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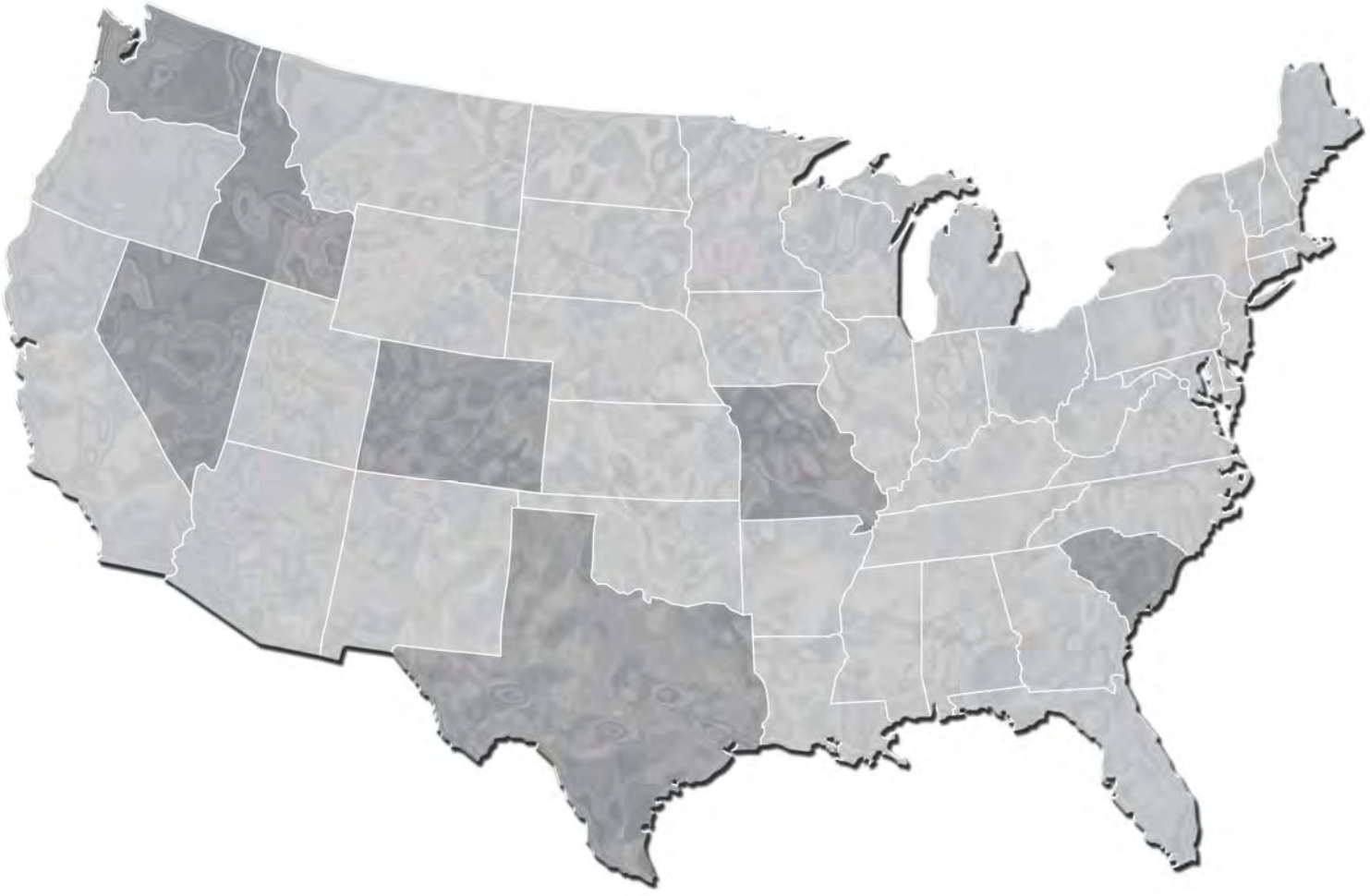
January 2011

Final

Long-Term Management and Storage of Elemental Mercury

Environmental Impact Statement



Summary and Guide for Stakeholders

U.S. Department of Energy
Office of Environmental Management
Washington, DC

AVAILABILITY OF THIS
FINAL LONG-TERM MANAGEMENT AND STORAGE OF ELEMENTAL MERCURY ENVIRONMENTAL IMPACT STATEMENT

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Lead Agency: U.S. Department of Energy (DOE)

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Texas Commission on Environmental Quality
Mesa County Board of Commissioners, Mesa County, Colorado

Title: *Final Long-Term Management and Storage of Elemental Mercury Environmental Impact Statement (Mercury Storage EIS)* (DOE/EIS-0423)

Candidate Locations for Storage Facility(ies): Colorado, Idaho, Missouri, Nevada, South Carolina, Texas, Washington

Contacts: For copies of this final environmental impact statement (EIS), visit DOE's National Environmental Policy Act (NEPA) website at http://www.nepa.energy.gov or contact David Levenstein at the address below.

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Abstract: Pursuant to the Mercury Export Ban Act of 2008 (P.L. 110-414), DOE was directed to designate a facility or facilities for the long-term management and storage of elemental mercury generated within the United States. Therefore, DOE has analyzed the storage of up to 10,000 metric tons (11,000 tons) of elemental mercury in a facility(ies) constructed and operated in accordance with the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (74 FR 31723). DOE prepared this *Final Mercury Storage EIS* in accordance with the National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S.C. 4321 et seq.), the Council on Environmental Quality (CEQ) implementing regulations (40 CFR 1500–1508), and DOE's NEPA implementing procedures (10 CFR 1021) to evaluate reasonable alternatives for a facility(ies) for the long-term management and storage of elemental mercury. This *Final Mercury Storage EIS* analyzes the potential environmental, human health, and socioeconomic impacts of elemental mercury storage at seven candidate locations: Grand Junction Disposal Site near Grand Junction, Colorado; Hanford Site near Richland, Washington; Hawthorne Army Depot near Hawthorne, Nevada; Idaho National Laboratory near Idaho Falls, Idaho; Kansas City Plant in Kansas City, Missouri; Savannah River Site near Aiken, South Carolina; and Waste Control Specialists, LLC, site near Andrews, Texas. As required by CEQ NEPA regulations, the No Action Alternative was also analyzed as a basis for comparison. DOE intends to decide (1) where to locate the elemental mercury storage facility(ies) and (2) whether to use existing buildings, new buildings, or a combination of existing and new buildings. DOE's Preferred Alternative for the long-term management and storage of mercury is the Waste Control Specialists, LLC, site near Andrews, Texas.

Public Comments: In preparing this final EIS, DOE considered comments received during the scoping period (July 2, 2009, through August 24, 2009) and public comment period on the draft EIS (January 29, 2010, through March 30, 2010). Comments on the draft EIS were accepted during the 60-day period following publication of (EPA's) Notice of Availability in the *Federal Register*. All comments, including late comments to the extent practicable, were considered during preparation of this final EIS. Volume 2 contains the comments received during the public comment period on the draft EIS and DOE's responses to these comments.

This final EIS contains revisions and new information based in part on comments received on the draft EIS. Vertical change bars in the margins indicate the locations of these revisions and new information. Editorial corrections are not indicated by change bars. Appendix H and Appendix I in Volume I and the comment response document in Volume II are entirely new parts of this final EIS and therefore do not contain change bars.

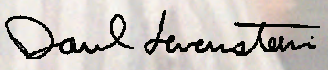
DOE will consider the environmental impact information presented in this final EIS, as well as other factors (e.g., cost, schedule, strategic objectives, and public comments) when making long-term mercury management and storage decisions. As required by CEQ NEPA regulations (40 CFR 1506.10), DOE will make a decision on the proposed action no sooner than 30 days after publication of EPA's Notice of Availability of this *Final Mercury Storage EIS* in the *Federal Register*. DOE will announce its decision in a Record of Decision published in the *Federal Register*.

A Message to Stakeholders

I am pleased to present this *Final Long-Term Management and Storage of Elemental Mercury Environmental Impact Statement (Final Mercury Storage EIS).* It is a key step in carrying out the intent of Congress in the Mercury Export Ban Act of 2008 to reduce mercury in the global environment. The U.S. Environmental Protection Agency, the Texas Commission on Environmental Quality, and the Mesa County Board of Commissioners (Mesa County, Colorado) are cooperating agencies in the preparation of this *Final Mercury Storage EIS*. This *Final Mercury Storage EIS* was prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S.C. 4321 et seq.), the Council on Environmental Quality (CEQ) implementing regulations (40 CFR 1500–1508), and DOE's NEPA implementing procedures (10 CFR 1021) to evaluate reasonable alternatives for a facility(ies) for the long-term management and storage of elemental mercury.

DOE's goal is to provide safe, secure, long-term mercury storage by establishing a facility(ies) that can accept U.S. elemental mercury and begin storage operations by January 2013. This *Final Mercury Storage EIS* is intended to provide decisionmakers and the public with clear, reliable, and credible information about the impacts of the proposed action and reasonable mercury storage alternatives. To that end, we have prepared this *Summary and Guide for Stakeholders* to summarize the major components of the full environmental impact statement (EIS) and to guide readers to additional detail in the complete document. Technical terms have been avoided where possible or defined. A short list of acronyms and abbreviations has been included to further ensure clarity. You can also find supplementary information on the EIS website at *www.mercurystorageeis.com* and in the Reading Rooms listed in Section 5 of this summary and guide.

Thank you for participating in the NEPA process for preparing this final EIS and the subsequent Record of Decision.



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1. INTRODUCTION

This *Summary and Guide for Stakeholders* presents a concise overview of the major issues addressed in this *Final Long-Term Management and Storage of Elemental Mercury Environmental Impact Statement (Final Mercury Storage EIS)* and directs readers to more-detailed information in the full document. A compact disk of the complete environmental impact statement (EIS) and appendices is enclosed.

Stakeholders are the people or organizations that have an interest in, or may be affected by, a proposed action, including the general public; representatives of environmental and educational groups, industry, unions, and other organizations; and representatives of Congress, Federal agencies, American Indian tribes, state agencies, and local governments.

The U.S. Department of Energy (DOE) prepared this *Final Mercury Storage EIS* as part of DOE's process to establish a facility(ies) for storing elemental mercury in accordance with the Mercury Export Ban Act of 2008 (the Act). The U.S. Environmental Protection Agency (EPA), the Texas Commission on Environmental Quality, and the Mesa County Board of Commissioners (Mesa County, Colorado) are cooperating agencies on this EIS.

The Mercury Export Ban Act of 2008 (the Act)

- The Act prohibits the sale, distribution, or transfer of mercury by Federal agencies to other government agencies and private entities as of October 14, 2008.
- It bans the export of elemental mercury from the United States as of January 1, 2013.
- The U.S. Department of Energy (DOE) must designate a facility(ies) for long-term management and storage of mercury generated in the United States, and it must be operational by January 1, 2013.
- Any such facility(ies) must comply with applicable requirements of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (42 U.S.C. 6901 et seq.).
- The Act does not specify how long mercury may require storage at the DOE-designated facility(ies).
- DOE is required to charge a fee to cover the cost of mercury storage.
- The Act requires the U.S. Environmental Protection Agency (EPA) to report to Congress on whether to expand the export ban to cover one or more mercury compounds. This report was issued in October 2009.
- EPA must report to Congress by January 1, 2017, on the global supply and trade of elemental mercury, including whether additional primary mercury mining has occurred as a consequence of the Act.

The text box at left provides a synopsis of the relevant features of the Act, and Appendix A of this EIS contains a complete copy of the Act.

As shown, the Act prohibits the sale, distribution, or transfer of elemental mercury by Federal agencies to other government agencies and private entities after October 14, 2008, as well as the export of elemental mercury from the United States as of January 1, 2013. Banning the export of mercury[1] from the United States is expected to result in surplus inventories. Therefore, the Act directs DOE to designate a mercury storage facility(ies) and be ready to accept custody of elemental mercury and begin storage operations by January 1, 2013.

Thus, DOE's purpose and need for the proposed action is to provide a capability for managing and storing elemental mercury on a long-term basis. The proposed action is to construct one or more new facilities and/or select one or more existing facilities (including modifications as needed) as mandated by Section 5 of the Act.

DOE's process for establishing the requisite facility(ies) is based on the requirements of the National Environmental Policy Act of 1969 (NEPA). NEPA requires Federal agencies to integrate environmental values into their decisionmaking by considering the environmental impacts of proposed actions and the range of reasonable alternatives to those actions. For major Federal actions significantly affecting the quality of the human environment, agencies must prepare an EIS, which considers the potentially affected environment, including the natural physical environment (e.g., air, water, geology, soils, plant and animal life) and the relationship between humans and the environment (e.g., health, safety, jobs, schools, housing, cultural resources, and aesthetics).

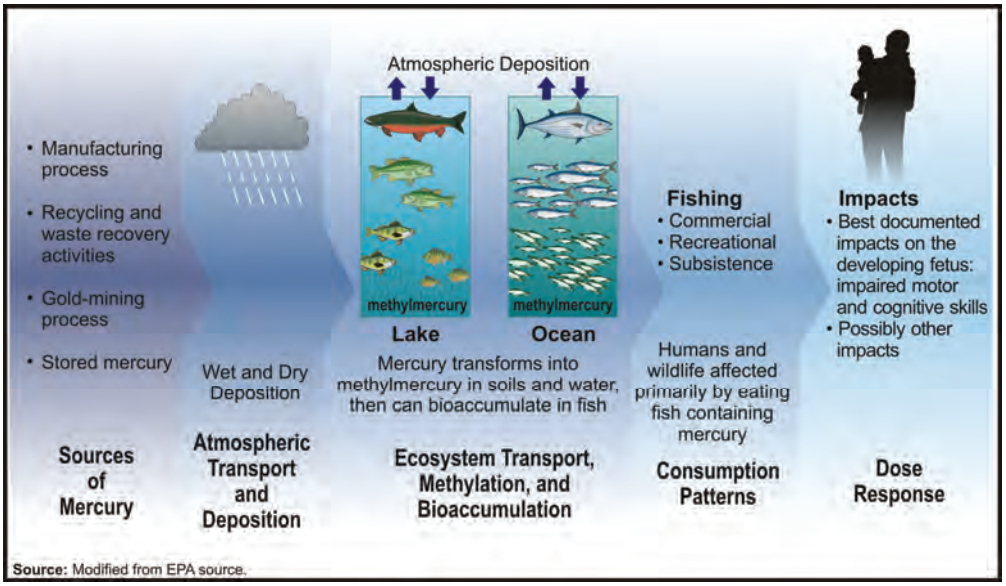
[1] *Unless the context indicates otherwise, elemental mercury is referred to hereafter simply as "mercury" in this environmental impact statement.*

Environmental justice, the process of ensuring that no group—ethnic, racial, or socioeconomic—of people bears a disproportionate share of adverse impacts, is also a key component of an EIS. The NEPA process emphasizes public outreach to ensure that stakeholders are provided opportunities to learn about a proposed action and to provide the Government with their input in the form of public comments.

Why Reduce the Amount of Mercury in the Environment?

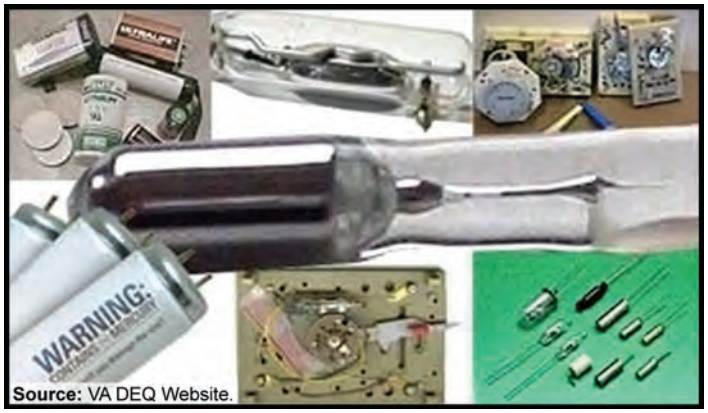
Mercury is an element that enters the environment as a result of natural processes (e.g., volcanoes, wildfires, surface emissions) and human activities. Mercury and its compounds are toxic; therefore, they pose human health and ecological risks. The potential effects may be widespread because mercury is easily dispersed throughout the environment. Moreover, the free trade of elemental mercury on the world market has encouraged its continued use, resulting in increasingly higher levels of mercury in the global environment. This has increased the risk of neurological and reproductive effects for humans and wildlife, and it means mercury is a pollutant of environmental concern throughout the world. By banning the export of U.S. mercury, Congress anticipated reducing the amount of mercury available worldwide, thus reducing the associated health risks.

For purposes of this environmental impact statement, "mercury" refers to elemental mercury unless otherwise indicated.



The Mercury Cycle

Elemental mercury—the form DOE would manage and store—has long been used in manufacturing processes because it is a good conductor of electricity and it alloys, or mixes, readily with other metals. Historically, it has been used in batteries, paint, thermometers, thermostats, medical devices such as blood pressure monitors, auto lighting switches, fluorescent lights, and dental fillings. Many of these uses have been curtailed in recent years.



Mercury was once used extensively in manufacturing

What Are DOE's Objectives?

DOE has developed this EIS to evaluate the potential impacts of the proposed action, i.e., to establish a facility(ies) for the long-term management and storage of mercury. In accomplishing this, DOE is committed to the following overall objectives for its mercury storage program:

- Protect human health and the environment and ensure the safety of workers and the public.
- Meet the requirements of the Mercury Export Ban Act of 2008.
- Comply with applicable Federal, state, and local laws and regulations.

