|  |  |
| --- | --- |
| Minnesota Pollution Control Agency (MPCA), 520 Lafayette Road North, St. Paul, MN 55155-4194 | GI-09I  Requirements: State Rules  Air Quality Permit Program  *Doc Type: Permit Application* |

## Facility information: Minnesota State Air Quality (AQ) rules

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| AQ Facility ID number: | |  | Agency Interest ID number: |  |
| Facility name: |  | | | |

Some businesses and activities in Minnesota are subject to the following rules. Read each question to determine if the rule applies to you.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **1)** | **Minnesota Air Pollution Episodes** (Minn. R. 7009.1000-7009.1110) | | | |
|  | | 1a) | After your facility is permitted, will your facility be allowed to emit more than 250 tons per year of any one of the following pollutants: particulate matter, sulfur dioxide, nitrogen oxides, ozone [volatile organic compounds], carbon monoxide, or non-methane hydrocarbons? | |
|  | |  |  | No, my facility is not subject to the Minn. R. 7009.1000-7009.1110. |
|  | |  |  | Yes, my facility is subject to the Minn. R. 7009.1000-7009.1110. |
| **2)** | **Minnesota Standards of Performance for Stationary Sources** (Minn. R. ch. 7011) | | | |
|  | | 2a) | Does your facility have any equipment that meets the following definition? | |
|  | |  | "A furnace, boiler or other combustion equipment in Minnesota which burns fossil fuel for the purpose of producing steam, hot water, hot air, or other hot liquid, gas, or solid, where the smoke doesn't have direct contact with the heated medium for which another standard of performance has not been promulgated." | |
|  | |  |  | No, my facility **is not** subject to Minn. R. 7011.0500-7011.0551. Go to question 2b. |
|  | |  |  | Yes, my facility **is** subject to Minn. R. 7011.0500-7011.0551 Standards of Performance for Indirect Heating Fossil-Fuel Burning Equipment. List the units subject to this rule below. Read the rule to determine the specific requirements that apply to each subject unit (“new” or “existing” as defined in the rule), and use Form CD-01 to list those requirements. Then go on to question 2b. |
|  | |  |  |  |
|  | | 2b) | Is your facility type or process equipment found in Table J? This table contains only state-specific requirements; it does not include state rules that incorporate federal rule by reference. | |
|  | |  |  | No, none of the Minnesota Rules listed in Table J apply to my facility. Go to question 3. |
|  | |  |  | Yes, my facility or process equipment may be subject to the rule associated with it in Table J. Read the associated rule to see if it applies. Then go to item 2c. |
|  | | 2c) | After reading through Table J and any rule that may apply to your facility or equipment, list the ones that do apply to your air emission source(s) in Table H. Again, Table J includes only state-specific requirements; it does not include state rules that incorporate federal rules by reference. You do not need to list state rules that incorporate federal rules by reference. You do not need to list the Standards of Performance for Indirect Heating Fossil-Fuel Burning Equipment again, if it applies (see 2a, above). | |

