Technical Document for Promulgation of Standards:

National Emission Standards for Ferroalloys Production: Ferromanganese and Silicomanganese

Comment and Response Summary

April 13, 1999

Prepared for:

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I. SUMMARY

The EPA proposed national emission standards for hazardous air pollutants (NESHAP) for ferroalloys production on August 4, 1998 (63 FR 41508). The purpose of this document is to present a summary of the public comments received on the proposed standards and the responses developed by the EPA. This summary of comments and responses serves as the basis for revisions made to the standards between proposal and promulgation.

The EPA received four public comment letters on the proposed rule. The commenters represent the following affiliations: ferroalloys industry (2) and industrial trade association (2). Table 1 presents a listing of all persons submitting written comments, their affiliation, and their docket number. The docket number for this rulemaking is A-92-59. No public hearing was requested.

In a separate action (64 FR 7149, February 12, 1999), the EPA proposed supplemental requirements to modify the use of bag leak detection systems in rules proposed for the source categories of ferroalloys production, mineral wool production, primary lead smelting, and wool fiberglass manufacturing. The EPA requested public comment on these requirements as part of the supplemental notice. Three comment letters were received, and are listed in Table 1.

TABLE 1. LIST OF COMMENTERS ON THE PROPOSED NESHAP FOR FERROALLOYS PRODUCTION, 40 CFR 63, SUBPART XXX

Number	Commenter, Addressee, Title or Description, etc.	Date of Document
IV-D-01	R. Melvin, Environmental Manager, Elkem Metals Company, Marietta, OH	11/03/98
IV-D-02	E. Kinghorn, Jr. The Ferroalloys Association, Washington, D.C.	11/04/97
IV-D-03	E. Bredniak, President, SKW Metals and Alloys, Inc. Calvert City, KY	11/04/98
VI-D-01	J. Messere, School of Engineering, Indiana University, Bloomington, IN	03/08/99
VI-D-02	E.J. Campobenedetto, Deputy Director, Institute of Clean Air Companies, Washington, D.C.	08/27/98
VI-D-03	E.J. Campobenedetto, Deputy Director, Institute of Clean Air Companies, Washington, D.C.	03/11/99
VI-D-04	R. Melvin, Environmental Manager, Elkem Metals Company, Marietta, OH	03/15/99

II. STATUS OF FERRONICKEL RULE

Comment: One commenter, (VI-D-02) requested that the EPA finalize the ferronickel rule for new and reconstructed production facilities, regardless of whether the Glenbrook facility is permanently shut down.

Response: At the time of publication of the proposed rule (August 1998), the only existing facility in the United States producing ferronickel (Glenbrook Nickel Company) had suspended operations. Since that time, the company has said that they will permanently close the facility.[1] The EPA has decided to exercise its authority to withdraw the proposed rule because there is no major source currently operating or expected to begin operating that would emit the HAP associated with ferronickel production. Should a new major source of ferronickel production commence operation after promulgation, the EPA will evaluate at that time how and whether to set a MACT standard. In any case, in the unlikely event a new ferronickel furnace were to be built, it would likely be subject to new source review requirements for particulate matter and section 112(g) preconstruction review for HAP.

III. REGULATION OF FERROCHROMIUM

Comment: One commenter (IV-D-01) said that the proposed standards should not be applicable to the production of ferrochromium at the Elkem Marietta facility. They noted that furnace #12, which produced ferrochromium from 1952 - 1989, could be used in the future to produce it again. However, since no emission data exist for production of this product, and because ferrochromium production operates at much higher furnace loads and temperatures than ferromanganese/silicomanganese production, EPA should not assume that limits developed for ferromanganese/silicomanganese production are appropriate.

The commenter added that no data exist from the furnace to estimate the percent of chromium emitted in the particulate matter and, therefore, whether the furnace could be a major source of HAP emissions.

Response: The commenter is correct that the EPA only reviewed data from tests during ferromanganese/silicomanganese production, because these were the most recent data available for Elkem's furnaces. The EPA included ferrochromium production at proposal because of provisions contained in Elkem's State operating permit which provides for the possibility of converting one or more furnaces to ferrochromium production. The EPA discussed the need to extend the applicability of the rule to ferrochromium production in a September 17, 1997 meeting

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[1] Letter from G. Schoen, Glenbrook Nickel Company, to C. Chin, EPA/MG. Confirms that facility is permanently shutdown. February 22, 1999.

with Elkem Marietta personnel. At that time, they said they wanted to preserve the option to use furnace # 12 for ferrochromium production in the future.

Upon reconsideration, the EPA believes the commenter is correct that the EPA should not apply data gathered during production of ferromanganese in furnace #12 in setting a standard applicable to ferrochromium production. According to EPA's AP-42 publication for ferroalloys production, the uncontrolled particulate emission factor for ferromanganese in an open furnace is 6 kg/Mg alloy produced, compared to 78 kg/Mg alloy produced for ferrochromium production in an open furnace. The controlled emission factor also is less for ferromanganese than for ferrochromium, although the magnitude of the difference is dampened by control.[2]

In deciding whether to exclude ferrochromium production from the rule, the EPA considered the probability of Elkem converting production in furnace #12 to ferrochromium. The EPA has learned that the only domestic producer of ferrochromium has shut down due to the price competition from foreign imports.[3] Therefore, it is unlikely that Elkem will start production of ferrochromium under these market conditions. Because there are no domestic producers of ferrochromium and because of the lack of ferrochromium emissions data from furnace #12, the EPA finalized the rule to limit its applicability to ferromanganese and silicomanganese production. Should the facility convert to ferrochromium production in the future, it would still be subject to the State permit conditions that currently limit total furnace emissions to 39 lb/hr when producing ferrochromium. In the unlikely event a new ferrochromium furnace were to be built it would likely be subject to new source review requirements for particulate matter and section 112(g) preconstruction review for HAP.

Regarding the commenter's concern that the furnace might not be considered a major source if it converted to production of ferrochromium, the EPA believes the commenter has misunderstood the nature of a major source determination. The Clean Air Act defines a major source as the group of sources (in this case the total of the furnaces and other HAP emitting points defined in the rule) within a contiguous area and under common control as the body of sources to be considered in the determination of potential HAP emissions. The aggregate of emissions from this group of sources must be considered. Only if plant-wide potential emissions are below the major source thresholds of 10 tons per year for a single pollutant or 25 tons per year of combined pollutants, can the source be considered an area source. However, the fact that one or more individual emission sources is below the threshold is not relevant in this context.

IV. NEED FOR FERROMANGANESE STANDARDS

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[2] AP-42, p. 12.4-8

[3] Memorandum from C. Chin, EPA/MG, to A. Vervaert, EPA/MG. February 9, 1999. Summary of telephone conversation with Macalloy Corporation.

Comment: Two commenters (IV-D-01 and IV-D-02) said that the NESHAP for ferroalloys production at ferromanganese, silicomanganese, and ferrochromium facilities is unneeded and duplicative. They argue that since only one plant is affected by the rule and because EPA acknowledges that there will be no effect on HAP emissions from the plant, the rule is not needed. The plant's regulatory requirements are already extensive, and further regulation is counterproductive in the competitive ferromanganese, silicomanganese, and ferrochromium production sector. Commenter IV-D-01 claims that we have "failed to replace a command-and-control, one-size-fits-all approach to environmental regulation with standards, programs rules negotiated and tailored for industrial sectors and individual companies and facilities...."

Commenters IV-D-01 and IV-D-02 both believe that additional regulation of new and reconstructed sources is not needed because the existing NSPS, while imperfect, are already protective of human health and the environment. The NSPS regulate particulate matter, which include the particulate HAP to be regulated by the NESHAP. They say that the proposed new source NESHAP will increase the regulatory requirements for affected facilities without substantive benefits to air quality.

