

Scope of the Mercury Management Environmental Impact Statement

December 2001



Defense National Stockpile Center
Defense Logistics Agency
Fort Belvoir, VA

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List of Acronyms

CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
DEIS	draft environmental impact statement
DLA	Defense Logistics Agency
DLAR	Defense Logistics Agency Regulation
DNSC	Defense National Stockpile Center
DoD	Department of Defense
DOE	Department of Energy
EIS	environmental impact statement
EPA	Environmental Protection Agency
MM EIS	Mercury Management Environmental Impact Statement
NEPA	National Environmental Policy Act
NOI	Notice of Intent
NRHP	National Register of Historic Places
RCRA	Resource Conservation and Recovery Act
RMERC	roasting and retorting of mercury bearing hazardous waste
ROD	Record of Decision
TRV	toxicity reference value
Y-12	U.S. Department of Energy Y-12 National Security Complex

Chapter 1

Introduction

This chapter provides background information on mercury and its management and storage to assist in understanding the need for the proposed action. It describes the purpose and organization of the *Scope of the Mercury Management Environmental Impact Statement (Scope of the MM EIS)*.

1.1 BACKGROUND, PURPOSE, AND NEED

The Defense National Stockpile program was established by Congress in the Strategic and Critical Materials Stock Piling Act of 1939, as amended, to minimize the U.S. dependence on foreign sources of essential materials in times of national emergency. Between 1949 and 1988, the General Services Administration and the Federal Emergency Management Agency were responsible for the program. In 1988, the responsibility for the program was delegated to the Secretary of Defense, who assigned the program to the Defense Logistics Agency (DLA). The Defense National Stockpile Center (DNSC), which is headquartered at Fort Belvoir, Virginia, was established within DLA to manage the program and operate storage depots nationwide. DNSC is responsible for all activities necessary to provide safe, secure, and environmentally sound stewardship of all commodities in the inventory. The stockpile currently includes approximately 65 commodities, including aluminum oxide, cobalt, ferrochrome, lead, rubber, tin, zinc, and mercury.

Mercury is a dense, naturally occurring, silver-colored metallic element that is liquid at room temperature. Sometimes called quicksilver, liquid mercury has been used extensively in manufacturing processes because it conducts electricity, reacts to temperature changes, and alloys with many other metals. Mercury is used in thermostats, hospital equipment and supplies, fluorescent lights, switches for automobile lighting, and dental fillings.

Mercury is released into air, water, and soil by human activities and a wide variety of natural processes, such as volcanic activity, forest fires, and degassing from rocks and water. Mercury that enters the atmosphere can be transported globally. It is removed from the atmosphere through deposition on land and surface water. Mercury in the aquatic environment can be transformed into methyl-mercury where it can then bio-accumulate to toxic levels in terrestrial and aquatic food chains. Human activities that cause releases of mercury into the environment include coal combustion, medical and municipal waste incinerators, mining and smelting of mercury ores, mercury cell chlor-alkali plants, copper and lead smelters, and cement manufacturers. Mercury is designated as a hazardous substance under Section 307(a) of the Clean Water Act, Section 112 of the Clean Air Act, and Section 3001 of the Resource Conservation and Recovery Act (RCRA).

The DNSC inventory of mercury is between 99.5 and 99.9 percent pure elemental mercury. The material is currently stored in steel flasks, with each flask containing about 76 pounds (34.5 kilograms) of mercury. The mercury-containing flasks meet the U.S. Department of Transportation's mercury-specific requirements for transportation other than by aircraft (Title 49 of the Code of Federal Regulations [CFR], Section 173.164[d][2]).

The inventory of 4,890 tons (4,436 metric tons) of mercury is currently stored in enclosed warehouses at three DNSC sites: Somerville, New Jersey; New Haven, Indiana; and Warren, Ohio; and at the U.S. Department of Energy (DOE) Y-12 National Security Complex (Y-12) at Oak Ridge, Tennessee. Figure 1.1-1 shows the locations of the mercury storage facilities. Storage warehouses have concrete floors, solid block wall construction, ceiling air vents, and dry-pipe (water supply) fire suppression

systems. Although buildings are vented, there are no floor drains through which leaked or spilled materials could escape to the environment. The floors in the storage buildings are sealed with a leak-proof, seamless system that will not allow penetration by mercury. Public access to the mercury is restricted by such measures as fencing, security guards, and locked warehouses. DNSC regularly inspects the mercury stockpile to ensure that it is safe and secure.



Figure 1.1-1 Existing Mercury Storage Locations

Table 1.1-1 shows the quantities of mercury in storage at each location.

Table 1.1-1 DNSC Mercury in Storage

Location	Quantity of Mercury		Flasks
	Tons	Metric Tons	
New Haven Depot	614	557	16,151
Somerville Depot	2,885	2,617	75,880
Warren Depot	621	563	16,355
Y-12	770	699	20,276
TOTAL	4,890	4,436	128,662

Key: Y-12, U.S. Department of Energy Y-12 National Security Complex.

Flasks at New Haven, Somerville, and Warren are being placed in lined, 30-gallon steel drums for storage (overpacked). Each drum will hold six flasks. The bottom of each drum will be lined with an absorbent mat, and cardboard dividers will separate the flasks and provide cushioning. Each drum will be sealed with a steel locking ring and gasket. The drums will be stored on metal drip pans on wooden pallets; each

pallet will hold five drums. The mercury at Y-12 was moved into new seamless flasks in 1975, and therefore is not included in the overpacking initiative.

Congress has declared most of the DNSC materials to be in excess of national defense needs and has authorized their disposition, generally by sale. Mercury is one of these commodities determined to be in excess of national defense needs. DNSC, as custodian of the excess inventory of mercury, must decide on the management of this material. As required by the Council on Environmental Quality (CEQ) and DLA regulations (40 CFR 1502.14 and Defense Logistics Agency Regulation [DLAR] 1000.22, respectively) implementing the National Environmental Policy Act (NEPA), this decision must include consideration of a range of reasonable management alternatives and the environmental impacts of those alternatives. DNSC has historically sold excess mercury to U.S. and foreign companies. DNSC voluntarily suspended mercury sales in 1994 in response to concerns raised by the U.S. Environmental Protection Agency (EPA) regarding the accumulation of mercury in the global environment. In 1997, DNSC initiated a draft environmental assessment to support its consideration of options for future management of the stockpiled mercury. DNSC later determined that an environmental impact statement (EIS) was appropriate under NEPA and cancelled the preparation of the environmental assessment.

CEQ regulations (40 CFR 1501.7) require an early and open process for determining the scope of an EIS and for identifying the significant issues related to the proposed action. To ensure that the full range of issues related to this proposal are addressed, DNSC invited Federal agencies, State, local, and tribal governments; the public; and the international community to comment on the scope of the MM EIS, including the identification of reasonable alternatives.

The public scoping period began with the publication of the Notice of Intent (NOI) in the Federal Register on February 5, 2001 (see Appendix A), and continued through June 30, 2001. DNSC considered all comments received or postmarked by the end of the comment period in defining the scope of the MM EIS. Comments received after that date were considered to the extent practicable.

DNSC conducted public scoping meetings in communities near the facilities where the mercury is currently stored and at one regional location. The dates, times, and locations of the scoping meetings were announced in a March 5, 2001, Federal Register notice (see Appendix A), posted on the MM EIS Web site (www.mercuryeis.com), and published in local and regional newspapers. The public scoping meetings are described in more detail in Section 3.3.

DOE is a cooperating agency for the preparation of the MM EIS because some of the mercury being considered is stored at Y-12. In addition, DOE has special expertise—as managers of stored mercury, with mercury in the environment, with long-term storage of hazardous materials, and with ongoing studies of mercury stabilization.