**Table H: Equipment subject to Minnesota Standards of Performance**

|  |  |  |
| --- | --- | --- |
| **Emission source ID number** | **Minnesota Rule Part  that applies** | **What the Rule Part applies to  (whole facility or specific piece of equipment)** |
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| **3)** | Reserved for future use. | | | | |
| **4)** | **Standards of Performance for Industrial Process Equipment** (Minn. R. 7011.0700 - 7011.0735) | | | | | |
|  | 4a) | Do you have any industrial process equipment on-site that is not regulated by any other Standard of Performance (NSPS or MN Rules Standard of Performance)? **If you have any equipment/emission source that is *not* listed above in item 2a) or Table H, or listed on Form GI-09D, then the answer to this question is *Yes*.** | | | | |
|  |  |  | No, my equipment is not subject to this rule. Go to question 5) | | | |
|  |  |  | Yes. This equipment is subject to the Industrial Process Equipment Rule. List these units in Table I, indicating whether the equipment was or was not in operation before July 9, 1969. Then go to question 4b. | | | |
|  | 4b) | **Opacity standard** | | | | |
|  |  | (Note: Opacity is a measure of visible emissions or how much of the view is obscured by stack emissions. The emissions causing opacity are often smoke or dust.) | | | | |
|  |  | For industrial process equipment which was *in operation before July 9, 1969*, the equipment shall not exhibit greater than 20 percent opacity, except that a maximum of 60 percent opacity shall be permissible for four minutes in any 60‑minute period and a maximum of 40 percent opacity shall be permissible for four additional minutes in any 60‑minute period. | | | | |
|  |  | For industrial process equipment which was *not in operation before July 9, 1969*, the equipment shall not exhibit greater than 20 percent opacity. | | | | |
|  |  | Go to 4c. | | | | |
|  | 4c) | Does any of the industrial process equipment you listed in Table I have particulate control equipment with a collection efficiency of at least 99 percent if it was in operation before July 9, 1969, or 99.7 percent if it was not in operation before July 9, 1969? | | | | |
|  |  |  | | No. Go to question 4d. | | |
|  |  |  | | Yes. These units are considered to be in compliance with the remaining requirements of this rule. | | |
|  |  | For those units meeting this criterion which were in operation before July 9, 1969, complete Table I by checking the box labeled “Collection Efficiency > 99%.” | | | | |
|  |  | For those units meeting these criterion which were not in operation before July 9, 1969, complete Table I by checking the box labeled “Collection Efficiency > 99.7%.” | | | | |
|  |  | Then, if there are units listed in Table I which are not controlled by control equipment with a collection efficiency of 99% or 99.7% (as applicable), go on to question 4d. | | | | |
|  | 4d) | Has it been demonstrated that the operation of the entire facility in compliance with all ambient air quality standards? This is typically shown through some level of computer dispersion modeling. | | | | |
|  |  |  | | Yes. Go to question 4e. | | |
|  |  |  | | No. Skip to item 4i. | | |
|  | 4e) | Is the facility located outside of the seven-county Minneapolis-St. Paul metropolitan region? | | | | |
|  |  |  | | Yes. Go to question 4f. |  | |
|  |  |  | | No. Skip to item 4i. |  | |
|  | 4f) | Is the facility located outside of the city of Duluth? | | | | |
|  |  |  | | Yes. Go to question 4g. |  | |
|  |  |  | | No. Skip to item 4i. |  | |
|  | 4g) | Is the facility located at least 1/4 mile from any residence or public roadway? | | | | |
|  |  |  | | Yes. Go to question 4h. | | |
|  |  |  | | No. Skip to item 4i. | | |
|  | 4h) | Answer this question individually for each remaining unit listed in Table I (those which were not identified in item 4c) as being controlled by control equipment having a control efficiency of 99% or 99.7% (as applicable). Does the industrial process equipment have particulate control equipment with a collection efficiency of at least 85 percent? | | | | |
|  |  |  | | Yes, the unit is considered to be in compliance with the remaining requirements of this rule. For each unit for which you can answer “yes” to question 4h, complete Table I by checking the box labeled “Outside MSP & Duluth, 1/4 mile from roads/residences, collection efficiency > 85%.” Answer question 4h for each remaining unit on Table I. | | |
|  |  |  | | No. For each unit for which you answered “No” to question 4h), complete Table I as described in item 4i. Then go to question 5. | | |
|  | 4i) | Complete Table I for all remaining industrial process equipment listed (those which were not identified in question 4c) as being controlled by control equipment having a control efficiency of 99% or 99.7% (as applicable). Use Table K to determine the particulate limit in either pounds per hour (lb/hr) or grains per dry standard cubic foot (gr/dscf). Include the calculated limit and comparison to emission rate in the editable calculation spreadsheet included in the application package. Then go to question 5. | | | | |

