

performance measurement values below this level. The test results show control device performance decreasing as the inlet concentration decreases. However, the last entry shows that even at very low inlet concentrations, control device performance can sometimes be high. These data show the difficulty of measuring control device performance with high-volume, low-concentration inlet streams, and why we believe a design evaluation procedure is necessary. In the final rule, we have adopted the design evaluation procedure alternative from the Pharmaceuticals Production NESHAP (40 CFR part 63, subpart GGG).

During our review of the proposed rule, we realized that we inadvertently omitted Method 26A of 40 CFR part 60, appendix A, for analysis of emission streams for inorganic HAP. The final rule includes this test method.

III. Response to Comments on the Proposed NESHAP for Semiconductor Manufacturing

Comment: One commenter requested that EPA consider providing exemptions that would exclude insignificant sources from regulation. The commenter argued that the administrative burdens associated with the proposed rule are unwarranted for such sources. The commenter further argued that if additional add-on control devices would be required, it would result in insignificant HAP reductions. Another commenter suggested that storage tanks are insignificant HAP emission sources and should be excluded from the final rule.

Response: While we understand the commenters' concern with the burden imposed by regulation of sources with low annual emissions, the CAA does not provide a mechanism by which we can exempt such emission sources from the affected source solely on the basis of emissions. Additionally, some facilities in the semiconductor industry are characterized by multiple point sources of emissions, many of which have low annual emissions. If we exempted all such sources, there is a possibility that a large portion of the emissions from the facility could escape regulation. For these reasons, we are not exempting sources with low HAP emissions from the final rule.

Comment: One commenter contended that EPA's exemption of sources during periods of startup, shutdown, and malfunction is a violation of the requirement for continuous compliance. The commenter argued that EPA may only allow unavoidable deviations from emissions standards and must require

that sources use best air pollution control practices during those periods.

Response: We disagree with the commenter's interpretation of the proposed rule. The General Provisions at 40 CFR 63.6(e)(1)(i) require that sources must at all times, including periods of startup, shutdown, and malfunction, maintain the affected source in a manner such that emissions are minimized to the level required by the relevant standard. That section further clarifies that this means to "meet the emission standards or comply with the startup, shutdown, and malfunction plan." The purpose of the startup, shutdown, and malfunction plan (SSMP), as described in 40 CFR 63.6(e)(3)(i)(A), is to:

[e]nsure that, at all times, the owner or operator operate and maintain affected sources, including associated air pollution control and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions to at least the levels required by the relevant standards.

A properly written SSMP does not allow the source to emit at whatever levels they want merely because they comply with what they have written in the SSMP. Under the SSMP, the source must detail the procedures that will be used to maintain emissions within the limits set by the rule during periods of startup, shutdown, and malfunction. In this case, the SSMP is analogous to parameter monitoring for evaluating continuous compliance of add-on control devices. Just as maintaining the temperature of a thermal oxidizer at the proper operating temperature as determined during the initial compliance demonstration is deemed to be compliance with the emission limits, following the SSMP is deemed to be compliance with emission limits during periods of startup, shutdown, and malfunction.

Comment: One commenter was concerned with the burden of compliance as proposed at facilities that are classified as major sources of HAP due to processes other than semiconductor manufacturing and that only conduct minimal production of semiconductors for research and development purposes. The commenter requested that EPA add a *de minimis* threshold for rule applicability.

Response: Through our data gathering efforts, we found that research and development activities are often integrated into the production activities at semiconductor manufacturing facilities. Such research and development activities are often used in actual production because the technology upon which the

manufacturing process is based undergoes substantial change every few years. This extremely short technology life cycle results in constant research and development efforts geared toward developing and implementing new manufacturing technologies. The continual research and development efforts result in an ongoing integration of new technologies into mainstream production operations. New manufacturing operations are typically not developed apart from existing manufacturing operations, but rather side-by-side with them. The new operations are gradually integrated into mainstream production. As such, the majority of research and development work is done in a manner nearly indistinguishable from the existing manufacturing process.

Given the manner in which research and development activities are integrated into production, there is no bright line distinction between research and development and production. They are located in the same clean rooms and, more importantly, share the same exhaust plenums and emission control devices. For these reasons, the research and development activities are considered part of the production process and are within the affected source.

We note, however, that the research and development operations have to be located at a semiconductor manufacturing facility to be considered a semiconductor manufacturing process unit. Therefore, research and development activities that are not used to produce semiconductors for commerce, or produce them only for captive use, would not be semiconductor manufacturing process units and would not be subject to the final rule. Nor would research and development operations that are stand alone activities (that is, not integrated into the production process) be subject to the final rule. We modified 40 CFR 63.7182(b) of the final rule to clarify this point.

Comment: One commenter argued that EPA must regulate all major sources and believed the proposed rule fails to do this because it does not apply to sources that installed add-on control devices after the facility was designed and commenced operation. The commenter interpreted the court's ruling in *Alabama Power (Alabama Power Co. v. U.S. EPA, 636 F.2d 323 (DC Cir. 1979))* as specifying that controls must be incorporated into the original design of the facility in order to be considered when calculating the facility's potential to emit.