

# FIRST FULL NATIONAL REPORTS OF THE MINAMATA CONVENTION ON MERCURY 2021



## REPORTING PERIOD:

16 August 2017 to 31 December 2020

### ▼ INFORMATION ON THE PARTY

## 1. Information on the party

### Name of party

United States of America

### Date on which its instrument of ratification, accession, approval or acceptance was deposited

6 November 2013

### Date of entry into force of the Convention for the party

16 August 2017

## 2. Information on the national focal point

### Full name of the institution

U.S. Department of State

### Title of National Focal Point

Mr.

### Name of National Focal Point

Andrew Clark

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## 3. Information about the contact officer submitting the reporting format if different from the above

Focal Point is submitting the national report

- ☒ Information is submitted by the national focal point
- ☐ Information is submitted through the national focal point by the contact officer

▼ ART. 3: MERCURY SUPPLY SOURCES AND TRADE

**3.1. Does the party have any primary mercury mines that were operating within its territory at the date of entry into force of the Convention for the party?**

- ☐ Yes
- ☒ No

Additional information on this question if needed  
{Empty}

**3.2. Does the party have any primary mercury mines that are now in operation that were not in operation at the time of entry into force of the Convention for the party?**

- ☐ Yes
- ☒ No

**3.3. Has the party endeavoured to identify individual stocks of mercury or mercury compounds exceeding 50 metric tons and sources of mercury supply generating stocks exceeding 10 metric tons per year that are located within its territory?**

- ☒ Yes
- ☐ No

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\*If the party answered Yes to Question 3 above:

i. Please attach the results of your endeavor or indicate where it is available on the internet, unless unchanged from a previous reporting round.

Uploaded file is response to parts i and ii of this question.

i. Please attach the results of your endeavor or indicate where it is available on the internet, unless unchanged from a previous reporting round.

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ii. Supplemental: Please provide any related information, for example on the use or disposal of mercury from such stocks and sources.

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**3.4. Does the party have excess mercury available from the decommissioning of chlor-alkali facilities?**

- ☐ Yes
- ☒ No

**3.5. \*Has the party received consent, or relied on a general notification of consent, in accordance with article 3, including any required certification from importing non-parties, for all exports of mercury from the party's territory in the reporting period?**

- ☐ Yes, exports to parties
- ☐ Yes, exports to non-parties
- ☒ No

**Additional information if needed**

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**3.6. Has the party allowed the import of mercury from a non-party?**

- ☒ No
- ☐ Yes
- ☐ The importing party has relied on paragraph 7 of article 3

**Part E – Additional comments on the article in free text if the party chooses to do so**

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**▼ ART. 4: MERCURY-ADDED PRODUCTS**

**4.1. Has the party taken any appropriate measures to not allow the manufacture, import or export of mercury-added products listed in Part I of Annex A of the Convention after the phase-out date specified for those products?**

- ☐ Yes
- ☐ No
- ☒ Yes (implementing paragraph 2 of article 4)

**4.2. If yes (implementing paragraph 2 of article 4):**

**Has the party reported to the Conference of the Parties at the first opportunity a description of the measures or strategies implemented, including a quantification of the reductions achieved?**

- ☒ Yes
- ☐ No

**Has the party implemented measures or strategies to reduce the use of mercury in any products listed in Part I of Annex A for which a de minimis value has not yet been obtained?**

- ☒ Yes
- ☐ No

**If yes, please provide information on the measures.**

In its October 2013 Notification Under Article 4, Paragraph 2, of Information on Domestic Measures and Strategies Implemented to Address Mercury-Added Products, the United States indicated that although significant domestic reductions had been made, switches and relays was the only product

category of the nine listed in Part I of Annex A of the Convention for which there were insufficient data available to fully assess whether U.S. manufacture, import, and export was or was not de minimis. The United States was not able at that time to separate out data on switches and relays that are covered under Annex A from data on switches and relays that are excluded from the scope of Annex A, such as products for use in refurbishment and replacement parts. As the United States moves ahead with clarifying national mercury inventory data reported in 2018 for switches and relays, such details will be provided to the Secretariat at the earliest opportunity.

Domestically, specific measures and strategies to address switches and relays have been put in place, such as the National Vehicle Mercury Switch Recovery Program (NVMSRP), a collaboration for reducing mercury air emissions initially designed by EPA and industry stakeholders in 2006. More recently, a memorandum of understanding (MOU) was renewed on November 15, 2018, between EPA and 44 other entities, including the Steel Manufacturers Association, the American Iron and Steel Institute, the End-of-Life Vehicle Solutions Corporation, the Automotive Recyclers Association, and the Institute of Scrap Recycling Industries. Involving more than 10,000 recyclers, the NVMSRP has removed and safely recycled more than 6.8 million mercury switches, containing a total of more than 7.6 tons of mercury. By diverting the switches from the waste stream, the program also has prevented the release of mercury into the atmosphere. The program was set to expire in 2017; however, given its effectiveness, EPA and its partners extended it to 2021.

In addition, the 2016 Frank R. Lautenberg Chemical Safety for the 21st Century Act required the publication of an initial national mercury inventory in 2017, which resulted in better data from and outreach to mercury switch manufacturers and importers in the 2020 iteration of the inventory. As shown in the data comparisons above, there has been a consistent decline in the amount of mercury used for electronic/electrical equipment (i.e., switches and relays) in the United States. At this time, the United States is conducting additional outreach to several manufacturers of mercury-added switches and relays, as well as for dental amalgam (albeit not in Part I of Annex A) and a few other products, to ensure that totals reported for the 2018 reporting year are accurate. Reported totals will be updated as appropriate. The United States views such interactions with industry as part of its ongoing efforts not only to better understand where mercury is still used to manufacture certain switches and relays, but also to encourage the development of effective alternatives.

**Has the party considered additional measures to achieve further reductions?**

☒ Yes

☐ No

**If yes, please provide information on the measures.**

In addition to the measures described above, the United States continues to consider additional measures to achieve further reductions, pursuant to Article 4, paragraph 2(c). As noted in its 2020 mercury inventory report, EPA was required to identify products and manufacturing processes that intentionally add mercury and make recommendations for actions to further reduce mercury use. In the report, EPA listed numerous products and manufacturing processes commonly known to coincide with Annex A product categories (e.g., batteries, lighting, measuring devices). In addition, the Agency identified several other products and manufacturing processes. Those uses include (as described by terms reporters used in submission to the mercury inventory):

**Products**

- The “burners” aspect of “low UV gas discharge lamps and burners”
- Wheel emblem
- Lead in water sensor
- Mercury analyzer
- Air cylinders
- Connector pins
- Mass flow controllers
- Printed circuit board
- Motors

**Manufacturing Processes**

- Bonding weld head (catalyst)
- Molecular beam epitaxy

- Quality analysis (density measurement of tungsten bars)
- Inactivation
- Quality control test (small arms ammunition case–mercury stress crack)

(See Inventory of Mercury Supply, Use, and Trade in the United States – 2020 Report: Conclusion and Data Interpretation, Identified Manufacturing Processes and Products; available at [https://www.epa.gov/sites/production/files/2020-03/documents/10006-34\\_mercury\\_inventory\\_report.pdf](https://www.epa.gov/sites/production/files/2020-03/documents/10006-34_mercury_inventory_report.pdf))

EPA continues to carefully consider the reporting results in light of such factors as quantities of use and availability of safer, cost-effective alternatives and, at a future time, may recommend further measures, including legal or regulatory actions, as appropriate and in accordance with the 2016 Frank R. Lautenberg Chemical Safety for the 21st Century Act. For example, the mercury inventory reporting rule creates a legally enforceable reporting obligation. That enforcement mechanism is part of the multifaceted U.S. approach to better understand the manufacture, import, and export of mercury-added products and effectuate measures and strategies to achieve reductions in the use of mercury in products or manufacturing processes. Such measures and strategies could include regulatory and voluntary approaches, as well actions to enhance the administration of the mercury inventory and its electronic reporting application.