**Table I: Equipment subject to Industrial Process Equipment Rule**

|  |  |
| --- | --- |
| **Equipment subject to industrial process equipment rule**  **(list EU number(s))** | **Applicable particulate limit** |
| In operation before July 9, 1969  Not in operation before July 9, 1969 | Collection Efficiency > 99%  Collection Efficiency > 99.7%  Outside MSP & Duluth, ¼ mile from roads/residences, collection efficiency > 85%        gr/dscf        lb/hr |
| In operation before July 9, 1969  Not in operation before July 9, 1969 | Collection Efficiency > 99%  Collection Efficiency > 99.7%  Outside MSP & Duluth, ¼ mile from roads/residences, collection efficiency > 85%        gr/dscf        lb/hr |
| In operation before July 9, 1969  Not in operation before July 9, 1969 | Collection Efficiency > 99%  Collection Efficiency > 99.7%  Outside MSP & Duluth, ¼ mile from roads/residences, collection efficiency > 85%        gr/dscf        lb/hr |
| In operation before July 9, 1969  Not in operation before July 9, 1969 | Collection Efficiency > 99%  Collection Efficiency > 99.7%  Outside MSP & Duluth, ¼ mile from roads/residences, collection efficiency > 85%        gr/dscf        lb/hr |
| In operation before July 9, 1969  Not in operation before July 9, 1969 | Collection Efficiency > 99%  Collection Efficiency > 99.7%  Outside MSP & Duluth, ¼ mile from roads/residences, collection efficiency > 85%        gr/dscf        lb/hr |
| In operation before July 9, 1969  Not in operation before July 9, 1969 | Collection Efficiency > 99%  Collection Efficiency > 99.7%  Outside MSP & Duluth, ¼ mile from roads/residences, collection efficiency > 85%        gr/dscf        lb/hr |
| In operation before July 9, 1969  Not in operation before July 9, 1969 | Collection Efficiency > 99%  Collection Efficiency > 99.7%  Outside MSP & Duluth, ¼ mile from roads/residences, collection efficiency > 85%        gr/dscf        lb/hr |
| In operation before July 9, 1969  Not in operation before July 9, 1969 | Collection Efficiency > 99%  Collection Efficiency > 99.7%  Outside MSP & Duluth, ¼ mile from roads/residences, collection efficiency > 85%        gr/dscf        lb/hr |
| In operation before July 9, 1969  Not in operation before July 9, 1969 | Collection Efficiency > 99%  Collection Efficiency > 99.7%  Outside MSP & Duluth, ¼ mile from roads/residences, collection efficiency > 85%        gr/dscf        lb/hr |

