

**AIR EMISSION PERMIT NO. 05300043- 001
IS ISSUED TO**

GAF BUILDING MATERIALS CORPORATIONS

50 Lowry Avenue North
Minneapolis, Hennepin County, MN 55411

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

Permit Type	Application Date
Total Facility Operating Permit	April 14, 1995

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

Permit Type: State - Limits to avoid Part 70/Limits to avoid NSR

Issue Date: January 19, 2001

Expiration: Non-expiring
All Title I Conditions do not expire.

Amendments to Conditions labeled "Title I Condition: State Implementation Plan for SO₂" are required to go through the federal State Implementation Plan approval process before the change becomes effective.

Richard J. Sandberg, Manager
Major Facilities Section
Metro District

for Karen Studders
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:

GAF manufactures asphalt roofing products. Raw materials used are asphalt, colored granules, powdered limestone, sand, talc and non-woven glass base sheet. The glass base sheet is coated on the top and bottom with an asphalt/limestone mixture. Then, colored granules are placed on top of the sheet. Sand and/or talc is put on the back of the sheet. The sheet is cooled, dried then cut into shingles or into roll products.

The incoming raw materials are stored in asphalt storage tanks (TK 001, TK 002), limestone storage (EU 007), resin storage tank (TK 008), and fuel oil storage tank (TK 006). The process equipment includes: blow still (EU 003), roofing machine coater (EU 011), mineral application (EU 004), limestone transfer (EU 008). The other emission units are asphalt storage tank (TK 005), asphalt heaters (EU 005, EU 006), boilers (EU 001, EU 002). The pollution control equipment includes: afterburners (CE 001, CE 008), fiber filters (CE 005, CE 006, CE 007), and baghouses (CE 002, CE 003, CE 004).

New Source Performance Standards applicability:

The federal “Standards of Performance for Asphalt Processing and Asphalt Roofing Manufacture” (Subpart UU), and “Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Storage Vessels) for which Construction, Reconstruction, or Modification commenced after July 23, 1984” (Subpart Kb) applies to some of the emission units at this facility.

GAF Building Materials Corporation is a potential major contributor of SO₂ emissions in the Hennepin County SO₂ (previously designated as Non-attainment, currently under maintenance) area based on computer modeling performed by MPCA staff using the U.S. Environmental Protection Agency guideline air quality dispersion model ISCST version 90346.

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/19/01

Facility Name: GAF Building Materials Corporations
 Permit Number: 05300043 - 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
State Implementation Plan Recordkeeping: Retain all records at the facility for a period of five (5) years from the date of the required monitoring, sample, measurement, or report that corresponds with a " Title I Condition: State Implementation Plan for SO2" requirement.	Title I Condition: MN State Implementation Plan (SIP) for SO2 - per 40 CFR Part 50
Deviations from requirements cited as "Title I Condition: State Implementation Plan for SO2" shall be reported semiannually with the Semi Annual Deviations Report required by this permit. If there were no deviations from any requirement cited as "Title I Condition: State Implementation Plan for SO2", the Permittee shall indicate such in the Semi Annual Deviations Report.	Title I Condition: MN State Implementation Plan (SIP) for SO2 - per 40 CFR Part 50
CHANGES NOT REQUIRING A MODIFICATION FOR THE SIP: The owner or operator shall make changes to the facility without obtaining a modification as long as the change does not do or result in any of the following: A. an exceedance of the limitations associated with the emission units in the SIP; B. a physical change of the equipment that affects the stack parameters described in Appendix; C. an increase of maximum potential sulfur dioxide emission rate of 2.28 pounds per hour or the insignificant threshold for sulfur dioxide listed in Minn. R. 7007.1250, subp. 1 for any installation, modification, or operation of sulfur dioxide process or control equipment.	Title I Condition: MN State Implementation Plan (SIP) for SO2 - per 40 CFR Part 50
Amendments to Title I Conditions: If any permit requirement cited as "Title I Condition: State Implementation Plan for SO2" is amended, the amendment must first comply with the procedures of parts 7007.0850 (Permit Application Notice and Comment) applicable to major amendments to Part 70 permits.	Title I Condition: MN State Implementation Plan (SIP) for SO2 - per 40 CFR Part 50
Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment.	Minn. R. 7007.0800, subp. 14 and Minn. R. 7007.0800, subp. 16(J)
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
Limits set as a result of a performance test (conducted before or after permit issuance) apply until superseded as specified by Minn. R. 7017.2025 following formal review of a subsequent performance test on the same unit.	Minn. R. 7017.2025
Monitoring 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)
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)
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
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

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/19/01

Facility Name: GAF Building Materials Corporations

Permit Number: 05300043 - 001

<p>Breakdown Notifications: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2.</p> <p>At the time of notification or as soon as possible thereafter, the 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.</p>	<p>Minn. R. 7019.1000, subp. 2</p>
<p>Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify the Commissioner or the state duty officer, either orally or by facsimile, of any deviation from permit conditions which could endanger human health or the environment.</p>	<p>Minn. R. 7019.1000, subp. 1</p>
<p>Notification of Deviations Endangering Human Health or the Environment Report: Within 2 working days of discovering, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. Include the following information in this written description:</p> <ol style="list-style-type: none"> 1. the cause of the deviation; 2. the exact dates of the period of the deviation, if the deviation has been corrected; 3. whether or not the deviation has been corrected; 4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and 5. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation. 	<p>Minn. R. 7019.1000, subp. 1</p>
<p>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>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>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>Application for Permit Amendment: If a permit amendment is needed, submit an application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.</p>	<p>Minn. R. 7007.1150 through Minn. R. 7007.1500</p>
<p>Extension Requests: The Permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H).</p>	<p>Minn. R. 7007.1400, subp. 1(H)</p>
<p>Recordkeeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007.1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350 subp. 2), including records of the emissions resulting from those changes.</p>	<p>Minn. R. 7007.0800, subp. 5(B)</p>
<p>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).</p>	<p>Minn. R. 7007.0800, subp. 5(C)</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>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>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.</p>	<p>Minn. R. 7007.0800, subp. 9(A)</p>
<p>Emission Fees: due 60 days after receipt of an MPCA bill.</p>	<p>Minn. R. 7002.0005 through Minn. R. 7002.0095</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/19/01