How Much Mercury Could DOE Manage and Store?

Based on the best available information, DOE anticipates that approximately 10,000 metric tons (11,000 tons) of excess mercury will need to be managed and stored in a facility designed to last at least 40 years. The Mercury Export Ban Act of 2008 does not specify how long the DOE mercury storage facility(ies) would need to be operated. Therefore, it is possible that more or less than 10,000 metric tons (11,000 tons) of mercury could eventually require storage for a period longer or shorter than 40 years. Additional NEPA documentation would be required to expand the facility(ies) to accept more than 10,000 metric tons (11,000 tons) of mercury or extend its operations beyond the 40-year period of analysis.

Potential sources of mercury in the United States include the chlor-alkali industry, recycling and waste recovery activities, and gold mining. In addition, DOE currently stores approximately 1,200 metric tons (1,300 tons) of mercury at its Y–12 National Security Complex in Oak Ridge, Tennessee. Table 1 shows the DOE-estimated inventory of mercury that could be available for storage over the next 40 years. That estimate does not include U.S. Department of Defense (DoD)–related mercury (4,400 metric tons [4,900 tons]) because the Defense Logistics Agency has decided to store its mercury inventory at the Hawthorne Army Depot in Nevada.

Table 1. Estimated U.S. Mercury Inventory That DOE Could Manage and Store

Source	*Years Sent to Storage*[a]	*Quantity in Metric Tons (tons)*
DOE Y–12 National Security Complex in Oak Ridge, Tennessee[b]	2013–2014	1,200 (1,300)
Closure of four chlor-alkali plants or conversion to non-mercury-cell technology	2013–2019	1,100 (1,200)
Waste reclamation and recycling facilities	2013–2052	2,500 (2,800)
Byproduct of gold mining	2013–2052	3,700–4,900 (4,100–5,400)
Total		**8,500–9,700 (9,400–10,700)**

[a] For purposes of analysis, it was assumed that the elemental mercury from DOE's Y–12 National Security Complex could be shipped to the DOE-designated storage facility(ies) in the first 2 years of operation; chlor-alkali plant elemental mercury would be shipped in the first 7 years of operation; and waste reclamation and recycling facility and gold-mining byproduct elemental mercury would be shipped over the 40-year period of analysis.

[b] Depending on ongoing DOE mission needs, the entire inventory of Y–12 National Security Complex mercury or a portion of this inventory could be retained in storage at Y–12 National Security Complex. It is also possible that other governmental sources of elemental mercury could be transferred to the storage facility(ies).

Key: DOE=U.S. Department of Energy.

Where Would the Mercury Come From?

Potential sources of mercury that may require long-term storage by DOE are shown in Figure 1. They include the following: four chlor-alkali plants expected to still be using mercury-cell technology beyond 2010; gold mining in the state of Nevada, which produces the majority of U.S. byproduct mercury (i.e., the latest available data in 2002 report approximately 97 metric tons [107 tons]), and, to a lesser extent, South Dakota; six companies that account for most of the secondary mercury waste reclamation and recycling; and, potentially, some or all of the mercury currently stored at the Y–12 National Security Complex.

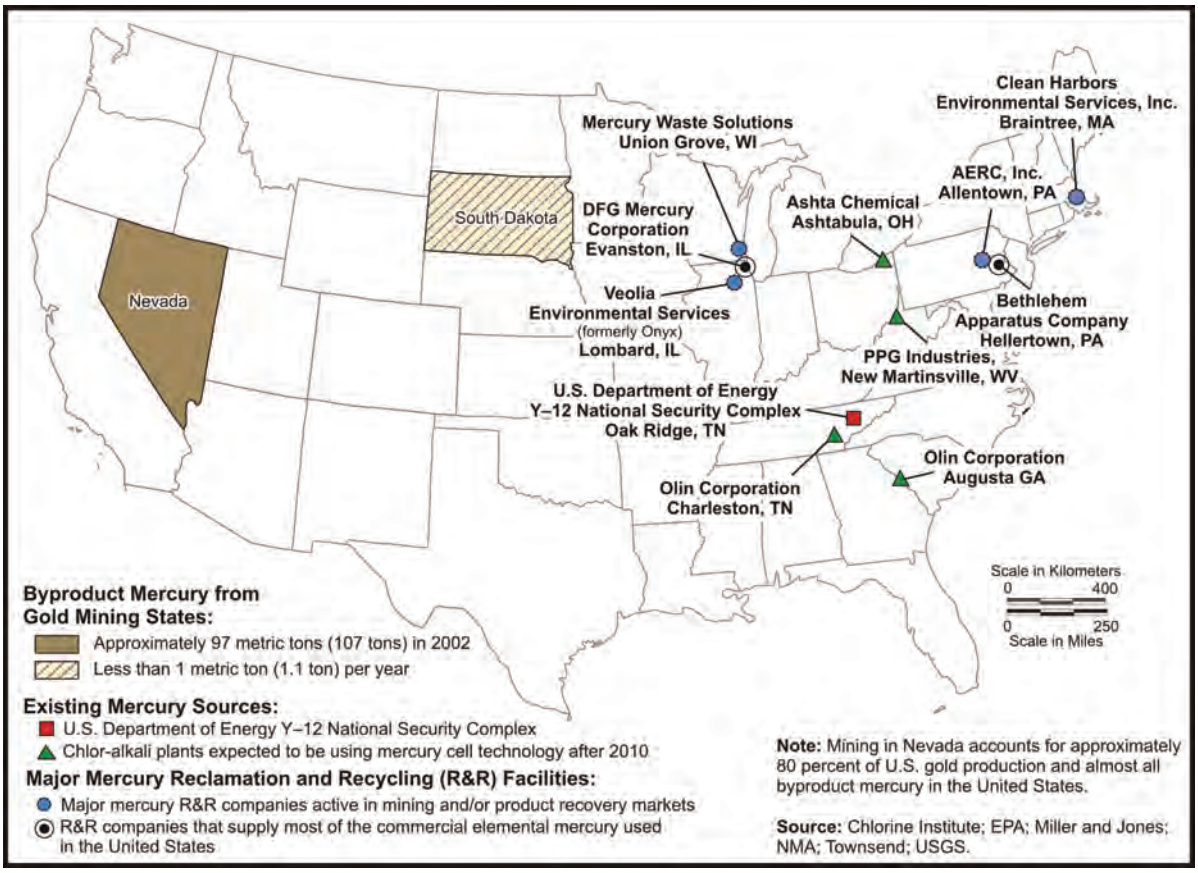


Figure 1. *Potential Sources of Mercury in the United States*

Estimates of the amount of mercury that DOE may be called upon to manage are uncertain. For example, there may be less gold mining in the future as existing deposits are depleted, or there could be more mining if additional gold deposits are discovered. Similarly, the amount of mercury from waste reclamation and recycling facilities will depend on the volume of waste material processed. That amount may decrease as initiatives to collect mercury-containing thermometers, thermostats, switches, and natural-gas-metering devices are completed. In addition, some chlor-alkali plants may discontinue mercury-cell processes before 2013, thus decreasing the amounts of mercury from that source. Shipment estimates are presented in Appendix C, Section C.1, of this *Final Mercury Storage EIS.* It is estimated that there would be about 79 truck shipments per year between 2013 and 2014, 39 per year between 2015 and 2019, and 27 per year between 2020 and 2052. If transported by rail, there would be about 23 rail shipments per year between 2013 and 2014, 8 per year between 2015 and 2019, and only 5 per year between 2020 and 2052.

2. WHAT DOES THIS EIS ADDRESS?

This EIS considers a range of reasonable alternatives for the long-term, safe, secure storage of elemental mercury generated in the United States. More specifically, this EIS addresses the short- and long-term potential health and environmental effects of establishing and operating a DOE facility(ies) to provide the necessary capability for this storage.

Typical Mercury Storage Flasks

Decisions to Be Made

In making long-term mercury management decisions, DOE will consider the results of this EIS, public comments, and other relevant factors. DOE intends to make the following decisions:

- Where to locate the mercury storage facility(ies)
- Whether to use existing buildings, new buildings, or a combination of existing and new buildings for mercury storage

DOE will make a decision on the proposed action no sooner than 30 days after publication of EPA's Notice of Availability of this *Final Mercury Storage EIS* in the *Federal Register*. DOE will announce its decision in a Record of Decision published in the *Federal Register*.

Scope of This EIS

This EIS includes the following:

- Identification of potential candidate sites for the mercury storage facility(ies)
- Consideration of the No Action Alternative
- Consideration of new construction and modification of existing facilities
- Potential health and environmental effects, including transportation to each potential storage facility(ies), and cumulative effects of establishing and operating a storage facility(ies) at each candidate site
- Comparison of the analytic results for all sites
- The issues and concerns raised by stakeholders during the public comment period for the draft EIS, along with DOE's responses
- The DOE Preferred Alternative

Resource Areas Analyzed

This EIS presents the results of DOE's analysis of potential impacts for each of the candidate sites, as well as for a No Action Alternative. A No Action Alternative is required under NEPA for use as a basis of comparison. However, in this EIS, the No Action Alternative would be contrary to the requirements of the Act because it assumes DOE would not establish a facility(ies) for the long-term storage of elemental mercury.

Areas analyzed for each candidate site include land use and visual resources; geology, soils, and geologic hazards; water resources; meteorology, air quality, and noise; ecological resources; cultural and paleontological resources; site infrastructure; waste management; occupational and public health and safety; ecological risk; socioeconomics; and environmental justice.

The potential impacts analyzed from construction and modification of a mercury storage facility include those related to visual, ecological, and water resources; land disturbance; resource use; air emissions and noise; and employment. Operational impacts, including those related to resource use, air emissions, and human health effects, are also presented. See Section 5, "Comparison of Impacts and Alternatives" of this *Summary and Guide for Stakeholders*. Transportation impacts, including those related to air emissions, human health, and ecological risk, are also analyzed.

Affected Environment

The affected environment described in this EIS includes land use and visual resources; geology, soils, and geologic hazards; water resources; meteorology, air quality and noise; ecological resources; cultural and paleontological resources; site infrastructure; waste management; occupational and public health and safety; socioeconomics; and environmental justice.

DOE evaluated the environmental impacts of the proposed action within defined regions of influence specific to each resource area and site evaluated. Regions of influence encompass the geographic areas within which any meaningful impact is expected to occur, and can include the area within which the proposed action would take place, the site as a whole, or nearby offsite areas. Regions of influence that are defined with the term "nearby offsite areas" may be different for each site depending on the extent to which meaningful impacts are expected to occur. For example, impacts on historic resources were evaluated at specific facility locations within each site, whereas human health risks to the general public were assessed for an area within a 16-kilometer (10-mile) radius of the facility location. Brief descriptions of the regions of influence for each resource area are presented in Table 2.

Table 2. General Regions of Influence for the Affected Environment

Environmental Resource Area	*Region of Influence*
Land use and visual resources	The project location, the site, and nearby offsite areas
Geology, soils, and geologic hazards	The project location, the site, and nearby offsite areas
Water resources	The project location, the site, and adjacent surface-water bodies and groundwater
Air quality and noise	For air quality, the site and nearby offsite areas potentially affected by air pollutant emissions; for noise, project location, the site, and surrounding areas, including transportation corridors
Ecological resources	The project location, the site, and nearby offsite areas
Cultural and paleontological resources	The project location and adjacent areas
Site infrastructure	The project location, the site, and local areas supporting the site
Waste management	Site waste management facilities
Occupational and public health and safety	The site, offsite areas within 16 kilometers (10 miles) of the site, and the transportation corridors
Socioeconomics	The counties where at least 90 percent of site employees reside
Environmental justice	The area within 16 kilometers (10 miles) of the site and the area within 3.2 kilometers (2 miles) of the site as a subset of the 16-kilometer (10-mile) area

3. MERCURY STORAGE SITE ALTERNATIVES CONSIDERED IN THIS EIS

To meet the requirements of the Act, DOE proposes to designate one or more existing or new facilities for the long-term management and storage of mercury. As required by NEPA, this EIS evaluates a No Action Alternative to serve as a basis for comparison with the action or site alternatives. Under the No Action Alternative, DOE would not establish a facility(ies) for long-term management and storage of mercury as is required by the Act. Because the Act also prohibits the export of mercury after January 1, 2013, companies in the United States would have to find another way to manage their excess mercury. Any excess mercury would remain the responsibility of its owners or would be sent to commercial waste management facilities. Approximately 1,200 metric tons (1,300 tons) of DOE mercury currently stored at the DOE Y–12 National Security Complex in Tennessee would continue to be managed and stored at this location.

How Were Potential Storage Sites Identified?

To begin the process of identifying potential mercury storage sites, DOE published a Request for Expressions of Interest in *Federal Business Opportunities* and the *Federal Register* in March 2009. DOE also issued an internal memorandum asking offices to determine whether they had existing facilities that could be used for mercury storage, as well as areas suitable for new construction at their sites.

The following Government sites and private companies submitted positive responses.

- DOE Grand Junction Disposal Site, Grand Junction, Colorado
- DOE Hanford Site, Richland, Washington
- Hawthorne Army Depot, Hawthorne, Nevada
- DOE Idaho National Laboratory, Idaho Falls, Idaho
- DOE Kansas City Plant, Kansas City, Missouri
- Lowland Environmental Services et al., Knoxville, Tennessee
- Meritex Enterprises, Inc., Lenexa, Kansas
- DOE Savannah River Site, Aiken, South Carolina
- Veolia ES Technical Solutions, LLC, Henderson, Colorado
- Waste Control Specialists, LLC, Andrews, Texas

At the same time, DOE developed the following criteria for identifying candidate mercury storage sites for consideration in this EIS:

- The candidate location has an existing facility(ies) suitable for mercury storage with the capability for expansion, if necessary.
- The facility(ies) would not create significant conflict with any existing DOE site mission and would not interfere with future mission compatibility.
- As required by the Act, the facility(ies) is, or potentially will be, capable of complying with Resource Conservation and Recovery Act (RCRA) permitting requirements (see Chapter 5, Sections 5.2.4 and 5.3), including siting requirements.

- The facility(ies) has supporting infrastructure and a capability or potential capability for flooring that would support mercury loadings.
- Storage of mercury at the facility(ies) is compatible with local and regional land use plans, and new construction would be feasible, as may be required.
- The facility(ies) is accessible to major transportation routes.
- The candidate location has sufficient information on hand to adequately characterize the site.

Alternatives Considered but Eliminated from Detailed Analysis

The following alternatives were initially considered but were not evaluated in detail in this EIS:

- **Storage at the DOE Y–12 National Security Complex, Oak Ridge Reservation.** The Act specifies that the DOE-designated mercury storage facility(ies) shall not include Y–12 National Security Complex or any other portion or facility at the Oak Ridge Reservation in Oak Ridge, Tennessee (42 U.S.C. 6939f(a)(1)). DOE may sometimes include reasonable alternatives that are outside the scope of what Congress has approved. However, in the case of this action, where Congress has expressly prohibited a potential alternative, DOE finds that it is reasonable to forego its consideration. Accordingly, DOE has eliminated this option as an action alternative.
- **Fuels and Materials Examination Facility at the Hanford Site.** The Fuels and Materials Examination Facility at the Hanford Site was constructed in the late 1970s and early 1980s to perform fuel fabrication and development and examination of breeder reactor fuels. Although it is a robust building with thick walls and heavy shielding, the design and internal configuration are not optimal for waste storage; the building is not RCRA permitted; and modifications that would be required would be substantial. Therefore, DOE eliminated this facility from further consideration as a potential site.
- **N and F Area Buildings at the Savannah River Site.** This option is not compatible with future site missions. DOE plans to consolidate waste storage operations followed by decontamination and demolition of storage buildings in N Area. Therefore, DOE eliminated N Area existing buildings from further consideration. Buildings in F Area were previously committed to support the mixed oxide fuel program and would not be available to support long-term storage of mercury.
- **Lowland Environmental Services, et al.,** a business partnership from Knoxville, Tennessee, responded to the Request for Expressions of Interest DOE published in the *Federal Register*. Because this company did not fulfill the basic requirement to propose a specific location for siting a facility, this option was eliminated from detailed study in this *Final Mercury Storage EIS*.
- **Meritex Enterprises, Inc.,** of Lenexa, Kansas, submitted a potential site in Cumberland Furnace, Tennessee, for consideration by DOE. This site is a commercial subterranean storage facility developed within a former limestone mine. Due to concerns about permitting and operating an underground facility for long-term storage of mercury and concerns about mercury storage being incompatible with storage of other materials (e.g., foodstuffs), DOE has eliminated this option from further consideration.
- **Veolia ES Technical Solutions, LLC,** of Henderson, Colorado, responded to the Request for Expressions of Interest DOE published in the *Federal Register*. This company did not fulfill the basic requirement to propose a specific location for siting a facility and later withdrew its

Expression of Interest; therefore, this option was eliminated from detailed study in this *Final Mercury Storage EIS*.

