

How to Report HAP Emissions for the 2008 NEI

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Topics

- Background
- Rationale for Change
- Overview of Changes for 2008 Reporting
- Instructions for Reporting
- Spreadsheet Tool for Metal and Cyanide Compounds
- Looking Towards Subsequent NEI Cycles

Background

- In prior NEI cycles, we accepted any and all compounds submitted
- This approach caused us problems in the areas of QA and providing consistent reports of what was in the NEI for HAPs
- As part of the NEI Reengineering, a standard set of acceptable HAP Pollutants was developed

Rationale for Change

- Standardization for QA and reporting
- Worked with risk modelers to make sure the approach allowed for detailed reporting of pollutants with different risk factors
- Also used prior NEIs as a guide for where to aggregate and where to allow for more detailed reporting

Overview of Changes for 2008 Reporting

Overview of Changes for 2008 Reporting

- HAPs put in three groups
 - Type A - Listed HAPs reported as individual pollutants
 - Type B - Metal and Compound HAPs reported as a single aggregate pollutant
 - Type C - Listed HAPs that can be reported as either individual pollutants or as a single aggregate pollutant
- Plus several special cases that didn't fit into one of the three groups

Special Cases

- Chromium
- Coke Oven Emissions
- Cyanide
- Dioxins/Furans
- Mercury
- Nickel

Instructions for Reporting

Instructions for HAP Type A

- HAP Type A – Listed HAPs reported as individual pollutants
 - Examples: benzene, 1,3-Butadiene, Formaldehyde
- 160 HAPs in this group

Instructions for HAP Type B

- HAP Type B – Metal and Compound HAPs reported as a single aggregate pollutant
- Includes:
 - Antimony Compounds
 - Arsenic Compounds (including Arsine as part of the single aggregate)
 - Beryllium Compounds
 - Cadmium Compounds
 - Cobalt Compounds
 - Lead Compounds
 - Manganese Compounds
 - Selenium Compounds
- Upcoming section on Spreadsheet tool will provide instructions for converting compounds into single aggregate pollutant

Instructions for HAP Type C

- HAP Type C – Listed HAPs that can be reported as either individual pollutants or as a single aggregate pollutant
- Includes:
 - Cresols
 - Fine Mineral Fibers
 - Glycol Ethers
 - PCBs
 - POMs/PAHs
 - Radionuclides
 - Xylenes
- At the process level may use individual pollutants or single aggregate pollutant, but not a combination of both

Xylenes

- Numerous Valid Pollutant Codes are available

POLLUTANT_CD	DESCRIPTION
106423	p-Xylene
108383	m-Xylene
1330207	Xylenes (Mixed Isomers)
95476	o-Xylene

- If you know that your xylene is actually m, o, p, please provide it as such
- WHY? Because chemical mechanisms tend to treat pollutant code 1330207 as a solvent and map it to the following 4 compounds
 - 25% o-Xylene (95476)
 - 25% m-Xylene (108383)
 - 25% p-Xylene (106423)
 - 25% Ethyl Benzene (100414)
- Note that this is important when the HAP data are used for Photochemical Modeling (Multi-pollutant modeling efforts

Instructions for Special Cases Chromium

- Report Chromium III/Chromium VI or Chromium
- Can also report Chromium Trioxide and Chromic Acid
 - If reported these are assumed to be in addition to any Chromium III/Chromium VI or Chromium reported
- Upcoming section on Spreadsheet tool will provide instructions for converting other compounds into single aggregate pollutant

Instructions for Special Cases Coke Oven Emissions

- Report as Benzene Soluble Organics (BSO) and Methylene Chloride Soluble Organics (MCSO)
- Reporting of both at the same process is allowed
- There is no aggregate pollutant for Coke Oven Emissions

Instructions for Special Cases Cyanide

- Reported as a single aggregate pollutant:
Cyanide
- Can also report Hydrogen Cyanide
 - If reported Hydrogen Cyanide are assumed to be in addition Cyanide reported
- Upcoming section on Spreadsheet tool will provide instructions for converting other compounds into single aggregate pollutant