Response: The EPA believes that the Elkem Marietta facility is a major source of manganese compound emissions. Consequently, the EPA is obligated to regulate even if the ferroalloys production source category contains only one major source.

In developing the proposed rule, the EPA strived to develop standards consistent with Elkem's current level of control and practices and to understand their production processes, emission controls, and regulatory concerns. The EPA visited the Elkem Marietta plant three times, solicited detailed process and emissions information from them through formal information collection requests, met with plant representatives in Durham, North Carolina three times, had numerous telephone conversations, and considered extensive test data from the facility. The EPA also contacted the State agency regulatory personnel for their comments and reviewed Elkem Marietta's existing operating permit requirements. To the extent possible, given the constraints imposed by the Clean Air Act and other EPA regulatory concerns (adequate enforcement tools for example), the EPA tailored the final regulation to address the site-specific concerns of the single, remaining affected facility. As explained in the proposal preamble, the main reason that the rule results in no measurable emissions reductions is that EPA determined that existing practices represent the MACT level of control, and no new control technologies are required.

As required by the Act, the EPA also considered the level of regulation appropriate for new sources. The fact that the ferroalloys NSPS exists obviously contributed to the analysis of new source MACT for this industry. However, its existence does not, as the commenters suggest, supersede the need for new source MACT.

V. EMISSION LIMIT ISSUES

A. Format of the standard.

Comment: Commenter IV-D-01 disagreed with EPA's selection of standards for the ferroalloy submerged arc furnaces in units of "kg/hr/MW." The commenter said that while production is a function of power consumption, existing data show that emissions from the Marietta furnaces are not solely a function of furnace load in megawatts (MW). Attachment A of the comment letter summarizes stack test emissions arranged in order of increasing furnace load, measured in MW. According to the commenter, these data demonstrate that Elkem's stack test emissions data do not increase with increasing furnace load. They noted that when furnace operations are "rough," decreasing the load would actually result in an increase in emissions. They pointed to Attachment B, which describes in qualitative terms, the other factors that can affect emissions. Finally, they claimed that the variability of furnace operations and emissions is demonstrated in the statistical variability of the stack test data.

The commenter also disagreed with EPA's statement that another advantage of the format is that it is consistent with the ferroalloys NSPS and is "widely accepted by the industry." As the sole representative of the industry to be affected by the proposed NESHAP, they said they do not accept the format.

The commenter suggested that if EPA establishes a numerical MACT standard in lb/hr/MW (kg/hr/MW), instructions should be included in the rule to indicate to permit writers that this limit is not an instantaneous limit. Rather it is to be applied to furnace capacity rating to derive a lb/hr (kg/hr) emission limit for the affected furnace.

The commenter also said that any limits for new sources should reflect these concerns.

Response: The EPA understands that a variety of operating conditions have the potential to affect emissions from furnace operations. This is one reason that compliance is based on the average of three runs of a performance test, which helps to address variability in operation and performance. In considering this comment, the EPA reviewed the data supplied by the commenter. In addition, the EPA conducted a linear regression analysis of the data comparing scrubber emissions to power input for furnaces #1 and #12. This analysis clearly showed that there is no significant correlation between emissions and power input.[4] Therefore, the EPA has changed the format of the standard to a straight mass rate basis (lb/hr).

B. Different standards for different furnaces.

Comment: Commenter IV-D-01 disagreed with EPA's proposal to issue a single standard for emissions from either furnace #1 or furnace #12. They noted that despite similar furnace designs, the products produced and operating conditions differ. High carbon ferromanganese is produced from a blend of coke and ore, plus some recycled materials. Under ideal conditions, the operation has a relatively quiet top with light flaming and fuming. In contrast, silicomanganese is

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[4] Memorandum from C. Chin, EPA/MG, to A. Vervaert, EPA/MG. February 1, 1999. Documentation of Elkem emissions data analyses by linear regression.

produced from a variety of slags, scrap products, metallics, low grade ores and cokes. Silicomanganese operates at a higher power load, has hotter and more open top conditions, and emits considerably more fume. Based on a statistical analysis (see Attachment 3 of the comment letter), they claimed that there is a highly statistically significant difference in mean emission levels between the two furnaces.

Response: The EPA agrees that the data demonstrate substantially lower emissions from furnace #12 than from furnace #1. Although both furnaces are of the same open design, furnace #1 typically produces silicomanganese, while furnace #12 produces ferromanganese. This difference, combined with the change in format of the standard, led the EPA to establish separate standards for each furnace.

C. Analysis of test data.

Commenters IV-D-01 and IV-D-02 disagreed with EPA's analytical approach to evaluating test data for use in setting the MACT floor. They maintained that EPA's authority is to require Elkem to operate at the historical actual maximum compliant levels. Since data only exist from stack tests under certain actual historic operation, these data fail to define historic actual emissions. Instead they only provide information from which actual emissions may be extrapolated. Attachment C of the comment letter provides Elkem's proposed analytical approach, which is designed to address the perceived deficiencies in EPA's approach.

Comment: Prediction limits. The commenters said EPA should set emission limits that account for the natural variability of the operations. They suggested that the standards should incorporate the idea of prediction limits to produce an upper limit on the observations to be expected while the operation remains in control. The commenters evaluated the false positive rates (FPRs) expected from the emissions standards proposed by EPA and compared the effect on the FPRs to the EPA standard and the existing Ohio permit emission limits. The false positive rate, or significance level of a statistical test, is the probability of finding an exceedance when in fact there has been no systematic change in the process generating the observations. The commenter made a distinction between the per-comparison FPR (the chance of one or more exceedances at any single monitoring location) and the facility-wide FPR (FWFPR) (the chance of one or more exceedances at the whole facility.) The commenter cited precedent in Federal ground water monitoring regulations for keeping the per-comparison FPR down to 1%, particularly where multiple comparisons are involved. If the per-comparison FPR is kept at 1%, the FWFPR can be no more than 4% at this facility, because there are four comparisons made during each annual monitoring event. Using the equations described in attachment C, the commenter calculated FPR's well in excess of the desired rates (at least for furnaces 1 and 18), resulting in approximately a 41% or 51% probability of an exceedance at one or more monitoring locations during each event.

Response: The EPA disagrees with the commenter's proposed approach to setting the MACT standards for furnace and tapping emissions. Instead, the EPA believes that the

appropriate way to set these standards is to rely on the results of performance testing, which in turn establish compliance criteria, in this case, emission limits. These compliance criteria establish an expectation for the operation and maintenance parameters needed to ensure that the emission source continues to meet the required emission limits. Subsequent performance tests are a measure of the owner or operator's ability to operate and maintain the affected air pollution control device and associated emission sources such that the emission limit is maintained. The EPA then presumes that the required monitoring of the control device and associated parameters will ensure that the source maintains the standards between required tests.

The sources cited by the commenter justifying statistical techniques to establish false positive rates (or upper prediction limits), are based on frequent monitoring of numerous events. However, the data base supporting selection of the MACT standards, while considered relatively extensive from a MACT standard-setting perspective, is limited to a handful of annual events. The commenter's proposed methodology would "penalize" the much smaller MACT data base, because it would take a much larger sample size to achieve Elkem's proposed false positive rate. A mitigating factor to the relatively small sample size of the MACT approach is based on the fact that source testing is a relatively infrequent, but planned, occurrence. Prior to conducting the test, the source should take steps to ensure maximum performance of the control device, so long as "representative" operating conditions are maintained. By taking these steps, the owner or operator is expected to exert significant control over the outcome of the test.

The EPA also disagrees with the commenter's assertion that the standards should be set such that exceedances at any point in the facility are avoided. The intent of setting individual standards is to ensure that each emission source and its associated air pollution control device are operated and maintained to ensure that the emission standard for that source is met.

The above language does not prevent EPA from using statistical tools and other relevant information to verify the validity or reasonableness of standards it may set. As discussed below, EPA did consider the possibility of excessive exceedances in establishing the final emission limits.

