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| Minnesota Pollution Control Agency (MPCA), 520 Lafayette Road North, St. Paul, MN 55155-4194 | GI-05A  Pollution control equipment information  Air Quality Permit Program  *Doc Type: Permit Application* |

**Instructions on Page 2**

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| --- | --- | --- | --- | --- |
| **1a)** AQ Facility ID number: | |  | **1b)** Agency Interest ID number: |  |
| **2)** Facility name: |  | | | |

**Form *GI-05F* *Emission source association* must also be completed and submitted whenever this form is required.**

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| **3a)** | **3b)** | **3c)** | **3d)** | **3e)** | **3f)** | **3g)** | **3h)** | **3i)** | **3j)** | **3k)** |
| **Control equip  ID no.** | **CE type code** | **Description** | **Manufacturer** | **Model number** | **Installation date** (mm/dd/yyyy) | **Removal date** (mm/dd/yyyy) | **Pollutants controlled** | **Capture  efficiency** | **Destruct/ collect  efficiency** | **Afterburner/ Oxidizer combustion parameters** |
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| Describe changes to existing control devices and/or operations: |  |

Instructions for Form GI-05A

Complete the table on this form for all air pollution control devices or operations, and pollution prevention control practices at your facility. If you are completing this form as part of an application for a change or modification at your facility, clearly show any changes to existing control devices or operations along with proposed new control devices or operations. For devices or operations that will be removed, enter all information for the device or operation and then (except for the removal date) strike out the entered data. If the device or operation is not being removed but parameters are changed, enter the current parameters in one row, strike out the parameters that will be changed, and enter the revised parameters in the row immediately below. Describe all changes in the table bottom row.

**1a) AQ Facility ID No. --** Fill in your Air Quality (AQ) Facility Identification Number (ID) Number (No.). This is the first eight digits of the permit number for all permits issued under the operating permit program. If your facility has never been issued a permit under this program, leave this line blank.

**1b) Agency Interest ID No. --** Fill in your Agency Interest ID No. This is an ID number assigned to your facility through the Tempo database. If you don’t know this number, leave this line blank.

**2) Facility name --** Enter your facility name.

**3a) Control equipment (CE) ID no. --** Assign a control equipment ID number to each piece of pollution control equipment (e.g., fabric filter or afterburner), control approach, or pollution control practice (e.g., dust suppression by water spray). Number the pollution control equipment/practices at your facility sequentially (001, 002, 003, etc.). The assigned number will be used in other forms to identify control equipment that is described in this form. This ID number is unique to this piece of equipment and must be used consistently throughout the application. If a control device or emission source employs more than one control approach (e.g., Selective Catalytic Reduction [SCR] and catalytic oxidation), each control approach should be identified with a unique control equipment ID number.

If you are adding new pollution control equipment to your permit or replacing existing pollution control equipment, it is important not to reuse previously used CE numbers. The new or replacement control equipment should be numbered consecutively beginning with the next number after the last one used. Numbers used for removed control equipment cannot be reused for new or replacement control equipment.

**3b) CE type code --** Fill in the appropriate CE type code from Table GI-05A.1 at the end of these instructions. For control equipment or pollution control practices that are not listed in Table GI-05A.1, enter the CE type Code 099 for "other" and describe the equipment or practice. **The type-code for the control equipment must be entered correctly, since this will be the primary means of recording and identifying the type of air pollution control equipment at this facility.**

**3c) Description --** Fill in the appropriate control equipment or control practice description. This description ***must*** correspond with the control equipment type code in the second column (Item 3b). For control equipment assigned control equipment type code 099, please provide a detailed description of the control equipment or pollution control practice; use additional pages if necessary.

**3d) Manufacturer --** Fill in the name of the pollution control equipment manufacturer. Pollution control practices such as dust suppression by water spray or chemical oxidation may not use control equipment. In these cases, fill N/A for items 3d and 3e.

**3e) Model number --** Fill in the manufacturer's model number for the pollution control equipment. If no control equipment is used, fill in NA.

**3f) Installation date --** Provide the date the control equipment was installed. If unknown, provide your best estimate.

**3g) Removal date --** Provide the date the control equipment was removed. Leave blank if control equipment has not been removed.