- **Multiple-Site Strategy.** DOE considered the possibility of using a "hybrid" or multiple-site strategy composed of candidate sites being evaluated in this *Final Mercury Storage EIS*. DOE eliminated such a strategy from further evaluation because the duplicative resources that would be required would not be cost-effective.
- **Treatment Alternatives.** EPA has not yet established treatment and disposal standards for the high-purity elemental mercury waste DOE would store. Therefore, DOE is not considering treatment and storage or disposal for detailed evaluation in this *Final Mercury Storage EIS*.
- **Transportation Options.** This EIS contemplates transport of mercury from current locations to the DOE storage facility(ies) by truck or rail. Transportation by air is not analyzed because of the additional cost and handling required to move the mercury to and from the airports. The weight of mercury would limit the amount of mercury that could be transported per trip, resulting in much higher costs for air transit. The movement of mercury within the continental United States by barge is not a reasonable option due to the limited number of barge routes and the additional handling required to move the mercury to and from the barge route.

Candidate Sites Selected for Further Evaluation

Applying the DOE screening criteria resulted in seven of the ten potential storage sites appearing to be reasonable alternative locations (see Figure 2). The seven candidate sites evaluated in this EIS are described briefly below and in more detail in Chapter 2.

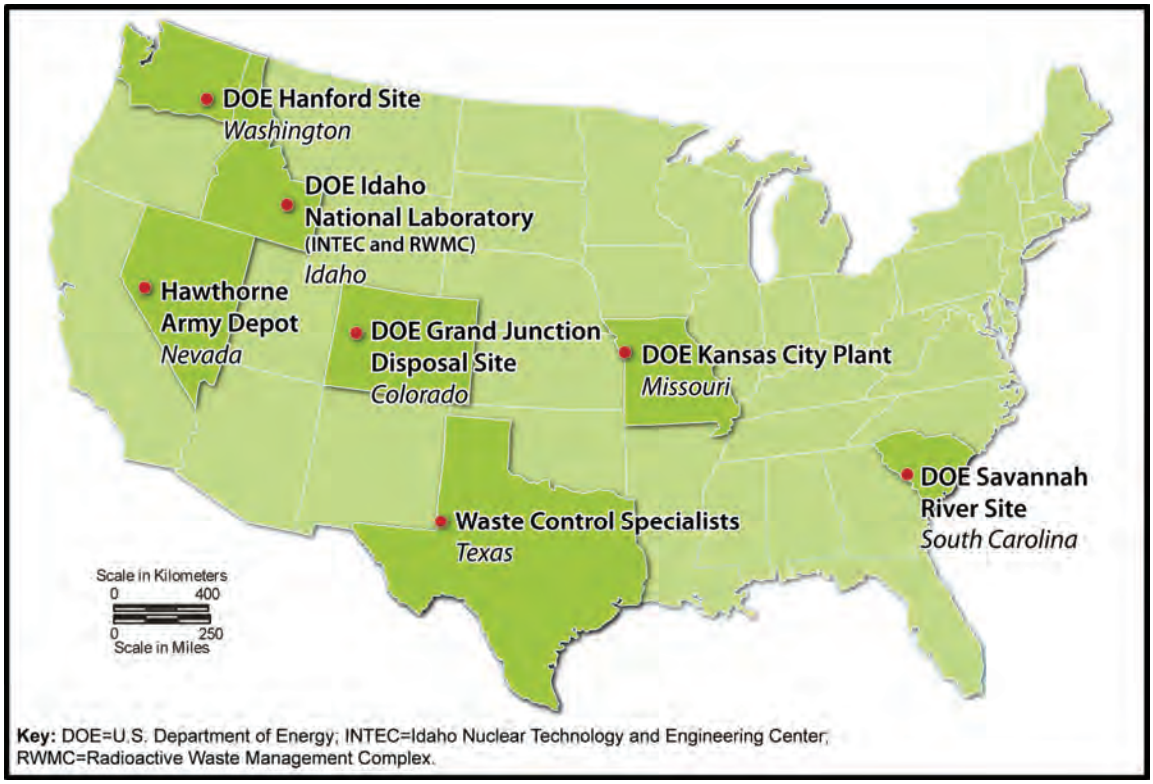


Figure 2. *Alternative Sites Analyzed for U.S. Department of Energy Storage of Mercury*

DOE Grand Junction Disposal Site, Colorado

The Grand Junction Disposal Site is located on DOE-owned land in Mesa County, Colorado, 29 kilometers (18 miles) southeast of Grand Junction, Colorado. The site occupies 146 hectares (360 acres) in a rural setting. It is accessed from a two-lane paved road off U.S. Route 50. Currently, a 38-hectare (94-acre) area is used for disposal of uranium mill tailings. The entire site is surrounded by a perimeter fence, and it has a gated entrance. The site has road/truck access, but no direct rail access. A new mercury storage facility would be located in the northwest corner of the site. It would occupy 3.1 hectares (7.6 acres).

Grand Junction Disposal Site

In 1996, DOE and Mesa County Board of Commissioners (Mesa County) entered into a Memorandum of Understanding (1996 MOU) to provide meaningful consultation with and participation of Mesa County in DOE's use of the Grand Junction Disposal Site. The position of Mesa County, a cooperating agency for purposes of this EIS, is that use of the Grand Junction Disposal Site is restricted per the 1996 MOU between DOE and Mesa County, and that the 1996 MOU governs any proposed mercury storage at the Grand Junction Disposal Site. Mesa County believes the agreement is clear and that Grand Junction Disposal Site is only to be used for uranium mill tailings, almost exclusively of local origin. Mesa County further asserts that DOE assured the citizens of Mesa County that the disposal site would never be used to store any wastes other than mill tailings. Mesa County believes DOE is obligated to honor this agreement. DOE acknowledges that the 1996 MOU stipulates that DOE must consult with Mesa County regarding decisions related to operations at the site. DOE will evaluate the applicability of the 1996 MOU to the long-term management and storage of elemental mercury at the Grand Junction Disposal Site to determine whether the 1996 MOU would affect the viability of the selection of this site as the location for a mercury storage facility.

DOE Hanford Site, Washington

The DOE Hanford Site occupies 151,775 hectares (375,040 acres) along the Columbia River in southeastern Washington State. It is owned by the Federal Government and managed by DOE. It is situated to the northwest of the Tri-Cities (Richland, Kennewick, and Pasco) and encompasses large areas of open land interspersed by a number of industrial facilities. The site is accessed from Richland via State Route 240 and George Washington Way. The new mercury storage facility would be located in the Central Waste Complex of 200-West Area. Both truck and rail access are available.

Central Waste Complex at the Hanford Site

Hawthorne Army Depot, Nevada

The Hawthorne Army Depot encompasses 59,500 hectares (147,000 acres) of open land in the high desert of western Nevada. The installation is accessible from U.S. Route 95. The Central Magazine Area, the area within which mercury would be stored, is located about 6.4 kilometers (4 miles) north of the town of Hawthorne, Nevada. Under this alternative, DOE would designate up to 29 buildings in the Central Magazine Area for DOE mercury storage. This would provide approximately 27,000 square meters (290,000 square feet) of space for DOE storage of mercury. Modifications to the proposed buildings would be required prior to DOE storage of mercury and could include reinforcing and epoxy-sealing the floor; installing spill control measures, utilities, and security monitors; and servicing the rail spur. There are 14 similar buildings in the area that are currently designated for storage of Defense Logistics Agency mercury. Both truck and rail access are available.

Under Title 10 of the *United States Code*, Section 2692, DoD is prohibited from the use of a DoD installation for the storage, treatment, or disposal of any material that is a toxic or hazardous material and that is not owned either by DoD or by a member of the armed forces. Under certain limited circumstances, the Secretary of Defense may grant exceptions. DOE may not store elemental mercury, a toxic or hazardous material, at Hawthorne Army Depot unless and until DoD grants DOE a specific exception to do so, or DoD leases or transfers an appropriate portion of the Hawthorne Army Depot site to DOE or the General Services Administration (and the General Services Administration subsequently transfers or leases that property to DOE). DOE has discussed with DoD the possibility of using a portion of the Hawthorne Army Depot site as a mercury storage location and considers Hawthorne Army Depot to be a reasonable alternative.

Existing Storage Buildings in the Central Magazine Area at the Hawthorne Army Depot

DOE Idaho National Laboratory, Idaho

Idaho National Laboratory is owned by DOE and occupies a 230,323-hectares (569,135-acre) area in southeastern Idaho. It consists of several facility areas in an expanse of otherwise undeveloped, cool desert terrain. It is 39 kilometers (24 miles) west of Idaho Falls, Idaho, and is accessed from that city via U.S. Route 20. Two options for long-term storage of mercury have been identified: new construction and reuse of existing buildings. New construction would take place at the Idaho Nuclear Technology and Engineering Center. Current operations at the center include management of sodium-bearing waste, spent nuclear fuel storage, nuclear material disposition, environmental remediation, and demolition of excess facilities. The reuse of existing buildings would take place at the Radioactive Waste Management Complex and would involve reuse of up to seven storage buildings in the Transuranic Storage Area. These seven buildings could provide a total of 19,000 square meters (205,000 square foot) of storage space. Truck and rail access are available at both locations.

Idaho Nuclear Technology and Engineering Center at Idaho National Laboratory

Existing Storage Buildings at the Radioactive Waste Management Complex at Idaho National Laboratory

DOE Kansas City Plant, Missouri

The Kansas City Plant is a DOE-owned site situated on 55 hectares (136 acres) of the 125-hectare (310-acre) Bannister Federal Complex. It is located in Kansas City, Missouri, 13 kilometers (8 miles) south of the downtown area. The surrounding area is characterized by single- and multiple-family dwellings, commercial establishments, industrial districts, and public use lands.

Existing Main Manufacturing Building at the Kansas City Plant

The plant is located on a very compact, highly developed site that is shared with other Federal agencies, including the U.S. General Services Administration and the U.S. Marine Corps. The Kansas City Plant is accessed by two four-lane city streets: Troost Avenue to the west and Bannister Road to the south. The Kansas City Plant has adequate floor space in existing buildings to support a mercury storage facility. Initially, approximately 14,000 square meters (150,000 square feet) of storage space could be available for the storage of mercury with more possibly becoming available if some of the current tenants relocate as planned. Both truck and rail access are available.

DOE Savannah River Site, South Carolina

The Savannah River Site is a DOE-owned site that occupies 80,290 hectares (198,400 acres) in southwestern South Carolina. The site is approximately 19 kilometers (12 miles) south of Aiken, South Carolina, and 24 kilometers (15 miles) southeast of Augusta, Georgia. The Savannah River Site is accessed via South Carolina Highway 125 from Augusta and South Carolina Highway 19 from Aiken. About 90 percent of the site consists of natural forests and managed pine plantations; the surrounding area is largely rural. Under this alternative, a new facility would be constructed in E Area, which is 134 hectares (330 acres) designated for industrial use. Truck and rail access are available.

E Area at the Savannah River Site

Waste Control Specialists, LLC, Site, Texas – DOE's Preferred Alternative

Waste Control Specialists, LLC, is a commercial entity that owns and operates a 541-hectare (1,338-acre) site for the treatment, storage, and landfill disposal of various hazardous and radioactive wastes. The site is located approximately 50 kilometers (31 miles) west of Andrews, Texas, and 10 kilometers (6 miles) east of Eunice, New Mexico. It is surrounded by a 5,460-hectare (13,500-acre) tract of land also owned by Waste Control Specialists, LLC. The facility is currently permitted under RCRA for storage of hazardous waste, although the existing permit would need to be modified or a new permit submitted for review and approval, as appropriate. Under this alternative, a new facility would be constructed either north or south of the existing commercial hazardous waste storage facilities. The Container Storage Building, within the Waste Control Specialists, LLC, site, could be used to store mercury on an interim basis until the new storage facility could be constructed. The Container Storage Building is configured to store hazardous waste, would be suitable for storage of mercury, and could provide up to approximately 2,650 square meters (28,500 square feet) of storage space. Truck and rail access are available at the site.

Waste Control Specialists, LLC, Site

4. DOE MERCURY STORAGE FACILITY(IES) DESCRIPTION

The DOE mercury storage facility(ies) would include the following characteristics:

- RCRA-regulated/permitted design with proper spill containment features and emergency response procedures
- Security and access control
- Fire suppression systems
- Ventilated storage and handling area(s)
- Fully enclosed weather-protected building(s)
- Reinforced-concrete floors able to accommodate mercury storage

The mercury storage facility(ies) would have areas for administration, receiving and shipping, storage, and handling. The storage area would constitute approximately 90 percent of the floor space. The storage area would generally be a large open space similar to a warehouse, where storage, inspection, and monitoring could be effectively performed. The mercury storage facility(ies) would accept two types of mercury containers: 3-liter (34.6-kilogram [76-pound]) flasks and 1-metric-ton (1.1-ton) containers. Other containers could be approved and accepted on a case-by-case basis. The 3-liter (34.6-kilogram [76-pound]) flasks would be single-, double- or triple-stacked, and the 1-metric-ton (1.1-ton) containers would be single- or double-stacked.

New Storage Facility Design and Construction

If a new mercury storage facility(ies) were built, it would be designed and constructed to provide the safe and secure long-term storage of up to 10,000 metric tons (11,000 tons) of mercury for at least 40 years. Figure 3 provides a conceptual illustration of what the exterior of a new mercury storage facility(ies) might look like, and Figure 4 provides a conceptual layout of the interior and how the mercury containers might be stored. Appendix C provides additional details and data related to the requirements for construction and operations of a new facility(ies).

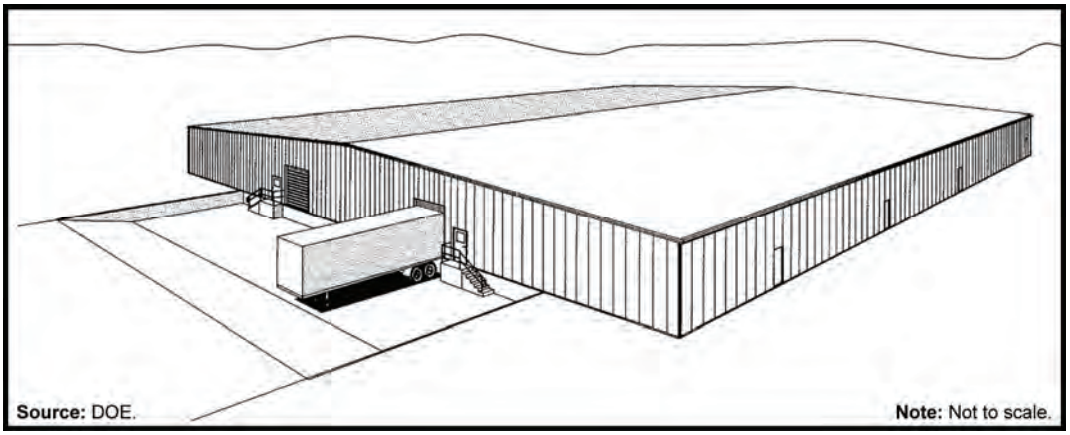


Figure 3. *Conceptual Exterior of a New Mercury Storage Facility*

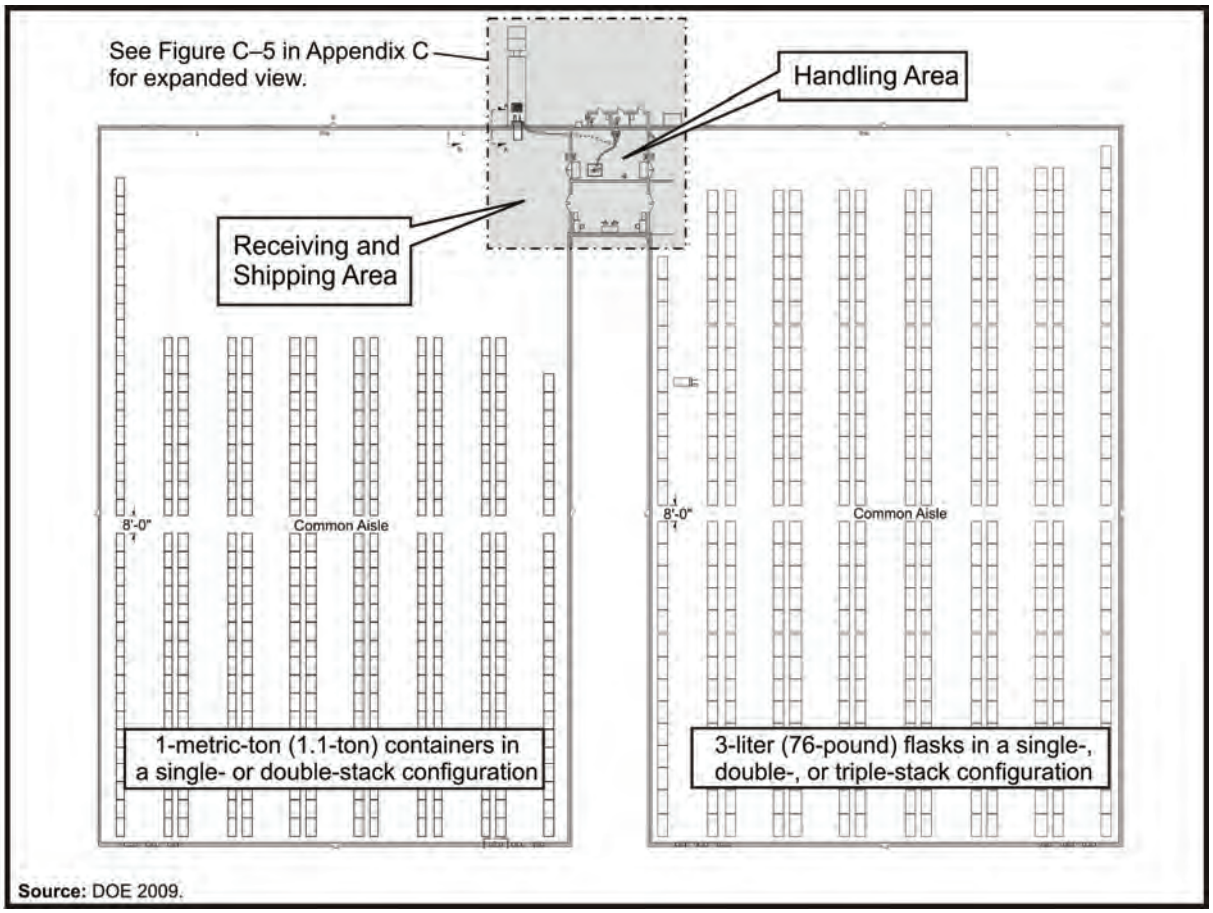


Figure 4. *Conceptual Layout of a New Mercury Storage Facility*

A new mercury storage facility(ies) could require up to approximately 13,610 square meters (146,500 square feet) of storage space. The height of the building(s) would be approximately 6.1 meters (20 feet) to accommodate the potential for triple stacks of pallets of 3-liter (34.6-kilogram [76-pound]) flasks. The new facility would have a reinforced-concrete floor, strong enough to withstand the heavy loads from mercury storage. The floors would be treated with an epoxy sealant to add strength and spill containment properties. Lighting, ventilation, fire suppression, and security systems would be incorporated into the facility design. Security systems could include security alarms and surveillance cameras. A new full size standalone facility would encompass approximately 3.1 hectares (7.6 acres). The facility would be RCRA regulated and permitted, and, as such, would require secondary containment (e.g., curbing), regular inspection of stored materials, strict record-keeping, and periodic reporting to the state.