Comment: Data excluded from the analysis. Commenter IV-D-01 said that EPA incorrectly excluded certain test data from its analyses. For example, EPA excluded the October 1994 test results of the furnace 18 vent stacks because the emissions exceeded Ohio permit limitations and the delta pressure information was incorrectly recorded. The commenter said the lack of pressure data is simply due to a malfunctioning gauge and other information indicates that the emission control systems were working normally during that event. Further, statistical analysis suggests that emissions data for that event are not atypical. Elkem said that the pressure differential should have a much greater effect on the scrubber stack emissions than the vent stack emissions, but the scrubber stack emissions for that event are not extreme in any way. Therefore, EPA should include all events in the background data for this event.

The commenter added that just as the atypical low data from the February 1994 test for the furnace 18 scrubber stack should be included in the MACT floor analysis, so should the

relatively high data from the October 1994 vent stack tests. According to their analysis, the low observations from the scrubber stack in February 1994 are more atypical than the vent stack data from October 1994.

Response: As suggested by the commenter, the EPA reviewed the data that were included in the analysis and the basis for the exclusion of any data points. The EPA also performed a quality assurance check of the data entered into the data set . In a few cases, the EPA identified discrepancies between the emissions data recorded by Elkem in Attachment C and the raw data contained in test reports. Where indicated, these data were corrected. Also, the change in format of the standard discussed above resulted in changes such as eliminating data on power consumption. The final data set used by EPA is located in the appendix of this document.

As a first step in the reanalyzing the data, the EPA considered whether there were any statistical outliers in the data set. The EPA identified the April 1997 test on the furnace #1 scrubber and run 1 of the November 1992 test on furnace 12 as statistical outliers using procedures in ASTM Designation E 178-94, Standard Practice for Dealing with Outlying Observations[5]. Consistent with the approach recommended by Elkem, these data points were deleted from further consideration in the analysis.

In the case of the November 1994 test on the furnace #18 vent stacks, the EPA excluded this test from further consideration because every run exceeded the State emission limit for the entire furnace. The EPA does not routinely consider these data in MACT analyses. In addition, the statistical analysis described above identified these results as outliers.

D. Existing source emission limits.

Commenter IV-D-01 suggested the following alternatives to EPA's proposed emission limits:

- revise emission limits based on a parametric data analysis
- replace limits with equipment standards or work practice requirements
- use existing State emission limits.

Each of these options and EPA's responses are described below.

Comment: Parametric data analysis. The commenter stated that the probability of a exceedance of the proposed standards at one or more monitoring locations during any annual testing period is approximately 51% (nonparametric analysis) or 59% (parametric analysis), which is much too high to be satisfactory.

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[5] Memorandum from B. Friedman, EC/R, to project file. March 19, 1999. Summary of revised performance test data analysis.

Instead, the commenter recommended that EPA compute the emission limits using the 99-percent upper prediction limits based on the background data. See attachment C for more details of the statistical analysis. Based on this analysis, the commenter proposed the following emission limits for each monitoring location:

Recommended Emissions Standards for Elkem Marietta Facility				
Furnace	Monitoring Location	EPA Proposal, lb/hr/MW	Recommendation, lb/hr/MW	Comment
1	Total	1.13	1.611	OH
12	Total	1.13	1.280	
18	Scrubber stack	0.09	0.161	
18	Vent stacks	1.48	22.892	OH, *

OH This recommendation is higher than the value obtained by dividing the Ohio permit emissions standard by the average energy consumption during the test runs, which are 1.266 and 1.864 lb/hr/MW, respectively.

* This recommendation is based on observations from five background events. EPA emitted the highest of these. While the commenter feels the exclusion is inappropriate, they note that if it were excluded, the recommended emission standard would be 9.255 lb/hr/MW.

Response: With the change in format, the specific limits suggested by Elkem are no longer relevant. As noted previously, the EPA also has decided to issue separate regulations for furnaces #1 and #12. An explanation describing how the EPA established the final numerical emission limits follows.

As discussed above, the EPA does not believe that using statistical analyses to set MACT standards is appropriate. Instead, in cases where there are ample emissions tests data on specific air pollution control devices, as in this case, the EPA has historically set emission limits based on the highest valid data point recorded under representative and normal operating conditions. This approach is consistent with the approach taken at proposal.

The EPA set the final numerical emission limits for the existing Elkem Marietta facility furnaces based on the following information:

Summary of Data Considered to Set Existing Furnace Emission Limits							
	Furnace 1			Furnace 12	Furnace 18		
	Scrubber vent, lb/hr	Baghouse vent, lb/hr	Total furnace, lb/hr	Scrubber vent, lb/hr	Scrubber vent, lb/hr	Vent stacks, lb/hr	Total furnace, lb/hr

Maximum test results	28.1	5.2	33.3	13.1	1.3	21.5	22.8
Adjusted results	30.0	5.5	35.5	14.0	1.5	23.0	24.5
State permit limit	NA	NA	35.9	27.7	NA	NA	24.7
UPL, 90 %	29.3	6.4	35.7	14.4	1.5	22.9	24.4

The performance test data consist of compliance tests for particulate matter standards that were conducted for the State of Ohio over a 6-year period. The final data set, adjusted for outliers and out-of-compliance tests, includes 6 tests of the furnace #1 scrubber, 7 tests of the furnace #1 baghouse, 7 tests of the furnace #12 scrubber, 6 tests of the furnace #18 scrubber, and 4 tests of the furnace #18 vent stacks.

The MACT for this industry (and source) is the level of performance achieved by the existing control equipment. In order to set the emission limit, the EPA considered the highest results obtained for each furnace. Then, the EPA adjusted these results upward slightly (approximately 7.5 percent), to account for measurement error and other variability inherent in the test procedure. Next, the EPA compared these results to the existing State permit limits and the 90-percent upper prediction limit, as indicators of the source's ability to meet these limits.

For furnaces #1 and #18, the upper prediction limit analysis shows that the adjusted test results reflect these furnaces' ability to meet the limits on an on-going basis. Coincidentally, these limits also are comparable to the existing State permit limits. Based on this analysis, the EPA has set the emission limits for furnace #1 at 16.3 kg/hr (35.9 lb/hr) and for furnace #18 at 11.2 kg/hr (24.7 lb/hr). This approach results in limits that are consistent with the above data and minimizes the disruption of existing permit conditions.

The adjusted data for furnace #12 reflect this furnace's ability to meet the limit on an on-going basis. In this case, however, the existing permit limit does not coincide with the available test data. Based on this analysis, the EPA has decided to finalize the emission limit for furnace #12 at 6.4 kg/hr (14.0 lb/hr). The data support this limit, which is achievable with the existing control device.

Comment: State permit limits. Commenter IV-D-01 said EPA should not dismiss Ohio's use of a process weight rate approach to establishing emission limits given that EPA accepted this approach in approving Ohio's State Implementation Plan. They said this approach is no less generic than the use of a limit based on an expected relationship between emissions and furnace load. Commenters IV-D-01 and IV-D-02 both noted that Elkem metals company has developed control equipment and technology over the years to comply with the Ohio EPA allowable

emission limits. Considering the variability of furnace operations, EPA's proposal to reduce these allowable emissions would position Elkem to potentially fail compliance tests in the future.

Response: The EPA considered these limits in evaluating the reasonableness of the final standards. Where the State limits coincided with the limits suggested by EPA's analysis of the test data, they were considered in setting the level of the final standards. However where the limits did not coincide, EPA set the final standards based on analysis of the test data alone.