Facility Name: GAF Building Materials Corporations

Permit Number: 05300043 - 001

Subject Item: GP 001 Emission Units subject to NSPS (Subpart UU and Kb)

- Associated Items:** EU 003 Blow Still
 EU 008 Limestone Transfer
 EU 011 Roofing Machine Coater
 EU 012 Sand Transfer and Application
 TK 001 Petroleum Asphalt
 TK 002 Petroleum Asphalt

What to do	Why to do it
NSPS Requirements for the Coater	hdr
Total Particulate Matter: less than or equal to 0.08 lbs/ton (0.04 kilograms per megagram) of asphalt shingle or mineral-surfaced roll roofing produced.	40 CFR Section 60.472 (a)(1)(i); Minn. R. 7011.0950
Particulate Matter < 10 micron: less than or equal to 0.08 lbs/ton (0.04 kilograms per megagram) of asphalt shingle or mineral-surfaced roll roofing produced	Minn. R. 7007.0800, subp. 2 to avoid major source status as defined under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2(B)
Opacity: less than or equal to 20 percent opacity	40 CFR Section 60.472(a)(2); Minn. R. 7011.0950
Visible Emissions: less than or equal to 20 percent of any period of consecutive valid observations totaling 60 minutes	40 CFR Section 60.472(a)(3); Minn. R. 7011.0950
Blowstill and Tanks	hdr
Total Particulate Matter: less than or equal to 0.64 kilograms/megagram (1.28 lb/ton) of asphalt charged to the still during blowing without a catalyst and when No. 6 fuel oil is fired in the afterburner. This limit is applicable to the blow still only.	40 CFR Section 60.472(b)(4); Minn. R. 7011.0950
Opacity: less than or equal to 0 percent opacity except for one consecutive 15-minute period in any 24-hour period when the transfer lines are being blown for cleaning. CE 001 shall not be bypassed during this 15-minute period.	40 CFR Section 60.472(c); Minn. R. 7011.0950
The following Performance Testing Requirements (based on NSPS) are applicable to EU 003, EU 011, and EU 012 to measure PM and Opacity, and applicable to TK 001, TK 002 to measure Opacity	hdr
Initial Performance Test: due 180 days after Permit Issuance to measure Total Particulate Matter (PM) and Opacity.	40 CFR Section 60.8(d); Minn. R. 7017.2020, subp. 1; Minn. R. 7017.2030, subp. 4
<p>Performance Notifications and Submittals:</p> <p>Performance Tests are due as outlined in Tables A and B of the permit. See Table B for additional testing requirements.</p> <p>Performance Test Notification (written): due 30 days before each Performance Test to measure Total Particulate Matter (PM) and Opacity</p> <p>Performance Test Plan: due 30 days before each Performance Test to measure Total Particulate Matter (PM) and Opacity</p> <p>Performance Test Pre-test Meeting: due 7 days before each Performance Test to measure Total Particulate Matter (PM) and Opacity</p> <p>Performance Test Report: due 45 days after each Performance Test to measure Total Particulate Matter (PM) and Opacity</p> <p>Performance Test Report - Microfiche Copy: due 105 days after each Performance Test to measure Total Particulate Matter (PM) and Opacity</p>	Minn. R. 7017.2030, subp. 1-4 and Minn. R. 7017.2035, subp. 1-2

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/19/01

Facility Name: GAF Building Materials Corporations

Permit Number: 05300043 - 001

Subject Item: GP 003 Existing Indirect Heating Equipment**Associated Items:** EU 001 Boiler #1

EU 002 Boiler #2

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.4 lbs/million Btu heat input (applies separately to each emission unit).	Minn. R. 7011.0510, subp. 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 (applies separately to each emission unit).	Minn. R. 7011.0510, subp. 2
Fuels Permitted: Natural gas as the primary fuel, and No. 6 fuel oil (with not more than 1.5% sulfur content) as a back-up fuel.	Minn. R. 7007.0800, subp. 2
Recordkeeping: Maintain records (once a month) of fuel type combusted for all fuel burned in the emission units in this group.	Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/19/01

Facility Name: GAF Building Materials Corporations

Permit Number: 05300043 - 001

Subject Item: GP 004 New Indirect Heating Equipment**Associated Items:** EU 005 Fluid Heater #1

EU 006 Fluid Heater #2

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.4 lbs/million Btu heat input (applies separately to each emission unit).	Minn. R. 7011.0515, subp. 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 (applies separately to each emission unit).	Minn. R. 7011.0515, subp. 2
Fuels Permitted: Natural gas as the primary fuel, and No. 6 fuel oil (with not more than 1.5% sulfur content) as a back-up fuel.	Minn. R. 7007.0800, subp. 2
Recordkeeping: Maintain records (once a month) of fuel type combusted for all fuel burned in the emission units in this group.	Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/19/01

Facility Name: GAF Building Materials Corporations

Permit Number: 05300043 - 001

Subject Item: GP 005 Standards of Performance for Storage Vessels**Associated Items:** TK 005 Petroleum Asphalt

TK 007 AC-20 Asphalt Cement

What to do	Why to do it
Operational Requirement: The Permittee shall equip the storage vessel (tank) with a permanent submerged fill pipe or comply with the following requirements: (1) If the true vapor pressure of the petroleum liquid, as stored, is equal to or greater than 78 mm Hg (1.5 psia) but not greater than 570 mm Hg (11.1 psia), the storage vessel should be equipped with a floating roof, a vapor recovery system, or their equivalents. (2) If the true vapor pressure of the petroleum liquid, as stored, is greater than 570 mm Hg (11.1 psia), the storage vessel should be equipped with a vapor recovery system, or its equivalents.	Minn. R. 7011.1505, subp. 3(B)

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/19/01

Facility Name: GAF Building Materials Corporations

Permit Number: 05300043 - 001

Subject Item: GP 008 Fabric Filter Requirements

Associated Items: CE 002 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 003 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