Existing Facility Modification and Upgrades

Existing facilities were considered only if their former use is consistent with the storage of hazardous materials, thus keeping the need for modifications to a minimum. Alternative locations with existing facilities analyzed in this *Final Mercury Storage EIS* are the storage buildings at the Hawthorne Army Depot, the Radioactive Waste Management Complex at the DOE Idaho National Laboratory, and the Main Manufacturing Building at DOE's Kansas City Plant in Missouri. The Container Storage Building at the Waste Control Specialists, LLC, site was also considered for interim storage pending construction of a new facility.

Operation of a Mercury Storage Facility(ies)

Regardless of the candidate site chosen, mercury storage operations would include the following:

- **Facility Security.** The mercury storage facility(ies) would be within a fenced and secure area with controlled access to the premises. Only authorized vehicles and personnel would be allowed access within the facility boundary. Security alarms, surveillance cameras, and security guards may be used.
- **Shipping and Receiving.** Mercury containers would be inspected and prepared for storage at the originating facility prior to shipment to the DOE mercury storage facility(ies). All containers would have sufficient integrity to be transported and placed in long-term storage. Shipments of mercury would most likely be conducted by third-party transportation companies in accordance with regulations governing transportation of hazardous waste.

Loading Dock at a U.S. Department of Energy Storage Facility

- **Inspections.** Upon arrival at the mercury storage facility, concentrations of mercury vapor would be measured to verify that they are below actionable levels. A visual inspection would follow to detect obvious problems that may have occurred during transport. If initial inspections and manifest documentation are acceptable, the mercury would be moved to the Shipping and Receiving Area where additional visual inspections would be performed. The mercury would then be moved to the Handling Area for additional verification that it meets waste acceptance criteria (e.g., 99.5 percent purity). Containers and pallets that pass the acceptance/verification process would be placed into long-term storage. Containers that fail inspection would be returned to the sender.
- **Monitoring and Long-Term Storage.** Regular inspections of the mercury containers would be performed within the Storage Area(s) to ensure that no containers are corroding or leaking. These Storage Area(s) would be naturally ventilated when not occupied; however, prior to and during occupancy, they would be ventilated using high-volume industrial-sized roof- or wall-mounted vent fans. Monitoring would include testing the airspace for elevated concentrations of mercury vapors.
- **Record-Keeping.** Manifests, inspection records, training logs, and required reports would need to be completed regularly. These documents would be stored in the Office Administration Area.
- **Emergency and Small-Spill Response.** Spill response would be handled in accordance with the facility's RCRA contingency plan. The Handling Area would be used for transferring mercury from corroding or leaking containers or from containers that have failed inspection upon arrival at the facility to new containers. The likelihood of these types of occurrences is considered small.

When technicians are working with open containers in the Handling Area, the area would be negatively ventilated using a hooded duct system equipped with a sulfur filter designed to remove mercury vapors from the air. Filtered air would be vented to the outside via a small exhaust stack. Personal protective equipment, rags, and spent filters would be placed in 55-gallon (208-liter) drums, characterized, and disposed of off site at an appropriate facility.

5. COMPARISON OF IMPACTS AND ALTERNATIVES

The overall conclusion of the impact analyses in this EIS is that there would be no major differences in impacts on resource areas among the mercury storage site alternatives.

Table 3 presents a comparison of impacts on resources from the transportation, receipt, and long-term storage of mercury at the candidate mercury storage sites. Environmental consequences for all resource areas are summarized further in Chapter 2 and discussed in detail in Chapter 4.

The No Action Alternative would affect all sources of mercury and would involve various mercury storage locations, many of which are undetermined; therefore, these locations are not presented in Table 3 with the action alternatives. Excess mercury that could not be sold would be stored to the extent allowed by law. Some mercury would likely be considered waste and would be stored in accordance with law. Such storage would not necessarily occur at the sites identified as potential sources of excess mercury. This storage service might be provided by a commercial waste management company or companies. In brief, such facilities could vary in location, size, natural and human environments, and in the nature of their operations. Because of the various sites and circumstances in which mercury would be stored under the No Action Alternative, environmental consequences would be highly speculative. Non-DOE storage facilities may be constructed and some non-DOE storage sites may need to modify their storage capacity by constructing additional storage space. It could be argued that the major impact of the No Action Alternative would be widely dispersed storage. The potential benefit of Federal action would be long-term storage and management of this material as opposed to continued, dispersed storage by multiple private entities. The approximately 1,200 metric tons (1,300 tons) of DOE mercury currently stored in 35,000 of the 3-liter (34.6-kilogram [76-pound]) flasks at the Y–12 National Security Complex would continue to be managed and stored in this location. No new construction would be required at the Y–12 National Security Complex, nor would any incremental increase in impacts on resource areas occur because storage operations at the Y–12 National Security Complex would not change. A more-detailed discussion comparing the impacts of the No Action Alternative with the action alternatives can be found in Chapter 2, Section 2.7.

Major Conclusions

The impacts on the various resource areas at each site from construction and operation of a mercury storage facility(ies) would range from none to minor. The analyses in this EIS support the following conclusions:

- Impacts on **land use and visual resources** are expected to range from negligible to minor at all candidate sites.
- In the areas of **geology, soils**, **and geologic and meteorological hazards**, construction of a new storage facility would expose surface soil for up to 6 months. Although unlikely to occur over the 40-year analysis period, geologic hazards such as earthquakes could potentially have an adverse effect on a mercury storage facility(ies). However, design for construction of a new facility or

modification of existing buildings would take seismic and meteorological risks into consideration to minimize potential adverse impacts.

- Construction and/or operation of a mercury storage facility(ies) are not expected to have any impact on **surface-water or groundwater resources.** Under all alternatives, best management practices, including adherence to an integrated contingency plan and spill prevention, control, and countermeasures plan for mercury storage would be employed to prevent **spills and releases**, including the use of spill trays under mercury containers, spill containment features, and regular inspections.
- Minor, short-term (6-month) **air quality** impacts would occur under alternatives involving construction of a new storage facility(ies). Impacts would include a small increase in air pollutant emissions from activities in the immediate vicinity of the construction site during working hours.
- **Air emissions** associated with operations using existing buildings for mercury storage would be negligible and limited to employee vehicles, trucks, semiannual testing of emergency generators, and small amounts of mercury vapor from storage containers or residual contamination, where applicable. Occasionally, some mercury vapors would result from repackaging of mercury in new containers. The Handling Area would be outfitted with a vacuum air exhaust and mercury vapor filter that would maintain air emissions exhausted to the outside at negligible concentrations. Carbon dioxide is a compound associated with global climate change. The addition of carbon dioxide to the environment from constructing and/or operating a mercury storage facility(ies) at any of the candidate sites would have a negligible effect on the global climate.

Air Sampling at a U.S. Department of Energy Site

- **Engine exhaust emissions from transporting mercury** would be in proportion to the number of miles required to transport the mercury to the storage facility(ies). Truck and/or rail transport from various locations to the DOE long-term mercury storage facility(ies) would generate engine exhaust air emissions along routes of transport. Peak exhaust emissions from transport of mercury are expected to occur in 2013, the first year of facility(ies) operation. The frequency of truck and/or rail shipments is expected to decrease over time.
- **Noise** levels would not increase substantially above background levels at any of the candidate sites.
- There would be negligible impacts on **ecological resources** at candidate sites whether a new facility(ies) is built or existing buildings are used.
- No impacts on **cultural and paleontological resources** are expected under site alternatives involving the use of existing buildings because no new construction or external modifications of the buildings would be required. New facility construction would result in negligible impacts on

cultural resources because it would occur in previously disturbed industrialized areas, except at the DOE Grand Junction Site in Colorado, where additional analysis is needed.

- Adverse impacts on a potential site's **infrastructure** could occur if available capacity is approached or exceeded. Infrastructure includes roads and railways, electricity, fuel, and water supplies. Existing utility infrastructure is adequate and could easily accommodate utility demands for facility construction and operations at all candidate sites except at the DOE Grand Junction Disposal Site in Colorado.
- Impacts on the site's **waste management infrastructure** of construction and operation of a mercury storage facility(ies) would be negligible under all alternatives.
- **Impacts on human health during normal operations** at the mercury storage facility(ies) were determined to be negligible for workers and the public under all alternatives evaluated with negligible associated risks. Risks were determined using the risk matrix approach, which defines levels of risk in terms of frequency of release and severity of consequence (see Figure 5). DOE, EPA, and other Government agencies use this approach. Events have a high (level IV) frequency if they occur once in 100 years or more frequently; moderate (level III) between once in 10,000 years and once in 100 years; low (level II) between once in 1 million years and once in 10,000 years; and negligible (level I) less than once in 1 million years. Consequence severity levels depend on the receptor (human or ecological) and the pathway (e.g., inhalation or ingestion). For example, for acute (up to about 8-hour) inhalation exposures, severity level IV corresponds to the possibility of fatality; severity level III to severe, nonlethal health effects; severity level II to reversible health effects; and severity level I to negligible health effects or minor irritation. Risks are considered negligible if either frequency or severity is at level I. Frequency levels and severity levels are discussed in more detail in Chapter 4, Section 4.2.9.1.1, and Appendix D, Section D.1.1.
- **Human health impacts from facility accidents** would range from severity level I to level II with an associated negligible-to-low risk for both involved and noninvolved workers and negligible risk to members of the public at all candidate sites evaluated.
- **Transportation impacts** under all alternatives would be dependent on the method of transportation (i.e., truck or rail), the number of miles traveled, and the nature of the potential accident. For truck travel, the projected frequency of fatalities due to mechanical impact would range from 7.8×10^{-4} to 1.2×10^{-3} per year for the action alternatives. For rail travel, the range would be slightly lower from 1.0×10^{-4} to 1.9×10^{-4} fatalities per year. In addition to the possibility of fatal accidents due to mechanical impact, exposure to mercury from spills could impact human health. For truck or rail spills

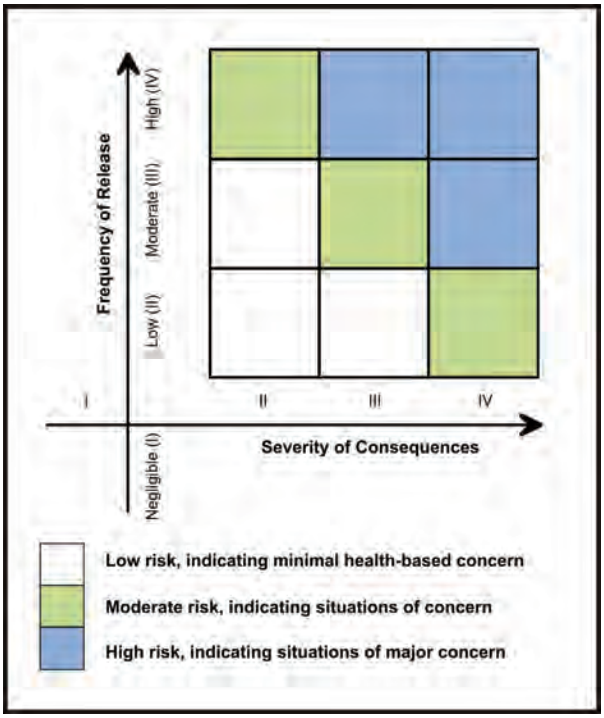


Figure 5. *Risk Ranking Matrix*

directly onto the ground, the consequences could range from severity level I to IV with negligible risk. For truck or rail spills directly into water bodies, the consequences could be as high as severity level II with negligible-to-low risk (but with a large degree of uncertainty). For truck and rail spills with fire resulting in airborne mercury vapors, the consequences from the inhalation pathway could be severity level II with low risk or as high as severity level III with negligible risk. For truck or rail spills with fire, the consequences from deposition of airborne mercury onto soil could be severity level I with an associated negligible risk. For truck or rail spills with fire, the consequences from deposition of airborne mercury into water bodies, the transformation of mercury into methylmercury and bioaccumulation in fish, followed by the subsequent consumption of fish, could be severity level I to II with an associated negligible-to-low risk. Transportation impacts considered Truck Scenarios 1 or 2. Scenario 1 assumes fully loaded truck shipments, whereas Scenario 2 assumes a portion of mercury shipments would be on partially loaded trucks. Truck Scenarios 1 and 2 are defined in more detail in Appendix D, Section D.2.7.

- **Socioeconomic impacts** would be negligible to minor on overall employment and population trends under all alternatives.
- The minimal increase in the number of vehicle trips projected for construction and operations of a mercury storage facility(ies) over baseline **traffic** would be negligible for all alternative sites.
- Census data indicate that minority and/or low-income populations are present within the 16-kilometer (10-mile) region of influence (ROI) at the DOE Kansas City Plant, the DOE Savannah River Site, and the Waste Control Specialists, LLC, site. Within a smaller 3.2-kilometer (2-mile) radius, there are minority and low-income populations at the DOE Kansas City Plant. However, **environmental justice** analyses for this EIS indicate that no disproportionately high and adverse effects on minority or low-income populations would be expected at any of the candidate sites due to construction or operations of a mercury storage facility. At the DOE Kansas City Plant, DOE Savannah River Site, and Waste Control Specialists, LLC, site, minority and/or low-income populations are adjacent to or near potential transportation arteries. However, transportation accidents are predicted to pose a negligible-to-low risk to human health.

Table 3. Comparison of Impacts

Key Resource Areas	*Mercury Storage in Existing Buildings*		
	Idaho National Laboratory – RWMC	***Hawthorne Army Depot***	***DOE Kansas City Plant***
Land use and visual resources	No additional land use or visual resource impacts.		
Geology and soils	None	Utility connections may require minor trenching.	None
Earthquake risk	Risk of slight damage to ordinary buildings.	Risk of considerable damage to ordinary buildings.	Negligible risk of damage.
Water resources	Negligible water use for modifications and operations compared with availability. No impact on water resources from construction or normal operations; located above sole-source aquifer; negligible risk from flooding.	Negligible water use for modifications and operations compared with availability. No impact on water resources from construction or normal operations; negligible risk from flooding.	Negligible water use for modifications and operations compared with availability. No direct impact on water resources from construction or normal operations, but close proximity to surface-water bodies; existing system protects site from riverine flooding but must be manually operated.
Air quality	Negligible increase in air emissions from modification of existing buildings. Emissions from operations would be limited to employee vehicles, trucks, periodic generator testing and venting of residual mercury vapors. Operational emissions would not exceed air quality standards. Transport of mercury would result in negligible emissions of criteria and toxic pollutants. Contribution of carbon dioxide to the environment would have a negligible effect on global climate.		
Site infrastructure	Negligible impact; existing site capacity would easily meet increased utility demands.		
Occupational and public health and safety			
Normal operations[a]	SL-I consequences and negligible risk to involved workers, noninvolved workers, and members of the public.		
Facility accidents[a]	Consequences range from SL-I to SL-II with negligible-to-low risk to involved and noninvolved workers from spills. Consequences of SL-I with negligible risk to public receptors from spills.		

Key: DOE = U.S. Department of Energy; INTEC = Idaho Nuclear Technology and Engineering Center; RWMC = Radioactive Waste Management Complex; SL = severity level.