Comment: Equipment or work practice standards. Commenters IV-D-01 and IV-D-02 stated that any proposed emission limits incorrectly characterize existing operations and violate section 112 of the Act by reducing emissions below what they say EPA already accepts as MACT. They argued that since EPA already accepts the Elkem Marietta existing control devices as representative of the MACT floor and because there are no other existing facilities, there is no reason to specify emission limits for existing Marietta operations. Commenter IV-D-01 stated that EPA should establish equipment standards or work practice standards in place of further numerical emission limits.

Response: Section 112(h) does not allow the Administrator to promulgate a design, equipment, work practice, operational standards, or combination thereof, unless it is not feasible to prescribe or enforce an emission standard. "Not feasible" means that the source cannot meet either of the following criteria:

- The HAP cannot be emitted through a conveyance designed and constructed to emit or capture the HAP or the requirement for such a conveyance would be inconsistent with existing law.
- Emissions from the source cannot be measured practicably due to technological or economic limitations.

Given that Elkem already complies with emission standards on the furnaces and that it is possible to test them, the EPA must issue emission standards in this case.

E. New source emission limits--general

Comment: Commenter VI-D-02 said that the MACT requirements for new and reconstructed facilities should be more stringent than proposed due to the levels of particulate matter control technology available today. The commenter noted that baghouses have been applied in a wide range of industrial process applications, some of which are similar to the ferroalloys source category, with the actual achievable particulate matter and opacity levels well below the proposed levels.

Response: The EPA reviewed the new source limits for furnaces and added an alternative concentration standard based on baghouse performance. The reason for this change is discussed in more detail in response to the following comment. In the case of other emission sources, the

EPA considered new source control levels based on technology transfer from existing New Source Performance Standards. In the case of control equipment associated with the crushing and screening operation, these limits have been finalized. The EPA believes the final standards reflect contemporary levels of control, based on existing data.

F. New source emission limits--ferroalloy submerged arc furnaces

Comment: Commenters IV-D-01 and IV-D-02 disagreed that adoption of the new source performance standards limits for new or reconstructed ferroalloy furnaces is appropriate for the NESHAP. They said that because no one has built an NSPS furnace producing ferromanganese, silicomanganese, or ferrochromium since the NSPS were promulgated, there is no technological basis to either demonstrate or dispute the level of the NSPS. Therefore, the rule should reflect that the limit is a rebuttable presumption which would be modified if warranted to reflect an actual BACT (LAER), or MACT determination.

Commenter IV-D-01 added that the NSPS emission limits may not be achievable for a new or reconstructed furnace, because the NSPS are over 25 years old and were based on an assumption that closed furnaces would be the norm in the ferromanganese smelting industry. However, because of safety issues, the industry now believes that open furnaces represent the technology of choice. The commenter said a baghouse would be required for a new open furnace and that this technology could not meet the close-furnace based emission limits.

Commenter IV-D-01 also noted that the format of the NSPS, which assumes a correlation between furnace load and emissions, concerns them for the reasons discussed above.

Response: The NSPS format, lb/hr/MW, can be applied to a range of furnace sizes. In contrast, the lb/hr format of the standards for existing furnaces would result in a cap in production on new furnaces, because this format makes no allowance for differences in production capacity. While this is acceptable in the case of known, existing furnaces, it is not acceptable for new furnaces. Because the NSPS will apply to new or reconstructed furnaces in any case, and to provide needed flexibility in the NESHAP, the final rule will retain as an option the NSPS lb/hr/MW emission limits.

In addition, recognizing that new or reconstructed open furnaces would likely be controlled with baghouse technology and to provide additional flexibility, the EPA is adding an alternate concentration standard based on reasonable levels of baghouse performance. The alternate standard, 35 mg/dscm (0.015 gr/dscf), is based on the maximum level of performance achieved by baghouses tested in 1993 and 1994 on open ferroalloy furnaces producing a variety of products. This level is also consistent with baghouse performance data on the #1 furnace tapping

baghouse at Elkem[6]. Because baghouses are characteristically constant outlet devices, this level of performance should be achievable with ferromanganese and silicomanganese production.

G. New source emission limits--MOR processes

Comment: Commenter IV-D-01 disagreed with EPA's conclusion that new source MACT for the MOR process is represented by the NSPS for basic oxygen furnaces. While both processes remove carbon from a molten metal by oxidizing it with oxygen and forming carbon monoxide gas, there are distinct differences in the chemistry between manganese in the MOR process and iron in the BOF process. The commenter noted that the main differences are the higher operating temperature of the MOR, the higher volatility of manganese, and the higher carbon content of the manganese metal being treated. The MOR operates at around 1,800°C, which is approximately 100°C less than the temperature at which manganese vaporizes. In contrast, the BOF process operates at 1,600°C, which is far from the 3,000°C at which iron volatilizes. The weight percent of carbon being removed in the MOR process is around 6 percent versus the less than 5 percent carbon reduction in the BOF process. These differences result in an estimated 10 times more fume generation during the MOR process compared to a BOF process. Therefore, baghouse emission reduction performance for an MOR process would likely be different than that for a BOF process.

The commenter added that another example of manganese's higher volatility than iron is provided by looking at industrial applications of flame suppression technology. In 1993, Elkem sponsored a test of a flame suppression technology derived from the steel industry at the Mangan Plant in Norway. While this technology had been successful in steel plants, it was unsuccessful when conducted on manganese production operations.

Because of these differences, the commenter stated that EPA's belief that the MOR baghouses should be capable of meeting a BOF baghouse level of performance has never been tested and is unsubstantiated. The EPA should either eliminate the proposed limit or propose an alternate performance standard, such as a technology or work practice standard, instead of a numerical limit.

Response: Upon reexamination, the EPA agrees with the commenter that technology transfer based on the BOF technology is inappropriate given the differences in the MOR process and its emissions potential compared to the BOF process and its emission potential. Given these differences and the absence of data reflective of new source control levels on an MOR process, the EPA revised the final standard to be set at 69 mg/dscm (0.03 gr/dscf), which is consistent with the State's allowable concentration for existing sources.

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[6] Memorandum from B. Friedman, EC/R, to project file. March 19, 1999. Summary of open ferroalloy furnace baghouse data.

VI. COST AND ECONOMIC EFFECTS OF THE PROPOSED STANDARDS

Comment: Commenters IV-D-0 1 and IV-D-02 argued that EPA's proposed emission limits exceed the MACT floor, and therefore, impose cost and economic effects that should be considered in establishing MACT. For example, they claimed that in order to comply with the proposed limits, installation of new baghouses would be required. The EPA has already acknowledged that installation of baghouses would represent a beyond-the-floor option, which is cost prohibitive in terms of this MACT. According to commenter IV-D-01, the cost to install baghouses to serve the three existing furnaces at $35 per cubic foot per minute of baghouse capacity is $20 million.

Commenter IV-D-01 was also concerned that imposition of baghouse technology could cause their production to be curtailed. Likewise, commenter IV-D-02 expressed concern that the efforts required to meet the proposed rule could curtail production. In this case, U.S. steel producers would have no alternative but to obtain ferromanganese from overseas production.

Response: As discussed in our responses to the comments on the emissions standards, the EPA believes that the final standards are achievable with the current air pollution control equipment. The final standards are based on actual data for the air pollution control equipment that is in place. Therefore, the EPA disagrees with the commenters that baghouse technology is required to meet the existing source standards or that the emission limits exceed the MACT floor.

VII. MONITORING ISSUES

A. Scrubber pressure drop

Comment: Commenter IV-D-01 noted that the proposed rule sets the operating parameter value at the average pressure drop measured during the compliance demonstration. They said that use of the average pressure drop is unnecessarily restrictive and unreasonably stringent to use in defining a monitoring parameter that will be used to identify violations of the rule. They suggested that evidence of minimization of emissions to a compliant level at the lowest pressure drop recorded during a compliant run in the three runs constituting a compliant test documents that this value adequately minimizes emissions from the process. They suggested the following language to revise §63.1654(a)(4)(i): ". . . the operating parameter monitoring value as the lowest hourly average pressure drop value recorded during any compliant run in the three runs constituting any compliant test."

