weight for liquid fuels.	Minn. R. 7007.0800, subp. 2, Minn. R. 7011.2300, subp. 2
RECORDKEEPING	hdr
Sulfur Content of Fuel: Sample and analyze the fuel oil storage tank for sulfur content after each delivery or obtain a fuel oil supplier certification that the fuel contains less than 0.15% sulfur by weight.	Minn. R. 7007.0800, subp. 2
PERFORMANCE TESTING	hdr
Performance Test: due 1,095 days after Permit Issuance to measure NOx emissions.	Minn. R. 7017.2020, subp. 1
Performance Test Notifications and Submittals; 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 day before each Performance Test Performance Test Report: due 45 days after each Performance Test Performance Test Report - Microfiche Copy: due 105 day 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. R. 7017.2030, subp. 1-4; Minn. R. 7017.2018 and Minn. R. 7017.2035, subp. 1-2

TABLE A: LIMITS AND OTHER REQUIREMENTS

11/07/03

Facility Name: Bongards' Creameries

Permit Number: 01900001 - 001

Subject Item: GP 004 Whey Handling and Bagging

- Associated Items:**
- CE 005 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 - CE 006 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 - CE 011 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 - CE 012 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 - CE 013 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 - CE 014 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 - CE 015 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 - CE 016 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 - CE 017 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 - EU 009 Bagging 1
 - EU 010 Bagging 2
 - EU 015 PowderPak (bagging)
 - EU 019 Surge Bin
 - EU 020 Whey Bin #1
 - EU 021 Whey Bin #2
 - EU 022 Whey Bin #3
 - EU 023 Whey Bin #4
 - EU 024 Whey Bin #5
 - EU 025 Whey Bin #6
 - SV 012 PowderPak (Bagging)
 - SV 013 Whey Bin 1
 - SV 014 Whey Bin 5 & 6
 - SV 015 Whey Bin 2
 - SV 016 Whey Bin 3
 - SV 017 Whey Bin 4
 - SV 018 Bagging Unit 1
 - SV 019 Bagging Unit 2
 - SV 021 Surge Bin

What to do	Why to do it
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. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
OTHER REQUIREMENTS	hdr
Visible Emissions: The Permittee shall check CE005, CE006, CE011, CE012, CE013, CE014, CE015, CE016 and CE017's stacks (SV012, SV013, SV014, SV015, SV016, SV017, SV018, SV019 and SV021) for any visible emissions once each day of operation during daylight hours.	Minn. R. 7007.0800, subp. 4(B)
<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 baghouses or any of their components are found during the inspections to need repair. <p>Corrective actions shall 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 baghouses. The Permittee shall keep a record of the type and date of any corrective action taken for CE005, CE006, CE011, CE012, CE013, CE014, CE015, CE016 and CE017.</p>	Minn. R. 7007.0800, subp. 4, 5 and 14

TABLE A: LIMITS AND OTHER REQUIREMENTS

11/07/03

Facility Name: Bongards' Creameries

Permit Number: 01900001 - 001

Periodic Inspections: At least once per calendar quarter, or more frequently as required by the manufacturer's specifications, the Permittee shall inspect CE005, CE006, CE011, CE012, CE013, CE014, CE015, CE016 and CE017's components. The Permittee shall maintain a written record of these inspections.	Minn. R 7007.0800, subp. 4, 5 and 14
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TABLE A: LIMITS AND OTHER REQUIREMENTS

11/07/03

Facility Name: Bongards' Creameries

Permit Number: 01900001 - 001

Subject Item: SV 003 Fairbanks Generator

Associated Items: EU 008 Diesel Generator

What to do	Why to do it
EMISSION LIMITS	hdr
Opacity: less than or equal to 20 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
OTHER REQUIREMENTS	hdr
<p>Parameters used in Modeling: The stack heights, air flow rates, and exhaust gas temperature used in the screen modeling performed to demonstrate compliance with NOx ambient air quality standards are listed in Appendix B of this permit. No modifications to this emission unit can be made unless the stack parameters are consistent with those in Appendix B.</p> <p>The Permittee must submit to the Agency for approval any revisions of these parameters and must wait for written approval before making such changes. The information submitted must include, at a minimum, the height and diameter of the stack, the velocity and temperature of the gas emitted, and the maximum NOx emission rate. The plume dispersion characteristics after the proposed revision must be equivalent to or better than the dispersion characteristics used in the SCREEN Model performed to determine the parameters currently listed in Appendix B.</p>	Minn. R. 7009.0200 (emissions modeled demonstrate compliance with NOx ambient standards). This is a state-only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.
Stack height extension: Minimum of 33.5 ft above ground level.	Minn. R. 7009.0020
Sulfur Content of Fuel: less than or equal to 0.3 percent by weight	Minn. R. 7007.0800, subp. 2
<p>Equipment Installation: due 150 days after Permit Issuance: The stack must meet the parameters listed in Appendix B after equipment installation.</p> <p>OR</p> <p>As an alternative, the Permittee may complete full dispersion modeling of NOx emissions from the entire source, demonstrating that the facility does not contribute to modeled violations of NOx ambient standards.</p>	Minn. R. 7009.0200
RECORDKEEPING and NOTIFICATIONS	hdr
Sulfur Content of Fuel: Sample and analyze the fuel oil storage tank for sulfur content after each delivery or obtain a fuel oil supplier certification that the fuel contains less than 0.3% sulfur by weight.	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

11/07/03

Facility Name: Bongards' Creameries

Permit Number: 01900001 - 001

Subject Item: EU 002 Boiler 2 (Central, 1964-2003, now West)

Associated Items: SV 001 West Boiler

What to do	Why to do it
LIMIT	hdr
Total Particulate Matter: less than or equal to 0.4 lbs/million Btu heat input (potential to emit is 0.11 lb/million Btu based on equipment design).	Minn. R. 7011.0510, subp. 1
Sulfur Dioxide: less than or equal to 1.6 lbs/million Btu heat input while burning liquid fuels (potential to emit is 1.57 lb/million Btu based upon equipment design).	Minn. R. 7011.0510, subp. 1
Sulfur Content of Fuel: less than or equal to 1.48 percent by weight for liquid fuels.	Minn. R. 7007.0800, subp. 2
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0510, subp. 2
RECORDKEEPING	hdr
Sulfur Content of Fuel: Sample and analyze the fuel oil storage tank for sulfur content after each delivery or obtain a fuel oil supplier certification that the fuel contains less than 1.48% sulfur by weight.	Minn. R. 7007.0800, subp. 2
Label Boiler: Within 60 days of permit issuance, the Permittee shall clearly label the boiler with the emission unit number as stated in this permit. For this boiler, the label should read EU 002.	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

11/07/03

Facility Name: Bongards' Creameries

Permit Number: 01900001 - 001

Subject Item: EU 007 Boiler (East, 1978-2003)

Associated Items: SV 002 East Boiler

What to do	Why to do it
LIMIT	hdr
Total Particulate Matter: less than or equal to 0.4 lbs/million Btu heat input (potential to emit is 0.11 lb/million Btu based upon equipment design).	Minn. R. 7011.0510, subp. 1
Sulfur Dioxide: less than or equal to 1.6 lbs/million Btu heat input while burning liquid fuels (potential to emit is 1.57 lb/million Btu based upon equipment design).	Minn. R. 7011.0510, subp. 1
Sulfur Content of Fuel: less than or equal to 1.48 percent by weight for liquid fuels.	Minn. R. 7007.0800, subp. 2
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0510, subp. 2
RECORDKEEPING	hdr
Sulfur Content of Fuel: Sample and analyze the fuel oil storage tank for sulfur content after each delivery or obtain a fuel oil supplier certification that the fuel contains less than 1.48% sulfur by weight.	Minn. R. 7007.0800, subp. 2
Label Boiler: Within 60 days of permit issuance, the Permittee shall clearly label the boiler with the emission unit number as stated in this permit. For this boiler, the label should read EU 007.	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

11/07/03

Facility Name: Bongards' Creameries

Permit Number: 01900001 - 001

Subject Item: EU 008 Diesel Generator**Associated Items:** SV 003 Fairbanks Generator