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

SV 004

SV 007

SV 008

What to do	Why to do it
Operate and maintain control equipment for Total Particulate Matter: greater than or equal to 99 percent control efficiency	Title I Condition: Limit to avoid major source classification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 14
Operate and maintain control equipment for Particulate Matter < 10 micron: greater than or equal to 99 percent control efficiency	Title I Condition: Limit to avoid major source classification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 14
GP 008 Operation and Maintenance: The Permittee shall operate and maintain the fabric filters according to the control equipment manufacturer's specifications and the facility operation and maintenance plan.	Minn. R. 7007.0800, subp. 2
Pressure Drop: greater than or equal to 1.0 inches of water column or as established during the most recent performance test, recorded once every 24 hours when in operation.	Title I Condition: Limit to avoid major source classification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 4
Visible Emissions: The Permittee shall check the outlet of each baghouse (SV 004, SV 007, SV 008) for any visible emissions, once each day of operation during daylight hours. If the visible emission check is not possible due to inclement weather, the Permittee shall instead determine and record the pressure drop across each baghouse.	Minn. R. 7007.0800, subp. 4
Recordkeeping of Visible Emissions: The Permittee shall record the time and date of each visible emission inspection, and whether or not any visible emissions were observed.	Minn. R. 7007.0800, subp. 5
Recordkeeping of Corrective Actions: If visible emissions are observed, the Permittee shall follow the Operation and Maintenance plan for the fabric filter and take corrective actions as soon as possible to eliminate the visible emissions. The Permittee shall keep a record of the corrective actions taken.	Minn. R. 7007.0800, subp. 14
Inspect quarterly, or as required by the manufacturing specifications, all components that are subject to ware or plugging, including structural components, housing, ducts, and hoods. Maintain a record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subp. 2 and subp. 14
Inspect quarterly, or as required by the manufacturing specifications, all components that are subject to ware or plugging. Maintain a record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subp. 2 and subp. 14

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/19/01

Facility Name: GAF Building Materials Corporations

Permit Number: 05300043 - 001

Subject Item: GP 009 Fiber Bed Filter Requirements

- Associated Items:** CE 005 Fabric Filter - Medium Temperature i.e., 180 F<T<250 F
 CE 006 Fabric Filter - Medium Temperature i.e., 180 F<T<250 F
 CE 007 Fabric Filter - Medium Temperature i.e., 180 F<T<250 F
 SV 009
 SV 010
 SV 011

What to do	Why to do it
Operate and maintain control equipment for Total Particulate Matter: greater than or equal to 99 percent control efficiency	Title I Condition: Limit to avoid major source classification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 14
Operate and maintain control equipment for Particulate Matter < 10 micron: greater than or equal to 99 percent control efficiency	Title I Condition: Limit to avoid major source classification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 14
GP 009 Operation and Maintenance: The Permittee shall operate and maintain the fabric filters according to the control equipment manufacturer's specifications and the facility operation and maintenance plan.	Minn. R. 7007.0800, subp. 2
Pressure Drop: greater than or equal to 4.5 inches of water column or as established during the most recent performance test, recorded once every 24 hours when in operation.	Title I Condition: Limit to avoid major source classification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 4 and subp. 5
Visible Emissions: The Permittee shall check the outlet of each fiber filter (SV 009, SV 010, SV 011) for any visible emissions, once each day of operation during daylight hours. If the visible emission check is not possible due to inclement weather, the Permittee shall instead determine and record the pressure drop across each fiber bed filter.	Minn. R. 7007.0800, subp. 4
Recordkeeping of Visible Emissions: The Permittee shall record the time and date of each visible emission inspection, and whether or not any visible emissions were observed.	Minn. R. 7007.0800, subp. 5
Recordkeeping of Corrective Actions: If visible emissions are observed, the Permittee shall follow the Operation and Maintenance plan for the fiber filter and take corrective actions as soon as possible to eliminate the visible emissions. The Permittee shall keep a record of the corrective actions taken.	Minn. R. 7007.0800, subp. 14
Inspect quarterly, or as required by the manufacturing specifications, all components that are not subject to ware or plugging, including structural components, housing, ducts, and hoods. Maintain a record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subp. 2 and subp. 14
Inspect quarterly, or as required by the manufacturing specifications, all components that are subject to ware or plugging. Maintain a record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subp. 2 and subp. 14

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/19/01

Facility Name: GAF Building Materials Corporations

Permit Number: 05300043 - 001

Subject Item: GP 010 Existing Industrial Process Equipment**Associated Items:** EU 004 Mineral Application

TK 003 Petroleum Asphalt

TK 006 No. 6 Fuel Oil Tank

TK 008 Asphalt Resin

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 meet less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735. Limit applies separately to each emission unit.	Minn. R. 7011.0710, subp. 1(A)
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Applies separately to each emission unit.	Minn. R. 7011.0710, subp. 1(B)