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| **5)** | **Waste Combustors** (Minn. R. 7011.1201-7011.1290) | | | | | |
|  | Note: Depending on the type of waste combustor you operate, you may be instructed to fill out one or more of the following forms: | | | | | |
|  |  | WC-01 -- Required if you determine that your waste combustor requires a permit. | | | | |
|  |  | WC-02 -- Required if you install/operate a Class IV waste combustor at a hospital. | | | | |
|  |  | WC-03 -- Required if you do not meet the stack height requirements of Minn. R. 7011.1235. | | | | |
|  | If after reading through the following section, you determine that you are required to fill out one or more of the WC forms, contact the Air Quality Permit Document Coordinator. | | | | | |
|  | 5a) | Do you operate a waste combustor? | | | | |
|  |  | “Waste Combustor” means any emissions unit or emission facility where mixed municipal solid waste, solid waste, or refuse-derived fuel is combusted, and includes incinerators, energy recovery facilities, or other combustion devices. A metals recovery incinerator is a waste combustor. A combustion device combusting primarily wood, or at least 70 percent fossil fuel and wood in combination with up to 30 percent papermill wastewater treatment plant sludge is not a waste combustor. A soil treatment facility, paint burn-off oven, wood heater, or residential fireplace is not a waste combustor. | | | | |
|  |  | “Wood” is defined as: wood, wood residue, bark, or any derivative fuel or residue thereof, in any form, including sawdust, sander dust, wood chips, wood scraps, slabs, millings, shavings, and processed pellets made from wood and other forest residues. | | | | |
|  |  | A facility that is co-firing Refuse Derived Fuel (RDF) or Municipal Solid Waste (MSW) at rates less than 30 percent by weight is not regulated as a waste combustor, but is regulated as a boiler. | | | | |
|  |  |  | Yes, I operate a waste combustor. Answer questions 5b through 5e to determine whether you are allowed to continue to operate, and what type of permit the waste combustor requires. Allowed waste combustors must obtain an air emissions permit. | | | |
|  |  |  | No, the facility equipment is not subject to this rule. Go to question 6. | | | |
|  | 5b) | Is the waste combustor solely a crematory, pathological or an animal carcass incinerator? | | | | |
|  |  |  | Yes. It is subject to standards of performance in Minn. R. 7011.1215, subp. 3. The waste combustor is an insignificant activity that does not need to be reported. Go to question 6. | | | |
|  |  |  | No, the facility equipment is not subject to this rule. Go to question 6. | | | |
|  | 5c) | Is the design capacity of the waste combustor equal to or greater than 3 million Btu/hr? | | | | |
|  |  | “Design capacity” means: the hourly throughput of the waste combustor unit based on heat input from solid waste to the combustion system as stated by the manufacturer or designer, based on accepted design and engineering practices. For a non-continuous feed system, design capacity means the total heat input from solid waste per cycle. | | | | |
|  |  | If you don’t have a manufacturer’s design capacity in terms of heat input, you may estimate heat input by the following formula: | | | | |
|  |  |  | | | **Hin = (HHV) x (R)** |  |
|  |  | Where: | | | Hin = Heat input rate |  |
|  |  |  | | | HHV = heat value of waste |  |
|  |  |  | | | R = waste input rate, in lb/hr, as defined by the manufacturer |  |
|  |  |  | | | Commercial/Retail/Institutional Wastes = 7000 Btu/lb |  |
|  |  |  | | | General Industrial Wastes = 9000 Btu/lb |  |
|  |  |  | | | Medical/Infectious Wastes = 10,000 Btu/lb |  |
|  |  |  | Yes. The waste combustor has a design capacity of 3 million Btu/hr or greater. The waste combustor is subject to the standards of performance applicable to waste combustors. There are also additional permit application requirements for this unit, as described in Minn. R. 7007.0501, or 7011.1210. Complete form WC-01. | | | |
|  |  |  | No, the heat input rate is below 3 million Btu/hr. Go to question 5d. | | | |
|  | 5d) | Is the waste combustor used as a metal recover incinerator? | | | | |
|  |  | “Metals recovery incinerator” means a furnace or incinerator used primarily to recover precious and non-precious metals by burning the combustible fraction from waste. An aluminum sweat furnace is not a metals recovery incinerator. | | | | |
|  |  |  | | Yes. The waste combustor is subject to the standards of performance applicable to waste combustors. There are also additional permit application requirements for this unit, as described in Minn. R. 7007.0501, or 7011.1210. Complete form WC-01. | | |
|  |  |  | | No. Go to question 5e. | | |
|  | | 5e) | Is the waste combustor located at a hospital? | | | | |
|  | |  |  | | Yes. The waste combustor is subject to the standards of performance applicable to Class IV waste combustors. There are also additional permit application requirements for this unit, as described in Minn. R. 7007.0501, or 7011.1210. Complete form WC-02 if the waste combustor will comply with all of the design, operating, and standards of performance in Minn. R. 7011.1201 to 7011.1290. Otherwise, an air emissions permit must be issued, and you must complete for WC-01. [**Note:** There are federal Standards of Performance that must also be met for new sources (see Form GI-09D), and the state will be adopting more stringent standards for existing incinerators by December of 1998.] | | |
|  | |  |  | | No, the waste combustor is not located at a hospital. The operation of this waste combustor was banned after January 30, 1996. Your compliance plan must contain specific steps to cease operation of this waste combustor. | | |
| **6)** | | **Minnesota State Mercury Rule Initial Performance Testing Requirement**  6a) Does your facility meet the definition of a “mercury emissions source” in Minn. R. 7005.0100, subp. 23(b)?  A “mercury emission source” means a stationary source with actual mercury emissions of three pounds per year or more, after controls. For purposes of this subpart, “mercury emissions” do not include fugitive emissions of mercury.  Yes, my facility meets the definition of a “mercury emission source;” go to question 6b.  No, my facility is not subject to the compliance demonstration requirements for mercury specified in  Minn. R. 7019.3050. Go to question 7.  6b) Is your facility already subject to a compliance demonstration for mercury under another applicable requirement, operating permit, or other enforceable agreement?  Yes, my facility is not subject to the additional compliance demonstration for mercury specified in  Minn. R. 7019.3050 item E. Go to question 7.  No, go to question 6c.  6c) Does your facility have any single emission unit or process that emits more than three pounds of mercury emissions (actual emissions, after controls) in a calendar year?  Yes, my facility must comply with the performance test requirements for mercury specified in  Minn. R. 7019.3050 item E (1) to (5). Go to question 7.  No, my facility is not subject to the compliance demonstration for mercury specified in Minn. R. 7019.3050. Go to question 7. | | | | | |
| **7)** | | Return to Form GI-09. | | | | | |