Note: = Mercury Storage in Existing Buildings, = Mercury Storage in New Buildings

Table 3. Comparison of Impacts *(continued)*

<table>
<tr><th colspan="5">Mercury Storage in New Buildings</th></tr>
<tr><th>DOE Grand Junction Disposal Site</th><th>DOE Hanford Site 200-West Area</th><th>DOE Savannah River Site E Area</th><th>Waste Control Specialists, LLC, Site</th><th>DOE Idaho National Laboratory – INTEC</th></tr>
<tr><td colspan="5">Land use of 3.1 hectares (7.6 acres) and visual impacts on landscape would be minimal compared with total available site area. (Note: For Grand Junction Disposal Site only: 1996 Memorandum of Understanding possible restriction on land use and current zoning – under evaluation).</td></tr>
<tr><td colspan="5">Minor trenching for concrete footers and utility connections. Small inconsequential consumption of geologic resources. Soil disturbance and increased risk of soil erosion for up to 6 months during construction activities.</td></tr>
<tr><td>Risk of slight damage to ordinary buildings.</td><td colspan="2">Risk of slight-to-moderate damage to ordinary buildings.</td><td colspan="2">Risk of slight damage to ordinary buildings.</td></tr>
<tr><td colspan="4">Negligible water use for construction and operations compared with availability. No impact on water resources from construction or normal operations; negligible risk from flooding.</td><td>Negligible water use for construction and operations compared with availability. No impact on water resources from construction or normal operations; located above sole-source aquifer; minor risk from riverine flooding.</td></tr>
<tr><td colspan="5">Short-term increase in air pollutant emissions from construction activities, including use of heavy equipment and trucks. Emissions from operations would be limited to employee vehicles, trucks, periodic generator testing and venting of residual mercury vapors. Operational emissions would not exceed air quality standards. Transport of mercury would result in negligible emissions of criteria and toxic pollutants. Contribution of carbon dioxide to the environment would have a negligible effect on global climate.</td></tr>
<tr><td>Moderate impact; electrical capacity would have to be increased. No public water supply. No rail access.</td><td colspan="4">Negligible impact; existing site capacity would meet increased demands.</td></tr>
<tr><td colspan="5"></td></tr>
<tr><td colspan="5">SL-I consequences and negligible risk to involved workers, noninvolved workers, and members of the public at all sites.</td></tr>
<tr><td colspan="5">Consequences range from SL-I to SL-II with negligible-to-low risk to involved and noninvolved workers from spills. Consequences of SL-I with negligible risk to public receptors from spills.</td></tr>
</table>

[a] Consequences are presented by SLs, with SL-I representing negligible-to-very-low consequences and SL-IV representing the most severe consequences. SLs are defined on page 20 of this *Summary and Guide for Stakeholders.* Truck Scenario 1 (fully loaded) and Truck Scenario 2 (partially loaded) are defined on page 21 of this *Summary and Guide for Stakeholders*.

[b] Annual fatalities for truck or rail transportation are due to mechanical impacts only and represent the predicted annual average occurrence of an accident involving a fatality over the 40-year analysis period of this environmental impact statement. All values are less than 1 predicted fatality per year (i.e., 1×10^{0}); for example 1.5×10^{-4} equals 0.00015 fatalities per year, or 15 fatalities every 10,000 years.

[c] Potential transportation routes are adjacent to or near identified minority and/or low-income populations at the DOE Kansas City Plant, DOE Savannah River Site, and the Waste Control Specialists, LLC, site; transportation accidents are predicted to pose a negligible-to-low risk to human health.

Table 3. Comparison of Impacts *(continued)*

Key Resource Areas	*Mercury Storage in Existing Buildings*		
	Idaho National Laboratory – RWMC	***Hawthorne Army Depot***	***DOE Kansas City Plant***
Transportation			
Annual truck accident fatalities[b]	9.2×10^{-4}	1.1×10^{-3}	7.8×10^{-4}
Truck accident – human health[a]	For spills of mercury directly onto the ground, consequences could be SL-I to SL-IV with a negligible risk under both Truck Scenarios. SL-III and SL-IV would only be encountered at very short distances (less than 100 meters [330 feet]). For spills of mercury directly into water bodies, the consequences could be SL-I or SL-II with a negligible-to-low risk (but with a large degree of uncertainty). For truck accidents with fires resulting in airborne mercury vapors, acute-inhalation consequences could be SL-I to SL-III with low risk under both Truck Scenarios. The consequences following deposition of airborne mercury onto the ground could be SL-I with a negligible risk. For deposition of airborne mercury into water bodies followed by transformation of mercury into methylmercury and bioaccumulation in fish, the risk would be negligible for a person consuming fish at the national average rate or at the average and 95th percentile subsistence fisherman rate. In a severe case, there is the potential for contaminating water bodies above the SL-I/SL-II threshold for the 95th percentile subsistence fisherman up to approximately 7,000 meters (23,000 feet) downwind, but still with negligible risk.		
Annual rail accident fatalities[b]	1.5×10^{-4}	1.6×10^{-4}	1.0×10^{-4}
Rail accident – human health[a]	For spills of mercury directly onto the ground, consequences could be SL-I to SL-IV with a negligible risk. SL-III and SL-IV would only be encountered at very short distances (less than 100 meters [330 feet]). For spills of mercury directly into water bodies, the consequences could be SL-I or SL-II with a negligible-to-low risk (but with a large degree of uncertainty). For rail accidents with fires resulting in airborne mercury vapors, acute-inhalation consequences could be SL-I to SL-III with low risk. The consequences following deposition of airborne mercury on the ground could be SL-I with a negligible risk. For deposition of airborne mercury into water bodies followed by transformation of mercury into methylmercury and bioaccumulation in fish, the risk would be negligible for a person consuming fish at the national average rate or at the average and 95th percentile subsistence fisherman rate, with the exception of the dry deposition case, in which there is a low predicted frequency of exposures above SL-I/SL-II to the 95th percentile subsistence fisherman. In a severe case, there is the potential for contaminating water bodies above the SL-I/SL-II threshold for the 95th percentile subsistence fisherman up to approximately 10 kilometers (6 miles) downwind.		
Ecological impacts[a]	For truck or railcar spills with a fire, consequences could range from SL-I to SL-IV for both dry and wet deposition pathways, with wet deposition having somewhat greater consequences. The risk to ecological receptors would range from negligible to moderate except in the case of wet deposition with rail transport, for which the risk would be negligible to all receptors. The highest ecological risk (moderate) would be to sediment-dwelling biota for truck transportation accidents with fires and dry deposition. In contrast, risk to aquatic biota, short-tailed shrew, great blue heron, and red-tailed hawk would be negligible in all scenarios.		
Population			
Residential population within 16-kilometer (10-mile) radius	255 (12% minority) (25% low-income)	3,561 (20% minority) (10% low-income)	700,041 (31% minority) (10% low-income)
Residential population within 3.2-kilometer (2-mile) radius	0	0	28,184 (42% minority) (11% low-income)
Environmental justice	None	None	No disproportionately high and adverse impacts.[c]

Key: DOE = U.S. Department of Energy; INTEC = Idaho Nuclear Technology and Engineering Center; RWMC = Radioactive Waste Management Complex; SL = severity level.

Note: = Mercury Storage in Existing Buildings, = Mercury Storage in New Buildings.

Table 3. Comparison of Impacts *(continued)*

Mercury Storage in New Buildings				
DOE Grand Junction Disposal Site	***DOE Hanford Site 200-West Area***	***DOE Savannah River Site E Area***	***Waste Control Specialists, LLC, Site***	***DOE Idaho National Laboratory – INTEC***
8.7×10^{-4}	1.2×10^{-3}	9.4×10^{-4}	1.0×10^{-3}	9.2×10^{-4}
For spills of mercury directly onto the ground, consequences could be SL-I to SL-IV with a negligible risk under both Truck Scenarios. SL-III and SL-IV would only be encountered at very short distances (less than 100 meters [330 feet]). For spills of mercury directly into water bodies, the consequences could be SL-I or SL-II with a negligible-to-low risk (but with a large degree of uncertainty). For truck accidents with fires resulting in airborne mercury vapors, acute-inhalation consequences could be SL-I to SL-III with low risk under both Truck Scenarios. The consequences following deposition of airborne mercury onto the ground could be SL-I with a negligible risk. For deposition of airborne mercury into water bodies followed by transformation of mercury into methylmercury and bioaccumulation in fish, the risk would be negligible for a person consuming fish at the national average rate or at the average and 95th percentile subsistence fisherman rate. In a severe case, there is the potential for contaminating water bodies above the SL-I/SL-II threshold for the 95th percentile subsistence fisherman up to approximately 7,000 meters (23,000 feet) downwind, but still with negligible risk.				
1.3×10^{-4}	1.9×10^{-4}	1.2×10^{-4}	1.6×10^{-4}	1.5×10^{-4}
For spills of mercury directly onto the ground, consequences could be SL-I to SL-IV with a negligible risk. SL-III and SL-IV would only be encountered at very short distances (less than 100 meters [330 feet]). For spills of mercury directly into water bodies, the consequences could be SL-I or SL-II with a negligible-to-low risk (but with a large degree of uncertainty). For rail accidents with fires resulting in airborne mercury vapors, acute-inhalation consequences could be SL-I to SL-III with low risk. The consequences following deposition of airborne mercury on the ground could be SL-I with a negligible risk. For deposition of airborne mercury into water bodies followed by transformation of mercury into methylmercury and bioaccumulation in fish, the risk would be negligible for a person consuming fish at the national average rate or at the average and 95th percentile subsistence fisherman rate, with the exception of the dry deposition case, in which there is a low predicted frequency of exposures above SL-I/SL-II to the 95th percentile subsistence fisherman. In a severe case, there is the potential for contaminating water bodies above the SL-I/SL-II threshold for the 95th percentile subsistence fisherman up to approximately 10 kilometers (6 miles) downwind.				
For truck or railcar spills with a fire, consequences could range from SL-I to SL-IV for both dry and wet deposition pathways, with wet deposition having somewhat greater consequences. The risk to ecological receptors would range from negligible to moderate except in the case of wet deposition with rail transport, for which the risk would be negligible to all receptors. The highest ecological risk (moderate) would be to sediment-dwelling biota for truck transportation accidents with fires and dry deposition. In contrast, risk to aquatic biota, short-tailed shrew, great blue heron, and red-tailed hawk would be negligible in all scenarios.				
2,119 (15% minority) (11% low-income)	0	8,178 (36% minority) (17% low-income)	2,900 (40% minority) (17% low-income)	201 (13% minority) (19% low-income)
138 (13% minority) (12% low-income)	0	0	20 (27% minority) (6% low-income)	0
None	None	No disproportionately high and adverse impacts.[c]	No disproportionately high and adverse impacts.[c]	None

[a] Consequences are presented by SLs, with SL-I representing negligible-to-very-low consequences and SL-IV representing the most severe consequences. SLs are defined on page 20 of this *Summary and Guide for Stakeholders.* Truck Scenario 1 (fully loaded) and Truck Scenario 2 (partially loaded) are defined on page 21 of this *Summary and Guide for Stakeholders*.

[b] Annual fatalities for truck or rail transportation are due to mechanical impacts only and represent the predicted annual average occurrence of an accident involving a fatality over the 40-year analysis period of this environmental impact statement. All values are less than 1 predicted fatality per year (i.e., 1×10^{0}); for example, 1.5×10^{-4} equals 0.00015 fatalities per year, or 15 fatalities every 10,000 years.

[c] Potential transportation routes are adjacent to or near identified minority and/or low-income populations at the DOE Kansas City Plant, DOE Savannah River Site, and the Waste Control Specialists, LLC, site; transportation accidents are predicted to pose a negligible-to-low risk to human health.

Cumulative Impacts

Cumulative impacts are those impacts on the environment that would result from the proposed action when added to other past, present, and reasonably foreseeable future actions. Actions that may contribute to cumulative impacts include onsite and offsite projects conducted by government agencies, businesses, or individuals within an ROI of 16 kilometers (10 miles) of the actions considered.

Projected impacts on the various resource areas of constructing and operating a mercury storage facility range from none, to negligible, to minor. Those resource areas that were predicted to be impacted in a minor way were evaluated for their potential to contribute to cumulative impacts within the ROI. Where impacts were predicted not to occur or were negligible, cumulative impacts were not analyzed since there would be either no or only a very small incremental increase in impacts on the resources within the ROI. Regardless of the projected level of impact, land disturbance associated with new construction and air quality impacts resulting from mercury emissions were evaluated for their potential to contribute to cumulative impacts within the ROI. Based on the criteria noted above, the analysis included an evaluation of air quality for all sites; land use for the DOE Grand Junction Disposal Site, DOE Hanford Site, DOE Idaho National Laboratory, DOE Savannah River Site, and Waste Control Specialists, LLC, site; visual resources for the Grand Junction Disposal Site and Waste Control Specialists, LLC, site; infrastructure for the Grand Junction Disposal Site; and ecological resources for the Waste Control Specialists, LLC, site. As presented in Table 4, it was determined that the potential contribution to cumulative impacts on those resource areas evaluated would be negligible.

The Preferred Alternative

The Preferred Alternative in an EIS is the alternative that the agency believes would best fulfill its statutory mission and responsibilities, giving consideration to economic, environmental, technical, and other factors.

Does DOE Prefer Any of the Candidate Sites and Why?

DOE prefers the Waste Control Specialists, LLC, site near Andrews, Texas, for the long-term management and storage of U.S. mercury, based on the following factors:

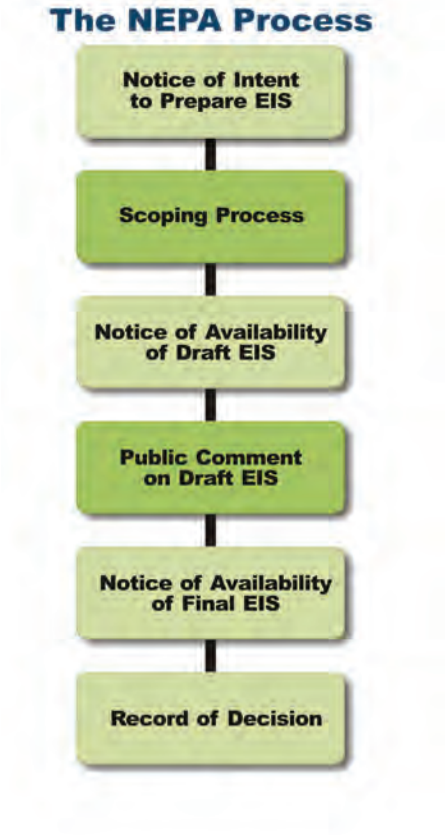
- Compatibility with existing waste or hazardous materials management activities, land use plans, and regulatory agreements
- Remote location
- Low population density in surrounding area
- Distance from major bodies of surface water
- Potential to receive mercury shipments via truck and/or rail
- Environmental impacts similar to those at other candidate sites

Table 4. Summary of Cumulative Impacts Assessment

Alternative	*Resource Area*	*Cumulative Impacts*	*Contribution of Proposed Action to Cumulative Impacts*
U.S. Department of Energy (DOE) Grand Junction Disposal Site	Land use	Rural area; limited development expected within the region of influence (ROI). Delta County solid waste landfill planned that will occupy 45 hectares (110 acres). No substantial cumulative impacts on land use or visual resources.	Negligible
	Visual resources		Negligible
	Air quality	No exceedance of air quality standards.	Negligible
	Infrastructure	No substantial cumulative impacts on regional power consumption.	Negligible
DOE Hanford Site (Hanford), 200-West Area	Land use	Numerous projects could disturb up to 1,100 hectares (2,720 acres) across Hanford. Most development is or would be within areas designated as Industrial and Industrial-Exclusive. Potential for minor cumulative impacts.	Negligible
	Air quality	No exceedance of air quality standards except potential impacts from carbon monoxide and particulate emissions from Hanford tank closure and waste management activities.	Negligible
Hawthorne Army Depot	Air quality	No exceedance of air quality standards.	Negligible
DOE Idaho National Laboratory (INL), Idaho Nuclear Technology and Engineering Center	Land use	Limited development expected within the ROI. Development would take place within the Central Core Area of INL. No substantial cumulative impacts within ROI.	Negligible
	Air quality	No exceedance of air quality standards.	Negligible
DOE Idaho National Laboratory, Radioactive Waste Management Complex	Air quality	No exceedance of air quality standards.	Negligible
DOE Kansas City Plant	Air quality	No exceedance of air quality standards.	Negligible
DOE Savannah River Site (SRS), E Area	Land use	Several onsite projects within ROI. Development is, or would be, within the Industrial Core Management Area. The major offsite project within the ROI is expansion of the Vogtle Electric Generating Plant. No substantial cumulative impacts.	Negligible
	Air quality	No exceedance of air quality standards, although the existing SRS contribution to 24-hour particulate matter concentrations approach the standard.	Negligible
Waste Control Specialists, LLC, site	Land use	Rural area; numerous projects within ROI along the Highway 176 corridor. Substantial recent local changes to land use and visual resources.	Negligible
	Visual resources		Negligible
	Air quality	No exceedance of air quality standards.	Negligible
	Ecological resources	Numerous projects within ROI along the Highway 176 corridor. Substantial recent local loss of low desert grassland and rangeland habitat.	Negligible

6. PUBLIC INVOLVEMENT

DOE is committed to communicating with the public to help ensure that potentially affected communities and other interested parties understand DOE's proposed actions and are given opportunities to participate in decisions that may affect them. Public involvement for this *Final Mercury Storage EIS* began with publication of the Notice of Intent in the *Federal Register* (74 FR 31723) on July 2, 2009, and establishment of a *Final Mercury Storage EIS* website (www.mercurystorageeis.com) to give the public access to information on the NEPA process, this EIS, and public involvement opportunities. Paid advertisements were published in local newspapers to announce the dates and locations of public meetings and hearings and the mechanisms for submitting comments through the website, by toll-free fax (1-877-274-5462), and by U.S. mail.



