## ENVIRONMENTAL PROTECTION AGENCY

### 40 CFR Part 63

**[EPA–HQ–OAR–2002–0017; FRL–9278–5]**

**RIN 2060–AN99**

## National Emission Standards for Hazardous Air Pollutants: Mercury Emissions From Mercury Cell Chlor-Alkali Plants

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Supplemental proposed rule.

**SUMMARY:** This action proposes amendments to the national emission standards for hazardous air pollutants (NESHAP) for mercury emissions from mercury cell chlor-alkali plants (Mercury Cell NESHAP). On June 11, 2008, EPA proposed amendments to this NESHAP in response to a petition for reconsideration filed by the Natural Resources Defense Council (NRDC). This action is a supplement to the June 11, 2008, proposal. Specifically, this action proposes two options for amending the NESHAP for mercury emissions from mercury cell chlor-alkali plants. The first option would require the elimination of mercury emissions and thus encourage the conversion to non-mercury technology. The second option would require the measures proposed in 2008. These measures, which included significant improvements in the work practices to reduce fugitive emissions from the cell room, would result in near-zero levels of mercury emissions while still allowing the mercury cell facilities to continue to operate. We are specifically requesting comment on which of these options is more appropriate, and may finalize either option or a combination of elements from them. In addition, this action proposes several amendments that would apply regardless of which option we select. These proposed amendments are provisions of the existing NESHAP that would apply to periods of startup, shutdown, and malfunction (SSM), and corrections to compliance errors in the currently effective rule.

**DATES:** Comments must be received on or before May 13, 2011. Under the Paperwork Reduction Act, comments on the information collection provisions must be received by the Office of Management and Budget (OMB) on or before April 13, 2011.

*Public Hearing.* If anyone contacts EPA by March 29, 2011 requesting to speak at a public hearing, EPA will hold a public hearing on April 13, 2011. If a public hearing is held, it will be held at EPA's Campus located at 109 T.W. Alexander Drive in Research Triangle Park, NC, or an alternate site nearby. Contact Virginia Hunt at (919) 541–0832 to request a hearing, to determine if a hearing will be held, or to determine the hearing location. If no one contacts EPA requesting to speak at a public hearing concerning this proposed rule by March 29, 2011, the hearing will be cancelled without further notice.

**ADDRESSES:** You may submit comments, identified by Docket ID No. EPA–HQ–OAR–2002–0017, by any of the following methods:

- *Federal eRulemaking Portal: http://www.regulations.gov:* Follow the instructions for submitting comments.
- *Agency Web Site: http://www.epa.gov/oar/docket.html.* Follow the instructions for submitting comments on the EPA Air and Radiation Docket Web site.
- *E-mail: a-and-r-docket@epa.gov.* Include Docket ID No. EPA–HQ–OAR–2002–0017 in the subject line of the message.
- *Fax:* (202) 566–9744.
- *Mail:* National Emission Standards for Hazardous Air Pollutants for Mercury Cell Chlor-alkali Plants Docket, Environmental Protection Agency, EPA Docket Center (EPA/DC), Air and Radiation Docket, Mail Code 2822T, 1200 Pennsylvania Ave., NW., Washington, DC 20460. Please include a total of two copies. In addition, please mail a copy of your comments on the information collection provisions to the Office of Information and Regulatory Affairs, Office of Management and Budget (OMB), *Attn:* Desk Officer for EPA, 725 17th St., NW., Washington, DC 20503.
- *Hand Delivery:* EPA Docket Center, Public Reading Room, EPA West, Room 3334, 1301 Constitution Ave., NW., Washington, DC 20460. Such deliveries are only accepted during the Docket's normal hours of operation, and special arrangements should be made for deliveries of boxed information.

*Instructions:* Direct your comments to Docket ID No. EPA–HQ–OAR–2002–0017. EPA's policy is that all comments received will be included in the public docket without change and may be made available online at *http://www.regulations.gov,* including any personal information provided, unless the comment includes information claimed to be confidential business information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through *http://www.regulations.gov* or e-mail. The *http://www.regulations.gov* Web site is an "anonymous access" system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA without going through *http://www.regulations.gov,* your e-mail address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD–ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses.

*Docket:* All documents in the docket are listed in the *http://www.regulations.gov* index. Although listed in the index, some information is not publicly available, *e.g.,* CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically through *http://www.regulations.gov* or in hard copy at the National Emission Standards for Hazardous Air Pollutants for Mercury Cell Chlor-alkali Plants Docket, EPA/DC, EPA West, Room 3334, 1301 Constitution Ave., NW., Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566–1744, and the telephone number for the Air Docket is (202) 566–1742.

**FOR FURTHER INFORMATION CONTACT:** Sharon Nizich, Sector Policies and Programs Division, Office of Air Quality Planning and Standards (D243–02), Environmental Protection Agency, Research Triangle Park, North Carolina 27711, telephone number: (919) 541–2825; fax number: (919) 541–5450; e-mail address: *nizich.sharon@epa.gov.*

**SUPPLEMENTARY INFORMATION:**

The supplementary information in this preamble is organized as follows:

## I. General Information

### *A. Does this action apply to me?*

The regulated categories and entities potentially affected by this proposed action include:

| Category | NAICS code[1] | Examples of regulated entities |
|---|---|---|
| Industry | 325181 | Alkalis and Chlorine Manufacturing. |
| Federal government | | Not affected. |
| State/local/Tribal government | | Not affected. |

[1] North American Industry Classification System.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be affected by this action. To determine whether your facility would be regulated by this action, you should examine the applicability criteria in 40 CFR 63.7682 of subpart IIIII, National Emission Standards for Hazardous Air Pollutants (NESHAP): Mercury Emissions from Mercury Cell Chlor-Alkali (hereafter called the "2003 Mercury Cell NESHAP"). If you have any questions regarding the applicability of this action to a particular entity, consult either the air permitting authority for the entity or your EPA regional representative as listed in 40 CFR 63.13 of subpart A (General Provisions).

### *B. What should I consider as I prepare my comments to EPA?*

Do not submit information containing CBI to EPA through *http://www.regulations.gov* or e-mail. Send or deliver information identified as CBI only to the following address: Roberto Morales, OAQPS Document Control Officer (C404–02), Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina 27711, Attention Docket ID EPA–HQ–OAR–2002–0017. Clearly mark the part or all of the information that you claim to be CBI. For CBI information in a disk or CD ROM that you mail to EPA, mark the outside of the disk or CD ROM as CBI and then identify electronically within the disk or CD ROM the specific information that is claimed as CBI. In addition to one complete version of the comment that includes information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted for inclusion in the public docket. Information so marked will not be disclosed except in accordance with procedures set forth in 40 CFR part 2.

### *C. Where can I get a copy of this document?*

In addition to being available in the docket, an electronic copy of this proposed action will also be available on the World Wide Web (WWW) through the Technology Transfer Network (TTN). Following signature, a copy of this proposed action will be posted on the TTN's policy and guidance page for newly proposed or promulgated rules at the following address: *http://www.epa.gov/ttn/oarpg/*. The TTN provides information and technology exchange in various areas of air pollution control.

### *D. When would a public hearing occur?*

If anyone contacts EPA requesting to speak at a public hearing concerning the proposed amendments by March 24, 2011, we will hold a public hearing on April 13, 2011. If you are interested in attending the public hearing, contact Ms. Virginia Hunt at (919) 541–0832 to verify that a hearing will be held. If a public hearing is held, it will be held at 10 a.m. at the EPA's Environmental Research Center Auditorium, Research Triangle Park, NC, or an alternate site nearby.

## II. Background Information

### *A. What is the history of the Mercury Cell NESHAP?*

On December 19, 2003, EPA promulgated the 2003 Mercury Cell NESHAP (40 CFR part 63, subpart IIIII, 68 FR 70904). This rule for mercury cell chlor-alkali plants implements section 112(d) of the Clean Air Act (CAA), which requires all categories and subcategories of major sources listed under section 112(c) to meet hazardous air pollutant emission standards reflecting the application of the maximum achievable control technology (MACT). Mercury cell chlor-alkali plants are a subcategory of the chlorine production source category listed under the authority of section 112(c)(1) of the CAA. In addition, mercury cell chlor-alkali plants are listed as an area source category under section 112(c)(3) and (k)(3)(B) of the CAA. The 2003 Mercury Cell NESHAP satisfied our requirement to issue 112(d) regulations under each of these listings (for mercury). The 2003 Mercury Cell NESHAP required both existing major and area sources to meet mercury emission limits on stack emission sources from both chlorine production and from the recovery of mercury from wastes and other scrap in mercury thermal recovery units. The 2003 Mercury Cell NESHAP also required the facilities to monitor and minimize fugitive mercury emissions from the cell room by conducting either daily work practices or work practices performed in response to high levels of mercury emissions determined from continuous mercury monitoring. The 2003 rule required facilities to comply with

applicable emission limitations and work practice requirements at all times, except during periods of SSM. Finally, the 2003 Mercury Cell NESHAP prohibited mercury emissions from new and reconstructed facilities.

*B. What petitions were filed after promulgation of the Mercury Cell NESHAP in 2003?*

On February 17, 2004, the NRDC submitted an administrative petition to EPA asking us to reconsider several aspects of the 2003 Mercury Cell NESHAP under CAA section 307(d)(7)(B). On the same day as the administrative petition, NRDC and the Sierra Club also filed a petition for judicial review of the 2003 Mercury Cell NESHAP in the U.S. Court of Appeals for the DC Circuit (Civ. No. 04–1048).

By a letter dated April 8, 2004, Jeffrey Holmstead, then-EPA Assistant Administrator for the Office of Air and Radiation, notified the NRDC that EPA had granted NRDC's petition for reconsideration of the 2003 Mercury Cell NESHAP. On July 20, 2004, the Court granted EPA's motion to hold the case for judicial review in abeyance pending EPA's action on the reconsideration of the 2003 Mercury Cell NESHAP.

*C. What were the reconsideration decisions proposed in 2008?*

On June 11, 2008 (73 FR 33257), EPA responded to NRDC's petition for reconsideration. In their petition, NRDC asked EPA to reconsider five issues: (1) The decision to develop a set of work practice requirements under CAA section 112(h) in lieu of a numeric emission limitation for cell rooms; (2) the decision to make the promulgated work practices optional for sources that choose to undertake continuous monitoring; (3) the decision to not require existing facilities to convert to a non-mercury chlorine manufacturing process; (4) the elimination of the previously applicable part 61 rule's 2,300 grams/day plant-wide emission limitation; and (5) the decision to create a subcategory of mercury cell chlor-alkali plants within the chlorine production category. In the 2008 proposal, EPA addressed each of these issues and proposed amendments where we determined them to be appropriate. Following are brief summaries of our reconsideration decisions. For a full explanation of these decisions and the rationale supporting them, please *see* the preamble for the June 11, 2008 proposal (73 FR 33258). The 2008 proposed amendments, which are being co-proposed in this action as Option 2, are discussed in section III.B of this document.

In addition, while not specifically listed as a major issue in their petition, the uncertainty related to the magnitude of fugitive mercury emissions was clearly a basis for much of NRDC's concern. This was also addressed in the 2008 proposal and is summarized below after the five specific issues cited by NRDC in the petition.

1. Emission Limitation for Cell Room

In its petition for reconsideration, NRDC stated that EPA failed to adequately justify that a numeric emission limitation was not feasible per the criteria prescribed in section 112(h) of the CAA. In our 2008 reconsideration, we concluded that it is not feasible to prescribe or enforce an emission limitation for fugitive emissions from the cell room. We maintained that fugitive emissions from mercury cells and associated equipment are a clear example of the type of situation to be addressed by the provisions of section 112(h). The various points which led to our opinion on the feasibility of establishing an emission standard were discussed in detail in the 2008 proposal (73 FR 33267–33271). In summary, consistent with CAA section 112(h), we believe that it is not feasible to prescribe or enforce an emission standard in this case. There are two independent bases for this conclusion. First, consistent with CAA section 112(h)(2)(A), we concluded that fugitive mercury emissions from a mercury cell chlor-alkali plant cannot be emitted through a conveyance designed and constructed to emit or capture such pollutant. Second, consistent with CAA section 112(h)(2)(B), we established that the application of measurement technology to mercury cell rooms is not practicable due to technological and economic limitations.

2. Optional Work Practices

The 2003 Mercury Cell NESHAP requires facilities to follow a set of detailed work practices. The NESHAP also allows facilities to institute a cell room monitoring program to continuously monitor the mercury vapor concentration in the upper portion of each cell room as an alternative to these work practice standards. One of the objections raised by NRDC was that this provision backtracked from the Agency's proposed work practice standards. NRDC pointed out that in the development of the Mercury Cell NESHAP, EPA concluded that the housekeeping activities that facilities in the industry follow to comply with the part 61 mercury NESHAP (40 CFR 61, subpart E) represented the MACT floor and that requiring practices based upon the most detailed activities in the industry (*i.e.,* "beyond-the-floor" practices) was justified. But NRDC was concerned because the work practices in the 2003 Mercury Cell NESHAP were optional if facilities chose to do continuous monitoring and, therefore, this option would allow sources to avoid conducting activities that represent the MACT floor. NRDC argued that this was a violation of section 112(d)(3) of the CAA, which requires all facilities to meet the MACT floor.

As a result of our consideration of NRDC's point, we included proposed amendments in 2008 that would require that all plants institute a cell room monitoring program and comply with work practice standards (73 FR 33271–33272). As part of today's action, we are re-proposing the combination of work practices and cell room monitoring program as option 2. The specific proposed amendments are discussed in section III.B of this document.

3. Requiring Conversion to a Non-Mercury Chlorine Manufacturing Process

In its petition, NRDC argued that the 2003 Mercury Cell NESHAP does nothing to limit the use of mercury cell technology by existing chlor-alkali plants, and that the Agency ignored a known technique for reducing mercury emissions from this industry, namely, conversion to non-mercury processes. According to NRDC, requiring the industry to convert to a non-mercury process is cost-justified and would provide significant non-air quality benefits. In response to NRDC's concerns that we did not evaluate the conversion of mercury cell chlor-alkali production plants to non-mercury technology, we performed an analysis to estimate the capital and annual costs of this action. In performing the analysis, we used information from all readily available sources of information. Based on the results of this analysis, we proposed to reject the option of requiring conversion to non-mercury technology because of the high cost impact this forced conversion would impose on the facilities in the industry (73 FR 33274–33275).

Following the 2008 proposal, one commenter provided detailed comments on our proposed decision to not require existing facilities to convert to a non-mercury chlorine manufacturing process. In addition to comments on the EPA cost analysis described in our 2008 proposal, the commenter provided a report to support its comments. We

reviewed these comments, examined the commenter's report, and concluded that our cost analysis could be improved. Therefore, we incorporated some aspects of the commenter's cost analysis, and gathered additional cost information. The results of our revised analyses, and our consideration of the policy and legal comments made by the commenter regarding the benefits of non-mercury technology to produce chlorine, provided the impetus for the non-mercury mercury option being proposed today as Option 1. Details of this proposed option are provided in section III.A of this document.

4. Elimination of Part 61 NESHAP Numeric Limit

NRDC stated that EPA illegally eliminated the 2,300 g/day limit on plant-wide mercury emissions that existed under the part 61 Mercury NESHAP. Upon reconsideration, we disagreed with NRDC's argument. We determined that the plant-wide emission limit from the part 61 Mercury NESHAP was a standard to which no mercury cell facility had ever demonstrated compliance by way of emissions testing, that it is not an enforceable standard today, and, more importantly, and that it did not reflect the MACT level of emissions control required under CAA section 112(d)(3)(B). Therefore, we concluded that we did not unlawfully remove any actual requirement of the part 61 Mercury NESHAP. Instead, the 2003 Mercury Cell NESHAP adopted a set of MACT-level work practice requirements under section 112(h) that are more stringent in terms of controlling fugitive mercury emissions than was allowed in the part 61 NESHAP. Details on this conclusion were provided on pages 73 FR 33270 and 33271 of the June 11, 2008 proposal.

