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| Minnesota Pollution Control Agency (MPCA), 520 Lafayette Road North, St. Paul, MN 55155-4194 | CH-04b  Determination of increases at minor sources  Air Quality Permit Program  *Doc Type: Permit Application* |

**Instructions on page 4.**

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

Use this form to calculate emissions increases at existing sources, which are minor New Source Review (NSR) sources. If the facility is an existing major source under NSR, use form *CH-04a*.

3) [Reserved]

4) Use Table 1 to document the potential emissions of the individual units, tanks, or fugitive sources affected by the proposed modification. See instructions for calculating emissions increases. Make additional copies of Table 1 if more than four units are affected. Transfer the total increases (total potential emissions) for each pollutant from the “Total” column in Table 1 to column B in Table 2. Refer to the Minnesota Pollution Control Agency (MPCA) Greenhouse Gas (GHG) Emissions website at <https://www.pca.state.mn.us/air/greenhouse-gas-emissions-calculations> for guidance in calculating carbon dioxide equivalents (CO2e) emissions. Attach your calculations in both an editable spreadsheet format and a hardcopy printout.

Table 1 (acronyms described on page 5)

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **SI IDs:** |  |  |  | |  |  | |  |  | |  |  |
|  |  | | |  | | |  | | |  | |  |
| **Pollutant** | **Potential emissions (tpy)** | | | **Potential emissions (tpy)** | | | **Potential emissions (tpy)** | | | **Potential emissions (tpy)** | | **Total (tpy)** |
| PM |  | | |  | | |  | | |  | |  |
| PM10 (including condensables) |  | | |  | | |  | | |  | |  |
| PM2.5 (including condensables) |  | | |  | | |  | | |  | |  |
| NOx |  | | |  | | |  | | |  | |  |
| SO2 |  | | |  | | |  | | |  | |  |
| CO |  | | |  | | |  | | |  | |  |
| VOCs |  | | |  | | |  | | |  | |  |
| Lead |  | | |  | | |  | | |  | |  |
| Fluorides |  | | |  | | |  | | |  | |  |
| Sulfuric acid mist |  | | |  | | |  | | |  | |  |
| H2S |  | | |  | | |  | | |  | |  |
| Total reduced sulfur including H2S |  | | |  | | |  | | |  | |  |
| Total reduced sulfur compounds including H2S |  | | |  | | |  | | |  | |  |
| MWC organics |  | | |  | | |  | | |  | |  |
| MWC acid gas |  | | |  | | |  | | |  | |  |
| MSW landfill gas |  | | |  | | |  | | |  | |  |
| CO2e |  | | |  | | |  | | |  | |  |

Table 2 – Summary (acronyms described on page 5)

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| --- | --- | --- | --- | --- | --- |
| **Column A** | **Column B** | **Column C** | **Column D** | | **Column E** |
|  | **Emissions from all units affected by the modification**  **(from Table 1)**  **(tpy)** | **Thresholds for minor sources  (“No” to CH-04 question 5 or 6 or “No” to GI-09C question C4 or C5) (tpy)** | | | **Thresholds for major sources** |
| **Pollutant** | **Answered “Yes” to CH-04 question 3 or GI-09C Section A** | | **Answered “No” to CH-04 question 3 or  GI-09C Section A** | **Significant emission rates for major sources (tpy)** |
| PM |  | 100 | | 250 | 25 7 |
| PM10 (including condensables) |  | 100 | | 250 | 15 |
| PM2.5 (including condensables) |  | 100 | | 250 | 10 |
| NOx |  | 100 | | 250 | 40 |
| SO2 |  | 100 | | 250 | 40 |
| CO |  | 100 | | 250 | 100 |
| VOCs 1 |  | 100 | | 250 | 40 |
| Lead |  | 100 | | 250 | 0.6 |
| Fluorides |  | 100 | | 250 | 3 |
| Sulfuric acid mist |  | 100 | | 250 | 7 |
| H2S |  | 100 | | 250 | 10 |
| Total reduced sulfur including H2S |  | 100 | | 250 | 10 |
| Total reduced sulfur compoundsincluding H2S |  | 100 | | 250 | 10 |
| MWC organics 2 |  | 100 | | 250 | 10 |
| MWC acid gas 3 |  | 100 | | 250 | 0.0000035 |
| MWC metals 4 |  | 100 | | 250 | 40 |
| MSW landfill gas 5 |  | 100 | | 250 | 15 |
| CO2e 6 |  | NA | | NA | 75,000 8 |