#### **4.3. Has the party taken two or more measures for the mercury-added products listed in Part II of Annex A in accordance with the provisions set out therein?**

- ☒ Yes
- ☐ No

##### **If yes, please provide information on the measures.**

In its October 2013 submission on “Measures to Implement the Minamata Convention on Mercury Pursuant to Article 30, paragraph 4, of the Minamata Convention on Mercury,” the United States indicated that it would implement at least two measures listed in Part II of Annex A under the Public Health Service Act, 42 U.S.C. § 241(a), and the Clean Water Act. In particular, the United States implemented the following four measures listed in Part II of Annex A, two more measures than required by the Convention:

- (i) Setting national objectives aiming at dental caries prevention and health promotion, thereby minimizing the need for dental restoration;
- (iv) Promoting research and development of quality mercury-free materials for dental restoration;
- (v) Encouraging representative professional organizations and dental schools to educate and train dental professionals and students on the use of mercury-free dental restoration alternatives and on promoting best management practices; and
- (ix) Promoting the use of best environmental practices in dental facilities to reduce releases of mercury and mercury compounds to water and land.

In addition to the above, the United States further implemented Annex A, Part II, (ix) through the U.S. Environmental Protection Agency’s Memorandum of Understanding with the American Dental Association and the National Association of Clean Water Agencies to promote the use of amalgam separators and other measures to capture amalgam waste and reduce its release to water. (<http://water.epa.gov/scitech/wastetech/guide/dental/index.cfm>.)

Decision MC-3/2 (adopted by the third Conference of the Parties to the Minamata Convention on Mercury) encourages Parties to take more than the two required measures in accordance with Annex A, Part II, of the Convention to phase down the use of dental amalgam. The United States has taken the following additional measures:

In September of 2020, the U.S. Food and Drug Administration (FDA) issued updated “Recommendations for Certain High-Risk Groups Regarding Mercury-Containing Dental Amalgam” that called for non-mercury restorations (fillings), such as composite resins and glass ionomer cements, to be used, when possible and appropriate, in people who may be at higher risk for adverse health effects from mercury exposure. Key among the FDA’s findings were the uncertainties about the acceptable reference exposure levels for mercury vapor (gas), the potential for mercury to

convert to other mercury compounds in the body, and whether the degree of accumulation of mercury from dental amalgam results in negative (adverse) health outcomes. Although the majority of evidence suggests exposure to mercury from dental amalgam does not lead to negative health effects in the general population, little to no information is known about the effect this exposure may have on members of the specific groups who may be at greater risk to potential negative health effects of mercury exposure.

In June of 2017, the Environmental Protection Agency (EPA) promulgated technology-based pretreatment standards to reduce discharges of mercury from dental offices into publicly owned treatment works (POTWs). (Dental offices discharge mercury present in amalgam used for fillings. Amalgam separators are a practical, affordable, and readily available technology for capturing mercury and other metals before they are discharged into sewers that drain to POTWs. Once captured by a separator, mercury can be recycled.) The Dental Office Category regulation, codified at 40 CFR Part 441, requires dental offices to comply with requirements based on practices recommended by the American Dental Association, including the use of amalgam separators. EPA expects compliance with this final rule will annually reduce the discharge of mercury by 5.1 tons, as well as 5.3 tons of other metals found in waste dental amalgam to POTWs.

#### **4.4. Has the party taken measures to prevent the incorporation into assembled products of mercury-added products whose manufacture, import and export are not allowed under article 4?**

☒ Yes

☐ No

**If yes, please provide information on the measures.**

The United States has taken such measures for the mercury-added products whose manufacture, import and export are not allowed for it under Article 4. Although the United States has applied paragraph 2 of Article 4, the United States has taken measures—through the publication of EPA’s mercury strategy in 2015, EPA’s Significant New Use Rules related to mercury products, the TSCA Mercury Inventory Reporting Rule, the effective implementation of the measures described in the 2020 Report from the United States of America in Response to Paragraph 9 of Decision MC-3/1 on “Information on Domestic Measures and Strategies Implemented to Address Mercury-Added Products and Quantifications of Reductions Achieved,” and the actions taken to date on the specific products listed in Part I of Annex A (amongst other U.S. actions) – to prevent incorporation of mercury-added products by emphasizing the U.S. interest in decreasing the overall use of mercury, including incorporation into assembled products.

#### **4.5. Has the party discouraged the manufacture and the distribution in commerce of mercury-added products not covered by any known use in accordance with article 4, paragraph 6?**

☒ Yes

☐ No

**If yes, please provide information on the measures.**

On behalf of the United States, the U.S. Environmental Protection Agency has discouraged the manufacture, distribution, and commerce of mercury-added products through its website, its mercury strategy, and its regulatory actions with respect to mercury. While we are not aware of any mercury added products not covered by any known use, if any were presented, the United States could take further actions to discourage their use.

#### **Part E – Additional comments on the article in free text if the party chooses to do so**

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▼ ART. 5: MANUFACTURING PROCESSES IN WHICH MERCURY OR MERCURY COMPOUNDS ARE USED

**5.1. Are there facilities within the territory of the party that use mercury or mercury compounds for the processes listed in Annex B of the Minamata Convention in accordance with paragraph 5 of article 5 of the Convention?**

- ☒ Yes
- ☐ No
- ☐ I do not know

**If yes, please provide information on measures taken to address emissions and releases of mercury or mercury compounds from such facilities.**

As reported previously in our October 2013 submission on “Measures to Implement the Minamata Convention on Mercury Pursuant to Article 30, paragraph 4, of the Minamata Convention on Mercury,” emissions and releases from existing facilities are controlled under the Clean Air Act, see 40 C.F.R. §§ 63.8190 and 63.8192, and the Clean Water Act. See 40 C.F.R. Part 415, Subpart F.

Annex B of the Convention identifies the following as listed manufacturing processes in which elemental mercury or mercury compounds are used:

- Chlor-Alkali production
- Acetaldehyde production in which elemental mercury or mercury compounds are used as a catalyst
- Vinyl chloride monomer production
- Sodium or Potassium Methylate Ethylate
- Production of polyurethane using mercury containing catalysts.

On March 30, 2020, the U.S. Environmental Protection Agency (EPA) published the Mercury Inventory Report, the first in a series of triennial reports on the supply, use, and trade of mercury in the United States. The 2020 Report identifies, among other information, products or manufacturing processes in the United States that intentionally add mercury. With respect to the processes listed in Annex B of the Convention, the 2020 Report identified mercury cell chlor-alkali production as the only listed process in use in the United States. Although two chlor-alkali facilities reported as still using the process for the reporting year 2018, as of the end of the calendar year 2020, one of such facilities completed conversion to a nonmercury cell process. Thus, the United States currently has only one mercury cell chlor-alkali facility in operation.

The 2020 Report does not provide a numerical representation of the mercury used by the chlor-alkali sector for the covered reporting period due to confidentiality claims. Based on publicly available information, including from the Twelfth Annual Report of the Chlorine Institute in 2009 and national compliance information provided to the State of West Virginia under CFR 40 Part 63 by the Westlake Corporation, the estimated U.S. mercury used for this listed process (i.e., the mercury that is lost during the production process, not the mercury stocks held within the facility) is approximately 700 pounds per year.

**If available, please provide information on the number and type of facilities and the estimated annual amount of mercury or mercury compounds used in those facilities.**

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**Please provide information on how much mercury (in metric tons) is used in the processes listed in the two first entries of Part II of Annex B in the last year of the reporting period.**

The United States does not have facilities using these processes.

**5.2. Are measures in place to not allow the use of mercury or mercury compounds in manufacturing processes listed in Part I of Annex B after the phase-out date specified in that Annex for the individual process?**

## CHLOR-ALKALI PRODUCTION

- ☐ Yes
- ☒ No
- ☐ Not applicable (do not have these facilities)

## ACETALDEHYDE PRODUCTION IN WHICH MERCURY OR MERCURY COMPOUNDS ARE USED AS A CATALYST

- ☐ Yes
- ☐ No
- ☒ Not applicable (do not have these facilities)

If no to either of the questions above, has the party registered for an exemption pursuant to article 6?