5. Mercury Cell Chlor-Alkali Subcategory

As stated in the preamble to the final 2003 Mercury Cell NESHAP (68 FR 70905), we divided the chlorine production source category into two subcategories: (1) Mercury cell chlor-alkali plants and (2) chlorine production plants that do not rely upon mercury cells for chlorine production. In December 2003 (68 FR 70949), we issued our final decision to delete the subcategory of the chlorine production source category for chlorine production plants that do not utilize mercury cells to produce chlorine and caustic. This action was made under our authority in CAA section 112(c)(9)(B)(ii), and was not challenged in a petition for judicial review. Nor did anyone ask us to reconsider that action pursuant to CAA section 307(d)(7)(B). The objection raised by NRDC in its petition for reconsideration of the 2003 Mercury Cell NESHAP was that it was not appropriate to create a mercury cell chlor-alkali plants subcategory. According to NRDC, if the MACT floor for mercury emissions was determined for the chlorine production source category as a whole, the best-performing 12 percent of sources in the category would be mercury-free. In our 2008 proposal (73 FR 33273–33274), we explained that EPA has a long history of using subcategorization to appropriately differentiate between types of emissions and/or types of operations when analyzing whether air pollution control technology is feasible for groups of sources. Upon reconsideration of this situation for mercury cell chlor-alkali plants, we concluded that our earlier decision to create the mercury cell chlor-alkali plant subcategory was sound.

6. Magnitude of Fugitive Mercury Emissions

Prior to 2008, the uncertainty associated with fugitive mercury emissions from mercury cell chlor-alkali plants had long been an issue. Few studies had been conducted to measure these fugitive mercury emissions, and the studies that had been conducted were short-term and did not account for a range of operating and maintenance conditions. For around 30 years, mercury cell chlor-alkali plants had reported fugitive mercury emissions of 1,300 grams per day (g/day), which equates to around 0.5 tons per year per plant. These estimates were based on two limited studies conducted by EPA in the early 1970's.

The sensitivity and concern over the actual levels of fugitive mercury emissions from the cell rooms was exacerbated by the inability of the industry to fully account for all the mercury that was added to the cells. In 2000, there were approximately 65 tons of mercury unaccounted for at the 12 mercury cell plants in operation at that time. This discrepancy was based on the difference between the amount of mercury used, as reported in the Chlorine Institute's 2001 annual report to EPA's Binational Toxics Strategy Mercury Workgroup,[a] and the amount of mercury released to all media, as reported in the 2000 Toxics Release Inventory, or TRI (the EPA requires industrial facilities to annually report on releases and transfers of certain toxic chemicals to a public database known as the TRI.) While industry representatives provided explanations for this discrepancy, they could not fully substantiate their theories. NRDC maintained that this "missing" mercury was being emitted as fugitive emissions.

We recognized that the body of fugitive mercury emissions data could be improved. Therefore, as part of our reconsideration of the 2003 Mercury Cell NESHAP, we collected additional information on fugitive mercury emissions from mercury cell chlor-alkali plants. The primary purpose of this effort was to address whether the fugitive emissions from a mercury cell chlor-alkali plant are on the order of magnitude of the historical assumption of 1,300 g/day, corresponding to 0.5 tons per year (tpy) per plant, or an order of magnitude higher as estimated by NRDC.

Consequently, as part of our reconsideration efforts leading the 2008 proposal, we sponsored a test program to address the issue of the magnitude of the fugitive mercury emissions at mercury cell chlor-alkali plants. In addition to this EPA test program, we also collected mercury emissions data from the continuous mercury monitoring systems installed at three mercury cell plants.

The daily fugitive mercury emission rates extrapolated from these data sets ranged from around 20 to 1,300 g/day per facility. The average daily emission rates ranged from around 420 g/day to just under 500 g/day per facility, with the mean of these average values being slightly less than 450 g/day per facility. Therefore, the information we obtained in the almost one million dollar study of fugitive emissions from mercury cell chlor-alkali plants shows that fugitive emissions are on the order of magnitude of the historical assumption of 1,300 g/day or less. There was no evidence obtained during any of the studies that indicated that fugitive mercury emissions were at levels higher than 1,300 g/day. All of the studies that produced these data were of sufficient duration to encompass all types of maintenance activities. Further, the length of these studies was also sufficient to include emissions from a variety of process upsets, such as: Liquid mercury spills, leaking cells and other process equipment, and other process upsets.

We also note that since 2008, the mercury cell plants with continuous monitoring systems and methods to estimate the flow rates have reported even lower mercury emissions than

[a] Binational Toxics Strategy Mercury Workgroup—Reducing Mercury in the Great Lakes Region. U.S. Environmental Protection Agency. *http://www.epa.gov/reg5oair/mercury/reducing.html#regulation.*

those reported in the 2008 proposal. In 2008, these plants reported fugitive mercury emissions averaging around 225 g/day/plant.

*D. What current legislation is related to this action?*

There is also U.S. legislation, both recently enacted and proposed, that has or will have an impact on these mercury chlor-alkali facilities. On October 14, 2008, President Bush signed the Mercury Export Ban Act of 2008 into law. This law bans U.S. export of elemental mercury (effective in 2013), requires the Department of Energy (DOE) to designate and manage a long-term storage facility for elemental mercury, and prohibits the transfer of elemental mercury by Federal agencies.

Both houses of Congress are currently considering legislation that, if enacted, would affect this industry (S. 1428 and H.R. 2190). These bills would amend the Toxic Substances Control Act to prohibit the use of mercury at chlor-alkali facilities. The House bill would require the facilities to cease using mercury by 2013 if the plant chooses to close or by 2015 if the plant chooses to convert to non-mercury. If this legislation passes Congress and is signed by the President into law, we will evaluate the appropriate action for EPA in light of the scope and impact of the law.

**III. Summary of Proposed Amendments**

In today's action, we are proposing two options for amending the Mercury Cell NESHAP. The first option (non-mercury technology option) would encourage the conversion to non-mercury technology by requiring the elimination of mercury emissions. The second option (enhanced work practices option) would require improvements in the work practice standards to reduce fugitive emissions from the cell room including the requirement that every facility institute a cell room monitoring program and implement detailed work practices. These options, along with the estimated impacts of each, are described below in sections III.A and III.B. Also included is rationale for the selection of each option.

In addition to these options, we are also proposing amendments that would apply regardless of which option we select. These amendments are described in section III.C.

*A. What is the non-mercury technology option (Option 1)?*

1. Summary of Non-Mercury Technology Option

This proposed option would amend the 2003 Mercury Cell NESHAP by prohibiting mercury emissions from existing mercury cell chlor-alkali plants. This would make the standard for existing sources the same as the current standard for new and reconstructed sources, which is codified at 40 CFR 63.8190(a)(1).

Since we believe it is improbable that a mercury cell chlor-alkali plant can be operated without mercury emissions, we believe that this proposal would effectively require existing mercury cell chlor-alkali plants either to convert to a non-mercury technology or to cease production of chlorine with their current mercury cell production methods. However, if there are circumstances where the elimination of mercury emissions from an operating mercury cell plant could be achieved, we are interested in data and supporting information regarding technologies that would eliminate mercury emissions from an operating mercury cell facility.

This proposed option would provide a three-year period from the date the final rule is published in the **Federal Register** to comply. To demonstrate compliance, each owner or operator would have to submit a report certifying that all mercury emissions have been eliminated permanently. This report would have to be submitted no later than 120 days following the applicable compliance date.

2. Technical Information and Analyses for the non-Mercury Technology Option

a. Background on the 2008 Proposal and Costs Analysis

Section 112(d)(2) of the CAA provides that emission standards for new or existing sources of hazardous air pollutants (HAP) shall require the maximum degree of reduction in emissions (including a prohibition on such emissions, where achievable) that EPA, taking into consideration the cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems or techniques. These may include, but are not limited to, measures which (A) Reduce the volume of or eliminate emissions through process changes, substitution of materials or other modifications; (B) enclose systems or processes to eliminate emissions; (C) collect, capture or treat such pollutants when released from a process, stack, storage or fugitive emission point; (D) are design, equipment, work practice, or operational standards; or (E) are a combination of the above.

One of the claims presented in NRDC's petition for reconsideration of the 2003 Mercury Cell NESHAP was that EPA had not adequately considered non-mercury technology as a "beyond-the-floor" MACT control measure for existing sources in the original rulemaking for the Mercury Cell NESHAP (*see* section II.D.3). Further, NRDC claimed that the cost-effectiveness of such a requirement, in terms of the annualized costs of control per pound of mercury eliminated, would be less than EPA previously indicated was warranted for mercury emissions from the mercury cell subcategory.

In response to this comment, we performed an analysis in 2008 to determine the capital and annual costs of requiring non-mercury technology (Docket Item EPA–HQ–OAR–2002–0017–0088). Specifically, this analysis estimated the costs and the cost-effectiveness of converting the existing mercury cell chlor-alkali plants to membrane cells.

In a chlor-alkali process, an electric current is passed through a salt solution or brine (sodium chloride or potassium chloride), causing the dissociation of salt to produce chlorine gas and an alkaline solution (sodium hydroxide or potassium hydroxide). Hydrogen gas is also produced as a by-product. This dissociation occurs in chlor-alkali "cells," where the chloride ions stripped from the brine flow to the anode to form the chlorine product, and the sodium/potassium ions flow to the cathode, where they form the hydroxide product and hydrogen. In a mercury cell, the cathode is a flowing layer of liquid mercury. The sodium/potassium ions form an amalgam with the mercury, which is routed to a decomposer. In the decomposer, the amalgam is reacted with water to form the hydroxide product and hydrogen. The mercury is then recycled.

In a membrane process, a polymer membrane is used to separate the anode products from the cathode products. The chloride ions (at the anode) and the hydrogen (at the cathode) are kept apart by this membrane, which allows the sodium ions to pass into the cathodic compartment and react to form the hydroxide.

Conversion from mercury cells to membrane cells is technically possible at all existing mercury cell chlor-alkali plants, although the amount of significant changes will vary for each individual situation. There are parts of the mercury cell plant that could be re-used after conversion to the membrane cells. It could be possible to use the existing cell room building for the new

membrane cells, provided that the building is in good condition. However, constructing a new membrane cell room building would reduce the production losses as the mercury cells could continue to operate longer throughout the conversion process. Other equipment and processes that possibly could be retained include the rectifiers, the hydrogen treatment system, and the chlorine compression and liquefaction process.

The mercury cells themselves (and associated decomposers) would have to be replaced by membrane cells. Membrane cells need purer brine than mercury cells, so a completely new brine purification system would likely be needed. Other equipment that would commonly need to be totally replaced include the sodium/potassium hydroxide concentration unit and evaporation system, the chlorine gas drying and chlorine gas absorption units, the power supply unit (excluding the rectifiers), pumps, instruments, and much of the piping.

In performing the cost analysis, we used data from readily-available sources of information. In our 2008 proposal, we estimated that the average cost-effectiveness associated with conversion to non-mercury technology would be approximately $14,000 per pound of mercury emissions eliminated. Further, our 2008 analysis estimated the average capital cost of conversion for one mercury cell chlor-alkali facility in the U.S. to be approximately $68 million per plant. The average annualized facility costs for this conversion were estimated to be approximately $7.5 million per plant. Nationwide, the capital cost was estimated to be nearly $340 million and the annual costs around $38 million for the five facilities in operation at the time. We estimated that this cost impact would be approximately 11 percent of revenues. As a result of these analyses, we proposed in 2008 to reject conversion to non-mercury technology as a beyond-the-floor control requirement.

b. Summary of Comments Received on the 2008 Cost Analysis

One environmental organization disagreed with both our technical analysis and resulting conclusions in the 2008 proposal, and claimed that the switch to non-mercury technology would be economical. The commenter said that, in the 2008 analysis, EPA considered only the costs associated with the conversion, without considering the net cost or economic benefit. The commenter maintained that it is likely that any plant that converts will experience substantial benefits, including an increase in energy efficiency between 25 and 35 percent. The commenter claimed that this increased energy efficiency could amount to substantial savings. Furthermore, the commenter pointed out that membrane cells are smaller than mercury cells, which would allow plants to increase their chlorine capacity, leading to increased sales and additional energy savings due to the additional capacity. The commenter submitted a report that it prepared which provided individualized cost analyses for each of the remaining mercury cell chlor-alkali plants (Docket Item EPA–HQ–OAR–2002–0017–0094.3). According to the commenter, its report proves that conversion would pay for the majority of its cost in five years. Thus, the commenter concluded that EPA's proposal was incorrect to suppose a "high cost impact" of conversion to non-mercury technology, and claimed that EPA should heed the evidence that conversion is not only economically feasible but beneficial and mandate conversion to non-mercury technology as a beyond-the-floor control requirement.

c. 2009 Revised Cost Analyses

In the second quarter of 2009, we performed a revised beyond-the-floor cost analysis to address comments received on the 2008 proposed amendments described above. The impacts, particularly the savings and benefits, of a forced conversion to membrane cells might not be universally applicable since the conditions and benefits are not the same at every facility. We do agree, however, that these facilities would achieve some savings associated with lower electricity and the elimination of environmental compliance costs for water treatment, waste disposal, and mercury monitoring, and that items should be added to the EPA cost analyses. Therefore, without assuming that a uniform energy savings would accrue to every facility currently operating, we updated our analysis to consider the energy costs savings. We also amended our analysis to include savings from the elimination of waste treatment, waste disposal, and mercury monitoring. On June 5, 2009, we developed a revised and updated analysis of conversion costs for the industry. This analysis was posted as a memorandum in the docket (Docket Item EPA–HQ–OAR–2002–0017–0098).

Subsequent to the posting of the June 5, 2009, memorandum, industry representatives provided comments on the revised analysis (Docket Items EPA–HQ–OAR–2002–0017–0100, 0101, 0102, and 0103). One of the major comments raised by industry representatives on our revised analysis regarded the 2006 mercury emission levels used to estimate the cost-effectiveness of conversion to non-mercury technology. The industry representatives stated that these data reflected emission levels considerably higher than their more recently reported emissions. In addition, the industry representatives stated that the capital and annual costs in our 2008 analysis were underestimated. The industry representatives also believed that the annual energy savings were overstated because these savings did not take into account the additional energy and fuel that would be needed to concentrate the caustic by-product obtained using membrane cells, which is produced at 33 percent purity, to the 50 percent purity obtained using the mercury cell process. The industry representatives also commented that the June 2009 cost analysis: (1) Underestimated the mercury storage costs; (2) used an interest rate that was in practicality too low for calculating the capital recovery factor; (3) erroneously used information from a European study to estimate the savings due to the elimination of the mercury process that were not applicable to the U.S.; and (4) did not consider decommissioning costs.

Consequently, we considered the industry comments and, in instances where specific relevant data were provided or available, we incorporated the information into another revised cost analysis dated September 15, 2009 (Docket Item EPA–HQ–OAR–2002–0017–0105). The September 2009 updated cost analysis for conversion to membrane technology estimated that the costs to convert the four remaining mercury cell plants to be nearly $336 million in total capital costs and almost $36 million per year in total annual costs, considering electricity and other savings. The cost-effectiveness of conversion based on this September 2009 analysis was about $66,000 per pound of mercury.

In this analysis, we did not add certain highly variable costs mentioned by the industry commenter that could potentially be incurred by a plant when making a change to non-mercury technology. These variable costs include losses in production, building replacement, plant decommissioning, and many others that are likely to be highly variable from facility to facility. We believe that the magnitude of these costs, although very likely to occur for most facilities, would depend on factors such as the condition of the existing buildings, available space on the facility

site to erect a new cell room building to avoid production losses, and possibly other unknown factors. We also received comments on the revised 2009 cost analyses from the same environmental organization that provided comments on the 2008 cost analysis. The complete comments can be found in the docket (Docket EPA–HQ–OAR–2002–0017). The environmental organization commenter stated that the capital costs estimated by EPA are too high and the EPA analysis did not uniformly account for expansion during conversion. In addition, the commenter stated that the regression formula of cost vs. capacity used to establish an equation is incorrect since there is no relationship between capital costs and capacity when considering the full set of relevant data rather than just recent U.S. facilities. Also, the commenter stated that the capital costs should be annualized over a longer period than the 15 years used in the analysis since 30 years is a more likely useful life.

The environmental commenter also made the following points: The energy savings estimated by EPA are too low, since higher reductions in electricity consumption are common place; the EPA cost estimate for producing steam double-counted the cost associated with concentrating caustic and did not account for the fact the steam could be obtained on-site without expense; the cost savings for environmental compliance avoided are underestimated; and the decommissioning costs are already included in estimates of conversion since many factories include the cost of dismantling and decommission in the reported cost of conversion.

