

**AIR EMISSION PERMIT NO. 13100022- 003**

**IS ISSUED TO**

**Malt-O-Meal Company**

**MALT-O-MEAL COMPANY - PLANT 2 - NORTHFIELD**

701 West 5th Street  
Northfield, Rice County, MN 55057

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	Issue Date	Action Number
Total Facility Operating Permit	01/17/1995	04/11/2000	001
Major Amendment	Agency Re-opening	06/03/2003	002
Administrative Amendment			
Major Amendment	October 15, 2003	see below	003

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

**Permit Type:** Federal; Part 70/Limits to Avoid NSR

**Issue Date:** November 19, 2004

**Expiration:** April 11, 2005  
All Title I Conditions do not expire.

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Richard J. Sandberg  
Air Quality Permits Section Manager  
Industrial Division

For Sheryl A. Corrigan  
Commissioner  
Minnesota Pollution Control Agency

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**NOTICE TO THE PERMITTEE:**

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

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

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

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

**PERMIT SHIELD:**

Subject to the limitations in Minn. R. 7007.1800, compliance with the conditions of this permit shall be deemed compliance with the specific provision of the applicable requirement identified in the permit as the basis of each condition. 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 operates a breakfast cereal manufacturing facility. The stationary source currently consists of 14 separate product lines. Many of these lines can produce multiple products. Cereal is made from either wheat, rice, corn, oat, or some combination thereof. The stationary source consists of scalpers, destoners, dryers, sifters, extrusion equipment, puffing equipment, conveyors, packaging machines, various cookers, boilers, intermediate storage equipment, and truck and railcar loading facilities. The pollutants of concern are Particulate Matter, Particulate Matter less than 10 microns, Volatile Organic Compound, and Nitrogen Oxide.

**ACTION 002**

This permitting action changes the Title V modeling requirements to reflect the current MPCA policy dated August 10, 2001. This permit action is a non-mandatory agency re-opening of the permit to change the requirements from submittal of a protocol and modeling results, to the submittal of computer dispersion modeling information only. In addition, the information submittal deadline has been extended by 120 days as requested by the Permittee by the submittal of an administrative amendment application.

**ACTION 003**

This permitting action is primarily in response to the recently completed Total Facility permit performance testing requirements. This testing was for PM, PM<sub>10</sub>, and VOCs. As a result of this testing, this permit action reflects that testing. Specifically, this permit action lowers the emission factor for the systems with the product recovery filters (baghouses). Additional equipment groups and sub-groups of equipment and associated emission factors are also incorporated. In addition, this permit action authorizes the ability to bring emergency diesel engines on-site to provide backup for electric powdered air compressor outages. There are also some miscellaneous permit language updates.

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

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Facility Name: Malt-O-Meal Co - Plant 2 - Northfield

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

**Subject Item:****Total Facility**

<b>What to do</b>	<b>Why to do it</b>
<b>A. FLEXIBLE PERMIT REQUIREMENTS</b>	hdr
This permit establishes limits on the facility to keep it a minor source under New Source Review. The Permittee cannot make any change at the source that would make the source a major source under New Source Review until a permit amendment has been issued. This includes changes that might otherwise qualify as insignificant modifications and minor or moderate amendments.	Title I Condition: Limit to avoid classification as major source or modification under 40 CFR Section 52.21
Addition/Modification of Emission Units: The Permittee may add or modify emission units to the stationary source. The addition of any new or modification of any existing emission unit must either: 1) qualify as an insignificant activity listed in Minn. R. 7007.1300, subp. 2; subp. 3; or subp. 4 (natural gas fuel burning units); 2) qualify as an insignificant modification under Minn. R. 7007.1250, subps. 1 and 2; 3) be within a class as categorically described in Appendix C and able to calculate emission changes according to the procedure specifically provided in this permit. This includes the fuel burning emission units from the Appendix C classes; or, 4) Make changes in VOC additives that are to be accounted for in the VOC 12-month rolling sum. If the addition of or modification of existing emission units do not fit into the above four categories, the Permittee must follow the permit amendment requirements provided in Minn. R. 7007.1150 through 7007.1500.	Title I Condition: To avoid classification as a major source under 40 CFR 52.21; Minn. R. 7007.0800, subp. 2; Minn. R. 7007.1150 through Minn. R. 7007.1500
Labeling Requirements: The Permittee shall permanently display on each emission unit the Emission Unit (EU) and on each item of air pollution control equipment, the Control Equipment (CE) number. The identifying number shall be legible from a safe distance.	Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21
Equipment List Inventory: The Permittee shall maintain a written list of all emission units on site except those insignificant activities listed as insignificant activities in Minn. R. 7007.1300, subp 2. The list shall include the type of equipment; identifying number; dates of installation; modification and/or reconstruction; and reference to applicable Standards of Performance for New Stationary Sources (40 CFR pt. 60).	Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 5
Updating the Equipment List Inventory: The list shall be updated to include new, modified, or relocated equipment before making a change.	Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 5
Environmental Review: the Permittee shall not begin construction of any single project or projects that are connected or phased, which will cause a total increase in actual emissions of greater than 99 tons per year for any criteria pollutant, without first getting a permit amendment to authorize the project. Connected and phased have meanings as defined in Minn. R. 4410.0200, subps. 9(b) and 60. The Permittee shall not begin construction of any project which is listed in Minn. R. 4410.4300 or Minn. R. 4410.4400 without first obtaining a permit amendment to authorize the project. Such project(s) may require the completion of an Environmental Assessment Worksheet or an Environmental Impact Statement prior to issuance of the amendment.	Minn. R. 4410.4300; Minn. R. 4410.4400
<b>B. EMISSION LIMITS</b>	hdr
Total Particulate Matter: less than or equal to 230 tons/year using 12-month rolling sum	Title I Condition: Limit to avoid classification as a major source under 40 CFR Section 52.21
Particulate Matter < 10 micron: less than or equal to 200 tons/year using 12-month rolling sum	Title I Condition: Limit to avoid classification as a major source under 40 CFR Section 52.21
Nitrogen Oxides: less than or equal to 230 tons/year using a 12-month rolling sum	Title I Condition: Limit to avoid classification as a major source under 40 CFR Section 52.21
Volatile Organic Compounds: less than or equal to 150 tons/year using a 12-month rolling sum	Title I Condition: Limit to avoid classification as a major source under 40 CFR Section 52.21
The facility shall have less than 249 million Btu/hr of combined rated heat input capacity to fossil fuel fired boilers.	Title I Condition: Limit to avoid classification as a major source under 40 CFR Section 52.21
<b>C. OPERATIONAL REQUIREMENTS</b>	hdr
Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all product recovery system equipment. An updated Operation and Maintenance Plan shall be developed within 180 days, from the initial Title V permit issuance.	Minn. R. 7007.0800, subp. 14 and Minn. R. 7007.0800, subp. 16(J)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

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Facility Name: Malt-O-Meal Co - Plant 2 - Northfield

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Circumvention: Do not install or use a device or means that conceals or dilutes emissions, which would otherwise violate a federal or state air pollution control rule, without reducing the total amount of pollutant emitted.	Minn. R. 7011.0020
Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate.	Minn. R. 7019.1000, subp. 4
Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated, unless otherwise noted in Table A.	Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)
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 federally enforceable.	Minn. R. 7030.0010 - 7030.0080
The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.	Minn. R. 7007.0800, subp. 16
Inspections: Upon presentation of credentials and other documents as may be required by law, allow the Agency, or its representative, to enter the Permittee's premises to have access to and copy any records required by this permit, to inspect at reasonable times (which include any time the source is operating) any facilities, equipment, practices or operations, and to sample or monitor any substances or parameters at any location.	Minn. R. 7007.0800, subp. 9(A)
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
Fuel Type: Natural gas only except for EU 137 (emergency generator unit) usage.	Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21
Corrective Action. If any of the following conditions are observed, the Permittee shall take corrective actions, within 24 hours, to eliminate: 1) Excess particulate emissions beyond what would be expected during normal operations for all Appendix C stack/vents (SV's), except Product Recovery System filters identified in GP004 and GP005; 2) Visible emissions from Product Recovery System filters identified in GP004 and GP005 of Appendix C; or, 3) Significant roof dust accumulation which could reasonably be expected to become airborne and create a nuisance.	Title I Condition: To avoid classification as a major source under 40 CFR 52.21
D. 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
Testing of New Units: In addition to the performance test requirements found in Appendix C, testing will be conducted, for new units, installed under the permit, if: 1. The new unit has a higher capacity than any unit already tested in its class; or, 2. The new unit is outside of a class and is not an insignificant activity.	Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 4
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 Notifications (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: 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. R. 7017.2030, subp. 1-4 and Minn. R. 7017.2035, subp. 1-2
When a performance test for VOC is conducted, the results should be reported on a propane mass basis or an "as VOC" basis, accounting for the individual constituents of the gas stream.	Minn. R. 7007.0800, subp. 4
E. MONITORING REQUIREMENTS	hdr
Monitoring Equipment: Install or make needed repairs to monitoring equipment within 60 days of issuance of the permit if monitoring equipment is not installed and operational on the date the permit is issued.	Minn. R. 7007.0800, subp. 4(D)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

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Facility Name: Malt-O-Meal Co - Plant 2 - Northfield

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<p>Daily Monitoring: Once daily, during daylight hours while in operation, monitor the rooftop and individual stack/vents (SV) within each Appendix C class as follows:</p> <p>1) All SV's for each Appendix C class, except GP004 and GP005 (Product Recovery System filters), shall be monitored for the presence of excess particulate matter emissions beyond what would be expected under normal operating conditions.</p> <p>2) All SV's for Product Recovery System filters, identified as GP004 and GP005, shall be monitored for any visible emissions.</p> <p>3) All rooftop areas shall be monitored for significant dust accumulation which could reasonably be expected to become airborne and pose a nuisance condition.</p> <p>Upon observation of any of the above three conditions, the Permittee shall investigate the process and implement corrective action, within 24 hours, to eliminate the visible emissions, excess particulate emissions, or significant roof dust accumulation.</p>	<p>Title I Condition: To avoid classification as a major source under 40 CFR 52.21; Minn. R. 7007.0800, subp. 5</p>
<p>Monitoring Equipment Calibration: Annually calibrate all required monitoring equipment.</p>	<p>Minn. R. 7007.0800, subp. 4(D)</p>
<p>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.</p>	<p>Minn. R. 7007.0800, subp. 4(D)</p>
<p>VOC Material Content Monitoring: Obtain from the supplier for all VOC-containing food additive materials used at the facility, the content of each VOC in each material. The supplier data shall specify the content of each VOC in each material. The VOC content may be expressed in pounds per gallon or as a percent by weight if the density of the material is also indicated. Maintain supplier data for a minimum of five years. If VOC content data is not available from the supplier, VOC content shall be determined by 40 CFR Part 60, Appendix A, Method 25/25A. VOC content shall be determined at the highest temperature experienced by the material in the facility at or after application. This requirement only applies to food additives which are not accounted for through VOC emission factors from testing.</p>	<p>Title I Condition: To avoid classification as a major source under 40 CFR 52.21; Minn. R. 7007.0800, subps. 4 and 5</p>
<p>F. RECORDKEEPING</p>	<p>hdr</p>
<p>Recordkeeping of daily monitoring: the Permittee shall keep a daily record, that contains, at a minimum, the following information:</p> <p>1) Printed name of observer;</p> <p>2) Signature of observer;</p> <p>3) Date and time of observation;</p> <p>4a) Are there any visible emissions observed from the product recovery systems or penthouse? ("yes" or "no")</p> <p>4b) Are there any excess particulate emissions observed from other sacks? ("yes" or "no")</p> <p>4c) Is there any rooftop dust accumulation that could become airborne and pose a nuisance condition? ("yes" or "no");</p> <p>5) Stack/Vent ID number for each "yes";</p> <p>6) Description of investigation and corrective actions completed for each "yes"; and,</p> <p>7) Weather conditions (temperature, cloud cover, wind, precipitation).</p>	<p>Title I Condition: To avoid classification as a major source under 40 CFR 52.21; Minn. R. 7007.0800, subp. 5</p>
<p>Recordkeeping of corrective actions: If any of the following conditions are observed, the Permittee shall take corrective actions, within 24 hours, to eliminate:</p> <p>1) Excess particulate emissions beyond what would be expected during normal operations for all Appendix C SV's, except Product Recovery System filters identified in GP004 and GP005;</p> <p>2) Visible emissions from Product Recovery System filters identified in GP004 and GP005 of Appendix C; or,</p> <p>3) Significant roof dust accumulation which could reasonably be expected to become airborne and create a nuisance.</p> <p>The Permittee shall keep a record, on-site, of the corrective actions taken.</p>	<p>Title I Condition: To avoid classification as a major source under 40 CFR 52.21; Minn. R. 7007.0800, subp. 5</p>
<p>Recordkeeping: Maintain records describing any:</p> <p>1) addition of new units;</p> <p>2) modifications of existing units; and</p> <p>3) deletion of any existing units.</p> <p>Records do not have to be maintained for the addition, modification, or deletion of any insignificant activities listed in Minn. R. 7007.1300, subp. 2.</p> <p>Include in the records the emission increases or decreases resulting from each of the changes.</p>	<p>Minn. R. 7007.0800, subp. 5(B)</p>