- ☒ Yes
- ☐ No

If yes, for which process(es)?

☒ Chlor-alkali production

**5.3. Are measures in place to restrict the use of mercury or mercury compounds in the processes listed in Part II of Annex B in accordance with the provisions set out therein?**

## VINYL CHLORIDE MONOMER PRODUCTION

- ☐ Yes
- ☐ No
- ☒ Not applicable (do not have these facilities)

## SODIUM OR POTASSIUM METHYLATE OR ETHYLATE

- ☐ Yes
- ☐ No
- ☒ Not applicable (do not have these facilities)

## PRODUCTION OF POLYURETHANE USING MERCURY-CONTAINING CATALYSTS

- ☐ Yes
- ☐ No



☐ Not applicable (do not have these facilities)

**5.4. Is there any use of mercury or mercury compounds in a facility using the manufacturing processes listed in Annex B that did not exist prior to the date of entry into force of the Convention for the party?**

☐ Yes

☒ No

**5.5. Is there any facility that has been developed using any other manufacturing process in which mercury or mercury compounds are intentionally used that did not exist prior to the date of entry into force of the Convention?**

☐ Yes

☒ No

**Part E – Additional comments on the article in free text if the party chooses to do so**

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**▼ ART. 7: ARTISANAL AND SMALL-SCALE GOLD MINING**

**7.1. Have steps been taken to reduce, and where feasible eliminate, the use of mercury and mercury compounds in, and the emissions and releases to the environment of mercury from, artisanal and small-scale gold mining and processing subject to article 7 within your territory?**

☐ Yes

☐ No

☒ There is no artisanal and small-scale gold mining and processing subject to article 7 in which mercury amalgamation is used in the territory

**7.2. Has the party determined and notified the secretariat that artisanal and small-scale gold mining and processing within its territory is more than insignificant?**

☐ Yes

☒ No

**Part E – Additional comments on the article in free text if the party chooses to do so**

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**▼ ART. 8: EMISSIONS**

## 8.1. Identify any Annex D source categories for which there are new sources of emissions of mercury or mercury compounds as defined in paragraph 2 (c) of article 8.

For each of those source categories describe the measures in place, including the effectiveness of such measures, to implement the requirements of paragraph 4 of article 8.

### ☒ Coal-fired power plants

#### Coal-fired power plants

The United States has taken measures under the Clean Air Act to control emissions of mercury and mercury compounds in the United States, and the United States has issued standards that regulate mercury emissions from this source category. The measures are:

40 C.F.R. Part 63 Subpart UUUUU (National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-63/subpart-UUUUU>); 40 C.F.R. Part 60 Subparts D (Standards of Performance for Fossil-Fuel-Fired Steam Generators @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-D>) and Da (Standards of Performance for Electric Utility Steam Generating Units @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-Da>); 40 C.F.R. Parts 72 (Permits Regulations @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-72>), 73 (Sulfur Dioxide Allowance System @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-73>), 74 (Sulfur Dioxide Opt-Ins @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-74>), 75 (Continuous Emission Monitoring @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-75>), 76 (Acid Rain Nitrogen Oxides Emission Reduction Program @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-76>); 40 C.F.R. Part 51 Subpart P (Protection of Visibility @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-51/subpart-P>), Subpart G (Control Strategy @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-51/subpart-G>), and Subpart I (Review of New Sources and Modifications @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-51/subpart-I>); and 40 C.F.R. Parts 96 (NO<sub>x</sub> Budget Trading Program and CAIR NO<sub>x</sub> and SO<sub>2</sub> Trading Programs For State Implementation Plans @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-96>) and 97 (Federal NO<sub>x</sub> Budget Trading Program, CAIR NO<sub>x</sub> and SO<sub>2</sub> Trading Programs, CSAPR NO<sub>x</sub> and SO<sub>2</sub> Trading Programs, and Texas SO<sub>2</sub> Trading Program @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-97>)

These rules require the application on BAT/BEP and meeting specific emission limits for mercury air emissions for new and/or existing facilities covered under the rules.

### ☒ Coal-fired industrial boilers

#### Coal-fired industrial boilers

The United States has taken measures under the Clean Air Act to control emissions of mercury and mercury compounds in the United States, and the United States has issued standards that regulate mercury emissions from this source category. The measures are:

40 C.F.R. 63 Subpart DDDDD (National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-63/subpart-DDDDD>) and Subpart JJJJJ (National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-63/subpart-JJJJJ>)

These rules require the application on BAT/BEP and meeting specific emission limits for mercury air emissions for new and/or existing facilities covered under the rules.

### ☒ Smelting and roasting processes used in the production of non-ferrous metals

#### Smelting and roasting processes used in the production of non-ferrous metals

The United States has taken measures under the Clean Air Act to control emissions of mercury and mercury compounds in the United States, and the United States has issued numerous standards that regulate mercury emissions from this source category. The measures are:

National Emission Standards for Hazardous Air Pollutants: Gold Mine Ore Processing and Production Area Source Category (40 C.F.R. 63 Subpart EEEEEEE@ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-63/subpart-EEEEEEE>);

National Emission Standards for Hazardous Air Pollutants for Primary Copper Smelting (40 C.F.R. Part 63 Subparts QQQ @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-63/subpart-QQQ>) and FFFFFF (National Emission Standards for Hazardous Air Pollutants for Secondary Copper Smelting Area Sources @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-63/subpart-FFFFF>);

40 C.F.R. 63 Subparts TTT National Emission Standards for Hazardous Air Pollutants for Primary Lead Smelting @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-63/subpart-TTT>) and X (National Emission Standards for Hazardous Air Pollutants from Secondary Lead Smelting @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-63/subpart-X>); and

40 C.F.R. Part 63 Subpart GGGGGG (National Emission Standards for Hazardous Air Pollutants for Primary Nonferrous Metals Area Sources – Zinc, Cadmium, and Beryllium @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-63/subpart-GGGGGG>).

These rules require the application on BAT/BEP and meeting specific emission limits for mercury air emissions or particulate matter emission limits to co-control mercury air emissions for new and/or existing facilities covered under the rules.

#### ☒ Waste incineration facilities

##### **Waste incineration facilities**

The United States has taken measures under the Clean Air Act to control emissions of mercury and mercury compounds in the United States, and the United States has issued standards that regulate mercury emissions from this source category. The measures are:

Municipal Waste Combustors – 40 C.F.R. Part 60 Subparts Ea (Standards of Performance for Municipal Waste Combustors for Which Construction Is Commenced After December 20, 1989 and On or Before September 20, 1994 @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-Ea>), Eb (Standards of Performance for Large Municipal Waste Combustors for Which Construction is Commenced After September 20, 1994 or for Which Modification or Reconstruction is Commenced After June 19, 1996 @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-Eb>), Cb (Emissions Guidelines and Compliance Times for Large Municipal Waste Combustors That are Constructed on or Before September 20, 1994 @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-Cb>), AAAA (Standards of Performance for Small Municipal Waste Combustion Units for Which Construction is Commenced After August 30, 1999 or for Which Modification or Reconstruction is Commenced After June 6, 2001 @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-AAAA>), and BBBB (Emission Guidelines and Compliance Times for Small Municipal Waste Combustion Units Constructed on or Before August 30, 1999 @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-BBBB>) and 40 C.F.R. Part 62 Subparts FFF (Federal Plan Requirements for Large Municipal Waste Combustors Constructed on or Before September 20, 1994 @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-62/subpart-FFF>) and JJJ (Federal Plan Requirements for Small Municipal Waste Combustion Units Constructed on or Before August 30, 1999 @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-62/subpart-JJJ>);

Commercial and Industrial Waste Incinerators – 40 C.F.R. Part 60 Subparts CCCC (Standards of Performance for Commercial and Industrial Solid Waste Incineration Units @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-CCCC>) and DDDD (Emissions Guidelines and Compliance Times for Commercial and Industrial Solid Waste Incineration Units @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-DDDD>);

