

AIR EMISSION PERMIT NO. 07900019- 001

IS ISSUED TO

Unimin Corporation

UNIMIN MINNESOTA CORP - OTTAWA PLANT

RR 1 County Road 23

Le Sueur, Le Sueur County, MN 56058

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
Total Facility Operating Permit

Application Date
06/12/1996

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

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

Issue Date: May 1, 2006

Expiration: Non-Expiring State Permit
All Title I Conditions do not expire.

Richard J. Sandberg, Manager
Air Quality Permits Section
Industrial Division

for Sheryl A. Corrigan
Commissioner
Minnesota Pollution Control Agency

TABLE OF CONTENTS

Notice to the Permittee

Permit Shield

Facility Description

Table A: Limits and Other Requirements

Table B: Submittals

Table C: Compliance Schedule

Appendices: Attached and Referenced in Table A

NOTICE TO THE PERMITTEE:

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

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

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

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

PERMIT SHIELD:

Subject to the limitations in Minn. R. 7007.1800, compliance with the conditions of this permit shall be deemed compliance with the specific provision of the applicable requirement identified in the permit as the basis of each condition. Subject to the limitations of Minn. R. 7007.1800 and 7017.0100, subp. 2, notwithstanding the conditions of this permit specifying compliance practices for applicable requirements, any person (including the Permittee) may also use other credible evidence to establish compliance or noncompliance with applicable requirements.

FACILITY DESCRIPTION:

Unimin Corporation – Ottawa Plant is a silica sand mining and processing facility where a variety of sand and silica products are processed. The main sources of air emissions are crushers, screens, conveyors, storage piles and sand dryer. The pollutants of concern are total particulates and Particulate Matter less than 10 microns in diameter (PM₁₀). The facility uses water on the mined materials (to achieve 3 percent moisture content) prior to drying to control particulate matter emissions. Three wet scrubbers and one dynacyclone control emissions from the dryer and post-drying conveyors and screens.

The facility is not eligible for the state nonmetallic minerals processing plant general permit because it operates an aggregate dryer.

TABLE A: LIMITS AND OTHER REQUIREMENTS

A-1

05/01/06

Facility Name: Unimin Minnesota Corp - Ottawa Plant

Permit Number: 07900019 - 001

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

Subject Item: Total Facility

What to do	Why to do it
SOURCE-SPECIFIC REQUIREMENTS	hdr
<p>Ambient Air Quality Standards: The Permittee shall comply and demonstrate compliance with National Primary and Secondary Ambient Air Quality Standards, 40 CFR pt. 50 and with Minnesota Ambient Air Quality Standards, Minn. R. 7009.0010 to 7009.0080.</p> <p>The Permittee may demonstrate compliance through modeling, monitoring or an alternative widely accepted method approved in writing from the MPCA.</p>	<p>40 CFR pt. 50; Minn. Stat. Section 116.07, subd. 4a and 9; Minn. R. 7007.0080, subp. 5; Minn. R. 7007.0100, subps. 7A, 7L and 7M; Minn. R. 7007.0800, subps. 1, 2 and 4; Minn. R. 7009.0010-7009.0080</p>
Moisture Content: greater than or equal to 1.5 percent	Title I Condition. Limit to avoid classification as major source and modification under 40 CFR Section 52.21 and Minn. R. 7007.3000 and under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 2
<p>Material Moisture Content: Demonstrate the feed material moisture content is greater than or equal to 1.5 percent either 1 or 2 below:</p> <p>1. Test moisture content of each different feed material source (sampled at an area representative of the feed source and physically capable of being sampled), as follows:</p> <p>a. Use American Society for Testing and Materials (ASTM) method numbers D 2216-92 or D 4643-93 (or equivalent).</p> <p>b. Keep records of each moisture content test summarizing the method used, results, date, time, and initials of person performing test.</p> <p>c. Test weekly, when operating, unless three consecutive tests at the stationary source location show moisture contents of greater than or equal to 1.5 percent after which testing is no longer required until the source of the feed material changes.</p>	Title I Condition. Limit to avoid classification as major source and modification under 40 CFR Section 52.21 and Minn. R. 7007.3000 and under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 2
<p>d. When testing indicates that feed material moisture content is less than 1.5 percent, or in situations where it is infeasible to sample and test, or where the Permittee elects not to sample and test, the Permittee must operate a moisture addition device at or immediately prior to the initial crusher(s) or initial screen(s) where unprocessed feed material is being fed to achieve a moisture content greater than or equal to 1.5 percent. Moisture addition during operation shall continue until subsequent moisture content testing demonstrates that feed material moisture content is greater than or equal to 1.5 percent. Daily, when operating, either:</p> <p>(i) keep records of the date, water flow rate, material throughput rate, and initials of the person making the record and the time the record was made; or (ii) conduct moisture content testing daily on the feed material after water application following a. and b. above, and if results show moisture content is less than 1.5 percent, increase water addition to insure moisture is 1.5 percent or greater and re-test to verify.</p>	CONTINUED: Title I Condition. Limit to avoid classification as major source and modification under 40 CFR Section 52.21 and Minn. R. 7007.3000 and under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 2
<p>OR</p> <p>2. Keep records indicating that feed material is being removed from below the water table - or from below the surface of a waterway (e.g., creek, river, lake) - or that the feed material is recycled asphalt pavement. Records shall include a description of the source (if recycled asphalt pavement, so indicate), the corresponding dates, and the initials of the person making the record.</p>	CONTINUED: Title I Condition. Limit to avoid classification as major source and modification under 40 CFR Section 52.21 and Minn. R. 7007.3000 and under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 2
<p>Non-Process Dust Control Options:</p> <p>All reasonable measures shall be taken to prevent avoidable amounts of particulate matter from becoming airborne. In a practical manner this refers to preventing avoidable visible dust emissions beyond the lot line surrounding the stationary source. Control of non-process dust emissions can be achieved through such measures as applying water or commercially available dust suppressant to stockpiles, unpaved roads and handling areas.</p> <p>In addition, the following requirements apply to the Permittee:</p> <p>1. Record date and time of action and initials of person making the record.</p> <p>2. Record amount of water or dust suppressant applied.</p> <p>3. If a commercially available dust suppressant is used, it shall be applied in accordance with the manufacturer's guidelines. The Permittee must keep a copy of these manufacturer's guidelines.</p>	Title I Condition. Limit to avoid classification as major source and modification under 40 CFR Section 52.21 and Minn. R. 7007.3000 and under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-2**