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/19/04

Facility Name: Malt-O-Meal Co - Plant 2 - Northfield

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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 as well as 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: The Permittee shall maintain a record, at the facility, of the 12-month rolling sum of the PM, PM10, NOx, and VOC emissions.	Title I Condition: To avoid classification as a major source under 40 CFR 52.21
Record and maintain the 12-month rolling sum of the natural gas from purchase records. Keep these records on-site.	Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21
By the last day of each month, record and maintain the sum of the facility's combined rated heat input capacity to fossil fuel fired boilers.	Title I Condition: To avoid classification as a major source under 40 CFR 52.21
Monthly VOC Material Usage and VOC Usage Recordkeeping: by the 30th day of each month, record the quantity of each VOC-containing food additive material and each VOC used during the previous month. Separate records shall be kept for each material and VOC. This requirement only applies to food additives which are not accounted for through VOC emission factors from testing.	Title I Condition: To avoid classification as a major source under 40 CFR Section 52.2; Minn. R. 7007.0800, subp. 5
<b>G. REPORTING</b>	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
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 Fees: due 60 days after receipt of an MPCA bill.	Minn. R. 7002.0005 through Minn. R. 7002.0095
<b>H. CALCULATIONS</b>	hdr
Emission Factors: The Permittee shall use the emission factors that are found in this permit and its Appendices, or subsequently updated and MPCA approved for emission calculations for those emission units described in Appendix C.	Title I Condition: To avoid classification as a major source under 40 CFR 52.21
Revision of Emission Factors: If a subsequent performance test results in an emission factor that has a higher emission rate than the current emission factor, the highest test result shall become the new emission factor. The use of the updated emission factor shall commence upon receipt of written MPCA notification that the performance test results were valid.	Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 2



# TABLE A: LIMITS AND OTHER REQUIREMENTS

11/19/04

Facility Name: Malt-O-Meal Co - Plant 2 - Northfield

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Natural gas emission factors:  Pollutant            Natural Gas (lb/million cubic feet)  PM                    7.6 PM10                7.6 NOx                  100. VOC                  5.5	Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21
Diesel fired reciprocating internal combustion engine emission factors:  Pollutant            Diesel (lb/HP-hr)  PM                    0.0022 PM10                0.0022 NOx                  0.031 VOC                  0.0025	Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21
Grain Handling Fugitive Emission Factors:  Source      PM(lb/ton)      PM10(lb/ton)      Control Credit  FS001    0.117            0.02925            50% FS002    0.0215          0.00585            75% FS003    0.0215          0.00585            75% FS004    0                    0	Title I Condition: To avoid classification as a major source under 40 CFR 52.21
Calculations - Individual Class and Additives Emissions: By the 30th day of each month, the Permittee shall calculate emissions for the previous month as follows:  a. For each individual Appendix C class emission unit, calculate PM, PM10, and VOC emissions:  Emissions = Emission factor X unit design capacity X (8760/12)  where emission factor = taken from Appendix B or a subsequently MPCA approved factor unit design capacity = rated design capacity of each unit  b. For each VOC containing food additive (not already accounted for in Appendix B emission factors), multiply the percent VOC content times the quantity of each food additive used.  c. Sum the total class monthly emissions of each pollutant and VOC monthly emissions.	Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21
Calculations - Natural Gas Monthly Emissions: By the 30th day of each month, the Permittee shall calculate emissions for the previous month as follows:  d. For natural gas, calculate PM, PM10, NOx,and VOC emissions:  Emissions = Natural gas emission factor X monthly natural gas usage  where monthly natural gas usage = total natural gas quantity purchased by the facility for the previous month.	Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/19/04

Facility Name: Malt-O-Meal Co - Plant 2 - Northfield

Permit Number: 13100022 - 003

<p>Calculations - Diesel Fired Reciprocating Internal Combustion Engines Monthly Emissions: By the 30th day of each month, the Permittee shall calculate emissions for the previous month as follows:</p> <p>e. For each diesel fired reciprocating internal combustion engine, calculate PM, PM10, NO<sub>x</sub>, and VOC emissions:</p> <p>Emissions = Diesel fired reciprocating internal combustion engine emission factor X monthly total HP-hrs of operation</p> <p>where monthly total HP-hrs of operation = the sum of hours of operation for each engine on site, during the previous month, times that engine's horsepower (HP) rating.</p> <p>Sum PM, PM10, NO<sub>x</sub>, and VOC emissions for each engine.</p>	<p>Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21</p>
<p>Calculations - Insignificant Modifications not already included in previous calculations a - d. By the 30th day of each month, the Permittee shall calculate emissions for the previous month for any units added as insignificant modifications that have not already been included in previous calculations a - d as follow.</p> <p>f. Emissions = (the appropriate AP-42 factors or calculation method used for that modification) X the unit design capacity X (8760/12)</p>	<p>Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21</p>
<p>Calculations - Grain Handling Fugitive Emissions: By the 30th day of each month, the Permittee shall calculate emissions for the previous month as follows:</p> <p>g. For grain handling fugitive emissions, calculate PM and PM10 emissions:</p> <p>Emissions = Grain handling fugitive emission factor X unit process rate X 8760/12</p> <p>where unit process rate = the process rate of each unit in tons/hour</p>	<p>Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21</p>
<p>Calculations: Calculate the total facility monthly emissions of each pollutant by summing:</p> <ol style="list-style-type: none"> <li>1) the monthly emissions for the above individual classes and additives (c);</li> <li>2) natural gas (d);</li> <li>3) diesel fired reciprocating internal combustion engine(s) (e);</li> <li>4) insignificant activities listed in Minn. R. 7007.1300, subp. 3 or 4 that have not already been included in (c) or (d);</li> <li>5) insignificant modifications (f) that have not already been included in (c) or (d);</li> <li>6) grain handling fugitive emission sources (g); and,</li> </ol> <p>6) minor modifications for which a permit application has been submitted, but no permit amendment yet issued. Calculations will be based on the format included in the minor modification application.</p>	<p>Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21</p>
<p>Calculations - 12-month Rolling Sum: Calculate the 12-month rolling sum emissions for each pollutant by summing the total facility monthly emissions and add it to the total from the previous 11 months.</p>	<p>Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21</p>
<p>If a particular unit that has been removed that was previously included in the calculations as required in this permit, emissions from that particular unit shall not be included in the calculations in the subsequent month to its removal and henceforth.</p>	<p>Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21</p>

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

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Facility Name: Malt-O-Meal Co - Plant 2 - Northfield

Permit Number: 13100022 - 003

**Subject Item:** GP 001 Natural Gas Boilers (Pre Dc)**Associated Items:** EU 001 Boiler No. 1

EU 002 Boiler No. 2

EU 003 Boiler No. 3

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.6 lbs/million Btu heat input	Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0510, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/19/04

Facility Name: Malt-O-Meal Co - Plant 2 - Northfield  
Permit Number: 13100022 - 003

**Subject Item:** GP 002 Natural Gas Boilers (Dc)

**Associated Items:** EU 004 Boiler No. 4

What to do	Why to do it
Record quantity of natural gas that each of the Dc boilers combust on a monthly basis.	Title I Condition: To avoid classification as a major source under 40 CFR 52.21

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/19/04

Facility Name: Malt-O-Meal Co - Plant 2 - Northfield

Permit Number: 13100022 - 003

**Subject Item:** GP 003 Grain Handling**Associated Items:** FS 001 Old Receiving Pad - Truck/Rail Unload - 3 sided building, one end open at all times. 10% pit unload (Heavy Br

FS 002 Old Feed Loadout - partial enclosure - sealed truck bay, one end open during loadout. Loadout chute is aspira

FS 003 New Feed Loadout - partial enclosure - 3-sided enclosure - one end open during loading. Area is aspirated wit

FS 004 New Receiving Pad - Truck/Rail Unload - 100% sealed/pneumatic unload; vents through bin vent filters intern:

What to do	Why to do it
Clean up commodities spilled on facility property, as required, to minimize fugitive emissions to a level consistent with RACT	Minn. R. 7011.1005, subp. 1(A)
Maintain air pollution control equipment in proper operating condition and utilize the air pollution control systems as designed.	Minn. R. 7011.1005, subp. 1(B)
Opacity: less than or equal to 5 percent for fugitive emissions from grain unloading.	Minn. R. 7011.1005, subp. 3 (A)
Opacity: less than or equal to 10 percent for fugitive emissions from grain loading.	Minn. R. 7011.1005, subp. 3(B)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/19/04