What to do	Why to do it
LIMIT	hdr
Sulfur Content of Fuel: less than or equal to 0.5 percent by weight for liquid fuels.	Minn. R. 7007.0800, subp. 2
RECORDKEEPING	hdr
Sulfur Content of Fuel: Sample and analyze the fuel oil storage tank for sulfur content after each delivery or obtain a fuel oil supplier certification that the fuel contains less than 0.5% sulfur by weight.	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

11/07/03

Facility Name: Bongards' Creameries

Permit Number: 01900001 - 001

Subject Item: EU 018 Boiler 1 (East, 2003)

Associated Items: SV 002 East Boiler

What to do	Why to do it
EMISSION LIMITS	hdr
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input	40 CFR Section 60.42c(d); 40 CFR Section 60.42c(h)(1); Minn. R. 7011.0570
Opacity: less than or equal to 20 percent opacity using 6-minute Average , except for one 6-minute period per hour of not more than 27 percent opacity. This limit does not apply during periods of startup, shutdown, or malfunction.	40 CFR Section 60.43c(c); 40 CFR Section 60.43c(d); Minn. R. 7011.0570
OPERATING LIMITS/REQUIREMENTS	hdr
Fuel Usage: less than or equal to 1500000 gallons/year of distillate fuel oil based on a 12-month rolling sum.	Title I Condition: To avoid classification as a major modification under 40 CFR Section 52.21
Sulfur Content of Fuel: less than or equal to 0.3 percent by weight , based on certification by fuel supplier.	Minn. R. 7007.0800, subp. 2
The fuel oil sulfur limits apply at all times, including periods of startup, shutdown, and malfunction.	40 CFR Section 60.42c(i)
Label Boiler: Within 60 days of permit issuance, the Permittee shall clearly label the boiler with the emission unit number as stated in this permit. For this boiler, the label should read EU 018.	Minn. R. 7007.0800, subp. 2
RECORDKEEPING	hdr
Recordkeeping: For each shipment of fuel oil, the Permittee shall obtain and maintain a copy of the fuel supplier's certification, which shall include the name of the oil supplier, and a statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil in 40 CFR Section 60.41c.	40 CFR Section 60.48c(f)(1); Minn. R. 7011.0570
Monthly Recordkeeping: Record and maintain records of the amounts of each 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, February 22, 1003 and June 25, 2002 EPA memoranda to meet the requirements of 40 CFR Section 60.48c(g) and (i); Minn. R. 7011. 0570
Monthly Recordkeeping: By the 15th day of each month, calculate and record the following: 1. the total quantity of fuel oil combusted in the boiler during the previous month 2. the total quantity of fuel oil combusted in the boiler during the previous 12-month period by summing the monthly fuel oil usage for the previous 12 months.	Title I Condition: To avoid classification as a major modification under 40 CFR Section 52.21
Recordkeeping: Maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the facility including; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.	40 CFR Section 60.7(b), Minn. R. 7019.0100, subp. 1
Recordkeeping: Maintain a file of all measurements, maintenance, reports and records for at least two years.	40 CFR Section 60.7(f); Minn. R. 7019.0100, subp. 1
REPORTING	hdr
PERFORMANCE TESTING	hdr
Initial Performance Test: due 180 days after Initial Startup of the boiler, not to exceed 60 days after achieving maximum operating capacity, to measure opacity.	60.45c(a); 60.8(a)
Performance Test Notifications and Submittals: 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	Minn. R. 7017.2030, subp. 1 - 4; Minn. R. 7017.2035, subp. 1and 2 and Minn. R. 7017.2018
Opacity Compliance: Demonstrate compliance with opacity standards using Reference Method 9.	40 CFR Section 60.11; Minn. R. 7017.2015
NOTIFICATIONS	hdr
Notification of any physical or operational change which increases emission rate: due 60 days (or as soon as practical) before the change is commenced within 180 days of completion of any physical or operational change subject to the control measures specified in 60.14(a), compliance with all applicable standards must be achieved.	40 CFR Section 60.7(a)(4); Minn. R. 7019.0100, subp. 1
Notification of Anticipated Date for Conducting Opacity Observations: due 30 day prior to observation date	40 CFR Section 60.7(a)(4); Minn. R. 7019.0100, subp. 1
No owner or operator shall build, erect, install, or use any article, machine, equipment or process, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard.	40 CFR Section 60.12

TABLE B: SUBMITTALS

11/07/03

Facility Name: Bongards' Creameries
Permit Number: 01900001 - 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:

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

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

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

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

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

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

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

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

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

TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS

11/07/03

Facility Name: Bongards' Creameries

Permit Number: 01900001 - 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
Computer Dispersion Modeling Information	due 1,096 days after Permit Issuance. Submit modeling data as specified in MPCA guidance for Modeling Information Requests. This modeling information is for data collection purposes, no modeling analysis is required at this time. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Total Facility
Notification of the Actual Date of Initial Startup	due 15 days after Initial Startup	EU018
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.	EU018
Notification	due 15 days after Equipment Installation (modified stack) or completion of Dispersion Modeling.	SV003

TABLE B: RECURRENT SUBMITTALS

11/07/03

Facility Name: Bongards' Creameries

Permit Number: 01900001 - 001

What to send	When to send	Portion of Facility Affected
Quarterly Report	due 30 days after end of each calendar quarter following Initial Performance Test. Quarterly reports shall include records of fuel supplier certifications (including the name of the fuel supplier and a statement from the fuel supplier that the fuel oil complies with the specifications under the definition of distillate fuel oil) and a certified statement that the records represent all fuel combusted.	EU018
Report	due 30 days after end of each calendar half-year following Permit Issuance. The report shall be submitted to the U.S. EPA, and shall include the following: - the calendar dates covered in the reporting period - records of fuel oil supplier certifications - certified statement signed by the owner or operator stating that the records of fuel supplier certifications submitted represent all of the fuel oil combusted during the reporting period.	EU018
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 30 days after end of each calendar year following Permit Issuance (for the previous calendar year). To be submitted on a form approved by the Commissioner, both to the Commissioner and to the US EPA regional office in Chicago. This report covers all deviations experienced during the calendar year.	Total Facility

APPENDIX A: Modeling Parameters

Facility Name: Bongards' Creameries

Permit Number: 01900001-001

Any physical change or change in a method of operation must result in plume dispersion characteristics equivalent to or better than the plume dispersion characteristics modeled using the parameters below. Revision of any of these parameters may require a permit amendment.

Table A – Modeled Parameters – Fairbanks Generator

SV ID No.	Modeled Stack Height (feet)	Modeled Stack Diameter (feet)	Modeled Stack Temperature (°F)	Modeled Stack Air Flow (acfm)
003	33.5	1.3	474.8	1592

Appendix B: Insignificant Activities Required to be Listed

Facility Name: Bongards' Creameries

Permit Number: 01900001-001

Insignificant Activities and Applicable Requirements

Minn. R. 7007.1300, subpart	Rule Description of the Activity	Applicable Requirement
3(D)	Processing operations:	
	<p>2. Equipment venting particulate matter (PM) or particulate matter less than 10 microns (PM-10) inside a building, provided that emissions from the equipment are:</p> <p>a). filtered through an air cleaning system; and</p> <p>b). vented inside of the building 100% of the time.</p> <ul style="list-style-type: none"> • Metal shop with milling and lathing operations, vented inside 100% of the time 	Minn. R. 7011.0710/0715
3(G)	<p>Emissions from a laboratory, as defined in the subpart.</p> <ul style="list-style-type: none"> • Small QA/QC laboratory 	Minn. R. 7011.0510/0515 +Minn. R. 7011.0610 + Minn. R. 7011.0710/0715
3(H)	Miscellaneous:	
	<p>1. total usage of less than 200 gallons of VOC (including hazardous air pollutant-containing VOC) combined in any consecutive 12 months period at a stationary source;</p> <ul style="list-style-type: none"> • Several Mineral Spirits booths, total usage less than 200 gallons per 12-month period. 	Minn. R. 7011.0710/0715
	<p>4. brazing, soldering or welding equipment;</p> <ul style="list-style-type: none"> • Welding equipment 	Minn. R. 7011.0610; Minn. R. 7011.0710/0715