1.2 PURPOSE AND ORGANIZATION OF THIS DOCUMENT

As described in the DLA NEPA regulation, DLAR 1000.22 (DLA 1981), a written summary of the issues raised by the public during the scoping period shall be prepared to aid in defining the scope of the draft EIS (DEIS). Accordingly, the *Scope of the MM EIS* describes the scoping process, summarizes the issues raised, and presents the determinations reached by DNSC as a result of the scoping process. The objectives of this report are to summarize the essence of the comments received in a clear and concise

manner, accurately portray the planned scope of the MM EIS, and provide guidance and direction for the preparation of the EIS. The *Scope of the MM EIS* includes the following:

- A description of the proposed action (Section 2.1) and alternatives for mercury management (Section 2.2)
- An explanation of the relationship of the proposed action to other actions (Section 2.3)
- A summary of the approach that will be used to evaluate the environmental and social impacts of the proposed alternatives (Section 2.4)
- A description of the major environmental and socioeconomic issues to be addressed in the MM EIS (Section 2.5)
- A description of how the MM EIS will be prepared, including a preliminary schedule for the EIS; a discussion of the roles and responsibilities of different organizations involved in preparing, reviewing, and approving the EIS; a description of the activities undertaken by DNSC to involve interested organizations and the public in the EIS process; and a preliminary annotated outline of the DEIS (Section 2.6)
- A summary of the activities that occurred prior to the formal scoping period (Section 3.1)
- A description of the information materials and announcements provided to the public during the scoping period (Section 3.2)
- An account of the five scoping meetings conducted for the MM EIS (Section 3.3)
- A description of other mechanisms provided for public comment during the scoping period (Section 3.4)
- A summary of the comments received during the public scoping period and DNSC's consideration of the issues (Section 3.5)

Chapter 2

Scope of the Mercury Management Environmental Impact Statement

This chapter describes the planned scope of the MM EIS in consideration of the comments received during the scoping period. It describes the proposed action and the alternative strategies for mercury management that will be evaluated in the DEIS; explains the relationship of the proposed action with other actions; summarizes the approach that will be used to evaluate the environmental and social impacts of the proposed alternatives; and describes the major environmental and socioeconomic issues to be addressed. Chapter 2 also describes how the MM EIS will be prepared.

2.1 PROPOSED ACTION

DNSC proposes to select and implement an approach for the management of the DNSC mercury. This strategy must be environmentally safe and cost effective and provide for the safety of workers and the public.

2.2 ALTERNATIVES FOR MERCURY MANAGEMENT

This section describes alternatives for the management of DNSC's mercury that are expected to meet the purpose and need for the proposed action. As described in the CEQ regulations (40 CFR 1502.2[e]), the range of alternatives discussed in the MM EIS shall encompass those to be considered by the ultimate agency decisionmaker. The alternatives evaluated should rigorously explore and objectively evaluate all reasonable alternatives, including the No Action Alternative (40 CFR 1502.14[a, d]). Where there are a large number of reasonable alternatives, a range of reasonable alternatives shall be evaluated. The agency's preferred alternative should be identified in the DEIS, if one exists. The agency's preferred alternative must be identified in the final EIS (40 CFR 1502.14[e]).

DNSC will evaluate a range of reasonable alternatives that are expected to meet the defined purpose and need. These alternatives will include the No Action Alternative and are likely to include Consolidated Storage, Treatment and Disposal, and Sales Alternatives. A preferred alternative has not yet been identified.

DNSC proposes a 40-year period of analysis for the MM EIS. DNSC has safely stored mercury and other commodities for over 40 years, and therefore believes that safe storage is achievable for this length of time. In addition, DNSC estimates that 40 years would be a reasonable period of analysis for the No Action and Consolidated Storage Alternatives. These alternatives determine the maximum length of the period of analysis for the MM EIS because they result in continued DNSC stewardship of the mercury. Other alternatives (i.e., Treatment and Disposal and Sales) would likely be completed in 5 to 10 years. A 40-year period would be long enough to disclose impacts of long-term storage, while also recognizing that DNSC would need to reexamine the MM EIS storage decision at some future time to determine whether permanent disposition of the mercury stockpile would then be possible. It is likely that DNSC would reevaluate its long-term storage decision before the 40-year period is over. Therefore, 40 years provide a longer (more conservative) period of time than is likely to be needed.

2.2.1 No Action Alternative

Under the No Action Alternative, the inventory of mercury would continue to be stored at the current locations, with surveillance and corrective action as necessary to maintain safe storage. Impacts from continued storage at the current locations will be analyzed over a 40-year period.

2.2.2 Consolidated Storage Alternatives

The Consolidated Storage Alternatives would include transporting all the elemental mercury to one location for continued long-term storage (40 years). It is likely that each current storage location (except Y-12) would be evaluated as a potential consolidation location. Y-12 will not be evaluated for consolidated mercury storage because sufficient space is not available at the facility and long-term storage of mercury is not consistent with Y-12's national nuclear security mission. One or more alternate locations are also expected to be evaluated, or a typical site with appropriate parameters developed for evaluation, if an alternate site is not identified prior to preparation of the DEIS. In preparation for this alternative, DNSC published a notice in the Federal Register (DNSC 2001a) on March 5, 2001, requesting expressions of interest from Federal agencies that may be interested in hosting a storage facility for the entire DNSC mercury stockpile.

2.2.3 Treatment and Disposal Alternatives

The Treatment and Disposal Alternatives would require treating and disposing of the mercury as a hazardous waste. The Treatment and Disposal Alternatives would employ techniques for stabilizing the mercury to make it less mobile in the environment and to lessen the possibility for exposure to concentrations that could be toxic to humans or wildlife. Processing techniques could include amalgamation that alloys the mercury with other metals or solidification that combines the mercury with other compounds to form a stable material. Only those technologies that are reasonable will be evaluated. Reasonable technologies must be sufficiently documented, available during the required timeframe, and not prohibitively expensive.

In order to obtain information on potential processing technologies, DNSC placed an announcement in the *Commerce Business Daily* (DNSC 2001b) on May 24, 2001, requesting expressions of interest from firms that could provide mercury processing services. Expressions of interest were received from five firms. DNSC is reviewing these expressions of interest to determine which processing technologies should be evaluated in the MM EIS.

Stabilized mercury would be disposed of in a permitted hazardous waste landfill in accordance with State and Federal regulations. As described in Section 2.3.1, EPA is evaluating alternatives to allow treatment and disposal of high-concentration mercury wastes.

2.2.4 Sales Alternatives

The Sales Alternatives would entail the resumption of sales from the mercury stockpile. Sales could occur at the maximum market allowable rate or at a rate that is greater than or less than the maximum market allowable rate. Sales at a rate greater than the maximum market allowable rate may be difficult to implement because DNSC requirements allow mercury to be sold only at a rate that is unlikely to disrupt the world mercury market. Because sales at a rate greater than the maximum market allowable rate may result in reduced mercury mining (a positive environmental impact) DNSC will evaluate this option. Independent of the rate sold, DNSC could restrict mercury sales to approved users for approved uses

(lighting, medicine, chlor-alkali plants, laboratory reagents, etc.) or could choose to sell mercury with contract provisions which would have the effect of reducing mercury mining.

2.2.5 Alternatives That Will Not be Considered in Detail

A number of alternatives were considered but will not be evaluated in detail in the MM EIS. As described in the CEQ regulations (40 CFR 1502.14[a]), for alternatives that were eliminated from detailed study, the EIS must briefly discuss the reasons for elimination. Alternatives may be eliminated from further consideration because of technical immaturity, prohibitive cost, regulatory unacceptability, or because they do not support the purpose and need of the EIS.

During scoping for the MM EIS, DNSC considered evaluating a Processing and Storage Alternative. This alternative would involve processing the mercury to a stabilized form and then storing the processed material in anticipation of future beneficial uses. This alternative was considered but was eliminated during formulation of the final alternatives for two reasons: (1) mercury can be safely stored in its elemental form and, (2) elemental mercury is the preferred form in industrial processes that require mercury. DNSC has safely stored elemental mercury for over 50 years and will make this storage even safer by a number of actions, including placing the flasks inside sealed 30-gallon drums, sealing the floors with epoxy, and other storage building improvements. Processing may preclude some future uses of mercury or at least make them more difficult and more expensive.

