

Chapter 1

Purpose of and Need for the Proposed Action

The purpose of the proposed action is to determine the future of the Defense National Stockpile Center's (DNSC's) elemental mercury inventory because the mercury is no longer needed for national defense. Additionally, DNSC is scheduled to cease operations as an independent organization in 2007 and would prefer to arrange for the long-term management of the mercury currently in storage before this date.

1.1 PROPOSED ACTION

The role of the Defense National Stockpile Center (DNSC), which is part of the Defense Logistics Agency, is to manage materials in the U.S. National Defense Stockpile in a safe, secure, and environmentally sound manner. This authority is assigned to DNSC by the Secretary of Defense under the Strategic and Critical Materials Stock Piling Act of 1939, as amended (50 U.S.C. 98 et seq.). DNSC stores 56 different commodities, including mercury, at government and private industry sites around the country.

Mercury is no longer needed for national defense. It is currently stored at three DNSC depots and a U.S. Department of Energy (DOE) site. The three DNSC sites are the New Haven, Indiana; Somerville, New Jersey; and Warren, Ohio, depots. The DOE site is the Y-12 National Security Complex (Y-12) in Oak Ridge, Tennessee. DNSC's proposed action is to select and carry out an approach for the long-term management of its mercury (i.e., 40 years). DNSC is scheduled to cease operations as an independent organization in 2007. It would prefer to arrange for the long-term management of its mercury before this date. Three alternatives are analyzed:

- No action, which means storage would continue at the current sites
- Consolidation and storage at one of the three current DNSC mercury depots or at one of three other candidate locations (shown in Figure 1-1)
- Sale of the mercury inventory

This *Mercury Management Environmental Impact Statement* (MM EIS) presents the analysis of these alternatives, which are described in detail in Chapter 2. DNSC is committed to choosing an alternative that is environmentally sound, cost-effective, and safe for its workers and the public. DNSC's preferred alternative, consolidated storage, is also described in Chapter 2.

What Is Mercury?



Elemental mercury is a dense, naturally occurring, silver element that is liquid at room temperature.

Sometimes called "quicksilver," liquid

mercury has been used in manufacturing processes because it conducts electricity, reacts to temperature changes, and alloys with many other metals. Examples of products that contain mercury include electrical switches, hospital equipment and supplies, fluorescent lights, switches for automobile lighting, and dental fillings. While mercury has many uses, it is designated a hazardous substance under Section 307(a) of the Clean Water Act, (33 U.S.C. 1251 et seq.) Section 112 of the Clean Air Act, (42 U.S.C. 7401 et seq.) and 49 CFR 172.101 of the U.S. Department of Transportation's hazardous materials regulations. Mercury must, therefore, be stored and managed appropriately.

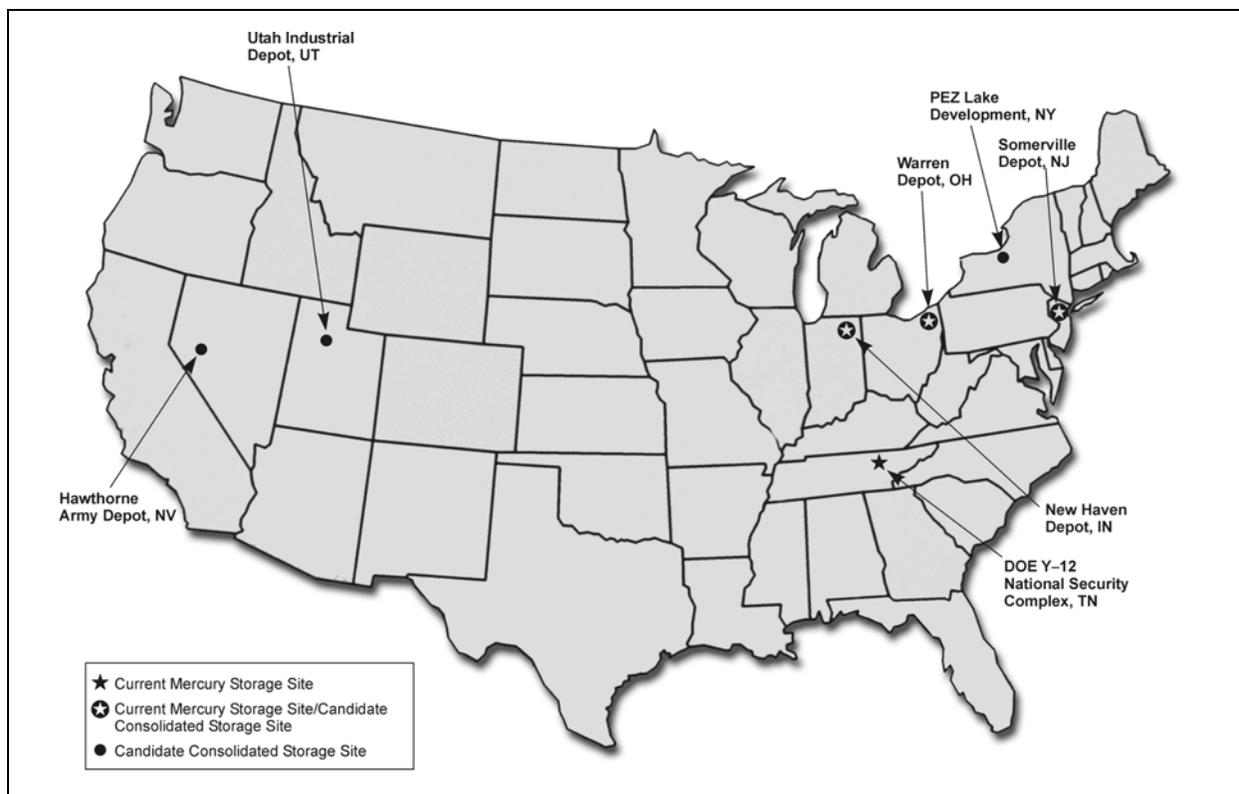


Figure 1–1. Locations of Current Mercury Storage Sites and Non-DNSC Candidate Consolidated Storage Sites

1.2 BACKGROUND

1.2.1 Authority to Buy and Sell Mercury

The National Defense Stockpile was established after World War II to minimize the United States' dependence on foreign sources of supply for strategic and critical materials in time of national emergency. DNSC currently stores 56 different commodities, including mercury, aluminum oxide, cobalt, lead, rubber, tin, and zinc, at government and private industry properties nationwide. Congress enacts legislation that authorizes the purchase and/or sale of these commodities. After receiving congressional authority, the U.S. Department of Defense (DoD) develops an Annual Materials Plan that lists the maximum amount of each commodity that may be bought or sold by DoD in a given fiscal year. This plan is submitted to Congress after coordination with the Market Impact Committee, an interagency committee that advises DoD on the projected domestic and foreign economic effects of the proposed stockpile transactions. The Market Impact Committee is composed of representatives from the U.S. Department of Agriculture, U.S. Department of Commerce, DoD, DOE, U.S. Department of the Interior, U.S. Department of State, U.S. Department of the Treasury, and Federal Emergency Management Agency. It is co-chaired by the Departments of State and Commerce.