05/01/06

Facility Name: Unimin Minnesota Corp - Ottawa Plant

Permit Number: 07900019 - 001

<p>4. Record the location (e.g., on a site sketch) of water or dust suppressant application.</p> <p>5. Install a rain gauge at the site and record the precipitation in the previous 24 hours for each day of operation at the site.</p> <p>6. Make and record basic weather observations according to the MPCA Weather Summary Criteria that best characterize each operating day.</p> <p>7. Unpaved roads at the site shall be posted with speed limit signs indicating a maximum speed of 10 miles per hour.</p> <p>8. Equipment to apply water or dust suppressant shall always be available at the site or on call for use at the site within a given operating day.</p>	<p>CONTINUED: Title I Condition. Limit to avoid classification as major source and modification under 40 CFR Section 52.21 and Minn. R. 7007.3000 and under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 2</p>
<p>Labeling Requirements: Permanently affix the manufacturer's serial number (or otherwise unique identifying number) to each piece of crushing, screening, transfer operation, and stationary internal combustion engine equipment for tracking purposes within 60 days of permit issuance. The number shall be permanently affixed and maintained so that it is readable and visible at all times from a safe distance at each stationary source. This number shall correspond to the number contained in records regarding the piece of equipment.</p>	<p>Minn. R. 7007.0800, subp. 2</p>
<p>OPERATIONAL REQUIREMENTS</p>	<p>hdr</p>
<p>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.</p>	<p>Minn. R. 7011.0020</p>
<p>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.</p>	<p>Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)</p>
<p>Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment. At a minimum, the O & M plan shall identify all air pollution control equipment and control practices and shall include a preventative maintenance program for the equipment and practices, a description of (the minimum but not necessarily the only) corrective actions to be taken to restore the equipment and practices to proper operation to meet applicable permit conditions, a description of the employee training program for proper operation and maintenance of the control equipment and practices, and the records kept to demonstrate plan implementation.</p>	<p>Minn. R. 7007.0800, subp. 14 and Minn. R. 7007.0800, subp. 16(J)</p>
<p>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.</p>	<p>Minn. R. 7019.1000, subp. 4</p>
<p>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.</p>	<p>Minn. R. 7011.0150</p>
<p>Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.</p>	<p>Minn. R. 7030.0010 - 7030.0080</p>
<p>Inspections: The Permittee shall comply with the inspection procedures and requirements as found in Minn. R. 7007.0800, subp. 9(A).</p>	<p>Minn. R. 7007.0800, subp. 9(A)</p>
<p>The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.</p>	<p>Minn. R. 7007.0800, subp. 16</p>
<p>PERFORMANCE TESTING</p>	<p>hdr</p>
<p>Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in Tables A, B, and/or C.</p>	<p>Minn. R. ch. 7017</p>
<p>Performance Test Notifications and Submittals: Performance Tests are due as outlined in Tables A and B of the permit. See Table B for additional testing requirements. Performance Test Notification (written): due 30 days before each Performance Test Performance Test Plan: due 30 days before each Performance Test Performance Test Pre-test Meeting: due 7 days before each Performance Test Performance Test Report: due 45 days after each Performance Test Performance Test Report - Microfiche Copy: due 105 days after each Performance Test The Notification, Test Plan, and Test Report may be submitted in alternative format as allowed by Minn. R. 7017.2018.</p>	<p>Minn. Rs. 7017.2030, subp. 1-4, 7017.2018 and Minn. R. 7017.2035, subp. 1-2</p>
<p>Limits set as a result of a performance test (conducted before or after permit issuance) apply until superseded as specified by Minn. R. 7017.2025 following formal review of a subsequent performance test on the same unit.</p>	<p>Minn. R. 7017.2025</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-3**