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/19/01

Facility Name: GAF Building Materials Corporations

Permit Number: 05300043 - 001

Subject Item: GP 011 Emission Units with SIP Requirements

Associated Items: CE 001 Direct Flame Afterburner w/Heat Exchanger

EU 001 Boiler #1

EU 002 Boiler #2

EU 005 Fluid Heater #1

EU 006 Fluid Heater #2

What to do	Why to do it
The following emission limit applies to each unit separately.	hdr
Sulfur Dioxide: less than or equal to 1.5 lbs/million Btu heat input (on an instantaneous basis).	Title I Condition: MN State Implementation Plan (SIP) for SO2 - per 40 CFR Part 50
The Permittee may operate the emission units in this group at full rated heat input, but may not operate them at greater than rated heat input listed in Exhibit 1 (appendix material).	Title I Condition: MN State Implementation Plan for SO2
Primary fuel authorized: natural gas; back-up fuel: No. 6 fuel oil, with or without knockout oil.	Title I Condition: MN State Implementation Plan for SO2
Sulfur Content of Fuel: less than or equal to 1.5 percent by weight in the No. 6 fuel oil, and knockout oil.	Title I Condition: MN State Implementation Plan for SO2
Emission Limitations: The Permittee shall obtain and maintain a No. 6 fuel oil supplier certification from the fuel oil supplier for each shipment of fuel oil delivered to the facility. Each fuel oil supplier's certifications shall include : 1. The name of the supplier; 2. The location of where the sample was drawn to determine the sulfur content. The certification shall include whether each shipment was sampled as delivered to the facility, or at an other location (fuel oil supplier's facility); 3. The sulfur content of the No. 6 fuel oil from which the shipment came;	Title I Condition: MN State Implementation Plan for SO2
Emission Limitations, Continued: 4. The method used to determine the sulfur content shall be ASTM Method D-1552 for fuel oil and ASTM Method D-4294-90 for the fuel oil/knockout oil blend or other EPA approved ASTM methods as listed in 40 CFR Part 60, Appendix A, Method 19, Section 5.2.2; and 5. The heating value (million British Thermal Units per gallon) of the No. 6 fuel oil determined in accordance with ASTM Method D-240; and 6. In order to calculate the SO2 emission rate from the sulfur content and heating value (mm Btu/lb), the Permittee shall use the following formula: Emissions Rate (lb SO2/mm Btu) = (0.157)*(% Sulfur)/(density)*(heating value)	Title I Condition: MN State Implementation Plan for SO2
Operating Requirements: 1. The Permittee shall measure the total gallons of knockout oil and No. 6 fuel oil burned at each emission unit on an hourly basis. 2. On a daily basis when oil is being used as a fuel, the Permittee shall sample and analyze the mixture of No. 6 fuel oil and knockout oil at a point between the fuel oil storage tank and the combustion units to determine the sulfur content of that blend in accordance with ASTM Method D-4294-90 or another EPA approved ASTM method (as listed in 40 CFR, Part 60, Appendix A, Method 19, Section 5.2.2). 3. On a weekly basis when oil is being used as a fuel, the Permittee shall sample and analyze the mixture of No. 6 fuel oil and knockout oil at a point between the fuel oil storage tank and the combustion units to determine the heating value of that fuel mixture in million Btu/gallon in accordance with ASTM Method D-240 EPA approved ASTM method (as listed in 40 CFR, Part 60, Appendix A, Method 19, Section 5.2.2).	Title I Condition: MN State Implementation Plan for SO2
Changes Authorized without obtaining a modification to the SIP Order: The Permittee is authorized to make changes to the facility without obtaining a modification to the State Implementation Plan Order requirements as long as the change does not do or result in any of the following: A. an exceedance of the limitations in the Order at which Sulfur Dioxide is emitted from any emission units in this group; or B. a physical change of the equipment that effects the stack parameters for these emission units in this group.	Title I Condition: MN State Implementation Plan for SO2

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/19/01

Facility Name: GAF Building Materials Corporations

Permit Number: 05300043 - 001

<p>Changes requiring a modification to the SIP Order: The Permittee is required to obtain a modification to the SIP order prior to commencing activities including, but are not limited to:</p> <ol style="list-style-type: none">1. any decrease in the design stack gas volumetric flow rate below the permit rate;2. any decrease in the design stack gas exit temperature below the permit temperature;3. any reduction in stack height below that contained in the permit;4. any increase in stack exit diameter above that contained in the permit; or5. any construction or modification of structures taht increase the effective structural dimensions as they are used in the building wake effects algorithm in the ISC Air Dispersion Model.	<p>Title I Condition: MN State Implementation Plan for SO2</p>
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TABLE A: LIMITS AND OTHER REQUIREMENTS

01/19/01

Facility Name: GAF Building Materials Corporations

Permit Number: 05300043 - 001

Subject Item: EU 007 Limestone Storage Silo**Associated Items:** CE 003 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
SV 007

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 meet less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735. Limit applies separately to each emission unit.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. Applies separately to each emission unit.	Minn. R. 7011.0715, subp. 1(B)

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/19/01

Facility Name: GAF Building Materials Corporations

Permit Number: 05300043 - 001

Subject Item: CE 001 Direct Flame Afterburner w/Heat Exchanger

Associated Items: EU 003 Blow Still

GP 011 Emission Units with SIP Requirements

What to do	Why to do it
Operate and maintain control equipment for Total Particulate Matter: greater than or equal to 84 percent control efficiency	Title I Condition: Limit to avoid major source classification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 14
Operate and maintain control equipment for Particulate Matter < 10 micron: greater than or equal to 84 percent control efficiency	Title I Condition: Limit to avoid major source classification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 14
Operate and maintain control equipment for Volatile Organic Compounds: greater than or equal to 84 percent control efficiency	Title I Condition: Limit to avoid major source classification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 14
Operate and maintain control equipment for Carbon Monoxide: greater than or equal to 84 percent control efficiency	Title I Condition: Limit to avoid major source classification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 14
Temperature: greater than or equal to 1200 degrees F in the afterburner chamber	Title I Condition: Limit to avoid major source classification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 14
CE 001 Corrective Action: If the CE 001 combustion temperature falls below 1200 degrees F, the Permittee shall take corrective action as soon as possible according to the control equipment manufacturer's specifications and the facility operation and maintenance plan. The Permittee shall keep a log of all corrective actions taken with records entered upon completion of each corrective action.	Title I Condition: Limit to avoid major source classification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 2
CE 001 Operation and Maintenance: The Permittee shall operate and maintain CE 001 according to the control equipment manufacturer's specifications and the facility operation and maintenance plan.	Minn. R. 7007.0800, subp. 2
CE 001 Temperature Monitoring: The Permittee shall continuously monitor the temperature in the combustion zone of CE 001. The monitoring instrument have an accuracy of + 18 or -18 degrees F over its range. The monitor shall be operated at all times when CE 001 is operating.	40 CFR Section 60.473(b); Minn. R. 7007.0800, subp. 4
CE 001 Temperature Recordkeeping: The Permittee shall record and maintain all CE 001 temperature records at the facility. The records shall be composed of a continuous hard copy readout or manual readings taken every 15 minutes.	Title I Condition: Recordkeeping to avoid major source classification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/19/01