Response: The EPA agrees there should be more flexibility in how the source sets the operating parameter value during a complying emission test. Therefore, the final rule contains a requirement that the operating parameter monitoring value will be set based on the lowest average pressure drop on any individual complying run in the three runs constituting any compliant test.

B. Baghouse inspections.

Comment: Commenter IV-D-01 stated in reference to §63.1655(A)(2)(1) that they are only able to monitor pressure drop across the entire baghouse. They stated that the proposed daily monitoring of pressure drop across each baghouse cell as specified in §63.1655(A)(2) (1) is currently not possible on the furnace #1 tap hole baghouse.

Response: We have changed the final requirement to say "Daily monitoring of pressure drop across each baghouse cell, or across the baghouse, if it is not possible to monitor each cell individually."

Comment: Commenter IV-D-01 stated in reference to §63.1655(a)(2)(vii) that there is no way to get inside the lower compartment in furnace #1 tap hole baghouse to perform the proposed quarterly visual inspection.

Response: The EPA believes the commenter has misinterpreted the intent of this requirement, which is to inspect the physical integrity of the baghouse structure, not the bags. Other requirements address the integrity of the bags. The EPA added the term "structure" to the final rule to clarify this intent.

Comment: Commenter IV-D-01 suggested that the requirement proposed in §63.1655(a)(2)(viii) be modified to require "annual inspection, or as needed" as opposed to semi-annual. Currently their existing schedule for measuring fan wear is at least every 6 months, but their operations and maintenance personnel have recommended that the timing be increased because the inspection is intrusive and requires a shut down to gain access to perform the inspection. Any shut down causes an economic penalty.

Response: The EPA originally proposed a semi-annual schedule to be consistent with Elkem's existing practices. Other recent rules require quarterly inspections. Despite the EPA's preference for the more frequent inspection schedule, the EPA decided to allow the source more flexibility based on their existing practices. However, the EPA cannot see decreasing the frequency further to an annual inspection given the need to be reasonably consistent with other rules on baghouses.

C. Building opacity monitoring

Comment: Damper position and motor amperes. Commenter IV-D-01 requested that EPA modify §63.1655(c)(1) to require only the monitoring of fan motor amperes.

Commenter IV-D-01 noted that Elkem operates two types of dampers. One type is used to isolate individual runs of ducting that serve the various production facilities. These dampers are located in the ducts leading to the baghouses, are either open or closed, and operate such that

flow rates are not modulated by them. The commenter agreed that damper position is an important operating condition that should be monitored.

The second type of dampers are associated with the furnace scrubbers, and they are closed on start-up of the motors to prevent overloading of the motors. After the motor has achieved its normal rotational speed, the dampers are used to control motor amps. The commenter said that the position of these dampers is not a significant operating parameter, and it should not be monitored. The commenter requested that the EPA change §63.1655(c)(1) to require only collection of fan motor amperes (presumably they would want to see conforming changes in §63.1654(b)(2)(i) too). Because the objective of the requirement is to monitor air flow, the commenter pointed out that air flow through the scrubber is directly related to the motor amperes and pressure drop of the scrubber. Dampers are adjusted by an electro-hydraulic actuator if fan motor amperes deviate from the set point. The dampers are typically 90-100 percent open most of the time.

The commenter noted that there can be a lot of variation in amperage and pressure drop. For example, with the dampers set in the normal position, the instantaneous fluctuation of the amperage readings over a period of seconds can be at least ± 20 amperes. Also, the pressure differential across the flooded disc inside the venturi scrubber will be affected by ambient air temperature, humidity and barometric pressure in addition to the distance between the throat of the venturi and the edge of the flooded disc, the amount of water flowing over the disc, the distribution of the water flow through the disc to the throat gap, etc. Thus, it will be extremely difficult to get repeatable readings for the various parameters that will indicate the same conditions of operation of different occasions. Ambient conditions will probably not be the same if any appreciable amount of time passes between tests.

Response: The purpose of the shop opacity damper monitoring provisions is to ensure that the shop ventilation or capture system is properly balanced so that the design ventilation air flow rate in each branch or duct segment is maintained. The EPA agrees with the commenter that monitoring damper position is required in the case of the baghouse duct system. Based on the commenter's description of the scrubber dampers, we agree that monitoring scrubber damper position is not needed. We have changed the final rule to clarify that the damper positions to be monitored are those in the capture system, i.e., those located upstream of the air pollution control device and used to apportion ventilation air.

Comment: Overall building opacity limits. Commenter VI-D-02 said that the rule should specify the building ventilation and opacity requirements in a more definitive way. They suggested that the rule specify an exhaust system capable of a defined number of air changes per hour with a monitoring system (fan amps) to verify system operation. They also suggested that the EPA require that a record be kept of ventilation system failures, bag leak detection alarms, and time and duration of the failures.

Response: An opacity standard, combined with appropriate operation and maintenance requirements, results in an enforceable standard that provides maximum flexibility to the source in how it chooses to meet the standard. In contrast, the commenter suggested specific ventilation system requirements, which are much more prescriptive. The EPA believes that opacity requirements are the preferable requirements in this case. The EPA also believes they have required adequate recordkeeping, which requires records of each maintenance inspection and repair, replacement, or other corrective action.

C. Bag leak detection systems

In addition to the changes made as the result of comments considered in this section, the EPA has also added clarification and details to the bag leak detection system requirements. However, these are not substantive changes. Also, in order to make the this rule consistent with other similar NESHAP being issued this year, the EPA made minor changes to the baghouse monitoring requirements in general. Once again, these are not substantive changes.

Comment: Commenter IV-D-01 stated that §63.1655(a)(3), which requires bag leak detection systems on negative pressure baghouses on new or reconstructed furnaces, constitutes overkill on monitoring of baghouses. They suggested that the requirements for monitoring existing baghouses are sufficient to ensure that their dust collectors work properly at all times. They emphasized that additional requirements (such as baghouse leak detection) are redundant and an economic burden, because they would give facilities with a positive pressure baghouse with a roof monitor the advantage of not having to install baghouse leak detection device when reconstructing a furnace. They stated that it would also encourage companies installing new baghouses to select a positive pressure baghouse with a roof monitor to avoid this monitoring overkill. They stressed that if their listed requirements are good enough for existing dust collectors, they should be good enough for new or reconstructed dust collectors. They proposed that EPA modify §63.1655(a)(3) to allow monitoring pressure drop and visual emissions as an alternative to installation of a bag leak detection system.

The commenter added in their comments to the supplemental notice on bag leak detection system compliance requirements (VI-D-04) that the proposed requirements make the system into a defacto opacity monitor. They noted that opacity monitors are required to be certified to EPA standards when used as continuous emission monitors, but the same standards do not apply to bag leak detectors.

They added that the information provided by the bag leak detector is similar to pressure drop readings and various inspections, which are intended to give the operator additional information about the condition of the baghouse it is servicing. Because information on pressure drop and inspections triggers corrective action, and a violation is based on failure to monitor or to take corrective action, so should a bag leak detection system alarm trigger corrective action. By adding a violation component to the bag leak detection system, the EPA discourages the installation of baghouses. Instead, the EPA should require the facility to undertake a quality

improvement plan to improve environmental performance as described in the recently promulgated Compliance Assurance Monitoring rule.

Response: The EPA believes that baghouse leak detection represents state-of-the-art compliance assurance for baghouses, and plans to implement it in all new source MACT standards, where it is applicable, and, in most cases, to existing source standards as well.

Bag leak detection systems are designed to monitor events. This differs from opacity monitors which monitor continuous emissions. The EPA has provided adequate requirements in the final rule and in associated guidance to ensure the proper operation and maintenance of these systems.