Because of Congress' mandate that declares most of the defense national stockpile as excess to U.S. defense needs, DNSC is selling off or disposing of most materials. Sales occur through open competitions with sealed bid sales (terms are set; material awarded to highest bidder), negotiated sales (terms are negotiable), or basic ordering agreements (offerors are prequalified). Authority to sell or dispose of excess materials generally comes from National Defense Authorization Acts. Mercury has

been declared excess for more than 20 years, and Congress has granted DNSC the authority to sell the entire inventory.

In conjunction with selling off or disposing of most of its materials, DNSC is planning for the closure of its depots. Projected closure dates for the three depots storing excess mercury are New Haven, 2020; Somerville, 2019; and Warren, 2019. It is recognized that these closure dates conflict with the alternatives that would continue to store mercury at the depots for 40 years. The decision on the future management of the mercury stockpile will consider, among other attributes, the plans to close these storage depots. Therefore, the final decision on mercury management could require that one or more depots remain open.

1.2.2 Mercury Sales

As mentioned in Section 1.1, sale of the mercury is one of the alternatives considered in this MM EIS. DNSC sold 1,912 tons (1,735 metric tons) of mercury to U.S. and foreign buyers during the 1980s and early 1990s for a total of \$8.4 million (Warlick 1995). Table 1–1 lists the details of those sales. In 1994, however, DNSC voluntarily halted mercury sales because of concerns raised by the U.S. Environmental Protection Agency (EPA) and others about the effect of mercury on the global environment.

Table 1–1. Stockpile Sales of Mercury

Fiscal Year	Number of Flasks		Average Sales Price (per flask)	Revenue
	Annual Materials Plan	Sales		
1979–1991		22,092	\$287	\$6,331,108
1992	10,000	10,000	\$ 88	\$ 879,325
1993	10,000	8,250	\$ 58	\$ 476,308
1994	50,000	10,000	\$ 76	\$ 758,716
Total	70,000	50,342		\$8,445,457

Source: Warlick 1995.

1.2.3 Mercury Storage

As mentioned in Section 1.1, mercury storage is included in alternatives considered in this MM EIS. The DNSC mercury, contained in flasks and drums, is stored in warehouses at four U.S. sites. The amount (in tons) and number of flasks and drums at each site are listed in Table 1–2.

As shown in Table 1–2, about 4,890 tons (4,436 metric tons) of mercury are in storage. The mercury is between 99.5 and 99.9 percent pure, and is contained in 128,662 steel flasks. Each flask contains 76 lb (34 kg) of mercury with a current market value up to \$195. The estimated value is \$7.5 to \$25 million (see Appendix D).

Table 1–2. DNSC Mercury Stockpile

Location	Quantity in Storage	Number of Flasks	Number of Drums
New Haven Depot near New Haven, Indiana	614 tons (557 metric tons)	16,151	2,692
Somerville Depot in Hillsborough, New Jersey	2,885 tons (2,617 metric tons)	75,880	12,647
Warren Depot near Warren, Ohio	621 tons (563 metric tons)	16,355	2,726
Y–12, U.S. Department of Energy’s National Security Complex in Oak Ridge, Tennessee	770 tons (699 metric tons)	20,276 ^a	3,379 ^b
Total	4,890 tons (4,436 metric tons)	128,662	21,444

^a These DNSC mercury flasks are collocated with 29,724 mercury flasks owned by DOE (Morris 2002).

^b Number of drums that would be used if mercury flasks are overpacked.

Source: DLA 2001a.

Some of the mercury storage flasks were made in the 1940s and 1950s, and the DNSC mercury stored at Y–12 was moved to new flasks in the mid-1970s. The flasks at the three DNSC depots are stored in 30-gal (114-l) steel drums for extra protection, called “overpacking.” The DNSC mercury flasks at the DOE site are not stored in drums because these seamless flasks are relatively new and are not as subject to leakage as older, welded flasks.