Facility Name: GAF Building Materials Corporations

Permit Number: 05300043 - 001

Subject Item: TK 005 Petroleum Asphalt**Associated Items:** CE 005 Fabric Filter - Medium Temperature i.e., 180 F<T<250 F

GP 005 Standards of Performance for Storage Vessels

What to do	Why to do it
Operational Requirement: The Permittee shall equip the storage vessel with a permanent submerged fill pipe or comply with the following requirement: If the true vapor pressure of the petroleum liquid, as stored, is equal to or greater than 78 mm Hg (1.5 psia) but not greater than 570 mm Hg (11.1 psia), the storage vessel shall be equipped with a floating roof, a vapor recovery system, or their equivalent.	Minn. R. 7011.1505, subp. 3(b)

TABLE B: SUBMITTALS

01/19/01

Facility Name: GAF Building Materials Corporations
Permit Number: 05300043 - 001

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

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

Send any application for a permit or permit amendment to:

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

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

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

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

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

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

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

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

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

TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS

01/19/01

Facility Name: GAF Building Materials Corporations

Permit Number: 05300043 - 001

What to send	When to send	Portion of Facility Affected
Testing Frequency Plan	due 60 days after Initial Performance Test to measure PM and Opacity. This plan shall specify a testing frequency based on the testing data and MPCA guidance. Future performance tests based on one-year (12 month), 36 month, and 60 month intervals, or as applicable, shall be required upon written approval of MPCA.	GP001

TABLE B: RECURRENT SUBMITTALS

01/19/01

Facility Name: GAF Building Materials Corporations

Permit Number: 05300043 - 001

What to send	When to send	Portion of Facility Affected
Quarterly Report	<p>due 30 days after end of each calendar quarter following Permit Issuance the Permittee shall submit the following information: Summary of any exceedances of the emission limitation capacity limitation, sulfur content limitation of fuel oil limitation during the calendar quarter. The Permittee shall provide an explanation of each exceedance, or state that no exceedances occurred; and Summary of any startups, shutdowns, bypasses, or breakdowns of process or control equipment during the calendar quarter.</p> <p>The Permittee shall state in its report if no No. 6 fuel oil or knockout oil was burned during the monitored quarter.</p>	GP011
Quarterly Report	<p>due 30 days after end of each calendar quarter following Permit Issuance the Permittee shall submit with the following information: 1. No. 6 fuel oil: % sulfur content by weight, the heating value in MM Btu per gallon and the total amount of fuel oil burned per month during the calendar quarter; 2. Asphalt: % sulfur content by weight of the asphalt received at the facility during the calendar quarter; 3. Mixture of No. 6 fuel oil and knockout oil: Results of the sulfur and heating value analysis conducted on the mixture of No. 6 fuel oil and knockout oil and the total amount of mixture of No. 6 fuel oil and knockout oil burned per month during the calendar quarter; 4. The maximum amount of No. 6 fuel oil burned and the mixture of No. 6 fuel oil and knockout oil burned on an hourly basis at each emission unit during the calendar quarters;</p>	GP011
Semiannual Deviations Report	<p>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.</p>	Total Facility
Annual Report	<p>due 30 days after end of each calendar year following Permit Issuance a record of data used in calculating, and calculations of the annual sulfur dioxide emissions from each emission unit; a record of each startup, shutdown, bypass and breakdown of process and sulfur dioxide control equipment; and a summary record of the excess sulfur dioxide emissions, and exceedances of the capacity limitation, sulfur content limitation, or fuel use limitation exceedances (or the Permittee shall state if no exceedances or noncompliance conditions occurred in the calendar year).</p>	GP011
Compliance Certification	<p>due 31 days after end of each calendar year following Permit Issuance (for the previous calendar year). To be submitted on a form approved by the Commissioner.</p>	Total Facility
Emissions Inventory Report	<p>due 91 days after end of each calendar year following Permit Issuance (April 1). To be submitted on a form approved by the Commissioner.</p>	Total Facility

APPENDIX MATERIAL

Facility Name: GAF Building Materials Corporations

Permit Number: 05300043-001

Exhibit 1

Parameters Relied Upon in Modeling

Source Name	Emission Unit Number	SV ID	Stack Height (feet)	Stack Dia. (feet)	Flow Rate (acfm)	Exit Temp (F)	Modeled and Maximum Heat Input (million Btu/hr)	Control/ Monitoring Equipment	Allowable Fuels
Boiler No. 1 (B1)	EU 001	001	65	1.3	3,400	510	8.369	Fuel Flow Meter	Natural gas, No. 6 Fuel Oil With or without Knockout Oil
Boiler No. 2 (B2)	EU 002	002	65	1.3	3,400	510	8.369	Fuel Flow Meter	Natural gas, No. 6 Fuel Oil With or without Knockout Oil
Blow Still (Tank No. 28)	EU 003	003	60	3.3	11,600	1100	0.0	Digital LED Temp. Gauge, and Fuel Flow Meter	Natural gas, No. 6 Fuel Oil With or without Knockout Oil
After Burner Using Natural Gas Destruction Efficiency = 84%, Using No. 6 Fuel Oil Destruction Efficiency = 50%	CE 001	003	60	3.3	11,600	1200	9.5	Digital LED Temp. Gauge, and Fuel Flow Meter	Natural gas, No. 6 Fuel Oil With or without Knockout Oil
Fluid Heater HTF1	EU 005	005	54	1.5	2,600	700	4.2	Fuel Flow Meter	Natural gas, No. 6 Fuel Oil With or without Knockout Oil
Fluid Heater HTF2	EU 006	006	54	1.5	2,600	700	4.3	Fuel Flow Meter	Natural gas, No. 6 Fuel Oil With or without Knockout Oil

**TECHNICAL SUPPORT DOCUMENT
For GAF Building Materials Corporation
DRAFT AIR EMISSION PERMIT NO. 05300043-001**

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

1. General Information

1.1. Applicant and Stationary Source Location:

Owner and Operator Address and Phone Number	Facility Address (SIC Code: 2952)
GAF Corporations 1361 Alps Road Wayne, NJ 07470	GAF Building Materials Corporation 50 Lowry Avenue North Minneapolis, MN 55411 (612)529-9121

1.2. Description of the facility

GAF manufactures asphalt roofing products. Raw materials used are asphalt, colored granules, powdered limestone, sand, talc and non-woven glass base sheet. The glass base sheet is coated on the top and bottom with an asphalt/limestone mixture. Then, colored granules are placed on top of the sheet. Sand and/or talc is put on the back of the sheet. The sheet is cooled, dried then cut into shingles or into roll products.