Hospital, Medical and Infectious Waste Incinerators – 40 C.F.R. Part 60 Subparts Ec (Standards of Performance for New Stationary Sources: Hospital/Medical/Infectious Waste Incinerators @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-Ec>) and Ce (Emission Guidelines and Compliance Times for Hospital/Medical/Infectious Waste Incinerators @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-Ce>) and 40 C.F.R. Part 62 Subpart HHH (Federal Plan Requirements for Hospital/Medical/Infectious Waste Incinerators Constructed On Or Before December 1, 2008 @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-62/subpart-HHH>);

Sewage Sludge Incinerators – 40 C.F.R. Part 60 Subparts LLLL (Standards of Performance for New Sewage Sludge Incineration Units @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-LLLL>) and MMMM (Emission Guidelines and Compliance Times for Existing Sewage Sludge Incineration Units @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-MMMM>); and

Hazardous Waste Combustors – 40 C.F.R. Part 63 Subpart EEE (National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-63/subpart-EEE>)

These rules require the application on BAT/BEP and meeting specific emission limits for mercury air emissions or particulate matter emission limits to co-control mercury air emissions for new and/or existing facilities covered under the rules.

☒ Cement clinker production facilities

#### **Cement clinker production facilities**

The United States has taken measures under the Clean Air Act to control emissions of mercury and mercury compounds in the United States, and the United States has issued standards that regulate mercury emissions from this source category. The measures are:

40 C.F.R. Part 63 Subpart LLL – National Emission Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry (<https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-63/subpart-LLL>) require application of BAT/BEP and meeting mercury emission limits for new and existing facilities.

**Has the party required the use of best available techniques or best environmental practices (BAT/BEP) to control and where feasible reduce emissions for new sources no later than 5 years after the date of entry into force of the Convention for the party?**

☒ Yes

☐ No

**Attach relevant documentation**

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## **8.2. Identify any Annex D source categories for which there are existing sources of emissions of mercury or mercury compounds as defined in paragraph 2 (e) of article 8.**

For each of those source categories, select and provide details on the measures implemented under paragraph 5 of article 8 and explain the progress that these applied measures have achieved in reducing emissions over time in your territory:

### **▼ COAL-FIRED POWER PLANTS**

☐ A quantified goal for controlling and, where feasible, reducing emissions from relevant sources

- ☒ Emission limit values for controlling and, where feasible, reducing emissions from relevant sources
- ☒ Use of BAT/BEP to control emissions from relevant sources
- ☒ Multi-pollutant control strategy that would deliver co-benefits for control of mercury emissions
- ☐ Alternative measures to reduce emissions from relevant sources

### Measures

The United States has taken measures under the Clean Air Act to control emissions of mercury and mercury compounds in the United States, and the United States has issued standards that regulate mercury emissions from this source category. The measures are:

40 C.F.R. Part 63 Subpart UUUUU (National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-63/subpart-UUUUU>); 40 C.F.R. Part 60 Subparts D (Standards of Performance for Fossil-Fuel-Fired Steam Generators @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-D>) and Da (Standards of Performance for Electric Utility Steam Generating Units @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-Da>); 40 C.F.R. Parts 72 (Permits Regulations @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-72>), 73 (Sulfur Dioxide Allowance System @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-73>), 74 (Sulfur Dioxide Opt-Ins @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-74>), 75 (Continuous Emission Monitoring @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-75>), 76 (Acid Rain Nitrogen Oxides Emission Reduction Program @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-76>); 40 C.F.R. Part 51 Subpart P (Protection of Visibility @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-51/subpart-P>), Subpart G (Control Strategy @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-51/subpart-G>), and Subpart I (Review of New Sources and Modifications @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-51/subpart-I>); and 40 C.F.R. Parts 96 (NO<sub>x</sub> Budget Trading Program and CAIR NO<sub>x</sub> and SO<sub>2</sub> Trading Programs For State Implementation Plans @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-96>) and 97 (Federal NO<sub>x</sub> Budget Trading Program, CAIR NO<sub>x</sub> and SO<sub>2</sub> Trading Programs, CSAPR NO<sub>x</sub> and SO<sub>2</sub> Trading Programs, and Texas SO<sub>2</sub> Trading Program @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-97>)

These rules require the application on BAT/BEP and meeting specific emission limits for mercury air emissions for new and/or existing facilities covered under the rules.

### Progress

Emissions from this category decreased from 47,868kg to 3,929kg between 2002 and 2018.

### ▼ COAL-FIRED INDUSTRIAL BOILERS

- ☐ A quantified goal for controlling and, where feasible, reducing emissions from relevant sources
- ☒ Emission limit values for controlling and, where feasible, reducing emissions from relevant sources
- ☒ Use of BAT/BEP to control emissions from relevant sources
- ☒ Multi-pollutant control strategy that would deliver co-benefits for control of mercury emissions
- ☐ Alternative measures to reduce emissions from relevant sources

### Measures

The United States has taken measures under the Clean Air Act to control emissions of mercury and mercury compounds in the United States, and the United States has issued standards that regulate mercury emissions from this source category. The measures are:

40 C.F.R. 63 Subpart DDDDD (National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-63/subpart-DDDDD>) and Subpart JJJJJ (National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-63/subpart-JJJJJ>)

These rules require the application on BAT/BEP and meeting specific emission limits for mercury air emissions for new and/or existing facilities covered under the rules.

### Progress

Emissions from this category decreased from 1,553kg to 529kg between 2002 and 2018.

## ▼ SMELTING AND ROASTING PROCESSES USED IN THE PRODUCTION OF NON-FERROUS METALS

- ☐ A quantified goal for controlling and, where feasible, reducing emissions from relevant sources
- ☒ Emission limit values for controlling and, where feasible, reducing emissions from relevant sources
- ☒ Use of BAT/BEP to control emissions from relevant sources
- ☒ Multi-pollutant control strategy that would deliver co-benefits for control of mercury emissions
- ☐ Alternative measures to reduce emissions from relevant sources

### Measures

The United States has taken measures under the Clean Air Act to control emissions of mercury and mercury compounds in the United States, and the United States has issued numerous standards that regulate mercury emissions from this source category. The measures are:

National Emission Standards for Hazardous Air Pollutants: Gold Mine Ore Processing and Production Area Source Category (40 C.F.R. 63 Subpart EEEEEEE@ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-63/subpart-EEEEEEE>);

National Emission Standards for Hazardous Air Pollutants for Primary Copper Smelting (40 C.F.R. Part 63 Subparts QQQ @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-63/subpart-QQQ>) and FFFFFF (National Emission Standards for Hazardous Air Pollutants for Secondary Copper Smelting Area Sources @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-63/subpart-FFFFFF>);

40 C.F.R. 63 Subparts TTT National Emission Standards for Hazardous Air Pollutants for Primary Lead Smelting @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-63/subpart-TTT>) and X (National Emission Standards for Hazardous Air Pollutants from Secondary Lead Smelting @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-63/subpart-X>); and

40 C.F.R. Part 63 Subpart GGGGGG (National Emission Standards for Hazardous Air Pollutants for Primary Nonferrous Metals Area Sources – Zinc, Cadmium, and Beryllium @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-63/subpart-GGGGGG>).

These rules require the application on BAT/BEP and meeting specific emission limits for mercury air emissions or particulate matter emission limits to co-control mercury air emissions for new and/or existing facilities covered under the rules.

### Progress

Emissions from this category decreased from 896kg to 463kg between 2002 and 2018.