Typical Steel Flask



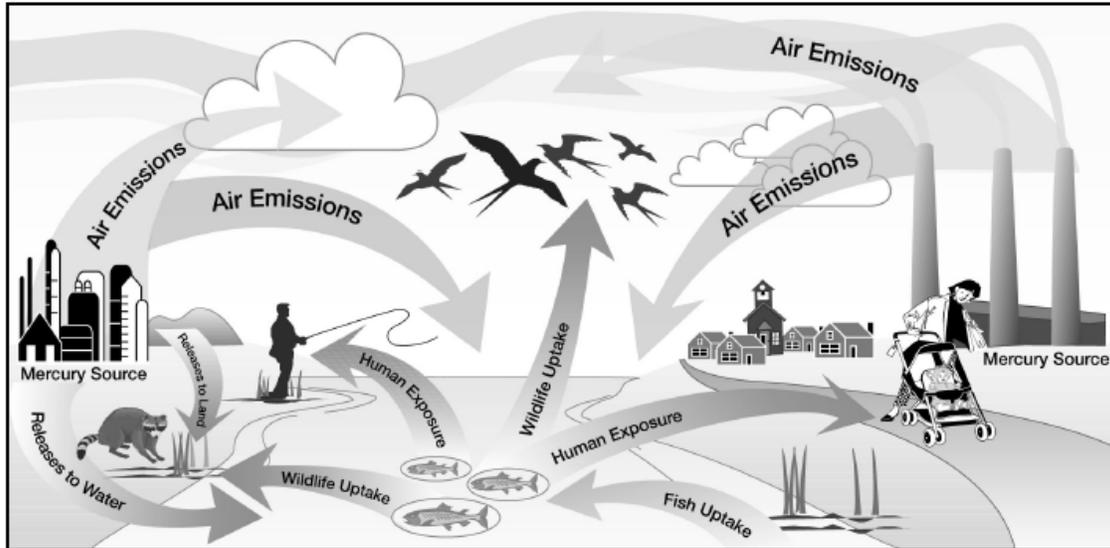
Steel Storage Drums

1.2.4 The Need to Safely Manage Mercury

Mercury is a naturally occurring element that cannot be destroyed. It enters the environment as a result of natural processes (e.g., volcanoes, wild fires, surface emissions) and human activities. Recent emission estimates for natural processes range from 1,102 to 4,409 tons/yr (1,000 to 4,000 metric tons/yr) (UNEP 2002:75). Human activities that release mercury to the environment (i.e., anthropogenic sources) include fuel burning, incineration, metal smelting, use of mercury in mercury cell chlor-alkali plants, waste disposal, and production of commercial products. Emissions from human activities worldwide are estimated at 2,205 to 4,960 tons/yr (2,000 to 4,500 metric tons/yr) (UNEP 2002:75). Mercury vapor in the atmosphere can be transported thousands of miles from the source of emission.

Mercury is found in the environment as inorganic (e.g., elemental mercury vapor [Hg^0], gas-phase ionic mercury [Hg^{+2}], particulate-bound mercury [Hg_p]), and organic forms (e.g., methyl mercury [CH_3Hg]). It is emitted from human activities largely in the inorganic form. Most of the mercury in water, soil, sediments, and plants and animals is in the form of inorganic mercury salts and organic mercury (e.g., methyl mercury). The inorganic form of mercury, when bound to airborne particles (Hg_p) or in a gaseous

form (Hg^{+2}), is readily removed from the atmosphere by precipitation (wet deposition) and dry deposition. As it cycles through the environment mercury undergoes a series of chemical and physical transformations, some of which are not completely understood (EPA 2000:1). Figure 1–2, provides a simplified diagram showing how mercury moves through the environment.



Source: EPA 2000:2.

Figure 1–2. The Mercury Cycle

The toxic effects of mercury depend on its chemical form and the route of exposure. Methyl mercury is the most toxic form. It can affect the immune system, alter genetic systems, and damage the nervous system, including coordination and the senses of touch, taste, and sight. Methyl mercury can be particularly damaging to developing embryos. Exposure to methyl mercury is usually by ingestion; it is absorbed more readily than other forms of mercury. Elemental mercury (Hg^0) vapors can cause tremors, gingivitis, and excitability when inhaled over a long period of time. Less toxic than methyl mercury, if elemental mercury is ingested, it is absorbed relatively slowly and may pass through the digestive system without causing damage (USGS 2000).

Mercury and its compounds are persistent, bioaccumulative, and toxic, and they pose human and ecological risks. It is estimated that since the 19th century, the total amount of mercury in the environment has increased by a factor of two to five above pre-industrial levels. As the quantity of available mercury in the environment has increased, so have the risks of neurological and reproductive problems for humans and wildlife. This makes mercury a pollutant of environmental concern in the United States and throughout the world (EPA 2000:1).

1.3 OBJECTIVES OF THE PROPOSED ACTION

DNSC's objectives for managing the mercury over the long term are important to the agency and to the public. They are as follows:

- Protect human health and the environment and ensure safety of the public and workers
- Comply with applicable statutes and regulations
- Meet the requirements of DNSC's long-term closure strategy
- Minimize cost

When making long-term mercury management decisions, DNSC will review the results of this MM EIS along with the findings of the *Human Health and Ecological Risk Assessment Report for the Mercury Management Environmental Impact Statement (Risk Assessment Report)* (DLA 2004). DNSC will also review cost, schedule, policy objectives, and public comments. DNSC intends to make the following decisions:

- Whether to consolidate the excess mercury for long-term storage
- Whether to recommend to Congress the resumption of the sale of excess mercury, and if so, by the maximum allowable market rate (i.e., a rate that would not result in undue disruption of the world mercury market) or a rate greater than the maximum allowable market rate to reduce mercury mining

If the Consolidated Storage Alternative is selected, one of the six sites analyzed in this MM EIS could be selected or another site could be used. If a site not analyzed in this MM EIS were selected, additional environmental documentation may be needed, with additional public notification and review.

If sales at the maximum allowable market rate is selected, DNSC would establish the rate of sale in consultation with the Market Impact Committee, and sales would be conducted as described in Section 1.2.1. If sales to reduce mercury mining is selected, DNSC would negotiate the terms of sale with the selected company to ensure that mercury mining would be reduced such that no net increase in mercury availability would result.

It is possible that DNSC could choose a hybrid alternative that is not explicitly evaluated. For instance, a Consolidated Storage and Sales Alternative could be selected. Under this alternative, the mercury would be consolidated at one location and then all or some of the mercury sold. DNSC could also select a Two Site Consolidated Storage Alternative where mercury would be consolidated at two sites for long-term storage. The environmental impacts of hybrid alternatives are expected to be bounded by those evaluated in this MM EIS.