Regarding the request to substitute a compliance assurance monitoring (CAM) approach, the EPA notes that CAM is intended to be applied to existing rules with a presumption that monitoring would not affect the underlying stringency or consequences of the standards. In contrast, new rules, such as these developed under the part 63 NESHAP program, emphasize direct measures of compliance. The bag leak detection system provides this higher level of compliance assurance and is needed for the NESHAP program.

Comment: One commenter (VI-D-03) stated that it appears that the EPA is proposing to penalize operators for a rapid response to initiate corrective actions by setting one hour as a minimum time counted for each alarm while using the actual time for periods which exceed one hour. The commenter proposes that the EPA simplify the requirement such that the alarm time should be counted as the actual amount of time taken by the owner or operator to initiate corrective actions for all cases.

Response: The intent of the operating limit on bag leak detection system alarm time is to limit not only the duration, but also the number of alarm causing events. By rounding the amount of alarm time counted up to one hour for any alarm where the operator responds within one hour, the total number of potential alarm causing events is limited to roughly 220 alarms in a 6-month reporting period. Counting fractions of an hour per event could allow for an unlimited number of events. For example, at 10 minutes per event, the total number of alarm causing events could be as high as 1,300 in a 6-month reporting period.

Comment: Commenter VI-D-03 suggested that the operating limit on bag leak detection system alarm time be reviewed and considered for application to other MACT standards using common add-on emissions control technologies (i.e., baghouses).

Response: The EPA intends to incorporate the operating limit on bag leak detection system alarm time in the rules it is currently developing and in any future rules where baghouses are used to control HAP emissions. In addition, the EPA is considering amending existing NESHAPs where baghouses are used to control HAP emissions to include the operating limit on bag leak detection system alarm time.

Comment: One commenter (VI-D-01) stated that by limiting the cumulative time that a source may operate before initiating corrective action, rather than before completing corrective action), the proposed changes would provide an incentive for the operator to indefinitely delay completion of corrective action.

Response: The commenter is mistaken. Section 63.6(e)(1)(ii) of the General Provisions requires that malfunctions be corrected as soon as practicable after their occurrence. As such, an operator can not delay completion of corrective action without being in violation of the General Provisions. However, the EPA has added language to the final rule to require that "The cause of the alarm shall be corrected as soon as practicable."

Comment: One commenter (VI-D-01) stated that the MACT technology should be reanalyzed to account for the particulate HAP control which is achievable during a one-time performance test conducted on a newly constructed or reconstructed baghouse. The commenter said that while some operators might choose to maintain and promptly repair their air pollution control devices, the rules could not be enforced to require this level of control.

Response: The EPA believes that the commenter has misinterpreted the rule. The commenter infers that the particulate matter emission limits should be based on the level of control that a brand new baghouse can achieve since only a one-time test is required. However, the rule requires annual compliance testing for furnaces, not a one-time compliance test. Furthermore, the rule contains Federally enforceable requirements for the operation and maintenance of each affected baghouse. No change is being made to the rule to address this comment.

Comment: Commenter VI-D-04 had two comments related to the supplemental notice process. They said the notice failed to include specific regulatory language for the ferromanganese and silicomanganese portion of the rule. Because of the absence of this language, they said EPA has not legally proposed changes to §63.1655. They also objected to the brief comment period (30 days) provided for the supplemental changes.

Response: The preamble to the supplemental notice fully explains the construct of the proposed operating limit. Therefore, the EPA believes it has satisfied its obligation to propose the amendments. Regarding the length of the comment period, given the limited scope of the changes and the statutory deadlines facing the Agency, a 30-day comment period was considered adequate. The EPA received no requests for an extension of the comment period.

D. Monitoring equipment calibrations

Comment: Commenter IV-D-01 commented on the frequency of monitoring device calibrations. The proposed rule called for semiannual calibrations. Instead, the commenter suggested requiring that equipment-specific calibrations be performed “at manufacturer’s

recommended frequency, or at frequency consistent with good engineering practice, or as experience dictates."

Response: The EPA made the suggested change.

VIII. PERFORMANCE TEST ISSUES

A. Definition of tapping cycle/period

Comment: Commenter IV-D-01 noted a discrepancy in terminology between the use of tapping cycle and tapping period. The commenter also speculated that EPA's intent was to include the period from the end of one tapping cycle to the end of the following cycle within each run, which would increase the overall length of the test from 5 to 6 hours to 8 to 14 hours.

Response: The EPA intended to define the tapping period as the time from when the tap hole is opened until the time the tap hole is closed. The final rule has been revised to clarify this point and to correct the discrepancy in terminology noted by the commenter.

B. Sampling time issue

Comment: Commenter IV-D-01 worried that the proposed sampling time requirements (each test run must "be at least as long as three times the average tapping period of the tested furnace, but not less than 60 minutes.") would increase their annual testing costs. They said that while it takes an average of 20 minutes per tap, it can take 20 minutes to an hour to either open or close the tap hole, if problems are encountered. They noted that the proposed rule would require most sampling times to extend beyond the 60-minute minimum, resulting in stack tests that extend beyond an 8-hour shift, thereby increasing testing costs with overtime charges.

Response: The EPA changed the final rule to clarify that the test must include a complete tapping period, or at least 20 minutes of a tapping period, whichever is less.

C. Data comparability issue

Comment: Commenter IV-D-01 noted their permit only requires that two of three test runs include a tapping period. They objected to the NESHAP requirement that each run include a tapping period, because the difference will result in data that are not comparable to the data used to set MACT. This is because more emissions are generated during the tapping period than during other periods in the furnace cycle. Therefore, increasing the number of runs that include a tapping period increases the amount of captured emissions.

Response: The EPA agrees that the test run requirements used to establish the standard should be the same as the requirements used to demonstrate compliance with the standard. The EPA changed the final rule to require compliance tests to include a minimum of two runs that include a tapping period.

D. Test method concerns

Comment: Commenter IV-D-01 objected to the use of Method 5D for positive pressure baghouses that are not equipped with outlet stacks. They stated that this method requires cutting off the flow of air through the baghouse, thereby creating a fire hazard. They suggested that visual emission observations beyond the ridge vent/roof monitor will adequately demonstrate compliance with emissions limits for this type of baghouse.

Response: As stated in the proposal preamble, the EPA agrees that Method 5D, as configured at the time of proposal, presented safety and other practicality issues (63 FR 41522). Since then, the EPA published final amendments to the method (*cite FR when available)* that correct the deficiencies in the original version. In particular, the amendments revised the outlet volumetric flow rate calculation procedure to be used in those cases where the outlet measurement site(s) velocity is too low to accurately measure using a type S pitot. The change is based on the assumption that differences between the average fabric filter gas inlet and outlet temperatures are due to cooling with ambient air. This information on temperature differences can be used to calculate the outlet volume.

IX. COMPLIANCE ISSUES

Comment: Commenter IV-D-01 noted several instances where the proposed rule defines circumstances that would result in the source being in violation of the standard. They said that this definition of "violation" without consideration of the circumstances beyond the control of the owner/operator is contrary to case law, contrary to the concept of the title V emergency provision, and is improperly used with regards to the failure to meet a technical standard. They suggested that EPA replace this language with "a failure to operate in a manner consistent with good air pollution control practices for minimizing emissions."

Response: The EPA worded the compliance provisions in the proposed rule to be consistent with their intent to specify the enforcement outcomes of various actions. The EPA believes this language is consistent with current policy and statutory requirements and has not made the changes suggested by the commenter. The startup, shutdown, and malfunction provisions provide flexibility to the source to address malfunctions and unforeseen events.

X. HEALTH EFFECTS

Comment: Commenters IV-D-01 and IV-D-02 said that the proposal preamble statements regarding manganese health effects is simplistic, misleading, and ignores the relevant issues brought out at the Fifteenth International Neurotoxicology Conference on Manganese (Little Rock, Arkansas, October 26-29, 1997).

