**Section 726.206 Standards to Control Metals Emissions**

a) General. The owner or operator must comply with the metals standards provided by subsections (b), (c), (d), (e), or (f) for each metal listed in subsection (b) that is present in the hazardous waste at detectable levels using appropriate analytical methods.

BOARD NOTE: The federal regulations do not themselves define the phrase "appropriate analytical methods," but USEPA did include a definition in its preamble discussion accompanying the rule. The Board directs attention to the following segment (at 70 Fed. Reg. 34538, 34541 (June 14, 2005)) for the purposes of subsections (b)(1)(C) and (b)(1)(D):

[T]wo primary considerations in selecting an appropriate method, which together serve as our general definition of an appropriate method [are the following]…:

1. Appropriate methods are reliable and accepted as such in the scientific community.

2. Appropriate methods generate effective data.

USEPA went on to further elaborate these two concepts and to specify other documents that might provide guidance.

b) Tier I Feed Rate Screening Limits. Feed rate screening limits for metals are specified in Appendix A as a function of terrain-adjusted effective stack height (TESH) and terrain and land use in the vicinity of the facility. Criteria for facilities that are not eligible to comply with the screening limits are provided in subsection (b)(7).

1) Noncarcinogenic Metals. The feed rates of the noncarcinogenic metals in all feed streams, including hazardous waste, fuels, and industrial furnace feed stocks must not exceed the screening limits specified in Appendix A.

A) The feed rate screening limits for antimony, barium, mercury, thallium, and silver are based on either of the following:

i) An hourly rolling average, as defined in Sections 726.200(g) and 726.202(e)(6)(A)(ii); or

ii) An instantaneous limit not to be exceeded at any time.

B) The feed rate screening limit for lead is based on one of the following:

i) An hourly rolling average, as defined in Sections 726.200(g) and 726.202(e)(6)(A)(ii);

ii) An averaging period of 2 to 24 hours, as defined in Section 726.202(e)(6)(B) with an instantaneous feed rate limit not to exceed 10 times the feed rate that would be allowed on an hourly rolling average basis; or

iii) An instantaneous limit not to be exceeded at any time.

2) Carcinogenic Metals

A) The feed rates of carcinogenic metals in all feed streams, including hazardous waste, fuels, and industrial furnace feed stocks must not exceed values derived from the screening limits specified in Appendix A. The feed rate of each of these metals is limited to a level such that the sum of the ratios of the actual feed rate to the feed rate screening limit specified in Appendix A must not exceed 1.0, as provided by the following equation:

 

Where:

|  |  |  |
| --- | --- | --- |
| Σ Ai/Fi | = | the sum of the values of A/F for each metal "i", from i = 1 to n |
| n | = | number of carcinogenic metals |
| Ai | = | the actual feed rate to the device for metal "i" |
| Fi | = | the feed rate screening limit provided by Appendix A for metal "i" |

B) The feed rate screening limits for the carcinogenic metals are based on either:

i) An hourly rolling average; or

ii) An averaging period of two to 24 hours, as defined in Section 726.202(e)(6)(B), with an instantaneous feed rate limit not to exceed 10 times the feed rate that would be allowed on an hourly rolling average basis.

3) TESH (Terrain Adjusted Effective Stack Height)

A) The TESH is determined according to the following equation:

TESH = H + P - T

Where:

|  |  |  |
| --- | --- | --- |
| H | = | Actual physical stack height (m) |
| P | = | Plume rise (in m) as determined from Appendix F as a function of stack flow rate and stack gas exhaust temperature |
| T | = | Terrain rise (in m) within five kilometers of the stack |

B) The stack height (H) must not exceed good engineering practice stack height, as defined in Section 726.200(i).

C) If the TESH calculated pursuant to subsection (b)(3)(A) is not listed in Appendices A through C, the values for the nearest lower TESH listed in the table must be used. If the TESH is four meters or less, a value based on four meters must be used.

4) Terrain Type. The screening limits are a function of whether the facility is located in noncomplex or complex terrain. A device located where any part of the surrounding terrain within five kilometers of the stack equals or exceeds the elevation of the physical stack height (H) is considered to be in complex terrain and the screening limits for complex terrain apply. Terrain measurements are to be made from U.S. Geological Survey 7.5-minute topographic maps of the area surrounding the facility.

5) Land Use. The screening limits are a function of whether the facility is located in an area where the land use is urban or rural. To determine whether land use in the vicinity of the facility is urban or rural, procedures provided in Appendix I or J must be used.