A Processing and Storage Alternative would result in additional environmental impacts and costs during initial processing (stabilization), storage, and conversion (reclamation) back into elemental mercury at the end of the storage period. It is likely that the reclamation process would be similar to current processes used to refine mercury ores. Further, the potential impacts of a Processing and Storage Alternative are bracketed by the Consolidated Storage and the Treatment and Disposal Alternatives. An analysis of a Processing and Storage Alternative would provide little, if any, additional useful information for the decisionmaker. The Processing and Storage Alternative would produce additional environmental impacts and significantly add to the cost of the DNSC mercury management program without significant benefits. Therefore, this alternative was not selected for evaluation in the MM EIS.

Alternatives for consolidated storage at multiple (two to three) locations will not be evaluated in detail in the MM EIS. The MM EIS will evaluate continued storage of the mercury stockpile at the four current locations (No Action Alternative) and storage of the entire mercury stockpile at one location (Consolidated Storage Alternative). The analysis of the impacts of the No Action and Consolidated Storage Alternatives will bracket the potential impacts of storage at multiple (two to three) locations. Therefore, the range of alternatives to be evaluated encompasses the two-to-three site storage alternatives.

The MM EIS assumes that changes in EPA regulations will allow disposal of treated mercury in permitted landfills. Disposal in a nonpermitted facility or by a nonpermitted method will not be evaluated in detail due to its regulatory unacceptability. Similarly, disposal by methods such as disposal without treatment, rocketing into outer space, ocean dumping, controlled dilution in the ocean, sub-seabed emplacement, disposal under the ice caps, deep-well injection, or placing in a deep mine are not considered reasonable alternatives because it is unlikely that they would be sufficiently documented, be available during the required timeframe, have reasonable costs, or be acceptable from a regulatory standpoint.

The MM EIS will evaluate transportation of the mercury overland by truck and rail. For the Sales Alternatives, transport overseas by ship will be evaluated. Air transport is not considered a reasonable option because of the need to transport the mercury by truck or rail to and from the airports and the 10 to

20 times higher cost of air transport. In addition, the movement of mercury within the continental United States by barge is not a reasonable option due to the need to transport the mercury by truck or rail to and from the barge route and because of the limited service areas.

2.3 RELATIONSHIP OF THE PROPOSED ACTION TO OTHER ACTIONS

The proposed action may affect, or be affected by, other actions related to mercury or to the locations of the mercury management facilities. These relationships are discussed in the following sections.

2.3.1 Relationship of Proposed Action to Potential EPA Rulemaking for Mercury Treatment and Disposal

EPA regulates the treatment and disposal of mercury that is no longer needed in commerce, under regulations promulgated for RCRA. These regulations do not currently allow for the disposal of high-concentration mercury wastes such as elemental mercury. The specified treatment standard under 40 CFR 268 for high-concentration mercury wastes (i.e., 260 milligrams per kilogram total mercury and above) is roasting or retorting of mercury and subsequently condensing the volatilized mercury for recovery. This treatment method would not be feasible for the purpose of disposing of DNSC mercury because the purpose of the specified treatment is to recover the mercury for further use.

In recognition of the need to dispose of high-concentration mercury wastes, EPA issued an Advance Notice of Proposed Rulemaking on May 28, 1999 (64 FR 28949), describing its consideration of a revision to 40 CFR 268 land disposal restrictions treatment standards applicable to mercury-bearing wastes. This Advance Notice of Proposed Rulemaking requests data and comments on the various treatment options that EPA should consider. One question raised by EPA that would directly affect DNSC's mercury management program is: "Should the Agency allow alternative [non-recycling] treatment options to RMERC [roasting and retorting] for high concentration mercury wastes?" EPA states, "because mercury releases to the environment have had adverse impacts on both human health and the environment, federal regulations have concentrated on controlling and, in some cases, phasing out mercury use in industry." Therefore, EPA is seeking information on technologies that would treat high-concentration mercury wastes and convert them into environmentally safe forms.

EPA, in conjunction with DOE, is conducting an assessment of the environmental stability of treated mercury wastes. EPA expects to publish a Notice of Data Availability in early 2002 that will describe the results of this assessment and discuss alternatives to the current requirements, such as treatment variances or possible rulemaking.

If DNSC determines that there is no further use for its excess elemental mercury and makes a decision to dispose of it, the mercury may be considered a hazardous waste under RCRA. Because of this, the MM EIS will analyze treatment alternatives that employ techniques for stabilizing and preventing the potential for toxic exposure to mercury. Because EPA presently allows disposal of radioactively contaminated mercury waste after amalgamation, the MM EIS assumes that EPA will approve similar technologies for treatment of nonradioactive hazardous wastes. All of the mercury being evaluated in the MM EIS is nonradioactive.

2.3.2 Relationship of Proposed Action to Proposed Mercury Retirement Legislation

A bill, the Mercury Reduction and Disposal Act of 2001 (S. 351), was introduced in the Senate on February 15, 2001, to amend Subtitle C of the Solid Waste Disposal Act. The intent of the bill is to

reduce the quantity of mercury in the environment by limiting the use of mercury fever thermometers and improving the collection, recycling, and disposal of mercury. Under this bill, mercury thermometers could only be sold by prescription, and grants would be made to States, municipalities, and nonprofit organizations to implement a national program for the collection of mercury fever thermometers from households in exchange for thermometers that do not contain mercury. This bill also establishes an advisory committee, the Interagency Task Force on Mercury. The task force would prepare a report to Congress containing recommendations on the long-term management and retirement of mercury from fever thermometers, other medical and commercial sources, and government sources, including mercury stored by the U.S. Department of Defense (DoD) and DOE.

On June 21, 2001, the Mercury Storage and Safe Disposal Act of 2001 (H.R. 2266) was introduced in the House of Representatives. This bill would require EPA to acquire mercury retired from commercial uses and DoD to store the mercury at installations that are currently used to store this material. This bill would also establish a task force that would be required to report to Congress.

In addition, an amendment was introduced in the National Defense Authorization Act for Fiscal Year 2002 (H.R. 2586). This amendment would require EPA to acquire and store mercury held by private chlor-alkali plants, other facilities that have amounts of mercury in excess of 35,000 pounds (15,900 kilograms), and any other sources identified by a task force, which is to be established. DoD would be required to store this mercury at DoD installations currently used for the storage of mercury until EPA certifies a disposal method.

As of December 12, 2001, none of these bills or amendments were passed into law.

2.3.3 Relationship of Proposed Action to Planned Depot Closures

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 commodities and planning for the closure of its depots. Projected closure dates for the three depots storing excess mercury are: New Haven, 2027; Somerville, 2033; and Warren, 2009 (Lynch 2001).

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 alternatives that involve storage are reasonable and the final decision on mercury management could require that one or more depots remain open.

2.3.4 Relationship of Proposed Action to Mercury Storage Location Remediation Programs

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 hazardous substance releases to the environment via the soil, groundwater, surface water/sediment, and air pathways. 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 the 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 are ongoing. 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 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 and facilities that have been found to pose a sufficient threat to human health and/or the environment to warrant cleanup under CERCLA. In January 1991, DOE, EPA, and the Tennessee Department of Environment and Conservation signed an interagency agreement under Section 120(c) of CERCLA. 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 RCRA. Although remediation activities are outside the scope of the MM EIS, any reasonably foreseeable activities would be considered in the cumulative impact assessment in the EIS. Activities related to mercury management are not expected to adversely affect or be affected by remediation activities at Y-12.