**3h) Pollutants controlled --** Fill in the pollutants controlled. **If multiple pollutants are controlled, enter the criteria pollutants first in alphabetical order, followed byHazardous Air Pollutants (HAPs) in alphabetical order*.*** List each pollutant controlled, using a new box for each pollutant. For example, if a wet scrubber is used to control both sulfur dioxide and particulate matter emissions from an emissions unit at your facility, list Particulate Matter (PM) in the first row, and Sulfur Dioxide (SO2), and Particulate Matter less than 10 um in size (PM10) in the second and third rows. It is not necessary to repeat the other information in the other columns (i.e., equipment manufacturer's name, equipment model number, etc.).

**3i) Capture efficiency --** Fill in the capture efficiency of the emission capture device. The capture efficiency is the portion of the pollutants emitted that are routed via ducting to the control equipment (e.g., a fabric filter). For emission units in which all of the pollutants emitted are routed via ducting to a fabric filter the capture efficiency is 100 percent. These devices are called total enclosures. Total enclosure is defined in Minnesota Rules as “an enclosure that completely surrounds emissions from an emissions unit such that all emissions are captured and discharged through ductwork to control equipment”.

Hoods and other devices that do not completely surround the emissions from an emission unit do not capture all of the pollutants emitted and therefore have a capture efficiency that is less than 100 percent. An example of a hood is a three-sided spray booth because the enclosure does not completely surround the emissions.

If you are applying for an operating permit, if the capture efficiency has been determined by performance testing in accordance with Minn. R. 7017.2001 to 7017.2060, and the test report has been reviewed and approved by the Minnesota Pollution Control Agency (MPCA), the determined efficiency must be used.

If you are applying for an operating permit and the capture efficiency has not been determined by a performance test, but the capture device is a hood that has been evaluated and conforms with the requirements of "Industrial Ventilation- A Manual of Recommended Practices", 21st ed., fill in 80 percent. Hood evaluations must be conducted by qualified personnel and a responsible official must sign the certification below. If the capture device is a total enclosure, fill in 100 percent. The certification must be submitted with the application.

**Note for Fugitive Emissions:** When the control is being applied to a fugitive emissions (for example, control of road dust using water spray), the capture efficiency will not be 100 percent. Using the example of applying water spray to a road, the collection efficiency (item 3h) will be 100 percent, assuming water is sprayed over the entire road. The capture efficiency (item 3g) is that portion of dust that is not wetted and therefore not held to the ground by the water, and will be something less than 100 percent.

**Note for Pollution Prevention Control Practices:** For pollution control practices that prevent formation of a pollutant (such as low NOX burners, staged combustion, overfire air, etc. that prevent NOX formation), enter 100% for the capture efficiency.

Hoods that have not been evaluated or do not conform to the recommended design and operating practices in "Industrial Ventilation - A Manual of Recommended Practices", 21st ed., must be either evaluated and brought into conformity with those design and operating practices or tested in accordance with Minn. R. 7017.2001 to 7017.2060, and the test report reviewed and approved and approved by the Agency, to determine a capture efficiency. You may propose an alternative capture efficiency based on engineering calculations approved by the Commissioner.

If you are applying for a modification to an existing emission unit with a hood to collect emissions, for the purpose of determining if the proposed change is a Title I modification, you may not assume a capture efficiency for the hood unless the use of the hood is part of an enforceable permit (For the definition of Title I modification, refer to Minn. R. 7007.0100, subp. 26.). You may assume a capture efficiency of 80 percent for a hood included in an enforceable permit if the hood has been evaluated and conforms with the design and operating practices recommended in "Industrial Ventilation - A Manual of Recommended Practices, 21st ed., American Conference of Governmental Industrial Hygienists". A responsible official shall sign the following hood certification to be submitted with the application.

## **Hood certification**

I certify under penalty of law that the aforementioned hood(s) has (have) been evaluated under my direction or supervision by qualified personnel and that, to the best of my knowledge and belief, the (each) hood conforms to the design and operating practices recommended in "Industrial Ventilation - A Manual of Recommended Practices, 21st ed., American Conference of Governmental Industrial Hygienists."

The results of the evaluation and a copy of the certification must be kept on site. The owner or operator must make this evaluation and certification available for examination and copying upon request of the Commissioner and must, upon request, submit these records to the Commissioner by the time specified in the request.

**3j) Destruct/Collect efficiency --** Fill in the collection or destruction efficiency. The collection or destruction efficiency is the portion of the pollutants that are captured and routed to the control equipment that is either collected and retained in the control equipment or is destroyed by the control equipment. U.S. Environmental Protection Agency (EPA) publications and data bases are the preferred sources for destruction/collection efficiency factors.