Facility Name: Malt-O-Meal Co - Plant 2 - Northfield

Permit Number: 13100022 - 003

**Subject Item: GP 004 Product Recovery Systems**

**Associated Items:**

- SV 006 Feed Bin Cyclone Asp
- SV 011 Old Mill Room Asp
- SV 021 Puff W/R Vit Dry Filter
- SV 022 #4 Asp Filter
- SV 023 Rice Retro Dryer Filter
- SV 024 #5 Asp Filter
- SV 026 P1 Hoffman Filter
- SV 027 Puffed Wheat Destoner
- SV 028 Phase 6 (extruder #3) Half Product Dryer/Cooler Filter
- SV 030 #3 Asp Filter
- SV 033 #7 Asp Filter
- SV 037 #8 Asp Filter
- SV 038 Mill Room Asp Filter
- SV 043 #9 Asp Filter
- SV 046 Phase 10 Cooler Area Asp
- SV 049 #10 Asp Filter
- SV 053 #11 Asp Filter
- SV 057 #12 Asp Filter
- SV 061 Phase 13 General Aspiration Filter
- SV 062 Phase 14 Predryer #1 Filter
- SV 063 Phase 14 Predryer #2 Filter
- SV 064 Phase 14 Predryer #3 Filter
- SV 066 Phase 14 Puffer/Toaster Cooler Filter
- SV 067 Phase 14 Sugar Coat Dryer #1 Filter
- SV 068 Phase 14 Sugar Coat Dryer #2 Filter
- SV 069 Phase 14 General Aspiration Filter
- SV 070 Phase 14 Blowers Filter
- SV 072 Phase 14 Flour/Corn Meal Delivery Filter
- SV 073 Phase 11 Sugar Receiving Filter
- SV 074 Phase 7 Hoffman Filter

What to do	Why to do it
Operation and Maintenance of Fabric Filter: the Permittee shall operate and maintain the product recovery systems according to the control equipment manufacturer's specifications.	Tile I Condition: To avoid classification as a major source under 40 CFR 52.21; Minn. R. 7007.0800, subp. 14

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/19/04

Facility Name: Malt-O-Meal Co - Plant 2 - Northfield

Permit Number: 13100022 - 003

**Subject Item:** GP 005 Product Recovery Systems (Penthouses)**Associated Items:** SV 025 Penthouse Ventillation

What to do	Why to do it
Operation and Maintenance of Fabric Filter: the Permittee shall operate and maintain the product recovery systems filters according to the control equipment manufacturer's specifications.	Title I Condition: To avoid classification as a major source under 40 CFR 52.21; Minn. R. 7007.0800, subp. 14

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/19/04

Facility Name: Malt-O-Meal Co - Plant 2 - Northfield

Permit Number: 13100022 - 003

**Subject Item:** GP 006 1/2 Product Dryers/Coolers

**Associated Items:** EU 008 Extruder #1 1/2 Product Dryer/Cooler  
EU 009 Extruder #2 1/2 Product Dryer/Cooler  
EU 010 Bran 1/2 Product Dryer  
EU 056 Phase 8 - Extruder 1/2 Product Dryer/Cooler  
EU 079 Phase 11 - Extruder 1/2 Product Dryer/Cooler  
EU 086 Phase 12 - Extruder 1/2 Product Dryer/Cooler

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.30 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	Minn. R. 7011.0715, subp. 1(B)



**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/19/04

Facility Name: Malt-O-Meal Co - Plant 2 - Northfield

Permit Number: 13100022 - 003

**Subject Item:** GP 007 Gun Systems (Single Cyclone) - Grain and Similar

**Associated Items:** SV 016 #2 Preh Gun & Cyclone  
SV 017 #3 Preh Gun & Cyclone  
SV 018 #4 Preh Gun & Cyclone  
SV 019 #5 Preh Gun & Cyclone  
SV 031 #7 Preh Gun & Cyclone  
SV 035 #8 Preh Gun Cyclone  
SV 047 #10 Preh Gun & Cyclone  
SV 051 #11 Preh Gun & Cyclone

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.30 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)
Opacity: less than or equal to 20 percent except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0610, subp. 1(A)
The maximum production of grain products (cooked and uncooked) shall not exceed 20,000 tons per year on a 12-month rolling sum basis. This weight reflects only the weight of the material going through the puffing gun. It does not include product weight added after gun puffing.	Title I Condition: Limit to avoid classification as a major source or modification under 40 CFR Section 52.21
<p>Monthly Recordkeeping - Grain Products.</p> <p>By the 30th day of each month, the Permittee shall calculate and record the following:</p> <p>1) The total weight of the quantity of grain products (cooked and uncooked) produced in all single cyclone puffing guns combined during the previous month.</p> <p>2) The 12-month rolling sum of grain products (cooked and uncooked) produced in all single cyclone puffing guns combined for the previous 12-month by summing the monthly grain products weight data for the previous 12 months.</p>	Title I Condition: Limit to avoid classification as a major source or modification under 40 CFR Section 52.21

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/19/04

Facility Name: Malt-O-Meal Co - Plant 2 - Northfield

Permit Number: 13100022 - 003

**Subject Item: GP 008 Gun Systems (Single Cyclone) - Dough and Similar**

**Associated Items:** SV 016 #2 Preh Gun & Cyclone  
SV 017 #3 Preh Gun & Cyclone  
SV 018 #4 Preh Gun & Cyclone  
SV 019 #5 Preh Gun & Cyclone  
SV 031 #7 Preh Gun & Cyclone  
SV 035 #8 Preh Gun Cyclone  
SV 047 #10 Preh Gun & Cyclone  
SV 051 #11 Preh Gun & Cyclone

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.30 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)
Opacity: less than or equal to 20 percent except for one six-minute period per hour of not more than 60 percent opacity	Minn. R. 7011.0610, subp. 1(A)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/19/04

Facility Name: Malt-O-Meal Co - Plant 2 - Northfield

Permit Number: 13100022 - 003

**Subject Item: GP 009 Gun Systems (Double Cyclone)**

<b>What to do</b>	<b>Why to do it</b>
Total Particulate Matter: less than or equal to 0.30 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)
Opacity: less than or equal to 20 percent except for one six-minute period per hour of not more than 60 percent opacity	Minn. R. 7011.0610, subp. 1(A)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/19/04

Facility Name: Malt-O-Meal Co - Plant 2 - Northfield

Permit Number: 13100022 - 003

**Subject Item:** GP 010 Puffer Toaster Dryer/Coolers- Non-rotary**Associated Items:** EU 013 Puffer/Toaster #1

EU 016 Puffer/Toaster #2

EU 065 Phase 9 - Puffer/Toaster Dryer

EU 066 Phase 9 - Puffer/Toaster Cooler

EU 070 Phase 10 - Puffer/Toaster Dryer

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.30 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)
Opacity: less than or equal to 20 percent except for one six-minute period per hour of not more than 60 percent opacity	Minn. R. 7011.0610, subp. 1(A)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/19/04

Facility Name: Malt-O-Meal Co - Plant 2 - Northfield

Permit Number: 13100022 - 003

**Subject Item:** GP 011 Puffer Toaster Dryer/Coolers - Rotary**Associated Items:** EU 099 Phase 14 Rotary/Toaster

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.30 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)
Opacity: less than or equal to 20 percent except for one six-minute period per hour of not more than 60 percent opacity	Minn. R. 7011.0610, subp. 1(A)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/19/04

Facility Name: Malt-O-Meal Co - Plant 2 - Northfield

Permit Number: 13100022 - 003

**Subject Item:** GP 012 Sugar Coat Coolers

**Associated Items:** EU 029 Sugar Coat Cooler #2  
EU 047 Phase 6 - Sugar Coat #3 Cereal Cooler  
EU 053 Phase 7 - Sugar Coat Cereal Cooler  
EU 060 Phase 8 - Sugar Coat Cereal Cooler  
EU 067 Phase 9 - Sugar Coat Cooler  
EU 076 Phase 10 - Sugar Coat Cooler  
EU 083 Phase 11 - Sugar Coat Cooler  
EU 090 Phase 12 - Sugar Coat Cooler

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.30 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	Minn. R. 7011.0715, subp. 1(B)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/19/04

Facility Name: Malt-O-Meal Co - Plant 2 - Northfield

Permit Number: 13100022 - 003

**Subject Item:** GP 013 Mill Room Dryers

**Associated Items:** EU 132 #3 Mill Room Dryer  
EU 133 Phase 9 - Mill Room Dryer  
EU 134 Phase 10 - #10 Mill Room Dryer  
EU 135 Phase 4 - Rice Retro Dryer  
EU 136 Phase 10 - #10 Retro Dryer

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.30 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)
Opacity: less than or equal to 20 percent except for one six-minute period per hour of not more than 60 percent opacity	Minn. R. 7011.0610, subp. 1(A)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/19/04

Facility Name: Malt-O-Meal Co - Plant 2 - Northfield

Permit Number: 13100022 - 003

**Subject Item:** GP 014 Baked Product Ovens**Associated Items:** EU 093 Phase 13 - #13 Baked Product Oven

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.30 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)
Opacity: less than or equal to 20 percent except for one six-minute period per hour of not more than 60 percent opacity	Minn. R. 7011.0610, subp. 1(A)



**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/19/04

Facility Name: Malt-O-Meal Co - Plant 2 - Northfield

Permit Number: 13100022 - 003

**Subject Item:** GP 015 Cook Room & Sugar Coat Kettles - Common Sugar and Kettle Venting

**Associated Items:** EU 126 Sugar Coat #2 Kettle  
EU 127 Cook Room #1 & #2 Kettles  
EU 128 Sugar Coat #3 Kettle  
EU 129 Sugar Coat #8 Kettle  
EU 130 Sugar Coat #10 Kettle  
EU 131 Cook Room #10 Kettle

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.30 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	Minn. R. 7011.0715, subp. 1(B)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/19/04

Facility Name: Malt-O-Meal Co - Plant 2 - Northfield

Permit Number: 13100022 - 003

**Subject Item: EU 137 Emergency Generator Units (portable)**

<b>What to do</b>	<b>Why to do it</b>
The Permittee is authorized to bring on-site emergency reciprocating internal combustion engine(s), provided that each engine meets the requirements set forth in this permit.	Minn. R. 7007.0800, subp. 2
The total operation of the emergency generator units shall be less than or equal to 425,000 HP-hrs per 12-month rolling sum.	Minn. R. 7007.0800, subp. 2
Opacity: less than or equal to 20 percent 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
No single reciprocating internal combustion engine shall have a site-rating of greater than 500 horsepower.	Minn. R. 7007.0800, subp. 2
Hours of Operation: The Permittee shall maintain documentation on site that the unit(s) 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. The sum total from of all such units shall be limited to 500 hours per year.	Minn. R. 7007.0800, subps. 4 & 5
Recordkeeping: The Permittee shall maintain the following documentation, for each event, when an engine(s) was brought on site: 1) the date(s) that each engine was operated; 2) the rating of each engine brought (in horsepower (HP)); and, 3) the hours that each engine was operated (hours). These records are to be maintained on site.	Minn. R. 7007.0800, subp. 2

## TABLE B: SUBMITTALS

11/19/04

Facility Name: Malt-O-Meal Co - Plant 2 - Northfield  
Permit Number: 13100022 - 003

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**

11/19/04

Facility Name: Malt-O-Meal Co - Plant 2 - Northfield

Permit Number: 13100022 - 003

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 1,216 days after 04/11/2000. Submit modeling data as specified in MPCA guidance for Modeling Information Requests for PM10 and NOx. 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. (submitted Aug. 6, 2003)	Total Facility
Computer Dispersion Modeling Results	due 1,095 days after Permit Issuance (# 003) for PM10 (24-hour and annual). To be submitted after the MPCA has reviewed and approved the modeling protocol. The submittal should adhere to MPCA modeling guidance for Title V air dispersion modeling analyses. This is a state-only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Total Facility