2.4 APPROACH TO EVALUATING ALTERNATIVES FOR MERCURY MANAGEMENT

A three-step process will be used to evaluate the alternative strategies for management of the mercury stockpile. The steps in the process are (1) define the alternative, (2) gather information on the alternative and the potentially affected environment, and (3) perform the impacts analysis. For the purposes of these analyses, the affected environment shall include socioeconomic and occupational considerations as well as the natural environment.

The process of defining the alternatives began with preparation of the *Scope of the MM EIS*. As shown in the Preliminary Annotated Outline for the Draft MM EIS (see Appendix B), these alternatives will be described in more detail in Chapter 2. Detailed information on these alternatives will be collected and presented in Section 2.3 and supporting appendixes. Section 2.3 will include descriptions of the activities that make up the alternatives and will include flow diagrams, figures, and tables to provide sufficient detail to support the evaluation of environmental impacts. Detailed information on mercury management activities and facilities will be included in Appendix C of the MM EIS. A summary of the impacts of the various alternatives will be presented in Section 2.5.

Chapter 3 of the MM EIS will describe the environment of the areas that may be affected by the alternatives under consideration. Affected environment information will be collected for the current mercury storage locations and other consolidated mercury storage locations that may be identified. Commercial processing and disposal locations and sales and reuse locations will also be described, but at a lesser level of detail because these are existing commercial facilities that commonly perform these activities, and the exact locations of the facilities that would be used is not yet decided.

Chapter 4 of the MM EIS will present the results of the impact analyses conducted using the information on the characteristics of the alternatives and the potentially affected environment. The impacts section of the EIS forms the scientific and analytical basis for the comparisons of alternatives (40 CFR 1502.16). This discussion will include the environmental impacts of the alternatives, the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity, any irreversible or irretrievable commitments of resources, and cumulative impacts. If adverse impacts are predicted that cannot be avoided, this chapter will include a discussion of why they cannot be avoided and potential mitigation measures. As required by CEQ regulations (40 CFR 1502.2[b]), impacts will be discussed in proportion to their significance.

DLA NEPA regulations (DLAR 1000.22) state that a monitoring and enforcement program shall be developed following completion of each final EIS and associated Record of Decision (ROD) whenever commitments are made in a final EIS and/or ROD for specific monitoring and mitigation measures. As specified in the CEQ NEPA regulations, the monitoring and enforcement program has two primary purposes: (1) to specify how mitigation measures will be implemented, and (2) to identify how progress of the mitigation measures will be monitored. In the event that specific monitoring or mitigation measures are determined to be needed, DNSC will develop a monitoring and enforcement program that identifies those mitigation actions, the milestones and actions that will be required for their implementation, and the persons or organizations responsible for implementation.

2.5 ENVIRONMENTAL AND SOCIOECONOMIC ISSUES TO BE ADDRESSED IN THE MM EIS

Issues initially identified through the internal DNSC scoping process were listed in the NOI published in the Federal Register on February 5, 2001 (see Appendix A). The list of issues from the NOI is presented below.

- Potential effects on the public health from exposures during construction, normal operations, transportation, and credible accident scenarios
- Impacts on surface water and groundwater, floodplains and wetlands, and water use and quality
- Impacts on air quality and noise
- Impacts on plants and animals and their habitat, including species that are Federal- or State-listed as threatened or endangered, or of special concern
- Impacts on geology and soil characteristics
- Impacts on cultural resources such as historic, archaeological, Native American, or culturally important sites
- Socioeconomic impacts on affected communities
- Environmental justice, particularly whether or not mercury management activities have a disproportionately high and adverse effect on minority and low-income populations
- Potential impacts on land-use plans, policies, and controls and visual resources
- Pollution prevention and waste management practices and activities
- Economic impacts from mercury sales and resulting effects on mercury mining activities and impacts
- Unavoidable adverse impacts and irreversible and irretrievable commitments of resources
- Cumulative effects of past, present, and future operations
- Status of compliance with applicable Federal, State, and local statutes and regulations and international agreements; and required Federal and State environmental permits, consultations, and notifications
- Compliance with applicable Executive orders

The NOI anticipated that the key areas of interest for the MM EIS would be health and safety, economic impacts, and accumulation of mercury in the global environment. After consideration of public comments received during the scoping period, DNSC anticipates the following will be the three key issues:

- Impacts on human health and safety from past, present, and future storage of mercury
- Impacts from accidents at mercury management facilities
- Environmental and economic impacts from renewed sales

As required by CEQ regulations (40 CFR 1502.15), data and analyses shall be commensurate with the importance of the impact, with less important material summarized, consolidated, or simply referenced. Therefore, it is likely that the key issues will be evaluated in more detail than other issues in the MM EIS. The following sections describe how potential issues will be dealt with in the MM EIS. Issues will be evaluated to the extent possible given the information available to DNSC. The list of issues and topics discussed does not imply any predetermination of potential impacts.

2.5.1 Meteorology, Air Quality, and Noise

The meteorology of the region surrounding the sites will be described. This will include a description of extremes in temperature, precipitation (rain and snow), and wind. The occurrence of severe weather such as tornadoes, hurricanes, hailstorms, and blizzards will also be described.

Air quality impacts will be assessed on the basis of compliance with local, State, or National Ambient Air Quality Standards or the potential exceedance of prevention of significant deterioration increments for particulate matter of aerodynamic diameter less than 10 micrometers of sulfur dioxide, nitrogen dioxide, lead, and carbon monoxide. Assessment criteria for pollutants will include the EPA's primary and secondary ambient air quality standards for criteria pollutants and those standards established by each State. The more stringent of either the EPA or State standard will serve as the assessment criteria. The assessment criteria for toxic pollutants will include guidelines or standards adopted or proposed by each State.

Available ambient air monitoring data will be used to determine maximum background concentrations of pollutants for each site. A computer model will estimate concentrations of pollutants emitted from mercury management activities. The sum of the maximum background concentration (as measured) and the projected site concentration from mercury management activities (as predicted) for a given pollutant and averaging time will be considered the concentration for each alternative. These concentrations will be compared to applicable Federal and State standards for criteria pollutants and State guidelines and regulations for air toxics to provide an estimate of the effects on air quality.

Modeling of site-specific emissions will be performed in accordance with EPA's Guideline on Air Quality Models (40 CFR 51, Appendix W). The EPA guidelines provide recommendations for (1) computer model use under various circumstances, (2) model inputs including meteorological inputs and background concentrations, and (3) determining and controlling accuracy and uncertainty. The EPA-recommended Industrial Source Complex Short-Term 3 model will be used to perform the air dispersion modeling analysis. It allows for the estimation of dispersion from a combination of point, area, and volume sources, while using site-specific or representative nearby meteorology. The potential effects on air quality will be described by the comparisons between expected concentrations and air quality criteria.

Noise is defined in the EIS as unwanted sound that interferes or interacts with the human or natural environment. Noise may disrupt normal activities or diminish the quality of the environment. The primary sources of noise related to activities at the sites are stationary sources (e.g., machinery) and transient sources (e.g., automobiles and trucks).

Noise impacts will be assessed on the basis of the potential degree of change in noise levels at sensitive receptors (i.e., residences near the site boundary) with respect to ambient conditions as a result of any construction or operation activities. Most non-traffic noise sources associated with facilities are located at sufficient distances from offsite noise-sensitive receptors so the contribution to offsite noise levels is expected to be low. Therefore, a qualitative discussion of construction and operation noise sources and the potential for onsite and offsite noise impacts will be provided. This section will be prepared using

information available on the potential types of noise sources and the location of the sites relative to the site boundary and noise-sensitive locations. The potential for worker exposure to noise and measures taken to protect worker hearing will be described.

2.5.2 Waste Management

Wastes generated during any construction and operation of proposed mercury management facilities would be expected to consist of two primary types: hazardous and nonhazardous. Construction waste would be expected to be similar to that generated by any construction project of comparable scale.