1.4 SCOPE OF THIS ENVIRONMENTAL ANALYSIS

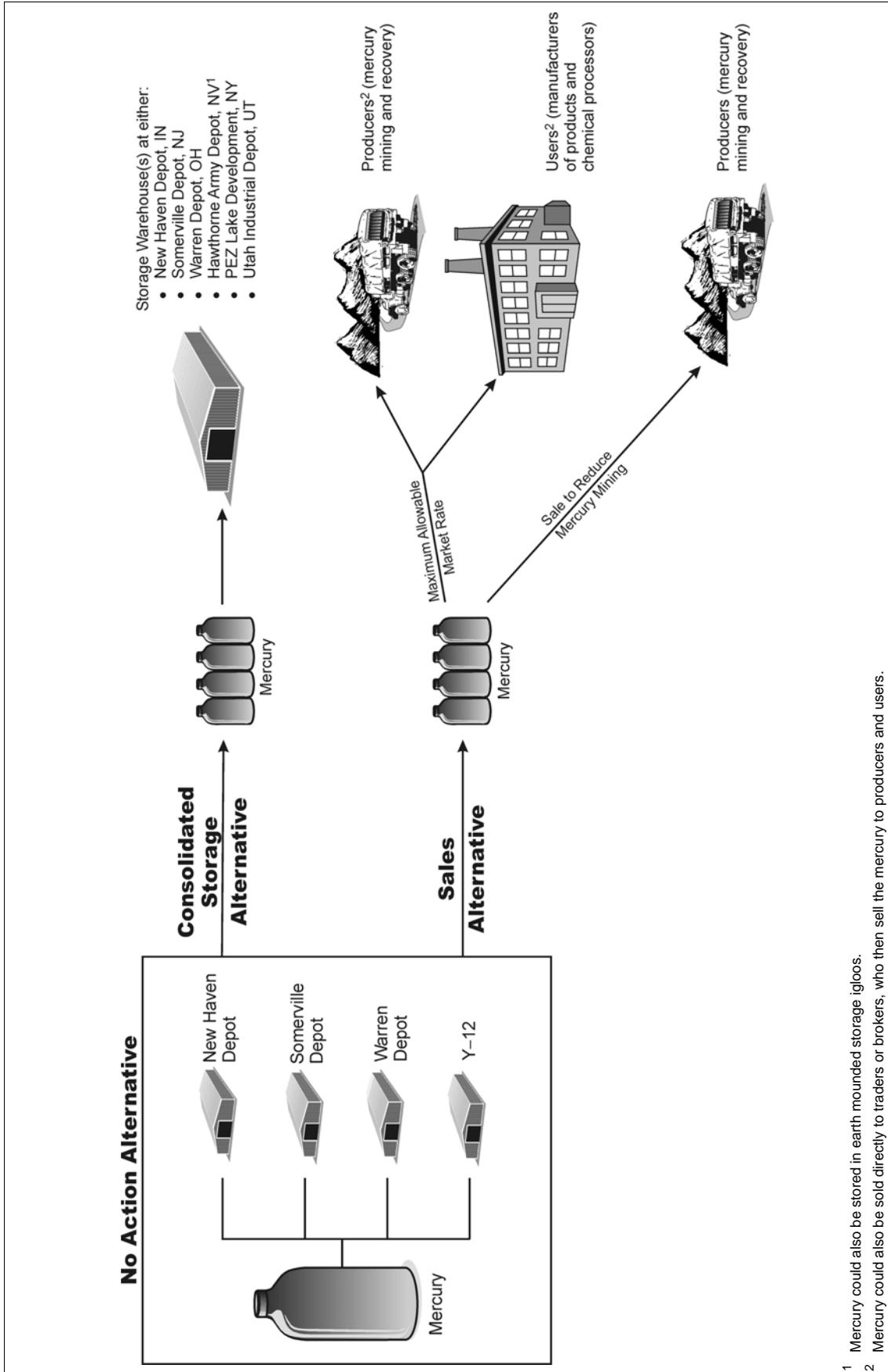
This section briefly describes the scope of this MM EIS, which includes the analysis of activities associated with the long-term management alternatives. The alternatives for managing the excess mercury for up to 40 years are shown in Figure 1–3.

1.4.1 No Action Alternative

This MM EIS analyzes a No Action Alternative, whereby the excess mercury would continue to be stored at the current storage locations. Monitoring and maintenance would continue. None of the existing storage buildings or mercury storage containers would need major modifications.

1.4.2 Consolidated Storage Alternative

For the Consolidated Storage Alternative, this MM EIS analyzes the environmental impacts of storing mercury flasks in drums at each of the three DNSC depots and at three additional sites which were identified by DNSC issuing a Notice of Request for Expressions of Interest in the *Federal Register* on March 5, 2001 (see Appendix A). The three additional sites are: the Hawthorne Army Depot, Nevada; PEZ Lake Development, New York; and Utah Industrial Depot, Utah. None of the existing storage



¹ Mercury could also be stored in earth mounded storage igloos.

² Mercury could also be sold directly to traders or brokers, who then sell the mercury to producers and users.

Figure 1-3. Alternatives for the Management of DNSC Excess Mercury Inventory

buildings at the six sites would need major modifications. Y-12 is not being considered as an alternative for consolidated storage. It does not have enough space for all the mercury and long-term storage of mercury is not part of Y-12's national security mission.

1.4.3 Sales Alternative

This MM EIS analyzes the resumption of mercury sales in order to reduce the mercury stockpile. The Sales Alternative includes two options: selling mercury at a proposed maximum allowable market rate over a period of years, and selling the entire inventory all at once to reduce mercury mining. Sale and price estimates are based on past trends and projected demand. Both economic and noneconomic impacts of the two options are analyzed.

For sale at the maximum allowable market rate, the mercury could be sold directly to producers and/or users. Producers are mercury mining, refining, and recovery companies. Users include chemical processors and manufacturers of such products as lighting, switches, thermometers, dental materials, and medicine. The mercury could also be sold to traders or brokers, who could then sell the mercury to producers and users. It is assumed that mercury would be sold to buyers in the eastern and western United States, Europe, and Asia.

Under the second option, sale of the entire inventory to a mercury mining company is analyzed. It is assumed that the buyer would be in either Europe or Asia.

1.4.4 Transportation

This MM EIS analyzes moving materials, flasks, and overpacks as part of the alternatives. Specifically, this MM EIS analyzes the following:

- Transport of mercury from existing storage locations to a consolidated storage site
- Transport of mercury from existing storage locations to buyers
- Transport of materials needed for operating a storage facility (e.g., new flasks and overpacks)

Mercury would be moved by truck or rail unless sold to overseas buyers, in which case it would also be transported by ship.

1.4.5 Decontamination and Decommissioning

When the mercury storage buildings are no longer needed, DNSC would decontaminate and decommission the buildings as described in Section 4.6. More detailed analysis of the impacts of decontamination and decommissioning activities is not possible at this time because the sites have not yet developed plans for future use or disposal of these buildings. Reuse or disposal plans would be subject to additional environmental analysis as appropriate.