**TABLE B: RECURRENT SUBMITTALS**

11/19/04

Facility Name: Malt-O-Meal Co - Plant 2 - Northfield

Permit Number: 13100022 - 003

What to send	When to send	Portion of Facility Affected
Semiannual Deviations Report	due 30 days after end of each calendar half-year starting 04/11/2000 . The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31.	Total Facility
Annual Report	due 30 days after end of each calendar year following Permit Issuance. The Permittee shall submit an annual report by January 30th that describes the changes made at the facility during the previous calendar year using the latest MPCA application forms. This report shall describe changes made to the stationary source without applying for an amendment. The report shall include the emission unit, stack/vent, group, and control equipment data for any new or replaced units or control devices, using the appropriate MPCA forms (only for the newer/changed units). The annual report shall document the PM, PM10, NOx, and VOC 12-month rolling sum calculations for the previous calendar year (Jan. 1 - Dec. 31). The report shall be submitted with the annual Compliance Certification listed in Table B. As part of the Annual Report, the Permittee shall verify and certify that the facility has maintained minor source status for New Source Review.	Total Facility
Compliance Certification	due 31 days after end of each calendar year starting 04/11/2000 (for the previous calendar year). Submit the certification to the Commissioner on a form approved by the Commissioner. This report covers all deviations experienced during the calendar year.	Total Facility
Emissions Inventory Report	due 91 days after end of each calendar year starting 04/11/2000 (April 1). To be submitted on a form approved by the Commissioner.	Total Facility

# APPENDIX MATERIAL

Facility Name:Malt-O-Meal Co - Plant 2 - Northfield

Permit Number: 13100022-003

## Appendix A: Emission Unit and Stack Vent Numbers

### PROCESS IDENTIFICATION

Stack/Vent (SV) ID #	Emission Unit's (EU) ID #	Description
1	1	Boiler #1
2	2	Boiler #2
3	3	Boiler #3
4	4	Boiler #4
		(EU 5 and SV 5 retired - unit never built)
Fug	1	Old Receiving Pad - Pit Unload
Fug	2	Old Feed Loadout
Fug	3	New Feed Loadout
6	6,7	Feed bin cyclone aspiration
11	11,12	Old Mill Room Asp. Filter
21	30,31	Puffed W/R Vit Dry Filter
25	32,33	P-4 Conveying Aspiration
22	34,35	#4 Prod. Collect./Asp. Filter
23	36,37	Rice Retro Dryer Infeed Asp. Filter
24	38,39	#5 Product Collect./Asp. Filter
25	14,15	P/T #2 Dryer Infeed Asp Filter*
25	40,41	Hoffman Asp. Filter System #2
26	42,43	Hoffman Asp. Filter System
27	44,45	Puffed Wheat Destoner
30	48,49	Phase 6-SC #3 Product Collect. Filter
33	54,55	Phase 7 - Product Collect./Asp. Filter
37	61,62	Phase 8 - Product Collect./Asp. Filter
38	63,64	Phase 9 - Mill Room Aspiration
43	68,69	Phase 9 - Product Collect./Asp. Filter
46	71,72	Phase 10 - P/T Cooler Area Asp.
49	77,78	Phase 10 - Product Collect./Asp. Filter
53	84,85	Phase 11 - Product Collect./Asp. Filter
57	91,92	Phase 12 - Product Collect./Asp. Filter
28	125, 46	Phase 6 - Ext. #3 1/2 Prod Dry/Cooler Filter
62	96,107	Phase 14 - Predryer #1 Filter
63	97,108	Phase 14 - Predryer #2 Filter

SV	EU's	Description
64	98,109	Phase 14 - Predryer #3 Filter
66	100, 110	Phase 14 - Puffer/Toaster Cooler Filter
67	101, 111	Phase 14 - Sugar Coat Dryer #1 Filter
68	102, 112	Phase 14 - Sugar Coat Dryer #2 Filter
69	103, 113	Phase 14 - General Aspiration Filter
70	104, 114, 115, 116, 117, 118	Phase 14 - Blowers Filter
72	119, 120	Phase 14 - Flour/Corn Meal Delivery Filter
73	121,122	Phase 11 Sugar Receiving Filter
74	123,124	Phase 7 Hoffman filter
61	95, 106	Phase 13 general aspiration
		TOTAL FILTERS
7,8	8	Ext. #1 1/2 Product Dryer/Cooler
9	9	Extruder #2 1/2 Prod. Dry/Cooler
10	10	Bran 1/2 Product Dryer
34	56	Phase 8 - Ext. 1/2 Prod. Dry/Cool
50	79	Phase 11 - Ext. 1/2 Prod. Dry/Cooler
54	86	Phase 12 - Ext. 1/2 Prod. Dry/Cooler
		TOTAL ALL HALF PROD DRYERS
16	17,18,19	#2 Puffing Gun, Cyclone & Preheater
17	20,21,22	Gun #3 Cyclone & Preheater - whole grains
18	23,24,25	#4 Puffing Gun/Cyclone/Preheater
19	26,27,28	#5 Puffing Gun/Cyclone/Preheater
31	50,51,52	#7 Puffing Gun/Cyclone/Preheater - whole
31	50,51,52	#7 Puffing Gun/Cyclone/Preheater - cooked
35	57,58,59	#8 Puffing Gun/Cyclone/Preheater
47	73,74,75	#10 Puffing Gun/Cyclone/Preheater
51	80,81,82	#11 Puffing Gun/Cyclone/Preheater
		TOTAL ALL GUNS
12,13	13	Puffer/Toaster #1
14,15	16	Puffer/Toaster #2
39,40	65	Phase 9 Puffer/Toaster Dryer
41	66	Phase 9 Puffer/Toaster Cooler
44,45	70	Puffer/Toaster #10 Dryer
		TOTAL NON-ROTARY PUFFER TOASTERS
65	99	Rotary puffer/toaster dryer
		TOTAL ROTARY P/T
20	29	Sugar Coat Cooler #2
29	47	Sugar Coat #3 Cereal Cooler
32	53	Phase 7 Sugar Coat Cooler
36	60	Phase 8 Sugar Coat Cooler
42	67	Phase 9 Sugar Coat Cooler
48	76	Phase 10 Sugar Coat Cooler

SV	EU's	Description
52	83	Phase 11 Sugar Coat Cooler
56	90	Phase 12 Sugar Coat Cooler
		TOTAL SUGAR COAT COOLERS
58,59	93	Phase 13 Baked Product Oven process emissions
58,59	93	Phase 13 Oven natural gas emissions
		TOTAL BAKED PRODUCT OVENS
60	94	GENERAL ADDITIVE USE - VOCS (2003 AEI)
75	126	Sugar Coat #2 Kettle (Combined)
76	127	Cook Room #1 & 2 Kettles (Combined)
77	128	Sugar Coat #3 Kettle (Combined)
78	129	Sugar Coat #8 Kettle (Combined)
79	130	Sugar Coat #10 Kettle (Combined)
80	131	Cook Room #10 Kettle (Combined)
IA	IA	#12 Sugar Coat Kettles (Separate)
IA	IA	Sugar Coat #7 Kettle (Unique - Separate)
IA	IA	Sugar Coat #9 Kettle (Separate)
IA	IA	Cook Room #9 Kettle & Scrubber (Separate)
IA	IA	Sugar Coat #11 Kettle (Separate)
		TOTAL SUGAR COAT KETTLES
IA	IA	Sugar Coat #3 Concentrator
IA	IA	Sugar coat #7 Concentrator
IA	IA	Sugar Coat #8 Concentrator
IA	IA	Sugar Coat #9 Concentrator
IA	IA	Sugar Coat #10 Concentrator
IA	IA	Sugar Coat #11 Concentrator
IA	IA	Sugar Coat #2 Concentrator
IA	IA	#12 Sugar Coat Concentrator
71	105	#14 Sugar Concentrator
		TOTAL SUGAR COAT CONCENTRATORS
81	132	#3 Mill Room Dryer
82	133	Phase 9 - Mill Room Dryer
83	134	Phase 10 - No. 10 Mill Room Dryer
84	135	Phase 4 Rice Retro Dryer
85	136	Phase 10 - No. 10 Retro Dryer
		TOTAL TYPE 1 DRYERS
IA	IA	Phase 4 Rice Retro Cooler
IA	IA	Phase 10 - No. 10 Retro Cooler
		TOTAL RETRO COOLERS
IA	IA	Toasty O's Vit Dryer
		TOTAL VITAMIN DRYERS



SV	EU's	Description
IA	IA	Sugar Coat Dryer #2
IA	IA	Phase 6-Sugar Coat #3 Dryer
IA	IA	Phase 7 - Sugar Coat Dryer
IA	IA	Phase 8 - Sugar Coat Dryer
IA	IA	Phase 9 - Sugar Coat Dryer
IA	IA	Phase 10 - Sugar Coat Dryer
IA	IA	Phase 11 - Sugar Coat Dryer
IA	IA	Phase 12 - Sugar Coat Dryer
		TOTAL SUGAR COAT DRYERS
86	137	Diesel Generators - Total
		Misc Natural gas units (AMU's, superheaters, etc) (Insig. Act)

## Appendix B: Class Emission Factors

Description	Group Number or Insignif. Activity <sup>(4)</sup>	PM Emission Factor		PM10 Emission Factor		VOC Emission Factor	
Product Recovery Systems	004	0.005	gr/dscf	0.005	gr/dscf	7.2%	Of PM
Penthouse Product Recovery Systems <sup>(1)</sup>	005	0.005	gr/dscf	0.005	gr/dscf	7.2%	Of PM
½ Product Dryer/Coolers	006	0.232	lbs/ton product	0.114	lbs/ton product	0.0399	lbs/ton product
Gun Systems (Single Cyclone) – Grain & Similar <sup>(2)</sup>	007	0.460	lbs/ton product	0.727	lbs/ton product	0.0584	lbs/ton product
Gun Systems (Single Cyclone) – Dough & Similar <sup>(2)</sup>	008	0.147	lbs/ton product	0.292	lbs/ton product	0.0584	lbs/ton product
Gun Systems (Double Cyclone) <sup>(2)</sup>	009	0.0709	lbs/ton product	0.0927	lbs/ton product	0.0584	lbs/ton product
Puffer Toaster Dryer/Coolers – Non-rotary <sup>(3)</sup>	010	0.912	lbs/ton product	0.684	lbs/ton product	0.684	lbs/ton product
Puffer Toaster Dryer/Coolers – Rotary <sup>(3)</sup>	011	0.0898	lbs/ton product	0.109	lbs/ton product	0.0577	lbs/ton product
Sugar Coat Dryers	IA	0.0185	lbs/ton product	0.0309	lbs/ton product	0.0247	lbs/ton product
Sugar Coat Coolers	012	0.165	lbs/ton product	0.165	lbs/ton product	0.165	lbs/ton product
Mill Room Dryers	013	0.145	lbs/ton	0.104	lbs/ton	0.0407	lbs/ton

			product		product		product
Retro and Other Type 1 Dryers	IA	0.0215	lbs/ton product	0.0258	lbs/ton product	0.0399	lbs/ton product
Retro and Other Type 1 Coolers	IA	0.0306	lbs/ton product	0.0327	lbs/ton product	0.0399	lbs/ton product
Baked Product Ovens	014	0.0168	lbs/ton product	0.0189	lbs/ton product	0.0174	lbs/ton product
Vitamin Dryers	IA	0.0294	lbs/ton product	0.0046	lbs/ton product	0.0247	lbs/ton product
Cook Room & Sugar Coat Kettles – Common Sugar and Kettle Venting	015	0.956	lbs/ton sugar	0.956	lbs/ton sugar	0.0382	lbs/ton in kettle less water
Cook Room & Sugar Coat Kettles – Separate Sugar and Kettle Venting	IA	0.0382	lbs/ton in kettle less water	0.0382	lbs/ton in kettle less water	0.0382	lbs/ton in kettle less water
Sugar Coat Concentrators	IA	0.0160	lbs/ton product	0.0160	lbs/ton product	0.0160	lbs/ton product

- (1) The Penthouse Product limit applies to the exhaust from the penthouse (not into the penthouse).
- (2) GP 007, GP 008, and GP 008 include preheater fuel burning emissions.
- (3) GP 010, GP 011, and GP 014 includes fuel burning emissions.
- (4) These individual emission units are insignificant activities. These units are as described within the Appendix C classes.