6) Multiple Stacks. An owner or operator of a facility with more than one on-site stack from a BIF, incinerator, or other thermal treatment unit subject to controls of metals emissions under a RCRA permit or interim status controls must comply with the screening limits for all such units assuming all hazardous waste is fed into the device with the worst-case stack based on dispersion characteristics. The stack with the lowest value of K is the worst-case stack. K is determined from the following equation as applied to each stack:

K = H x V x T

Where:

|  |  |  |
| --- | --- | --- |
| K | = | a parameter accounting for relative influence of stack height and plume rise |
| H | = | physical stack height (meters) |
| V | = | stack gas flow rate (m3/sec (cubic meters per second)  |
| T | = | exhaust temperature (degrees K)  |

7) Criteria for Facilities Not Eligible for Screening Limits. If any criteria below are met, the Tier I (and Tier II) screening limits do not apply. Owners and operators of such facilities must comply with either the Tier III standards provided by subsection (d) or with the adjusted Tier I feed rate screening limits provided by subsection (e).

A) The device is located in a narrow valley less than one kilometer wide;

B) The device has a stack taller than 20 meters and is located such that the terrain rises to the physical height within one kilometer of the facility;

C) The device has a stack taller than 20 meters and is located within five kilometers of a shoreline of a large body of water such as an ocean or large lake; or

D) The physical stack height of any stack is less than 2.5 times the height of any building within five building heights or five projected building widths of the stack and the distance from the stack to the closest boundary is within five building heights or five projected building widths of the associated building.

8) Implementation. The feed rate of metals in each feedstream must be monitored to ensure that the feed rate screening limits are not exceeded.

c) Tier II Emission Rate Screening Limits. Emission rate screening limits are specified in Appendix A as a function of TESH and terrain and land use in the vicinity of the facility. Criteria for facilities that are not eligible to comply with the screening limits are provided in subsection (b)(7).

1) Noncarcinogenic metals. The emission rates of noncarcinogenic metals must not exceed the screening limits specified in Appendix A.

2) Carcinogenic metals. The emission rates of carcinogenic metals must not exceed values derived from the screening limits specified in Appendix A. The emission rate of each of these metals is limited to a level such that the sum of the ratios of the actual emission rate to the emission rate screening limit specified in Appendix A must not exceed 1.0, as provided by the following equation:



Where:

|  |  |  |
| --- | --- | --- |
| Σ Ai/Ei | = | the sum of the values of A/E for each metal "i", from i = 1 to n |
| n | = | number of carcinogenic metals |
| Ai | = | the actual emission rate to the device for metal "i" |
| Ei | = | the emission rate screening limit provided by Appendix A for metal "i" |

3) Implementation. The emission rate limits must be implemented by limiting feed rates of the individual metals to levels during the trial burn (for new facilities or an interim status facility applying for a permit) or the compliance test (for interim status facilities). The feed rate averaging periods are the same as provided by subsections (b)(1)(A), (b)(1)(B), and (b)(2)(B). The feed rate of metals in each feedstream must be monitored to ensure that the feed rate limits for the feedstreams specified under Sections 726.202 or 726.203 are not exceeded.

4) Definitions and limitations. The definitions and limitations provided by subsection (b) and Section 726.200(g) for the following terms also apply to the Tier II emission rate screening limits provided by this subsection (c): TESH, good engineering practice stack height, terrain type, land use, and criteria for facilities not eligible to use the screening limits.

5) Multiple Stacks

A) An owner or operator of a facility with more than one on-site stack from a BIF, incinerator, or other thermal treatment unit subject to controls on metals emissions under a RCRA permit or interim status controls must comply with the emissions screening limits for any such stacks assuming all hazardous waste is fed into the device with the worst-case stack based on dispersion characteristics.

B) The worst-case stack is determined by procedures provided in subsection (b)(6).

C) For each metal, the total emissions of the metal from those stacks must not exceed the screening limit for the worst-case stack.

d) Tier III site-specific risk assessment. The requirements of this subsection (d) apply to facilities complying with either the Tier III or Adjusted Tier I except where specified otherwise.

1) General. Conformance with the Tier III metals controls must be demonstrated by emissions testing to determine the emission rate for each metal. In addition, conformance with either Tier III or Adjusted Tier I metals controls must be demonstrated by air dispersion modeling to predict the maximum annual average off-site ground level concentration for each metal and a demonstration that acceptable ambient levels are not exceeded.

2) Acceptable Ambient Levels. Appendices D and E list the acceptable ambient levels for purposes of this Subpart H. Reference air concentrations (RACs) are listed for the noncarcinogenic metals and 1 x 10-5 RSDs are listed for the carcinogenic metals. The RSD for a metal is the acceptable ambient level for that metal provided that only one of the four carcinogenic metals is emitted. If more than one carcinogenic metal is emitted, the acceptable ambient level for the carcinogenic metals is a fraction of the RSD, as described in subsection (d)(3).