In addition, the commenter recommended that in evaluating the costs, EPA should use the average sales per establishment instead of the average sales per ton of chlorine capacity because the commenter believes that the latter term grossly underestimates sales. The commenter also stated that societal costs of conversion to non-mercury technology should be considered (Docket Item EPA–HQ–OAR–2002–0017–0104). The commenter also believed that the industry-supplied emission estimates are not reliable and are likely underestimated, thus overestimating the costs per pound of mercury emissions prevented. Finally, the commenter stated that EPA's overall conclusion does not reflect the real world since over 100 plants have made the conversion globally and at least five chlor-alkali facilities expected or received a complete repayment from their investment within five years.

d. Revised Cost Analysis for This Proposal

Many of the comments we received on the September 2009 cost analysis were considered and used to estimate costs that represent the outcome of a potential conversion to non-mercury technology. In this revised analysis, we recognize that there are significant uncertainties in estimating these costs, and consider ranges of the potential costs (and savings) associated with each cost element. For each element, we do select a "best estimate" to allow the estimation of capital and annual costs of conversion for each facility. The results of this analysis are summarized below in section III.A.2.a of this document, and a memorandum that documents the details of this cost analysis can be found in the docket. We are specifically requesting comment on our analysis, along with additional facility-specific data, to allow a refinement of the analysis.

3. Estimated Impacts of the Non-Mercury Technology Option

a. Environmental and Energy Impacts

We estimate that the total mercury emissions from the four mercury cell operating facilities to be around 640 pounds per year. The non-mercury technology option would reduce mercury emissions by this amount. These four facilities reported almost 2,000 additional pounds per year of on-site and off-site mercury releases to non-air media. These releases, which are primarily in the form of hazardous wastes, would be eliminated in the longer term, with consequential benefits for non-air quality related health and environmental values. The potential problems associated with the handling and continuous management of over 1,200 tons of virgin mercury that is used in the cells at these four chlor-alkali plants would also be eliminated. In addition, approximately two tons of this mercury was reported by the industry as "unaccounted" in 2008. This non-mercury technology option would eliminate the unaccounted mercury as well.

The membrane cell chlor-alkali process requires less energy than the mercury cell process. Therefore, assuming that all four existing mercury cell chlor-alkali plants convert to membrane cells, there would be a savings in energy. We estimate that this savings would be around 350,000 megawatt hours per year, which is approximately equivalent to the energy produced annually by a 40 megawatt power plant. The emission reductions associated with this reduced electricity generation are estimated to be 68 tons per year of fine particulate matter ($PM_{2.5}$), 5 tons per year of volatile organic compounds (VOC), 0.1 tons per year of ammonia ($NH_3$) 0.008 tons per year of mercury, and 287,000 tons per year of carbon dioxide ($CO_2$). Since nitrogen oxide (NOx) and sulfur dioxide ($SO_2$) are covered by capped emissions trading programs, we are only estimating $PM_{2.5}$ emission reductions from reduced electricity demand.

In the short term, the conversion of these facilities would result in the need to dispose of mercury-contaminated wastes. While there is considerable uncertainty in quantifying the amount of these wastes, we estimate that there could be around 7,000 cubic meters of mercury contaminated waste generated that could contain around 6 tons of mercury.

As stated above, over 1,200 tons of virgin or process mercury from the facilities would need to be dealt with whether the facilities close or convert to non-mercury technology. The Mercury Export Ban Act of 2008, discussed earlier, would prohibit this mercury from being exported. Therefore, this mercury would need to be stored or sold domestically. Since mercury is a hazardous substance, it cannot be stored without a permit; hence, DOE is planning to build a Federal facility to accommodate the excess mercury that results from the export ban.

b. Cost Impacts

The estimated costs for the non-mercury technology option, assuming that all four currently operating mercury cell chlor-alkali plants convert to membrane cell technology, include total capital costs of approximately $300 million dollars, with individual plant capital costs ranging from a low of $28 million to a high of approximately $160 million. Our analysis does show that, in the hypothetical situation that a single plant could incur the lowest possible costs while also realizing the highest possible energy and other savings, there could be an overall cost savings in the conversion from mercury cells to membrane cells. However, we do not believe that this scenario is realistic. Using more conservative assumptions, our best estimate is that the average annual costs would be between $800,000 and $7 million per year per plant. The total annual costs are estimated to be $13 million per year. Based on these costs and the estimated mercury emissions for each facility, the cost-effectiveness, in terms of annualized costs per pound of mercury eliminated, is approximately $20,000 per pound for the industry, with a range

of around $13,000 to $31,000 per pound for the individual facilities.

c. Economic Impacts

In addition to cost analyses, we also conducted an economic analysis of the impacts of the option to require non-mercury technology. A regulatory impact analysis (RIA) was performed for this non-mercury technology option. A report that documents the EIA methods and results can be found in the docket (EPA–HQ–OAR–2002–0017).

Although individual plant information would be the best method to assess the true economic impacts of the non-mercury technology option, detailed information for this industry was not publicly available. As a result, we relied on parent company information provided in company annual reports (*e.g.,* form 10–K), local press and industry trade publications, and company Web sites.

There are many aspects of the cost estimate for conversion that are unknown or difficult to assess. While we believe that we have evaluated the conversion cost information available to us at the time of this action, the true costs may vary considerably. However, variation in engineering costs is not expected to cause a significant difference in the general conclusions of the RIA.

We performed an analysis that compared the annual conversion costs to sales (cost to sales ratio, or CSR). We estimated that the CSR of ASHTA, the one small business in this industry, would range from one to two percent using the costs presented in this proposal. The other three plants are owned by large parent companies with significant company-wide sales. As a result, the CSRs for these large parent companies are below one percent. When single plant sales were considered, the CSRs for the mercury cell chlor-alkali plants owned by large parent companies ranged from 4 to 9 percent.

We also analyzed industry profitability effects by comparing the annual conversion costs to reported industry margins for a representative electrochemical unit. This analysis confirms the results of the sales comparisons that plant conversion costs will likely have an economically significant effect. Conversion costs could reduce the margins by 10 to 20 percent.

This non-mercury technology option would force owners of mercury chlor-alkali plants to make an investment decision based on the costs of conversion as opposed to the future benefits of the conversion. This non-mercury technology option could lead to plant shutdowns that would involve adjustment costs for people working at the affected plants. Affected plants may also have strong links with other firms or downstream markets; as a result, secondary consequences of the regulation are important to consider. We are interested in receiving comments related to the downstream impacts of potential mercury cell plant shutdowns. In particular, we are interested in the impact on the potassium carbonate market and the potential impact on the competitiveness of the potassium hydroxide market.

Many owners have converted from mercury cell chlor-alkali technologies in Europe and the U.S., while other mercury cell chlor-alkali plant owners have concluded the investment decision was currently not in their company's interest given their assessment of future economic conditions, and have shutdown their mercury cell chlor-alkali plants instead. Since 2003, three U.S. mercury cell chlor-alkali facilities have closed and three have converted. Specifically, the Occidental Chemical mercury cell chlor-alkali facilities in Delaware City, Delaware, Muscle Shoals, Alabama, and Deer Park, Texas, have closed; while the PPG facility in Lake Charles, Louisiana, the ERCO facility in Port Edwards, Wisconsin, and the Pioneer chlor-alkali facility (now owned by Olin) in St. Gabriel, Louisiana, have converted to membrane cells.

We do not have sufficient data to predict whether individual companies would choose to convert or close the affected mercury cell chlor-alkali plants. However, the data obtained in this study suggests that plant closure may be a preferred alternative to meet the requirements of the non-mercury technology option for one or more of the mercury cell chlor-alkali plants.

As noted above, individual plant information was not available to perform a refined analysis of whether these mercury cell plants would likely convert to non-mercury technology or close. We are specifically requesting comment on our analysis, along with facility-specific data, to allow a refinement of the analysis for this non-mercury technology option.

d. Benefits

Mercury is a highly neurotoxic contaminant that enters the food web as a methylated compound, methylmercury (U.S. EPA, 2008c). The contaminant is concentrated in higher trophic levels, including fish eaten by humans. Mercury is emitted to the air from various man-made and natural sources. These emissions transport through the atmosphere and eventually deposit to land or water bodies. This deposition can occur locally, regionally, or globally, depending on the form of mercury emitted and other factors such as the weather. The form of mercury emitted from these sources is estimated to be about 98 percent elemental and two percent divalent mercury. Gaseous elemental mercury can be transported very long distances, even globally, to regions far from the emissions source (becoming part of the global "pool") before deposition occurs. Inorganic ionic (divalent) mercury has a shorter atmospheric lifetime and can deposit to land or water bodies closer to the emissions source. Furthermore, elemental mercury in the atmosphere can undergo transformation into ionic mercury, providing a significant pathway for deposition of emitted elemental mercury.

This source category emitted about 640 pounds of mercury in the air in 2008 in the U.S. Based on the EPA's National Emission Inventory, about 103 tons of mercury were emitted from all anthropogenic sources in the U.S. in 2005. Moreover, the United Nations has estimated that about 2,100 tons of mercury were emitted worldwide by anthropogenic sources in 2005. We believe that total mercury emissions in the U.S. and globally in 2008 were about the same magnitude in 2005. Therefore, we estimate that in 2008, these sources emitted about 0.3 percent of the total anthropogenic mercury emissions in the U.S. and about 0.02 percent of the global emissions. Overall, the non-mercury technology option (Option 1) would directly reduce mercury emissions by about 640 pounds per year from current levels as well as an estimated 16 pounds per year indirectly through reduced electricity generation, and, therefore, contribute to reductions in mercury exposures and health effects. Due to data, time, and resource limitations, we were unable to model mercury dispersion, deposition, methylation, bioaccumulation in fish tissue, and human consumption of mercury-contaminated fish that would be needed in order to estimate the human health benefits from reducing mercury emissions.

Potential exposure routes to mercury emissions include both direct inhalation and consumption of fish containing methylmercury. For elemental mercury, inhalation is the most direct exposure route of potential concern. Effects on the nervous system appear to be the most sensitive toxicological endpoint and can include tremors, nervousness, insomnia, neuromuscular changes (such as weakness, muscle atrophy, and muscle

twitching), and headaches.[b] In the U.S., the primary route of human exposure to mercury emissions from industrial sources is generally indirectly through the consumption of fish containing methylmercury. As described above, mercury that has been emitted to the air eventually settles into water bodies or onto land where it can either move directly or be leached into waterbodies. Once deposited, certain microorganisms can change it into methylmercury, a highly toxic form that builds up in fish, shellfish and animals that eat fish. Consumption of fish and shellfish are the main sources of methylmercury exposure to humans. Methylmercury builds up more in some types of fish and shellfish than in others. The levels of methylmercury in fish and shellfish vary widely depending on what they eat, how long they live, and how high they are in the food chain. Most fish, including ocean species and local freshwater fish, contain some methylmercury. For example, in recent studies by EPA and the U.S. Geological Survey (USGS) of fish tissues, every fish sampled from 291 streams across the country contained some methylmercury (Scudder, 2009).[c]

The majority of fish consumed in the U.S. are ocean species. The methylmercury concentrations in ocean fish species are primarily influenced by the global mercury pool. However, the methylmercury found in local fish can be due, at least partly, to mercury emissions from local sources. Research shows that most people's fish consumption does not cause a mercury-related health concern. However, certain people may be at higher risk because of their routinely high consumption of fish (*e.g.,* Tribal and other subsistence fishers and their families who rely heavily on fish for a substantial part of their diet). It has been demonstrated that high levels of methylmercury in the bloodstream of unborn babies and young children may harm the developing nervous system, making the child less able to think and learn. Moreover, mercury exposure at high levels can harm the brain, heart, kidneys, lungs, and immune system of people of all ages.

Several studies suggest that the methylmercury content of fish may reduce these cardio-protective effects of fish consumption. Some of these studies also suggest that methylmercury may cause adverse effects to the cardiovascular system. For example, the National Research Council (NRC) (2000) review of the literature concerning methylmercury health effects took note of two epidemiological studies that found an association between dietary exposure to methylmercury and adverse cardiovascular effects.[d] Moreover, in a study of 1,833 males in Finland aged 42 to 60 years, Solonen *et al.* (1995) observed a relationship between methylmercury exposure via fish consumption and acute myocardial infarction (AMI or heart attacks), coronary heart disease, cardiovascular disease, and all-cause mortality.[e] The NRC also noted a study of 917 seven year old children in the Faroe Islands, whose initial exposure to methylmercury was *in utero* although post natal exposures may have occurred as well. At seven years of age, these children exhibited an increase in blood pressure and a decrease in heart rate variability.[f] Based on these and other studies, NRC concluded in 2000 that, while "the data base is not as extensive for cardiovascular effects as it is for other end points (*i.e.,* neurologic effects) the cardiovascular system appears to be a target for methylmercury toxicity."[g]

Since publication of the NRC report, there have been some 30 published papers presenting the findings of studies that have examined the possible cardiovascular effects of methylmercury exposure. These studies include epidemiological, toxicological, and toxicokinetic investigations. Over a dozen review papers have also been published. If there is a causal relationship between methylmercury exposure and adverse cardiovascular effects, then reducing exposure to methylmercury would result in public health benefits from reduced cardiovascular effects.

In early 2010, EPA sponsored a workshop in which a group of experts were asked to assess the plausibility of a causal relationship between methylmercury exposure and cardiovascular health effects and to advise EPA on methodologies for estimating population level cardiovascular health impacts of reduced methylmercury exposure. The report from that workshop is in preparation.

The primary benefit of the non-mercury technology option would be the reduction of mercury emissions from these sources, as discussed above. Due to data and resource limitations, we were unable to monetize the benefits associated with reducing mercury emissions for this non-mercury technology option. However, we estimate the monetized energy co-benefits of the non-mercury technology option to be $22 million to $43 million (2007$, 3 percent discount rate) in the implementation year (2013). The monetized co-benefits of the regulatory action at a 7 percent discount rate are $14 million to $33 million (2007$). Higher or lower co-benefits estimates are plausible using other assumptions.[h] A summary of the monetized energy co-benefits estimates at discount rates of 3 percent and 7 percent is in Table 1 of this preamble.

TABLE 1—SUMMARY OF THE MONETIZED CO-BENEFITS ESTIMATES FOR THE PROPOSED NON-MERCURY TECHNOLOGY OPTION IN 2013 (MILLIONS OF 2007$) [1]

| Pollutant | Estimated emission reductions | Monetized co-benefits (3% Discount rate) | Monetized co-benefits (7% Discount rate) |
|---|---|---|---|
| Mercury [2] | 656 pounds per year | N/A | N/A |
| Direct $PM_{2.5}$ | 68 tons per year | $15 to $37 | $14 to $33 |

[b] Integrated Risk Information System (IRIS). U.S. Environmental Protection Agency. *http://www.epa.gov/ncea/iris/subst/0370.htm.*

[c] Scudder, B.C., Chasar, L.C., Wentz, D.A., Bauch, N.J., Brigham, M.E., Moran, P.W., and Krabbenhoft, D.P. 2009. Mercury in fish, bed sediment, and water from streams across the United States, 1998–2005: U.S. Geological Survey Scientific Investigations Report 2009–5109, p. 74.

[d] National Research Council (NRC). 2000. Toxicological Effects of Methylmercury. Committee on the Toxicological Effects of Methylmercury, Board on Environmental Studies and Toxicology. National Academies Press. Washington, DC. pp. 168–173.

[e] Salonen, J.T., Seppanen, K. Nyyssonen *et al.* 1995. "Intake of mercury from fish lipid peroxidation, and the risk of myocardial infarction and coronary, cardiovascular and any death in Eastern Finnish men." Circulation, 91 (3):645–655.

[f] Sorensen, N, K. Murata, E. Budtz-Jorgensen, P. Weihe, and Grandjean, P., 1999. "Prenatal Methylmercury Exposure as a Cardiovascular Risk Factor at Seven Years of Age", Epidemiology, pp. 370–375.

[g] National Research Council (NRC). 2000. Toxicological Effects of Methylmercury. Committee on the Toxicological Effects of Methylmercury, Board on Environmental Studies and Toxicology. National Academies Press. Washington, DC. p. 229.

[h] Roman *et al,* 2008. "Expert Judgment Assessment of the Mortality Impact of Changes in Ambient Fine Particulate Matter in the U.S." *Environ Sci Technol,* 42, 7, 2268–2274.

TABLE 1—SUMMARY OF THE MONETIZED CO-BENEFITS ESTIMATES FOR THE PROPOSED NON-MERCURY TECHNOLOGY OPTION IN 2013 (MILLIONS OF 2007$) [1]—Continued

| Pollutant | Estimated emission reductions | Monetized co-benefits (3% Discount rate) | Monetized co-benefits (7% Discount rate) |
|---|---|---|---|
| $CO_2$ [3] | 287,000 tons per year | $6.5 | $6.5 |
| Grand Total | | $22 to $43 | $21 to $40 |

[1] All estimates are for the implementation year (2013), and are rounded to two significant figures so numbers may not sum across rows. All fine particles are assumed to have equivalent health effects.