Minn. R. 7007.1300, subpart	Rule Description of the Activity	Applicable Requirement
l)	<p>Individual emissions units at a stationary source, each of which have a potential to emit the following pollutants in amounts less than:</p> <ol style="list-style-type: none"> 1. 4,000 lbs/year of carbon monoxide; and 2. 2,000 lbs/year each of nitrogen oxide, sulfur dioxide, particulate matter, particulate matter less than ten microns, volatile organic compounds (including hazardous air pollutant-containing VOC), and ozone. <ul style="list-style-type: none"> • Space heaters in generator building, water heaters and space heaters in the retail store and main office, all of which have potential emissions below these thresholds. • Two tanks for distillate oil storage: 1,175,000 gallons and 73,000 gallosn, potential VOC emissions < 4 lb/yr each 	<p>Minn. R. 7011.2300</p> <p>Minn. R. 7011.0715; Minn. R. 7011.0105; Minn. R. 7011.0150</p>
4	<p>Insignificant activities required to be listed in a part 70 application. If a facility is applying for a part 70 permit, emissions units with emissions less than all the following limits but not included in subpart 2 must be listed in a part 70 permit application:</p> <ol style="list-style-type: none"> A. potential emissions of 5.7 pounds per hour or actual emissions of two tons per year of carbon monoxide; B. potential emissions of 2.28 pounds per hour or actual emissions of one ton per year for particulate matter, particulate matter less than ten microns, nitrogen oxide, sulfur dioxide, and VOCs; and C. for hazardous air pollutants, emissions units with..... <ul style="list-style-type: none"> • Individual gas-fired heaters, each of which has potential emissions below the lb/hour thresholds 	<p>Minn. R. 7011.0510/7011.0610/7011.0715</p> <p>Minn. R. 7011.0715; Minn. R. 7011.0105; Minn. R. 7011.0150</p>

TECHNICAL SUPPORT DOCUMENT
For
AIR EMISSION PERMIT NO. 01900001-001

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

1. General Information

1.1. Applicant and Stationary Source Location:

Owner and Operator Address and Phone Number (list both if different)	Facility Address (SIC Code: 2022)
Mr. Roger Engelman General Manager 13200 County Road 51 Bongards, MN 55368 952-466-5521 952-466-5556 (fax)	13200 County Road 51 Bongards, MN 55368 Carver County

1.2. Description of the facility

The Permittee owns and operates a cheese and whey powder facility at 13200 County Road 51, Bongards, Carver County, Minnesota. The stationary source consists of a variety of equipment, including boilers (which burn natural gas and residual oil), dryers, and pulverizers for the manufacture of natural and processed cheese and whey powder. The facility is a major source of NOx and SOx from fuel-burning equipment (boilers and dryers). The source is also a significant PM source, but it is equipped with baghouses and cyclones to recover and control much of the PM emissions.

Modeling: Actual emissions for SOx are less than 250 tpy (but greater than 200 tpy). However, when the new boiler is installed (planned for 2003), they will be burning #2 fuel oil with a sulfur content of <0.3% instead of #6 fuel oil with a sulfur content of 1.48%. Therefore, their actual emissions of SOx will decrease after the new boiler is installed.

1.3 Description of any changes allowed with this permit issuance

The Permittee is proposing to add a new 100 MMBtu/hr boiler. It will be capable of burning natural gas and distillate oil. It is subject to NSPS provisions, subp. Dc. Therefore, there will be fuel sulfur content and annual usage limits on the distillate oil. They are also using the limits to avoid major modification classification under 40 CFR Section 52.21. The facility is not a major source of HAPs, therefore the proposed MACT for industrial boilers will not apply to this unit in the future.

1.4 Description of all amendments issued since the issuance of the last total facility permit and to be included in the Part 70 Permit.

Permit Number and Issuance Date	Action Authorized
1239-76-O-1, January 20, 1976	Installation and operation of East and West Boilers.
3/18/91	Installation and operation permit application.
10/30/95	I/O of 2 stationary internal combustion engines as backup generators. Limited to 675 hours per year to avoid major modification under NSR for NOx. Daily hours of operation records required. Title I Condition: NOx \leq 58.7 lb/hr (emission rate guaranteed by manufacturer). Testing as required by division manager. [58.7 x 675 hrs x 2 engines / 2000 = 39.62 tpy NOx]

1.5. Facility Emissions:

Table 1. Total Facility Potential to Emit Summary:

EU #	SV #	Emission Unit Description	PM tpy	PM ₁₀ tpy	SO ₂ tpy	NO _x tpy	CO tpy	VOC tpy	Pb tpy	Single HAP tpy	All HAPs tpy
002		West Boiler	37.01	31.84	515.31	120.45	26.28	1.71	0		
003		Spray Dryer – fuel & whey	26.04	26.04	0.05	4.22	2.21	0.14			
004		Spray Dryer – fuel & whey	26.04	26.04	0.05	4.22	2.21	0.14	-		
005		Spray Dryer – fuel & whey	26.04	26.04	0.05	4.22	2.21	0.14	-		
006		Spray Dryer – fuel & whey	26.04	26.04	0.05	4.22	2.21	0.14	-		
007		East Boiler	61.19	52.50	852.05	170.18	43.44	2.85	-		
008		Fairbanks Generator	4.91	4.91	17.01	168.19	38.54	4.51	-		
009		Bagging 1	13.71	13.71	-	-	-	-	-		
010		Bagging 2	13.71	13.71	-	-	-	-	-		
011		Drum Dryer 1	2.17	2.17	-	-	-	-	-		
012		Drum Dryer 2	2.17	2.17	-	-	-	-	-		
013		Drum Dryer 3	2.17	2.17	-	-	-	-	-		
014		Drum Dryer 4	2.17	2.17	-	-	-	-	-		
015		Powderpak	0.57	0.57	-	-	-	-	-		
016		Diesel Generator	0.19	0.19	0.98	18.34	3.5	0.05			
017		Diesel Generator	0.19	0.19	0.98	18.34	3.5	0.05			
018		New West Boiler	3.89	3.13	32.45	23.99	2.29	30.45	-		
019		Surge Bin	0.13	0.13	-	-	-	-	-		
020		Whey Bin 1	6.83	6.83	-	-	-	-	-		
021		Whey Bin 2	6.83	6.83	-	-	-	-	-		
022		Whey Bin 3	6.83	6.83	-	-	-	-	-		
023		Whey Bin 4	6.83	6.83	-	-	-	-	-		
024		Whey Bin 5	6.83	6.83	-	-	-	-	-		
025		Whey Bin 6	6.83	6.83	-	-	-	-	-		

	PM tpy	PM ₁₀ tpy	SO ₂ tpy	NO _x tpy	CO tpy	VOC tpy	Pb tpy
Total Facility Limited Potential Emissions	289.32	274.70	1408.56	549.03	161.18	12.44	-
Total Facility Actual Emissions	198.19	189.92	237.64	108.35	17.63	3.42	-

Table 2. Facility(TF) and Permit Classification

Classification (put x in appropriate box)	Major/Affected Source	*Synthetic Minor	*Minor
PSD (list pollutant)	NO _x , SO _x		
NAAR (list pollutant)			
Part 70 Permit Program (list pollutant)	NO _x , SO _x , CO PM10		

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

2. Regulatory and/or Statutory Basis

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

Regulatory Overview of Facility

New Source Review

This facility is a major source under New Source Review. Most of the emission units were installed prior to the NSR program. Two back-up generators were installed in 1995. These units accepted limits to remain non-major modifications for PSD.

Part 70 Permit Program

The facility is a major source under the federal operating permit program (40 CFR pt. 70). The facility submitted a timely Title V application. It was received by the MPCA January 20th, 1995.

New Source Performance Standards

- 40 CFR Section 60, subp. Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. The new West Boiler (EU018) is subject to this standard.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The facility is not a major source of HAPs.