3) Carcinogenic Metals. For the carcinogenic metals the sum of the ratios of the predicted maximum annual average off-site ground level concentrations (except that on-site concentrations must be considered if a person resides on site) to the RSD for all carcinogenic metals emitted must not exceed 1.0 as determined by the following equation:



Where:

|  |  |  |
| --- | --- | --- |
| Σ Pi/Ri | = | the sum of the values of P/R for each metal "i", from i = 1 to n |
| n | = | number of carcinogenic metals |
| Pi | = | the predicted ambient concentration for metal i |
| Ri | = | the RSD for metal i |

4) Noncarcinogenic Metals. For the noncarcinogenic metals, the predicted maximum annual average off-site ground level concentration for each metal must not exceed the RAC.

5) Multiple Stacks. Owners and operators of facilities with more than one on-site stack from a BIF, incinerator, or other thermal treatment unit subject to controls on metals emissions under a RCRA permit or interim status controls must conduct emissions testing (except that facilities complying with Adjusted Tier I controls need not conduct emissions testing) and dispersion modeling to demonstrate that the aggregate emissions from all such on-site stacks do not result in an exceedance of the acceptable ambient levels.

6) Implementation. Under Tier III, the metals controls must be implemented by limiting feed rates of the individual metals to levels during the trial burn (for new facilities or an interim status facility applying for a permit) or the compliance test (for interim status facilities). The feed rate averaging periods are the same as provided by subsections (b)(1)(A), (b)(1)(B), and (b)(2)(B). The feed rate of metals in each feedstream must be monitored to ensure that the feed rate limits for the feedstreams specified under Sections 726.202 or 726.203 are not exceeded.

e) Adjusted Tier I Feed Rate Screening Limits. The owner or operator may adjust the feed rate screening limits provided by Appendix A to account for site-specific dispersion modeling. Under this approach, the adjusted feed rate screening limit for a metal is determined by back-calculating from the acceptable ambient levels provided by Appendices D and E using dispersion modeling to determine the maximum allowable emission rate. This emission rate becomes the adjusted Tier I feed rate screening limit. The feed rate screening limits for carcinogenic metals are implemented as prescribed in subsection (b)(2).

f) Alternative Implementation Approaches

1) Pursuant to subsection (f)(2) the Agency must approve on a case-by-case basis approaches to implement the Tier II or Tier III metals emission limits provided by subsection (c) or (d) alternative to monitoring the feed rate of metals in each feedstream.

2) The emission limits provided by subsection (d) must be determined as follows:

A) For each noncarcinogenic metal, by back-calculating from the RAC provided in Appendix D to determine the allowable emission rate for each metal using the dilution factor for the maximum annual average ground level concentration predicted by dispersion modeling in conformance with subsection (h); and

B) For each carcinogenic metal by the following methods:

i) By back-calculating from the RSD provided in Appendix E to determine the allowable emission rate for each metal if that metal were the only carcinogenic metal emitted using the dilution factor for the maximum annual average ground level concentration predicted by dispersion modeling in conformance with subsection (h); and

ii) If more than one carcinogenic metal is emitted, by selecting an emission limit for each carcinogenic metal not to exceed the emission rate determined by subsection (f)(2)(B)(i), such that the sum for all carcinogenic metals of the ratios of the selected emission limit to the emission rate determined by that subsection does not exceed 1.0.

g) Emission Testing

1) General. Emission testing for metals must be conducted using Method 0060 (Determinations of Metals in Stack Emissions) in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", USEPA publication number EPA-530/SW-846, incorporated by reference in 35 Ill. Adm. Code 720.111(a).

2) Hexavalent Chromium. Emissions of chromium are assumed to be hexavalent chromium unless the owner or operator conducts emissions testing to determine hexavalent chromium emissions using procedures prescribed in Method 0061 (Determination of Hexavalent Chromium Emissions from Stationary Sources) in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", USEPA publication number EPA-530/SW-846, incorporated by reference in 35 Ill. Adm. Code 720.111(a).

h) Dispersion Modeling. Dispersion modeling required under this Section must be conducted according to methods recommended in federal appendix W to 40 CFR 51 (Guideline on Air Quality Models), in section 5.0 (Hazardous Waste Combustion Air Quality Screening Procedure) in appendix IX to 40 CFR 266 (Methods Manual for Compliance with the BIF Regulations), or in "Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised", USEPA publication number EPA-454/R-92-019, each incorporated by reference in 35 Ill. Adm. Code 720.111(b), to predict the maximum annual average off-site ground level concentration. However, on-site concentrations must be considered when a person resides on-site.

i) Enforcement. For the purposes of permit enforcement, compliance with the operating requirements specified in the permit (under Section 726.202) will be regarded as compliance with this Section. However, evidence that compliance with those permit conditions is insufficient to ensure compliance with the requirements of this Section is "information" justifying modification or revocation and re-issuance of a permit under 35 Ill. Adm. Code 703.270 through 703.273.

(Source: Amended at 42 Ill. Reg. 23023, effective November 19, 2018)