Instructions for Special Cases

Dioxans/Furans

- Can be reported as either individual pollutants or as one of three aggregate pollutants
- Aggregate pollutants
 - Dioxins/Furans as 2,3,7,8-TCDD TEQs - WHO/98
 - Dioxins/Furans as 2,3,7,8-TCDD TEQs - I/89
 - Dioxins/Furans as 2,3,7,8-TCDD TEQs - TEQ scheme unspecified
- At the process level may use individual pollutants or one of three aggregate pollutants, but not a combination of both
- Can only use one of the aggregate pollutants at a process

Instructions for Special Cases

Mercury

- Report as a single aggregate pollutant: Mercury or as individual pollutants
 - Elemental Gaseous Mercury
 - Particulate Divalent Mercury
 - Methyl Mercury
- Any combination of pollutants is acceptable
- All pollutants assumed to be additive
- Upcoming section on Spreadsheet tool will provide instructions for converting other compounds into single aggregate pollutant

Instructions for Special Cases

Nickel

- Report as a single aggregate pollutant: Nickel or as individual pollutants
 - Nickel Sub sulfide
 - Nickel Oxide
 - Nickel Refinery Dust
- Any combination of pollutants is acceptable
- All pollutants assumed to be additive
- Upcoming section on Spreadsheet tool will provide instructions for converting other compounds into single aggregate pollutant

Spreadsheet Tool for Metal and Cyanide Compounds

Metal and Cyanide Compounds

- Many metal and cyanide compound pollutant codes have been retired for this submittal cycle
 - Some are the “cobalt and compounds” –type codes which are no more descriptive than “cobalt” and thus these codes can be viewed as duplicative
 - Some are specific metal and cyanide compounds which have generally been reported very sparsely
- We have developed an approach to convert emissions data associated these codes to valid codes
- Approach and data for approach are provided in the workbook
“Pollutantcode_conversion_instructions.xls”

Use workbook to Report Emissions of Metal Compounds with Retired Pollutant codes

- List of metal compounds that have been retired for 2008 reporting
- For each retired compound, provides a valid code and a multiplicative factor
- Multiply retired compound emissions by the factor and report resultant emissions using the valid code
- For a few compounds, 1 retired code maps to two valid codes

Retired Code	Reired Name	Multiplicative Factor	Valid code	Name
7788989	Ammonium chromate	0.34192	18540299	Chromium (VI)
10294403	Barium Chromate	0.20363	18540299	Chromium (VI)
18454121	Lead Chromate Oxide	0.09517	18540299	Chromium (VI)
18454121	Lead Chromate Oxide	0.75847	7439921	Lead
12054487	Nickel Hydroxide	0.63309	7440020	Nickel
7786814	Nickel Sulfate	0.37439	7440020	Nickel
7718549	Nickel Chloride	0.45288	7440020	Nickel
7542098	Cobalt Carbonate	0.48732	7440484	Cobalt
1307966	Cobalt Oxide	0.78651	7440484	Cobalt

Lets Explore the WorkBook Tabs

(go to excel file)

Derivation of the Multiplicative Factor

-FYI-

Multiplicative Factor = (MW of “metal” portion) / (MW of compound)

where MW = molecular weight

- All data are in the workbook, as well as the calculation formula
- Molecular weights and chemical formulas are primarily from the EPA System Registry System (www.epa.gov/srs)

Example calc for dichromic acid: Formula = **Cr₂H₂O₇**,
compound MW = 218 g/mole
Chromium MW = 2 chromiums*51.996=103.992 g/mole
Multiplicative Factor = 103.992/218 = 0.477

Compound Not in the Spreadsheet?

- Enter Supprt Request on EIS Gateway, e-mail us, or call us!
 - Madeleine Strum, strum.madeleine@epa.gov
919-541-2383
 - Doug Solomon, solomon.douglas@epa.gov
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 - Sally Dombrowski, dombrowski.sally@epa.gov
919-541-3269

Looking Towards Subsequent NEI Cycles

Looking Towards Subsequent NEI Cycles

- 2008 NEI cycle is first where we've moved away from accepting everything
- We're open to comments and suggestions
- Send us your comments
 - Use EIS Gateway Support Request Function if possible
- We'll revise pollutant scheme as appropriate for subsequent NEI cycles (e.g., 2010 or 2011)