If you conducted a performance test which was reviewed and accepted by the Agency, you may propose that efficiency. You must always attach a description of the basis/justification for any efficiency you propose.

Table GI-05A.1 lists most of the types of air pollution control equipment in use. For any destruction/collection efficiency you enter here, for either a criteria pollutant or a HAP, you must indicate in a compliance plan on Form CD-05 how you will demonstrate and maintain the efficiency. Attach additional sheets as needed to explain the basis for the proposed efficiency.

The efficiency you enter here is the efficiency of control you may assume for the purpose of calculating Controlled Emissions and Actual Emissions as required on the EC forms. Note that the efficiency on the EC Forms, pollution control efficiency, is the product of the capture efficiency and the destruction/collection efficiency. You must propose a compliance plan on Form CD-05 for each control device for which you assume an efficiency to comply with an applicable requirement, such an emission limit, or to avoid an applicable requirement, such as a synthetic minor limit to obtain a State permit or to be exempt from New Source Review. Form GI-09C helps you decide whether to propose a synthetic minor limit to avoid New Source Review. If your compliance plan is acceptable, the control efficiency becomes enforceable when your permit is issued.

Minn. R. 7011.0070 contains a shorter list of control equipment including efficiencies for criteria pollutants which are enforceable and may be used in calculating your Potential-to-Emit to determine what type of permit to apply for, provided you comply with the compliance demonstration requirements in that Rule. If you use the control efficiencies in Minn. R. 7011.0070, you must include the compliance demonstration requirements in that Rule in your Compliance Plan on Form CD-05. Note that you cannot use the control efficiencies in Minn. R. 7011.0070 to calculate Potential-to-Emit to determine if you require a permit.

If you conducted a performance test which was reviewed and accepted by the MPCA, you may propose that efficiency.

**Note for Fugitive Emissions:** When the control is being applied to a fugitive emissions (for example, control of road dust using water spray), the collection efficiency (item 3h) will be 100 percent. Using the water spray example, this is assuming water is sprayed over the entire road. The capture efficiency (item 3g) is that portion of dust that is not wetted and therefore not held to the ground by the water, and will be something less than 100 percent.

**Note for Pollution Prevention Control Practices:** For pollution prevention control practices, the destruct/collect efficiency is the percent of pollutant not created by the process due to the use of the pollution prevention control practice, compared to the emissions that would be created without the use of pollution prevention control practice. For example, a low NOX burner emits 60% of the NOX emissions that a non-low NOX burner emits resulting in 40% less NOX emissions. The destruct/collection efficiency would be 40%.

**3k) Afterburner/oxidizer combustion parameters --** Fill in the combustion parameters for **afterburners/oxidizers only**. The parameters of interest are the temperature and residence time of the unit. Please state the temperature in degrees Fahrenheit and the residence time in seconds. List the parameters in a column, filling in each square with only one parameter (i.e., minimum operating temperature and residence time). For example, list the unit's minimum operating temperature in the first row and the residence time in the second row. It is not necessary to repeat the other information in the other columns (i.e., equipment manufacturer's name, equipment model number, etc.). Recommended monitoring, recordkeeping, operation and maintenance guidelines for other types of control equipment are included in Tables CD-01.2 and CD-01.3 following in the instructions for completing Form CD-01. Also, include the afterburner/oxidizer as an emission unit on Form GI-05B.