Note: Currently this facility has the equipment to produce shingles or roll products with non-woven glass base sheet only. So, the New Source Performance Standards (Subpart UU) requirements for Total Particulate Matter (PM) and Particulate Matter less than 10 um in size (PM₁₀) for the production of saturated felt or smooth-surfaced roll does not apply.

The incoming raw materials are stored in asphalt storage tanks (TK 001, TK 002), limestone storage (EU 007), resin storage tank (TK 008), and fuel oil storage tank (TK 006). The process equipment includes: blow still (EU 003), roofing machine coater (EU 011), mineral application (EU 004), limestone transfer (EU 008). The other emission units are asphalt storage tank (TK 005), asphalt heaters (EU 005, EU 006), boilers (EU 001, EU 002). The pollution control equipment includes: afterburners (CE 001, CE 008), fiber filters (CE 005, CE 006, CE 007), and baghouses (CE 002, CE 003, CE 004).

GAF Building Materials Corporation is a potential major contributor of Sulfur Dioxide (SO₂) emissions in the Hennepin County SO₂ Non-attainment area (currently a maintenance area), based on computer modeling performed by Minnesota Pollution Control Agency (MPCA) staff using the U.S. Environmental Protection Agency (EPA) guideline air quality dispersion model ISCST version 90346.

1.3 Description of any changes allowed with this permit issuance

This permit includes a new pollution control equipment “Modular Thermal Oxidizer” to control the asphalt fumes that are vented from the storage tanks.

This is a State Total Facility Permit that authorizes the Permittee to operate the stationary source at 50 Lowry Avenue North, Minneapolis, Hennepin County, MN 55411.

1.4 Description of all amendments issued since the issuance of the last total facility permit

Permit Number and Issuance Date	Action Authorized
Amendment # 1 6/30/93 40 CFR pt. 50	Emission Limit: SO ₂ from two boilers, afterburner that controls emissions from blow still, and two fluid heaters to no more than 1.5 lbs/MM Btu per emission point. Revisions to “Findings and Order” from 5/27/92
Amendment # 2 9/18/97	Demonstration of compliance with emission limits; delete the term “asphalt” from previous fuel supplier requirements. Sample sulfur content of the fuel blend on a daily basis, and heating value of the fuel mixture on a weekly basis. The Permittee retain records of % sulfur by weight in No. 6 fuel oil and the mixture of fuel oil and knockout oil burned.

1.5. Facility Emissions:

Table 1. Total Facility Potential to Emit Summary:

Subject Item	Emission Unit Description	PM tpy	PM ₁₀ tpy	SO ₂ Tpy	NO _x tpy	CO tpy	VOC tpy	Pb tpy	Single HAP Tpy	All HAPs tpy
GP 001	Units subject to NSPS	123.3	37.0	0.0	0.0	3.3	27.2	0.0	0.0	0.0
GP 003 GP 004 GP 007	Heating Equipment, and Afterburners	43.4	27.2	71.1	27.9	11.1	1.1	0.0	0.0	0.0
GP 005	Tanks	0.0	0.0	0.0	0.0	0.0	7.8	0.0	0.0	0.0
GP 010	Existing IPE	0.6	0.6	0.0	0.0	0.0	0.4	0.0	0.0	0.0

	PM tpy	PM ₁₀ Tpy	SO ₂ Tpy	NO _x tpy	CO tpy	VOC tpy	Pb tpy	Single HAP tpy	All HAPs tpy
Total Facility Limited Potential Emissions	167.3	64.8	71.1	27.9	14.4	36.5	0.0	0.0	0.0
Total Facility Actual Emissions*	9.1	8.9	2.4	3.5	0.7	2.0	0.0	0.0	0.0

* These emissions are based on the Emissions Inventory Report

Table 2. Facility(TF) and Permit Classification

Classification (put x in appropriate box)	Major/Affected Source	*Synthetic Minor	*Minor
PSD (list pollutant)	None	PM	PM ₁₀ , SO _x , NO _x , VOC, CO
NAAR (list pollutant)	N/A	N/A	N/A
Part 70 Permit Program (list pollutant)	None	PM ₁₀ , SO _x	NO _x , VOC, CO

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

2. Regulatory and/or Statutory Basis

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

Regulatory Overview of Facility

*EU, GP #	Applicable Regulations	Comments:
Total Facility	State Implementation Plan (SIP) For SO ₂	GAF Building Materials Corporation shall attain, Demonstrate, and maintain compliance with the applicable state and federal ambient air quality standards for SO ₂
Total Facility	40 CFR pt. 50 and MN SIP; 40 CFR § 52.21, and § 70.2; 40 CFR § 60.92(a)(1) and (2); Minn. R. 7011.0909; Minn. § 116.07, subd. 4a, Minn. R. 7007.0800, subp. 2	SO ₂ limits per SIP; Title I Condition: limit to avoid a major source classification;
GP 001	40 CFR Section 60.472 (a), (b) & (c); Minn. R. 7011.0950	New Source Performance Standards (Subpart UU and Kb); PM, PM ₁₀ and Opacity; NSPS Performance Testing for PM and Opacity
GP 003	Minn. R. 7011.0510	Existing Indirect Heating Equipment: PM and Opacity
GP 004	Minn. R. 7011.0515	New Indirect Heating Equipment: PM and Opacity
GP 005	Minn. R. 7011.1505	Standards of Performance for Storage Vessels
CE 001	40 CFR § 52.21; Minn. R. 7007.0800, subps. 2, 4, 5, and 14	Afterburner and RTO Requirements: Title I Condition – control efficiency for PM, PM ₁₀ , VOC, and CO. Temperature monitoring and recordkeeping.
GP 008	40 CFR § 52.21; Minn. R. 7007.0800, subps. 2, 14	Fabric Filter Requirements: Title I Condition – control efficiency for PM, PM ₁₀ ; Pressure drop monitoring and recordkeeping; Visible Emissions (VE) check
GP 009	40 CFR § 52.21; Minn. R. 7007.0800, subps. 2, 14	Fiber Bed Filter Requirements: Title I Condition – control efficiency for PM, PM ₁₀ ; Pressure drop monitoring and recordkeeping; Visible Emissions (VE) check
GP 010	Minn. R. 7011.0710	Existing Industrial Process Equipment: PM and Opacity
GP 011	40 CFR pt. 50	Title I Condition: State Implementation Plan for SO ₂ ; Emission Limitations; Operating Requirements; Recordkeeping and Reporting Requirements
EU 007	Minn. R. 7011.0715	New Industrial Process Equipment: PM and Opacity