[2] Includes an estimated 16 pounds per year of mercury emission reductions from energy savings.

[3] $CO_2$-related benefits were calculated using the social cost of carbon (SCC), which is discussed further in the RIA. The net present value of reduced $CO_2$ emissions is calculated differently than other benefits. The same discount rate used to discount the value of damages from future emissions (SCC at 5, 3, 2.5 percent) is used to calculate net present value of SCC for internal consistency. This table shows monetized $CO_2$ co-benefits at discount rates of 3 and 7 percent that were calculated using the global average SCC estimate at a 3 percent discount rate because the interagency workgroup on this topic deemed this marginal value to be the central value. In the RIA, we also provide the monetized $CO_2$ co-benefits using discount rates of 5 percent (average), 2.5 percent (average), and 3 percent (95th percentile).

These co-benefits estimates represent the total monetized human health benefits for populations exposed to less $PM_{2.5}$ in 2013 from emission reductions due to the decreased electricity demand. These co-estimates are calculated as the sum of the monetized value of avoided premature mortality and morbidity associated with reducing a ton of $PM_{2.5}$ precursor emissions. To estimate the human health benefits derived from reducing $PM_{2.5}$ precursor emissions, we used the general approach and methodology laid out in Fann, Fulcher, and Hubbell (2009).[i]

To generate the benefit-per-ton estimates, we used a model to convert emissions of direct $PM_{2.5}$ and $PM_{2.5}$ precursors into changes in ambient $PM_{2.5}$ levels and another model to estimate the changes in human health associated with that change in air quality. The $PM_{2.5}$ benefit-per-ton estimates used for this rule assume a certain geographic distribution of emissions reductions, population density, meteorology, exposure and baseline health incidence rates. To the extent that these attributes differ greatly from those of the Mercury Chlor Alkali facilities, the use of these $/ton values in combination with emission changes at MCL facilities to estimate $PM_{2.5}$ co-benefits may lead to higher or lower benefit estimates than if these co-benefits were estimated using site-specific data. Finally, the monetized health co-benefits were divided by the emissions reductions to create the benefit-per-ton estimates. These models assume that all fine particles, regardless of their chemical composition, are equally potent in causing premature mortality because there is no clear scientific evidence that would support the development of differential effects estimates by particle type.

Direct PM is the only $PM_{2.5}$ precursor we are estimating for the non-mercury technology option. For context, it is important to note that the magnitude of the PM co-benefits is largely driven by the concentration response function for premature mortality. Experts have advised EPA to consider a variety of assumptions, including estimates based both on empirical (epidemiological) studies and judgments elicited from scientific experts, to characterize the uncertainty in the relationship between $PM_{2.5}$ concentrations and premature mortality. For this non-mercury technology option we cite two key empirical studies, one based on the American Cancer Society cohort study [j] and the extended Six Cities cohort study.[k] In the RIA for this non-mercury technology option, which is available in the docket, we also include co-benefits estimates derived from expert judgments and other assumptions.

EPA strives to use the best available science to support our benefits analyses. We recognize that interpretation of the science regarding air pollution and health is dynamic and evolving. After reviewing the scientific literature and recent scientific advice, we have determined that the no-threshold model is the most appropriate model for assessing the mortality benefits associated with reducing $PM_{2.5}$ exposure. Consistent with this recent advice, we are replacing the previous threshold sensitivity analysis with a new "Lowest Measured Level" (LML) assessment. While a LML assessment provides some insight into the level of uncertainty in the estimated PM mortality benefits, EPA does not view the LML as a threshold and continues to quantify PM-related mortality impacts using a full range of modeled air quality concentrations.

Most of the estimated PM-related benefits in this non-mercury technology option would accrue to populations exposed to higher levels of $PM_{2.5}$. Using the Pope *et al.* (2002) study, 85 percent of the population is exposed at or above the LML of 7.5 $\mu g/m^3$. Using the Laden *et al.* (2006) study, 40 percent of the population is exposed above the LML of 10 $\mu g/m^3$. It is important to emphasize that we have high confidence in $PM_{2.5}$-related effects down to the lowest LML of the major cohort studies. This fact is important, because as we estimate PM-related mortality among populations exposed to levels of $PM_{2.5}$ that are successively lower, our confidence in the results diminishes. However, our analysis shows that the great majority of the impacts occur at higher exposures. This analysis does not include the type of detailed uncertainty assessment found in the 2006 $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS) Regulatory Impact Analysis (RIA) because we lack the necessary air quality input and monitoring data to run the benefits model. In addition, we have not conducted any air quality modeling for this rule. The 2006 $PM_{2.5}$ NAAQS benefits analysis [l] provides an indication of the sensitivity of our results to various assumptions.

It should be emphasized that the monetized co-benefits estimates provided above do not include benefits from several important benefit categories, including reducing HAP

[i] Fann, N., C.M. Fulcher, B.J. Hubbell. 2009. "The influence of location, source, and emissions type in estimates of the human health benefits of reducing a ton of air pollution." *Air Qual Atmos Health* (2009) 2:169–176.

[j] Pope *et al,* 2002. "Lung Cancer, Cardiopulmonary Mortality, and Long-term Exposure to Fine Particulate Air Pollution." *Journal of the American Medical Association* 287:1132–1141.

[k] Laden *et al,* 2006. "Reduction in Fine Particulate Air Pollution and Mortality." *American Journal of Respiratory and Critical Care Medicine.* 173: 667–672.

[l] U.S. Environmental Protection Agency, 2006. Final Regulatory Impact Analysis: $PM_{2.5}$ NAAQS. Prepared by Office of Air and Radiation. October. Available on the Internet at *http://www.epa.gov/ttn/ecas/ria.html.*

emissions, ecosystem effects, and visibility impairment. The primary benefit of this non-mercury technology option is the reduction of mercury emissions from these sources. Due to data and resource limitations, we were unable to model mercury dispersion, deposition, methylation, bioaccumulation in fish tissue, and human consumption of mercury-contaminated fish that would be needed in order to estimate the human health benefits from reducing mercury emissions. Although we do not have sufficient information or modeling available to provide monetized estimates for this non-mercury technology option, we include a qualitative assessment of these other effects in the RIA for the non-mercury technology option, which is available in the docket.

The annualized social costs of this non-mercury technology option are estimated to be $13 million (2007$, 7 percent discount rate) in 2013. The combined monetized energy co-benefits are $22 million to $43 million (2007$, 3 percent discount rate) and $21 million to $40 million (2007$, 7 percent discount rate) for 2013. Thus, net benefits of the non-mercury technology option are estimated at $9 million to $30 million (2007$, 3 percent discount rate) and $8 million to $27 million (2007$, 7 percent discount rate) in 2013. EPA believes that the non-monetized mercury benefits and the energy co-benefits of the non-mercury technology option are likely to exceed the costs even when taking into account the uncertainties in the cost and benefit estimates.

4. Rationale for Selection of the Non-Mercury Technology Option

While the results of these additional analyses were that the costs and cost-effectiveness values decreased from those estimated in our 2008 analysis, there is still some uncertainty regarding numerous facets of the cost analysis. Since the lower estimates of potential costs show that conversion to non-mercury technology may be a reasonable investment action in the long term, we are proposing this supplemental amendment to request a complete set of comments on the costs presented here in order to prepare a final cost analysis to support or not support the non-mercury technology option. Once all comments are received, we will re-evaluate whether or not these costs constitute an unreasonably high cost impact given the benefits of eliminating all mercury emissions to public health, the environment, and to energy use.

We gave serious consideration to the comments we received that stated the use of mercury in chlor-alkali plants is unnecessary since over 95 percent of the chlorine produced in the U.S. is already produced using mercury-free technology. Forcing these plants to switch to mercury-free technology would eliminate approximately 0.5 tons of mercury released per year.

In the 2008 proposal, we rejected the conversion to non-mercury technology as a beyond-the floor option because of the high cost impacts. The total annual costs estimated at that time were around $38 million, or around $7.5 million per facility on average for each of the five facilities operating at that time. The revised cost analysis described above estimates total annual costs of around $13 million, which averages to just over $3 million per facility. Therefore, the current estimated conversion costs are around 60 percent lower than those driving our decision in 2008.

With regard to cost-effectiveness, we stated in the original proposal of the Mercury Cell NESHAP Standard in 2002 (67 FR 44683) that we considered the additional mercury emission reduction achieved by the beyond-the-floor option for hydrogen by-product vents and end-box ventilation systems to be warranted at an incremental cost-effectiveness of $9,000 per pound of mercury emission reduction. We did not indicate that this cost-effectiveness level represented an upper end of acceptability, and in other contexts, such as the Clean Air Mercury Rule (70 FR 28606, 05/18/2005),[m] we have found even larger cost-effectiveness factors to be reasonable. Similarly, in our 2008 proposal of amendments, we did not conclude that a cost-effectiveness value of $14,000 per pound of mercury emission reduction was unacceptable, as this was one of several cost and economic factors considered that led to our conclusion regarding the high cost impact of the beyond-the-floor option of forced conversion.

Historically, EPA has not established a clear cost-effectiveness level for mercury reductions that are considered acceptable. In fact, we have rejected regulatory alternatives for mercury with cost-effectiveness values of $5,000 per pound, and accepted regulatory strategies with estimated cost-effectiveness values of $39,000 per pound, in the case of the Clean Air Mercury Rule.[n] Obviously, when making decisions regarding regulatory approaches to achieve mercury reductions, we have looked at cost in conjunction with many other factors to assess the reasonableness of possible control strategies.

We also recognize that the mercury cell technology is an outdated technology that has been largely phased out in the U.S. even without a mercury emissions prohibition and even with the high costs of the conversion process. While the economic analysis suggests significant adverse economic impacts could occur if all four plants closed rather than convert to non-mercury technology, we believe that it is possible that one potential outcome of this proposed rule is that some companies will convert rather than close, if the recent incidence of conversion to non-mercury technology by the U.S. chlor-alkali industry continues. Therefore, the negative economic effects described above would be mitigated if only some of the four facilities closed.

We also believe that any near-term negative economic impacts are justified given the potential adverse health and environmental effects of mercury that will be reduced permanently into the future. Therefore, we are proposing this non-mercury technology option to request comments on whether the benefits of eliminating mercury emissions from this industry, as a beyond-the-floor control alternative, are warranted given the foregoing discussion.

*B. What is the enhanced work practices option (Option 2)?*

1. Summary of Enhanced Work Practices Option

On June 11, 2008 (73 FR 33257), we proposed modifications to the work practice standards that apply to fugitive emissions, primarily those fugitive emissions from cell rooms. The proposed modifications to these work practices included requiring mercury

[m] On March 29, 2005, EPA published a final rule (70 FR 15994) entitled "Revision of December 2000 Regulatory Finding on the Emissions of Hazardous Air Pollutants From Electric Utility Steam Generating Units and the Removal of Coal- and Oil-Fired Electric Utility Steam Generating Units from the Section 112(c) List (Section 112(n) Revision Rule)." Following that final action, the Administrator received two petitions for reconsideration. In response to those petitions, EPA announced (**Federal Register**, Vol. 70, October 28, 2005, p. 62200) the reconsideration of certain aspects of the Section 112(n) Revision Rule, but these aspects did not include costs related to mercury control or cost-effectiveness.

[n] The costs of complying with CAMR as a whole are discussed briefly in the preamble to the final rule [**Federal Register**, Vol. 70, No. 95, May 18, 2005, pp. 28606–28700. Standards of Performance for New and Existing Stationary Sources: Electric Utility Steam Generating Units (40 CFR Parts 60, 72, and 75)], and in more detail in two items in the two air dockets for the CAMR rule: EPA Office of Research and Development's White Papers "Control of Mercury Emissions from Coal Fired Electric Utility Boilers." Docket ID No. OAR–2002–0056 and Docket ID No. A–92–55.

monitoring in the cell room for all facilities, along with daily work practices and weekly certification of the performance of these work practices. Establishment of the "action level" for investigating and correcting high mercury concentration levels revealed by the continuous monitors would be done for a minimum of 14 days and up to 30 days, at least every 6 months, and the action level would be set at the 90th percentile of the data acquired during the re-setting time period(s). We also proposed to require mercury thermal recovery units that continue to operate at closed or converted plants to remain subject to the applicable requirements as long as they are in operation. These amendments are discussed in more detail in the 2008 proposal (73 FR 33271–33272 and 33275).

In this action, we are re-proposing these amendments as Option 2. We received comments on these proposed amendments in 2008. In developing our final action for the Mercury Cell NESHAP, we will consider these previously submitted comments, along with any additional comments received on this option as a result of this proposed action.

2. Estimated Impacts of the Enhanced Work Practices Option

a. Environmental and Energy Impacts

The mercury emissions reported to the TRI for 2008 for the four operating plants represent an 88 percent decrease from the pre-MACT levels. While some of this reduction is a result of the ability to estimate emission levels using the measured concentrations from the cell room continuous mercury monitoring systems and calculated flow rates, they are also a result of impacts of the Mercury Cell NESHAP. We do not believe that there will initially be substantial emission reductions associated with the enhanced work practice option. However, we believe that as these plants increase their knowledge of the causes of fugitive mercury emissions in the cell room through operation of the cell room monitoring program, mercury emissions will continue to steadily decrease. This is illustrated by the fact that the three plants utilizing these systems reported a decrease in mercury emissions of over 20 percent between 2007 and 2008. While this rate of decrease is not likely to occur every year, we believe the fugitive mercury emissions will continue to be reduced.

Since the enhanced monitoring option will not change the basic operation of the mercury cells, we do not anticipate that there will be any energy impacts.

b. Cost and Economic Impacts

The enhanced monitoring option would make the cell room monitoring program mandatory for all mercury cell chlor-alkali plants and would potentially impact all currently operating plants. However, the level of these impacts will vary depending on whether a plant previously elected to purchase and install a continuous mercury monitoring system in its cell room to comply with the cell room monitoring program alternative of the 2003 Mercury Cell NESHAP. For the three plants that are currently complying via the cell room monitoring program alternative option, we do not predict that there would be any cost impacts. For the single plant that has elected not to purchase, install, and operate a cell room monitoring system to comply via the cell room monitoring program alternative, we estimate that it would incur a capital cost for a monitoring system of around $120,000, and that the total annual cost (including annualized capital cost and operation and maintenance costs) would be slightly more than $25,000 per year. We believe that this value is a low percentage of the annual revenues for this facility and would not cause any adverse economic impacts. The cost and economic impacts of the enhanced monitoring option were discussed in more detail in the 2008 proposal (73 FR 33276).

3. Rationale for Selection of the Enhanced Work Practices Option

The evidence is clear that the continuous mercury monitoring programs are effective in identifying and correcting emission events. It is also evident that they are beneficial in identifying emission sources that may have previously been undetected. However, we believe that the routine work practices also play an important role in reducing emissions, by avoiding situations where elevated mercury concentrations are detected by the monitoring program. We believe that the cost and economic impacts of requiring both the work practices and the monitoring program are justified, given the effectiveness this combination has in reducing mercury emissions. Further, we believe that selection of this option would lessen the potential near-term negative economic impacts associated with the non-mercury technology option, since plants would likely continue to operate.

*C. What amendments are being proposed that are independent of which option is selected?*

In addition to the co-proposal of the two options discussed above in Sections III.A and III.B, we are also proposing amendments that would apply regardless of whether we select the non-mercury technology option or the enhanced monitoring option. Specifically, we are proposing to amend the provisions of the existing NESHAP that apply to periods of SSM and to correct compliance errors in the rule.

1. Provisions That Apply During Periods of Startup, Shutdown, and Malfunction

This proposed action would amend the provisions of the existing NESHAP that apply to periods of SSM. The proposed revisions of these provisions result from a Court decision that vacated portions of two provisions in EPA's CAA section 112 regulations governing the emissions of HAP during periods of SSM. (*Sierra Club* v. *EPA,* 551 F.3d 1019 (DC Cir. 2008), *cert. denied,* 130 S. CT. 1735 (U.S. 2010)). Consequently, this proposed revised rule would require that affected sources comply with the emission limitations and work practices at all times, including during periods of SSM. For reasons discussed below, we are also proposing to promulgate an affirmative defense to civil penalties for exceedances of emission standards caused by malfunctions, as well as criteria for establishing the affirmative defense. These changes would go into effect upon the effective date of promulgation of the final rule.