EU, GRP, or SV #	Applicable Regulations	Comments:
FC		Risk Management Plan submitted. EPA Facility ID #1000-0002-3413.
EU002, 007	Minn. R. 7011.0510	Existing Boilers: Standards of Performance for Existing Indirect Heating Equipment (existing boilers, installed 1964). Sulfur limit of 1.48% while burning fuel oils. PM, SO2 and opacity limits.
EU003-006 GP001	Minn. R. 7011.0610	Spray Dryers: Direct-heating Equipment Rule, pre-1977. PM emissions near threshold limit. Periodic PM testing, every 36 months required on a representative unit.
EU003-006 GP001	Minn. R. 7007.0800, subp. 2	Spray Dryers: One-time test for VOC emissions from spray dryers. There is no existing data to determine an emission factor, or if the VOC emissions are negligible.
GP002	Minn. R. 7011.0610	Drum Dryers: Direct-heating Equipment Rule
GP003	Minn. R. 7007.0800, subp. 2	Caterpillar Generators: NOx testing required.
GP004	Minn. R. 7011.0710	Whey handling and Bagging: Industrial Process Equipment Rule. Visible emissions monitoring of baghouses.
EU008	Minn. R. 7011.2300, Minn. R. 7009.0020	Fairbanks Generator: Standards of Performance for Existing Indirect Heating Equipment and Ambient Air Quality Standards. Raised height of stack as a result of computer dispersion modeling to show modeled compliance with NOx ambient air quality standards.
EU018	40 CFR 60 Subp. Dc	Standards of Performance for Small and Industrial Commercial and Institutional Steam Generating Units (new west oiler). Opacity limits and testing. Fuel sulfur at 0.3% maximum, to use fuel supplier certifications.
EU018	40 CFR 52.21	Prevention of Significant Deterioration. Distillate fuel usage limit of 1,500,000 gal/yr and sulfur content limit of 0.3% set to control SO2 (and NOx secondarily).

3. Technical Information

- Process Flow: Whey from the silos is sprayed into 4 parallel spray dryers at a constant pressure of 3500 psi. The cyclones catch particulate from this process. The particulates caught in the cyclone boxes, about 10 barrels per day are bagged in a separate room as animal feed. The bulk of the material from the spray dryers is piped to 4 parallel drum dryers, which exhaust to baghouses. The whey from the drum dryers (4-5% moisture) is augered to pipes and blown into 4 whey bins. Bin 1 and 2 are augered to Mill 1, and blown to Bagging 1 which exhausts to Baghouse 1. Bin 3 and 4 are augered to Mill 2, and blown to Bagging 2 which exhausts to Baghouse 2. Baghouse 1 and 2 both have shakers which transfer material to the surge bin, which is blown to the Powderpak.

BOILERS

EU001 West Boiler (removed from service 8/31/98), 75 MMBtu/hr

EU002 Central Boiler: Uncontrolled, normal firing, 75 MMBtu/hr:

- Natural Gas: 75 MMBtu/hr /1050 Btu/cu ft = 71428.6 cf/hr
- #6 Fuel Oil: 75 MMBtu/hr /150000 Btu/gal = 500 gal/hr
- #2 Fuel Oil may also be burned
- Sulfur Analyses: worst-case sample on 1/9/91 = 1.48%, BTU/gallon = 150,160

Emission Factors for EU002:

Natural Gas NO_x and CO from AP-42, Table 1.4-1, 7/98, uncontrolled

Natural Gas PM, SO₂ and VOC from AP-42, Table 1.4-2, 7/98

#6 Fuel Oil SO₂, NO_x and CO from AP-42, Table 1.3-1, 9/98, S = 1.48, normal firing, < 100 MMBtu/hr

#6 Fuel Oil VOC from AP-42, Table 1.3-3, 9/98

#6 Fuel Oil PM and PM₁₀ from AP-42, Table 1.3-5, 9/98

- Natural Gas: PM: 0.0000076; SO_x = 0.0000006; NO_x = 0.000100;
VOC = 0.0000055; CO = 0.000084 lb/cu ft.
Example: 0.0000076 lb/cu ft x 71428.6 cf/hr = 0.54 lb/hr PM
- #6 Fuel Oil: Sulfur Limit = 1.48%
PM: 8.34[1.12(1.48) + 0.37] = 16.9/1000 = .0169; PM₁₀: 7.17[1.12(1.48)+0.37] = 14.54/1000 = 0.0145;
SO_x: .159S = .2353; NO_x = .055; VOC = .00028; CO = .005/gallons burned
Example: 0.0169 x 500 = 8.45 lb PM/hr

Calculation results for all criteria pollutants in Table x.

Minn. R. 7007.0510 – 0515: Indirect-heating-equipment Rule applies to this boiler.

- Boiler installed pre-1977, in 1964 within MSP. Total heat capacity of facility is greater than 250 MMBtu/hr. Boiler burns gaseous and liquid fuels.
- PM: 8.43 lb/hr x hr/75 MMBtu = **0.11 lb/MMBtu < 0.4 lb/MMBtu OK**
- SO₂ (max. S = 1.48%): 117.65 lb/hr x hr/75 MMBtu = **1.57 lb/MMBtu < 1.6 lb/MMBtu OK**
- Opacity: <20%, except one six-minute period not to exceed 60% opacity

EU007 East Boiler: Uncontrolled, normal firing, 124 MMBtu/hr:

- Natural Gas: 124 MMBtu/hr /1050 Btu/cu ft = 118,095 cf/hr
- #6 Fuel Oil: 124 MMBtu/hr /150000 Btu/gal = 826.67 gal/hr
- #2 Fuel Oil may also be burned
- Sulfur Analyses: worst-case sample on 1/9/91 = 1.48%, BTU/gallon = 150,160

Emission Factors for EU007:

Natural Gas NO_x and CO from AP-42, Table 1.4-1, 7/98, uncontrolled pre-NSPS:

Natural Gas PM, SO₂ and VOC from AP-42, Table 1.4-2, 7/98

#6 Fuel Oil SO₂, NO_x and CO from AP-42, Table 1.3-1, 9/98, S = 1.48, normal firing, > 100 MMBtu/hr

#6 Fuel Oil VOC from AP-42, Table 1.3-3, 9/98

#6 Fuel Oil PM and PM₁₀ from AP-42, Table 1.3-5, 9/98

- Natural Gas: PM: 0.0000076; SO_x = 0.0000006; NO_x = 0.000280; VOC = 0.0000055; CO = 0.000084/cu ft.
Example: 0.0000076 lb/cu ft x 118,095 cf/hr = 0.90 lb/hr PM
- #6 Fuel Oil: Sulfur Limit = 1.48%

PM: $8.34[1.12(1.48) + 0.37] = 16.9/1000 = .0169$; PM10: $7.17[1.12(1.48)+0.37] = 14.54/1000 = 0.0145$;
SO_x: $.159S = .2353$; NO_x = $.047$; VOC = $.00028$; CO = $.005$ /gallons burned
Example: $0.0169 \times [826.67 \text{ gal/hr}] = 13.97 \text{ lb PM/hr}$

Calculation results for all criteria pollutants in Table x.

Minn. R. 7007.0510 – 0515: Indirect-heating-equipment Rule applies to this boiler.

- Boiler installed pre-1977, in 1964 within MSP. Total heat capacity of facility is greater than 250 MMBtu/hr. Boiler burns gaseous and liquid fuels.
- PM: $13.94 \text{ lb/hr} \times \text{hr}/124 \text{ MMBtu} = \mathbf{0.11 \text{ lb/MMBtu} < 0.4 \text{ lb/MMBtu OK}$
- SO₂: $194.53 \text{ lb/hr} \times \text{hr}/124 \text{ MMBtu} = \mathbf{1.57 \text{ lb/MMBtu} < 1.6 \text{ lb/MMBtu OK}$
- Opacity: $<20\%$, except one six-minute period not to exceed 60% opacity

EU018: New West Boiler: low NO_x burner, normal firing, 100 MMBtu/hr

- NOTE: Proposed MACT for Industrial, Commercial and Institutional Boilers was proposed 1/13/03 and expected to be final by 2/28/04.
 - Natural Gas: $100 \text{ MMBtu/hr} / 1050 \text{ Btu/cu ft} = 95,238 \text{ cf/hr}$
 - #2 Fuel Oil: $100 \text{ MMBtu/hr} / 140,000 \text{ Btu/gal} = 714.29 \text{ gal/hr}$
 - Sulfur limit = 0.3%
 - Sulfur limit = 0.5 lb/MMBtu
- Calculation: $30.86 \text{ lb S/hr} / 100 \text{ MMBtu/hr} = 0.31 \text{ lb/MMBtu} < 0.5 \text{ lb/MMBtu/hr OK}$