**Table J: Minnesota Standards of Performance for Stationary Sources \***

|  |  |
| --- | --- |
| **Facility or equipment type** | **Associated Minnesota Rule** |
| Electric generating unit | 7011.0561 |
| Direct Heating Equipment | 7011.0600 through 7011.0625 |
| Concrete Manufacturing Plants | 7011.0850 through 7011.0860 |
| Stage One Vapor Recovery | 7011.0865 through 7011.0870 |
| Hot Mix Asphalt Plants | 7011.0900 through 7011 0925 |
| Bulk Agricultural Commodity Facilities (Grain Elevators) | 7011.1000 through 7011.1015 |
| Coal Handling Facilities | 7011.1100 through 7011.1140 |
| Incinerators (waste combustors) | 7011.1201 through 7011.1285 |

**Table J: Minnesota standards of performance for stationary sources \***

|  |  |
| --- | --- |
| **Facility or equipment type** | **Associated Minnesota Rule** |
| Sewage Sludge Incinerators | 7011.1300 through 7011.1325 |
| Petroleum Refineries | 7011.1400 through 7011.1430 |
| Liquid Petroleum and Volatile Organic Compounds (VOCs) Storage Vessels | 7011.1500 through 7011.1515 |
| Sulfuric Acid Plants | 7011.1600 through 7011.1630 |
| Nitric Acid Plants | 7011.1700 through 7011.1725 |
| Brass and Bronze Plants | 7011.1900 through 7011.1915 |
| Iron and Steel Plants | 7011.2000 through 7011.2015 |
| Inorganic Fibrous Materials | 7011.2100 through 7011.2105 |
| Stationary Internal Combustion Engine (Generators) | 7011.2300 |
| Municipal Solid Waste Landfills | 7011.3500 through 7011.3510 |
| Asbestos | 7011.9921 through 701109927 |
| \* *This table does* ***not*** *include Minnesota Rules which incorporate federal New Source Performance Standards (NSPS) and/or National Emission standards for Hazardous Air Pollutant Sources (NESHAPS) by reference.* | |

**Table K: Instructions for determining your particulate limit**

Minnesota has a State rule for the concentration of particulate matter that may be in your exhaust stream. The unit of the standard is grains per dry standard cubic foot. You need to convert your actual exhaust flow to dry standard cubic feet per minute to find the emission limit from the rule.