**Note 1:** VOC emissions are an ozone precursor. When VOC emissions exceed the Prevention of Significant Deterioration Program (PSD) major source threshold, ozone is subject to PSD permitting. (Direct ozone emissions are not included in the determination of PSD applicability.) Also, when another pollutant listed here (except for CO2e) exceeds the minor source threshold and VOC emissions exceed the significant emission rate for major sources, ozone is subject to PSD permitting.

**Note 2:** MWC organics means Municipal waste combustor organics. These are defined as total tetra-thro-octa-chlorinated dibenzo-para-dioxins and dibenzofurans.

**Note 3:** MWC acid gases are measured as the sum of sulfur dioxide and hydrochloric acid.

**Note 4:** MWC Metals are measured as particulate matter.

**Note 5:** MSW landfill gas is measured as nonmethane organic compounds.

**Note 6:** CO2e is calculated as a weighted aggregate of carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, using the gases’ global warming potentials. (Refer to the MPCA website at <https://www.pca.state.mn.us/air/greenhouse-gas-emissions-calculations> for instructions on calculating greenhouse gas emissions.)

**Note 7:** On July 31, 1987, the National Ambient Air Quality Standard for TSP (PM) was repealed and replaced with a standard for particulate matter less than 10 μm in size (PM10). The significant levels in this table are as they appear in the Code of Federal Regulations, March 1994. A source may not be required to comply with Nonattainment NSR for TSP increases above 25 tons per year (tpy), but may be for PM10 above 15 tpy.

**Note 8:** On June 23, 2014, the U.S. Supreme Court decided (in Utility Air Regulatory Group (UARG) v. U.S. Environmental Protection Agency) that a project is not subject to regulation by virtue of GHG emissions alone. However, projects subject to regulation for other NSR-regulated pollutants are still subject to regulation for GHG.

5) Referring to Table 2, do the total emissions from new, modified, debottlenecked, and replacement units exceed the appropriate threshold for minor sources (Column C or D, depending on response on *CH-04* or *GI-09c*), for any pollutant?

No. Done with this form. Attach all calculations and required documentation (as described within this form). If you were sent to this from form *GI-09C*, go back to that form and answer “No” to the question of whether the proposed change or modification is subject to NSR.

Yes. Go to question 6.

6) In Table 3, list each pollutant for which the minor source threshold is exceeded in Table 2. Then go to question 7.

**Table 3 – Pollutant status vs. minor source thresholds**

|  |  |
| --- | --- |
| **Pollutants exceeding the minor source threshold in Table 2:** | |
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7) Will you propose and accept a limit on every pollutant, in Table 3 such that no minor source thresholds are exceeded? (Refer to the MPCA website at <https://www.pca.state.mn.us/air/synthetic-minor-permit-limits> for information on how to determine and propose limits.) See instructions for situations when CO2e emissions are above the applicable threshold.

Yes. Go to question 8.

No. The emissions of at least one pollutant exceed the threshold for minor sources. Go to question 10.

8) Briefly describe the limit(s) you are proposing to keep the emissions of all pollutants listed in Table 3 below its associated minor source threshold. Also include the limit(s) on form *CD-01*, with your proposed method of demonstrating compliance. Then go to question 9.

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9) You are done with this form. Attach all calculations and required documentation (as described within this form). If you were sent to this from form *GI-09C*, go back to that form and answer “No” to the question of whether the proposed change or modification is subject to NSR.

10) The project is major for at least one pollutant.

Review Table 2. In Table 4, list each pollutant, including CO2e, for which the total emissions from new, modified, debottlenecked, and replacement units exceed the associated major source significant emission rate threshold for major sources. Then go to question 11.