Emission Factors for EU018

Natural Gas NO_x and CO from manufacturer [NO_x = $0.000036 \text{ lb/MMBtu}$, CO = $0.000073 \text{ lb/MMBtu}$]

Natural Gas PM, SO₂ and VOC from AP-42, Table 1.4-2, 7/98

#2 Fuel Oil NO_x and CO from manufacturer [NO_x = 0.12 lb/MMBtu , CO = 0.005]

#2 Fuel Oil SO₂ from AP-42, Table 1.3-1, 9/98, S = 0.5 , normal firing, 100 MMBtu/hr

#2 Fuel Oil VOC from AP-42, Table 1.3-3, 9/98

#2 Fuel Oil PM and PM10 from AP-42, Table 1.3-6, 9/98

- Natural Gas: PM: 0.0000076 ; SO_x = 0.0000006 ; NO_x = 0.000036 ; VOC = 0.0000055 ; CO = $* 0.000073/\text{cu ft}$.
Example: $0.0000076 \text{ lb/cu ft} \times 95,238 \text{ cf/hr} = 0.72 \text{ lb/hr PM}$
- #2 Fuel Oil: Sulfur Limit = 0.3%
PM: 0.002 ; PM10: 0.001 ; SO_x: $.144S = 0.043$; NO_x = $0.12 \text{ lb/MMBtu} \times 0.14 \text{ MMBtu/gal} = 0.0168 \text{ lb/gal}$;
VOC = $.0002$; CO = 0.005 /gallons burned
Example: $0.002 \times [714.29 \text{ gal/hr}] = 1.43 \text{ lb PM/hr}$
 $0.043 \times 714.29 = 30.86 \text{ lb SO}_x/\text{hr}$

40 CFR, Subp. Dc applies to this boiler: Designed for 100 MMBtu/hr to burn natural gas and #2 fuel oil with a maximum sulfur content of 0.3% . Will be installed 2003.

- Natural gas use is unlimited. Distillate fuel oil use is limited to 1,500,000 gallons per year to avoid classification as a major modification under 40 CFR Section 52.21.
 - $1,500,000 \text{ gal/yr} \times .043 \text{ lb/gal} \times \text{ton}/2000 \text{ lb} = 32.25 \text{ tpy S}$ from distillate use
 - $1,500,000 \text{ gal/yr} / 714.29 \text{ gal/hr} = 2100 \text{ hours per year}$ burning #2 fuel oil
 - 0.20 tpy S from natural gas use + 32.25 tpy S from distillate use = 32.45 tpy S allowed

Worst-case Emissions – EU018

EU018	PM	PM10	SOx	NOx	VOC	CO
Nat. gas @ 8760 hrs	NA	NA	NA	NA	2.29	30.45
Nat. gas @ 6660 hrs	2.39	2.39	0.20	11.39	NA	NA
#2 fuel oil @ 2100 hrs (1,050,000 gal)	1.50	0.74	32.25	12.60	NA	NA
SUM (tpy)	3.89	3.13	32.45	23.99	2.29	30.45
SUM (lb/hr)	0.89	0.71	7.41	5.48	0.52	6.95
<i>PSD significance levels</i>	<i>25</i>	<i>15</i>	<i>40</i>	<i>40</i>	<i>40</i>	<i>100</i>

Calculation results for all criteria pollutants in Table x.

SPRAY DRYERS: GP001

EU003, 004, 005, 006; Spray Dryers 1 – 4 equipped with medium-efficiency cyclones for product recovery: Dryers have 6.3 MMBtu/hr ovens.

Fat in whey (liquid byproduct of cheese-making). Liquid portion sent to separators. Fat portion sent to butter churn. Nonfat whey sent via whey pipe to whey plant.

Whey Plant:

1. Whey stored in silos. The silos are equipped with a gauge that currently measures the pressure of the whey entering the spray dryers. They are going to try to get it recalibrated to measure volume of whey to the spray dryers instead.
 2. Whey is sprayed at 50% solids into the spray dryers in 4 parallel streams. The solids content is brought to 70 – 85%. Powder caught in the cyclones for the spray dryers is bagged for animal feed.
 3. The whey solids go downstairs to the drum dryers in 4 parallel streams to achieve 96% solids.
- Performance Testing was conducted on Spray Dryer 4 in December 2002. The results of the PM emissions testing were close to limits set by IPER (88.3% of limit). Therefore, the Permittee will need to conduct periodic testing for PM (every 36 months). This is especially important as the testing was conducted at “normal” operating rates versus “maximum” operating rates. The company did not have the ability to calculate the operating rate during the test, only retroactively by weighing the bagged whey. They are currently recalibrating a gauge in the silo to allow them to determine the process flow rate in real time. The permit will include limits on process that can be eliminated or relaxed as a result of performance testing.
 - The facility has never identified any VOC emissions from the whey-drying process. Nor is there any usable data available from EPA and one VOC. There is a requirement for a one-time test of the spray dryers to determine an emission factor for VOC emissions from this unit.

Fuel-Burning Emissions:

Emission Factors (AP-42, Table EC-08):

- Natural Gas: PM: 0.0000076; SOx = 0.0000006; NOx = 0.0001; VOC = 0.0000055; CO = 0.000084/cu ft
 - ✓ 6.3 MMBtu/hr /1050 Btu/cu ft = 6000 cu ft/hr
 - ✓ 6000 cu ft/hr x 0.0000076 lb/cu ft = 0.0456 lb/hr PM

- Propane : 6.3 MMBtu/hr / 91500 Btu/gal = 68.9 gal/hr
 - ✓ PM: 0.0004; SO_x: 0.00015; NO_x = 0.014; VOC = .0005; CO = .0019/hp-hr
 - ✓ Example: [0.0004 x 68.9 = 0.03 lb/hr PM]

Calculation results for all criteria pollutants in Table x.

Whey Powder Emissions

Performance Test Results: 12/11/02 [See Attachments]

Whey solids are sprayed from the silo into the dryers at a constant rate. For this test, the dryer was operated at the “normal” rate and temperature (unknown what maximum rate and normal rate are). The spray dryer is operated at one consistent rate with a temperature of 350 – 400F.

- Stack height = 16 ft above 40 ft roof = 56 ft
- 1857 lb/hr = calculated process throughput
- Source gas volume (acfm) = 10600, 8.8% moisture, 139 F
- 0.083 gr/dscf = PM concentration; 5.9 lb/hr

Emission Unit	Pollutant	Emission rate (lb/hr)	Max. emissions (tpy)	Max. controlled emissions (tpy)	Actual emissions (tpy)
003	PM/PM10	5.9	25.84	25.84	25.84
004	PM/PM10	5.9	25.84	25.84	25.84
005	PM/PM10	5.9	25.84	25.84	25.84
006	PM/PM10	5.9	25.84	25.84	25.84

Minn. R. 7007.0610 – 0615: Direct-heating-equipment Rule applies to this boiler.

- Dryers installed pre-1977, in 1962 within MSP.
- PM (from performance test) = **0.083 gr/dscf < 0.094 gr/dscf max. OK**
[See attachment for calculation of limit.]
- Opacity: <20%, except one six-minute period not to exceed 60% opacity
- SO₂ limit does not apply as only gaseous fuels are burned in these units.

GENERATORS

EU008 Diesel Fairbanks Generator:

9.8 MMBtu/hr; 1100 kW; 1600 hp @ 720 rpm

Installed 1965.

Emission Factors (AP-42, Table EC-03.1 and Table 3.4-1):

- Natural Gas: PM: 0.00001; SO_x = 0.0000006; NO_x = 0.0034; VOC = 0.0000829; CO = 0.00043/cu ft
 - ✓ 9.8 MMBtu/hr /1050 Btu/cu ft = 9333 cu ft/hr
 - ✓ 9333 cu ft/hr x 0.00001 lb/cu ft = 0.093 lb/hr PM
- Diesel Fuel: Sulfur = 0.3%; lb/hp-hr
 - ✓ PM: 0.0007; SO_x: 0.00809S = 0.0024; NO_x = 0.024; VOC = .000642; CO = .0055/hp-hr
 - ✓ Example: [0.0007 x 1600 = 1.12 lb/hr PM]

EC-03 SCREEN Modeling results:

Attached are copies of the SCREEN modeling conducted for this emission unit. The results of the modeling indicate that either, 1) a more detailed modeling exercise be conducted at this facility, or 2) the stack should be raised to at least 33.5 feet. The Permittee has elected to raise the stack height. A schedule for raising the stack is included in the permit.