1.5 PUBLIC INVOLVEMENT IN DEVELOPING THE SCOPE

Between February 5 and June 30, 2001, DNSC conducted an open process called "scoping" that allowed stakeholders to review and comment on the proposed scope of the MM EIS. Stakeholders typically include private individuals, elected and appointed public officials, environmental organizations, and government agencies. DNSC hosted five public meetings to discuss the proposed scope. DNSC invited the public to provide written comments at public meetings or by U.S. mail, toll-free fax, email, or Web

site (address www.mercuryeis.com). The public could also submit oral comments at the public meetings or by calling the toll-free telephone number.

Four scoping meetings were held near the current DNSC mercury storage sites in Niles, Ohio; New Haven, Indiana; Oak Ridge, Tennessee; and Hillsborough, New Jersey. A scoping meeting was also held in Washington, D.C. About 100 people attended the meetings, at which information on the mercury management program and this MM EIS was available. Each meeting began with a short DNSC presentation on the EIS process and scope. Following the presentation, attendees were invited to provide comments; oral comments were captured by a court reporter. In addition, the public was provided with the opportunity to discuss issues directly with DNSC management and technical specialists who staffed an exhibit area.

DNSC considered all public comments in refining the scope of the EIS. Issues raised at the five meetings are documented in the report, *Scope of the Mercury Management EIS* (December 2001). The *Scope of the MM EIS* is available at information repositories near the meeting locations and on the MM EIS Web site. Copies were mailed to stakeholders, including those who attended scoping meetings and others on request (DLA 2001a).

Forty-three stakeholders made a total of 109 comments during the scoping period. Comments included the following:

- **Mercury Management Alternatives**

- Many comments were either for or against mercury sales.
- Many comments addressed treatment followed by storage or disposal.
- Recommendations were made for how to address the sale of mercury in the EIS (e.g., comprehensively address the potential environmental impacts of mercury sales, discuss mercury as an interchangeable material).
- A life-cycle approach should be evaluated by DNSC to include stabilization and storage with eventual recovery of the mercury from the stabilized form.
- Mercury should be removed from one or another of the existing sites. Reasons were given for why specific sites were no longer suitable.
- Some comments were against long-term storage.
- Additional study should be conducted before a transportation mode is selected.
- Contingent long-term storage should be added as an alternative, moving mercury to a temporary storage facility away from populated areas, or storage by private entities.

- **Storage Technologies**

- Mercury might not be able to be stored safely in building and containers.
- Overpacks are a waste of money.
- Leaking flasks are not easily detected inside an overpack.
- Chemical treatment of mercury before storage is more hazardous than leaving it in the elemental form.

- **Health and Safety**
 - There are possible health risks associated with the storage of mercury and mercury contamination.
 - Mercury is being safely stored.
- **Accident and Natural Disasters**
 - There is a potential for adverse human and ecological health effects as a consequence of transportation and facility accidents (e.g., small spills and leaks of mercury or larger releases due to fire or other natural disasters).
 - Mercury monitoring equipment could be used to alert people to potential hazards.
- **Environmental**
 - Mercury presents an environmental risk, including mercury contamination.
 - Storage sites would need remediation.
 - Mercury sales may also have environmental impacts that should be analyzed.
- **Socioeconomic**
 - Socioeconomic issues for the sale of mercury and other alternatives should be analyzed.
 - The sale of mercury could adversely affect the mercury recycling and gold mining industries.
- **MM EIS Schedule**
 - The schedule should be expedited so mercury management actions can proceed.
- **Regulatory Compliance**
 - DNSC should perform a complete review and analysis of regulatory changes required for implementing a mercury retirement program, and identify which laws apply to the mercury stockpile and which agencies have jurisdiction.
 - The excess mercury should be classified as a hazardous waste.
 - EPA's proposed changes to land disposal restrictions and treatment standards for disposal could affect the MM EIS.
- **Public Participation**
 - The meeting notices in local newspapers looked like legal notices, which people tend to ignore.
 - An additional meeting should be held in Reno, Nevada.
 - The mercury was removed from one storage depot to calm public misgivings, but this criterion was not applied to move the mercury out of other storage depots.

1.6 PUBLIC REVIEW OF THE DRAFT MM EIS

In April 2003, DNSC published the Draft MM EIS (DNSC 2003). EPA and DLA announced the availability of the Draft MM EIS in *Federal Register* (FR) notices (68 FR 17801 [EPA 2003] and 68 FR 17786 [DLA 2003]) and invited interested parties to provide comments.

The Draft MM EIS or the Executive Summary was distributed to more than 830 individuals and organizations, including appropriate state clearinghouses and regulatory agencies. National Environmental Policy Act (NEPA) regulations mandate a minimum 45-day comment period after the publication of the EPA's Notice of Availability of a draft EIS to provide an opportunity for the public to comment. The comment period on the Draft MM EIS began on April 11, 2003, and provided the public with more than twice the required number of days to comment. In response to public requests to extend the comment period, the deadline for transmittal of comments was extended informally from July 18, 2003 (as stated in the *Federal Register*), to September 2, 2003.

During the comment period, DNSC held seven meetings to discuss the proposed action and receive oral and written comments on the Draft MM EIS. The meetings were held in the communities that could be affected by the proposed actions, as well as in Washington, D.C. Approximately 230 persons attended the public meetings. Transcripts of the meetings are available at the 15 information repositories listed on the project Web site (www.mercuryeis.com) and identified in the *Federal Register* notice (68 FR 17786 [DLA 2003]).

DNSC received 295 comment documents containing 633 comments addressing a wide range of issues. All comments were considered, and the issues and concerns raised are reflected in this Final MM EIS. Volume II presents the comment documents, identifies the specific comment(s) from each, and provides DNSC's responses.

1.6.1 Environmental Protection Agency Rating

In accordance with EPA's responsibilities under Section 309 of the Clean Air Act, NEPA, and the Council on Environmental Quality (CEQ) regulations implementing NEPA, EPA reviewed the Draft MM EIS and assigned a Lack of Objections rating to the proposed action, EPA's highest rating. EPA did not identify any significant environmental concerns related to DNSC's preferred alternative. In EPA's opinion, the Draft MM EIS provided adequate documentation and suitable analysis upon which to base a decision. A copy of the EPA letter (Comment Document No. 27) is included in Section 2.2 of Volume II.