05/01/06

Facility Name: Unimin Minnesota Corp - Ottawa Plant

Permit Number: 07900019 - 001

MONITORING REQUIREMENTS	hdr
Monitoring Equipment Calibration: Annually calibrate all required monitoring equipment (any requirements applying to continuous emission monitors are listed separately in this permit).	Minn. R. 7007.0800, subp. 4(D)
Operation of Monitoring Equipment: Unless otherwise noted in Tables A, B, and/or C, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, or during checks of the monitoring systems, such as calibration checks and zero and span adjustments. If monitoring records are required, they should reflect any such periods of process shutdown or checks of the monitoring system.	Minn. R. 7007.0800, subp. 4(D)
MODELING REQUIREMENTS	hdr
RECORDKEEPING	hdr
Record keeping: Retain all records at the stationary source for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).	Minn. R. 7007.0800, subp. 5(C)
Recordkeeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007. 1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350 subp. 2), including records of the emissions resulting from those changes.	Minn. R. 7007. 0800, subp. 5(B)
REPORTING/SUBMITTALS	hdr
Shutdown Notifications: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3. At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over.	Minn. R. 7019.1000, subp. 3
Breakdown Notifications: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2. At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over.	Minn. R. 7019.1000, subp. 2
Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify the Commissioner or the state duty officer, either orally or by facsimile, of any deviation from permit conditions which could endanger human health or the environment.	Minn. R. 7019.1000, subp. 1
Notification of Deviations Endangering Human Health or the Environment Report: Within 2 working days of discovery, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. Include the following information in this written description: 1. the cause of the deviation; 2. the exact dates of the period of the deviation, if the deviation has been corrected; 3. whether or not the deviation has been corrected; 4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and 5. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.	Minn. R. 7019.1000, subp. 1
Application for Permit Amendment: If a permit amendment is needed, submit an application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.	Minn. R. 7007.1150 through Minn. R. 7007.1500
Extension Requests: The Permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H).	Minn. R. 7007.1400, subp. 1(H)
Emission Fees: due 60 days after receipt of an MPCA bill.	Minn. R. 7002.0005 through Minn. R. 7002.0095

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-4**

05/01/06

Facility Name: Unimin Minnesota Corp - Ottawa Plant

Permit Number: 07900019 - 001

Subject Item: GP 001 NSPS Limits (Belt Conveyors and Screening - Not exhausted to wet scrubber)**Associated Items:** EU 005 BC-31 (In boneyard)(used to be BC-10 from Kasota)

EU 006 BC-34 (In boneyard)

EU 007 BC-35

EU 008 BC-36

EU 009 BC-40

EU 010 BC-41 (used to be BC-31 from Owatta)

EU 011 BC-42

EU 012 BC-50

EU 013 BC-51

EU 014 BC-52

EU 015 BC-53

EU 016 BC-54

EU 019 VS-53 (used to be VS-54)(Out of Service)

EU 020 VS-55

EU 021 VS-57

EU 022 VS-58

What to do	Why to do it
Opacity: less than or equal to 10 percent opacity	40 CFR Section 60.672(b) and Minn. R. 7011.3350

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-5**

05/01/06

Facility Name: Unimin Minnesota Corp - Ottawa Plant

Permit Number: 07900019 - 001

Subject Item: GP 002 Noncombustion Equipment not Subject to NSPS (Controlled by wet scrubbers)**Associated Items:** CE 002 Wet Scrubber - High Efficiency w/Lime Slurry