Minn R. 7011.2300 Standards of Performance for Stationary Internal Combustion Engines applies to this unit. This unit burns natural gas and diesel fuel with a maximum sulfur content of 0.5%

- SO_x: 3.88 lb/hr SO_x / 9.8 MMBtu/hr = 0.4 lb/MMBtu < 0.5 lb/MMBtu **OK**
- Opacity: <or= 20% opacity once operating temperatures have been obtained.

EU016, EU017 Caterpillar Generators: 2598 BHP each: GROUP003

Minn R. 7011.2300 Standards of Performance for Stationary Internal Combustion Engines applies to these units. These units burn diesel fuel. [2598 hp = 6.62 MMBtu/hr]

- SO_x: 3.5 lb/hr SO_x / 6.62 MMBtu/hr = 0.56 lb/MMBtu < 0.5 lb/MMBtu **NOT OK**
(manufacturer's supplied emission factor, no sulfur content given)
- **Sulfur Limit of 0.15%** (facility stated they use maximum of 0.05% sulfur): 3.15 lb/hr S
- 3.15 lb/hr / 6.62 MMBtu/hr = 0.48 lb/MMBtu < 0.5 lb/MMBtu **OK**
- Opacity: <or= 20% opacity once operating temperatures have been obtained.

Ambient Air Impacts - Form EC-03: IC Engine. Part 2 addresses ambient air quality impacts through dispersion modeling. The highest modeled value for NO_x is 216.9 ug/m³ < 3750 ug/m³ (1-hr); 681.3 ug/m³ < 938 ug/m³ (24-hr)

From the TSD for Permit Action 01900001-002, dated 10/30/95:

Emission rates for all criteria pollutants were provided and guaranteed by the manufacturer. Based on 8760 hours of operation, NO_x emission from the 2 engines being installed exceeded the significance threshold; CO emissions came close (98 tpy). After applying an hours of operation limit, only NO_x approaches the significance level, therefore only the emission rate for NO_x is made a Title I Condition.

Performance Testing Required: The generators were not tested during initial installation. Periodic monitoring requirements would dictate that the generators be tested to ensure they meet the manufacturer's guarantee over time. A representative test of one engine will be adequate for NO_x emissions. Restricted emissions were allowed up to 39.62 tpy. This limit is too close to 40 tpy, so the hours were further restricted in this operating permit to 625 hours.

Emission Factors from manufacturer, burning diesel fuel:

- PM/PM₁₀: 0.6 lb/hr x 625 hr/yr x 1/2000 = 0.19 tpy
- SO₂: 3.5 lb/hr x 625 hr/yr x 1/2000 = 1.09 tpy (see calculation below for sulfur emissions)
- NO_x: 58.7 lb/hr x 625 hr/yr x 1/2000 = 18.34 tpy
- CO: 11.2 lb/hr x 625 hr/yr x 1/2000 = 3.50 tpy
- VOC: 0.4 lb/hr x 625 hr/yr x 1/2000 = 0.125 tpy
- [Modification PTE (2 engines): NO_x = 36.69 tpy; CO = 7.00 tpy]

The following calculations from AP-42 are provided as a comparison to those provided by the manufacturer. Only the value for SO₂ will be used in this permit to calculate potential emissions to allow application of a fuel sulfur limit.

Emission Factors from AP-42, Table 3.4-1 for Large Stationary Diesel Engines (10/96)

- Diesel Fuel: Sulfur = 0.15%; lb/hp-hr, 675 hours of operation

✓ PM: 0.0007; SOx: 0.00809S = 0.0024; NOx = 0.024; VOC = .000642; CO = .0055/hp-hr

✓ Example: [0.0007 x 1600 = 1.12 lb/hr PM]

- PM/PM10: 0.0007 lb/hp-hr x 2598 hp = 1.82 lb/hr (0.61 tpy)
- **SO2: 0.00809S = 0.00809S(0.15) lb/hp-hr x 2598 hp = 3.15 lb/hr (1.06 tpy)**
- NOx: 0.024 lb/hp-hr x 2598 hp = 62.35 lb/hr (21.04 tpy)
- CO: 0.0055 lb/hp-hr x 2598 hp = 14.29 lb/hr (4.82 tpy)
- VOC: 0.000642 lb/hp-hr x 2598 hp = 1.67 lb/hr (0.56 tpy)

TABLE X
Fuel-burning Emissions
PTE for each unit, without any limits on fuel usage

Natural Gas

	PM		PM10		SOx		NOx		VOC		CO	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
EU001	0.54	2.37	0.54	2.37	0.04	0.18	7.14	31.27	0.39	1.71	6.0	26.28
EU002	0.54	2.37	0.54	2.37	0.04	0.18	7.14	31.27	0.39	1.71	6.0	26.28
EU007	0.90	3.94	0.90	3.94	0.07	0.31	33.07	144.83	0.65	2.85	9.92	43.44
EU008	0.09	0.39	0.09	0.39	0.006	0.03	31.73	138.98	0.77	3.37	4.01	17.56
EU003	0.046	0.20	0.046	0.20	0.004	0.016	0.60	2.63	0.033	0.14	0.504	2.21
EU004	0.046	0.20	0.046	0.20	0.004	0.016	0.60	2.63	0.033	0.14	0.504	2.21
EU005	0.046	0.20	0.046	0.20	0.004	0.016	0.60	2.63	0.033	0.14	0.504	2.21
EU006	0.046	0.20	0.046	0.20	0.004	0.016	0.60	2.63	0.033	0.14	0.504	2.21
EU011	0.046	0.20	0.046	0.20	0.004	0.016	0.60	2.63	0.033	0.14	0.504	2.21
EU012	0.046	0.20	0.046	0.20	0.004	0.016	0.60	2.63	0.033	0.14	0.504	2.21
EU013	-	-	-	-	-	-	-	-	-	-	-	-
EU014	0.046	0.20	0.046	0.20	0.004	0.016	0.60	2.63	0.033	0.14	0.504	2.21
EU018	0.72	3.17	0.72	3.17	0.06	0.25	3.42	15.02	0.52	2.29	6.95	30.45

#6 Fuel Oil*/Diesel Fuel**/Propane***

	PM		PM10		SOx		NOx		VOC		CO	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
EU001*	8.45	37.01	7.27	31.84	117.65	515.31	27.50	120.45	0.14	0.61	2.50	10.95
EU002*	8.45	37.01	7.27	31.84	117.65	515.31	27.50	120.45	0.14	0.61	2.50	10.95
EU007*	13.97	61.19	11.99	52.50	194.53	852.05	38.85	170.18	0.23	1.01	4.13	18.09
EU008**	1.12	4.91	1.12	4.91	3.88	17.01	38.40	168.19	1.03	4.51	8.80	38.54
EU003***	0.03	0.1	0.03	0.1	0.01	0.05	0.96	4.22	0.03	0.13	0.13	0.57
EU004***	0.03	0.1	0.03	0.1	0.01	0.05	0.96	4.22	0.03	0.13	0.13	0.57
EU005***	0.03	0.1	0.03	0.1	0.01	0.05	0.96	4.22	0.03	0.13	0.13	0.57
EU006***	0.03	0.1	0.03	0.1	0.01	0.05	0.96	4.22	0.03	0.13	0.13	0.57
EU011***	0.03	0.1	0.03	0.1	0.01	0.05	0.96	4.22	0.03	0.13	0.13	0.57
EU012***	0.03	0.1	0.03	0.1	0.01	0.05	0.96	4.22	0.03	0.13	0.13	0.57
EU013***	-	-	-	-	-	-	-	-	-	-	-	-
EU014***	0.03	0.1	0.03	0.1	0.01	0.05	0.96	4.22	0.03	0.13	0.13	0.57
EU016** (625 hr/yr)	0.6	0.19	0.6	0.19	3.15	1.06	58.7	18.34	0.4	0.125	11.2	3.50
EU017** (625 hr/yr)	0.6	0.19	0.6	0.19	3.15	1.06	58.7	18.34	0.4	0.125	11.2	3.50