Public Scoping Meetings

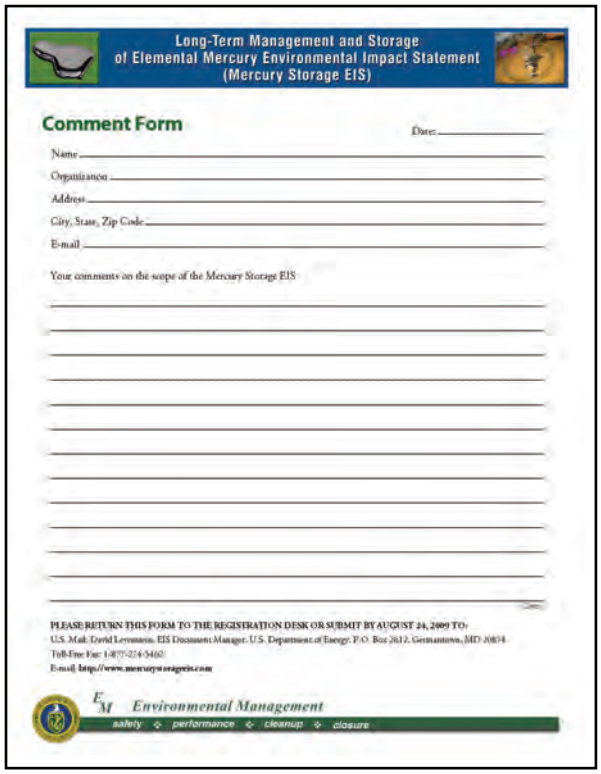
Approximately 300 people attended public scoping meetings for this EIS at which DOE provided information on the Mercury Export Ban Act of 2008 and the scope of this EIS. The scoping period extended from July 2, 2009, to August 24, 2009. During this time, DOE solicited comments from stakeholders, including Federal, state, and local agencies; American Indian tribal representatives; and the general public to assist in defining the proposed action, alternatives, and issues requiring analysis. Public scoping meetings were held on the following dates in locations near the parenthetically listed candidate mercury storage sites:

- July 21, 2009 – Grand Junction, Colorado [DOE Grand Junction Disposal Site]
- July 23, 2009 – Kansas City, Missouri [DOE Kansas City Plant]
- July 28, 2009 – Richland, Washington [DOE Hanford Site]
- July 30, 2009 – North Augusta, South Carolina [DOE Savannah River Site]
- August 4, 2009 – Hawthorne, Nevada [Hawthorne Army Depot]
- August 6, 2009 – Andrews, Texas [Waste Control Specialists, LLC, site]
- August 11, 2009 – Idaho Falls, Idaho [DOE Idaho National Laboratory]
- August 13, 2009 – Portland, Oregon [DOE Hanford Site]

Public Comments on the Scope of This EIS

DOE received 507 comment documents (emails, faxes, letters, and transcripts of oral comments) containing 1,244 individual comments during the scoping period. DOE considered all oral and written public comments in refining the scope of this EIS.

Comments received during the public scoping period focused primarily on the amount and sources of U.S. mercury; the process for identifying potential mercury storage facility locations; the mercury storage site alternatives; storage protocols; transportation issues; health and safety concerns, including accidents; potential environmental impacts; socioeconomics, including environmental justice concerns; American Indian issues; regulatory compliance concerns; public meeting notifications; and costs. Comments are presented in more detail along with DOE responses in Appendix I.


Long-Term Management and Storage
of Elemental Mercury Environmental Impact Statement
(Mercury Storage EIS)

Comment Form

Date:

Name

Organization

Address

City, State, Zip Code

E-mail

Your comments on the scope of the Mercury Storage EIS

PLEASE RETURN THIS FORM TO THE REGISTRATION DESK OR SUBMIT BY AUGUST 24, 2009 TO:
U.S. Mail: David Levenstein, EIS Document Manager, U.S. Department of Energy, P.O. Box 2612, Germantown, MD 20874
Toll-Free Fax: 1-877-274-5402
E-mail: http://www.mercurystorageeis.com

EM Environmental Management
safety ◆ performance ◆ cleanup ◆ closure

Public Hearings on the *Draft Mercury Storage EIS*

DOE released the *Draft Mercury Storage EIS* in January 2010 (75 FR 4801) for review and comment by other Federal agencies, states, sovereign nations (i.e., American Indian tribal governments), local governments, and the public. DOE distributed copies to those organizations and government officials who were known to have an interest in the EIS, as well as to those organizations and individuals who requested a copy. Copies were also made available on the Internet and in regional DOE public document reading rooms and public libraries near the candidate locations.

The formal public comment period was 60 days (longer than the required minimum of 45 days), from January 29, 2010, through March 30, 2010. As announced in the DOE Notice of Availability of the *Draft Mercury Storage EIS* (75 FR 4801), public hearings were held to encourage public comments on the *Draft Mercury Storage EIS* and to provide members of the public with information about the NEPA process and the proposed action. Public hearings were held on the following dates in locations near the parenthetically listed candidate mercury storage sites:

- February 23, 2010 – Grand Junction, Colorado [DOE Grand Junction Disposal Site]
- February 23, 2010 – Hawthorne, Nevada [Hawthorne Army Depot]
- February 25, 2010 – Idaho Falls, Idaho [DOE Idaho National Laboratory]
- March 2, 2010 – Kansas City, Missouri [DOE Kansas City Plant]
- March 2, 2010 – Portland, Oregon [DOE Hanford Site]
- March 3, 2010 – Richland, Washington [DOE Hanford Site]
- March 4, 2010 – North Augusta, South Carolina [DOE Savannah River Site]
- March 8, 2010 – Eunice, New Mexico [Waste Control Specialists, LLC, site]
- March 9, 2010 – Andrews, Texas [Waste Control Specialists, LLC, site]

In addition to comments received during the public hearing process, the public was invited to submit comments on the *Draft Mercury Storage EIS* to DOE via (1) the EIS website (http://www.mercurystorageeis.com), (2) a toll-free fax line, and (3) the U.S. mail.

Public Comments on the *Draft Mercury Storage EIS*

DOE received 169 comment documents, containing approximately 1,200 comments. DOE considered all comments to determine whether corrections, clarifications, or other revisions were required before publishing this final EIS. All comments were considered equally, whether written, spoken, faxed, mailed, or submitted electronically.

Several topics identified in the public comments on the *Draft Mercury Storage EIS* are of broad interest or concern. These issues of concern, and DOE responses, are summarized in this section. A more-detailed discussion of these issues, comment documents, and responses to comments are included in the comment response document.

- **Could the amount of mercury requiring storage exceed 10,000 metric tons (11,000 tons) or could storage be necessary for more than 40 years?** As described in Chapter 2, Section 2.1, of this *Final Mercury Storage EIS*, the Mercury Export Ban Act of 2008 does not specify how long the DOE mercury storage facility(ies) would need to be operated. For purposes of analysis, DOE assumes the operation of a mercury storage facility(ies) with a capacity of 10,000 metric tons (11,000 tons) over a 40-year period of analysis. It is possible that more or less than this amount of mercury could eventually require storage for a period longer or shorter than 40 years. In the event that more than 10,000 metric tons (11,000 tons) of mercury need to be stored or storage beyond the 40-year period of analysis becomes necessary, additional NEPA documentation would be required.
- **Could DOE expand storage to another facility in the future?** As noted above, any storage scenario other than those evaluated in this *Final Mercury Storage EIS* would require additional NEPA documentation.
- **DOE should consider impacts of the Waste Control Specialists, LLC, site alternative across the state line in Eunice, New Mexico, and involve the citizens of Eunice in the NEPA process.** Chapter 3, Section 3.8, and Chapter 4, Section 4.9, of this *Final Mercury Storage EIS*, describe the affected environment and environmental impacts associated with constructing and operating a mercury storage facility at the Waste Control Specialists, LLC, site, including impacts across the state line in New Mexico. DOE is committed to communicating with the public and involving stakeholders in the decisionmaking process to ensure that potentially affected communities, including Eunice, understand the proposed action and are given opportunities to participate. DOE conducted a vigorous outreach program to inform the public and solicit input, including holding a public hearing in Eunice, New Mexico.
- **Has DOE already made the decision to locate the facility at the Waste Control Specialists, LLC, site near Andrews, Texas?** DOE has identified the Waste Control Specialists, LLC, site, as the Preferred Alternative in this *Final Mercury Storage EIS*. Although a Preferred Alternative has been identified, as discussed in Section 5 of this *Summary and Guide for Stakeholders* and Chapter 2, Section 2.5, DOE has not made a decision. DOE will make a decision no sooner than 30 days after publication of the EPA Notice of Availability for this final EIS in the *Federal Register*. The selection of a site will be announced in a Record of Decision published in the *Federal Register*. As explained in Chapter 1, Section 1.4, DOE will consider the information presented in this EIS and other factors, including cost, schedule, strategic objectives, and public comments, when making any long-term mercury management and storage decisions.

- **Might DOE select a location other than the Waste Control Specialists, LLC, site in the Record of Decision?** Yes, DOE could select any of the other reasonable alternatives analyzed in this EIS. If a candidate site analyzed in this EIS other than the Waste Control Specialists, LLC, site is selected for long-term management and storage of mercury, DOE believes that this *Final Mercury Storage EIS* fulfills NEPA requirements and that DOE, therefore, would not need to issue a new or revised EIS. DOE believes that any of the candidate sites considered would be suitable for the long-term storage of elemental mercury. Impacts were found to be none to minor at all sites.
- **Could the mercury storage facility(ies) accept other mercury-containing wastes?** In accordance with the Mercury Export Ban Act of 2008, this *Final Mercury Storage EIS* analyzes the long-term management and storage of elemental mercury. Storage of other mercury-containing wastes would require additional NEPA documentation.
- **DOE should consider mercury treatment and disposal options.** As described in Chapter 1, Section 1.3.1, and Chapter 2, Section 2.6.2, of this *Final Mercury Storage EIS*, there currently is no EPA-approved method of treating high-purity elemental mercury for disposal, and it is not known when such a treatment method might become available. Therefore, when the mercury export ban takes effect on January 1, 2013, storage will be the only option for discarded high-purity elemental mercury. A final disposal pathway for high-purity elemental mercury waste is not available, nor would it be reasonable to speculate what kind of technology would be approved for treatment of high-purity elemental mercury wastes. Therefore, DOE did not consider treatment options for detailed evaluation in this *Final Mercury Storage EIS*.
- **Would constructing and operating a long-term mercury storage facility interfere with ongoing cleanup efforts at DOE sites?** Neither construction nor operation of the proposed mercury storage facility is anticipated to impact resources (e.g., funding, labor, facilities, and equipment) associated with current and/or future site environmental restoration efforts.
- **Would existing land use plans and agreements prohibit the selection of some candidate sites?** As noted in Chapter 2, Section 2.7.1.1, of this *Final Mercury Storage EIS*, no impacts on land use are expected under action alternatives involving the use of existing buildings because no new construction or substantial external modifications to the buildings would be required. Regarding Kansas City Plant, DOE recognizes that although no applicable land use plans, policies, or controls have been identified that would specifically restrict storage of elemental mercury, such storage might not be considered compatible with proposed redevelopment of the site, adjacent residential zoning, or the proximity of sensitive populations within 0.8 kilometers (0.5 miles) of the site (see Chapter 4, Section 4.7.1, of this *Final Mercury Storage EIS*).

  At the Hanford Site, Idaho National Laboratory (at the Idaho Nuclear Technology and Engineering Center), the Savannah River Site, and the Waste Control Specialists, LLC, site, the land required to construct a new facility would be negligible compared with the relative size of the candidate site. At Grand Junction Disposal Site, the current land use is Agricultural Forestry Transitional; thus, an amendment to the land use code would be required to construct the mercury storage facility.

  As stated in Section 3 and Chapter 1, Section 1.9.1, of this *Final Mercury Storage EIS*, DOE and Mesa County entered into the 1996 MOU to provide meaningful consultation with and participation of the county in DOE's use of Grand Junction Disposal Site. The position of Mesa County, a cooperating agency for the purposes of this EIS, is that use of Grand Junction

Disposal Site is restricted per the 1996 MOU and that the MOU governs any proposed mercury storage at Grand Junction Disposal Site. Mesa County believes the agreement is clear and that Grand Junction Disposal Site is only to be used for uranium mill tailings, almost exclusively of local origin. DOE acknowledges that the 1996 MOU stipulates that DOE must consult with Mesa County regarding decisions related to operations at the site. DOE will evaluate the applicability of the 1996 MOU to the long-term management and storage of elemental mercury at the Grand Junction Disposal Site to determine whether the 1996 MOU would affect the viability of the selection of this site as the location for a mercury storage facility.

- **The No Action Alternative (e.g., continued storage at the Y–12 National Security Complex and other points of generation) should receive serious consideration in the *Mercury Storage EIS*.** DOE has given consideration to the No Action Alternative discussed in Chapter 2, Section 2.4.1, and Chapter 4, Section 4.2, as required by the Council on Environmental Quality's and DOE's regulations for implementing NEPA. However, Section 5 of the Mercury Export Ban Act of 2008 requires DOE to designate a facility or facilities for the long-term management and storage of elementary mercury generated within the Unites States. DOE believes it is speculative to surmise what existing facilities and generators would do with their mercury once the mercury export ban goes into effect, assuming that no DOE facility(ies) exists to accept excess elemental mercury. Therefore, further analysis of the various parameters and options under which mercury could be stored, consolidated, transferred, and shipped in the absence of a DOE facility under the No Action Alternative is not possible.
- **A multiple-site alternative, with storage sites located closer to the sources of mercury generation, should be considered.** As described in Chapter 2, Section 2.6.1, of this *Final Mercury Storage EIS*, DOE considered the possibility of using a "hybrid" or multiple-site strategy composed of candidate sites being evaluated in this *Final Mercury Storage EIS*. DOE eliminated such a strategy from further evaluation because the duplicative resources that would be required would not be cost-effective.
- **How would Waste Control Specialists, LLC, a private enterprise, or the Hawthorne Army Depot, a U.S. Department of Defense facility, qualify as a "DOE facility" as specified in the Act?** DOE has interpreted Section 5 of the Mercury Export Ban Act of 2008 to authorize DOE to designate an existing and/or new storage facility (or facilities) for mercury storage at property owned or leased by DOE (see Chapter 1, Section 1.2, Footnote 2, of this *Final Mercury Storage EIS*). If a non-DOE site is selected, DOE would acquire an appropriate ownership or leasehold interest in that facility to comply with Section 5 of the Act. This would apply to both the Waste Control Specialists, LLC, site and the Hawthorne Army Depot.
- **Since Nevada currently stores a majority of the mercury, the DOE facility should be located in Nevada.** Chapter 1, Section 1.3.1, of this *Final Mercury Storage EIS*, discusses the sources and estimated quantities of mercury that are part of the scope of this EIS. Currently, none of the excess mercury inventories analyzed in this EIS are known to be stored in Nevada. As described in Chapter 1, Section 1.5.1, and Chapter 2, Section 2.4.4, storage of 10,000 metric tons (11,000 tons) of mercury at the Hawthorne Army Depot is considered in this *Final Mercury Storage EIS*. As described in Section 1.3.1, the Defense Logistics Agency plans to transfer 4,400 metric tons (4,900 tons) of elemental mercury to the Hawthorne Army Depot near Hawthorne, Nevada, for storage; this inventory of mercury is not included for analysis in this *Final Mercury Storage EIS*.

- **Why will the Y–12 National Security Complex mercury be transported to the DOE facility while there still may be a need for mercury to support ongoing DOE missions?** There may be some ongoing DOE missions that require the use of elemental mercury. Therefore, as described in Chapter 1, Section 1.3.1, of this *Final Mercury Storage EIS*, either the entire inventory of Y–12 National Security Complex mercury or a portion of this inventory could be retained in storage at Y–12 National Security Complex.
- **The descriptions of the affected environment at the candidate sites, presented in Chapter 3 of the *Draft Mercury Storage EIS*, are outdated or inaccurate.** Since publication of the draft EIS, DOE has updated a number of references, including, for example, DOE's annual site environmental reports. DOE believes that it has adequately described the existing environment at each of the candidate sites in this *Final Mercury Storage EIS*.
- **The *Draft Mercury Storage EIS* inaccurately represented the location of the Ogallala Aquifer in relation to the Waste Control Specialists, LLC, site.** Chapter 3, Section 3.8.3.2, of this *Final Mercury Storage EIS* describes the southernmost extent of groundwater saturation in the aquifer, to the north and east of the current Waste Control Specialists, LLC, site facilities. A review of geologic mapping, as summarized in Section 3.8.2.1, shows that an underlying bedrock feature (known as the red bed ridge) serves to deflect upward, thin, and locally "pinch out" the aquifer in the immediate vicinity of the Waste Control Specialists, LLC, site facilities.
- **The affected environment sections should include "viewscapes" and "soundscapes" and describe subsistence economies and communities of interest to American Indian tribes.** DOE has included sections in this *Final Mercury Storage EIS* for all of the candidate sites that address both the existing environment and environmental consequences of the proposed action on visual resources, noise, and American Indian resources.
- **The characterization of the Waste Control Specialists, LLC, site is inadequate with respect to severe weather events such as tornadoes, thunderstorms, and floods.** For the Waste Control Specialists, LLC, site, Chapter 3, Section 3.8.4.1, of this *Final Mercury Storage EIS*, summarizes the climate and severe weather of the region, while Section 3.8.3.1 describes the potential flood hazard. Appendix D, Section D.2.5.3, presents data on the frequency and severity of tornadoes for the Waste Control Specialists, LLC, site. As shown in Table D–6, the predicted annual strike rate for an F2[2] or more-severe tornado is less than 1 in a million.
- **The potential impacts on the aquifers at the Waste Control Specialists, LLC, site and the Hanford Site should be evaluated.** As described in Chapter 2, Section 2.3.2, and the "Water Resources" sections of Chapter 4 of this *Final Mercury Storage EIS*, best management practices, including adherence to an integrated contingency plan and spill prevention, control, and countermeasures plan for mercury storage, would be employed at all candidate sites to prevent spills and releases. Structural controls and associated other engineering features include the use of spill trays, sloped floors, and floors constructed to be impervious to liquid mercury releases, as further described in Appendix C, Section C.2.1. Finally, for the reasons stated in Appendix D, Section D.2.4, groundwater was not considered a credible pathway for potential accidental release of elemental mercury from a mercury storage facility. This contention is based on decades of experience in maintaining the DOE Y–12 National Security Complex mercury and the Defense National Stockpile Center's mercury.