To provide a framework for assessing impacts, waste management activities anticipated for each alternative will be described. The volumes of each waste type generated will be estimated for each alternative. Mercury management alternatives will consider and incorporate waste minimization and pollution prevention practices to the maximum extent practicable. The impact assessment will address the waste types and volumes generated from the various alternatives at each site. Impacts will be assessed in the context of site practices for waste treatment, storage, and disposal plus the applicable regulatory requirements of the Federal Facility Compliance Act, Toxic Substances Control Act, CERCLA, RCRA, and DLA regulations, and where appropriate, DOE regulations for mercury storage at DOE site(s).

2.5.3 Socioeconomics

The MM EIS will describe and assess impacts on local and regional socioeconomic conditions and factors such as population, employment, economy, housing, and public services. The MM EIS will assess the socioeconomic impacts of both the gains and losses produced by mercury management activities at each site. Geographically, the potential for socioeconomic effects will be greatest in those local jurisdictions immediately adjacent to each site and those that are the residential locations of the majority of site employees. A region of influence, composed of those local jurisdictions likely to experience the greatest socioeconomic impacts, is defined as the county where the site is located. Although it is anticipated that mercury management alternatives would not result in large changes in employment at any site, the evaluation of impacts will be based on the degree to which changes in employment and population affect the local economy, housing market, and public services.

The proposed action could affect employment at the sites. Changes in site employment could, in turn, affect local population densities, economies, housing, health care needs, and public services. Current employment at each site will be described as well as projected employment associated with other planned initiatives. Socioeconomic trends and the relationship of site employment to these trends will be examined for each potentially affected region of influence. Emphasis will be placed on evaluating total direct and indirect employment impacts associated with potential mercury management activities.

Demographic characteristics will be presented for the region of influence of each site to support the assessment of socioeconomic impacts. Trends will be identified and used to project demographic changes over the environmental baseline period.

The MM EIS will characterize the local economies that surround each site. Emphasis will be placed on the measurement of the relative contribution and importance of each site's employment payroll and purchases to the local economy. All employee income, property, and purchases are subject to applicable Federal, State, and local taxation requirements that support local jurisdictions within the region of influence. Changes to local economic conditions will be evaluated based on each site's current and projected employment.

Changes in employment at each of the sites could affect the supply and demand of housing units, including the need for temporary housing (e.g., rental units) to support in-migrating construction workers. The MM EIS will characterize and evaluate trends in the housing availability within each site's region of influence. The number of in-migrating and out-migrating site employees associated with each of the alternatives will then be used to evaluate housing impacts.

Changes in community services as a result of the alternatives could affect the community's need and ability to provide local infrastructure and services, including utility, water, and sewage facilities, as well as education, health care, and police and fire protection. The MM EIS will assess the impacts of each alternative on the need for public safety and health care services within each region of influence.

2.5.4 Health and Safety

Mercury can be hazardous to human health. Public health impacts may result from exposure to materials released during normal operations or accidents. The degree of hazard is directly related to the quantity of the mercury to which the person may be exposed. The health effects are determined by identifying the types and quantities of material to which one is exposed, estimating uptake, and then calculating the resultant health effects.

The MM EIS will assess the impacts on the health of workers and the public from construction, normal operations, and postulated accident scenarios. When mercury is properly managed, exposure during normal operations is expected to be minimal. Therefore, the analysis of human health risk will likely concentrate on the risks from exposure during storage, treatment, and handling and transportation accidents as appropriate for each alternative. Atmospheric dispersion modeling, using screening level methods and as required by the Industrial Source Complex Short Term 3 model, will be used to estimate the type and amount of material released and the associated chemical doses from operations and postulated accidents. Modeling will generally be used to estimate exposure to workers and the public occurring outside the buildings where mercury is managed. Exposure to workers inside the buildings will be estimated using calculations that estimate the concentration of mercury released in a given volume of air. These doses will be converted to health effects using appropriate health risk estimators.

The MM EIS will consider the consequences of postulated accidents in the evaluation of each alternative. For the purpose of the MM EIS, risk is defined as the mathematical product of the probability and consequence of an accident. The risk-contributing scenarios to be considered include both design-basis and severe accidents. The specific accidents considered will depend on the types of facilities. Examples of accidents to be considered include those resulting from spills, fire, explosions, severe weather, and earthquakes. The MM EIS will also examine the potential consequences of a terrorist attack.

Information on potential accidents will include those that have been postulated and analyzed for similar facilities. The decisionmaker must determine the acceptability of risk and take into account the accident risk associated with different technologies and the reduction in risk possible with newer, improved facilities. The risks of the various alternatives in the MM EIS will be evaluated in terms of the incremental increase in risk.

The U.S. Department of Health and Human Services has conducted health effects studies at Y-12. In addition, the U.S. Public Health Service conducts medical monitoring of DNSC depot employees. The MM EIS will provide a summary of relevant epidemiological studies and medical monitoring conducted near the potentially affected sites. This information, coupled with mercury release data from the sites, helps establish baseline exposures and possible human health effects related to those mercury releases. It is useful in showing if employees or persons living near the sites were affected by historic mercury

releases or other activities. This information, when combined with potential changes in mercury releases from the proposed action, can also help determine if cumulative impacts may occur due to other past or present activities at the sites.

The MM EIS will address the history of accidents at each site over the past several years. Accidents, if any, that have had significant offsite consequences to the public will be described.

Emergency preparedness programs, including plans and resources to deal with emergencies that may occur, are in place at each facility. The MM EIS will describe the features of each site's emergency preparedness programs.

2.5.5 Transportation

The existing transportation modes serving each site will be described, including road and rail transportation systems. Distances and routes for the Consolidated Storage, Treatment and Disposal, and Sales Alternatives will be described. In addition, potential overseas shipping routes that might be involved in the Sales Alternative will be described. The materials to be transported between the sites will be described, and the packaging requirements for the shipment of mercury will be reviewed. Historical shipment information will be used to construct a transportation baseline.

The potential human health and accident risks of transporting mercury will be determined for the described routes. For evaluating risk, the following elements will be considered: transportation mode, weight, packaging, number of shipments, and distance. Impacts will be presented for the transportation of materials in support of construction and operations for normal (accident-free) transportation and accident conditions. The assessment will focus on the transport of mercury because this material is considered to have the greatest potential for adverse impact. Other materials that may be transported (e.g., new flasks, nontoxic raw materials, and nonhazardous waste) are less likely to produce adverse impacts if released to the environment during an accident.

2.5.6 Geology and Soils

Geology and soils and the construction and operation of the proposed facilities are related in two ways. First, there may be impacts on the local geology and soils of the site areas because of construction and operation activities. Second, there may be an impact on the construction and operation of the proposed facilities as a result of geological or soil conditions or events. Accidents that might be initiated by geologic and soil conditions will be described as part of the evaluation of human health risks.

The description of each site will emphasize the aspects of the local geology that could affect, or be affected by, the proposed alternatives, including geomorphology, structure, faults and seismicity, foundation and boring conditions, and mineral resources. Impacts on the geological environment may include destruction of or damage to unique geological features, subsidence caused by groundwater withdrawal, landslides or shifting caused by removal of supporting rock or soil, and limiting access to economic mineral resources such as coal or aggregate.

The MM EIS will describe any known unstable areas with the potential for earthquakes, volcanoes, landslides, or sinkholes. The location of any known active volcanoes and faults in the region will be identified. A review of the seismicity of the area, including the history and significance of earthquakes, along with their intensity and ground acceleration will be conducted.

The MM EIS will characterize the types of soils underlying the sites and will discuss whether these soils would be capable of supporting the proposed structures during both construction and operation.

Shrinking or swelling of ground as a result of applying water or during construction dewatering will be addressed. In addition, soil erosion susceptibility will be estimated.

2.5.7 Water Resources

The MM EIS will assess potential impacts on surface water and groundwater resources as well as the impact of existing floodplains on the alternatives. Local surface water resources in the region will be described in terms of flow characteristics and relationships and stream classifications. Changes in surface water flows resulting from proposed withdrawals and discharges will be determined. The existing water supply will be evaluated to determine if sufficient quantities are available to support an increased demand by comparing projected increases with the capacity of the supplier and existing water rights, agreements, or allocations.