**Table 4 – Pollutant status vs. major modification thresholds**

| **Pollutants exceeding the major source significant emission rate in Table 2** | |
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11) Will you propose and accept a limit on any pollutant in Table 4 such that it does not exceed its major source significant emission rate? If you propose limits to restrict the emissions of all pollutants listed in Table 4 except for CO2e such that only emissions of CO2e are above the applicable threshold, then the proposed change or modification is not subject to NSR. If this is the case, answer “yes” to this question. (Refer to the MPCA website at <https://www.pca.state.mn.us/air/synthetic-minor-permit-limits> for information on determining and proposing limits.)

Yes. Go to question 12.

No. The project is major for each pollutant listed in Table 4. Go to question 13.

12) Briefly describe the limit(s) you are proposing to keep the emissions of any pollutant listed in Table 4 below their significant emission rates. Also include the limit(s) on form *CD-01* with your proposed method of demonstrating compliance. Go to question 13.

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13) In Table 5, list all pollutants that you have determined to be subject to Prevention of Significant Deterioration Program (PSD). This will include each pollutant in Table 3 and in Table 4 for which you did not limit emissions below the major source threshold in Table 2 (the significant emission rate).

Table 5 – Pollutants subject to PSD

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14) You have now completed this form. Attach all calculations and required documentation (as described within this form). If you were sent to this from form *GI-09C*, go back to that form and answer “Yes” to the question of whether the proposed change or modification is subject to NSR. Also complete *CH-04e* to identify the information needed for a PSD permit application.

Instructions for form CH-04b

Complete *CH-04b* only if directed on form *CH-04* or *GI-09C*.

1a) **AQ Facility ID number --** Fill in your Air Quality (AQ) Facility identification (ID) number. This is the first eight digits of the permit number for all new permits issued under the operating permit program. If you don’t know this number, leave this line blank.

1b) **Agency Interest ID number --** Fill in your Agency Interest ID number. 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.

3)[Reserved]

4) At the top of each column in Table 1, enter or select “EQUI” (for emission units and tanks), or “FUGI” (for fugitive sources) and enter the number as it exists in your current Air Quality Permit. If your Air Quality Permit has not been issued in Tempo, enter or select “EU” (emissions unit), “TK” (tank), “FS” (fugitive source) instead. In calculating the emissions increase from a proposed change or modification at an existing minor stationary source, you must calculate the potential emissions of the new, modified, or debottlenecked unit(s) (this might be an emission unit, a tank, or a fugitive source). If the potential emissions of the new or modified units are greater than or equal to the applicable threshold, the proposed modification is potentially subject to NSR. Potential to emit (PTE) is the capability at maximum design capacity to emit a pollutant, except as constrained by federally-enforceable conditions (which include the effect of installed air pollution control equipment and restrictions on the hours of operation, or the type or amount of material combusted, stored or processed). Do not take air pollution control equipment into account except as allowed by Minn. R. 7007.1200, subp. 2. You may not take credit for proposed or non federally-enforceable pollution control equipment. You may not take credit from emissions reductions made at existing emission unit, tanks or fugitive sources. Note that potential emissions are used for an emissions increase because this is for a minor NSR source (40 CFR 52.21(a)(2)(iv)(d), 40 CFR 52.21(b)(1)(i)(c), 40 CFR 52.21(b)(48)(iii)).

In the last column of Table 1, enter the total emissions, in tpy, of each pollutant. (This will be used again in Table 2.)

Transfer the total potential emissions for each pollutant to Table 2. Compare the total emissions from the new, modified, debottlenecked, and replacement units for each pollutant to the appropriate threshold for minor sources (for all regulated pollutants except CO2e, 100 tpy if you answered “Yes” to question 3 of form *CH-04* or Section A of *GI-09C*, or 250 tpy if you answered “No” to question 3 of form *CH-04* or Section A of form *GI-09C*; there is no minor source threshold for CO2e emissions. In addition, if either nitrogen oxides (NOX) or sulfur dioxide (SO2) emissions are above the thresholds, then the proposed project may also considered to be major for Particulate Matter less than 2.5 micrometers (PM2.5), since NOX and SO2 are assumed precursors to PM2.5.