EU018** w/o limits	1.43	6.26	0.71	3.13	51.4	225.26	12.00	52.56	0.14	0.63	3.57	15.64
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EU011, 012, 013, 014; Drum Dryers 1 – 4: GROUP002
equipped with low-temperature baghouses for product recovery:
6.3 MMBtu/hr

- drum dryer 3 installed without a permit. What is the maximum capacity of the unit? Any limits needed?
- 1999 = 5714 tons product

Fuel-Burning Emissions: (Check for dryer)

Emission Factors (AP-42, Table EC-08):

- Natural Gas: PM: 0.0000076; SO_x = 0.0000006; NO_x = 0.0001; VOC = 0.0000055; CO = 0.000084/cu ft
 - ✓ 6.3 MMBtu/hr /1050 Btu/cu ft = 6000 cu ft/hr
 - ✓ 6000 cu ft/hr x 0.0000076 lb/cu ft = 0.0456 lb/hr PM
- Propane : 6.3 MMBtu/hr / 91500 Btu/gal = 68.9 gal/hr
 - ✓ PM: 0.0004; SO_x: 0.00015; NO_x = 0.014; VOC = .0005; CO = .0019/hp-hr
 - ✓ Example: [0.0004 x 68.9 = 0.03 lb/hr PM]

MPCA figures for pollution control efficiencies (table GI-05A.1) are used to estimate the emission factor of powder with a 10% moisture content and the pollution control efficiency of a baghouse.

- 900 pounds of product per hour for Dryers 1-4

Emission Unit	Pollutant	Emission factor (lbs/unit)	Emission rate (lb/hr)	Max. emissions (tpy)	PCE (%)	Max. controlled emissions (tpy)	Actual emissions (tpy)
Dryer 1	PM/PM10	0.05	45.00	197.1	99	1.97 (.45 lb/hr)	1.6
Dryer 2	PM/PM10	0.05	45.00	197.1	99	1.97	1.6
Dryer 3	PM/PM10	0.05	45.00	197.1	99	1.97	1.6
Dryer 4	PM/PM10	0.05	45.00	197.1	99	1.97	1.6

Minn. R. 7007.0610 – 0615: Direct-heating-equipment Rule applies to this dryer.

- Dryers 1, 2 and 4 installed pre-1977, in 1962 within MSP.
- PM: 1.97 tpy x 2000/8760 x 7000 grain/lb x min/2103 dscf x hr/60 min = **0.03 gr/dscf > 0.077 gr/dscf max. OK**
- PM: least restrictive (IPER calculation attached in appendix) 2.188 lb/hr > 0.45 lb/hr from unit **OK**
- Opacity: <20%, except one six-minute period not to exceed 60% opacity
SO₂ limit does not apply as only gaseous fuels are burned in these units.

Whey Handling and Bagging: GROUP004

Whey Bins 1 -6 (EU020 – EU025)

Product blown into bins. Product bagged from bins into 50 and 100 pound bags.

Spray dryers are the bottleneck in this process. They will be limited to the throughput used during performance testing. The most recent performance test, conducted in December 2002, was conducted at a rate of 1857 lb/hr coming from each spray dryer => 1857 lb/hr x 4 dryers = 7428 lb/hr at the total facility. The spray dryers were operated 105 hours during that week. Bagging operations were in use about 72 hours during the week. This calculates a throughput of 10,833 lb/hr from the bagging system. The production data collected was typical of a “normal” week. Currently, this amount of whey is being sent to 4 whey bins. Therefore, 10,833 lb/hr is coming from 4 whey bins. However, this number can be increased as a result of performance testing. The facility considers the potential to emit of the bagging system 12,500 lb/hr at 4% moisture.

Amount per bin: $12,500 \text{ lb/hr} / 4 \text{ bins} = 3125 \text{ lb/hr per bin}$

Moisture content: $3125 \text{ lb/hr} \times 0.05 \text{ moisture control} = 156.25 \text{ lb/hr} = 684.38 \text{ tpy}$

Bag house: $156.25 \text{ lb/hr} \times 0.01 \text{ baghouse efficiency} = 1.56 \text{ lb/hr} = 6.83 \text{ tpy}$

Minn. R. 7007.0715: Industrial Process Equipment Rule applies to the bins

- Bins installed in 1962.
- PM limit: $4.734 \text{ lb/hr} > 1.56 \text{ lb/hr}$ actual PM PTE. **OK**
(see attached spreadsheet printout in appendix)

Bagging Units (EU 008 – EU009)

- Since the maximum hourly bagging rate of the powderpak is 12,500 lb/hr, then the PTE of each bagging unit would be half of that, or 6,250 lb/hr each.
- 6250 lb/hr at 4% moisture
- Moisture content: $6250 \text{ lb/hr} \times 0.05 = 312.50 \text{ lb/hr}$
- Baghouse: $312.50 \text{ lb/hr} \times 0.01 = 3.13 \text{ lb/hr PM}$

Minn. R. 7007.0715: Industrial Process Equipment Rule applies to the bagging units

- Bagging units installed in 1962.
- PM limit: $7.186 \text{ lb/hr} > 3.13 \text{ lb/hr}$ actual PM PTE. **OK**
(see attached spreadsheet printout in appendix)

Powderpak (EU015)

12,500 lb/hr at 4% moisture.

Performance Test conducted on this unit.

- $0.13 \text{ lb/hr} \times 8760/2000 = 0.57 \text{ tpy}$
- Baghouse is considered part of the process.

Minn. R. 7007.0715: Industrial Process Equipment Rule applies to the bagging units

- Unit installed in 1998.
- PM limit: $11.18 \text{ lb/hr} > 0.13 \text{ lb/hr}$ actual PM PTE. **OK**
(see attached *IPER* spreadsheet printout in appendix)

Surge Bin (EU019)

12,500 lb/hr at 4% moisture. 4% moisture is considered 95% control.

Performance Test conducted on this unit.

- $0.0290 \text{ lb/hr} \times 8760/2000 = 0.13 \text{ tpy}$
- Baghouse is considered part of the process.

Minn. R. 7007.0715: Industrial Process Equipment Rule applies to the bagging units

- Unit installed in 1998.
- PM limit: $11.18 \text{ lb/hr} > 0.029 \text{ lb/hr}$ actual PM PTE. **OK**
(see attached *IPER* spreadsheet printout in appendix)

Insignificant Activities

Site Visit: In the process plant there is an ammonia pressure tank, metal shop with welding, milling, and lathe operations, and a water heater. It is heated with steam from the existing boilers. Met with Steve Moser, the head of maintenance. 4 small space heaters in the generator building. In the main office: A Crane boiler (180,000 Btu/hr), Reliance water heater. In the retail store: A State water heater, laboratory (uses sulfuric acid with a hood), make-up air unit, and space heaters.

Tanks – Installed in 1962: Insignificant Activities

TK001

- 1,175,000 gallons for residual oil #6 (may be using for #2 fuel oil in the future)
- VOC emissions ~ 0.0003 tpy

TK002

- 73,000 gallons for residual oil #6 (may be using for #2 fuel oil in the future)
- VOC emissions ~ 0.00056 tpy

3.2 Periodic Monitoring

In accordance with the Clean Air Act, it is the responsibility of the owner or operator of a facility to have sufficient knowledge of the facility to certify that the facility is in compliance with all applicable requirements. To achieve this objective, US EPA issued guidance (September 15, 1998, memorandum Periodic Monitoring Guidance for Title V Operating Permits Program) on periodic monitoring requirements for permitted sources.

Table 4 summarized the periodic monitoring requirements.