* EU = Emission Unit, GP = Group

3. Technical Information

3.1(a) Federal New Source Performance Standards (NSPS)

Federal New Source Performance Standards (NSPS) for Asphalt Processing and Asphalt Roofing Manufacture , 40 CFR pt. 60, Subpart UU is applicable to blowing still/convertor (EU # 3), roofing machine coater (EU # 11), limestone transfer (EU # 8), and asphalt storage tanks (T1 and T2) at the GAF Building Materials Corporation, Minneapolis Plant since it commenced construction or modification after November 18, 1980. Fumes from the convertor/blowing still, and the new asphalt storage tanks are vented to the Afterburner. PM and PM₁₀ emissions are controlled by baghouses (fabric filters) and fiber filters.

3.1(b) Requirements to stay under the threshold for Part 70 Permitting Program

The facility has accepted PM, PM₁₀, VOC, H₂S, and CO emission limits, limitations on sulfur content in fuel oil, and has accepted requirements to operate control equipment at specified control efficiencies, in order to stay below the threshold for Part 70 federal permitting program.

3.2(a) Standards of Performance for Pre - 1969 Industrial Process Equipment (Minn. R. 7011.0710)

The Minnesota State Standards for Industrial Process Equipment which was in operation before July 9, 1969, sets limits on particulate matter, and opacity - applicable to emission units listed under GP 010.

3.2(b) Standards of Performance for Post - 1969 Industrial Process Equipment (Minn. R. 7011.0715)

The Minnesota State Standards for Industrial Process Equipment which was not in operation before July 9, 1969, sets limits on particulate matter, and opacity - applicable to EU 007.

3.3(a) Standards of Performance for Existing Indirect Heating Equipment (Minn. R. 7011.0510)

The Minnesota State Standards for Existing Indirect Heating Equipment, sets limits on PM, SO₂, and opacity- applicable to emission units under GP 003.

3.3(b) Standards of Performance for New Indirect Heating Equipment (Minn. R. 7011.0515)

The Minnesota State Standards for the New Indirect Heating Equipment, sets limits on PM, SO₂, and opacity - applicable to emission units under GP 004.

Note : Emission Calculations are enclosed in the following pages

4. Conclusion

Based on the information provided by the GAF Building Materials Corporation, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 05300043-001 and this technical support document, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team: Stuart Arkley, Scott Parr, Dick Cordes, and John S. Chikkala

Attachment: CD-01 Forms
Others specified in section 3

Emission Calculations:

Emission units with natural gas combustion. These calculations are based on AP-42 emission factors (3/98).

The emission factors used are:

PM & PM₁₀ : 0.007 lb/MM Btu

SO_x : 0.0006 lb/MM Btu

NO_x : 0.098 lb/MM Btu

VOC : 0.005 lb/MM Btu

CO : 0.082 lb/MM Btu

EU 001 or Boiler # 1 = 8.369 MM Btu/hr

EU 002 or Boiler #2 = 8.369 MM Btu/hr

EU 005 or Fluid Heater # 1 = 4.3 MM Btu/hr

EU 006 or Fluid Heater #2 = 4.3 MM Btu/hr

CE 001 Afterburner = 9.5 MM Btu/hr

CE 008 Modular Thermal Oxidizer = 1.5 MM Btu/hr

NG Burners = 2*0.5 = 1 MM Btu/hr

Total capacity = 37.34 MM Btu/hr

PM emissions = (37.34 MM Btu/hr)*(0.007 lb/MM Btu)*(ton/2000 lb)(6250 hrs/yr) = 0.8 TPY

PM₁₀ = (37.34 MM Btu/hr)*(0.007 lb/MM Btu)*(ton/2000 lb)(6250 hrs/yr) = 0.8 TPY

SO_x = (37.34 MM Btu/hr)*(0.0006 lb/MM Btu)*(ton/2000 lb)(6250 hrs/yr) = 0.1 TPY

NO_x = (37.34 MM Btu/hr)*(0.098 lb/MM Btu)*(ton/2000 lb)(6250 hrs/yr) = 11.4 TPY

VOC = (37.34 MM Btu/hr)*(0.005 lb/MM Btu)*(ton/2000 lb)(6250 hrs/yr) = 0.6 TPY

CO = (37.34 MM Btu/hr)*(0.082 lb/MM Btu)*(ton/2000 lb)(6250 hrs/yr) = 9.6 TPY

Lt. Wt. Asphalt: Used as a secondary/Tertiary fuel (only 3,000 gals/yr) or 10 hrs/yr

The emission factors used are from the information provided by the Permittee:

PM: 7 lb/1000 gal

PM₁₀: 6.3 lb/1000 gal

SO_x : 228 lb/1000 gal

NO_x : 20 lb/1000 gal

VOC : 0.34 lb/1000 gal

CO : 5 lb/1000 gal

PM emissions = 7 lb/1000 gal * 3000 = 21 lbs or 0.01 TPY

PM₁₀ emissions = 6.3 lb/1000 gal * 3000 = 18.9 lbs or 0.01 TPY

SO_x emissions = (3000 gals/yr)*(228)*(lb/1000 gal) = 0.34 TPY

NO_x emissions = (20)*(lb/1000 gal)*(3,000 gals/yr) = 0.03 TPY

VOC emissions = (0.34)*(lb/1000 gal)*(3,000 gals/yr) = 0.00 TPY

CO emissions = (5)*(lb/1000 gal)*(3,000 gals/yr) = 0.01 TPY

Per existing permit: No. 6 Fuel Oil is limited to 600,000 gals/yr or 2500 hours/year