### ▼ WASTE INCINERATION FACILITIES

- ☐ A quantified goal for controlling and, where feasible, reducing emissions from relevant sources
- ☒ Emission limit values for controlling and, where feasible, reducing emissions from relevant sources
- ☒ Use of BAT/BEP to control emissions from relevant sources
- ☒ Multi-pollutant control strategy that would deliver co-benefits for control of mercury emissions
- ☐ Alternative measures to reduce emissions from relevant sources

### Measures

The United States has taken measures under the Clean Air Act to control emissions of mercury and mercury compounds in the United States, and the United States has issued standards that regulate mercury emissions from this source category. The measures are:

Municipal Waste Combustors – 40 C.F.R. Part 60 Subparts Ea (Standards of Performance for Municipal Waste Combustors for Which Construction Is Commenced After December 20, 1989 and On or Before September 20, 1994 @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-Ea>), Eb (Standards of Performance for Large Municipal Waste Combustors for Which Construction is Commenced After September 20, 1994 or for Which Modification or Reconstruction is Commenced After June 19, 1996 @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-Eb>), Cb (Emissions Guidelines and Compliance Times for Large Municipal Waste Combustors That are Constructed on or Before September 20, 1994 @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-Cb>), AAAA (Standards of Performance for Small Municipal Waste Combustion Units for Which Construction is Commenced After August 30, 1999 or for Which Modification or Reconstruction is Commenced After June 6, 2001 @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-AAAA>), and BBBB (Emission Guidelines and Compliance Times for Small Municipal Waste Combustion Units Constructed on or Before August 30, 1999 @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-BBBB>) and 40 C.F.R. Part 62 Subparts FFF (Federal Plan Requirements for Large Municipal Waste Combustors Constructed on or Before September 20, 1994 @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-62/subpart-FFF>) and JJJ (Federal Plan Requirements for Small Municipal Waste Combustion Units Constructed on or Before August 30, 1999 @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-62/subpart-JJJ>);

Commercial and Industrial Waste Incinerators – 40 C.F.R. Part 60 Subparts CCCC (Standards of Performance for Commercial and Industrial Solid Waste Incineration Units @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-CCCC>) and DDDD (Emissions Guidelines and Compliance Times for Commercial and Industrial Solid Waste Incineration Units @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-DDDD>);

Hospital, Medical and Infectious Waste Incinerators – 40 C.F.R. Part 60 Subparts Ec (Standards of Performance for New Stationary Sources: Hospital/Medical/Infectious Waste Incinerators @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-Ec>) and Ce (Emission Guidelines and Compliance Times for Hospital/Medical/Infectious Waste

Incinerators @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-Ce>) and 40 C.F.R. Part 62 Subpart HHH (Federal Plan Requirements for Hospital/Medical/Infectious Waste Incinerators Constructed On Or Before December 1, 2008 @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-62/subpart-HHH>);

Sewage Sludge Incinerators – 40 C.F.R. Part 60 Subparts LLLL (Standards of Performance for New Sewage Sludge Incineration Units @<https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-LLLL>) and MMMM (Emission Guidelines and Compliance Times for Existing Sewage Sludge Incineration Units @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-MMMM>); and

Hazardous Waste Combustors – 40 C.F.R. Part 63 Subpart EEE (National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors @ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-63/subpart-EEE>)

These rules require the application on BAT/BEP and meeting specific emission limits for mercury air emissions or particulate matter emission limits to co-control mercury air emissions for new and/or existing facilities covered under the rules.

#### Progress

Emissions from this category decreased from 13,467kg to 1,141kg between 2002 and 2018.

#### ▼ CEMENT CLINKER PRODUCTION FACILITIES

- ☐ A quantified goal for controlling and, where feasible, reducing emissions from relevant sources
- ☒ Emission limit values for controlling and, where feasible, reducing emissions from relevant sources
- ☒ Use of BAT/BEP to control emissions from relevant sources
- ☒ Multi-pollutant control strategy that would deliver co-benefits for control of mercury emissions
- ☐ Alternative measures to reduce emissions from relevant sources

#### Measures

The United States has taken measures under the Clean Air Act to control emissions of mercury and mercury compounds in the United States, and the United States has issued standards that regulate mercury emissions from this source category. The measures are:

40 C.F.R. Part 63 Subpart LLL – National Emission Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry (<https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-63/subpart-LLL>) require application of BAT/BEP and meeting mercury emission limits for new and existing facilities.

#### Progress

Emissions from this category decreased from 4,206kg to 1,605kg between 2002 and 2018.

Have the measures for existing sources under paragraph 5 of article 8 been implemented no later than 10 years after the date of entry into force of the Convention for the party?

- ☒ Yes
- ☐ No



**8.3. Has the party prepared an inventory of emissions from relevant sources within 5 years of entry into force of the Convention for it?**

- ☒ Yes
- ☐ No
- ☐ Have not been a party for 5 years

**If yes, when was the inventory last updated?**

Fri, 10/29/2021 – 00:00

**Please indicate where this inventory is available**

The inventory is available at <https://www.epa.gov/international-cooperation/summary-united-states-mercury-emissions-annex-d-source-categories-year>.

**Attach**

{Empty}

**8.4. Has the party chosen to establish criteria to identify relevant sources covered within a source category?**

- ☐ Yes
- ☒ No

**8.5. Has the party chosen to prepare a national plan setting out the measures to be taken to control emissions from relevant sources and its expected targets, goals and outcomes?**

- ☐ Yes
- ☒ No

**Part E – Additional comments on the article in free text if the party chooses to do so**

{Empty}

**▼ ART. 9: RELEASES**

**9.1. Are there, within the party's territory, relevant sources of releases as defined in paragraph 2 (b) of article 9?**

- ☐ Yes
- ☒ No
- ☐ I do not know

**9.2. Has the party established an inventory of releases from relevant sources within 5 years of entry into force of the convention for it?**

- ☐ Yes
- ☒ Relevant sources do not exist in the territory
- ☐ Have not been a party for 5 years

☐ No

**Part E – Additional comments on the article in free text if the party chooses to do so**

{Empty}

**▼ ART. 10: ENVIRONMENTALLY SOUND INTERIM STORAGE OF MERCURY, OTHER THAN WASTE MERCURY**

**10.1. Has the party taken measures to ensure that the interim storage of non-waste mercury and mercury compounds intended for a use allowed to a party under the Convention is undertaken in an environmentally sound manner?**

☒ Yes

☐ No

☐ I do not know

**Please indicate the measures taken to ensure that such interim storage is undertaken in an environmentally sound manner and the effectiveness of those measures.**

The United States has authority under its statutes, including the Comprehensive Environmental Response, Liability, and Compensation Act and the Resource Conservation and Recovery Act, to ensure that the interim storage of mercury and mercury compounds that are intended for a use allowed under the Convention takes place in an environmentally sound manner. See 42 U.S.C. §§ 9604, 9606, 9607(a); 42 U.S.C. §§ 6903(27), 7003.

The United States has a broad, effective system of environmental management that provides for high levels of environmental protection, including through a set of media-specific environmental laws and regulations. These environment laws and regulations are carefully designed, effectively implemented, and enforced. They are complemented by transparency and public participation requirements, and an independent judiciary, which further underscore their effectiveness.

**Part E – Additional comments on the article in free text if the party chooses to do so**

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**▼ ART. 11: MERCURY WASTES**

**11.1. Have measures outlined in article 11, paragraph 3, been implemented for the party's mercury waste?**

☒ Yes

☐ No

**Please describe the measures implemented pursuant to paragraph 3, and please also describe the effectiveness of those measures.**

In the United States, mercury wastes are required to be managed in a manner that protects human health and the environment against adverse effects. The Resource Conservation and Recovery Act (RCRA) establishes requirements for storage, transport, treatment, and disposal or recycling of hazardous wastes and includes a graduated management program that requires different levels of

management for waste depending on the hazards it poses. Under applicable regulations, waste containing mercury may be regulated as hazardous because it has been specifically listed as hazardous waste or based on the concentration of leachable mercury in the waste, or if it exhibits another hazardous "characteristic." See Part 261 under Title 40 of the Code of Federal Regulations (40 C.F.R. Part 261).

High concentration mercury wastes generally must be roasted or retorted and the mercury recovered for reuse before the wastes may be land-disposed. Low concentration mercury wastes may undergo stabilization treatment (to reduce mercury leaching) and can then be land-disposed, although recycling to recover the mercury is allowed as an option. See 40 C.F.R. Part 268. There are additional waste treatment categories for radiologically contaminated mercury wastes, including contaminated elemental mercury, since this mercury cannot be reclaimed for reuse. See 40 C.F.R. § 268.40. Releases of mercury inconsistent with these regulations would constitute unlawful disposal.

