



Minnesota Pollution Control Agency

520 LAFAYETTE ROAD
ST. PAUL, MN 55155-4194

AIR QUALITY FORM **HG-01** **MERCURY RELEASES TO AMBIENT AIR**

October 25, 2006

1a) AQ Facility ID No.: _____

1b) AQ File No.: _____

2) Facility Name: _____

3) Use this table to summarize changes in mercury emissions associated with a new or expanded facility or a changed or modified operation at an existing facility.

3a) Emission Unit (EU) ID number	3b) potential to emit after the change (pounds per year)				3c) current actual emissions (pounds per year)				3d) future estimated actual emissions (pounds per year)			
	particulate- bound (Hg-p)	reactive gaseous (HgII)	Elemental (Hg0)	Total (HgT)	particulate- bound (Hg-p)	reactive gaseous (HgII)	Elemental (Hg0)	Total (HgT)	particulate- bound (Hg-p)	reactive gaseous (HgII)	Elemental (Hg0)	Total (HgT)

4) Calculation Data.

4a) Where are the calculations summarized in item 3? Please list where in the permit application (section and/or pages) we can find mercury emission calculations for each of the emission units listed in item 3.

4b) What is the source of the data used to determine the mercury emissions in item 3 (e.g., published emission factors, site specific test data, mass balance, etc.) ?

5) Attach a diagram that shows the flow of mercury through the facility. See the example in the instructions.

☐ Attached

6) Use this table to summarize available alternative methods to reduce mercury emissions from the facility. Complete a separate table for each emission unit.

EU _____

6a) Description	6b) Total Mercury Emitted (lb/yr)	6c) Reduction Potential (lb/yr)	6d) Annualized Cost (\$)	6e) Cost Effectiveness (\$ per lb Hg)
<input type="checkbox"/> Baseline/Uncontrolled emissions				
<input type="checkbox"/>				
<input type="checkbox"/>				
<input type="checkbox"/>				

EU _____

6a) Description	6b) Total Mercury Emitted (lb/yr)	6c) Reduction Potential (lb/yr)	6d) Annualized Cost (\$)	6e) Cost Effectiveness (\$ per lb Hg)
<input type="checkbox"/> Baseline/Uncontrolled emissions				
<input type="checkbox"/>				
<input type="checkbox"/>				
<input type="checkbox"/>				

EU _____

6a) Description	6b) Total Mercury Emitted (lb/yr)	6c) Reduction Potential (lb/yr)	6d) Annualized Cost (\$)	6e) Cost Effectiveness (\$ per lb Hg)
<input type="checkbox"/> Baseline/Uncontrolled emissions				
<input type="checkbox"/>				
<input type="checkbox"/>				
<input type="checkbox"/>				

7) For each emission unit, if the alternative in use or selected for implementation is not the lowest in mercury emissions, describe why the lowest mercury emitting alternative is not in use or selected for use.

INSTRUCTIONS FOR FILLING OUT AQ FORM
HG-01 Mercury Releases to Ambient Air

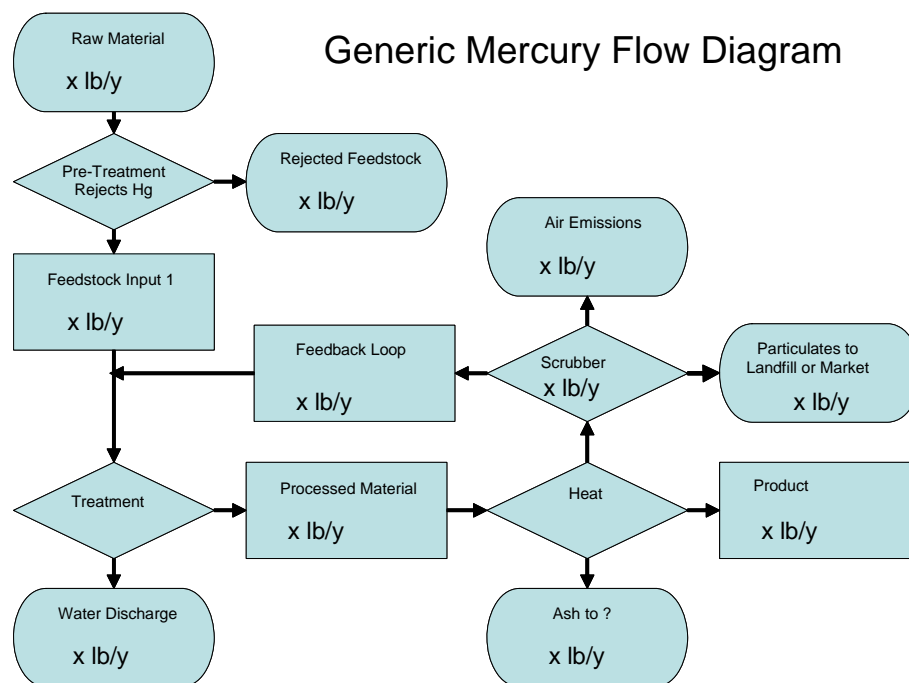
Purpose: Recognizing that Minnesota's surface waters are impaired by unacceptable levels of mercury, virtually all of which comes from the air, and that sometimes releases to the air are unavoidable, the MPCA's goal is to minimize increases in mercury emissions associated with new facilities or expansions. Of particular concern are mercury releases from taconite production, secondary metal processors, the combustion of fuels in electricity generating stations and industrial boilers (except when burning only natural gas), and sewage sludge/garbage/municipal incineration.