PM: 141.82lb/1000 gal

PM₁₀: 87.89 lb/1000 gal

SO_x : 235.5 lb/1000 gal

NO_x : 55 lb/1000 gal

VOC : 1.605 lb/1000 gal

CO : 5 lb/1000 gal

PM emissions = 141.82 lb/1000 gal * 600,000*(ton/2000 lb) = **42.55 TPY**

PM₁₀ emissions = 87.89 lb/1000 gal * 600,000*(ton/2000 lb) = **26.37 TPY**

SO_x emissions = (600,000 gals/yr)*(235.5)*(lb/1000 gal)*(ton/2000 lb) = **70.7 TPY**

NO_x emissions = (55)*(lb/1000 gal)*(600,000 gals/yr)*(ton/2000 lb) = **16.5 TPY**

VOC emissions = (1.605)*(lb/1000 gal)*(600,000 gals/yr)*(ton/2000 lb) = **0.5 TPY**

CO emissions = (5)*(lb/1000 gal)*(600,000 gals/yr)*(ton/2000 lb) = **1.5 TPY**

Emissions from the Heating Equipment: EU 001, 002, 005, 006, CE 001, and CE 008

PM = 0.8+0.01+42.55 = **43.36 tpy** or 9.9 lb/hr

PM₁₀ = 0.8+0.01+26.37 = **27.2 tpy** or 6.2 lb/hr

SO_x = 0.1+0.34+70.7 = **71.1 tpy** or 16.24 lb/hr

NO_x = 11.4+0.03+16.5 = **27.93 tpy** or 6.38 lb/hr

VOC = 0.6+0.5 = **1.1 tpy** or 0.25 lb/hr

CO = 9.6+0.01+1.5 = **11.11 tpy** or 2.54 lb/hr

EU 003 (Blow Still) – GP 001: Limited Emissions

NSPS based limit for PM is applicable to the blow still

Using the NSPS limit for PM = 0.64 kilogram/megagram of asphalt charged to the still

PM emissions = 1.28 lb/ton

Maximum capacity = 16.5 tons/hr

Limited PM emissions = 21.12 lb/hr or **92.51 TPY**

If the Permittee uses natural gas in the afterburner, efficiency of the afterburner = 84% (per Administrative Order – Previous permit limit)

PM₁₀ = 1.27 lb/ton of asphalt processed (based on the performance test conducted at a similar facility)

PM₁₀ emissions from this blowstill = (1-0.84)*(20.96 lb/hr)*(ton/2000 lb)*(8760 hr/yr)

Net PM₁₀ emissions = **14.68 TPY**

VOC = 1.46 lb/ton of asphalt processed

Total VOC emissions = (1-0.84)*(24.09 lb/hr)*(ton/2000 lb)*(8760 hr/yr) = **16.9 TPY**

CO = 0.27 lb/ton of asphalt processed

Total CO emissions = (1-0.84)*(4.455 lb/hr)* (ton/2000 lb)*(8760 hr/yr) = **3.12 TPY**

EU 004 or Mineral Application Process – GP 010:

Maximum capacity = 28968.25 tons/yr

Total PM = 28968.25 tons/yr * 1.0 lb/ton * (1-0.99) = 0.15 lbs/hr or **0.63 tpy**

Total PM₁₀ = **0.63 tpy**

EU 007 or Limestone Silo

PM (uncontrolled) emissions = 11.06 tons/yr

PM emissions = **0.79 TPY**

PM₁₀ emissions = **0.79 TPY**

EU 008 or Limestone Transfer – GP 001:

Total PM = 12.62 tons/hr * 1 lb/ton = 12.62 lbs/hr * (1-0.99) = 0.13 lbs/hr or **0.57 tpy**

Total PM₁₀ = **0.57 TPY**

EU 011 or Roofing Machine Coater – GP 001:

Emission factors used are from AP-42 chapter 11.2 Asphalt Roofing

Maximum capacity: tons/hr or tons/yr

Emission factors used are AP-42 factors:

PM = 24 lb/ton of asphalt processed

PM emissions (uncontrolled) = 24 lb/ton * 3 ton/hr = 72 lb/hr

Control efficiency = 95%

Total PM emissions = (1-0.95)*(72 lb/hr)*(ton/2000 lb)*(8760 hr/yr) = **15.8 TPY**

PM₁₀ = 25 lb/ton of asphalt processed

Total PM₁₀ emissions = (1-0.95)*(75 lb/hr)*(ton/2000 lb)*(8760 hr/yr) = **16.4 TPY**

VOC = 1.86 lb/ton of asphalt processed

Total VOC emissions = (1-0.95)*(5.6 lb/hr)*(ton/2000 lb)*(8760 hr/yr) = **1.2 TPY**

CO = 0.27 lb/ton of asphalt processed

Total CO emissions = (1-0.95)*(0.8 lb/hr)* (ton/2000 lb)*(8760 hr/yr) = **0.2 TPY**

EU 012 or Sand Transfer and Application – GP 001:

Maximum capacity = 20,000 lbs/hr or 10 tons/hr

PM emissions = 0.33 lb/ton or 3.3 lb/hr or **14.45 TPY**

PM₁₀ emissions = 0.12 lb/ton or 1.2 lb/hr or **5.3 TPY**

Emissions from asphalt tanks: These calculations are based on the information from the EPA Tanks program

Tanks T1 and T2 (EU # 10 in Permit Application) – GP 001:

VOC emissions = **9.06 TPY**

Tank T3 (EU # 17 in Permit Application):

VOC emissions = **0.395 TPY**

Tank T5 (EU # 9)

VOC emissions = **7.83 TPY**

The emissions from the other emission units are very insignificant