1.6.2 Issues Raised During the Public Comment Period

The majority of the comments received on the Draft MM EIS are related to three issues:

- The Consolidated Storage Alternative
- Impacts on human health and safety of the mercury storage facility operations
- Environmental and economic impacts of mercury storage

Section 1.6 of Volume II summarizes the major comments received on the Draft MM EIS and DNSC responses.

1.6.3 Changes to the Final MM EIS

The Final MM EIS has been changed to respond to comments received regarding cost. The costs to transport mercury by truck have been revised. In addition, costs to transport mercury by rail have been added. Storage costs have been revised based on updated rental cost information. These changes appear in Section ES.6, Section 2.5, Section 4.1, and Appendix D.

Public comments on the Draft MM EIS are addressed in Volume II of the Final MM EIS, a new volume. Section 5.3 was revised to include the status of consultations related to ecological resources, cultural resources, and Native American rights. Correspondence related to the consultations are included in Appendix I, a new appendix. In addition, a number of editorial changes and corrections were made throughout the Final MM EIS.

1.7 RELEVANT PROGRAM DOCUMENTS

The proposed mercury management actions described in this MM EIS would require coordination with ongoing activities at DNSC, DOE, and other candidate sites. This section includes brief summaries of other activities related to the long-term management of mercury. Section 1.7.1 describes documents that deal directly with other aspects of DNSC's mercury management program, while Section 1.7.2 describes potentially related activities at specific DNSC depots. Section 1.7.3 describes related activities at Y-12. Section 1.7.4 summarizes documents relevant to the other three candidate consolidated storage sites.

1.7.1 DNSC Mercury Management Activities

The *Mercury Reflasking Environmental Assessment* (October 2000; Finding of No Significant Impact [FONSI], October 19, 2000) analyzes the transferal of mercury from existing flasks to new containers at the New Haven and Warren depots to ensure the continued safe storage of the mercury. Three alternatives are analyzed: No Action; Reflasking into new 76-lb (34.5-kg) steel flasks, as the mercury is currently stored; and Repackaging into new (1.1-ton [1-metric-ton]) containers (DLA 2000a, 2000b). After preparing the *Mercury Reflasking Environmental Assessment* and FONSI, DNSC developed an alternative method of ensuring safe storage of the mercury by packing the mercury storage flasks into lined, 30-gal (114-l) steel drums (overpacks). DNSC issued a Record of Determination for a Categorical Exclusion in March 2001, stating that the impacts of overpacking the flasks at the New Haven and Warren depots were encompassed by the impacts already evaluated in the *Mercury Reflasking Environmental Assessment* (DLA 2001b). The reflasking and overpacking activities are interim actions and do not prejudice the outcome of this MM EIS. Overpacking of the mercury flasks at Warren was completed in March 2002, and overpacking at New Haven was completed in May 2002.

The *Mercury Overpacking at Somerville, New Jersey, Environmental Assessment* (May 2001; FONSI, May 24, 2001) analyzes the overpacking of mercury-containing flasks into steel drums. Two alternatives are analyzed in this environmental assessment (EA): No Action and Overpacking (DLA 2001c, 2001d). Overpacking the flasks is an interim operational action, providing additional assurance that the mercury stored at the Somerville Depot is suitable for continued safe storage there or for transportation elsewhere. This interim action does not prejudice the outcome of this MM EIS. Overpacking of the mercury flasks at Somerville was completed in February 2002.

1.7.2 Depot Activities

In 1998, preliminary assessments conducted under the Defense Environmental Restoration Program at the New Haven, Somerville, and Warren depots indicated that a potential existed for non-mercury

materials stored outside to release hazardous substances to the environment. Follow-on site investigations were conducted in March 2000 to determine whether hazardous substances were actually released to the environment and to assess the likelihood that they migrated off site and impacted human or environmental receptors. The investigations at each of the three depots identified nonmercury contamination and the need for remediation, but did not identify the extent of remediation that may be required.

Additional studies were completed in 2001 and 2002. These reports are summarized below. These assessments and investigations are not environmental assessments under NEPA, but instead are related to the Defense Environmental Restoration Program performed under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). Activities related to mercury management are not expected to adversely affect or be affected by remediation activities at the depots.

The *Final Focused Site Investigation Report, New Haven Depot, New Haven, Indiana* (February 2001) documents additional investigations conducted at the site. The report concludes that arsenic, total chromium, and lead were detected in all soil samples and some groundwater samples at concentrations that exceed State of Indiana standards. Concentrations of barium, total chromium, lead, nickel, and zinc appear to be significantly greater in some sediment samples than others. This could indicate that the sediments at the depot have been impacted by stockpiled materials. The report recommends that further assessments be conducted at the site (USACE 2001a).

The *Draft Remedial Investigation Report, Somerville Depot, Somerville, New Jersey* (February 2002) documents additional investigations conducted at the site to determine the presence and extent of constituents that exceed New Jersey Department of Environmental Protection regulatory criteria. The report concludes that analyses of soil sample results indicate that some areas within the depot may be impacted by depot activities. Metals, including lead, zinc, copper, nickel, arsenic, and thallium, were found above background ranges and nonresidential and/or residential soil criteria. Aluminum, iron, and lead were found in samples above state groundwater quality criteria. Surface water sample results indicate that depot operations have not adversely impacted surface water quality in Dukes and Royce brooks. Sediment sample results indicate that depot operations have not impacted sediment quality in Royce Brook, but may have in Dukes Brook. Based on the findings, the report recommends that additional sampling be conducted in some areas (USACE 2002). This document will be issued in final form in Spring 2003.

The *Final Focused Site Investigation Report, Warren Depot, Warren, Ohio* (February 2001) documents additional investigations conducted at the site. The report concludes that lead is the only material found in soil samples at a concentration in excess of state standards. Concentrations of beryllium, copper, selenium, silver, and thallium were present in shallow and deep soil samples, exceeding the adjusted background concentrations, indicating that Warren Depot operations have impacted soils at the site and that the direct contact exposure pathway for soils is present. The report concludes that the potential of leaching of metals from the soil exists and recommends that the groundwater exposure pathway requires further assessment. Metals found in sediment indicate that the potential of metals having migrated off site prior to current surface runoff limitations is likely. Additional assessment of sediment migration exposure pathway is recommended (USACE 2001b).