### **Appendix C: Description of Classes**

Product Recovery Systems (GP004 & GP005): Filter systems consist of standard baghouse-type fabric filters. The units may use standard straight walled filter socks or pleated cartridge type filters. The units may range from 500 acfm to 20,000 acfm.

Half Product Dryer/Coolers (GP006): Half product dryer/coolers are steam-heated units which remove moisture from extruded product prior to further processing (typically puffing). Product moves through the unit on perforated belts. The product on the belts is not agitated. The process rates may range from 1.35 to 3.25 tons/hour.

Gun Systems (Single Cyclone) – Grain and Similar (GP007): Gun systems consist of a pre-heater, puffing gun, and a cyclone. The pre-heater is a natural gas fired unit. Product moves through the pre-heater on a belt and is somewhat fluidized by the hot air stream. The puffing gun is a cylindrical chamber in which pre-heated product and superheated steam are introduced. When the product is released from the chamber and returns to atmospheric pressure, it puffs giving the product its finished shape. Both the pre-heater and the puffing gun vent through a cyclone that separates the product from the air stream. The gun system has a single exhaust point (the cyclone exhaust). The process rates may range from 1.35 to 2.5 tons per hour. The pre-heaters rates may range from 1.125 to 1.875 million Btu/hour.

In these systems, the materials puffed are grains. They may be uncooked or cooked. The grain may be whole or partial. Whole grain means that the material is essentially an intact grain kernel.

Gun Systems (Single Cyclone) – Dough and Similar (GP008): Gun systems consist of a pre-heater, puffing gun, and a cyclone. The pre-heater is a natural gas fired unit. Product moves through the pre-heater on a belt and is somewhat fluidized by the hot air stream. The puffing gun is a cylindrical chamber in which pre-heated product and superheated steam are introduced. When the product is released from the chamber and returns to atmospheric pressure, it puffs giving the product its finished shape. Both the pre-heater and the puffing gun vent through a cyclone that separates the product from the air stream. The gun system has a single exhaust point (the cyclone exhaust). The process rates may range from 1.35 to 2.5 tons per hour. The pre-heaters rates may range from 1.125 to 1.875 million Btu/hour.

In these systems, the materials puffed are extruded doughs.

Gun Systems – Double Cyclone (GP009): Double cyclone gun systems consist of a pre-heater, puffing gun, and two cyclones. The pre-heater is a natural gas fired unit. Product moves through the pre-heater on a belt and is somewhat fluidized by the hot air stream. The puffing gun is a cylindrical chamber in which preheated product and superheated steam are introduced. When the product is released from the chamber and returns to atmospheric pressure, it puffs giving the product its finished shape. Both the pre-heater and the puffing gun vent through a series of two cyclones that separate the product from the air stream. The gun system has a single exhaust point (the exhaust from the second cyclone). The process rate may range from 1.5 to 2.5 tons/hour. The pre-heaters rates may range from 1.125 to 1.875 million Btu/hour.

Puffer/Toaster Dryer/Coolers – Non-rotary (GP010): Puffer/toaster dryers are natural gas fired units. Product moves through the dryer on a belt and is somewhat fluidized by the hot air stream. Hot air is recirculating through the dryer through one or more cyclones. A portion of the recirculating air is exhausted to the outside through one or more stacks. Product exits the dryer section of this unit and enters the cooler section of the unit. In the cooler, product is conveyed on a perforated belt through which cool air is passed. The cooler exhaust vents to the outside through either a cyclone or filter system. The process flow rates may range from 1.35 to 2.5 tons/hour.

Puffer/Toaster Dryer/Coolers – Rotary (GP011): Puffer/toaster dryers are natural gas fired units. Product moves through the dryer which is a rotary drum. Hot air is circulated through the dryer and exhausted to the outside through one or more cyclones. Product exits the dryer section of this unit and enters the cooler section of the unit. In the cooler, product is conveyed on a perforated belt through which cool air is passed. The cooler exhaust vents to the outside through either a cyclone or filter system. The process flow rates may range from 1.35 to 2.5 tons/hour.

Sugar Coat Dryers (\*): Sugar coat dryers are steam-heated units which remove moisture from the sugar coating which has been applied to the product. Product passes through the dryer on a

perforated belt. The product is not agitated on the belt. The process flow rates may range from 1.2 to 3.75 tons/hour.

Sugar Coat Coolers (GP012): The sugar coat cooler is integrated with the sugar coat dryer. Product exits the dryer section of this unit and enters the cooler section of the unit. In the cooler, product is conveyed on a perforated belt through which cool air is passed. The process flow rates may range from 1.2 to 3.75 tons/hour.

Mill Room Dryers (GP013): These dryers are steam-heated units that remove moisture from cooked product prior to milling. Product entering these units contains a high level of moisture. Product passes through the dryer on a perforated belt. The product is not agitated on the belt. The process flow rate may range from 1.5 to 3.0 tons/hour.

Retro and Other Type 1 Dryers (\*): These dryers are steam-heated units that remove moisture from cooked, milled product prior to further processing. Product entering these units contains a high level of moisture. Product passes through the dryer on a perforated belt. The product is not agitated on the belt. The process flow rate may range from 1.8 to 3.0 tons/hour. Type 1 dryers are physically located at the same process point as or prior to a retro dryer in a process line (i.e., where the inlet product has a higher moisture content, than a retro dryer).

Retro and Other Type 1 Coolers (\*): In the retro coolers, air is passed through the product to cool it. For all units of this type, the product passes through the unit on a belt with no agitation. The process flow rate may range between 1.8 to 3.0 tons/hour. Type 1 coolers are physically located at the same point as or prior to a retro cooler in a process line (i.e., where the inlet product has a higher moisture content, than a retro cooler).

Baked Product Ovens (GP014): In the baked product oven, natural gas heat is used to bake a product. In the oven, air is passed through the product to cool it. There is no agitation in the oven. The process flow rate may range between 1.3 and 2.2 tons per hour.

Vitamin Dryers (\*): Vitamin dryers may be steam or natural gas heated. These dryers remove a small amount of moisture that has been applied to the product with a liquid vitamin mixture. The process flow rate may range between 0.93 to 1.56 tons/hour.

Cook Room & Sugar Coat Kettles – Common Sugar and Kettle Venting (GP015): In the cook room and sugar coat kettle systems, dry commodities (sugar, salt, etc.) are pneumatically delivered to kettles through a cyclone. Kettle moisture exhaust is also vented. The systems are batch systems. In the common venting systems, the cyclone exhaust and kettle exhaust pass through a scrubber that removes any of the remaining commodity from the air. The scrubber water is returned to the kettle so that all of the captured raw material is used. The scrubber is the ultimate exhaust point for the system. Emissions from these systems are primarily from sugar delivery. The process flow rate may range between 0.05 to 1.61 tons sugar/hour, and 0.10 to 2.35 tons less water/hour, all values averaged over 24 hours, for the system.

Cook Room & Sugar Coat Kettles – Separate Sugar and Kettle Venting (\*): In the cook room and sugar coat kettle systems, dry commodities (sugar, salt, etc.) are pneumatically delivered to

kettles through a cyclone or baghouse. That cyclone or baghouse exhaust is vented to another baghouse which may be a product recovery system or may be internally venting. The systems are batch systems. The kettle exhaust is vented separately. The kettle may vent through a scrubber or directly to the atmosphere. If the kettle exhaust vents directly to the atmosphere, the system must vent the kettle exhaust to a baghouse during sugar delivery into the kettle. If the kettle exhaust is vented through a scrubber, the scrubber water is returned to the kettle. These systems are insignificant activities. The process flow rate may range between 0.05 to 1.61 tons sugar/hour, and 0.10 to 2.35 tons less water/hour, all values averaged over 24 hours, for the system.

Sugar Coat Concentrators (\*): Sugar concentrators are steam heated units that evaporate water from sugar mixtures. The process flow rate may range between 0.30 to 1.5 tons/hour.

\* = Insignificant Activities

#### **Appendix D: Insignificant Activities and Applicable Requirements**

1. Minn. R. 7007.1300, subp. 3(G)

Emission from a Laboratory (food product testing for quality control)

Applicable Requirements: Minn. R. 7007.0715, subp. 1

2. Minn. R. 7007.1300, subp. 3(H)

Miscellaneous (one arc welder)

Applicable Requirements: Minn. R. 7007.0610

3. Minn. R. 7007.1300, subp. 3(I)

Process emission from small units:

Retro Coolers

Vitamin Dryers

Sugar Coat Kettles/Cook Room Kettles

Sugar Concentrators

Sugar Coat Dryers

Retro Dryers

Applicable Requirements: Minn. R. 7007.0715, subp. 1

Superheaters, glycol heaters, and other process units with fuel burning emissions and heat input less than 2.27 MMBtu/hr.

Unit and area heaters and air conditioning units with heat input less than 2.27 MMBtu/hr.

#13 cooked wheat dryer

Applicable Requirements: Minn. R. 7007.0610

4. Minn. R. 7007.1300 subp. 4(B)

Office Boilers

Unit and area heaters with heat input greater than 2.27 MMBtu/hr and less than 22.7 MMBtu/hr.

VOCs from packaging inks and cleaning chemicals. These VOC emissions are not included in the cap set by condition #5.

5. Minn. R. 7007.1300, subp. 4(C)(1) and (2)

HAP emissions from printing inks and cleaning chemicals.

**TECHNICAL SUPPORT DOCUMENT**  
**For**  
**DRAFT AIR EMISSION PERMIT NO. 13100022-003**

This Technical Support Document (TSD) is intended for all parties interested in the draft 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 preliminary determination to issue the draft permit.

**1. General Information**

**1.1. Applicant and Stationary Source Location:**

<b>Owner and Operator Address and Phone Number (list both if different)</b>	<b>Facility Address (SIC Code: 2043)</b>
Malt-O-Meal Company 80 South 8 <sup>th</sup> Street – Suite 2600 Minneapolis, MN 55402-2297	Malt-O-Meal Company 701 West 5th Street Northfield, MN 55057

**1.2. Description of the Facility**

The Permittee operates a breakfast cereal (ready-to-eat) manufacturing facility. The stationary source currently consists of 14 separate product lines. Many of these lines can produce multiple products. The resultant cereal is either a wheat, rice, corn, oat, or some combination, thereof, product. The stationary source consists of scalpers, destoners, dryers, sifters, extrusion equipment, puffing equipment, conveyors, packaging machines, various cookers, boilers, intermediate storage equipment, and truck and railcar loading facilities.