Industrial or commercial mercury-containing wastes that are not regulated as hazardous waste may be disposed of in non-hazardous waste landfills, which are regulated by the 50 U.S. states and subject to federal minimum criteria. See 40 C.F.R. Parts 257–58. Household wastes, including those that may contain mercury (e.g., spent mercury lamps), must be disposed in municipal solid waste landfills. See 40 C.F.R. Part 258.

The Universal Waste Program provides an alternative set of management standards for certain hazardous wastes that are widely generated, and which may be difficult to collect into the hazardous waste management system when they are discarded. The universal waste regulations provide a streamlined framework for collection and management of specified wastes, including certain mercury containing equipment and lamps. See 40 C.F.R. Part 273.

In general, export of hazardous wastes from the United States is prohibited unless the exporter has submitted a notification with details of the proposed shipments and received confirmation that the receiving country and any transit countries have approved the export. See Part 6938 (a) of Title 42 of the United States Code (42 U.S.C. § 6938(a)). Where an international agreement exists addressing notice, export, and enforcement procedures for the transportation, treatment, storage, and disposal of hazardous wastes, U.S. law allows exports in compliance with such an agreement. See 42 U.S.C. § 6938(a)(2) and (1). In addition, the U.S. Department of Transportation hazardous materials regulations have been harmonized with international recommendations on transport of dangerous goods. See 49 C.F.R. Part 172.

The United States has a broad, effective system of environmental management that provides for high levels of environmental protection, including through a set of media-specific environmental laws and regulations. These environmental laws and regulations are carefully designed, effectively implemented, and enforced. They are complemented by transparency and public participation requirements, and an independent judiciary, which further underscore their effectiveness.

## 11.2. Are there facilities for final disposal of waste consisting of mercury or mercury compounds in the party's territory?

- ☒ Yes
- ☐ No
- ☐ I do not know

**If yes, if the information is available, how much waste consisting of mercury or mercury compounds has been subjected to final disposal under the reporting period? Please specify the method of the final disposal operation/operations.**

In the United States, waste containing or contaminated with mercury that is not hazardous waste (i.e., which does not leach more than 0.2 mg/L mercury in the Toxic Characteristic Leaching Procedure test) can be sent for final disposal in a municipal solid waste landfill (MSWLF) or an industrial non-hazardous waste landfill. In addition, hazardous waste containing or contaminated with less than 260 mg/kg total mercury may, after treatment to control leaching release, be land disposed in a MSWLF, an industrial non-hazardous landfill, or a hazardous waste landfill. These are considered final disposal in the United States.

Hazardous waste containing or contaminated with 260 mg/kg or more total mercury must undergo thermal treatment (retort) to separate and recover the mercury from the waste. The recovered elemental mercury may be considered a product (for domestic use only), or if it is not used, a waste.

Hazardous waste consisting of elemental mercury must, as a general matter, be sent to the U.S. Department of Energy (DOE) long-term waste elemental mercury storage facility, as land disposal of high concentration mercury waste is not legal. Under the Mercury Export Ban Act, waste elemental mercury must be stored and cannot be removed from the facility for any reason other than appropriate treatment of the mercury to control release potential, followed by final landfill disposal at a facility permitted to dispose of such waste. However, at this time, there is no U.S. EPA approved treatment and disposal method or permitted facility for waste consisting of elemental mercury or mercury compounds. Therefore, the DOE long-term storage facility must, by law, continue to store the waste elemental mercury it receives indefinitely, until such treatment and disposal capacity is developed and approved.

### **Part E – Additional comments on the article in free text if the party chooses to do so**

{Empty}

#### **▼ ART. 12: CONTAMINATED SITES**

##### **12.1. Has the party endeavoured to develop strategies for identifying and assessing sites contaminated by mercury or mercury compounds in its territory?**

☒ Yes

☐ No

##### **Please elaborate**

The United States has a well-developed framework for identifying, priority ranking, and remediating abandoned contaminated sites. See 40 C.F.R. Part 300. Regulations under the Comprehensive Environmental Response, Compensation, and Liability Act include detailed guidance for conducting site specific risk assessments and remediation techniques.

In addition, the Resource Conservation and Recovery Act requires owners and operators of facilities managing hazardous waste to clean up any site contamination resulting from current and past practices.

### **Part E – Additional comments on the article in free text if the party chooses to do so**

{Empty}

#### **▼ ART. 13: FINANCIAL RESOURCES AND MECHANISM**

##### **13.1. Has the party undertaken to provide, within its capabilities, resources in respect of those national activities that are intended to implement the Convention in accordance with its national policies, priorities, plans and programmes?**

☒ Yes

☐ No

**Please specify**

The United States Government provides resources through national and subnational budgets for the implementation of U.S. obligations under the Minamata Convention through national and subnational policies and programs. In addition, in the United States, the private sector bears the cost of complying with U.S. laws, including those relevant to implementation of the Minamata Convention. These include, for example, regulations related to mercury emissions sources and the management of wastes containing mercury.

**Please provide comments, if any.**

{Empty}

**13.2. Supplemental: Has the party, within its capabilities, contributed to the mechanism referred to in paragraph 5 of article 13?**

☒ Yes

☐ No

**Please specify**

The United States has contributed over \$410 million to the Global Environment Facility during its seventh replenishment period and \$348,008 to the Specific International Program during the reporting period.

**Please provide comments, if any.**

{Empty}

**13.3. Supplemental: Has the party provided financial resources to assist developing-country parties and/or parties with economies in transition in the implementation of the Convention through other bilateral, regional and multilateral sources or channels?**

☒ Yes

☐ No

**Please specify**

The United States has provided \$141 million in financial resources from 2017 to 2021 to assist developing country parties in the implementation of the Convention through other bilateral, regional, and multilateral sources. The United States submitted information about selected projects pursuant to decision MC-3/8 and as shown in document UNEP/MC/COP.4/INF/23.

**Please provide comments, if any.**

{Empty}

**Part E – Additional comments on the article in free text if the party chooses to do so**

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**▼ ART. 14: CAPACITY-BUILDING, TECHNICAL ASSISTANCE AND TECHNOLOGY TRANSFER**

**14.1. Has the party cooperated to provide capacity-building or technical assistance, pursuant to article 14, to another party to the Convention?**

☒ Yes

☐ No

**Please specify**

U.S. support for the implementation of the Convention reported in the response to Question 13.3, above, can be characterized as cooperation to provide capacity-building, technical assistance, and technology transfer to other parties and, to a much lesser extent, to regional organizations.

#### **14.2. Supplemental: Has the party received capacity-building or technical assistance pursuant to article 14?**

☐ Yes

☒ No

**Please specify**

N/A

**Please provide comments, if any.**

{Empty}

#### **14.3. Has the party promoted and facilitated the development, transfer and diffusion of and access to, up-to-date environmentally sound alternative technologies?**

☒ Yes

☐ No

☐ Other

**Please specify**

Of the U.S. support for implementation of the Convention reported in the response to Question 13.3, above, approximately \$40 million was specific to promoting and facilitating the development, transfer, and diffusion of, and access to, up-to-date environmentally sound alternative technologies.