1.7.3 DOE Y-12 Activities

The *Final Site-Wide Environmental Impact Statement for the Y-12 National Security Complex* (DOE/EIS-0309, September 2001) documents a baseline for Y-12 mission operations and evaluates the reasonable alternatives for implementing the programmatic decisions previously announced in the Records of Decisions (RODs) for the *Programmatic Environmental Impact Statement for Stockpile*

Stewardship and Management and the Storage and Disposition of Weapons-Usable Fissile Materials Programmatic Environmental Impact Statement (DOE 1996a, 1996b, 2001). In those RODs, DOE determined that the current mission would remain at Y-12. DOE also determined that the existing Y-12 facilities are old, oversized, inefficient, not cost-effective, and do not maximize the attainment of environment, safety, and health goals. The sitewide EIS evaluates reasonable alternatives for modernizing the high-enriched uranium storage mission and special materials mission at Y-12. DOE issued a ROD for this EIS on March 13, 2002, that determined the preferred alternative, No Action-Planning Basis Operations Alternatives Plus Construct and Operate a Highly Enriched Uranium Materials Facility and Special Materials Complex (DOE 2002). This alternative includes the continued operations at Y-12 to meet National Nuclear Security Administration mission requirements and other DOE program activities.

The Oak Ridge Reservation, which includes Y-12, was placed on the EPA National Priorities List in December 1989. The National Priorities List is a comprehensive list of sites/facilities that have been found to pose a sufficient threat to human health and/or the environment to warrant cleanup under CERCLA. An interagency agreement under Section 120(c) of CERCLA was signed in January 1991 by EPA, DOE, and the Tennessee Department of Environment and Conservation. This agreement ensures that the environmental impacts associated with past and present activities at the Oak Ridge Reservation are thoroughly investigated and that appropriate remedial actions or corrective measures are taken, as necessary, to protect human health and the environment. This agreement is also intended to coordinate the corrective action processes of the Resource Conservation and Recovery Act. Buildings, soil, water, and sediment at Y-12 are contaminated with mercury as a result of its extensive past use in the Y-12 process facilities. Mercury is no longer used in Y-12 production processes. Current mercury remediation activities are focused on compliance with the limits for mercury concentrations in Upper East Fork Poplar Creek required by the Y-12 National Pollution Discharge Elimination System permit by eliminating, mitigating, or capturing for treatment mercury-contaminated effluent. From May 18 to May 20, 1999, Y-12's Reduction of Mercury in Plant Effluents Project Team hosted a mercury forum. More than 130 participants assisted in identifying viable characterization and remediation technologies to be considered by DOE (DOE 2000:3-5, 3-6).

Although remediation activities are outside the scope of this MM EIS, reasonably foreseeable activities are considered in the cumulative impacts assessment in the MM EIS. Activities related to mercury management are not expected to adversely affect or be affected by remediation because the mercury contamination is not related to mercury storage at Y-12.

1.7.4 Candidate Consolidated Storage Sites

The following documents were used as sources for the affected environment descriptions provided in this MM EIS for the Hawthorne Army Depot, PEZ Lake Development, and Utah Industrial Depot.

The *Environmental Baseline Survey – Hawthorne Army Depot, Hawthorne, Nevada* (February 4, 2000) documents the environmental condition of Hawthorne Army Depot and evaluates the facility for existing or potential environmental contamination that may be a threat to human health or the environment. The survey was conducted through a review of historical documents, interviews with personnel familiar with activities conducted on the property in the past and present, and visual inspection of the property. As a result of this survey, the majority of the depot has been classified as property types that do not present a potential environmental concern because either no hazardous chemicals or petroleum, oil, and lubricant products have been stored or use of these materials has been in a manner to ensure that no release has or should have occurred. The warehouses that have been designated for DNSC mercury storage fall into this category. The report

recommended that the depot continue to address properties that require remedial action through the Installation Restoration Program (Army 2000).

The *Final Environmental Impact Statement for BRAC 95 Disposal and Reuse of Property at the Seneca Army Depot Activity, New York* (March 1998) analyzes actions directed by the Defense Base Closure and Realignment Commission: disposal of approximately 10,594 acres (4,287 ha) of property made available by the closure of Seneca Army Depot Activity. This EIS evaluated two disposal alternatives (encumbered and unencumbered); three reuse alternatives representing low, medium-low, and medium intensity reuse; and a No Action Alternative. The U.S. Department of the Army (Army) issued a ROD for this EIS on May 12, 1998, stating that the preferred alternative, to provide an encumbered title (i.e., the transfer of property to others with use restrictions imposed by the Army) on all property transfers, was chosen. The PEZ Lake Development candidate site is situated on the former Seneca Army Depot (Army 1998).

The *Supplemental Draft Environmental Impact Statement, Seneca County Public Safety Building and Jail at the Seneca Army Depot, Town of Romulus, Seneca County, New York* (June 17, 2002) evaluates locating the Seneca County Public Safety Building and Jail at the Seneca Army Depot. An EIS was prepared in 2000 that analyzed expanding the existing jail site in the Village of Waterloo and the No Action alternative of boarding inmates in other county jails. The supplemental draft EIS was prepared to analyze the potential impacts of an alternate site, the Seneca Army Depot (Chazen 2002).

The *Final Environmental Impact Statement Disposal and Reuse of the BRAC Parcel at Tooele Army Depot*, (January 1996) analyzes the disposal and reuse of a 1,700-acre (688-ha) parcel at the Tooele Army Depot. The realignment of specific missions leading to the disposal was directed by the Defense Base Closure and Realignment Commission. Encumbered Disposal, Unencumbered Disposal, and No Action alternatives are evaluated. The Army issued a ROD for this EIS on May 23, 1996, stating that the surplus property at Tooele Army Depot would be transferred by encumbered disposal. The Utah Industrial Depot candidate site is situated on Tooele Army Depot surplus property (Army 1996).

The *Environmental Assessment for the Utah Industrial Depot West Loop Road Right-of-Way Through Tooele Army Depot, Utah and the Use of Adjoining Land Parcels within Tooele Army Depot, Utah* (June 2001; FONSI, June 20, 2001) analyzes granting a right-of-way so that Tooele City can construct a roadway that links the northwestern portion of the Utah Industrial Depot with State Route 112. The right-of-way also permits the Utah Industrial Depot to use approximately 35 acres (14 ha) of property that adjoins the eastern right-of-way boundary within Tooele Army Depot and approximately 27 acres (11 ha) of property that adjoins the western right-of-way boundary within Tooele Army Depot (Army 2001a).