##### Table GI-05A.1

| **Code** | **Control device/Pollution control practice** |  | **Code** | **Control device/Pollution control practice** |
| --- | --- | --- | --- | --- |
| 001 | Wet scrubber, high eff. |  | 057 | Dynamic separator (wet) |
| 002 | Wet scrubber, med. Eff. |  | 058 | Mat or panel filter |
| 003 | Wet scrubber, low eff. |  | 059 | Metal fabric filter screen (cotton gins) |
| 004 | Gravity collector, high eff. |  | 060 | Process gas recovery |
| 005 | Gravity collector, med. eff. |  | 061 | Dust suppression by water spray, 10,000 gal/min |
| 006 | Gravity collector, low eff. |  | 062 | Dust suppression by chemical stabilizers or wetting agents, 350 gal/min |
| 007 | Centrifugal collector (cyclone), high eff. |  | 063 | Gravel bed filter |
| 008 | Centrifugal collector (cyclone), med. eff. |  | 064 | Annular ring filter |
| 009 | Centrifugal collector (cyclone), low eff. |  | 065 | Catalytic reduction |
| 010 | Electrostatic precipitator, high eff. |  | 066 | Molecular sieve |
| 011 | Electrostatic precipitator, med. eff. |  | 067 | Wet lime slurry scrubbing |
| 012 | Electrostatic precipitator, low eff. |  | 068 | Alkaline fly ash scrubbing |
| 013 | Gas scrubber (general) |  | 069 | Sodium carbonate scrubbing |
| 014 | Mist eliminator (v>250 ft/min), high vel. |  | 070 | Sodium-alkali scrubbing |
| 015 | Mist eliminator (v<250 ft/min), low vel. |  | 071 | Fluid bed dry scrubber |
| 016 | Fabric filter (T>250 °F), high temp. |  | 072 | Tube and shell condenser |
| 017 | Fabric filter (180 °F <T<250 °F), med. Temp. |  | 073 | Refrigerated condenser |
| 018 | Fabric filter (T<180 °F), low temp. |  | 074 | Barometric condenser |
| 019 | Catalytic afterburner, no heat exch. |  | 075 | Single cyclone |
| 020 | Catalytic afterburner, w/heat exch. |  | 076 | Multiple cyclone w/o fly ash reinjection |
| 021 | Direct flame afterburner, no heat exch. |  | 077 | Multiple cyclone w/fly ash reinjection |
| 022 | Direct flame afterburner, w/heat exch. |  | 080 | Chemical oxidation |
| 023 | Flaring |  | 081 | Chemical reduction |
| 024 | Modified furnace or burner design |  | 082 | Ozonation |
| 025 | Staged combustion |  | 083 | Chemical neutralization |
| 026 | Flue gas recirculation |  | 084 | Activated clay adsorption |
| 027 | Reduced combustion - air preheat |  | 085 | Wet cyclone separator |
| 028 | Steam or water injection |  | 086 | Water curtain |
| 029 | Low excess - air firing |  | 099 | Other control equipment or pollution control practices |
| 030 | Fuel w/low nitrogen content |  | 101 | High efficiency particulate air filter (HEPA) |
| 031 | Air injection |  | 106 | Dust suppression by physical stabilization |
| 032 | Ammonia injection |  | 107 | Selective noncatalytic reduction for Nitrogen Oxides (NOx) |
| 033 | Control of percent Oxygen (O2) in combustion Air |  | 109 | Catalytic oxydizer |
| 034 | Wellman-Lord/sodium sulfite scrubbing |  | 113 | Rotoclone |
| 035 | Magnesium oxide scrubbing |  | 131 | Thermal oxydizer |
| 036 | Dual alkali scrubbing |  | 139 | Selective catalytic reduction (SCR) |
| 037 | Citrate process scrubbing |  | 146 | Wet electrostatic precipitator |
| 038 | Ammonia scrubbing |  | 159 | Electrified filter bed |
| 039 | Cat. Oxidation - flue gas desulfurization |  | 203 | Catalytic converter |
| 040 | Alkalized alumina |  | 204 | Overfire air |
| 041 | Dry limestone injection |  | 205 | Low NOX burners |
| 042 | Wet limestone injection |  | 206 | Dry sorbent injection |
| 043 | Sulfuric acid plant- contact process |  | 207 | Carbon injection |
| 044 | Sulfuric acid plant- double contact process |  | 312 | Oxidation catalyst |
| 045 | Sulfur plant |  | 901 | Moisture content of material, 2-3 percent |
| 047 | Vapor recovery system (Including condensers, hoods, other encl.) |  | 902 | Moisture content of material, 4 percent |
| 048 | Activated carbon adsorption |  | 903 | Moisture content of material, 5 percent |
| 049 | Liquid filtration system |  | 904 | Moisture content of material, 6 percent or more |
| 050 | Packed-gas absorption column |  | 905 | Paper filter (not accordion) |
| 051 | Tray-type gas absorption column |  | 906 | Fiberglass filter (with cardboard frame) |
| 052 | Spray tower |  | 907 | Fiberglass filter (without cardboard frame) |
| 053 | Venturi scrubber |  | 908 | Andre -- cardboard Binks filter (accordion) |
| 055 | Impingement plate scrubber |  | 909 | Roll media -- fiberglass tack filter (tacky on one side) |
| 056 | Dynamic separator (dry) |  | 910 | Split paper + polyester paint arrestor |