The water quality of potentially affected receiving waters will be determined by reviewing current monitoring data. Focus will be given to parameters that exceed applicable water quality criteria. Monitoring reports for discharges permitted under the National Pollutant Discharge Elimination System program will be examined for compliance with permit limits and requirements. The assessment of water quality impacts from wastewater (sanitary and process) and storm-water runoff will qualitatively address potential impacts on the receiving water.

Floodplains will be identified to determine if any of the proposed facilities would be located within a floodplain. If possible, the site will be compared with the 500-year floodplain. Where these data are unavailable, the site will be compared with the 100-year floodplain.

The MM EIS will analyze groundwater resources for effects on aquifers, groundwater usage, and groundwater quality within the region surrounding each site. Groundwater resources are defined as the aquifers underlying the site, down to and including, discharge points and/or the first major users. The local aquifers will be described in terms of the extent, thickness, and quantity and quality of the groundwater. Recharge areas will be noted. Current facility groundwater usage will be described, and projections of future usage will be made whenever site-specific groundwater availability issues are identified.

Impacts associated with any construction and operation withdrawals will be estimated if available data indicate that drawdown problems may occur. Groundwater quality impacts associated with pollutant discharges to groundwater and location of contaminant plumes will be described. Available data on existing groundwater quality conditions at each site will be compared to Federal and State groundwater quality standards and will be used as a basis to assess the potential for impacts of each alternative. Impacts of groundwater withdrawals on any existing contaminant plumes because of construction and facility operations will be assessed to determine the potential for changes in their rates of migration and the effects of any changes in the plumes on groundwater users. Impacts will be assessed by the degree to which groundwater quality, drawdown of groundwater levels, and groundwater availability to other users may be affected by the project.

2.5.8 Ecological Resources

The MM EIS will address potential biotic impacts on terrestrial resources, wetlands, aquatic resources, and threatened and endangered species. Potential impacts on terrestrial resources will be assessed for loss and disturbance of wildlife and wildlife habitats as well as exposure of flora and fauna to pollutant emissions. Two considerations in assessing the impact of habitat loss will be the presence and regional importance of affected habitats and the size of the habitat area temporarily disturbed by any construction

activities and/or permanently disturbed during the operational phase. The loss of important or sensitive habitats is more important than the loss of a regionally abundant type. Impacts on wildlife will be based primarily on plant community loss that is closely associated with animal habitat. Risks to biotic resources from the release of mercury during normal operations and accident conditions will also be evaluated.

Wetlands on each site will be identified using published information such as Federal and State wetland reports, National Wetland Inventory maps, aerial photographs, and topographic maps. Most construction impacts on wetlands are related to displacement of wetlands by filling, draining, or clearing activities. Other impacts that may need to be assessed include sedimentation or contamination from construction activities conducted outside of wetland areas. Operational impacts on wetlands will be assessed from liquid emissions, surface or groundwater withdrawals, or creation of new water bodies.

The direct loss of wetlands resulting from construction and operation will be addressed in a similar manner as terrestrial plant communities, that is, by comparing data on site wetlands to proposed land requirements. Sedimentation impacts will be evaluated based on the proximity of wetlands to the proposed project site and knowledge of erosion and sedimentation control measures that would be implemented. Impacts resulting from a change in the amount of water in the wetlands will be evaluated based on the expectation of increased or decreased flows due to surface water discharges or surface water or groundwater withdrawals. Impacts resulting from the introduction of chemical pollution into a wetland system will be evaluated recognizing that effluents will be required to meet Federal, State, and local standards.

During construction and operation of the proposed facilities, aquatic resources may be impacted as a result of sedimentation, increased flows, and effluent discharge. Impacts on aquatic resources such as loss of spawning habitat resulting from sedimentation, increased flows, and the introduction of chemicals will be evaluated as described for wetlands.

Impacts on threatened, endangered, and sensitive species of wildlife and plants will include an assessment of critical habitat loss and impacts on Federal- and State-listed species. A list of species potentially present on each site will be developed using information obtained from the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and appropriate State agencies. This list, along with site environmental and engineering data, will be used to evaluate whether proposed alternatives could impact sensitive species (or their habitats).

Impacts on wildlife from accidental releases of mercury will be based on estimates of exposures to mercury deposited after air transport. The estimates will be made by using air dispersion and deposition models to calculate concentrations of mercury in soil, surface water, and sediment after a release. Potential toxicity to plants and earthworms will be evaluated by comparing the concentrations in soil to toxicity reference values (TRVs). Toxicity to terrestrial omnivores and carnivores (both mammals and birds) exposed to mercury in soil will be evaluated by calculating exposures through the diet and comparing them to TRVs. Toxicity to aquatic biota exposed to mercury in stream or pond surface water and sediment will be evaluated by comparing surface water and sediment concentrations to TRVs for those media. Toxicity to terrestrial animals that eat sediment biota will be evaluated by calculating exposures through the diet and comparing them to TRVs.

2.5.9 Cultural Resources

The MM EIS will include an evaluation of the impacts of alternatives on prehistoric, historic, and Native American resources. Prehistoric resources are physical properties resulting from human activities that predate written records. They are generally identified as either isolated artifacts or sites. Sites may

contain concentrations of artifacts (e.g., stone tools and ceramic shards), features (e.g., campfires and houses), and plant and animal remains. Depending on their age, complexity, integrity, and relationship to one another, sites may be capable of yielding information about past populations. The discussion of prehistoric resources will include the number and types of prehistoric sites in the project areas and their status on both the National Register of Historic Places (NRHP) and appropriate State registers.

Impact assessments for prehistoric resources will focus mainly on those properties likely to be eligible for the NRHP. The assessments will consider whether the alternatives would substantially add to the existing disturbance of resources in the site areas, adversely affect NRHP-eligible resources, or cause loss of important prehistoric resources.

Historic resources include architectural structures (e.g., buildings, dams, and bridges) and archaeological features (e.g., foundations, trails, and trash dumps). Ordinarily, sites less than 50 years old are not considered historic for analytical purposes, but exceptions can be made for younger properties if they are of exceptional importance (i.e., structures associated with World War II, the Manhattan Project, or Cold War themes [36 CFR 60.4]). The description of historic resources will include the number and types of historic sites in the project areas, if known, and their status on the NRHP and appropriate State registers.

Impact assessments for historic resources will focus mainly on those properties likely to be eligible for the NRHP. The assessments will consider whether the proposed alternatives would substantially add to existing disturbance of resources in the site areas or if the alternatives would adversely affect NRHP-eligible resources or cause loss of important historic resources.

Native American resources are sites, areas, and materials important to Native Americans for religious or heritage reasons. Of primary concern in the MMEIS are concepts of sacred space that create the potential for land-use conflicts. Native American concerns will be identified through literature search, discussions with site specialists, and field visits. Native American contacts will be identified by reference to the ethnographic literature, State and national pan-tribal organizations, and agency and academic professionals in anthropology.

The individual resource, the proximity of impact areas to the resource, and the likely duration of impacts will be considered in the analysis of Native American resources. Specific concerns include the relative importance of the resource in the Native American physical universe or belief system, the distance at which activities in the vicinity of a sacred area constitute a disturbance, the extent to which affected resources may be restored, and the extent to which alternative sources for raw materials are available or suitable. Impacts on Native American resources will be assessed by considering whether the proposed alternatives have the potential to affect sites important for their position in the Native American physical universe or belief system or the possibility of reduced access to traditional use areas or sacred sites.

2.5.10 Land Use and Visual Resources

The MMEIS will consider existing land use, land-use plans and policies, zoning regulations, and the visual character of each site. The potential impacts associated with changes to land use and visual resources as a result of each alternative will be analyzed.