[2] *F = Fujita Scale: F0, winds of 40–72 miles per hour (mph); F1, 73–112 mph; F2, 113–157 mph; F3, 158–206 mph; F6, 207–260 mph; F5, 261–318 mph.*

- **The safety of storing elemental mercury in proximity to radioactive and hazardous wastes and the potential to create combined or additive impacts should be analyzed**. DOE is cognizant of compatibility issues with mercury storage. As discussed in Chapter 2, Section 2.2 of this *Final Mercury Storage EIS*, elemental mercury would be stored in a dedicated facility specifically designed and/or modified for the long-term storage of elemental mercury containers; therefore, mercury would not be stored with other wastes.
- **The candidate sites' compliance histories should be considered.** Due to the varied nature of the sites under consideration, the different regulatory schemes under which they operate, and differences between existing site operations and the proposed elemental mercury storage facility, a fair comparison of the sites' compliance histories would be difficult. For those interested in compliance history, information is available through the EPA Enforcement and Compliance History Online (ECHO) database (http://www.epa.gov/oecaerth/data/systems/multimedia/echo.html). In addition, information for DOE sites is summarized in annual site environmental reports (http://www.em.doe.gov/Pages/asers.aspx).
- **Temporary Emergency Exposure Limits (TEELs) should be used in place of the surrogate Acute Exposure Guideline Level 1 (AEGL-1).** DOE has adopted the commentor's suggestion and is now using TEEL-0 for exposures exceeding 1 hour and DOE's Protective Action Criterion 1 for exposures to up 1 hour. See the revised text in Appendix D, Section D.1.1.2.1, of this *Final Mercury Storage EIS*.
- **Why was an accidental building fire not analyzed in the draft EIS?** Elemental mercury does not burn or act as a source of ignition. As discussed in Chapter 4, Section 4.2.9.1.4, of this *Final Mercury Storage EIS*, the frequency and impacts (risks) from a building fire were determined to be negligible. Several factors, presented in Appendix D, Sections D.2.4.5 and D.2.4.6, contribute to this conclusion: (1) forklifts would be electric, so they would not provide a source of fuel for a fire; (2) there would be no fuel lines or fuel storage vessels inside the mercury storage building; (3) there would be no flammable materials in the construction of the building; (4) administrative controls would limit the amount of flammable material kept in the building; (5) the wooden pallets that contain the mercury flasks would be treated with fire-retardant coatings; and (6) there would be a fire suppression system in place. The Defense Logistics Agency in its *Final Mercury Management EIS* (March 2004) determined that the frequency of an accidental building fire caused by a forklift fuel fire was negligible to low; the use of an electric forklift, as analyzed in this *Final Mercury Storage EIS*, reduces this frequency to negligible.
- **Natural disasters including seismic events, tornadic events, and high winds at the Waste Control Specialists, LLC, site, and flooding and tornadic events at Kansas City Plant, were not given enough consideration in the draft EIS.** Hazards, including earthquakes, flooding, and severe weather, were evaluated with respect to the proposed construction and operation of a mercury storage facility(ies), as described in the "Geologic Hazards," "Surface Water," and "Meteorology" sections, respectively, of Chapters 3 and 4 of this *Final Mercury Storage EIS*.

  The characterization of the Waste Control Specialists, LLC, site relative to earthquakes and tornadoes is presented in Chapter 3, Sections 3.8.2.3 and 3.8.4.1, of this *Final Mercury Storage EIS*. Chapter 4, Section 4.9.9.2, specifically assesses the effects earthquakes could have on a mercury storage facility at the Waste Control Specialists, LLC, site and concludes that the risk is minimal. As shown in Appendix D, Table D–6, the predicted annual strike rate for an

F2 or more-severe tornado on a proposed storage facility is less than 1 in a million at the Waste Control Specialists, LLC, site and less than 1 in 40,000 at Kansas City Plant.

Chapter 4, Section 4.2.9.1.4, and Appendix D, Section D.2.5.4, of this *Final Mercury Storage EIS*, present DOE's analysis of the flood threat. Chapter 3, Section 3.6.3.1, of this *Final Mercury Storage EIS*, describes the flooding potential of the Blue River and Indian Creek and also discusses Kansas City Plant's flood protection system. Section 4.7.3.1, describes the potential impacts on surface water from siting a mercury storage facility at Kansas City Plant. The flood protection system is not a passive system and requires the flood gates to be closed manually, as described in Section 4.7.3.1.

- **Who would bear the responsibility and liability for cleanup and emergency response if a release of mercury occurs?** The generators of the mercury would be responsible for shipping mercury to the DOE facility(ies). Transportation of mercury would be in accordance with applicable RCRA hazardous waste and U.S. Department of Transportation hazardous materials shipping requirements. As described in Chapter 1, Section 1.2, DOE would take ownership of the mercury delivered to a designated facility and indemnify the generator from future liability, in accordance with the provisions of the Mercury Export Ban Act of 2008. Therefore, DOE would be responsible (financially and otherwise) for its long-term management, which would include the costs associated with environmental restoration should a leak occur at the storage facility.

- **The impacts of specific transportation routes should be presented, including transportation routes adjacent to environmentally sensitive areas (e.g., rivers).** Transportation of mercury would be in accordance with applicable RCRA hazardous waste and U.S. Department of Transportation hazardous materials shipping requirements. The generators of the mercury would be responsible for shipping mercury to the DOE facility(ies).

  Based on Appendix D, Section D.2.7.3, of this *Final Mercury Storage EIS*, it is estimated that a truck accident with a spill would occur approximately once every 250 years. The predicted occurrence of a rail accident with a spill declines to approximately once every 77,000 years.[3] Section D.2.8 provides a detailed discussion of potential mercury spills into water bodies, and Section D.5.4.2 discusses the possible consequences. As presented for each of the candidate sites in Chapter 4, in the unlikely event of an accident with a spill into a water body, the consequences are projected to be negligible to low. However, there is a high range of uncertainty regarding this conclusion due to the difficulty in predicting the physical and chemical characteristics of all possible water bodies into which a spill might occur.

- **How many shipments of mercury would be delivered to the facility?** Shipment estimates are presented in Appendix C, Section C.1, of this *Final Mercury Storage EIS*. Under Truck Scenario 2 (partially loaded trucks), there would be about 79 truck shipments per year between 2013 and 2014, 39 per year between 2015 and 2019, and 27 per year between 2020 and 2052. If transported by rail, there would be about 23 rail shipments per year between 2013 and 2014, 8 per year between 2015 and 2019, and only 5 per year between 2020 and 2052.

[3] *The values presented in Appendix D, Section D.2.7.3, are presented in Table D–14 for Truck Scenario 2 and in Table D–15 for the Railcar Scenario; these values are in exponential form. The highest frequency is for the Hanford Site: 4.1×10^{-3} per year for Truck Scenario 2 and 1.3×10^{-5} per year for the Railcar Scenario. The value of 4.1×10^{-3} is equivalent to 0.0041 accidents per year, 41 accidents per 10,000 years, or approximately 1 accident every 250 years. The value of 1.3×10^{-5} is equivalent to 0.000013 accidents per year, 13 accidents per 1 million years, or 1 accident every 77,000 years.*

- **Closure of the mercury storage facility(ies) did not take into account the transportation of mercury out of the facility.** It is reasonable to predict that the transportation impacts associated with moving the mercury from the storage facility(ies) due to facility closure would be similar to those associated with moving the mercury to the new storage facility(ies). Additional text was added to Chapter 4, Section 4.10, of this *Final Mercury Storage EIS*.
- **The EIS should consider life-cycle costs associated with construction, operation, and deactivation of a mercury storage facility(ies) and the costs to treat and dispose of mercury.** Costs are not presented in this *Final Mercury Storage EIS*. At this time, a final disposal pathway for high-purity elemental mercury wastes is not available, nor is it reasonable to speculate what kind of technology would be approved by EPA for treatment of high-purity elemental mercury wastes. Because options for the ultimate treatment and disposal of elemental mercury are unknown, it is not possible to determine the life-cycle costs of mercury management and storage.

Changes from the *Draft Mercury Storage EIS*

The *Draft Mercury Storage EIS* was revised to provide additional information, include additional analyses, correct inaccuracies and editorial errors, and clarify text. These revisions resulted from both public comments and internal review of the *Draft Mercury Storage EIS*. The EIS was also updated to reflect events that occurred or documents that were published after the *Draft Mercury Storage EIS* was issued for public comment in January 2010. The following paragraphs summarize the noteworthy changes made to this *Final Mercury Storage EIS*.

Change in Definition of "Surrogate AEGL-1": EPA has not defined an AEGL-1 for human health risk from exposure to elemental mercury following an accident. The draft EIS contained a "surrogate AEGL-1" equal to one tenth of AEGL-2. Following discussions with EPA, this definition was changed as follows: the "surrogate AEGL-1" equals DOE's Protective Action Criterion 1 for durations of exposure of 1 hour or less, and DOE's TEEL-0 for durations of exposure greater than an hour. The reasons for this choice are given in Appendix D, Section D.1.1.2.1, of this *Final Mercury Storage EIS*.

Change in Fraction of Divalent Mercury: In the draft EIS, it was assumed that, in a transportation accident fire, 100 percent of the resulting airborne elemental mercury would be converted into divalent mercury. On the basis of further literature reviews, it was determined that 20 percent was a more-reasonable upper bound on the formation of divalent mercury (see Appendix D, Section D.7.3.3, of this *Final Mercury Storage EIS*). This change has the most impact on the ecological risk assessment, with generally lower consequences and risks predicted for all ecological receptors (see Section D.5.4.3).

Incorporation of Fish Consumption Pathway: It was decided that neglecting to analyze the potential consumption of fish contaminated by methylmercury in preparation of the draft EIS omitted a potentially important pathway to humans, especially for subsistence fishermen. See Appendix D, Sections D.1.1.2.7, D.4.5, and D.4.7, of this *Final Mercury Storage EIS* for details on how the fish consumption pathway was incorporated into the EIS analysis.

Threatened and Endangered Species and Historic Preservation Consultations: The "Ecological Resources" and "Cultural and Paleontological Resources" sections of Chapter 4 of this *Final Mercury Storage EIS* were revised as appropriate to reflect the results of consultations performed by DOE with relevant federal and state agencies. In addition, Appendix H of this *Final Mercury Storage EIS* was added to provide the correspondence DOE received from the agencies consulted. Chapter 5, Section 5.4 and Table 5–4, of this *Final Mercury Storage EIS* were revised to reflect the status of all consultations conducted for each of the candidate mercury storage locations.

Modification to the Savannah River Site, E Area Candidate Site: The area under consideration for locating the long-term mercury storage facility at Savannah River Site's E Area has been expanded to include any suitable location within E Area. E Area has a number of ongoing and planned waste management operations that may conflict with the more-narrow siting of the facility in E Area as described in the draft EIS. Chapter 2, Section 2.4.7, of this *Final Mercury Storage EIS* has been revised to reflect the expanded area under consideration.

Incorporation of Updated Environmental or Site-Specific Information: A thorough review of the *Draft Mercury Storage EIS*, particularly Chapter 3, "Affected Environment," was conducted to verify that the EIS contains the most recent time-sensitive data available. Data and references were updated, and other associated revisions were made where appropriate. Resource areas most affected by these changes include geologic hazards, water resources, site infrastructure, and ecological resources. For example, environmental data used in the EIS were updated to the most recently published annual site environmental reports for the DOE sites. Specifically, the "Surface Water" and "Groundwater" sections of Chapter 3 for each of the sites were revised to reflect the latest available water quality surveillance data. Other new information incorporated into this final EIS includes updated species data provided by the U.S. Fish and Wildlife Service and state fish and wildlife agencies.

Editorial Revisions and Clarifications of Text: Editorial errors have been corrected where appropriate throughout the EIS. In some cases, text or language was added to clarify the presentation of data or discussion of analyses.

Changes to the Organization of the *Mercury Storage EIS:* The organization of the *Mercury Storage EIS* has been changed in the following ways: (1) the addition of the comment response document, which includes all public comments and DOE's responses to comments on the draft EIS, as Volume II of this final EIS; (2) the addition of Appendix H, – "Responses to Consultation Requests," which includes consultations with Federal and state agencies on threatened and endangered species and cultural resources, as well as consultations with American Indian tribes; and (3) the movement of the information in Chapter 1, Section 1.6, – "Public Involvement in Developing the Scope of this EIS," to Appendix I, – "Scoping Comments Summary."

Record of Decision

Based on this final EIS and other considerations, DOE will make a decision no sooner than 30 days after publication of the EPA Notice of Availability for this final EIS in the *Federal Register*. DOE will announce its decision in a Record of Decision published in the *Federal Register*. The Record of Decision will also explain how environmental impacts will be avoided, minimized, or mitigated.

7. HELPFUL INFORMATION

In this section, the reader is directed to places where a copy of the EIS can be found; the content and organization of the full EIS is described; the reader is directed to specific chapters and sections to find information on a series of topics; and a short acronym list is provided.

Visit a Reading Room

Review copies of this EIS and other pertinent documents are available at the following reading rooms.

Colorado

Mesa County Library
530 Grand Avenue
Grand Junction, CO 81502-5019
(970) 243-4442

U.S. Department of Energy
Office of Legacy Management
2597 B ¾ Road
Grand Junction, CO 81503
(970) 248-6089

District of Columbia

U.S. Department of Energy
Freedom of Information
Reading Room
1000 Independence Avenue, SW
Room 1G-033
Washington, D.C. 20585
(202) 586-5955

Georgia

Augusta State University
Reese Library
2500 Walton Way
Augusta, GA 30904
(706) 737-1745

Savannah State University
Asa H. Gordon Library
2200 Tompkins Road
Savannah, GA 31404
(912) 356-2183

Idaho

U.S. Department of Energy
Public Reading Room
1776 Science Center Drive
Idaho Falls, ID 83402
(208) 526-0833

Missouri

Mid-Continent Public Library
Blue Ridge Branch
9253 Blue Ridge Boulevard
Kansas City, MO 64138
(816) 761-3382

Nevada

Mineral County Library
First & "A" Street
Hawthorne, NV 89415
(775) 945-2778

New Mexico

Eunice Public Library
1039 10th Street
Eunice, NM 88231
(575) 394-2336

Oregon

Portland State University
Government Information
Branford Price Millar Library
1875 SW Park Avenue
Portland, OR 97201
(503) 725-5874

South Carolina

University of South Carolina–Aiken
Gregg-Graniteville Library
471 University Parkway
Aiken, SC 29801
(803) 641-3320

South Carolina State Library
1500 Senate Street
Columbia, SC 29211
(803) 734-8026

Texas

Andrews County Library
109 NW 1st Street
Andrews, TX 79714
(432) 523-9819

Washington

U.S. Department of Energy
Public Reading Room
Consolidated Information Center
2770 University Drive
Room 101L
Richland, WA 99352
(509) 372-7443

University of Washington
Suzzallo-Allen Library
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(206) 543-1937

Gonzaga University
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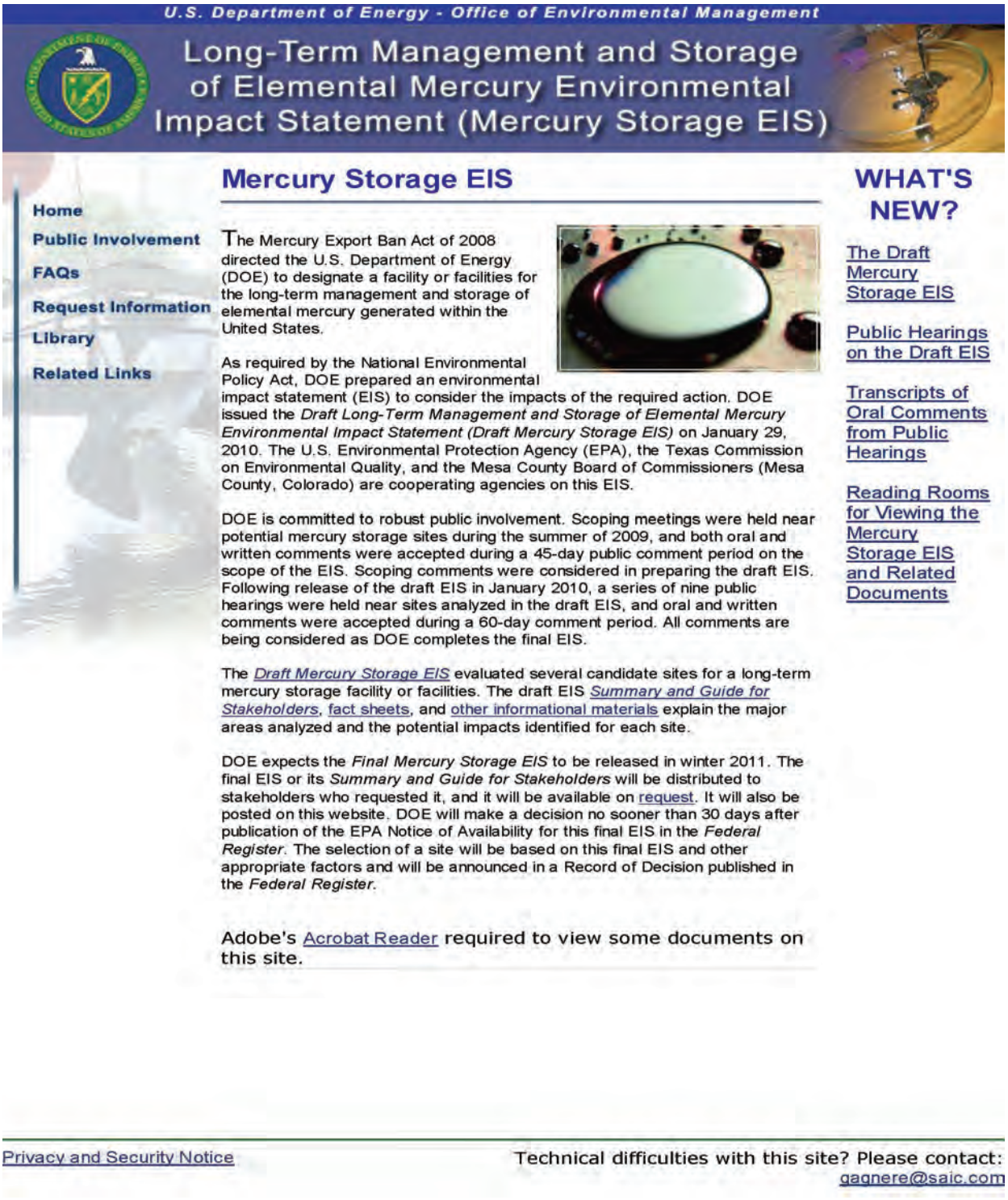
101-L East 502 Boone
Spokane, WA 99258
(509) 313-5931

Go to the EIS Website

This EIS is available on the website, http://www.mercurystorageeis.com.