CE 003 Wet Scrubber - High Efficiency

EU 032 BC-04

EU 039 BN-03

EU 040 VS-01

EU 041 VS-02

EU 042 BE-01

EU 043 BE-02

EU 044 VS-03

EU 045 VS-04

EU 046 VS-05

EU 047 VS-06

EU 048 VS-07

EU 049 VS-08

EU 050 VS-09

EU 051 VS-10

EU 052 VS-11

EU 053 VS-12

EU 054 VS-13

EU 055 VS-14

EU 056 VS-15

EU 057 VS-16

EU 058 VS-17

EU 059 VS-18

EU 060 VS-19

EU 061 VS-20

EU 062 VS-21

EU 063 VS-22

EU 064 VS-23

EU 065 VS-24

EU 066 VS-25

EU 067 VS-26

EU 068 VS-27

EU 069 VS-28

EU 070 VS-29

EU 071 VS-30

EU 072 VS-31

EU 073 VS-32

EU 074 VS-33

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-6**

05/01/06

Facility Name: Unimin Minnesota Corp - Ottawa Plant

Permit Number: 07900019 - 001

Associated Items:

EU 075 VS-40

EU 076 VS-41

EU 077 VS-42

EU 078 VS-43

EU 079 VS-44

EU 080 VS-45

EU 081 VS-46

EU 082 VS-47

EU 083 VS-48

EU 084 VS-49

EU 085 VS-50

EU 086 VS-51

EU 087 VS-56

EU 088 BE-03

EU 089 BE-04

EU 090 BE-08

EU 091 BE-09

EU 092 BE-14

EU 093 BC-06

EU 094 BC-07

EU 095 CO-01

EU 115 BN-04

EU 116 BN-05

EU 117 BN-06

EU 118 BN-07

EU 119 BN-08

EU 120 BN-09

EU 121 BN-10

EU 122 BN-11

EU 123 BN-12

EU 124 BN-13

EU 125 BN-14

EU 126 BN-15

EU 127 BN-16

EU 128 BN-17

EU 129 BN-18

EU 130 BN-19

EU 131 BN-20

EU 132 BN-21

EU 133 BN-22

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-7**

05/01/06

Facility Name: Unimin Minnesota Corp - Ottawa Plant

Permit Number: 07900019 - 001

Associated Items:

EU 134 BN-23

EU 135 BN-24

EU 136 BN-25

EU 137 BN-26

EU 138 BN-34

EU 139 BN-35

EU 140 BC-05

EU 141 BC-08

EU 142 BC-09

EU 143 BC-10

EU 144 BC-11

EU 145 BC-12

EU 146 BC-13

EU 147 BC-14

EU 148 BC-21

EU 149 BC-37

EU 150 BC-38

EU 151 BE-05

EU 153 BA-01

EU 154 BA-04

EU 155 LO-01 LO-02

SV 002

SV 003

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
The Permittee shall operate and maintain either the wet scrubber (CE002) or the fabric filter (CE005) at all times that any emission unit emitting through SV002 is in operation. The Permittee shall document periods of non-operation of the control equipment.	Minn. R. 7007.0800, subp. 2 and 14

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-8**

05/01/06

Facility Name: Unimin Minnesota Corp - Ottawa Plant

Permit Number: 07900019 - 001

Subject Item: GP 003 Noncombustion Equipment not Subject to NSPS (Controlled by Dynaclone fabric filter)**Associated Items:** CE 004 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

EU 096 BN-27

EU 097 BN-28

EU 098 BN-29

EU 099 BN-30

EU 100 BN-31

EU 101 BN-32

EU 102 BN-33

EU 103 BE-10

EU 104 BE-11

EU 105 BE-12

EU 106 BE-13

EU 107 VS-34

EU 108 VS-35

EU 109 VS-36

EU 110 VS-37

EU 111 VS-38

EU 112 VS-39

EU 113 WF-02

EU 114 WF-03

EU 152 BE-07

SV 004

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-9**

05/01/06

Facility Name: Unimin Minnesota Corp - Ottawa Plant

Permit Number: 07900019 - 001

Subject Item: GP 004 Noncombustion Equipment not Subject to NSPS (Without control equipment)**Associated Items:** EU 001 HO-02

EU 002 HO-03

EU 003 FE-02

EU 004 FE-03

EU 017 CR-02 (Out of Service)

EU 023 VI-01

EU 024 VI-03

EU 025 VI-04

EU 026 VI-05

EU 027 VI-06

EU 028 VI-07

EU 029 VI-08

EU 030 VI-09

EU 031 BC-03

EU 033 BC-24

EU 034 BC-25

EU 035 BC-26

EU 038 SB-02

EU 156 LO-03

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-10**

05/01/06

Facility Name: Unimin Minnesota Corp - Ottawa Plant

Permit Number: 07900019 - 001

Subject Item: GP 005 Wet Scrubbers**Associated Items:** CE 001 Wet Scrubber - High Efficiency w/Lime Slurry