5) If the total emissions from the proposed change or modification do not exceed the thresholds in Table 2, you are done with this form and the NSR analysis. If you are applying for an amendment to an existing permit, return to forms *CH-02* and *CH-03* to continue the process of determining the type of permit amendment needed. If you are applying for a first-time individual permit, return to form *GI-09C* and answer “No” to the question of whether the proposed change or modification is subject to NSR.

If the total emissions of one or more pollutant exceed the associated minor source threshold, go on to question 6.

6) Enter on Table 3 the name of each pollutant in Table 2 for which the associated minor source threshold is exceeded.

7) Considering each pollutant listed in Table 3, determine if you are able and willing to accept permit conditions to keep the emissions of each of the Table 3 pollutants below its associated minor source threshold. (These permit conditions may limit hours of operation or amount of raw materials used, or require the operation of air pollution control equipment to restrict the emissions so that they are not significant under NSR. Such limitations are sometimes called “synthetic minor limits.” For guidance on how to propose limits to avoid NSR, refer to the MPCA website at <https://www.pca.state.mn.us/air/synthetic-minor-permit-limits>. If you are able and willing to accept such permit conditions, go on to question 8. Describe your limits there an on form *CD-01*.

If you are not able or willing to accept synthetic minor limits for every pollutant that exceeds the associated minor source threshold in Table 3 so that the emissions are not significant under NSR, the project is subject to NSR for at least one pollutant. Go on to question 10.

8) You decided to accept permit conditions to limit the emissions of all pollutants in Table 3, keeping each pollutant’s emissions below the minor source threshold. Describe your proposed permit conditions here and on form *CD-01*.

9) The MPCA will review your proposed conditions and the calculations that support your determination that the project does not trigger NSR. If you came to form *CH-04b* from form *GI-09C*, indicate that your project is not major for PSD there.

10) Your project must undergo NSR for at least one pollutant. To determine if there are other pollutants that trigger NSR, their emission levels must be compared to the major modification thresholds.

Return to Table 2. This time, compare the emissions of each pollutant to the major modification threshold. In Table 4, list every pollutant that exceeds its associated threshold for major modifications. This should include each pollutant already listed in Table 3.

11) Although you have triggered NSR for at least one pollutant, you may accept permit conditions that restrict the emissions of one or more pollutant below its major modification threshold. By doing so, some NSR permitting requirements may not apply to your project.

If you propose limits to restrict the emissions of all pollutants listed in Table 4 except for CO2e such that only emissions of CO2e are above the applicable threshold, then the proposed change or modification is not subject to NSR and the answer to this question is “yes”.

If you are able and willing to propose and accept limitations on at least one pollutant, go to question 12. Otherwise, go to question 13.

12) You decided to accept permit conditions to limit emissions of at least one pollutant listed in Table 4 to keep that pollutant’s emissions below its associated major source modification threshold. Describe your proposed permit conditions here and on form *CD-01*.

Since these pollutants (for which you propose and are willing to accept limits) are not subject to NSR, do not include them in Table 5 when you complete question 13.

13) Enter all pollutants subject to NSR in Table 5. This will include each pollutant in Table 3 and in Table 4 for which you did not propose conditions to limit emissions below the associated major source modification threshold (listed in Table 2, column E).

Complete form *CH-04e* to determine the needed components of a NSR review. Table 5 will be referenced by form *CH-04e*.

Acronyms listed in Table 1 - 2

Particulate matter (PM)

Particulate matter less than 10 μm in size (PM10)

Particulate matter less than 2.5 micrometers (PM2.5)

Nitrogen oxides (NOx)

Sulfur dioxide (SO2)

Carbon monoxide (CO)

Volatile organic compounds (VOCs)

Lead (Pb)

Hydrogen sulfide (H2S)

Municipal Waste Combustor (MWC)

Municipal Solid Waste (MSW)

Carbon dioxide equivalent (CO2e)