How This EIS is Organized

Volume 1 of this *Final Mercury Storage EIS* consists of the following chapters and appendices:

- Chapter 1, Introduction and Purpose and Need for Agency Action, describes the proposed action, provides background information on the Mercury Export Ban Act of 2008, and describes the scope of this EIS and other relevant NEPA documents.
- Chapter 2, Facility Description, Alternatives, and Comparison of Environmental Consequences, describes the existing and new mercury storage buildings analyzed in this EIS; the alternatives for management of the mercury, including the No Action Alternative; how the alternatives were developed; the activities that would take place under each alternative; and alternatives that initially were considered and subsequently eliminated from detailed study. This chapter also provides a summary of impacts of the alternatives and a description of DOE's Preferred Alternative.
- Chapter 3, Affected Environment, describes the potentially affected environments at the candidate sites and the approach taken in describing these affected environments. The level of detail presented for each resource (e.g., air quality, water resources) depends on the likelihood that the resource would be affected by mercury storage activities.
- Chapter 4, Environmental Consequences, describes the potential impacts on the affected environments (presented in Chapter 3) of the proposed mercury storage alternatives (described in Chapter 2), including cumulative impacts and unavoidable adverse impacts. It also discusses potential future closure activities, irreversible and irretrievable commitments of resources, and the relationship between short-term uses of the environment and long-term productivity.
- Chapter 5, Environmental Laws, Regulations, Permits, and Other Potentially Applicable Requirements, describes potentially applicable environmental and health and safety compliance and permit requirements and the status of consultations with Federal and state agencies and American Indian tribal governments.
- Chapters 6, 7, 8, and 9 are, respectively, the Glossary, List of Preparers, Distribution List, and Index.

The following appendices include descriptions of methods used to estimate environmental impacts of the alternatives and the detailed information to support the impact analyses:

- Appendix A – The Mercury Export Ban Act of 2008, *Federal Register* Notices, and Other Public Notices
- Appendix B – Impact Assessment Methodology
- Appendix C – Storage Facility Construction and Operations Data
- Appendix D – Human Health and Ecological Risk Assessment Analysis
- Appendix E – Common and Scientific Names of Plant and Animal Species
- Appendix F – Cooperating Agency Agreements
- Appendix G – Contractor and Subcontractor National Environmental Policy Act Disclosure Statements
- Appendix H – Responses to Consultation Requests
- Appendix I – Scoping Comments Summary

Volume 2 of this *Final Mercury Storage EIS* consists of the comment response document. The comment response document is composed of three sections, as follows:

- Section 1, "Overview of the Public Comment Process," describes the public comment process for the *Draft Mercury Storage EIS*, as well as the procedure used to respond to these comments.
- Section 2, "Major Issues," describes topics identified in the public comments on the *Draft Mercury Storage EIS* that are of broad interest or concern. These topics are characterized as major issues and are summarized in this section.
- Section 3, "Responses to Comments Received on the *Draft Mercury Storage EIS*," includes copies of all comments received during the public comment period and DOE's responses to these comments. Comments and responses are presented in a side-by-side format for easy viewing.

Finding Answers to Your Questions

If You Have A Question About…	*See:*
Affected environment	Chapter 3
Air quality and noise	Chapter 2, Section 2.7.1.4; Chapter 3, Sections 3.2.4, 3.3.4, 3.4.4, 3.5.4, 3.6.4, 3.7.4, 3.8.4, 3.9.4; Chapter 4, Sections 4.2.4, 4.3.4, 4.4.4, 4.5.4, 4.6.4, 4.7.4, 4.8.4, 4.9.4; Appendix B, Section B.5
Alternatives considered but eliminated from detailed analysis	Chapter 2, Section 2.6
Alternatives sites evaluated in this EIS	Chapter 2, Section 2.4
Applicable laws and regulations	Chapter 5; Appendix A, Section A.1
Comments on the draft EIS	Volume II, Comment Response Document
Comparison of alternatives	Chapter 2, Section 2.7
Construction of new facilities	Chapter 2, Section 2.3.1; Appendix C, Section C.2.3
Cultural resources	Chapter 2, Section 2.7.1.6; Chapter 3, Sections 3.2.6, 3.3.6, 3.4.6, 3.5.6, 3.6.6, 3.7.6, 3.8.6, 3.9.6; Chapter 4, Sections 4.2.6, 4.3.6, 4.4.6, 4.5.6, 4.6.6, 4.7.6, 4.8.6, 4.9.6; Appendix B, Section B.7
Cumulative impacts	Chapter 2, Section 2.7.2; Chapter 4, Section 4.11; Appendix B, Section B.12
Decisions to be made	Chapter 1, Section 1.4
Ecological resources	Chapter 2, Section 2.7.1.5; Chapter 3, Sections 3.2.5, 3.3.5, 3.4.5, 3.5.5, 3.6.5, 3.7.5, 3.8.5, 3.9.5; Chapter 4, Sections 4.2.5, 4.3.5, 4.4.5, 4.5.5, 4.6.5, 4.7.5, 4.8.5, 4.9.5; Appendix B, Section B.6; Appendix E
Ecological impacts	Chapter 2, Section 2.7.1.10; Chapter 4, Sections 4.2.10, 4.3.10, 4.4.10, 4.5.10, 4.6.10, 4.7.10, 4.8.10, 4.9.10; Appendix D, Sections D.1.1.2, D.5, D.6.4.2, D.7.2
Environmental justice	Chapter 2, Section 2.7.1.12; Chapter 3, Sections 3.2.11, 3.3.11, 3.4.11, 3.5.11, 3.6.11, 3.7.11, 3.8.11, 3.9.11; Chapter 4, Sections 4.2.12, 4.3.12, 4.4.12, 4.5.12, 4.6.12, 4.7.12, 4.8.12, 4.9.12; Appendix B, Section B.11
Geology, soils, and geologic hazards	Chapter 2, Section 2.7.1.2; Chapter 3, Sections 3.2.2, 3.3.2, 3.4.2, 3.5.2, 3.6.2, 3.7.2, 3.8.2, 3.9.2; Chapter 4, Sections 4.2.2, 4.3.2, 4.4.2, 4.5.2, 4.6.2, 4.7.2, 4.8.2, 4.9.2; Appendix B, Section B.3
Human health effects	Chapter 2, Section 2.7.1.9; Chapter 4, Sections 4.2.9.1, 4.3.9.1, 4.4.9.1, 4.5.9.1, 4.6.9.1, 4.7.9.1, 4.8,9.1, 4.9.9.1; Appendix D, Sections D.1.1.2, D.3, D.4, D.6.4.1
Land use and visual resources	Chapter 2, Section 2.7.1.1; Chapter 3, Sections 3.2.1, 3.3.1, 3.4.1, 3.5.1, 3.6.1, 3.7.1, 3.8.1, 3.9.1; Chapter 4, Sections 4.2.1, 4.3.1, 4.4.1, 4.5.1, 4.6.1, 4.7.1, 4.8.1, 4.9.1; Appendix B, Section B.2

If You Have A Question About…	*See:*
Mercury	Chapter 1, Sections 1.1, 1.3.1; Appendix D, Section D.3
Mitigation measures	Chapter 4, Section 4.12
No Action Alternative	Chapter 2, Section 2.4.1, 2.7.1; Chapter 3, Section 3.9; Chapter 4, Section 4.2
Occupational and public health and safety	Chapter 2, Section 2.7.1.9; Chapter 3, Sections 3.2.9, 3.3.9, 3.4.9, 3.5.9, 3.6.9, 3.7.9, 3.8.9, 3.9.9; Chapter 4, Sections 4.2.9, 4.3.9, 4.4.9, 4.5.9, 4.6.9, 4.7.9, 4.8.9, 4.9.9
Operations of facilities	Chapter 2, Section 2.3.2; Appendix C, Section C.2.4
Preferred Alternative	Chapter 2, Section 2.5
Public involvement	Chapter 1, Section 1.6
Purpose and need for agency action	Chapter 1, Section 1.2
Scope of this EIS	Chapter 1, Section 1.5
Site infrastructure	Chapter 2, Section 2.7.1.7; Chapter 3, Sections 3.2.7, 3.3.7, 3.4.7, 3.5.7, 3.6.7, 3.7.7, 3.8.7, 3.9.7; Chapter 4, Sections 4.2.7, 4.3.7, 4.4.7, 4.5.7, 4.6.7, 4.7.7, 4.8.7, 4.9.7; Appendix B, Section B.8
Socioeconomics	Chapter 2, Section 2.7.1.11; Chapter 3, Sections 3.2.10, 3.3.10, 3.4.10, 3.5.10, 3.6.10, 3.7.10, 3.8.10, 3.9.10; Chapter 4, Sections 4.2.11, 4.3.11, 4.4.11, 4.5.11, 4.6.11, 4.7.11, 4.8.11, 4.9.11; Appendix B, Section B.10
Transportation	Chapter 2, Section 2.6.3, 2.7.1.9; Chapter 3, Sections 3.2.7.1, 3.2.9.3, 3.2.10.3, 3.3.7.1, 3.3.9.3, 3.3.10.3, 3.4.7.1, 3.4.9.3, 3.4.10.3, 3.5.7.1, 3.5.9.3, 3.5.10.3, 3.6.7.1, 3.6.9.3, 3.6.10.3, 3.7.7.1, 3.7.9.3, 3.7.10.3, 3.8.7.1, 3.8.9.3, 3.8.10.3, 3.9.7.1, 3.9.9.3, 3.9.10.3; Chapter 4, Sections 4.2.9.3, 4.3.9.3, 4.4.9.3, 4.5.9.3, 4.6.9.3, 4.7.9.3, 4.8.9.3, 4.9.9.3; Appendix C, Section C.1; Appendix D, Section D.2.7
Waste management	Chapter 2, Section 2.7.1.8; Chapter 3, Sections 3.2.8, 3.3.8, 3.4.8, 3.5.8, 3.6.8, 3.7.8, 3.8.8, 3.9.8; Chapter 4, Sections 4.2.8, 4.3.8, 4.4.8, 4.5.8, 4.6.8, 4.7.8, 4.8.8, 4.9.8; Appendix B, Section B.9
Water resources	Chapter 2, Section 2.7.1.3; Chapter 3, Sections 3.2.3, 3.3.3, 3.4.3, 3.5.3, 3.6.3, 3.7.3, 3.8.3, 3.9.3; Chapter 4, Sections 4.2.3, 4.3.3, 4.4.3, 4.5.3, 4.6.3, 4.7.3, 4.8.3, 4.9.3; Appendix B, Section B.4

Note: All referenced sections of this *Final Mercury Storage EIS* are from Volume I unless otherwise noted.

Acronyms and Abbreviations

AEGL – Acute Exposure Guideline Level

DOE – U.S. Department of Energy

EIS – environmental impact statement

EPA – U.S. Environmental Protection Agency

Mercury Storage EIS – *Long-Term Management and Storage of Elemental Mercury Environmental Impact Statement*

MOU – Memorandum of Understanding

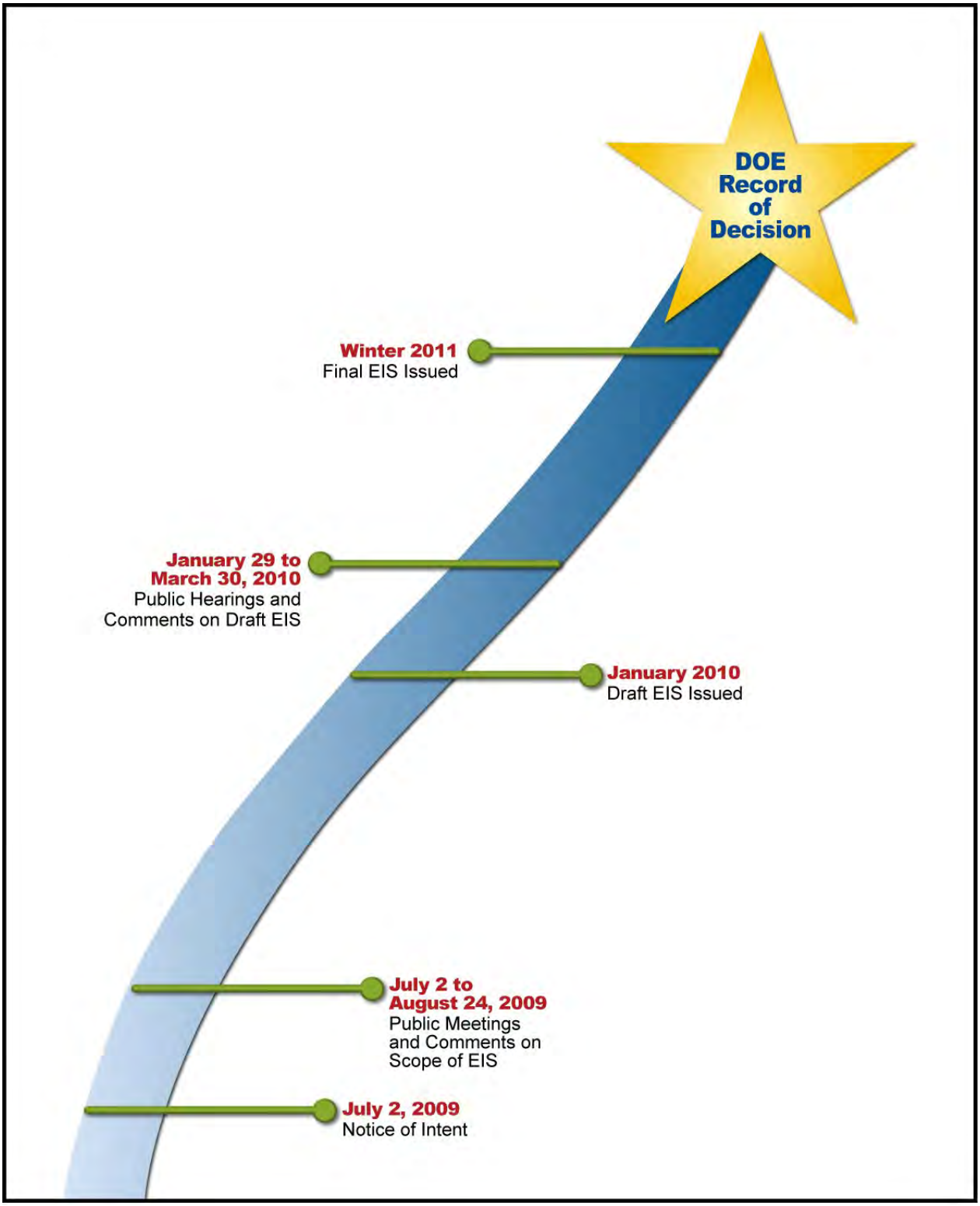
NEPA – National Environmental Policy Act of 1969

RCRA – Resource Conservation and Recovery Act

ROI – region of influence

TEEL – Temporary Emergency Exposure Limit

the Act – Mercury Export Ban Act of 2008



The Final Long-Term Management and Storage of Elemental Mercury Environmental Impact Statement *Timeline*