The United States Court of Appeals for the District of Columbia Circuit vacated portions of two provisions in EPA's CAA section 112 regulations governing the emissions of HAP during periods of SSM. *Sierra Club* v. *EPA,* 551 F.3d 1019 (DC Cir. 2008), *cert. denied,* 130 S. Ct. 1735 (2010). Specifically, the Court vacated the SSM exemption contained in 40 CFR 63.6(f)(1) and (h)(1), that is part of a regulation commonly known as the "General Provisions Rule," that EPA had promulgated under section 112 of the CAA. When incorporated into CAA section 112(d) regulations for specific source categories, these two provisions exempted sources from the requirement to comply with the otherwise applicable CAA section 112(d) emission standard during periods of SSM. The 2003 Mercury Cell NESHAP Subpart included a reference to 40 CFR 63.6(f)(1), as well as regulatory text unique to the 2003 Mercury Cell NESHAP that exempted compliance with standards during SSM events. It

did not include a reference to 40 CFR 63.6 (h)(1), since the rule does not have opacity and visible emission standards. In light of *Sierra Club* v. *EPA,* we are proposing to eliminate the SSM exemption in the Mercury Cell NESHAP, by revising Table 10, which addresses the applicability of the part 63 General Provisions to mercury cell chlor-alkali plants, to state that 40 CFR 63.6(f)(1) does not apply. As such, all emission standards and work practices would apply at all times. We are also proposing to remove other references in subpart IIIII and Table 10 related to SSM, including provisions that exempted compliance with standards during SSM periods. We are also proposing to remove the General Provisions' requirement that the source develop an SSM plan, and to remove certain recordkeeping and reporting requirements related to the SSM exemption, but we are retaining the recordkeeping and related requirements for malfunctions and request public comment on the requirements. EPA has attempted to ensure that regulatory language relating to the SSM exemption has been removed. We solicit comment on whether we have overlooked any regulatory provisions that might be inappropriate, unnecessary, or redundant based on our proposal to remove the exemption from compliance with emission standards during periods of SSM.

Regarding startup and shutdown modes of operation at mercury cell plants, based on available information EPA does not consider emissions during these periods to be significantly different than emissions during normal operation, and therefore is not proposing separate limits that would apply during these periods. We do not have any information that shows emissions at mercury cell plants would be significantly different during startup or shutdown than during normal operation; nor do we have information suggesting that the emissions control measures required by the 2003 rule would be less effective during startup or shutdown periods. We request public comment on whether emissions during startup and shutdown are instead significantly different compared to other normal operation, such that a different standard for startup and shutdown periods would be warranted.

Periods of startup, normal operations, and shutdown are all predictable and routine aspects of a source's operations. In contrast, malfunction is defined as a "sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or useful manner * * *" (40 CFR 63.2). EPA believes that a malfunction should not be viewed as a distinct operating mode and, therefore, any emissions that occur during malfunctions do not need to be factored into development of CAA section 112(d) standards, which, once promulgated, apply at all times. In *Mossville Environmental Action Now* v. *EPA,* 370 F.3d 1232, 1242 (DC Cir. 2004), the court upheld as reasonable standards that had factored in variability of emissions under all operating conditions. However, nothing in section 112(d) or in case law requires that EPA anticipate and account for the innumerable types of potential malfunction events in setting emission standards. *See, Weyerhaeuser* v. *Costle,* 590 F.2d 1011, 1058 (DC Cir. 1978) ("In the nature of things, no general limit, individual permit, or even any upset provision can anticipate all upset situations. After a certain point, the transgression of regulatory limits caused by "uncontrollable acts of third parties, such as strikes, sabotage, operator intoxication or insanity, and a variety of other eventualities, must be a matter for the administrative exercise of case-by-case enforcement discretion, not for specification in advance by regulation.") Further, it is reasonable to interpret CAA section 112(d) as not requiring EPA to account for malfunctions in setting emission standards. For example, we note that CAA section 112 uses the concept of "best performing" sources to define MACT, the level of stringency that major source standards must meet. Applying the concept of "best performing" to a source that is malfunctioning presents significant difficulties. The goal of best performing sources is to operate in such a way as to avoid malfunctions of their units. Consequently, MACT should not be based on periods in which there is a failure to operate.

Moreover, even if malfunctions were considered a distinct operating mode, we believe it would be impracticable to take into account malfunctions in setting CAA section 112(d) standards. As noted above, by definition malfunctions are sudden and unexpected events, and it would be difficult to set a standard that takes into account the myriad different types of malfunctions that can occur across all sources in each source category. Moreover, malfunctions can vary in frequency, degree, and duration, further complicating standard setting.

Under this proposal, in the event that a source fails to comply with the applicable CAA section 112(d) standards as a result of a malfunction event, EPA would determine an appropriate response based on, among other things, the good faith efforts of the source to minimize emissions during malfunction periods, including preventative and corrective actions, as well as root cause analyses to ascertain and rectify excess emissions. EPA would also consider whether the source's failure to comply with the CAA section 112(d) standard was, in fact, "sudden, infrequent, not reasonably preventable" and was not instead "caused in part by poor maintenance or careless operation." 40 CFR 63.2 (definition of malfunction.)

Finally, EPA recognizes that even equipment that is properly designed and maintained can sometimes fail and that such failure can sometimes cause or contribute to an exceedance of the relevant emission standard. (*See, e.g., State Implementation Plans: Policy Regarding Excessive Emissions During Malfunctions, Startup, and Shutdown (Sept. 20, 1999); Policy on Excess Emissions During Startup, Shutdown, Maintenance, and Malfunctions* (Feb. 15, 1983).) Therefore, consistent with our recently promulgated final amendments to regulations addressing the Portland Cement category (75 FR 54970, Sept. 9, 2010), we are proposing to add regulatory language providing an affirmative defense against civil penalties for exceedances of emission limits that are caused by malfunctions. *See* proposed amendment to 40 CFR 63.8266 (defining "affirmative defense" to mean, in the context of an enforcement proceeding, a response or defense put forward by a defendant, regarding which the defendant has the burden of proof, and the merits of which are independently and objectively evaluated in a judicial or administrative proceeding). We are also proposing regulatory provisions to specify the elements that are necessary to establish this affirmative defense; the source would have to prove by a preponderance of the evidence that it has met all of the elements set forth in sections. (*See* proposed amendment to 40 CFR 63.8226(b); *see also* 40 CFR 22.24.) The proposed criteria would ensure that the affirmative defense is available only where the event that causes an exceedance of the emission limit meets the narrow definition of malfunction in 40 CFR 63.2 (sudden, infrequent, not reasonable preventable and not caused by poor maintenance and/or careless operation). The proposed criteria also are designed to ensure that steps are taken to correct the malfunction, to minimize emissions, and to prevent future malfunctions. In

any judicial or administrative proceeding, the Administrator would be able to challenge the assertion of the affirmative defense and, if the respondent has not met its burden of proving all of the requirements in the affirmative defense, appropriate penalties could be assessed in accordance with Section 113 of the Clean Air Act (*see also* 40 CFR 22.77).

2. Compliance Provisions Rule Corrections

We are proposing amendments to correct errors and improve the compliance provisions of the rule. These changes, which are described below, were included in the June 2008 proposal (73 FR 33275).

a. Detection Limit For Mercury Monitor Analyzers

Paragraph (a)(2) of § 63.8242, "What are the installation, operation, and maintenance requirements for my continuous monitoring systems?" requires that mercury continuous monitor analyzers have a detector with the capability to detect a mercury concentration at or below 0.5 times the mercury concentration level measured during the performance test. Since promulgation of the 2003 Mercury Cell NESHAP, we determined that setting the analyzer detection capability in reference to the concentration level during the performance test could be problematic. We realized that a concentration of 0.5 times the mercury concentration could, in cases of low mercury concentrations, be infeasible for the monitoring devices on the market. Information available to us at this time shows that 0.1 micrograms per cubic meter ($\mu g/m^3$) is the detection limit of commonly commercially available analyzers. We believe that analyzers with detection limits at this level are more than sufficient to determine compliance with the limitations in the 2003 Mercury Cell NESHAP. Therefore, we are proposing to revise this paragraph to require a detector with the capability to detect a mercury concentration at or below 0.5 times the mercury concentration measured during the test or 0.1 $\mu g/m^3$.

b. Averaging Period for Mercury Recovery Unit Compliance

The 2003 Mercury Cell NESHAP is inconsistent as to whether the rule requires a daily average or an hourly average to determine continuous compliance with the emissions standard for mercury recovery units found at § 63.8190(a)(3) of § 63.8190 "What emission limitations must I meet?" Paragraph (b) of § 63.8243 "What equations and procedures must I use to demonstrate continuous compliance?" clearly indicates that this averaging period is daily: "You must calculate the daily average mercury concentration using Equation 2 * * *" However, paragraph (b) of § 63.8246 "How do I demonstrate continuous compliance with the emission limitations and work practice standards?" states that for each mercury thermal recovery unit vent, "you must demonstrate continuous compliance with the applicable emission limit specified in § 63.8190(a)(3) by maintaining the outlet mercury hourly-average concentration no higher than the applicable limit."

It was our intention for compliance to be based on a daily average, as detailed below, and the inclusion of "hourly" in paragraph (b) of § 63.8246 "How do I demonstrate continuous compliance with the emission limitations and work practice standards?" was a drafting error. Therefore, we are proposing to correct this error by replacing "hourly" in § 63.8246(b) with "daily." In the proposal **Federal Register** notice for the 2003 Mercury Cell NESHAP (67 FR 44678, July 3, 2002), we clearly stated our intention when we summarized the requirements as follows:

> "To continuously comply with the emission limit for each by-product hydrogen stream, end-box ventilation system vent, and mercury thermal recovery unit, we are proposing that each owner and operator would continuously monitor outlet elemental mercury concentration and compare the daily average results with a mercury concentration operating limit for the vent. * * *"
>
> "Continuous compliance would be demonstrated by collecting outlet elemental mercury concentration data using continuous mercury vapor monitor, calculating daily averages, and documenting that the calculated daily average values are no higher than established operating limits. Each daily average vent elemental mercury concentration greater than the established operating limit would be considered a deviation.

## IV. Request for Comment

We request comment on all aspects of the proposed action. All significant comments received during the comment period will be considered.

Five comments were received on the amendments proposed in June 2008. These commenters represent one environmental organization, one industry trade organization, and two companies that own and operate mercury cell chlor-alkali plants. The fifth comment was anonymously submitted in support of environmental organizations. We reviewed and considered these comments. As discussed above in section II.C.3 of this preamble, the consideration of one of the issues raised in the comments has caused us to publish this supplemental proposal today proposing the non-mercury technology option. In developing our final action, we will consider all previously-submitted relevant comments in addition to any comments submitted in response to today's proposal.

Comments are requested on several aspects of this proposed action. First, we are soliciting comments on which of the two options (Option 1: Non-Mercury Technology or Option 2: Enhanced Work Practices) is most appropriate. In providing comments on the selection of one of these options, please provide detailed rationale and additional technical information that supports your recommendation.

Second, we are requesting comments on the specific amendments being proposed under both options. After making a decision on which option we will select for promulgation, we will consider and address all significant comments received on the amendments related to that option. We received comments on the enhanced work practices option following the proposal in June 2008. If that option is selected, we will consider and address those comments along with any new comments received.

Third, we are specifically requesting comments on the potential for the elimination of mercury emissions without converting to membrane cells or plant closure. We are also requesting comment on any measures beyond those included in the enhanced monitoring option that might be employed at mercury cell facilities which could achieve even greater reductions such that mercury emissions are at "near zero" levels without conversion to a non-mercury process or closure.

As noted earlier, we believe that it is improbable that a mercury cell chlor-alkali plant can be operated without mercury emissions. Therefore, we have assumed that requiring the elimination of mercury emissions would effectively require existing mercury cell chlor-alkali plants either to convert to a non-mercury technology or to cease production of chlorine with their current mercury cell production methods. However, if there are circumstances where the elimination of mercury emissions from an operating mercury cell plant could be achieved, we are specifically interested in data and supporting information regarding technologies that would eliminate mercury emissions from an operating mercury cell facility.

We are also interested in the possibility of other emission reduction technologies, process modifications, or practices not included in the enhanced work practices option that could reduce mercury emissions to "near-zero" levels. We are aware of the significant efforts that have been made by the four currently operating mercury cell facilities to reduce mercury emissions. As some of these efforts have been developed more fully in recent years, we have seen significant and consistent reductions in emissions to the current levels. We believe that the further refinement of these methods would continue to steadily decrease mercury emissions. We are requesting comment on a realistic lower bound level that could be achieved.

In addition, a near-zero emission standard alternative would need to include appropriate testing and monitoring provisions. Therefore, in addition to information regarding a realistic lower-bound emissions level, we are also requesting comment on methods to overcome the difficulty of accurately measuring cell room fugitive emissions.

Fourth, we are requesting comments on the proposed amendments related to provisions that apply during periods of SSM and the compliance provisions rule corrections. These amendments would apply regardless of which option we select. The compliance provisions rule corrections were also proposed in June 2008, and any comments received on the prior proposal related to these amendments will also be considered and addressed.

Finally, comments were provided in 2008 on all the reconsideration decisions discussed in our June 2008 proposal (and summarized in section II.C of this preamble). We will accept additional comments on these decisions and consider them, along with the previous comments, in making our final decisions.

## VII. Statutory and Executive Order Reviews

### *A. Executive Order 12866: Regulatory Planning and Review*

Under section 3(f)(1) of Executive Order 12866 (58 FR 51735, October 4, 1993), this action is an "economically significant regulatory action" because Option 1 is likely to have an annual effect on the economy of $100 million or more. Accordingly, EPA submitted this action to the Office of Management and Budget (OMB) for review under EO 12866 and any changes made in response to OMB recommendations have been documented in the docket for this action. In addition, EPA prepared a RIA of the potential costs and benefits associated with this action.

When estimating the $PM_{2.5}$-related human health benefits and compliance costs in Table 2 of this preamble, EPA applied methods and assumptions consistent with the state-of-the-science for human health impact assessment, economics and air quality analysis. EPA applied its best professional judgment in performing this analysis and believes that these estimates provide a reasonable indication of the expected benefits and costs to the nation of this rulemaking. The RIA available in the docket describes in detail the empirical basis for EPA's assumptions and characterizes the various sources of uncertainties affecting the estimates below.

When characterizing uncertainty in the PM-mortality relationship, EPA has historically presented a sensitivity analysis applying alternate assumed thresholds in the PM concentration-response relationship. In its synthesis of the current state of the PM science, EPA's 2009 Integrated Science Assessment for Particulate Matter concluded that a no-threshold log-linear model most adequately portrays the PM-mortality concentration-response relationship. In the RIA accompanying this rulemaking, rather than segmenting out impacts predicted to be associated levels above and below a "bright line" threshold, EPA includes a LML that illustrates the increasing uncertainty that characterizes exposure attributed to levels of $PM_{2.5}$ below the LML for each study. Figures provided in the RIA show the distribution of baseline exposure to $PM_{2.5,}$ as well as the lowest air quality levels measured in each of the epidemiology cohort studies. This information provides a context for considering the likely portion of PM-related mortality benefits occurring above or below the LML of each study; in general, our confidence in the size of the estimated reduction $PM_{2.5}$-related premature mortality diminishes as baseline concentrations of $PM_{2.5}$ are lowered. Using the Pope *et al.* (2002) study, the 85 percent of the population is exposed at or above the LML of 7.5 $\mu g/m^3$. Using the Laden *et al.* (2006) study, 40 percent of the population is exposed above the LML of 10 $\mu g/m^3$. While the LML analysis provides some insight into the level of uncertainty in the estimated PM mortality benefits, EPA does not view the LML as a threshold and continues to quantify PM-related mortality impacts using a full range of modeled air quality concentrations.

The cost analysis is also subject to uncertainties. Estimating the cost conversion from one process to another is more difficult than estimating the cost of adding control equipment because it is more dependent on plant specific information. The estimation of cost savings from environmental compliance cost savings elimination of the mercury process is also uncertain. The numbers were based on the savings reported by one U.S. facility and some studies from outside the U.S. The savings might be greater or smaller than estimated. Likewise, since the electricity savings are dependent on many of the same factors, they are also uncertain and may be greater or smaller than estimated.

A summary of the monetized benefits, social costs, and net benefits for the two options at discount rates of 3 percent and 7 percent is in Table 2 of this preamble.