CE 002 Wet Scrubber - High Efficiency w/Lime Slurry

CE 003 Wet Scrubber - High Efficiency

What to do	Why to do it
Total Particulate Matter: greater than or equal to 90 percent control efficiency . This requirement applies separately to both CE001 and CE002.	Title I Condition: Limit taken to avoid classification as a major source and modification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 2 and 14
Total Particulate Matter: greater than or equal to 99 percent control efficiency . This requirement applies to CE003.	Title I Condition: Limit taken to avoid classification as a major source and modification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 2 and 14
Pressure Drop: greater than or equal to 1 inches of water column and less than or equal to 2 inches of water column for CE001 unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3, based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated. Record the pressure drop once every 24 hours when in operation.	Minn. R. 7007.0800, subp. 4, 5 and 15
Pressure Drop: greater than or equal to 1 inches of water column and less than or equal to 2 inches of water column for CE002 unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3, based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated. Record the pressure drop once every 24 hours when in operation.	Minn. R. 7007.0800, subp. 4, 5 and 15
Pressure Drop: greater than or equal to 1 inches of water column and less than or equal to 2 inches of water column for CE003 unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3, based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated. Record the pressure drop once every 24 hours when in operation.	Minn. R. 7007.0800, subp. 4, 5 and 15
Water flow rate: greater than or equal to 1 gallons/minute for CE001 unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3, based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated. Record the water flow rate once every 24 hours when in operation.	Minn. R. 7007.0800, subp. 4, 5 and 15
Water flow rate: greater than or equal to 2 gallons/minute for CE002 unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3, based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated. Record the water flow rate once every 24 hours when in operation.	Minn. R. 7007.0800, subp. 4, 5 and 15
Water flow rate: greater than or equal to 2 gallons/minute for CE003 unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3, based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated. Record the water flow rate once every 24 hours when in operation.	Minn. R. 7007.0800, subp. 4, 5 and 15
Periodic Inspections: At least once per calendar quarter, or more frequently as required by the manufacturing specifications, inspect the control equipment components. Maintain a written record of these inspections.	Minn. R. 7007.0800, subp. 4, 5 and 15
Corrective Actions: Take corrective action as soon as possible if any of the following occur: - the recorded pressure drop and water flow rate are outside the required operating range; or - the control equipment or any of its components are found during the inspections to need repair. Corrective actions shall return the pressure drop and water flow rate to within the permitted range, and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O&M Plan. Keep a record of the type and date of any corrective action taken.	Minn. R. 7007.0800, subp. 4, 5 and 15

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-11**

05/01/06

Facility Name: Unimin Minnesota Corp - Ottawa Plant

Permit Number: 07900019 - 001

Subject Item: GP 006 Fabric Filters**Associated Items:** CE 004 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 005 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

What to do	Why to do it
Total Particulate Matter: greater than or equal to 99 percent control efficiency . This requirement applies separately to both CE004 and CE005.	Title I Condition: Limit taken to avoid classification as a major source and modification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 2 and 14
Pressure Drop: greater than or equal to 1 inches of water column and less than or equal to 2 inches of water column for CE004 unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3, based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated. Record the pressure drop once every 24 hours when in operation.	Minn. R. 7007.0800, subp. 4, 5 and 15
Pressure Drop: greater than or equal to 1 inches of water column and less than or equal to 2 inches of water column for CE005 unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3, based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated. Record the pressure drop once every 24 hours when in operation.	Minn. R. 7007.0800, subp. 4, 5 and 15
Visible Emissions: When operating CE005 Check the fabric filter stack (SV002) for any visible emissions once each day of operation during daylight hours. During inclement weather, read and record the pressure drop across the fabric filter once each day of operation.	Minn. R. 7007.0800, subp. 4, 5 and 15
Periodic Inspections: At least once per calendar quarter, or more frequently as required by the manufacturing specifications, inspect the control equipment components. Maintain a written record of these inspections.	Minn. R. 7007.0800, subp. 4, 5 and 15
Corrective Actions: Take corrective action as soon as possible if any of the following occur: - the recorded pressure drop and water flow rate are outside the required operating range; or - the control equipment or any of its components are found during the inspections to need repair. Corrective actions shall return the pressure drop and water flow rate to within the permitted range, and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O&M Plan. Keep a record of the type and date of any corrective action taken.	Minn. R. 7007.0800, subp. 4, 5 and 15

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-12**

05/01/06

Facility Name: Unimin Minnesota Corp - Ottawa Plant

Permit Number: 07900019 - 001

Subject Item: SV 001 (CE001 Wet Scrubber - High Efficiency w/Lime Slurry)**Associated Items:** EU 036 Dryer Burner

EU 037 DR-01

What to do	Why to do it
Allowed fuels: Diesel fuel and natural gas. No other fuels shall be used.	Title I Condition. Limit to avoid classification as major source and modification under 40 CFR Section 52.21 and Minn. R. 7007.3000 and under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 2
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735	Minn. R. 7011.0610, subp. 1(A)(1)
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0610, subp. 1(A)(2)

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Unimin Minnesota Corp - Ottawa Plant
Permit Number: 07900019 - 001

Subject Item: EU 018 CR-03

What to do	Why to do it
Opacity: less than or equal to 15 percent opacity	40 CFR Section 60.672(c) and Minn. R. 7011.3350

TABLE B: SUBMITTALS

B-1 05/01/06

Facility Name: Unimin Minnesota Corp - Ottawa Plant
Permit Number: 07900019 - 001

Table B lists most of the submittals required by this permit. Please note that some submittal requirements may appear in Table A or, if applicable, within a compliance schedule located in Table C. Table B is divided into two sections in order to separately list one-time only and recurrent submittal requirements.