Response: The proposed rule is based on technology, and was not developed in response to a health risk assessment. In proposing technology-based rules, the EPA generally provides in

the preamble a short summary to inform the public of toxic effects known or thought likely to occur from overexposure to the specific hazardous air pollutants that will be controlled. These summaries are not intended to be complete, because they do not serve as a basis for the rule. We do intend them to be informative and accurate, however.

The commenters' specific points and the EPA's responses follow:

Comment: The preamble lists the acute symptoms of manganism, but calls them chronic symptoms.

Response: The symptoms listed in the preamble, which states that manganism "typically begins with feelings of weakness and lethargy and progresses to other symptoms such as speech disturbances, a mask-like face, tremors, and psychological disturbances," are consistent with clinical descriptions of chronic health effects. The major effect associated with acute manganese overexposure is inflammation of the lungs.

Comment: The preamble is simplistic and misleading because it ignores the following relevant issues, including the fact that not all individuals exposed to elevated levels of manganese by inhalation develop manganism.

Response: It is generally true that individuals vary widely in their sensitivity to poisoning by almost any toxic agent. The EPA agrees this principle also applies to manganese.

Comment: There are no known human cases of manganism in the general population of the United States.

Response: In addition to overt manganism, the EPA's concern about potential toxic effects of manganese in the general public also includes subtle but significant measurable degradation of central nervous system performance. These effects, reported in workers exposed to manganese (Roels, H.A., P. Ghyselen, J.P. Buchet, E. Ceulemans, and R.R. Lauwerys. 1992. Br. J. Ind. Med. 49: 25-34), include slow visual reaction time, loss of eye-hand coordination, and imprecise hand movements caused by small tremors. These effects are clearly adverse, but unlikely to be diagnosed as manganism if observed in the general population. Thus, an absence of reports of clinical manganism in the general population cannot be used as proof that manganese poses no hazard.

Comment: The exposures which caused the documented cases of manganism were from chronic inhalation exposures at least one order of magnitude higher than current OSHA workplace exposure limits in this country, and far above ambient air concentrations off site from the Elkem facility.

Response: Worker populations do not include many sensitive groups, such as children or the elderly, who might be adversely affected by lower concentrations. Also, workers are exposed

only at the workplace, and have time to recover from exposures when off the job. Continuously-exposed offsite residents do not get recovery time. For these and other reasons, the EPA does not usually apply occupational limits to non-worker populations.

Comment: Manganese is as an essential dietary nutrient.

Response: Manganese is indeed an essential nutrient, which may confuse the public about its potential to cause adverse health effects. Simply stated, how can something that is essential also be poisonous? The answer is that the amount (or dose) of manganese determines if poisoning will occur. In high enough doses, essential nutrients, including manganese, can poison just as effectively as substances that are not essential.

It might be argued that manganese emissions provide a health benefit to nearby populations by providing a nutrient supplement. However, that argument assumes a manganese-deficiency problem in the United States, and the EPA is not aware of one.

Comment: A complex homeostatic regulating mechanism exists for this essential nutrient which functions through removal of manganese by the liver, coupled with effective excretion in the bile of amounts above what is needed for nutrition. Also, the existence of a blood/brain barrier which prevents high blood serum manganese from moving into the central nervous system.

Response: Humans and animals have a considerable ability to sequester, detoxify, and eliminate many poisons, two examples of which are described by the commenter. These mechanisms allow organisms to cope with small doses without adverse effect. These small doses are said to be below the threshold for toxicity. However, doses above the threshold for toxicity overwhelm the organism's coping ability and begin to damage cells, tissues, and organs. The EPA's description of adverse health effects caused by manganese applies only to doses above this threshold. Although including in the preamble a discussion of thresholds, with specific mechanisms that create a threshold for manganese toxicity, would have been accurate and informative, the EPA believes it would have gone beyond the level of detail appropriate for the proposed rule.

XI. OTHER

A. Office of Management and Budget review

Comment: Commenters IV-D-01 and IV-D-02 said that the ferroalloys NESHAP should be submitted to the Office of Management and Budget for review under Executive Order 12866, because it is a significant regulatory action. The commenters believe that the proposed emission limit does not accurately characterize the performance of existing MACT floor furnace operations, and, therefore, goes beyond the codification of existing controls and practices. They claim they cannot consistently meet the proposed emission limit with existing equipment and will be adversely affected by the need to install additional air pollution control devices. The NESHAP

will directly affect their productivity and ability to compete in the marketplace. As the only domestic producer of ferromanganese and silicomanganese, Elkem is an adversely affected sector of the economy and qualifies for OMB review under the executive order.

Response: The final rule is based on demonstrated performance supported by emission test data for each affected furnace. The EPA believes that the final standards are achievable with the existing air pollution control devices and disagrees that the purchase and installation of new technology is required. Therefore, the EPA disagrees that the MACT standard imposes adverse effects on the commenter's economic sector.

B. Definitions

Comment: Bag leak detection system. One commenter (IV-D-01) suggested that EPA replace the definition of "bag leak detection system" in the proposed rule with the one found in the 40 CFR 63 subpart X, NESHAP from secondary lead smelting. This definition would delete reference to particulate matter dust "loadings," which are more accurately referred to as "concentrations."

Response: The secondary lead rule was revised in June, 1997. In that version, the definition of "bag leak detection system" refers to loadings. This broader term is appropriate. Similarly, other recent rules that rely on this technology, such as the secondary aluminum MACT proposed in January of this year and the primary lead MACT proposed in April 1998, both refer to loadings. The EPA slightly revised the ferroalloys definition to be consistent with these rules.

"Bag leak detection system means an instrument that is capable of monitoring ~~relative~~ particulate matter (dust) loadings in the exhaust of a baghouse in order to detect bag failures. A bag leak detection system includes, but is not limited to, an instrument that operates on triboelectric, light scattering, transmittance or other effect to monitor relative particulate matter loadings."

Comment: Casting. Commenter IV-D-01 suggested modifying the last sentence of the definition of "casting" to read as follows: ". . . by crane, truck or other conveyance."

Response: The EPA made the suggested change.

Comment: Tapping period. Commenter IV-D-01 suggested revising the definition of "tapping period" to read as follows: "Tapping period means the average time duration from initiation of ~~the process of~~ opening the tap hole until the plugging of the tap hole is complete.

Response: The EPA addressed the commenter's concern related to the potential variability in tap duration in changes to the test method requirements to include a complete tapping period, or at least 20 minutes of a tapping period, whichever is less.

C. Applicability

Comment: Commenter IV-D-03 said that §63.1620(a) and §63.1650(a) should be revised to clarify that the NESHAP are only applicable to facilities that are major sources of HAP. This change would eliminate possible confusion with regard to other ferroalloy production facilities that are major sources of criteria pollutants, but not of HAP.

Response: The EPA made the suggested change to §63.1650(a).

D. Specific rule language clarifications

Comment: Commenter IV-D-01 suggested revising §63.1652(a)(2) to clarify that the standards for new or reconstructed sources only apply to new (or reconstructed) individual equipment associated with the crushing and screening operation.

Response: The EPA made the suggested change to §63.1652(a)(2).

Comment: Commenter IV-D-01 said that §63.1652(a)(3) should be revised to focus on fugitive dust sources only because the other emission sources referenced in §63.1650(b) are already addressed by separate new source and existing source standards.

Response: The EPA clarified applicability requirements in the final rule.

Comment: Commenter IV-D-01 said that §63.1652(b)(4)(i) and (ii) should be modified to include wording similar in the existing Ohio regulation. The commenter suggested deleting the words "distinct," "block," and "average," and inserting language so that the modified sentence reads: "May exceed greater than 20% opacity as a six-minute average, for more than one *non-overlapping period of* six *consecutive* minutes in any sixty minutes, but they shall not exceed 60% opacity, as a six minute average at any time."