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**Table 2. Summary of the Monetized Benefits, Social Costs, and Net Benefits for the Proposed Mercury Chlor Alkali NESHAP in 2013 (thousands of 2007$)[1]**

| | 3% Discount Rate | 7% Discount Rate |
|---|---|---|
| **Option 1: Non-mercury Technology Option** | | |
| Total Monetized Benefits[2] | $22,000 To $43,000 | $21,000 to $40,000 |
| Total Social Costs[3] | $13,000 | $13,000 |
| Net Benefits | $9,000 To $30,000 | $8,000 to $27,000 |
| Non-monetized Benefits | 656 pounds of mercury (including energy co-benefits) | |
| | Health effects from $NO_2$ and $SO_2$ exposure | |
| | Ecosystem effects | |
| | Visibility impairment | |
| **Option 2: Enhanced Work Practice Standards** | | |
| Total Monetized Benefits[2] | $0 | $0 |
| Total Social Costs[3] | $25 | $25 |
| Net Benefits | $-25 | $-25 |

[1] All estimates are for the implementation year (2013), and are rounded to two significant figures.

[2] The total monetized benefits reflect the human health benefits associated with reducing exposure to $PM_{2.5}$. It is important to note that the monetized benefits include many but not all health effects associated with $PM_{2.5}$ exposure. Benefits are shown as a range from Pope et al. (2002) to Laden et al. (2006). These models assume that all fine particles, regardless of their chemical composition, are equally potent in causing premature mortality because there is no clear scientific evidence that would support the development of differential effects estimates by particle type. The monetized benefits include $CO_2$-related benefits calculated using the social cost of carbon, which is discussed further in the RIA. The net present value of reduced $CO_2$ emissions is calculated differently than other benefits. The same discount rate used to discount the value of damages from future emissions (SCC at 5, 3, 2.5 percent) is used to calculate net present value of SCC for internal consistency. This table shows monetized $CO_2$ co-benefits at discount rates of 3 and 7 percent that were calculated using the global average SCC estimate at a 3% discount rate because the interagency workgroup on this topic deemed this marginal value to be the central value. In the RIA, we also provide the monetized $CO_2$ co-benefits using discount rates of 5 percent (average), 2.5 percent (average), and 3 percent (95th percentile).

[3] The annual compliance costs serve as a proxy for the annual social costs of this rulemaking.

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For more information on the benefits analysis, please refer to the RIA for this rulemaking, which is available in the docket.

*B. Paperwork Reduction Act*

The information collection requirements in this proposed rule, have been submitted for approval to OMB under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq*. The information collection request (ICR) document prepared by EPA has been assigned an EPA ICR number 2046.06.

OMB has previously approved the information collection requirements in the existing regulation (40 CFR part 63, subpart IIIII) under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq*. and has assigned OMB control number 2060–0542. The OMB control numbers for EPA's regulations in 40 CFR are listed in 40 CFR part 9.

The proposed amendments under Option 1 would result in changes to the information collection requirements in the regulation. This information is being collected to assure that mercury emissions have been eliminated. The required notifications, reports, and records are essential in determining compliance, and are required of all affected facilities. The recordkeeping and reporting requirements in this proposed rule are based on the requirements in EPA's NESHAP General Provisions (40 CFR part 63, subpart A). The recordkeeping and reporting requirements in the General Provisions are mandatory pursuant to section 114 of the CAA (42 U.S.C. 7414). All information other than emissions data submitted to EPA pursuant to the information collection requirements for which a claim of confidentiality is made is safeguarded according to CAA section 114(c) and the Agency's implementing regulations at 40 CFR part 2, subpart B.

The only information collection associated with the proposed amendments under Option 1 is a one-time certification that must be submitted 60 days after the compliance date. It is estimated that the burden for this information collection is 3 labor hours per response per facility, for a total of 12 labor hours for all four facilities. This burden will occur during the first year after promulgation, but the annual burden for this information collection averaged over the 3 years following the compliance date of these amendments is estimated to be a total of 4 labor hours per year. Burden is defined at 5 CFR 1320.3(b).

These proposed amendments under Option 2 would result in changes to the information collection requirements in the regulation. This information is being collected to assure compliance with the regulation. The required notifications, reports, and records are essential in determining compliance, and are required of all affected facilities. The recordkeeping and reporting requirements in proposed option 2 are based on the requirements in EPA's NESHAP General Provisions (40 CFR part 63, subpart A). The recordkeeping and reporting requirements in the General Provisions are mandatory pursuant to section 114 of the CAA (42 U.S.C. 7414). All information other than emissions data submitted to EPA pursuant to the information collection requirements for which a claim of confidentiality is made is safeguarded according to CAA section 114(c) and the Agency's implementing regulations at 40 CFR part 2, subpart B.

The annual burden for this information collection averaged over the three years following promulgation of these amendments is estimated to be a total of 3,800 labor hours per year. The average annual reporting burden is 16 hours per response, with approximately 3 responses per facility for 5 respondents. The only capital/startup costs are associated with the installation of a cell room monitoring system at one facility, since we know that these systems are already in place at the other four facilities. The total capital/startup cost annualized over its expected useful life is $13,000. The total operation and maintenance is $60,000 per year. There are no estimated costs associated with purchase of services. Burden is defined at 5 CFR 1320.3(b).

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations in 40 CFR are listed in 40 CFR part 9.

To comment on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, EPA has established a public docket for this action, which includes this ICR, under Docket ID number EPA–HQ–OAR–2002–0017. Submit any comments related to the ICR for this proposed rule to EPA and OMB. *See* **ADDRESSES** section at the beginning of this notice for where to submit comments to EPA. Send comments to OMB at the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street NW., Washington, DC 20503, Attention: Desk Office for EPA. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after March 14, 2011, a comment to OMB is best assured of having its full effect if OMB receives it by April 13, 2011. The final rule will respond to any OMB or public comments on the information collection requirements contained in these proposed amendments.

*C. Regulatory Flexibility Act*

The Regulatory Flexibility Act generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule would not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small not-for-profit enterprises, and small governmental jurisdictions.

For the purposes of assessing the impacts of this proposed rule on small entities, small entity is defined as: (1) A small business that meets the Small Business Administration size standards for small businesses, as defined by the Small Business Administration's regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district, or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of this proposed rule on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. This proposed rule is estimated to impact a total of four sources, with one of the four facilities estimated to be a small entity. We have estimated that small entity compliance costs, as assessed by the facilities' CSR, are expected to be just over 1 percent of revenues. New sources are already prohibited from using the mercury technology in the chlor-alkali production process by virtue of the 2003 Mercury Cell NESHAP's provisions; consequently, we did not estimate any impacts for new sources since this rulemaking would not impose any new requirements on them.

This proposed rule will not have a significant economic impact on a substantial number of small entities, since there is only one small entity in the group of four facilities and compliance costs for this small entity are expected to be just over 1 percent of revenues. However, we continue to be interested in the potential impacts of this proposed action on small entities and welcome comments on issues related to such impacts.

*D. Unfunded Mandates Reform Act*

This action contains no Federal mandates under the regulatory provisions of Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), 2 U.S.C. 1531–1538 for State, local, or Tribal governments or the private sector. The action imposes no enforceable duty on any State, local or Tribal governments or the private sector. (**Note:** The term "enforceable duty" does not include duties and conditions in voluntary Federal contracts for goods and services.) Therefore, this action is not subject to the requirements of sections 202 and 205 of the UMRA. This action also is not subject to the requirements of section 203 of UMRA because it contains no regulatory requirements that might significantly or uniquely affect small governments.

*E. Executive Order 13132: Federalism*

Executive Order 13132 (64 FR 43255, August 10, 1999) requires EPA to develop an accountable process to ensure "meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications." "Policies that have federalism implications" is defined in the Executive Order to include regulations that have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government."

This action does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. This proposed rule does not impose any requirements on State and local governments. Thus, Executive Order 13132 does not apply to this action.

In the spirit of Executive Order 13132, and consistent with EPA policy to promote communications between EPA and State and local governments, EPA specifically solicits comment on this proposed rule from State and local officials.

*F. Executive Order 13175: Consultation and Coordination with Indian Tribal Governments*

This action does not have Tribal implications, as specified in Executive Order 13175 (65 FR 67249, November 9, 2000). This proposed rule imposes no requirements on Tribal governments. Thus, Executive Order 13175 does not apply to this rule. EPA specifically solicits additional comment on this proposed rule from Tribal officials.

*G. Executive Order 13045: Protection of Children From Environmental Health and Safety Risks*

EPA interprets Executive Order 13045 (62 FR 19885, April 23, 1997) as applying to those regulatory actions that concern health or safety risks, such that the analysis required under section 5–501 of the Order has the potential to influence the regulation. This action is not subject to Executive Order 13045 because it is based solely on technology performance. However, given the potential health effects of mercury on children, the elimination in mercury emissions from these four facilities could result in additional protection of children from environmental health risks.

*H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use*

This action is not a "significant energy action" as defined in Executive Order 13211, "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use" (66 FR 28355, May 22, 2001) because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. We have concluded that this action is not likely to have any adverse energy effects because no additional requirements are contained in this proposed rule that consume energy. In fact, as discussed previously in this preamble, this action would result in decreased energy usage.

*I. National Technology Transfer and Advancement Act*

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 ("NTTAA"), Public Law 104–113 (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (*e.g.,* materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

This proposed rulemaking does not involve technical standards. Therefore, EPA is not considering the use of any voluntary consensus standards.

*J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations*

Executive Order 12898 (59 FR 7629, February 16, 1994) establishes Federal executive policy on environmental justice. Its main provision directs Federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the U.S.

EPA has determined that this proposed rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it increases the level of environmental protection for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income population. The nationwide standards would totally eliminate mercury emissions from sources affected by this proposed rule and thus eliminate all adverse human health or environmental effects on all populations, including minority or low-income populations.

An analysis of demographic data showed that the average percentages of the population below the poverty level and the percentages of the population 17 years old and younger in populations in close proximity to the sources are similar to the national averages. The percentage of minorities in populations in close proximity to the sources is lower than the national average.

In determining the aggregate demographic makeup of the communities near affected sources, EPA used census data at the block group level to identify demographics of the populations considered to be living near affected sources, such that they have notable exposures to current emissions from these sources. In this approach, EPA reviewed the distributions of different socio-demographic groups in the locations of the expected emission reductions from this proposed rule. The review identified those census block groups with centroids within a circular distance of a 0.5, 3, and 5 miles of affected sources and determined the demographic and socio-economic composition (*e.g.,* race, income,

education, *etc*) of these census block groups. The radius of 3 miles (or approximately 5 kilometers) has been used in other demographic analyses focused on areas around potential sources.[o p q r] There were no census block groups with centroids within 0.5 miles of any of the sources affected by this proposed rule. EPA's demographic analysis has shown that these areas in aggregate have lower proportions of American Indians, African-Americans, Hispanics, and "Other and Multi-racial" populations than the national average. The analysis showed that these areas in aggregated had similar proportions of families with incomes below the poverty level as the national average.[s]

EPA defines "Environmental Justice" to include meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. To promote meaningful involvement, EPA has developed a communication and outreach strategy to ensure that interested communities have access to this proposed rule, are aware of its content, and have an opportunity to comment during the comment period. During the comment period, EPA will publicize the rulemaking via EJ newsletters, Tribal newsletters, EJ list servers, and the Internet, including EPA's Office of Policy Rulemaking Gateway Web site (*http://yosemite.epa.gov/opei/RuleGate.nsf/*). EPA will also provide general rulemaking fact sheets (*e.g.,* why is this important for my community) for EJ community groups and conduct conference calls with interested communities. In addition, State and Federal permitting requirements will provide State and local governments and members of affected communities the opportunity to provide comments on the permit conditions associated with permitting the sources affected by this rulemaking.

[o] U.S. GAO (Government Accountability Office). *Demographics of People Living Near Waste Facilities.* Washington, DC: Government Printing Office; 1995.

[p] Mohai P, Saha R. "Reassessing Racial and Socioeconomic Disparities in Environmental Justice Research". *Demography.* 2006;43(2): 383–399.

[q] Mennis J. "Using Geographic Information Systems to Create and Analyze Statistical Surfaces of Populations and Risk for Environmental Justice Analysis". *Social Science Quarterly,* 2002;83(1):281–297.

[r] Bullard RD, Mohai P, Wright B, Saha R, *et al. Toxic Waste and Race at Twenty 1987–2007.* United Church of Christ. March, 2007.

[s] The results of the demographic analysis are presented in "Review of Environmental Justice Impacts," August 2010, a copy of which is available in the docket.

**List of Subjects in 40 CFR Part 63**

Environmental protection, Air pollution control, Hazardous substances, Incorporation by reference, Reporting and recordkeeping requirements.

Dated: March 3, 2011.

**Lisa P. Jackson,**

*Administrator.*

For the reasons set out in the preamble, title 40, chapter I of the Code of Federal Regulations is proposed to be amended as follows:

## PART 63—[Amended]

1. The authority citation for part 63 continues to read as follows:

**Authority:** 42 U.S.C. 7401, *et seq.*

## [OPTION 1 FOR SUBPART IIIII—AMENDED]

## Subpart IIIII—[Amended]

2. Section 63.8184 is amended by revising paragraphs (a) and (c) to read as follows:

### § 63.8184 What parts of my plant does this subpart cover?

(a) This subpart applies to two types of affected sources at a mercury cell chlor-alkali plant: the mercury cell chlor-alkali production facility, as defined in paragraph (a)(1) of this section and § 63.8266; and the mercury recovery facility, as defined in paragraph (a)(2) of this section and § 63.8266.

(1) The mercury cell chlor-alkali production facility affected source consists of all cell rooms and ancillary operations used in the manufacture of product chlorine, product caustic, and by-product hydrogen at a mercury cell chlor-alkali plant. This subpart covers mercury emissions from by-product hydrogen streams, end box ventilation system vents, and fugitive emission sources associated with cell rooms, hydrogen systems, caustic systems, and storage areas for mercury-containing wastes.

(2) The mercury recovery facility affected source consists of all processes and associated operations needed for mercury recovery of wastes generated from a mercury cell chlor-alkali plant. This subpart covers mercury emissions from mercury thermal recovery unit vents and fugitive emission sources associated with storage areas for mercury-containing wastes.

* * * * *

(c) A mercury recovery facility is a new affected source if you commence construction or reconstruction of the affected source after the dates specified in § 63.8186(c) and (d). An affected source is reconstructed if it meets the definition of a reconstruction in § 63.2.

3. Section 63.8186 is revised to read as follows:

### § 63.8186 When do I have to comply with this subpart?

(a) Compliance date for the emission limitations in § 63.8190(a)(2), the work practices in § 63.8192, and all the associated requirements for existing mercury cell chlor-alkali production facility and mercury recovery facility affected sources. If you have an existing mercury cell chlor-alkali production facility or mercury recovery facility affected source, you must comply with the applicable emission limitations in § 63.8190(a)(2), work practices in § 63.8192, and all the associated requirements no later than December 19, 2006.

(b) Compliance date for emission limitation in § 63.8190(b) and all the associated requirements for existing mercury cell chlor-alkali production facility and mercury recovery facility affected sources. If you have an existing mercury cell chlor-alkali production facility or mercury recovery facility affected source, you must comply with § 63.8190(b) by three years after the date that the final rule is published in the **Federal Register**. Prior to compliance with § 63.8190(b), you must comply with the applicable emission limitations in § 63.8190(a)(2), work practices in § 63.8192, and all the associated requirements. After you have demonstrated compliance with § 63.8190(b) and have submitted the certification of compliance in accordance with § 63.8252(f), you are only subject to § 63.8246(d) of this subpart.

(c) Compliance date for the emission limitations in § 63.8190(a)(3), the work practices in § 63.8192, and all the associated requirements for new or reconstructed mercury recovery facility affected sources. If you commenced construction or reconstruction of your mercury recovery facility after July 3, 2002, and before March 14, 2011, you must comply with the applicable emission limitation in § 63.8190(a)(3), work practices in § 63.8192, and all the associated requirements by either December 19, 2003, or upon initial startup, whichever is later.

(d) Compliance date for the emission limitation under § 63.8190(b) and all the associated requirements for new or reconstructed mercury recovery facility affected sources.

(1) If you commenced construction or reconstruction of your mercury recovery facility after July 3, 2002, and before

March 14, 2011, you must comply with the emission limitation in § 63.8190(b) and all the associated requirements by three years after the date that the final rule is published in the **Federal Register**. Prior to compliance with § 63.8190(b), you must comply with the applicable emission limitation in § 63.8190(a)(3), work practices in § 63.8192, and all the associated requirements. After you have demonstrated compliance with § 63.8190(b) and have submitted the certification of compliance in accordance with § 63.8252(f), you are only subject to § 63.8246(d) of this subpart.