The pollutants of concern from the processes are PM, PM<sub>10</sub>, VOCs, and NO<sub>x</sub>. The main contributing sources of air pollution are particulate matter from the various emission units on the product lines and the use of natural gas. There are fabric filters on site, however, they are used to capture fines as a commercial byproduct. The smaller emission points are largely uncontrolled.

**1.3. Description of the Permit Action**

The 2000 Title V permit required performance testing on a number of units. On September 15, 2003, a test report was forwarded to the MPCA.

With respect to the results from the new testing, the permit specifies the following:

“If a subsequent performance test results in an emission factor that has a higher emission rate than the current emission factor, the highest test result shall become the new emission factor. The use of the updated emission factor shall commence upon receipt of written MPCA notification that the performance test results were valid.”

The testing conducted in July and August, 2003 resulted in higher emission factors for some equipment classes. Upon testing approval by the MPCA, those new factors would be required to be used in the permit. The extent of the increases, in some cases, was unexpected. For that reason, the Permittee submitted this permit application. In this permit application, the Permittee proposed to:

- lower the emission factor for systems with product recovery filters (baghouses); and,
- specify additional (i.e., new) equipment groups and sub-groups of equipment and designate emission factors for them.

With these changes, the potential emissions will remain below the existing caps. The existing caps also remained unchanged.

Each of the specific proposal is discussed in detail in the following appendix.

In addition, the Permittee has also proposed:

- adding the ability to bring emergency diesel engines to provide backup electric powered air compressor outages;
- miscellaneous permit language changes, such adding generic flexible cap language that was not included in the initial permit, removal of completed performance testing requirements, etc.; and,
- deletion of natural gas boiler (EU 005) which was pre-authorized, but never built.

#### **1.4. Description of the Activities Allowed by this Permit Action**

This permit action is a state major amendment. It also incorporates a March 5, 2003 minor amendment to operate a rotary puffer/toaster dryer. MPCA approved the minor amendment on July 26, 2003.



### **1.5. Facility Emissions:**

**Table 1. Total Facility Potential to Emit Summary\***

	PM tpy	PM <sub>10</sub> tpy	SO <sub>2</sub> tpy	NO <sub>x</sub> tpy	CO tpy	VOC tpy
Calculated Total Facility Potential Emissions Prior to Amendment -003	190.64	148.37	0.95	154.48	129.79	146.68
Change in Calculated Total Facility Potential Emissions	-32.14	-6.77	0.30	-11.64	-13.92	-40.67
Calculated Total Facility Potential Emissions After Amendment -003**	158.50	141.60	1.25	142.84	115.87	106.01
Capped Total Facility Emissions	230.	200.		230.		150.
Total Facility Actual Emissions (2002)	95.1	70.6	0.2	29.5	24.6	49.4

\* PTE differences due to both the changing of emission factors (result of recent performance testing) as well as changing of a number of units

\*\* Differences between the PTE found in Delta and that found in this document is attributed to insignificant activities. Insignificant activity emissions were not entered into the Delta PTE. For this document and the public notice, the insignificant activity emissions are included.

**Table 2. Facility (TF) and Permit Classification**

<b>Classification (put x in appropriate box)</b>	<b>Major/Affected Source</b>	<b>*Synthetic Minor</b>	<b>*Minor</b>
PSD (list pollutant)		PM, PM <sub>10</sub> , VOC, NO <sub>x</sub> , CO	SO <sub>x</sub>
NAAR (list pollutant)			
Part 70 Permit Program (list pollutant)	PM <sub>10</sub> , VOC, NO <sub>x</sub> , CO		SO <sub>x</sub> , HAP

\* 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**

### New Source Review

The facility is an existing non-major source under New Source Review regulations. No changes are authorized by this permit.

### Part 70 Permit Program

The facility is an existing major source under the Part 70 permit program.

### New Source Performance Standards (NSPS)

There are no New Source Performance Standards applicable to the operations at this facility.

### National Emission Standards for Hazardous Air Pollutants (NESHAP)

The emergency reciprocating internal combustion engines (RICE) will be below the site rating 500 horsepower NESHAP RICE threshold. Thus, no NESHAPs apply.

### Minnesota State Rules

Portions of the facility are subject to the following Minnesota Standards of Performance:

- Minn. R. 7011.0510 Standards of Performance for Existing Indirect Heating Equipment
- Minn. R. 7011.0610 Standards of Performance for Fossil-Fuel-Burning Direct Heating Equipment
- Minn. R. 7011.0715 Standards of Performance for Post-1969 Industrial Process Equipment
- Minn. R. 7011.1005 Standards of Performance for Dry Bulk Agricultural Commodity Facilities

## 2. Regulatory and/or Statutory Basis

**Table 3. Summary Regulatory and/or Statutory Basis of the Emission or Operational Limit**

<b>GRP #</b>	<b>Applicable Regulations</b>	<b>**Comments:</b>
GP001	Minn. R. 7011.0510	Standards of Performance for Existing Indirect
GP002	40 CFR pt. 60 Subp. Dc	Standards of Performance for Small and Industrial Commercial and Institutional Steam Generating Units
GP003	Minn. R. 7011.1005	Standards of Performance for Dry Bulk Agricultural Commodity Facilities
GP004	40 CFR § 52.21	Daily visible emission checks
GP005	40 CFR § 52.21	Daily visible emission checks
GP006	Minn. R. 7011.0715	Standards of Performance for Post 1969 Industrial Process Equipment
GP007	Minn. R. 7011.0610	Standards of Performance for Fossil-Fuel-Burning Direct Heating Equipment
GP008	Minn. R. 7011.0610	Standards of Performance for Fossil-Fuel-Burning Direct Heating Equipment
GP009	Minn. R. 7011.0610	Standards of Performance for Fossil-Fuel-Burning Direct Heating Equipment
GP010	Minn. R. 7011.0610	Standards of Performance for Fossil-Fuel-Burning Direct Heating Equipment
GP011	Minn. R. 7011.0610	Standards of Performance for Fossil-Fuel-Burning Direct Heating Equipment
GP012	Minn. R. 7011.0715	Standards of Performance for Post 1969 Industrial Process Equipment
GP013	Minn. R. 7011.0610	Standards of Performance for Post 1969 Industrial Process Equipment
GP014	Minn. R. 7011.0610	Standards of Performance for Fossil-Fuel-Burning Direct Heating Equipment
GP015	Minn. R. 7011.0715	Standards of Performance for Post 1969 Industrial Process Equipment

### 3. Technical Information

#### 3.1 Miscellaneous

- a. GP 009 is for double cyclone guns. At this time, the Permittee is not using such equipment. It is possible, that such equipment may be used again.
- b. GP 007 and GP 008 are for single cyclone guns. It is the same equipment used in both groups. As discussed, this group has been split into two groups. Depending on the type of product in the gun, will result in a different emission factor (result of 2003 performance testing). Hence, the same equipment, with different products results in different emissions. Given the high PTE from the grain emission factor, a limit was placed on the grain product usage.
- c. As the MPCA has discovered that traditional methods used to quantify VOCs on a carbon mass basis from some sources may underestimate the actual amount of VOC since they may fail to account for larger molecules. The Agency has made an effort to more accurately quantify the mass emissions of VOC from a source. This generally requires counting the VOCs on a larger mass basis such as that of propane instead of carbon. In some cases, extensive testing may be required to quantify individual constituents (VOC species) of a gas stream and use that data to summarize total VOC mass emission rates. This is sometimes referred to as reporting VOCs "as VOCs." As for Malt-O-Meal, the MPCA provides that the numbers "as propane" will be sufficient at this time given the margin of compliance the facility currently has between actuals and its VOC limit. The issue of VOC quantification should also be examined at the next permit action to determine adherence to the current approach.
- d. Requirements for a previously pre-authorized boiler #5, which was not installed, were removed. The Permittee does not intend to install the additional boiler, at this time.
- e. It is noted that the computer dispersion modeling information has been submitted to the MPCA. At this time, the MPCA is not asking for the modeling information to be updated with the new emission factors.
- f. It is noted that there is no performance testing frequency plan requirement. The individual limits are, in large, based on the industrial process equipment rule. The performance testing is used to determine the appropriate emission factors. The need for additional performance testing to verify the accuracy of the emission factors will be considered during the subsequent permit reissuance.

### **3.2 Calculations of Potential to Emit**

Detailed spreadsheets and supporting calculation information, prepared by the Permittee, are found in Delta. In addition, the test data summary is also found in Delta.

### **3.3 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.

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; and
- The kind of monitoring found on similar units elsewhere.

Table 4 summarizes the periodic monitoring requirements for those emission units for which the monitoring required by the applicable requirement is nonexistent or inadequate.

**Table 4. Periodic Monitoring**

<b>Emission Unit or Group</b>	<b>Requirement (basis)</b>	<b>Additional Monitoring</b>	<b>Discussion</b>
	Examples		
TF	PM = 230 tpy, on a 12 month rolling basis (limit to avoid NSR)		Emissions are a combination of PTE and actuals. Records generated on a monthly basis.
TF	PM <sub>10</sub> = 200 tpy, on a 12 month rolling basis (limit to avoid NSR)		Emissions are a combination of PTE and actuals. Records generated on a monthly basis.
TF	NO <sub>x</sub> = 230 tpy, on a 12 month rolling basis (limit to avoid NSR)		Emissions are a combination of PTE and actuals. Records generated on a monthly basis.
TF	VOCs = 150 tpy, on a 12 month rolling		Emissions are a combination of PTE and actuals. Records generated on a

<b>Emission Unit or Group</b>	<b>Requirement (basis)</b>	<b>Additional Monitoring</b>	<b>Discussion</b>
	basis (limit to avoid NSR)		monthly basis.
GP 006, 012, 013, 015	PM: $\leq 0.030$ gr/dscf, each booth Opacity: $\leq 20\%$ (Minn. R. 7011.0715)	Daily monitoring for any VEs or significant rooftop accumulation	.
GP 007, 008, 009, 010, 011, 014	PM: $\leq 0.030$ gr/dscf, each booth Opacity: $\leq 20\%$ (Minn. R. 7011.0610)	Daily monitoring for any VEs or significant rooftop accumulation	
Indirect Heating Equipment : GP 002	PM: $\leq 0.4$ lb/MMBtu Opacity: $\leq 20\%$ with exceptions (Minn. R. 7011.0510)	Recordkeeping : Monthly Fuel records	All units use natural gas; therefore, the likelihood of violating either of the emission limits is very small. The Permittee can demonstrate that these units will continue to operate such that emissions are well below the emission limits by only burning natural gas. Since this is a permit condition, the semi-annual deviations report will document any deviations from this condition. Design based PTE for each unit, using AP-42, is 0.0072 compared to the rule limit of 0.4 lb/MMBtu.

### **3.4 Insignificant Activities**

The Permittee has several operations which are classified as insignificant activities. These are listed in Appendix D to the permit. Insignificant activities, within Appendix C classes, are subject to daily monitoring of stack/vent visible emissions and rooftop accumulations.