Each submittal must be postmarked or received by the date specified in the applicable Table. Those submittals required by parts 7007.0100 to 7007.1850 must be certified by a responsible official, defined in Minn. R. 7007.0100, subp. 21. Other submittals shall be certified as appropriate if certification is required by an applicable rule or permit condition.

Send any application for a permit or permit amendment to:

AQ Permit Technical Advisor
Industrial Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

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

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

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

AQ Compliance Tracking Coordinator
Industrial Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

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

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

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

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

TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS**B-2** 05/01/06

Facility Name: Unimin Minnesota Corp - Ottawa Plant

Permit Number: 07900019 - 001

What to send	When to send	Portion of Facility Affected
Computer Dispersion Modeling Protocol	due 180 days after Permit Issuance for PM10. This protocol will describe the proposed modeling methodology and input data, in accordance with 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
Computer Dispersion Modeling Results	due 365 days after Permit Issuance for PM10. 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**B-3** 05/01/06

Facility Name: Unimin Minnesota Corp - Ottawa Plant

Permit Number: 07900019 - 001

What to send	When to send	Portion of Facility Affected
Semiannual Deviations Report	due 30 days after end of each calendar half-year following Permit Issuance. The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31. If no deviations have occurred, the Permittee shall submit the report stating no deviations.	Total Facility
Compliance Certification	due 30 days after end of each calendar year following Permit Issuance (for the previous calendar year). To be submitted 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 following Permit Issuance. To be submitted on a form approved by the Commissioner.	Total Facility

TECHNICAL SUPPORT DOCUMENT
For
AIR EMISSION PERMIT NO. 07900019-001

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

1. General Information

1.1. Applicant and Stationary Source Location:

Applicant/Address	Stationary Source/Address (SIC Code: 1446)
Unimin Corporation – Ottawa Plant	RR1 County Road 23 Le Sueur, MN 56058 Le Sueur County
Contact: Shelby Hudgens Phone: (580) 456-7772	

1.2. Description of the Permit Action

Unimin Corporation – Ottawa Plant is a silica sand mining and processing facility where a variety of sand and silica products are processed. The main sources of air emissions are crushers, screens, conveyors, storage piles and a sand dryer. The pollutants of concern are total particulates and Particulate Matter less than 10 microns in diameter (PM₁₀). The facility uses water on the mined materials (to achieve 3 percent moisture content) prior to drying to control particulate matter emissions. Three wet scrubbers and one dynacyclone control emissions from the dryer, and post-drying conveyors and screens.

Facility is not eligible for the state nonmetallic minerals processing plant general permit because it operates an aggregate dryer.

1.3 Description of any Changes Allowed with this Permit Issuance

None

1.4 Permit History

Permit Number and Issuance Date	Action Authorized
808-71-I-1 August 13, 1971	Installation of dust abatement equipment at Gopher State Silica
808A-87-OT-1 February 2, 1987	Construction permit issued
808A-92-OT-2 July 24, 1992	Original Permit issued to Unimin and Minnegasco
June 12, 1996	Part 70 Permit application submitted
February 11, 1998	Administrative Amendment for Permit No. 808A-92-OT-2. Removed Kongsberg KG2-3C natural gas turbine
February 1, 1999	Request to transfer Permit Nos. 808A 93-2-OT-2 (Ottawa Plant) and 808B-93-I/O-1 (Kasota Plant) to Unimin Minnesota Corporation
April 22, 2004	Replacement of existing baghouse DC-03 with wet scrubber WS-03
February 1, 2005	Updated State Air Permit application submitted

1.5. Facility Emissions:

Table 1. Total Facility Potential to Emit Summary

	PM tpy	PM ₁₀ tpy	SO ₂ tpy	NO _x tpy	CO tpy	VOC Tpy	Single HAP tpy	All HAPs Tpy
Total Facility Unrestricted Potential Emissions	1,740	144	7.3	23	14	0.9	0	0
Total Facility Potential Emissions (with controls)	215	25	7.3	23	14	0.9	0	0
Total Facility Actual Emissions (2003)	80	6.1	0.6	7.0	5.7	0.4	HAPS are not reported in emission inventory	

Table 2. Facility Classification

Classification	Major/Affected Source	Synthetic Minor	Minor
PSD		PM	PM ₁₀ , NO _x , SO ₂ , CO, VOC
Part 70 Permit Program		PM ₁₀	PM, NO _x , SO ₂ , CO, VOC
Part 63 NESHAP			X

2. Regulatory and/or Statutory Basis

New Source Review

The facility is a synthetic minor source for PM, since potential emissions after control are less than 250 tons per year. The facility is a true minor source for PM₁₀, NO_x, CO, VOC, and SO₂.