(2) If you commenced construction or reconstruction of your mercury recovery facility after March 14, 2011, you must comply with the emission limitation in § 63.8190(b) and all the associated requirements by the date that the final rule is published in the **Federal Register**, or upon initial startup, whichever is later.

4. Section 63.8190 is amended as follows:

a. Revising paragraph (a)(2) introductory text;

b. Revising paragraph (a)(3) introductory text; and

c. Adding paragraph (b).

The revisions read as follows:

**§ 63.8190 What emission limitations must I meet?**

(a) * * *

(2) Emission limits which apply to existing mercury cell chlor-alkali production facilities prior to achieving compliance with § 63.8190(b). During any consecutive 52-week period, you must not discharge to the atmosphere total mercury emissions in excess of the applicable limit in paragraph (a)(2)(i) or (ii) of this section calculated using the procedures in § 63.8243(a).

* * * * *

(3) Emission limits which apply to existing mercury recovery facilities and to new or reconstructed mercury recovery facilities that commenced construction or reconstruction after July 3, 2002, and before March 14, 2011 prior to achieving compliance with paragraph (b) of this section. You must not discharge to the atmosphere mercury emissions in excess of the applicable limit in paragraph (a)(3)(i) or (ii) of this section.

* * * * *

(b) Emission limit which applies to each mercury cell chlor-alkali production facility and each mercury recovery facility after the applicable compliance date specified in paragraph § 63.8186(b) or (d). Emissions of mercury are prohibited from each existing mercury cell chlor-alkali production facility and from each existing, new, or reconstructed mercury recovery facility. You must demonstrate compliance with this prohibition in accordance with the provisions in § 63.8236(e) and § 63.8246(d) and submit the certification of compliance required by § 63.8252(f).

5. Section 63.8192 is amended as follows:

a. Revising the introductory text;

b. Revising paragraph (g)(2)(i); and

c. Revising paragraph (g)(3).

The revisions read as follows:

**§ 63.8192 What work practice standards must I meet?**

Prior to achieving compliance with § 63.8190(b), you must meet the work practice requirements specified in paragraphs (a) through (f) of this section. As an alternative to the requirements specified in paragraphs (a) through (d) of this section, you may choose to comply with paragraph (g) of this section.

* * * * *

(g) * * *

(2) * * *

(i) Beginning on the compliance date specified for your affected source in § 63.8186(a), measure and record the mercury concentration for at least 30 days using a system that meets the requirements of paragraph (g)(1) of this section.

* * * * *

(3) Beginning on the compliance date specified for your affected source in § 63.8186(a), you must continuously monitor the mercury concentration in the cell room. Failure to monitor and record the data according to § 63.8256(c)(4)(ii) for 75 percent of the time in any 6-month period constitutes a deviation.

* * * * *

6. Section 63.8230 is revised to read as follows:

**§ 63.8230 By what date must I conduct performance tests or other initial compliance demonstrations?**

(a) You must conduct a performance test no later than the compliance date that is specified in § 63.8186(a) for your affected source to demonstrate initial compliance with the applicable emission limit in § 63.8190(a)(2) for by-product hydrogen streams and end box ventilation system vents and the applicable emission limit in § 63.8190(a)(3) for mercury thermal recovery unit vents.

(b) For the applicable work practice standards in § 63.8192 you must demonstrate initial compliance within 30 calendar days after the compliance date that is specified for your affected source in § 63.8186(a).

7. Section 63.8236 is amended by adding paragraph (e) to read as follows:

**§ 63.8236 How do I demonstrate initial compliance with the emission limitations and work practice standards?**

* * * * *

(e) For each affected source, you have demonstrated initial compliance with the emission limit in § 63.8190(b) if you have eliminated mercury emissions and you have submitted the compliance certification required by § 63.8252(f).

8. Section 63.8243 is amended by revising paragraphs (a) introductory text and (a)(3) introductory text to read as follows:

**§ 63.8243 What equations and procedures must I use to demonstrate continuous compliance?**

(a) *By-product hydrogen streams and end box ventilation system vents.* For each consecutive 52-week period, you must determine the g Hg/Mg $Cl_2$ produced from all by-product hydrogen streams and all end box ventilation system vents, if applicable, at a mercury cell chlor-alkali production facility using the procedures in paragraphs (a)(1) through (3) of this section. You must begin collecting data on the compliance date that is specified in § 63.8186(a) for your affected source and calculate your first 52-week average mercury emission rate at the end of the 52nd week after the compliance date.

* * * * *

(3) Beginning 52 weeks after the compliance date specified in § 63.8186(a) for your affected source, you must calculate the 52-week average mercury emission rate from all by-product hydrogen steam and all end box ventilation system vents, if applicable, using Equation 1 of this section as follows:

* * * * *

9. Section 63.8246 is amended by adding paragraph (d) to read as follows:

**§ 63.8246 How do I demonstrate continuous compliance with the emission limitations and work practice standards?**

* * * * *

(d) You must demonstrate continuous compliance with the emission limitations in § 63.8190(b) by operating without mercury emissions.

10. Section 63.8252 is amended by adding paragraph (f) to read as follows:

**§ 63.8252 What notifications must I submit and when?**

* * * * *

(f) You must submit a compliance certification no later than 60 days after the applicable compliance date

specified in § 63.8186(b) or (d). This certification must state that you have eliminated all mercury emissions and will not use any process in the future that will emit mercury. The certification should also include a statement as to whether you eliminated mercury emissions through conversion to a non-mercury process for chlorine production or whether chlorine is no longer produced at the site.

11. Section 63.8254 is amended as follows:

a. Revising paragraph (a)(1);

b. Revising paragraph (a)(2);

The revisions read as follows:

**§ 63.8254 What reports must I submit and when?**

(a) * * *

(1) The first compliance report must cover the period beginning on December 19, 2006, and ending on June 30, 2007.

(2) The first compliance report must be postmarked or delivered no later than July 31, 2007.

* * * * *

**[OPTION 2 FOR SUBPART IIIII—AMENDED]**

**Subpart IIIII—[AMENDED]**

12. Section 63.8182 is amended by revising paragraph (a) to read as follows:

**§ 63.8182 Am I subject to this subpart?**

(a) You are subject to this subpart if you own or operate a mercury cell chlor-alkali production facility or a mercury recovery facility at a mercury cell chlor-alkali plant.

* * * * *

13. Section 63.8184 is amended by revising paragraph (a) to read as follows:

**§ 63.8184 What parts of my plant does this subpart cover?**

(a) This subpart applies to two types of affected sources at a mercury cell chlor-alkali plant: the mercury cell chlor-alkali production facility, as defined in § 63.8266, "What definitions apply to this subpart," and the mercury recovery facility, as also defined in § 63.8266.

* * * * *

14. Section 63.8186 is amended as follows:

a. By revising paragraph (a); and

b. By adding paragraph (e).

**§ 63.8186 When do I have to comply with this subpart?**

(a) If you have an existing affected source, you must comply with the applicable provisions no later than the dates specified in paragraph (a)(1) and in either paragraph (a)(2) or (3) of this section.

(1) You must comply with each emission limitation, work practice standard, and recordkeeping and reporting requirement in this subpart that applies to you no later than December 19, 2006, with the exception of the requirements listed in (a)(1)(i) through (4) of this section.

(i) Section 63.8192(h) and (i);

(ii) Section 63.8236(e) and (f);

(iii) Section 63.8252(f); and

(iv) Section 63.8254(e).

(2) If you were complying with the cell room monitoring program provisions in § 63.8192(g) on March 14, 2011 as an alternative to the work practice standards in § 63.8192(a) through (d), you must comply with the provisions in § 63.8192(h) and (i) no later than 6 months after publication of the final rule in the **Federal Register**. At the time that you are in compliance with § 63.8192(h) and (i), you will no longer be subject to the provisions of § 63.8192(g).

(3) If you were complying with the work practice standards in § 63.8192(a) through (d) on March 14, 2011, you must comply with the provisions in § 63.8192(h) and (i) no later than 2 years after publication of the final rule in the **Federal Register**. At the time that you are in compliance with § 63.8192(h) and (i), you will no longer be subject to the provisions of § 63.8192(a) through (d).

* * * * *

(e) If you have a mercury recovery facility at a mercury cell chlor-alkali plant where the mercury cell chlor-alkali production facility ceased production of product chlorine, product caustic, and by-product hydrogen prior to the publication of the final rule in the **Federal Register**, you must comply with each emission limitation, work practice standard, and recordkeeping and reporting requirement in this subpart that applies to your mercury recovery unit by 1 year after the publication of the final rule in the **Federal Register**.

15. Section 63.8192 is amended as follows:

a. By revising § 63.8192 introductory text; and

b. By adding paragraphs (h) and (i).

**§ 63.8192 What work practice standards must I meet?**

Prior to the applicable compliance date specified in § 63.8186(a)(2) or (3), you must meet the work practice requirements specified in paragraphs (a) through (f) of this section. As an alternative to the requirements specified in paragraphs (a) through (d) of this section, you may choose to comply with paragraph (g) of this section. After the applicable compliance date specified in § 63.8186(a)(2) or (3), you must meet the work practice requirements specified in paragraphs (e), (f), (h), and (i) of this section.

* * * * *

(h) You must meet the work practice standards in Tables 1 through 4 to this subpart and the associated recordkeeping requirements in Table 12 to this subpart. You must adhere to the response intervals specified in Tables 1 through 4 to this subpart at all times. Nonadherence to the intervals in Tables 1 through 4 to this subpart constitutes a deviation and must be documented and reported in the compliance report, as required by § 63.8254(b), with the date and time of the deviation, cause of the deviation, a description of the conditions, and time actual compliance was achieved. As provided in § 63.6(g), you may request to use an alternative to the work practice standards in Tables 1 through 4 to this subpart.

(i) In addition to the work practice standards in paragraph (h) of this section, you must institute a cell room monitoring program to continuously monitor the mercury vapor concentration in the upper portion of each cell room and to take corrective actions as quickly as possible when elevated mercury vapor levels are detected. You must prepare and submit to the Administrator a cell room monitoring plan containing the elements listed in Table 11 to this subpart and meet the requirements in paragraphs (i)(1) through (4) of this section.

(1) You must utilize a mercury monitoring system that meets the requirements of Table 8 to this subpart.

(2) You must establish action levels according to the requirements in paragraphs (i)(2)(i) through (iii) of this section. You must establish an initial action level after the compliance date specified in § 63.8186(a)(2) or (3), and you must re-establish an action level at least once every six months thereafter.

(i) You must measure and record the mercury concentration for at least 14 days and no more than 30 days using a system that meets the requirements of paragraph (i)(1) of this section. For the initial action level, this monitoring must begin on the applicable compliance date specified for your affected source in § 63.8186(a)(2) or (3).

(ii) Using the monitoring data collected according to paragraph (i)(2)(i) of this section, you must establish your action level at the 90th percentile of the data set.

(iii) You must submit your initial action level according to § 63.8252(f) and subsequent action levels according to § 63.8252(g).

(3) Beginning on the compliance date specified for your affected source in § 63.8186(a)(2) or (3), you must continuously monitor the mercury concentration in the cell room. Failure to monitor and record the data according to § 63.8256(e)(4)(iii) for 75 percent of the time in any 6-month period constitutes a deviation.

(4) If the average mercury concentration for any 1-hour period exceeds the currently applicable action level established according to paragraph (i)(2) of this section, you must meet the requirements in either paragraph (i)(4)(i) or (ii) of this section.

(i) If you determine that the cause of the elevated mercury concentration is an open electrolyzer, decomposer, or other maintenance activity, you must record the information specified in paragraphs (i)(4)(i)(A) through (C) of this section.

(A) A description of the maintenance activity resulting in elevated mercury concentration;

(B) The time the maintenance activity was initiated and completed; and

(C) A detailed explanation how all the applicable requirements of Table 1 to this subpart were met during the maintenance activity.

(ii) If you determine that the cause of the elevated mercury concentration is not an open electrolyzer, decomposer, or other maintenance activity, you must follow the procedures specified in paragraphs (i)(4)(ii)(A) and (B) of this section until the mercury concentration falls below the action level. You must also keep all the associated records for these procedures as specified in Table 12 to this subpart. Nonadherence to the intervals in paragraphs (i)(4)(ii)(A) and (B) of this section constitutes a deviation and must be documented and reported in the compliance report, as required by § 63.8254(b).

(A) Within 1 hour of the time the action level was exceeded, you must conduct each inspection specified in Table 2 to this subpart, with the exception of the cell room floor and the pillars and beam inspections. You must correct any problem identified during these inspections in accordance with the requirements in Tables 2 and 3 to this subpart.

(B) If the Table 2 inspections and subsequent corrective actions do not reduce the mercury concentration below the action level, you must inspect all decomposers, hydrogen system piping up to the hydrogen header, and other potential locations of mercury vapor leaks using a technique specified in Table 6 to this subpart. If a mercury vapor leak is identified, you must take the appropriate action specified in Table 3 to this subpart.

16. Section 63.8230 is amended by revising paragraph (b) and adding paragraph (c) to read as follows:

**§ 63.8230 By what date must I conduct performance tests or other initial compliance demonstrations?**

* * * * *

(b) For the applicable work practice standards in § 63.8192(a) through (g), you must demonstrate initial compliance within 30 calendar days after the compliance date that is specified for your affected source in § 63.8186(a)(1).

(c) For the applicable work practice standards in § 63.8192(e), (f), (h), and (i), you must demonstrate initial compliance within 60 calendar days after the applicable compliance date that is specified for your affected source in § 63.8186(a)(2) or (3).

17. Section 63.8236 is amended by revising paragraph (c) introductory text and by adding paragraphs (e) and (f) to read as follows:

**§ 63.8236 How do I demonstrate initial compliance with the emission limitations and work practice standards?**

* * * * *

(c) For each affected source, you have demonstrated initial compliance with the applicable work practice standards in § 63.8192(a) through (g) if you comply with paragraphs (c)(1) through (7) of this section:

* * * * *

(e) After the date of publication of the final rule in the **Federal Register**, for each affected source, you have demonstrated initial compliance with the applicable work practice standards in § 63.8192(e), (f), (h), and (i) if you comply with paragraphs (e)(1) through (4) of this section:

(1) You certify in your Revised Work Practice Notification of Compliance Status that you are operating according to the work practice standards in § 63.8192(h).

(2) You have submitted your cell room monitoring plan as part of your Revised Work Practice Notification of Compliance Status and you certify in your Revised Work Practice Notification of Compliance Status that you are operating according to the continuous cell room monitoring program under § 63.8192(i) and that you have established your initial action level according to § 63.8192(i)(2).

(3) You have re-submitted your washdown plan as part of your Revised Work Practice Notification of Compliance Status and you re-certify in your Revised Work Practice Notification of Compliance Status that you are operating according to your washdown plan.

(4) You have re-submitted records of the mass of virgin mercury added to cells for the 5 years preceding December 19, 2006, as part of your Revised Work Practice Notification of Compliance Status.

(f) You must submit the Revised Work Practice Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in § 63.8252(f).

18. Section 63.8246 is amended by revising the first sentence of paragraph (b)(1) introductory text to read as follows:

**§ 63.8246 How do I demonstrate continuous compliance with the emission limitations and work practice standards?**

* * * * *

(b) * * *

(1) For each mercury thermal recovery unit vent, you must demonstrate continuous compliance with the applicable emission limit specified in § 63.8190(a)(3) by maintaining the outlet mercury daily-average concentration no higher than the applicable limit. * * *

* * * * *

19. Section 63.8252 is amended by adding paragraphs (f) and (g) to read as follows:

**§ 63.8252 What notifications must I submit and when?**

* * * * *

(f) You must submit a Revised Work Practice Notification of Compliance Status according to paragraphs (f)(1) and (2) of this section.

(1) You must submit a Revised Work Practice Notification of Compliance Status before the close of business on the date 60 days after the applicable compliance date in § 63.8186(a)(2) or (3). The Revised Work Practice Notification of Compliance Status must contain the items in paragraphs (f)(1)(i) through (iii) of this section:

(i) A certification that you are operating according to the work practice standards in § 63.8192(h).

(ii) Your cell room monitoring plan, including your initial action level determined in accordance with § 63.8192(i)(2), and a certification that you are operating according to the continuous cell room monitoring program under § 63.8192(i).

(iii) Your washdown plan, and a certification that you are operating according to your washdown plan under § 63.8192(e).

(2) Records of the mass of virgin mercury added to cells for the 5 years preceding December 19, 2006.

(g) You must submit subsequent action levels determined in accordance with § 63.8192(i)(2), along with the supporting data used to establish the action level, within 30 calendar days after completion of data collection.