Response: The EPA agrees that the proposed language was unclear. The intent was to reflect the purpose behind the original permit requirement. The EPA agrees that references to "distinct block averages" are unneeded, as Method 9 clearly defines the methodology to calculate averages. The EPA revised §63.1652 to clarify the requirement and to state the following:

"Visible particulate emissions from a shop that are due solely to operation of a semi-closed submerged arc furnace, may exceed 20 percent opacity, measured as a six-minute average, one time during any 60-minute period, so long as the emissions never exceed 60 percent opacity, measured as a six-minute average."

Comment: The commenter also suggested revising §63.1652(b)(4)(iii) to clarify that the opacity standard exemption applies to MOR casting operations. The suggested language would

read "... maintenance activities associated with ferroalloy submerged arc furnaces and casting operations are exempt from ..."

Response: The EPA made the suggested change.

Comment: Commenter IV-D-01 clarified that they understand the phrase in §63.1654(a)(2) "...with the exception of any air pollution control devices that also serve non-furnace emission sources" refers to existing baghouses on the MOR process and on individual equipment associated with crushing and screening operations.

Response: The commenter is correct. The EPA clarified this section to state the affected sources.

Comment: Commenter IV-D-01 said the units for the emission rate C_{Si} referenced in the equation under §63.1654(a)(3)(iii) are kg/hr (or lb/hr). However, the C_{Si} term is defined as "the **concentration** of particulate matter from exhaust stream "i." The commenter states that the C_{Si} term is not a mass per unit volume (a true "concentration"), but rather a mass per unit time (a "loading" rate).

Response: The commenter correctly noted an error in the proposed text. However, the EPA revised this section to reflect the changes to the format and application of the standard to individual emission points.

Comment: Commenter IV-D-01 request that the language be modified in §63.1654(a)(4) from "The pressure drop shall be monitored and recorded at least every 5 minutes during the test." to "... monitor the pressure drop at the venturi at least every 5 minutes and record the average hourly pressure drop." The commenter suggests this change so that the language is consistent with §63.1655(b).

Response: The EPA made the suggested change.

Comment: Commenter IV-D-01 said that the internal reference to §63.1652(a)4) in §63.1654(b)(1) is incorrect, because there is no §63.1652(a)(4) in the proposed rule.

Response: The EPA corrected the cross reference in the final rule.

Comment: Commenter IV-D-01 said in reference to §63.1656 that they should not be required to notify the U.S. EPA Administrator that they are subject to the requirements of the standard as stated in §63.1655(a)(2), because they are the only facility in the world covered by the proposed rule.

Response: The required notification is a minor burden, and is needed to ensure that the State, EPA Region, and others have adequate notification of the applicability of the final MACT standard to the source. For these reasons, the EPA retained the requirement in the final rule.

Comment: Commenter IV-D-01 said that §63.1655(b)(1) of the proposed rule requires the use of the "limit established during the most recent compliance demonstration" to determine compliance with the emissions limitation standard. The commenter believes that this statement conflicts with §63.1654(a)(4)(ii) that allows the use of historic data to augment performance test data in determination of monitoring values. The commenter suggested that the rule allow use of a "limit established during any successful compliance demonstration."

Response: The EPA made the suggested change.

E. Minor editorial comments.

The EPA made minor clarifications to the regulation to improve clarity and readability. These changes do no change any substance of the regulation.

APPENDIX--Summary of Performance Test Data

SUMMARY OF PERFORMANCE TEST DATA, FURNACE #1

Date of test	Source	Run 1, lb/hr	Run 2, lb/hr	Run 3, lb/hr	Average, lb/hr
04/02/97	Scrubber	16.520	12.110	10.320	12.983[1]
	Baghouse	3.790	3.840	7.650	5.093
04/23/96	Scrubber	28.960	30.850	24.420	28.077
	Baghouse	3.248	4.990	6.422	4.887
10/05/95	Scrubber	23.470	24.000	27.190	24.887
	Baghouse	4.910	4.460	4.200	4.523
10/26/94	Scrubber	23.940	29.810	25.500	26.417
	Baghouse	1.650	0.710	1.900	1.420
10/14/93	Scrubber	27.742	26.126	23.495	25.788
	Baghouse	5.173	6.082	4.988	5.414
11/05/92	Scrubber	19.650	17.720	26.480	21.283
	Baghouse	1.000	0.840	1.310	1.050
08/29/91	Scrubber	31.040	24.000	26.200	27.080
	Baghouse	3.860	1.410	1.010	2.093

[1] The mean of the test results was determined to be an outlier and was excluded from the subsequent data analyses.

SUMMARY OF PERFORMANCE TEST DATA, FURNACE #12

Date of test	Source	Run 1, lb/hr	Run 2, lb/hr	Run 3, lb/hr	Average, lb/hr	Adjusted average, lb/hr
04/02/97	Scrubber	3.470	6.290	6.720	5.493	5.493
04/23/96	Scrubber	11.905	10.808	16.483	13.065	13.065
10/05/95	Scrubber	11.190	17.990	9.930	13.037	13.037
07/27/94	Scrubber	10.020	6.410	6.830	7.753	7.753
10/13/93	Scrubber	12.276	9.650	12.659	11.528	11.528
11/05/92	Scrubber	21.690	10.170	11.320	14.393	10.745[2]
08/29/91	Scrubber	9.290	9.100	8.980	9.123	9.123

[2] Run 1 was determined to be a statistical outlier. The adjusted average is the mean of the remaining two runs and was used in the subsequent data analyses.

SUMMARY OF PERFORMANCE TEST DATA, FURNACE #18

Date of test	Source	Run 1, lb/hr	Run 2, lb/hr	Run 3, lb/hr	Average, lb/hr
04/01/97	Scrubber	1.413	1.270	0.960	1.214
	NW stack	1.735	4.161	1.795	2.564
	SW stack	8.524	14.018	11.783	11.442
	NE stack	2.530	3.420	3.176	3.042
	SE stack	4.161	3.411	5.658	4.410
	Vent stack total	16.950	25.010	22.412	21.457
10/04/95	Scrubber	1.461	1.355	1.074	1.297
	NW stack	1.893	1.842	1.796	1.844
	SW stack	1.995	2.340	4.047	2.794
	NE stack	0.568	0.689	0.419	0.559
	SE stack	1.521	1.490	1.056	1.356
	Vent stack total	5.977	6.361	7.318	6.552
12/15/94	Scrubber	0.490	0.830	0.710	0.677
	NW stack	2.410	1.400	2.240	2.017
	SW stack	2.140	2.760	3.270	2.723
	NE stack	0.900	0.610	0.840	0.783
	SE stack	0.720	0.810	1.870	1.133
	Vent stack total	6.170	5.580	8.220	6.657

Date of test	Source	Run 1, lb/hr	Run 2, lb/hr	Run 3, lb/hr	Average, lb/hr
10/27/94[3]	Scrubber	0.690	1.100	1.100	0.963
	NW stack	2.090	1.910	1.160	1.720
	SW stack	11.890	21.120	21.240	18.083
	NE stack	5.110	9.060	9.260	7.810
	SE stack	10.680	12.500	12.940	12.040
	Vent stack total	29.770	44.590	44.600	39.653
02/02/94	Scrubber	0.323	0.380	0.200	0.301
	NW stack	2.980	2.270	2.110	2.453
	SW stack	3.240	3.910	3.460	3.537
	NE stack	0.171	0.538	0.788	0.499
	SE stack	0.560	5.270	1.910	2.580
	Vent stack total	6.951	11.988	8.268	9.069
02/07/92	Scrubber	0.650	0.900	0.860	0.803

[3] The vent stack results from this test were excluded from further analyses because every run exceeded the State emission limit for the entire furnace and because the statistical analyses identified these results as outliers.