Part 70 Permit Program

The facility is a synthetic minor source for PM₁₀, since potential emissions after control are less than 100 tons per year.

New Source Performance Standards (NSPS)

The facility is subject to NSPS, Subpart OOO, Standards of Performance for Nonmetallic Mineral Processing Plants.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

There are no National Emission Standards for Hazardous Air Pollutants applicable to the operations at this facility.

Minnesota State Rules

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

- Minn. R. 7011.0610 Standards of Performance for Existing Direct Heating Equipment
- Minn. R. 7011.0715 Standards of Performance for Post-1969 Industrial Process Equipment
- Minn. R. 7011.3350 Standards of Performance for New Nonmetallic Mineral Processing Plants

Table 3. Regulatory Overview of Facility

EU, GP, or SV	Applicable Regulations	Comments:
Facility and SV001	Title I Condition: Limits to avoid classification as a major source under 40 CFR § 52.21 Minn. R. 7007.3000 and under 40 CFR § 70.2 Minn. R. 7007.0200	Operational limits taken to avoid classification as a major source as defined by 40 CFR § 52.21 and Minn. R. 7007.3000 and major source classification under 40 CFR § 70.2 and Minn. R. 7007.0200 (minimum limit on moisture content, and allowed fuels for dryer)
EU018 GP001	40 CFR pt. 60, subp. OOO; Minn. R. 7011.3350	New Source Performance Standards (NSPS) for Nonmetallic Mineral Processing Plants. State Standards of Performance for New Nonmetallic Mineral Processing Plants (limits on opacity for applicable units not exhausted to a wet scrubber)
GP002 GP003 GP004	Minn. R. 7011.0715	Standards of Performance for Post 1969 Industrial Process Equipment. (limits on opacity and total particulate matter for non-NSPS Aggregate Processing Equipment)
SV001 (associated with CE001 and EU036 & 037)	Minn. R. 7011.0610	Fossil Fuel-Burning Direct Heating Equipment (Aggregate Dryer)
Facility	Minn. R. 7007.0800, subp. 2	Labeling requirements.

3. Technical Information

3.1 Calculations of Potential to Emit

Attachment 1 contains detailed spreadsheets and supporting information prepared by EarthTech, the MPCA and the Permittee.

In general, emission factors are taken from AP-42, Fifth Edition, Chapter 11.19.2, “Crushed Stone Processing and Pulverized Mineral Processing”, 8/04. For those sources not covered in this section, emission factors from MPCA Form EC-10, “Nonmetallic Minerals Products Industry Calculation Form”, 11/98, were used.

The maximum throughput for each individual source was used to calculate the potential to emit.

3.2 Periodic Monitoring

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

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

Emission Unit or Group	Requirement (basis)	Additional Monitoring	Discussion
Facility	Limit to avoid NSR	Material Moisture Content	The requirement to keep the moisture content of feed material greater than or equal to 1.5% is needed because the underlying emissions calculations and basis for the permit limits are based on this moisture content level. AP-42 (referenced above) has a set of process emission factors for material with moisture content greater than or equal to 1.5% and another set for material with moisture content less than 1.5%. The testing and/or recordkeeping is required to demonstrate compliance with this permit condition. In Minnesota, most sources of natural feed material are usually over 1.5%. The second alternative compliance demonstration method for this permit condition includes Recycled Asphalt Pavement (RAP). In producing

Emission Unit or Group	Requirement (basis)	Additional Monitoring	Discussion
			asphalt pavement, there are often specifications for moisture content in excess of 1.5%. In addition, there is the presence of the asphalt cement itself with a binding effect which mitigates dust emissions. Based on the combination of these two considerations, it was concluded to be appropriate to include RAP in alternative 2. In addition, supplemental water application to RAP might have an inadvertent negative environmental effect. This is because it is often fed back into an asphalt plant where it is heated. Excess water requires the combustion of additional fuel with the associated air emissions of the products of combustion. The two compliance demonstration alternatives for this permit condition provide adequate assurance that material moisture content is greater than or equal to 1.5% without being unnecessarily burdensome.
Facility	Dust control (Limit to avoid NSR)	Recordkeeping items	Required non-process dust control measures in order to stay below PSD thresholds.
Facility	Minn. R. 7007.0800, subp. 2	Equipment Labels	The requirement to uniquely label equipment is needed so that compliance determinations can be made. The system of uniquely identifying each piece of equipment will also assist the Permittee in making sure that all the proper notices and initial performance tests are made.
EU018 GP001 GP004	EU018 and GP001: 40 CFR subp. OOO; GP004: Minn. R. 7011.0715 and Minn. R. 7007.0800	None	Based on the material moisture content and throughput limitations listed above, these sources will not exceed the allowable particulate limit. Therefore, additional monitoring is unnecessary.