The analysis of land use will consider impacts that could result from modification or construction of facilities on each site. The degree to which the proposed alternatives affect future use or development of land at each site will be considered. Land-use impacts will be assessed based on the extent and type of land that would be affected by the alternatives. The land-use analysis will also consider potential direct impacts resulting from the conversions of or the incompatibility of land-use changes with special status

lands and other protected lands such as Federal- and State-controlled lands (e.g., public land administered by the Bureau of Land Management or National Forest Service).

Visual resources are defined as natural and human-created features that give a particular landscape its aesthetic qualities. Visual resource assessments will be conducted to identify and evaluate the impacts of construction and operation of facilities on the aesthetics of the landscape. Visual impacts will be assessed based on whether changes in existing facilities or the construction of facilities would appear uncharacteristic in each site's visual setting, and if so, how noticeable those changes would be.

The qualitative visual resource analysis adapted from the Bureau of Land Management's Visual Contrast Rating System (DOI 1986) will be conducted to identify key viewing positions, such as public travel routes and nearby residential/commercial areas, and public uses such as parks, recreation areas, and scenic areas. This analysis will assess the degree of visibility of new or modified facilities from these key viewing positions and assess the compatibility of such facilities with the existing physical setting. The analysis will also provide a qualitative comparison of the characteristics of the existing landscape with those of proposed facilities and a determination of the resulting level of contrast. Impacts will be based on the sensitivity of the affected environment to changes in its visual character. Sensitivity will be assessed on the basis of the potential for public concern regarding adverse visual changes from specific viewpoints within the area.

2.5.11 Infrastructure

Impacts on site infrastructure will be assessed by comparing the support requirements of the proposed alternatives to the available infrastructure capacities. The infrastructure assessment will focus on fuel, water, and power requirements and road and rail networks. Site development plans and other mid- and long-range planning documents will be used to project future site infrastructure conditions. The design of facilities for mercury management will incorporate measures to reduce utility requirements.

The MM EIS will characterize the transportation infrastructure in the region that surrounds each site, including roads, rail systems, and airports. Major planned improvements to transportation systems will be described. Changes in site employment associated with the alternatives will be used to identify potential impacts on the level of service provided by local and regional transportation systems.

2.5.12 Environmental Justice

As required by Executive Order 12898 (EO 1994) and DoD Instruction 4715.9 (*Environmental Planning and Analysis*), the MM EIS will evaluate the possibility that the proposed alternatives could adversely and disproportionately affect minority or low-income populations. Minority populations are composed of five groups: American Indian or Native Alaskan, Asian, Black or African American, Hispanic or Latino, and Native Hawaiian or Other Pacific Islander. Persons who selected more than one race during the year 2000 census will be included in the minority population if at least one of their selections included a minority race. Low-income populations are composed of persons whose self-reported income during the census was below the poverty threshold.

Incident-free storage and transportation activities are unlikely to have a significant effect on the general public. Thus, the environmental justice analysis will focus on potential health risks resulting from mercury processing activities and facility and transportation accidents. The risks to minority and low-income populations will be estimated using the same methodology as that used for the general population.

CEQ issued its guidance for the evaluation of environmental justice in December 1997, *Environmental Justice Guidance under the National Environmental Policy Act* (CEQ 1997). CEQ's guidance is the basis for this evaluation of environmental justice impacts.

2.5.13 Cost-Benefit Analysis

In the MM EIS, the cost-benefit analysis will evaluate the cost of each proposed alternative. For Consolidated Storage and Treatment and Disposal Alternatives, this means estimating the annual operating cost of the mercury management activities, including personnel, facilities, maintenance, utilities, transportation, repackaging, and waste treatment and disposal. For the Sales Alternative, the cost-benefit analysis will consider the quantity and quality of the mercury and the proposed rate of sales.

The method used to determine cost is a financial cost-benefit analysis with a sensitivity analysis. The former will measure costs against anticipated benefits of each alternative, with and without discounting. The latter will adjust the assumptions, within a range, producing a minimum and maximum cost for each alternative.

2.5.14 Avoided Impacts

The MM EIS will describe avoided environmental impacts, including those from mercury mining and refining that could be avoided by selling the stockpile. The avoided impacts could include exposure of mine workers to mercury, releases of mercury (and other contaminants) to air and water near the mine, and utility and resource usage. This section will also recognize the adverse impact of lost employment near the mines and refineries if workers lose their jobs due to mine cutbacks or closure. Because mercury is mined, processed, and traded internationally, and little mercury is currently recovered from mining operations in the United States, this discussion will concentrate on avoided impacts outside the United States.

2.5.15 Cumulative Impacts

Cumulative effects on the environment result from the incremental effect of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time (40 CFR 1508.7).

Cumulative impacts will be estimated for each site evaluated in the MM EIS. Cumulative impacts will be estimated by adding the worst impacts of the proposed alternatives to appropriate existing impacts and projected future impacts from other activities. For example, Alternative X may use the most water, and therefore would be used to estimate the cumulative impacts from water use. Alternative Y may generate the most hazardous waste of all the alternatives, and therefore would be used to estimate cumulative impacts from waste management. Future impacts include those related to other activities at the site and those occurring in the region surrounding the site. It is anticipated that cumulative impacts will be evaluated for the following areas: materials and resources used, air quality, waste management, socioeconomics, human health risk, and transportation.

2.5.16 Compliance with Applicable Federal, State, and Local Statutes and Regulations

The MM EIS will describe the status of compliance with all applicable Federal, State, and local statutes and regulations; international agreements; applicable Executive orders; and required Federal and State environmental permits, consultations, and notifications.

Regulatory and technical issues associated with the ultimate disposition of high-concentration mercury wastes have yet to be resolved. EPA is evaluating alternatives for treatment and disposition of those wastes. For analytical purposes, the MM EIS will assume that processes similar to the amalgamation technology that is currently approved for treatment of radioactive, high-concentration mercury wastes will be approved by EPA for non-radioactive, high-concentration mercury wastes.

2.6 PREPARATION OF THE MM EIS

The following sections describe key aspects of the preparation of the MM EIS. These include a preliminary MM EIS schedule; a description of the preparation and approval process, environmental consultations, and opportunities for public participation; and a preliminary annotated outline.

2.6.1 Preliminary Schedule for the MM EIS

Based on the current schedule for the MM EIS, a draft is expected to be available for public comment in 2002. DNSC expects the comment period on the DEIS to be a minimum of 90 days. A final EIS is expected to be available in 2003, with the ROD published no earlier than 30 days after the final EIS is released. These milestones will likely change as the schedule is adjusted to meet future program needs and data collection requirements.

2.6.2 Preparation and Approval of the MM EIS and Related Documents

DNSC has contracted with Science Applications International Corporation to prepare the MM EIS and supporting materials. DNSC must independently evaluate the EIS prior to its approval and take responsibility for its scope and contents. In addition, as a cooperating agency, DOE will review the draft and final EIS and the ROD before publication. Also, the Interagency Working Group will review most documents before release to the public (see Section 3.1.1).

2.6.3 Environmental Consultations and Executive Orders

As described in CEQ regulations (40 CFR 1502.25), to the extent possible, agencies shall prepare DEISs concurrently and integrate 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 such as 11593 (Protection and Enhancement of the Cultural Environment), 11990 (Protection of Wetlands), 11988 (Floodplain Management), 12114 (Environmental Effects Abroad of Major Federal Actions), 12898 (Federal Actions to Address Environmental Justice in Minority and Low-Income Populations), and 13045 (Protection of Children from Environmental Health Risks and Safety Risks). Environmental consultation requirements will be described in the MM EIS, and the status of DNSC's progress toward compliance with these requirements will be reported.