#### **Part E – Additional comments on the article in free text if the party chooses to do so**

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#### **▼ ART. 16: HEALTH ASPECTS**

#### **16.1. Have measures been taken to provide information to the public on exposure to mercury in accordance with paragraph 1 of article 16?**

☒ Yes

☐ No

**Supplemental: If yes, describe the measures that have been taken.**

In the United States, the Centers for Disease Control and Prevention conduct research to provide estimates of U.S. population exposures to mercury as reported in its National Report on Human Exposure to Environmental Chemicals and define safe levels of mercury in blood through studies of health effects in collaboration with internal and external partners. The Environmental Protection Agency provides health information on its mercury website. The Environmental Protection Agency

and the Food and Drug Administration provide consumer advice on consumption of fish and shellfish. The Occupational Safety and Health Administration regulates occupational exposure to mercury and mercury compounds in its standards, directives and guidelines to establish work-place requirements for minimizing occupational exposure to mercury and mercury compounds, see, e.g., 29 C.F.R. § 1910.1000, and has provided information to the general public about this topic on its website. See Safety and Health Topics Mercury at [www.osha.gov](http://www.osha.gov). And the Agency for Toxic Substances and Disease Registry maintains a toxicological profile on mercury, which includes the examination, summary, and interpretation of available toxicologic information and epidemiologic evaluations on mercury, specifically relating to human exposure to mercury and mercury compounds, and setting targets for mercury exposure reduction. The Agency for Toxic Substances and Disease Registry also develops and disseminates medical management guidelines to aid healthcare professionals involved in emergency response to effectively decontaminate patients, protect themselves and others from contamination, communicate with other involved personnel, efficiently transport patients to a medical facility, and provide competent medical evaluation and treatment to exposed persons.

## **16.2. Have any other measures been taken to protect human health in accordance with article 16?**

☒ Yes

☐ No

**Supplemental: If yes, describe the measures that have been taken.**

Please see response to question 16.1.

## **Part E – Additional comments on the article in free text if the party chooses to do so**

{Empty}

### **▼ ART. 17: INFORMATION EXCHANGE**

## **17.1. Has the party facilitated the exchange of information referred to in article 17, paragraph 1?**

☒ Yes

☐ No

**Please provide more information, if any**

The United States makes extensive information available on government websites, through direct sharing, and through entities such as the UNEP Global Mercury Partnership. For example, the Environmental Protection Agency has a specific web page dedicated to mercury ([www.epa.gov/mercury](http://www.epa.gov/mercury)) that includes the types of information referenced in this Article as well as links to other governmental and non-governmental information sources. The United States has numerous statutes that authorize information exchange, including the Clean Air Act, 42 U.S.C. § 7403, the Clean Water Act, 33 U.S.C. § 1254, the Toxic Substances Control Act, 15 U.S.C. § 2609, the Resource Conservation and Recovery Act, 42 U.S.C. § 6981, the Comprehensive Environmental Response, Liability, and Compensation Act, 42 U.S.C. §§ 9604(e) and 9660, and the Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. §§ 136o and 136r.

## **Part E – Additional comments on the article in free text if the party chooses to do so**

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▼ ART. 18: PUBLIC INFORMATION, AWARENESS AND EDUCATION

**18.1. Have measures been taken to promote and facilitate the provision to the public of the kinds of information listed in article 18, paragraph 1?**

☒ Yes

☐ No

**If yes, please indicate the measures that have been taken and the effectiveness of those measures**

An Environmental Protection Agency web site dedicated to mercury ([www.epa.gov/mercury](http://www.epa.gov/mercury)) promotes public awareness of the health and environmental effects of mercury and its compounds. Other agencies of the U.S. Government such as the Agency for Toxic Substances and Disease Registry, the Food and Drug Administration, the Occupational Safety and Health Administration, the National Oceanic and Atmospheric Administration, the Fish and Wildlife Service, the National Park Service, the U.S. Geological Survey, and the National Institute of Standards and Technology also provide relevant information to the public. In addition, the Environmental Protection Agency, through its engagement with the UNEP Global Mercury Partnership and related bilateral activities, contributes to education, training, and public awareness efforts around the world.

The United States has an existing pollutant release and transfer register, the Toxics Release Inventory, that collects and makes publicly available information on the releases, emissions, disposal, and other transfers of mercury and mercury compounds. See 42 U.S.C. § 11023. Toxics Release Inventory information and mapping capability are publicly accessible at [www.epa.gov/triexplorer](http://www.epa.gov/triexplorer). In addition, the United States uses other mechanisms, such as the National Emissions Inventory and reports under the Clean Water Act and Comprehensive Environmental Response, Compensation, and Liability Act to collect and disseminate information on releases and emissions of mercury. See e.g., 42 U.S.C. §§ 9602, 9603; 40 C.F.R. § 302.6.

The Agency for Toxic Substances and Disease Registry and the Centers for Disease Control and Prevention maintains a web site on mercury information for the public at [www.atsdr.cdc.gov/mercury](http://www.atsdr.cdc.gov/mercury). In addition, the Centers for Disease Control and Prevention maintains a web site on the biomonitoring of mercury in the U.S. population at [www.cdc.gov/biomonitoring/Mercury\\_FactSheet.html](http://www.cdc.gov/biomonitoring/Mercury_FactSheet.html).

**Part E – Additional comments on the article in free text if the party chooses to do so**

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▼ ART. 19: RESEARCH, DEVELOPMENT AND MONITORING

**19.1. Has the party undertaken any research, development and monitoring in accordance with paragraph 1 of article 19?**

☒ Yes

☐ No

**If yes, please describe these actions**

U.S. mercury monitoring and research activities include atmospheric and deposition modeling, biota monitoring, atmospheric and multi-media modeling, environmental research and analysis, and human biomonitoring. These efforts are described below.

Atmospheric and Deposition Monitoring



The National Atmospheric Deposition Program (NADP) is a cooperative effort among federal, state, tribal, and local governmental agencies, educational institutions, private companies, and non-governmental agencies. The largest funders of NADP are the United States Geological Survey, Environmental Protection Agency, and National Park Service. Sites in the NADP National Trends Network (NTN) began monitoring in 1978 with the goal of providing data on the amounts, trends, and geographic distributions of acids, nutrients, and base cations in wet deposition. The NTN network currently has 254 active sites across the United States that have uniform precipitation collectors and gages, follow standard operating procedures, and send samples to a central laboratory for chemical analyses. NADP operates three mercury (Hg) monitoring networks:

- Mercury Deposition Network (MDN): MDN was established in 1996 to assess temporal and spatial trends of Hg in wet deposition. The network currently has 81 active sites located primarily in the Northeast and upper Midwest. MDN samples are analyzed for weekly total Hg, with a few sites opting for methyl mercury (MeHg) analyses.
- Atmospheric Mercury Network (AMNet): Established under NADP in 2009, AMNet measures ambient atmospheric Hg using an automated continuous measurement system. Hourly concentrations of gaseous elemental mercury (GEM), gaseous oxidized (GOM), and particle bound mercury (PBM) are measured. Hg deposition is then modeled using these measured concentrations. AMNet currently consists of 13 active sites globally, 11 of which are in the United States.
- Mercury Litterfall Network: After an evaluation period, the Litterfall Network became an official activity of NADP in 2020, assessing levels of Hg in litterfall under deciduous forests (which approximates dry deposition) at 25 sites in the eastern United States.

Site locations, method descriptions, standard operating procedures, and data for each of these networks, along with meeting materials from NADP's Mercury in the Environment-Links to Deposition (MELD) Science Committee, are provided on NADP's web site, <https://nadp.slh.wisc.edu/>. The United States is cooperating internationally in forums, including the following on efforts related to atmospheric and deposition measurements:

- The Asia-Pacific Mercury Monitoring Network (APMMN) (<http://apmmn.org>), a network of wet deposition and ambient air Hg monitoring sites in Fiji, India, Indonesia, Mongolia, Nepal, Philippines, Sri Lanka, South Korea, Taiwan, Thailand, and Vietnam.
- The Global Atmospheric Passive Sampling (GAPS) Network, led by Environment and Climate Change Canada, has included siting of MerPAS samples at 5 MDN sites, one of which also hosts AMNet measurements.
- The Global Observation System for Mercury (GOS4M), an initiative of the Group on Earth Observations (GEO), a partnership of 200 + national governments and organizations. GOS4M is a collaboration to integrate access to all existing Hg monitoring networks, starting with air but with the goal of eventually including all ecosystem components, with a goal of supporting the implementation and the effectiveness evaluation of the Minamata Convention;
- And an international laboratory quality assurance program for wet Hg deposition, which builds on the USGS quality assurance program for NADP and includes 5 laboratories in Southeast Asia and the National Institute for Minamata Disease, in Minamata, Japan.