The *Environmental Assessment for the Mid-Valley Highway Right-of-Way Through Tooele Army Depot, Utah and Connecting State Route 112 with State Route 36* (May 2001; FONSI, July 3, 2001) analyzes granting a right-of-way so that Tooele County could construct a roadway through a portion of Tooele Army Depot property. Construction of the roadway would provide an alternative north-south access route, improving the speed and efficiency of ordnance transport in and out of the depot and alleviating the north-south traffic through Tooele City (Army 2001b).

1.8 APPLICABLE REQUIREMENTS AND COORDINATION

NEPA establishes a national policy to help public officials make decisions that are based on an understanding of environmental consequences. Federal agencies must comply with the CEQ regulations (40 CFR Part 1500 et seq.) that implement the procedural provisions of NEPA. *Environmental Consideration in DLA Actions in the United States* (DLAR 1000.22) establishes Defense Logistics Agency procedures for fulfilling the CEQ regulations. Preparation of this MM EIS was in compliance with all NEPA regulations.

In 1997, DNSC began preparing an EA for the resumption of mercury sales. During the initial EA preparation process, DNSC identified options other than sales and decided to prepare a more comprehensive document. Therefore, on February 5, 2001, DNSC published a Notice of Intent in the *Federal Register* announcing its decision to prepare this MM EIS (see Appendix A).

The CEQ regulations encourage agency cooperation early in the NEPA process. Any other Federal agency that has jurisdiction by law can be a cooperating agency when requested by the lead agency. Other agencies that have special expertise with respect to an environmental issue may also be cooperating agencies. For this MM EIS, DOE and EPA are cooperating agencies. DOE has assisted DNSC in developing mercury management alternatives and impact analyses, especially with regard to Y-12.

In the spirit of NEPA, DNSC has developed this EIS in consultation with experts from other Federal agencies and commercial users and producers of mercury. This process included discussions with CEQ, EPA, and the White House Office of Science and Technology. In early 2001, an Interagency Working Group was created, with members from the U.S. Department of Commerce, DOE, the U.S. Department of Health and Human Services, EPA, and the U.S. Geological Survey. These agencies either have significant mercury expertise or could be affected by decisions made as a result of this MM EIS.

The proposed action must comply with many other laws, regulations, and Executive orders. Some of these laws and regulations require Federal agencies to consider consultations with other Federal, state, and local agencies regarding the potential environmental, cultural, and historic impact of the proposed action. Native American tribes are to be consulted when the potential impacts may occur on a reservation or when ancestral Native American sites or traditional practices conducted under treaties are disturbed. The CEQ NEPA regulations (40 CFR 1502.25) specifically require agencies to prepare EISs concurrently with and integrated with environmental impact analyses and related surveys and studies required by the Fish and Wildlife Coordination Act, the National Historic Preservation Act, the Endangered Species Act, and other environmental laws and Executive orders, which include but are not limited to the following:

- Executive Order 11593, Protection and Enhancement of the Cultural Environment
- Executive Order 11990, Protection of Wetlands
- Executive Order 11988, Floodplain Management
- Executive Order 12114, Environmental Effects Abroad of Major Federal Actions
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations
- Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks

Chapter 5 provides a comprehensive description of the major Federal environmental laws and regulations; Executive orders; DoD and DLA directives, instructions, and manuals; and other compliance requirements that could affect the range of alternatives described in this MM EIS. A summary of permit requirements and the status of required consultations with Federal, state, and local agencies are also included in Chapter 5.

1.9 ORGANIZATION OF THIS MM EIS

This Final MM EIS consists of two volumes. Volume I contains the main text of this EIS and technical appendixes that support the analyses. Volume II contains the comments received on the Draft MM EIS during the public review period, along with DNSC responses (i.e., the Comment Response Document). A separate *Executive Summary* and *Human Health and Ecological Risk Assessment Report for the Mercury Management Environmental Impact Statement* are also available.

This MM EIS contains Chapters 1 through 9, as described below:

- Chapter 1, Purpose of and Need for the Proposed Action, outlines the proposed action and provides background information on the DNSC mercury stockpile. It also describes the scope of the MM EIS and applicable legal and regulatory requirements.
- Chapter 2, Alternatives for the Management of Mercury, describes the DNSC mercury analyzed in the MM EIS, the three alternatives for management of the mercury, 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 in the MM EIS. This chapter also provides a summary of impacts and estimated costs of the alternatives, and a description of DNSC's preferred alternative (i.e., consolidated storage).
- Chapter 3, Affected Environment, describes the potentially affected environments at the candidate sites and the approach taken in defining these affected environments. The level of detail presented for each resource (e.g., air, water, ecosystems) depends on the likelihood that the resource will be affected by mercury management activities.
- Chapter 4, Environmental Consequences, describes the potential impacts on the affected environments presented in Chapter 3 from the proposed mercury management alternatives, including cumulative impacts and unavoidable adverse impacts. It also discusses potential future decontamination and decommissioning activities, irreversible and irretrievable commitments of resources, and the relationship between short-term uses of the environment and long-term productivity.
- Chapter 5, Environmental Regulations, Permits, and Consultations, provides a description of the environmental and health and safety compliance requirements governing implementation of the alternatives, a summary of permit requirements, and the status of required consultations with Federal and state agencies and Native American tribal governments.
- Chapters 6, 7, 8, and 9 are the Glossary, List of Preparers, Distribution List, and Index, respectively.

The nine appendixes include descriptions of methods used to estimate environmental impacts of the alternatives and the detailed information to support the impact analyses. The appendixes are as follows:

- Appendix A – *Federal Register* Notices
- Appendix B – Contractor Disclosure Statement
- Appendix C – Facility and Activity Data

- Appendix D – Cost Analysis
- Appendix E – Impact Assessment Methods
- Appendix F – Construction of a New Mercury Storage Building
- Appendix G – Environmental Justice Analysis
- Appendix H – Cooperating Agency Agreements
- Appendix I – Consultation Letters

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