Applications for facility modifications (as defined in Chapter 7007) or new facilities in these sectors should demonstrate that mercury emissions have been accurately quantified, and that the project's mercury emissions have been minimized through an effort to identify cost-effective emission reduction alternatives.

- 1a) AQ Facility ID No. --** Fill in your Air Quality Facility ID Number. This is the first eight digits of the permit number for all permits issued under the operating permit program. In the future, this number will replace the AQ File Number in item 1b) below. If your facility has never been issued a permit under this program, leave this line blank.
- 1b) AQ File No. --** Fill in your AQ File Number. This is the first group of characters in your current Air Emission Facility Permit. For example, for permit number 1899AB-93-OT-1, the AQ Facility ID number would be 1899AB. If you have never had an air quality permit, leave this line blank.
- 2) Facility Name --** Enter your facility name.
- 3) Complete the table to show the expected changes in mercury emissions associated with the construction of a new facility, or expansion, change, or modification of an existing facility.**
 - 3a)** Enter the added, changed, or modified mercury-emitting unit or operation. Use the emission unit (EU) number from your existing permit or from Form GI-05B. If you need more lines, photocopy the form or attach additional pages.
 - 3b)** Enter the potential mercury emissions of the new, changed, or modified unit or operation, in pounds per year. If you know or can determine the portions that are particulate-bound, RGM (reactive gaseous mercury), or elemental, enter that information in the appropriate columns. If you do not estimate the different forms of mercury and just enter the total amount; MPCA staff will make that estimation based on the best available information.
 - 3c)** Enter the current actual mercury emissions of the unit or operation to be installed, constructed, changed, or modified, in pounds per year. If you know or can determine the portions that are particulate-bound, RGM (reactive gaseous mercury), or elemental, enter that information in the appropriate columns. If you do not estimate the different forms of mercury and just enter the total amount, MPCA staff will make that estimation based on the best available information. If this is a new source (not yet installed), enter "0".
 - 3d)** Enter the future actual mercury emissions of the new, changed, or modified unit or operation, in pounds per year. If you know or can determine the portions that are particulate-bound, RGM (reactive gaseous mercury), or elemental, enter that information in the appropriate columns. If you do not estimate the different forms of mercury and

just enter the total amount, MPCA staff will make that estimation based on the best available information.

- 4) Calculation Data:
- 4a) Your calculations must be included in the permit application. Please state here where (in which section or page) we can find the mercury emission calculations summarized in Item 3. The numbers should match those listed in Item 3.
- 4b) If not already described in the areas referenced in Item 4a, provide a description of the data sources relied upon in generating the data for this table. This may be (but is not limited to) published emission factors, source-specific test data, or mass balance calculations. Also include how the mercury speciation (particulate-bound, RGM (reactive gaseous mercury), or elemental) was determined. If this information is documented elsewhere in the permit application, indicate where.
- 5) Provide a diagram that shows the flow of mercury through the facility. Opportunities for mercury reduction often become evident from an analysis of mercury inputs, flow through the process, and outputs. Mercury Flow Diagrams are most useful when quantitative estimates are made, but qualitative diagrams are a useful first step. Figure 1 shows a generic format for a flow diagram.



- 6) Use this table to provide an evaluation of possible means of reducing mercury emissions, including a comparison of reduction potential and cost. Complete a table for each mercury emitting source listed in Item 3. Copy the page if necessary to obtain additional tables.
- 6a) Enter a description of each control or reduction alternative. The reduction alternatives should not be limited to industry-standard controls for the source category. The alternatives should include methods to avoid introducing mercury into the process,

controls applied to similar types of sources, innovative control technologies and strategies, modification of the existing process or process equipment, pollution prevention measures, and combinations of these alternatives.

Indicate by checking the box which alternative is in place or planned for use. The first line is used to indicate the uncontrolled level of mercury emissions

- 6b)** Enter the total amount of mercury that would be emitted per year for each alternative described in Item 6a.
- 6c)** Enter the reduction potential, which is the difference between the quantity listed in Item 6b and the uncontrolled mercury emission rate (from the first line of the table).
- 6d)** Enter the annualized cost of each mercury reduction alternative.
- 6e)** Enter the cost effectiveness, which is the annualized cost (in dollars), divided by the potential reduction per year from Item 6c.
- 7)** If the alternative in use or selected for implementation is not the lowest in mercury emissions, describe why (for example, demonstrate that the alternatives lower in mercury emissions are either not technically or economically feasible).