#### Biota Monitoring

There are a variety of monitoring networks and assessment activities that have provided or continue to provide data on Hg in biota across the United States. Those that are most useful for the purposes of determining if changes in Hg emissions and deposition are realized in biological endpoints include:

- NPS/USGS Dragonfly Mercury Project (DMP): a national-scale citizen science study that utilizes a high quality, centralized laboratory to examine variation in Hg concentrations in dragonfly larvae across more than 400 sites in 111 National Park Service units throughout the continental United States and Alaska.

See <https://wim.usgs.gov/geonarrative/dmp/>

- EPA Great Lakes Fish Monitoring and Surveillance Program (GLFMSP): Every year, GLFMSP scientists

collect fish from each of the Great Lakes and analyze them for contaminants.

See <https://www.epa.gov/great-lakes-monitoring/great-lakes-fish-monitoring-and-surveillance>

- EPA National Lakes Assessment (NLA): Conducted nominally every five years, the NLA conducts probability-based sampling designed to provide statistically valid national and regional estimates of the condition of lakes across the coterminous United States. Previous field seasons were conducted in 2007 and 2012. NLA 2007 evaluated Hg in fish tissue, but NLA 2012 did not.

See <https://www.epa.gov/national-aquatic-resource-surveys/nla>

#### Water and Sediment Monitoring

Ongoing water and sediment sampling programs conducted by U.S. agencies that provide useful information for characterizing temporal trends include:

- USGS Rocky Mountain Regional Snowpack Chemistry: collected snow samples at ~60 sites in the Rocky Mountains in 2002–2003 and 2009 to present.
- Voyageurs National Park, MN: NPS and USGS collect annual water and fish samples from a limited number of lakes starting in 2001 to present.
- Everglades, FL: EPA has collected water and sediment on five occasions from ~125 stations between 1994 to present. NPS has collected annual water and fish from 79 stations between 2008 to present.
- California Delta Regional Monitoring Program: measured Hg/MeHg in water from 6–8 sites multiple times/year: 2000—present.
- California Stream Pollution Trends Monitoring Program: measured Hg in water and sediment in 100 streams: 2008–2015 (annual) and 2015–present (every 2 years).
- Trout Lake Station, WI: annual water measurements for Hg collected at Little Rock Lake and Trout Bog since 1988–present and 1998–present, respectively, by the University of WI and WI Department of Natural Resources.

#### Atmospheric and Multi-Media Modeling

U.S. agencies have developed the following models for understanding the transport and environmental fate of mercury:

- Community Multiscale Air Quality (CMAQ) Model: CMAQ is a multi-scale model primarily treating photochemical oxidants, acid deposition, and particulates, with a special configuration to include Hg (Bash et al., 2014; Ye et al., 2018). See <https://www.epa.gov/cmaq>

- HYSPLIT-Hg: A special version of the NOAA HYSPLIT model to simulate atmospheric Hg has been developed (Cohen et al. 2004, 2007, 2016). HYSPLIT utilizes an integrated Lagrangian (plume-based) and Eulerian (grid-based) modeling methodology, to allow simulation of different length scales, and an adaptive receptor-based grid system to provide extremely detailed source-receptor results.

See <https://www.arl.noaa.gov/research/surface-atmosphere-exchange-home/sae-programs-mercury/>

- GEOS-Chem: The NASA GEOS-Chem global model has been applied to simulate atmospheric Hg and to couple atmospheric Hg cycling to oceanic and terrestrial cycling. This work, often supported by government funding, has been largely carried out by research groups at Harvard University, MIT, and other universities. Examples of GEOS-Chem based atmospheric Hg modeling analyses include Selin et al. (2008), Holmes et al. (2010), Amos et al. (2012), Zhang et al. (2012), and Horowitz et al. (2017). See <https://geos-chem.seas.harvard.edu/>

#### Environmental Research and Analysis

The United States continues to fund research on the fate and impacts of Hg in terrestrial and aquatic ecosystems. The USGS Mercury Research Laboratory has been involved in many of these efforts and its publications provide a good overview of the types of continuing research underway. See <https://pubs.er.usgs.gov/search?q=mercury>.

#### Human Biomonitoring

The U.S. Center for Disease Control and Prevention (CDC) coordinates the National Biomonitoring Program, which provides available information on nutritional status and the exposure of the U.S. population to environmental chemicals and toxic substances, including Hg. See [https://www.cdc.gov/biomonitoring/Mercury\\_BiomonitoringSummary.html](https://www.cdc.gov/biomonitoring/Mercury_BiomonitoringSummary.html)

Observations of Hg exposure in blood and urine are collected through the National Health and

Nutrition Examination Survey (NHANES) (<https://www.cdc.gov/nchs/nhanes/index.htm>), which combines interviews, physical examinations, and laboratory tests to examine a nationally representative sample of about 5,000 people in each successive two-year cycle.

#### Technology Innovation and Life-Cycle Assessment

A number of U.S. agencies are conducting research on technologies that would reduce or eliminate the use and environmental release of mercury, along with mitigating other environmental impacts over the life-cycle of the technology. A variety of mechanisms have been used to fund such research, including challenges and prizes. Two examples of such efforts from the U.S. Department of Energy are:

- LED Lighting Life-Cycle Analysis Update: Following up on a previous U.S. government-funded life cycle analysis (see parts 1–3 at: <https://www.energy.gov/eere/ssl/downloads/life-cycle-assessment-energy-and-environmental-impacts-led-lighting-products>), researchers are updating prior analyses for LEDs. These are likely to show the effect on the supply chain by eliminating mercury, including implications for energy and greenhouse gas emissions. The expectation is that this new analysis would yield publications in 1–2 years (i.e. in 2024 or 2025).
- The L-Prize: As announced by Secretary Granholm at the 2021 Better Buildings Summit, DOE’s new Lighting Prize specifically targets luminaires (fixtures) for “ambient lighting in commercial and institutional building interiors such as offices, healthcare facilities, educational facilities, and other settings where linear lighting is predominant” in the installed stock (as noted in the rules). This \$12.2 million prize will advance the state of the art in light-emitting diode (LED) lighting, encouraging technology developers and researchers to engage in advanced lighting system development leading to groundbreaking designs, products, and impact. For more details, see: <https://www.energy.gov/eere/ssl/l-prize-competition>

### Part E – Additional comments on the article in free text if the party chooses to do so

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#### ▼ COMMENTS

### Part C: Comments regarding possible challenges in meeting the objectives of the Convention (Art. 21, para. 1)

{Empty}

#### ▼ SUPPLEMENTAL – ADDITIONAL COMMENTS

### Supplemental: Part D: Comments regarding the reporting format and possible improvements, if any

The United States has feedback on the following questions:

Question 3.4: Paragraph 5(b) of Article 5 specifies that each party shall “take measures to ensure that, where the party determines that excess mercury from the decommissioning of chlor-alkali facilities is available, such mercury is disposed of....” The determination of excess mercury availability is made by the Party. To that effect, this question could be more appropriately framed to address whether the Party has made this determination: Has the party determined that it has excess mercury available from the decommissioning of chlor-alkali facilities?

Question 3.5: The United States supports the Secretariat’s proposal to add “no, no exports” as a

response choice for question 3.5.

Question 4.4 : Article 4, paragraph 5 states that “Each Party shall take measures to prevent the incorporation into assembled products of mercury-added products the manufacture, import and export of which are not allowed for it under this Article.” The United States suggests that question 4.4 be amended to match the language of the convention: “Has the party taken measures to prevent the incorporation into assembled products of mercury-added products whose manufacture, import and export are not allowed for it under article 4? (Para. 5.)”

Question 8.1: The current reporting format provides the opportunity to answer questions for each source category. It would be helpful if an optional box could be added before the list of source categories to enable parties to enter overview information, which could provide helpful context to the response as a whole.