Emission Unit	Requirement	Additional Monitoring	Discussion
GP001: Spray Dryers (EU003-	PM and opacity limit under Minn. R. 7011.0610 Process throughput limit of	Daily Visible Emissions monitoring with corrective actions and periodic inspections.	A performance test was conducted on the spray dryer exhaust for particulate matter. At the tested

EU006)	1857 lb/hr from whey silo to spray dryers based on an 8-hr block average.	Performance test for total particulate matter every 36 months on a representative unit. Hourly records of process throughput.	production rate the PM emissions were 0.083 gr/dscf. The emission limit is 0.094 gr/dscf. Therefore, periodic performance testing is required in addition to visible emissions. The cyclones are considered part of the emission unit, not as pollution control equipment.
GP002 : Drum Dryers (EU011- EU014)	PM and opacity limit under Minn. R. 7011.0610	Daily Visible Emissions monitoring with corrective actions and periodic inspections.	Potential PM emissions are 0.45 lb/hr (2.188 lb/hr is the applicable limit). It is unlikely the limits will be exceeded. Visible emissions monitoring is required to catch deviations.
GP003: Caterpillar Generators (EU016 and EU017)	NO _x limit <or= 58.7 lb/hr and operating hours limited to 625 hr/yr to remain nonmajor PSD modification SO _x <or= 0.5 lb/MMBtu under Minn. R. 7011.2300 Sulfur limit in fuel <0.15% to comply with SO _x limit. Opacity <or= 20% under Minn. R. 7011.2300	Performance test for NO _x every 36 months on representative unit. Keep records of sulfur content from fuel oil vendors. None.	No previous performance testing has been conducted on these units. Limits on NO _x and operating hours can be changed based upon results of performance testing. Testing frequency can be reevaluated according to MPCA policy. Units are reserved for backup use. Opacity is unlikely to be exceeded since only #2 fuel oil is combusted in these units.
GP004: Whey Handling & Bagging (EU009, 010, 015, 019-025)	PM and opacity limit under Minn. R. 7011.0710	Daily Visible Emissions monitoring with corrective actions and periodic inspections.	Potential PM emissions are all significantly lower than applicable limit. Since all units are equipped with baghouses for collecting the product, it is unlikely the limits will be exceeded. Visible emissions monitoring is required to catch deviations.
EU008: Fairbanks Generator	Stack Extension required as a result of modeling exercise under Minn. R.	Include stack parameters in appendix of permit. Installation of stack	

	<p>7009.0200.</p> <p>SO_x ≤ 0.5 lb/MMBtu under Minn. R. 7011.2300</p> <p>Sulfur limit in fuel <0.15% to comply with SO_x limit.</p> <p>Opacity ≤ 20% under Minn. R. 7011.2300</p>	<p>extension due within 150 days of permit issuance.</p> <p>Keep records of sulfur content from fuel oil vendors.</p> <p>None.</p>	<p>Opacity is unlikely to be exceeded since only #2 fuel oil is combusted in these units.</p>
EU002: Boiler 2	<p>PM and opacity limit under Minn. R. 7011.0510</p> <p>SO_x ≤ 1.6 lb/MMBtu under Minn. R. 7011.2300</p> <p>Sulfur limit in fuel 1.48% to comply with SO_x limit.</p>	<p>Keep records of sulfur content from fuel oil vendors.</p>	<p>Potential PM emissions are 0.11 lb/MMBtu (0.4 lb/MMBtu is the applicable limit). It is unlikely the limits will be exceeded.</p>
EU007: East boiler	<p>PM and opacity limit under Minn. R. 7011.0510</p> <p>SO_x ≤ 1.6 lb/MMBtu under Minn. R. 7011.2300</p> <p>Sulfur limit in fuel 1.48% to comply with SO_x limit.</p>	<p>Keep records of sulfur content from fuel oil vendors.</p>	<p>Potential PM emissions are 0.11 lb/MMBtu (0.4 lb/MMBtu is the applicable limit). It is unlikely the limits will be exceeded.</p>
EU018: New west boiler	<p>Opacity limit and SO_x ≤ 0.5 lb/MMBtu under 40 CFR pt 60, subp. Dc.</p> <p>Sulfur limit in fuel 0.3% to comply with SO_x limit.</p> <p>Fuel usage ≤ 1,500,000 gal/yr of distillate fuel oil to comply with sulfur limit at 0.3% sulfur content.</p>	<p>Initial performance test for opacity within 180 days of startup.</p> <p>Keep records of sulfur content from fuel oil vendors.</p> <p>Daily recordkeeping of fuel used and monthly calculation of 12-month rolling sum.</p>	

4. Conclusion

Based on the information provided by Bongards' Creameries the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 01900001-001 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: Bonnie Nelson, Tom Sinn

Attachments:

Attachment 1: New Boiler Specifications

Attachment 2: CD-01 Forms/PTE table/GI Forms

Attachment 3: Emission Factors

Attachment 4: Modeling Information

Attachment 5: Emission Calculation (EC) Forms

Attachment 6: Insignificant Activities

Attachment 7: Industrial Process Equipment Rule print-outs

Attachment 8: Performance Test Results

Attachment 9: Emission Inventory Print-outs

Attachment 1: New Boiler Specifications

Babcock & Wilcox

Subject:

Bongards Creamery

Equipment:

Low NOx Burner, Delta NOx 30

From: Bill Whyman
Proposal: 02-20-0416-1
Date: October 4, 2002





October 4, 2002

Babcock & Wilcox
 East Half Mile Street
 P.O. Box 1297
 Westpoint, MS 39773

Attention: Mr. Don Whitman

Reference: Bongards Creamery

Proposal: 02-20-0416-1

Dear Mr. Whitman:

Coen Company is pleased to provide this proposal covering Coen equipment as described below. The proposed system design is based on the following:

Design Conditions

Number of boilers	1
Number of burners per boiler	1
Boiler manufacturer	B&W
Boiler designation	103-88
Furnace dimensions: Width inside water tubes	6.1
Height	8.43
Length	25.1
Length for flame	20.29
Steam capacity (pph)	85,000
Boiler HHV BTU input N.Gas/#2 Oil (mmbtu/hr)	103.0/98.0
Boiler furnace pressure at proposed conditions N.Gas/#2 Oil ("w.c.)	7.7/7.3
Steam pressure (psig)	175
Steam temperature (F)	SAT
Boiler feedwater temperature (F)	227
Boiler efficiency	
N.Gas/#2	83.02%
Oil	87.58
%	
Combustion air temperature (F)	80
Plant elevation (FASL)	1000
Maximum boiler stack height (feet)	50
Instrument air supply (clean, dry, and oil-free)	90-100 psig
Fan electrical characteristics (v/hz/ph)	460/60/3
Panel electrical characteristics (v/hz/ph)	120/60/1
NEMA class rating	Nema 1
Code requirements	NFPA 85
Piping requirements	Coen Standard
Location	Indoor
Combustion air pre-heat	No
Economizer used	Yes

Burner Performance

Fuels (main)	Natural Gas
.....	#2 Oil
Fuel (ignition).....	Natural Gas
Burner pressure drop N.Gas/#2 Oil ("w.c.)	6.0/4.4
Burner excess air N.Gas/#2 Oil.....	15/15
Turndown N.Gas/#2 Oil.....	10:1/8:1
Fuel oil pressure required (psig)	170
Fuel oil viscosity required	30-40 SSU
Fuel oil higher heating value (btu/lb)	19130
Fuel oil fuel bound nitrogen (percent by weight)	0.02
Atomizing steam pressure required (psig)	175
Atomizing steam quality	dry & saturated
Atomizing steam consumption	0.20 #/1# oil
Regulated natural gas pressure required (psig)	25
Natural gas higher heating value (btu/lb)	21817
Natural gas specific gravity	0.6
Pilot gas pressure required (psig)	5-20

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Fuel:	N.Gas	#2 Oil
NOx (lbs/mmbtu)	0.036	0.12
CO (PPM ref. 3% O2).....	150	150
FGR Rate	8%	8%
FGR Temperature (F).....	320	335

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Notes:

1. Guarantees are from 25 to 100% MCR only.
2. Emission Guarantees based on HHV.
3. Coen will guarantee the stack CO emissions to be less than or equal to 150 ppm from 25 to 100% load provided furnace leakage does not contribute any CO to the total CO emissions. If the stack CO emissions exceed the guarantee level, Coen will work with the customer/user to reduce the emissions to the guarantee level. This guarantee is based on; 1) operating with 15/15% excess air at high fire; 2) 17.67 ft (min) furnace length to the convection pass opening or superheater; 3) the boiler meeting the minimum construction requirements for furnace side wall construction and seals at the front wall and drum and 4) the customer providing sampling ports for measuring the CO emissions.

Attachment 2: CD-01 Forms/PTE table/GI Forms

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