20. Section 63.8254 is amended by revising paragraph (b)(7) introductory text to read as follows:

**§ 63.8254 What reports must I submit and when?**

* * * * *

(b) * * *

(7) For each deviation from the requirements for work practice standards in Tables 1 through 4 to this subpart that occurs at an affected source (including deviations where the response intervals were not adhered to as described in § 63.8192(b)), each deviation from the cell room monitoring program monitoring and data recording requirements in § 63.8192(i)(3), and each deviation from the response intervals required by § 63.8192(i)(4) when an action level is exceeded, the compliance report must contain the information in paragraphs (b)(1) through (4) of this section and the information in paragraphs (b)(7)(i) and (ii) of this section. This includes periods of startup, shutdown, and malfunction.

* * * * *

21. Section 63.8256 is amended by revising paragraph (c) introductory text and adding paragraph (e) to read as follows:

**§ 63.8256 What records must I keep?**

* * * * *

(c) Records associated with the work practice standards that must be kept prior to the applicable compliance date in § 63.8186(a)(2) or (3).

* * * * *

(e) Records associated with the work practice standards that must be kept after the applicable compliance date in § 63.8186(a)(2) or (3).

(1) You must keep the records specified in paragraphs (e)(1)(i) and (ii) of this section.

(i) A weekly record certifying that you have complied with the work practice standards in Tables 1 through 4 to this subpart. This record must, at minimum, list each general requirement specified in paragraphs (e)(1)(i)(A) through (D) of this section. Figure 1 to this subpart provides an example of this record.

(A) The design, operation, and maintenance requirements in Table 1 to this subpart,

(B) The required inspections in Table 2 to this subpart,

(C) The required actions for liquid mercury spills and accumulations and hydrogen and mercury vapor leaks in Table 3 to this subpart, and

(D) The requirements for mercury liquid collection in Table 4 to this subpart.

(ii) The records specified in Table 12 to this subpart related to mercury and hydrogen leaks.

(2) You must maintain a copy of your current washdown plan and records of when each washdown occurs.

(3) You must maintain records of the mass of virgin mercury added to cells for each reporting period.

(4) You must keep your current cell room monitoring plan and the records specified in paragraphs (e)(4)(i) through (vi) of this section.

(i) Records of the monitoring conducted in accordance with § 63.8192(i)(2)(i) to establish your action levels, and records demonstrating the development of these action levels.

(ii) During each period that you are gathering cell room monitoring data in accordance with the requirements of § 63.8192(i)(2)(i), records specified in Table 9.

(iii) Records of the cell room mercury concentration monitoring data collected.

(iv) Instances when the action level is exceeded.

(v) Records specified in § 63.8192(i)(4)(i) for maintenance activities that cause the mercury vapor concentration to exceed the action level.

(vi) Records of all inspections and corrective actions taken in response to a non-maintenance related situation in which the mercury vapor concentration exceeds the action level as specified in Table 12 of this subpart.

22. Section 63.8266 is amended by revising the definitions of "Mercury cell chlor-alkali plant" and "Mercury recovery facility" to read as follows:

**§ 63.8266 What definitions apply to this subpart?**

* * * * *

*Mercury cell chlor-alkali plant* means all contiguous or adjoining property that is under common control, where a mercury cell chlor-alkali production facility and/or a mercury recovery facility is located. A mercury cell chlor-alkali plant includes a mercury recovery facility at a plant where the mercury cell chlor-alkali production facility ceases production.

* * * * *

*Mercury recovery facility* means an affected source consisting of all processes and associated operations needed for mercury recovery from wastes generated by a mercury cell chlor-alkali plant.

* * * * *

23. The tables to subpart IIIII are amended as follows:

a. By revising the heading to table 5;

b. By revising the introductory text to table 9;

c. By adding tables 11 and 12; and

d. By adding figure 1:

* * * * *

**TABLE 5 TO SUBPART IIIII OF PART 63 —REQUIRED ELEMENTS OF FLOOR–LEVEL MERCURY VAPOR MEASUREMENT AND CELL ROOM MONITORING PLANS PRIOR TO THE APPLICABLE COMPLIANCE DATE SPECIFIED IN § 63.8186(a)(2) OR (3)**

* * * * *

**TABLE 9 TO SUBPART IIIII OF PART 63—REQUIRED RECORDS FOR WORK PRACTICE STANDARDS**

As stated in § 63.8256(c), you must keep the records (related to the work practice standards) specified in the following table prior to the applicable compliance date specified in § 63.8186(a)(2) or (3). After the applicable compliance date specified in § 63.8186(a)(2) or (3), you must keep the records (related to the work practice standards) specified in the following table during the period when you are collecting cell room monitoring data in accordance with § 63.8192(i)(2)(i) to establish your action level:

* * * * *

**TABLE 11 TO SUBPART IIIII of Part 63—REQUIRED ELEMENTS CELL ROOM MONITORING PLANS AFTER THE APPLICABLE COMPLIANCE DATE SPECIFIED IN § 63.8186(a)(2) OR (3)**

Your Cell Room Monitoring Plan required by § 63.8192(i) must contain the elements listed in the following table:

| You must specify in your cell room monitoring plan * * * | Additional requirements |
|---|---|
| 1. Details of your mercury monitoring system. | |
| 2. How representative sampling will be conducted ..... | Include some pre-plan measurements to demonstrate the profile of mercury concentration in the cell room and how the selected sampling locations ensure conducted representativeness. |

| You must specify in your cell room monitoring plan * * * | Additional requirements |
|---|---|
| 3. Quality assurance/quality control procedures for your mercury monitoring system. | Include a description of how you will keep records or other means to demonstrate that the system is operating properly. |
| 4. Your current action level | Include the background data used to establish your current level. Records of previous action levels must be kept for 5 years in accordance with § 63.8258, but are not required to be included as part of your cell room monitoring plan. |

**TABLE 12 TO SUBPART IIIII OF PART 63—REQUIRED RECORDS FOR WORK PRACTICE STANDARDS AFTER THE APPLICABLE COMPLIANCE DATE SPECIFIED IN § 63.8186(a)(2) OR (3)**

As stated in § 63.8256(e)(1), you must keep the records (related to the work practice standards) specified in the following table;

| For each * * * | You must record the following information * * * |
|---|---|
| 1. Liquid mercury spill or accumulation identified during an inspection required by Table 2 to this subpart or at any other time. | a. Location of the liquid mercury spill or accumulation. |
| | b. Method you use to clean up the liquid mercury spill or accumulation. |
| | c. Date and time when you clean up the liquid mercury spill or accumulation. |
| | d. Source of the liquid mercury spill or accumulation. |
| | e. If the source of the liquid mercury spill or accumulation is not identified, the time when you inspect the area. |
| 2. Liquid mercury leak or hydrogen leak identified during an inspection required by Table 2 to this subpart or at any other time. | a. Location of the leak. |
| | b. Date and time you identify the leak. |
| | c. If the leak is a liquid mercury leak, the date and time that you successfully contain the dripping liquid mercury. |
| | d. Date and time you successfully stop the leak and repair the leaking equipment. |

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**Figure 1 to Subpart IIIII of Part 63--- Example Record Certifying Compliance with Work Practice Standards**

Certification of Compliance with Work Practices Standards
§ 63.8256(e)(1)(i)

I hereby certify, that the [COMPANY NAME] mercury cell chlor-alkali facility in [LOCATION] has complied with each of the following work practice standards for the week of [DATE].

| | |
|---|---|
| The design, operation, and maintenance requirements in Table 1 to 40 CFR part 63, subpart IIIII. | ☐ |
| The required inspections in Table 2 to 40 CFR part 63, subpart IIIII. | ☐ |
| The required actions for liquid mercury spills and accumulations and hydrogen and mercury vapor leaks in Table 3 to 40 CFR part 63, subpart IIIII. | ☐ |
| The requirements for mercury liquid collection in Table 4 to 40 CFR part 63, subpart IIIII. | ☐ |

COMPANY OFFICIAL _____ DATE _____

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**[AMENDMENTS INDEPENDENT OF WHICH OPTION IS SELECTED]**

**Subpart IIIII—[AMENDED]**

24. Section 63.8226 is revised to read as follows:

**§ 63.8226 What are my general requirements for complying with this subpart?**

(a) You must be in compliance with the applicable emission limitations in § 63.8190 at all times. Prior to achieving compliance with § 63.8190(b), you must be in compliance with the applicable work practice standards in § 63.8192 at all times.

(b) At all times you must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

25. Section 63.8232 is amended by removing and reserving paragraph (a) to read as follows:

**§ 63.8232 [Amended]**

(a) [Reserved]

* * * * *

26. Section 63.8242 is amended by revising paragraph (a)(2) to read as follows:

**§ 63.8242 What are the installation, operation, and maintenance requirements for my continuous monitoring systems?**

(a) * * *

(2) Each mercury continuous emissions monitor analyzer must have a detector with the capability to detect a

mercury concentration of either 0.5 times the mercury concentration level measured during the performance test conducted according to § 63.8232 or 0.1 μg/m$^3$.

* * * * *

27. Section 63.8246 is amended by revising paragraph (b)(1) to read as follows:

**§ 63.8246 How do I demonstrate continuous compliance with the emission limitations and work practice standards?**

* * * * *

(b) * * *

(1) For each mercury thermal recovery unit vent, you must demonstrate continuous compliance with the applicable emission limit specified in § 63.8190(a)(3) by maintaining the outlet mercury daily-average concentration no higher than the applicable limit. To determine the outlet mercury concentration, you must monitor according to paragraphs (b)(1)(i) or (ii) of this section.

* * * * *

28. Section 63.8248 is amended as follows:

a. Revising paragraph (a)(1);

b. Revising paragraph (a)(2); and

c. Removing and reserving paragraph (b).

The revisions read as follows:

**§ 63.8248 What other requirements must I meet?**

(a) * * *

(1) You must report each instance in which you did not meet each emission limitation in § 63.8190 that applies to you.

(2) You must report each instance in which you did not meet each work practice standard in § 63.8192 that applies to you

* * * * *

(b) [Reserved]

29. Section 63.8254 is amended as follows:

c. Removing and reserving paragraph (b)(4);

d. Revising paragraph (b)(7) introductory text;

e. Revising paragraph (b)(8) introductory text;

f. Revising paragraph (b)(8)(iv);

g. Revising paragraph (b)(8)(vi);

h. Revising paragraph (b)(9) introductory text;

i. Revising paragraph (b)(9)(ii);

j. Revising paragraph (b)(9)(vi); and

k. Removing and reserving paragraph (c).

The revisions read as follows:

**§ 63.8254 What reports must I submit and when?**

* * * * *

(b) * * *

(4) [Reserved]

* * * * *

(7) For each deviation from the requirements for work practice standards in Tables 1 through 4 to this subpart that occurs at an affected source (including deviations where the response intervals were not adhered to as described in § 63.8192(b)), the compliance report must contain the information in paragraphs (b)(1) through (4) of this section and the information in paragraphs (b)(7)(i) and (ii) of this section.

* * * * *

(8) For each deviation from an emission limitation occurring at an affected source where you are using a mercury continuous emission monitor, according to the site-specific monitoring plan required in § 63.8242(a)(3), to comply with the emission limitation in this subpart, you must include the information in paragraphs (b)(1) through (4) of this section and the information in paragraphs (b)(8)(i) through (xii) of this section.

* * * * *

(iv) The date and time that each deviation started and stopped.

* * * * *

(vi) A breakdown of the total duration of the deviations during the reporting period including those that are due to control equipment problems, process problems, other known causes, and other unknown causes.

* * * * *

(9) For each deviation from an operation and maintenance standard occurring at an affected source where you are using the periodic monitoring option specified in § 63.8240(b) and your final control device is not a nonregenerable carbon adsorber, the compliance report must include the information in paragraphs (b)(1) through (4) of this section and the information in paragraphs (b)(9)(i) through (x) of this section.

* * * * *

(ii) Information on the number, duration, and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken.

* * * * *

(vi) A breakdown of the total duration of the deviations during the reporting period including those that are due to process problems, other known causes, and other unknown causes.

* * * * *

(c) [Reserved]

* * * * *

30. Section 63.8256 is amended by removing and reserving paragraph (a)(2) to read as follows:

**§ 63.8256 What records must I keep?**

(a) * * *

(2) [Reserved]

* * * * *

31. Section 63.8266 is amended by revising the definitions of "Deviation;" and "Mercury cell chlor-alkali plant" to read as follows:

**§ 63.8266 What definitions apply to this subpart?**

* * * * *

*Deviation* means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart including, but not limited to, any emission limitation (including any operating limit) or work practice standard;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the title V operating permit for any affected source required to obtain such a permit; or

(3) Fails to take corrective actions within 48 hours that result in parameter monitoring values being within range.

* * * * *

*Mercury cell chlor-alkali plant* means all contiguous or adjoining property that is under common control, where a mercury cell chlor-alkali production facility and/or a mercury recovery facility is located. A property where only a mercury recovery facility is operating is considered a mercury cell chlor-alkali plant if a mercury cell chlor-alkali production facility had operated on that property at any time in the past.

* * * * *

32. Table 10 to subpart IIIII of part 63 is revised to read as follows:

TABLE 10 TO SUBPART IIIII OF PART 63—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART IIIII

[As stated in § 63.8262, you must comply with the applicable General Provisions requirements according to the following table]

| Citation | Subject | Applies to Subpart IIIII | Explanation |
|---|---|---|---|
| § 63.1 | Applicability | Yes. | |
| § 63.2 | Definitions | Yes. | |
| § 63.3 | Units and Abbreviations | Yes. | |
| § 63.4 | Prohibited Activities | Yes. | |
| § 63.5 | Construction/Reconstruction | Yes. | |
| § 63.6(a)–(g), (i), (j), except for (e)(1)(i) and (ii), (e)(3), and (f)(1). | Compliance with Standards and Maintenance Requirements | Yes. | |
| § 63.6(e)(1)(i) and (ii), (e)(3), and (f)(1). | SSM Requirements | No. | |
| § 63.6(h) | Compliance with Opacity and Visible Emission Standards | No | Subpart IIIII does not have opacity and visible emission standards. |
| § 63.7(a)(1), (b)–(h), except (e)(1). | Performance Testing Requirements | Yes | Subpart IIIII specifies additional requirements related to site-specific test plans and the conduct of performance tests. |
| § 63.7(e)(1) | Performance Testing Requirements Related to SSM | No. | |
| § 63.7(a)(2) | Applicability and Performance Test Dates | No | Subpart IIIII requires the performance test to be performed on the compliance date. |
| § 63.8(a)(1), (a)(3); (b); (c)(1)–(4), (6)–(8); (d); (e); and (f)(1)–(5). | Monitoring Requirements | Yes. | |
| § 63.8(a)(2) | Continuous Monitoring System (CMS) Requirements | No | Subpart IIIII requires a site-specific monitoring plan in lieu of a promulgated performance specification for a mercury concentration CMS. |
| § 63.8(a)(4) | Additional Monitoring Requirements for Control Devices in § 63.11. | No | Subpart IIIII does not require flares. |
| § 63.8(c)(5) | COMS Minimum Procedures | No | Subpart IIIII does not have opacity and visible emission standards. |
| § 63.8(f)(6) | Alternative to Relative Accuracy Test | No | Subpart IIIII does not require CEMS. |
| § 63.8(g) | Data Reduction | No | Subpart IIIII specifies mercury concentration CMS data reduction requirements. |
| § 63.9(a)–(e), (g)–(j) | Notification Requirements | Yes. | |
| § 63.9(f) | Notification of VE/Opacity Test | No | Subpart IIIII does not have opacity and visible emission standards. |
| § 63.10(a); (b)(1); (b)(2)(vi)–(xii), (xiv); (b)(3); (c); (d)(1)–(2), (4); (e); (f). | Recordkeeping/Reporting | Yes. | |
| § 63.10(b)(2)(i)–(v), (d)(5) | Recordkeeping/Reporting Associated with Startup, Shutdown, and Malfunctions. | No. | |
| § 63.10(b)(2)(xiii) | CMS Records for RATA Alternative | No | Subpart IIIII does not require CEMS. |
| § 63.10(d)(3) | Reporting Opacity or VE Observations | No | Subpart IIIII does not have opacity and visible emission standards. |
| § 63.11 | Flares | No | Subpart IIIII does not require flares. |
| § 63.12 | Delegation | Yes. | |
| § 63.13 | Addresses | Yes. | |
| § 63.14 | Incorporation by Reference | Yes. | |
| § 63.15 | Availability of Information | Yes. | |

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