GP002 SV001 (CE001)	State Industrial Process Equipment and Direct Heating Rules and Minn. R. 7007.0800	Pressure drop and water flow rate, once every 24 hours of operation	Corrective action required if pressure drop or flow rate are out of range.
GP003	Minn. R. 7011.0715 and Minn. R. 7007.0800	Pressure drop and visible emissions check, once every 24 hours of operation	Corrective action required if pressure drop is out of range or visible emissions observed.

3.3 Insignificant Activities

Unimin Corporation – Ottawa Plant has several operations which are classified as insignificant activities. These are listed below:

Source	Requirement (basis)
<u>Natural Gas Heaters</u>	
432,800 BTU/hr (Dryer Area)	Minn. R. 7007.1300, subp. 3(A) – Fuel use: space heaters fueled by kerosene, natural gas, or propane.
1,000,000 BTU/hr (Dryer Area)	Minn. R. 7007.1300, subp. 3(A)
437,500 BTU/hr (Wet Section)	Minn. R. 7007.1300, subp. 3(A)
437,500 BTU/hr (Wet Section)	Minn. R. 7007.1300, subp. 3(A)
437,500 BTU/hr (Wet Section)	Minn. R. 7007.1300, subp. 3(A)
1,000,000 BTU/hr (Loadout)	Minn. R. 7007.1300, subp. 3(A)
1,000,000 BTU/hr (Loadout)	Minn. R. 7007.1300, subp. 3(A)
500,000 BTU/hr (Bagging)	Minn. R. 7007.1300, subp. 3(A)
100,000 BTU/hr (Gen. Plant)	Minn. R. 7007.1300, subp. 3(A)
<u>Tanks</u>	

10,000 gallon diesel storage tank (above ground)	Minn. R. 7007.1300, subp. 3(E)(2) – Storage tanks: above and below ground fuel oil storage tanks with a combined total tankage capacity less than 100,000 gallons.
10,000 gallon diesel storage tank (above ground)	Minn. R. 7007.1300, subp. 3(E)(2) – Storage tanks: above and below ground fuel oil storage tanks with a combined total tankage capacity less than 100,000 gallons.
560 gallon unleaded gasoline storage tank (above ground)	Minn. R. 7007.1300, subp. 3(E)(1) – Gasoline storage tanks with a combined total tankage capacity of not more than 10,000 gallons.
500 gallon waste oil tank (above ground)	Minn. R. 7007.1300, subp. 3(E)(2) – Storage tanks: non-hazardous air pollutant VOC storage tanks with a combined total capacity of not more than 10,000 gallons of non-hazardous air pollutant VOCs and with a vapor pressure of not more than 1.0 psia at 60 degrees Fahrenheit.
300 gallon diesel storage tank (above ground)	Minn. R. 7007.1300, subp. 3(E)(2) – Storage tanks: above and below ground fuel oil storage tanks with a combined total tankage capacity less than 100,000 gallons.

3.4 NAAQS Modeling

The facility was informed that they are potentially exceeding the National Ambient Air Quality Standards (NAAQS). They were made aware of this issue in a letter from the MPCA dated June 21, 2005. As a result requirements to perform dispersion modeling for PM₁₀ were placed in the permit. The modeling protocol must be submitted 180 days after permit issuance and completed 365 days after issuance. The facility can not make any changes that would increase PM₁₀ emissions until modeling is completed and the facility is shown to be in compliance with the NAAQS.

3.5 Permit Organization

In general, the permit meets the MPCA Delta Guidance for ordering and grouping of requirements.

3.6 Comments Received

Public Notice Period: March – April 7, 2006

EPA 45-day Review Period: April 10 – 24, 2006

Comments were not received from the public during the public notice period.

4. Conclusion

Based on the information provided by Unimin Corporation, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 07900019-001, and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team: Raymond Ramos, EarthTech, Inc.
 Jeffrey Peltola, MPCA (project manager/peer reviewer)
 Michael Westereng, MPCA (permit writer/public notice)
 Scott Parr, MPCA (enforcement)

Attachments: 1. PTE Summary and Calculation Spreadsheets