### **3.5 Permit Organization**

In general, the permit meets the MPCA Delta Guidance for ordering and grouping of requirements. One area where this permit deviates slightly from Delta guidance is in the use of appendices. While appendices are fully enforceable parts of the permit, in general, any requirement that the MPCA thinks should be tracked (e.g., limits, submittals, etc.), should be in Table A or B. The main reason is that the appendices are word processing sections and are not part of the tracking system. Violation of the appendices can be enforced, but the computer system will not automatically generate the necessary enforcement notices or documents. Staff must generate these.

### **3.6 Comments Received**

*If comments were received during the public notice period from the public or if comments are received from EPA, they should be described briefly here, as well as any changes made to the permit as a result of the comments. Generally, the comment letters should also be provided as attachments to the TSD.*

## **4. Conclusion**

Based on the information provided by Malt-O-Meal, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 13100022-003, and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team:     Bruce Braaten (permit writer/engineer)  
   Tom Sinn (enforcement)  
   Dan Brady (stack testing)  
   John Chikkala (peer reviewer)

Attachments: 1. Permittee Application Description of Proposed Changes to Emission Factors and Equipment Classes ("2.0 Discussion of Emission Factors")

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## 2.0 Discussion of Emission Factors

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### *Emission Factors - General*

Existing and proposed new emission factors are summarized in Table 1. Emission data for all source testing available is summarized in Table 2. This introductory section describes issues common to all test data and related to analysis of results in general. Following sections detail each proposed factor.

Note that we have updated all factors to include 3 significant digits for consistency.

### **Particulates**

Table 2 summarizes all particulate testing. Testing data is summarized in terms of both PM and PM<sub>10</sub>. We have summarized the data in the following ways:

- PM as Method 5 + organic condensibles only
- PM<sub>10</sub> as Methods 201A + 202 (organic + aqueous condensibles)
- PM<sub>10</sub> as Methods 5 + 202 (organic + aqueous condensibles)

In the data summaries for the original permit, some method 5 + 202 data was presented as PM data in order to be conservative. In this updated data summary we have separated the data and tried to present it so as to clearly define the actual test results in the categories listed above.

In the recent testing, we conducted method 202 testing on many units in order to improve the available PM<sub>10</sub> data without the additional expense of 201A testing.

In the proposed emission factors, we have been careful to propose use of the Method 5 + organic condensibles data for PM factors. In three cases (1/2 product dryer/coolers, double cyclone gun systems, and sugar coat dryers), this results in a decrease of the previous PM factor that was actually based on Method 5 + 202 data. This should be an acceptable change as Method 5 + organic condensibles data utilizes the reference method specified in Minnesota Rules for PM.



Note that in some cases, method 201A is not feasible and therefore method 5 + 202 is the surrogate method for determining PM10 emissions.

For PM<sub>10</sub>, where method 201A + 202 data is available it is relied upon. Where it is not available, method 5 + 202 data is used.

Note that in two cases (non-rotary puffer/toasters and sugar coat coolers) PM<sub>10</sub> and VOC results were increased from the actual tested result. This was done because the equipment tested for PM<sub>10</sub> and VOC was not the equipment that yielded the highest PM value. Therefore, the PM<sub>10</sub> and VOC results were updated to reflect a percent of PM. See Table 2 and further discussion.

### **Volatile Organic Compound Results**

With this modification we are proposing to consistently apply the VOC result using the 'as methane' value from test results. Overall VOC emissions remain low at approximately 50 tons from process emissions on a potential to emit basis. Actual emissions from these sources will be well below this value. If future VOC testing is required, we would like to establish in the permit that the 'as methane' results will be used for future factor determination. (Note that VOC emissions from the facility reflect process emissions plus emissions from actual additive use.)

Note that we do not believe that any of the VOCs are made up of any significant levels of HAPs. There is no yeast used in the process as is the case for bread baking or similar industries. The VOCs consist of the same VOCs that would be emitted in a home kitchen handling and heating grains, oils, sugar, and miscellaneous baking ingredients.

### ***Proposed Emission Factors***

#### **Product Recovery Systems**

Malt-O-Meal operates a number of product recovery filters. The currently permitted emission factor for these units is 0.01 grains/dry standard cubic foot (gr/dscf) for PM and PM<sub>10</sub>. We propose a new value of 0.005 gr/dscf for PM and PM<sub>10</sub>. We have 3 tests on 2 different filters. Those results are 0.003, 0.0034 and 0.0031 gr/dscf. We do not have a PM<sub>10</sub> test using method 201A for filters. However, two of the data points listed here include aqueous condensibles as well as organic condensibles. Therefore we believe 0.005 gr/dscf is a reasonable value.

The current VOC emission factor is 5 percent of PM. Changing the VOC emission factor to the 'as methane' basis changes the value to approximately 8 percent of PM. This application proposes to update VOC to 8 percent of PM (not PM<sub>10</sub>).

### **Penthouse Product Recovery Systems**

Two units vent into a penthouse which is then ventilated. The current emission factor for those units is 0.005 gr/dscf for PM and PM<sub>10</sub>. We do not propose to change that value. We propose to update the VOC value to 8 percent of PM to be consistent with non-penthouse product recovery systems.

### **Half-Product Dryer/Coolers**

Recent testing for PM and PM<sub>10</sub> was consistent with prior testing for these pollutants. We propose to update the PM value to properly reflect test data for Method 5 + organic condensibles. The PM<sub>10</sub> value remains the same.

New test data for VOC is higher. The new, higher test result is proposed to be used for VOCs.

### **Puffing Gun Systems - Single Cyclone**

#### **PM and PM<sub>10</sub>**

We have a large database of puffing gun tests at this time. The facility currently has 7 of these systems. All but one of those systems have been tested at least once. System 7 has been tested 5 times. We have a total of 15 tests, 13 for PM and 2 for VOC.

Method 201A for PM<sub>10</sub> cannot be conducted on these units due to the high moisture content of the exhaust. Therefore, methods 5 + 202 results are used as a surrogate for PM<sub>10</sub>.

With this level of data availability we are able to draw conclusions about the gun systems based on the type of product being manufactured. Three types of products can be puffed - extruded doughs, cooked grains, and uncooked whole grains (wheat, rice, etc.). We have two test results for uncooked whole grains and one partial test for uncooked whole grains that show that

emissions from puffing uncooked whole grains are consistently higher than emissions from puffing extruded dough products. This is reasonable because whole grains often include chaff and other particulate matter that an extruded dough product does not. We do not have any test data for cooked grains.

The data is summarized in Table 2. Note that one test in April 1998 had only two test runs. The system experienced problems during testing. The data was not used when setting the limits in the 2000 permit and is not used here.

Based on these test results we believe it is appropriate to specify product based emission factors for grain products and dough products. Grain products will include uncooked whole grains and cooked grains. Since we do not have any test data for cooked grains we propose to apply the higher uncooked grain puffing factor to these products rather than use the factor for the extruded dough. This should be a conservative assumption since the moisture of the cooked grain is more similar to that of extruded dough and the cooked grain does not include any chaff that may be present on the uncooked grain. The factors for each subgroup are summarized as follows:

- PM:
- Grain Products at 0.460 lbs/ton (highest PM test result on whole grain products)
- Dough Products at 0.147 lbs/ton (highest PM test result on dough products)
- PM10:
- Grain Products at 0.727 lbs/ton (no change from current)
- Dough Products at 0.152 lbs/ton (highest result for dough products)

Any production line with a gun is theoretically capable of running any product. Therefore, for these factors to affect potential to emit calculations there must be an additional limitation on overall production of grain products. Malt-O-Meal proposes a limit of 15,000 tons of gun puffed uncooked whole grains and 5000 tons of gun puffed cooked grain product per 12-month rolling period. Note that these weights are only for the throughput for the puffing gun and do not include any sugar coating that may occur after the gun.

The grain factor will be applied to this amount (20,000 tons) in the potential to emit calculations and the dough products factor will be applied to the remaining gun production capacity. These limitations, and associated definitions are proposed in a CD-01 form with this application along with record-keeping reporting and monitoring requirements.

## **VOCs**

The recent testing resulted in a higher VOC result than past testing. This higher value is of 0.064 lbs/ton as methane is proposed for all gun systems.

## **Puffing Gun Systems - Double Cyclone**

A minor change is proposed to the PM factor for puffing gun systems with double cyclones to update the factor to reflect Method 5 + organic condensibles only. The PM<sub>10</sub> factor is unchanged. The VOC factor is updated to reflect the most recent single cyclone gun system data as VOCs are not likely to be significantly affected by multiple cyclones.

Malt-O-Meal does not at this time operate any double cyclone systems. Gun 12 has been removed. However, Malt-O-Meal wishes to preserve the option to bring in double cyclone systems in the future.

## **Puffer/Toaster Dryer/Coolers**

There are now two types of puffer/toaster dryer/coolers at the facility - the traditional systems move material on a flat belt-type surface in a fluidized air stream through the process and a newer system that utilizes a rotary drum. The rotary drum system was permitted separately, outside of the permit flexibility provisions of the permit, and used an emission factor based on other rotary processes. The testing conducted in 2003 included a test on the rotary system. With the new test data we propose to establish a rotary puffer/toaster equipment group and emission factor that is separate from the traditional systems.

## **Non-Rotary Puffer/Toaster Dryer/Coolers**

There are five of these systems. Three systems have been tested. July 2003 data shows higher results on system #2 than on previously tested systems #9 and #10. We cannot at this time conclusively explain the higher emission rate for system #2. The difference could relate to the product, the age of the system or other unknown variables. To be conservative, we propose to use the highest result, which is that from the new system #2 test, for all 5 systems.

For PM<sub>10</sub>, we have results only for system #10. Using this data alone might lead to an under estimate of PM<sub>10</sub> emissions since overall system #2 has shown higher emissions. The two PM<sub>10</sub> test results on system #10 show that PM<sub>10</sub> is approximately 59- 62 percent of PM. We propose to apply a similar percent to the system #2 PM test result to determine the PM<sub>10</sub> factor. To be conservative, we propose to use 75 percent of system #2 PM as PM<sub>10</sub> for all systems.

We have one test result for VOCs and propose to use that value. The puffing gun value had previously been used. We propose to replace that value with data based on the new test. Again, as with PM<sub>10</sub>, it is possible that using the system #10 results would under-estimate emissions given the system #2 PM results. Therefore, we propose to apply a similar procedure for VOC as for PM<sub>10</sub>. VOCs on system #10 are approximately 52 percent of PM emissions. Again, we have applied a 75 percent factor to the system #2 PM result to determine the new VOC factor.

### **Rotary Puffer/Toaster Dryer/Coolers**

We propose to use the test results directly as the emission factor for rotary puffer/toaster dryer/coolers and to establish this as a new class of equipment. PM<sub>10</sub> data in this case is based on Method 5 + 202 data. VOC testing was conducted and the results is used.

### **Sugar Coat Dryers**

The sugar coat dryers are low emitting systems and additional testing was not required. We propose to update the PM factor to reflect Method 5 + organic condensibles only. The PM<sub>10</sub> and VOC factors are not changed.

### **Sugar Coat Coolers**

Additional testing was conducted on two sugar coat cooler systems. There are eight systems overall, three of which have been tested. In the recent testing, cooler #6 was tested for PM, PM<sub>10</sub> and VOC; and cooler #7 was tested for PM. The highest result for PM is the recent #6 test. This result is slightly higher than the previous PM factor (0.165 lbs/ton versus 0.151 lbs/ton). This value (0.165 lbs/ton) is proposed for PM.