Sources subject to this rule are required to meet the emission limits established at all times. These limits will vary depending on operating conditions. To determine compliance at any point in time (i.e. for a stack test), follow the steps below. Include the results of the numerical limit in Table I above. Include the numerical limit and the comparison to the emission rate in the editable calculation spreadsheet included in the application package.

|  |  |
| --- | --- |
| **1)** | Determine the amount of dry material (subtract any water or moisture content) in pounds per hour that is processed by your equipment. |
| **2)** | Use Table K.1 to determine your allowed emission rate based on process weight rate. If your process weight rate falls between two values on the table, interpolate or extrapolate using the equation: |

 for P < 60,000 lbs/hour; and:

 for P > 60,000 lbs/hour

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | | |  | | | where: | | E = emission rate in lbs/hour; and | | |
|  |  | | |  | | |  | | P = process weight rate in lbs/hour | | |
| **3)** | | If your process equipment is vented to the atmosphere, determine the airflow through your stack. Correct to 68 F and 14.7 psi, and correct to remove any moisture in the gas stream to obtain the air flow in dry standard cubic feet per minute (dscfm). | | | | | | | | | |
| **4)** | | | Use Table K.2 to determine your allowed concentration in grains per dry standard cubic foot (gr/dscf). Interpolate using the equation for airflow rates between 7,000 dscfm and 1,000,000 dscfm: | | | | | | | | |
|  | | | | |  | | | | |  | |
|  | | | | | where: | | | c = concentration in gr/dscf, | |  | |
|  | | | | | | | | FR corrected = gas volume in dscfm | |  | |
| **5)** | | | Determine which of the two emission rates calculated above is *less stringent*. To convert a concentration (calculated in step 4) to an emission rate (calculated in step 2), use the following equation: | | | | | | | | |
|  | | |  | |  | | | | |  |  |
|  | | |  | | | where: | | E = emission rate in lbs/hour; | | |  |
|  | | |  | | |  | | c = concentration in gr/dscf; | | |  |
|  | | |  | | |  | | V = gas volume in dscfm | | |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Table K.1** | |  | **Table K.2** | |
| **Process rate (lbs/hour)** | **Emission rate (lbs/hour)** |  | **Source gas volume (dscfm)** | **Concentration (gr/dscf)** |
| 100 | 0.55 |  | 7,000 or less | 0.100 |
| 500 | 1.53 |  | 8,000 | 0.096 |
| 1,000 | 2.25 |  | 9,000 | 0.092 |
| 5,000 | 6.34 |  | 10,000 | 0.089 |
| 10,000 | 9.73 |  | 20,000 | 0.071 |
| 20,000 | 14.99 |  | 30,000 | 0.062 |
| 60,000 | 29.60 |  | 40,000 | 0.057 |
| 80,000 | 31.19 |  | 50,000 | 0.053 |
| 120,000 | 33.28 |  | 60,000 | 0.050 |
| 160,000 | 34.85 |  | 80,000 | 0.045 |
| 200,000 | 36.11 |  | 100,000 | 0.042 |
| 400,000 | 40.35 |  | 120,000 | 0.040 |
| 1,000,000 | 46.72 |  | 140,000 | 0.038 |
|  |  |  | 160,000 | 0.036 |
|  |  |  | 180,000 | 0.035 |
|  |  |  | 200,000 | 0.034 |
|  |  |  | 300,000 | 0.030 |
|  |  |  | 400,000 | 0.027 |
|  |  |  | 500,000 | 0.025 |
|  |  |  | 600,000 | 0.024 |
|  |  |  | 800,000 | 0.021 |
|  |  |  | 1,000,000 or more | 0.020 |

Regardless of the allowable emission rates calculated from Tables K.1 and K.2, no process equipment is allowed to emit more than 0.30 grains per standard cubic foot of exhaust gas.