For PM<sub>10</sub> the most recent results on cooler #6 are higher than the previous data. However, as with the puffer/toasters, this higher value does not relate to the highest PM value, on a pounds/ton basis. PM<sub>10</sub> as a percent of PM varies from 36 percent to 131 percent. The proposed PM<sub>10</sub> factor was set equal to the PM factor to address this variation.

For VOCs the prior test data was higher than the new test data. The prior value is 0.163 pounds/ton. Again however, this data was for #6 cooler which was not the highest for PM. VOC as a percent of PM varies from 101 percent to 113 percent. Again to address this variation, the VOC factor was set equal to the PM factor at 0.165 pounds/ton. This is only slightly higher than the higher test value of 0.163.

### **Retro and Other Type 1 Dryers**

This category previously included mill room dryers and retro dryers. There are three mill room dryers, and 2 retro dryers. Prior testing was on retro dryer #10. July 2003 testing was on mill room dryer #9. Originally, insufficient test data was available to differentiate these systems. With the July 2003 test data now available, we propose to separate this class into 2 classes - retro dryers, and mill room dryers.

Retro dryers will maintain their prior emission factors for PM and PM<sub>10</sub>. The VOC factor for retro dryers was previously based on ½ product dryers. This value will be updated to match the ½ product dryer, updated, 'as methane' value.

Mill room dryers will have the factors based on July 2003 testing.

In the past, retro and other type 1 dryers were considered insignificant activities with potential to emit less than 1 ton per year of PM, PM<sub>10</sub> and VOC. This will remain the case for retro dryers. However, the mill room dryer results show that these units will not be insignificant activities. A group will need to be established in the permit (proposed as group 11) and applicable requirements identified. A CD-01 form for this group is included in this application.

### **Retro and Other Type 1 Coolers**

At this time the class contains only 2 pieces of equipment and both are retro coolers. This category and its factors will remain unchanged for PM and PM<sub>10</sub>. For VOCs, as for retro dryers, the VOC factor was previously based on ½ product dryers. This value will be updated to match the ½ product dryer, updated, 'as methane' value.

## **Vitamin Dryers**

No additional testing was conducted for this class. It contains only one unit at this time and that unit has been previously tested. No change is proposed.

## **Cook Room and Sugar Coat Kettles**

The recent testing produced somewhat surprising results for this category. The results were higher than past testing and the results need to be incorporated into the classification system in the permit. This is discussed in detail below.

### **Process Description**

The kettle systems consist in general of two parts:

- Sugar delivery to a kettle from storage; and
- Kettle venting of moisture during heating.

The process is a batch process. The overall batch time is the heating time for a batch in the kettle. Within that, a short period of sugar delivery occurs. As an example, for the system tested (Phase 10 sugar coat kettle), a batch takes 4 hours. Sugar is delivered once in that 4 hour period. The sugar delivery takes approximately 10 minutes. For other sugar batch systems, the sugar delivery varies from 10 minutes to approximately 30 minutes with a batch taking from approximately 2 to 6 hours to process.

Other ingredients in the kettle are water, liquid sugars or flavorings (corn syrup, malts, etc.), and small amounts of other dry ingredients (salt, etc.) added in small quantities at the kettle. None are delivered pneumatically. Therefore, the sugar delivery is the one part of the process likely to create particulate emissions. Test results for the phase 10 sugar coat kettle bear this out. A sugar delivery was conducted during run #2 of that test. Particulate results for that run are 0.35 lbs/hr while particulate results for the other runs are 0.01 lbs/hr.

Note that each kettle 'system' consists of a number of kettles. The capacities listed in Appendix C and GI-05B are for the system of kettles as a whole (not an individual kettle). The kettles rotate batches so that sugar solution is being supplied to the process whenever required. However each solution is made on a batch basis.

## **Types of Kettle Systems**

There are three configurations of kettle systems in place at this time at the facility. Emissions from the types will be different. Each of the systems is described below.

### ***Common Sugar Delivery and Kettle Venting***

The most common system is the one described here. It is depicted in Figure 1. Sugar coat kettles 2, 3, 8, 10 and 12; and cook room kettles 1, 2, 9 and 10 are currently in this configuration. Sugar is conveyed pneumatically from storage to a sugar delivery cyclone. This configuration takes exhaust from that cyclone and vents it through a scrubber prior to exhaust. The kettle is also vented through the scrubber. This is the type of system that was tested in July 2003 as well as in 1994.

### ***Separate Sugar Delivery and Kettle Venting***

In this type of system, the exhaust from the sugar receiving cyclone is vented to another product recovery filter. The kettle is vented through a scrubber and exhausted to the atmosphere. This type of system is depicted in Figure 2. In this case, no sugar delivery impact is experienced by the exhaust from the scrubber since it is vented separately. Currently sugar coat kettles 9 and 11 are in this configuration.

### ***Separate Sugar Delivery and Kettle Venting -***

### ***Baghouse***

There is one system, sugar coat kettle 7, that is in a third configuration, depicted in Figure 3. In this case, sugar is delivered directly into a baghouse instead of a cyclone. Emissions from that baghouse vent to another product recovery filter at the facility. Kettle moisture emissions are vented separately, without a scrubber. When the kettle is receiving sugar, the kettle vent is directed to the baghouse.

## **Equipment Classes**

Based on the differences in processes as previously discussed, we propose to establish 2 classes for cook room and sugar coat kettles. The two classes will be:

- Cook Room and Sugar Coat Kettles - Combined Sugar and Kettle Venting
- Cook Room and Sugar Coat Kettles - Separate Sugar and Kettle Venting



We propose to establish separate factors for these two types of systems. We believe this differentiation is appropriate given the differences in process design which clearly separate the impact of sugar delivery on exhaust in the separate venting case. The proposed factors for each are discussed below.

### **PM and PM<sub>10</sub> Factors - Common Sugar and Kettle Venting**

Two tests have been conducted for PM and VOC. Both systems were of the type with a common sugar and kettle venting. The results for phase 10 recently conducted were higher than the previous phase 8 results. Examination of the detailed run data also shows a differential in emission rates during the runs for the 1994 test.

We have developed an emission factor for PM and PM<sub>10</sub> based on sugar delivery using the recent phase 10 results. The derivation is detailed in table 3. Sugar was received during 10 minutes of run #2. The proposed factor assumes run #2 consists of 50 minutes of emissions at the same rate as during run #'s 1 and 3 and 10 minutes of emissions at a higher rate. This resultant rate for sugar delivery, plus the lower level of emissions during non sugar delivery times, is averaged over the batch length. Refer to Table 3 for details. The resultant factor is 0.932 lbs/ton of sugar delivered. Note that Method 5 + 202 results did not vary from Method 5 + organic condensibles, so PM and PM<sub>10</sub> factors will be the same.

This class will not be an insignificant activity. Therefore, a group is proposed (group 13) and a CD-01 form for this group is included in the application.

### **PM and PM<sub>10</sub> Factors - Separate Sugar and Kettle Venting**

PM and PM<sub>10</sub> factors for separate venting systems are proposed based on the test results for phase 10 for runs where sugar was not delivered. Those results are 0.01 lbs/hr in each run. This is reasonable because these systems vent only kettle emissions, which are represented by runs 1 and 3 of the recent test. The factor is calculated in Table 3. The process parameter in this case will be the total amount of material in the kettle, less water. Note that Method 5 + 202 results did not vary from Method 5 + organic condensibles, so PM and PM<sub>10</sub> factors will be the same. We propose to apply this factor to all systems with separate venting, whether the sugar delivery is through a cyclone or baghouse (figures 2 and 3).

## **VOC Factor**

VOC emissions are relatively unchanged during all three runs for the recent phase 10 test. Data is summarized and an emission factor is calculated in Table 3. The test results indicate that VOC emissions are reasonably independent of sugar delivery. Therefore we propose that this factor be based on the material in the kettle, less water.

VOC factors are proposed to be the same for each class as the majority of VOC emissions is assumed to be from the kettle vent.

## **Sugar Coat Concentrators**

The sugar coat concentrators are steam heated units whose function is to drive off water from sugar solutions to increase the solids content of the solution. These are separate, non-batch processes that do not handle any dry material. They are a continuous operation. They are not subject to the variations in process flow and type such as those for the kettles. They are classified as insignificant activities with emissions less than 1 tons per year of PM, PM<sub>10</sub> and VOC. No additional testing was required. No changes are proposed.

## **Baked Product Oven**

Malt-O-Meal operates one baked product oven. In the original permit it was classified with the retro coolers as that was the most similar process emissions data available at the time. July 2003 testing included testing on this unit. Based on this testing we propose to establish baked product ovens as a new class and apply the test results from recent testing as the emission factors.

In the past, the "retro and other type 1 coolers" class, which included the baked product oven, were considered insignificant activities with potential to emit less than 1 ton per year of PM, PM<sub>10</sub> and VOC. However, NO<sub>x</sub> emissions from direct firing for the baked product oven are above 1 ton per year. Therefore, a group is proposed (group 12) and a CD-01 form for this group is included in the application.

## ***New Classes of Equipment***

Tables 4 and 5 contain the proposed emission factors and description of classes to be used as Appendix B and Appendix C of the modified permit respectively. We have provided updated and new class descriptions where appropriate. CD-01 forms are also included for each new class that will be included in the permit that is not an insignificant activity. Stack and equipment data for units that were previously considered insignificant activities which will be no longer are included on forms GI-04 and GI-05B.

## **Emission Unit Size**

Appendix C contains ranges of sizes for units to be included in the classifications. This was done to insure applicability of emissions factors within the classes defined in the permit. We have updated that size range in three cases.

First, the product recovery filter range is proposed to be expanded to include smaller units. The range in proposed to go down to 500 acfm.

Second, we have adapted the listed range for the cook room and sugar kettles with common exhausts, to reflect two different rates

- sugar delivery - which is the basis for the PM and PM<sub>10</sub> emission factors for common venting kettles; and
- total kettle contents, less water - which is the basis for the emission factor for VOCs for all systems and PM and PM<sub>10</sub> for separate venting systems.

Third, there is a new sugar concentrator at the facility that falls outside the range currently allowed. It is a smaller unit with a process rate of 0.4 tons per hour. Given that these units are insignificant activities and the unit is small, we request that the range for this class be expanded to include this unit.

When the permit was issued, the ranges were set at the range of current equipment sizes + or – 25 percent. That rationale has been followed here as well. Any newly established ranges are in place capacities + or – 25 percent.

### ***Other Permit Language Changes***

We propose one additional language change in the permit. That relates to how potential emissions from modifications outside the permit flexibility provisions are addressed. Currently, the language in page A-5, item 3 of the permit addresses including insignificant modifications. However, no language is included that addresses adding changes made as minor modifications. We propose that the words '*and minor*' be inserted into item 3 on page A-5 between 'Insignificant' and 'Modifications' to address this issue. Note that we assume that moderate amendments would be addressed by the moderate amendment permit issuance. Minor amendments however, may not be issued prior to operation of the unit, therefore, the permit language should reflect a way to include them. This language change is included on a CD-01 form with this application.