2.6.4 Opportunities for Public Participation

As required by CEQ regulations (40 CFR 1506.6), DNSC must make diligent efforts to involve the public in the preparation of the MM EIS. A fundamental objective of NEPA is to foster better decisionmaking by ensuring that high quality environmental information is available to public officials and members of the public before decisions are made and actions taken. The development of a sustainable decision on the management of mercury requires the involvement of potentially affected or interested individuals and organizations in the decisionmaking process. Opportunities for public involvement associated with the MM EIS are being provided through several mechanisms, including advertisements, public meetings, information repositories, an MM EIS Web site, toll-free voice and fax numbers for comment submission and inquiries, and a program newsletter. DNSC is committed to proactive communication with the public.

The public scoping meetings are documented in this *Scope of the MM EIS* and described in Section 3.3. As described in DLA NEPA regulations (DLAR 1000.22), public involvement activities also include soliciting comments on the DEIS and holding public meetings. In compliance with the provisions of NEPA (42 U.S.C. 4321 et seq.) and regulations of CEQ (40 CFR 1500 through 1508), DNSC must assess and consider public comments on the DEIS, both individually and collectively. Comments received during the public comment period for the DEIS will be reviewed, categorized, and documented. A Comment Response Document will be produced and included in the final EIS and made available to the public. The Comment Response Document will be written and designed so commentors can locate comments or categories of comments. The objective of the document is to provide a clear, concise, and accurate portrayal of the comments received as well as DNSC's responses. It will be distributed to information repositories near the meeting locations, posted on the MM EIS Web site, and mailed on request. The issues raised by the public during the review of the DEIS will be reflected in modifications or additions to the final EIS.

2.6.5 Preliminary Annotated Outline

Based on CEQ and DLA NEPA requirements and input received during the public scoping process, a preliminary annotated outline for the MM EIS has been developed and is presented in Appendix B. This outline briefly describes the content of the MM EIS and is intended to guide the preparation of the draft document.

DNSC will prepare an Executive Summary that will be distributed to individuals and organizations that do not wish to receive a copy of the complete DEIS. A separate draft risk assessment report will be prepared to provide detailed information that supports the human health and ecological risk assessments.

Chapter 3

Scoping Process

This chapter describes the scoping process used for the MM EIS, including a summary of the activities that occurred prior to the formal scoping period and DNSC's outreach mechanisms. This chapter also summarizes the comments received during the public scoping process and DNSC's consideration of the issues.

3.1 RELATED PRE-SCOPING ACTIVITIES

Pre-scoping activities entailed the planning and outreach activities that occurred before the opening of the official public scoping period, which was conducted between February 5 and June 30, 2001.

3.1.1 Information Gathering

For several years, DNSC has worked toward the development of potential strategies for the management of its mercury stockpile, including gathering information on potential treatment, storage, and disposal technologies and locations. Information has been collected by solicitations, library and Internet searches, collaborations with other agencies, and attendance at pertinent workshops and conferences.

DNSC consulted with experts from other Federal agencies and industry to assist in developing preliminary mercury management alternatives that encompass all the reasonable alternatives identified. This process included discussing relevant issues with CEQ, EPA, and DOE (a cooperating agency) among others. In early 2001, an Interagency Working Group was established. This group includes representatives from EPA, DOE, Health and Human Services, U.S. Geological Survey, and the Department of Commerce. The agencies represented in the Interagency Working Group either have significant mercury expertise to contribute, or they could be affected by decisions made as a result of the MM EIS.

3.1.2 Internal Agency Scoping

DNSC has been involved in internal discussions to develop alternative strategies for the management of its mercury stockpile. These discussions focused on developing a preliminary set of reasonable alternatives that could be presented in the NOI for the MM EIS and on formulating a public outreach program that would meet or exceed requirements of the CEQ and DLA regulations implementing NEPA. Because of its role as a cooperating agency, DOE was involved in the internal scoping process.

3.2 INFORMATION MATERIALS AND ANNOUNCEMENTS

As introduced in Section 1.1, an NOI was published in the Federal Register on February 5, 2001, announcing DNSC's intent to prepare an EIS and to initiate the public scoping process. A press release announcing the NOI was distributed on February 6, 2001. An additional Federal Register notice was published on March 23, 2001, to announce the dates, times, and locations of five public scoping meetings. A press release for the public meeting announcement was distributed on April 13, 2001.

Prior to each scoping meeting, display advertisements were prominently placed in local newspapers near the scoping meeting locations. The advertisements were run in one weekday and one weekend edition

and provided specific information about the time, place, and format of the scoping meetings; the location of local information repositories; and a description of various opportunities provided for public comment.

Information about DNSC and the MM EIS was available during the scoping period at nine information repositories (typically located in local libraries) and via the MM EIS Web site (www.mercuryeis.com). Information materials available for review included three Federal Register notices, six fact sheets, and a newsletter. The MM EIS Web site also contains a photo gallery and links to other mercury-related Web sites.

3.3 PUBLIC SCOPING MEETINGS

Five public scoping meetings were held to disseminate information to the public and to facilitate public participation and comment (see Table 3.3–1). A meeting was held in the vicinity of each current mercury storage location and in Washington, D.C. These meetings gave the public the opportunity to view exhibits, obtain information materials, speak with DNSC representatives, and provide comments on the scope and content of the MM EIS. The meeting in Washington, D.C., primarily focused on obtaining input from national environmental organizations, government officials, and Federal agencies.

Table 3.3–1 Scoping Meetings

Date	Location		Registered Attendees
	City/State	Facility	
April 19, 2001	Niles, Ohio	McMenamy’s Multipurpose Complex	11
April 24, 2001	New Haven, Indiana	Park Hill Learning Center	14
May 1, 2001	Washington, D.C.	Marriott Metro Center	12
May 8, 2001	Oak Ridge, Tennessee	Garden Plaza Hotel	16
May 22, 2001	Hillsborough, New Jersey	Hillsborough High School	55
		TOTAL	108

The meeting registration desk and exhibit area typically opened at 5:30 p.m. (1:30 p.m. for the Washington, D.C., meeting) and remained open for 3-1/2 hours. DNSC officials and their representatives answered questions about DNSC, the storage locations, health effects from exposure to mercury, and the scope of the MM EIS.

At 7:00 p.m. (3:00 p.m. for the Washington, D.C., meeting), DNSC provided a short presentation on the purpose and need for the proposed action, the EIS process, and the anticipated scope of the MM EIS. Following the DNSC presentation, government officials, organizations, and individuals were invited to offer verbal comments. The meetings were managed by a facilitator who helped keep the meetings focused on obtaining public input on the scope and content of the EIS. Sign language interpreters were available to help the hearing impaired. A court reporter recorded all verbal comments presented. In addition, all meeting locations were handicap accessible.

3.4 OTHER MECHANISMS FOR RECEIVING COMMENTS

At the public meetings, several means were made available for commenting on the scope of the MM EIS:

- A court reporter transcribed spoken comments during the verbal comment session
- Individuals were available to receive comment letters
- Comment forms were supplied to allow individuals to write comments during the meeting

- The court reporter was available to transcribe spoken comments in a private setting
- A tape recorder was available for individuals who wished to record their comments in private

For those who did not attend public scoping meetings, five other mechanisms were available to submit comments on the scope of the MM EIS: the MM EIS Web site, U.S. mail, email, toll-free phone, and toll-free fax. A total of 21 comment documents (i.e., letters, emails, voice mails, forms, and faxes) were received during the scoping period.

3.5 SUMMARY OF COMMENTS RECEIVED DURING THE SCOPING PERIOD AND COMMENT DISPOSITION

DNSC invited comments on the proposed action and alternatives, as well as on the issues that should be addressed in the MM EIS. During the scoping period, 109 comments were received from a total of 43 individuals; government officials; representatives of organizations; and Federal, State, and local government agencies. The 109 comments were grouped into 13 subject categories. Summaries describing the nature of the issues or concerns expressed are provided in this section, along with DNSC's position on the issue. The bulk of the comments are related to the three major issues listed below:

- Impacts on human health and safety from the past, present, and future storage of mercury
- Impacts from accidents at mercury management facilities
- Environmental and economic impacts from renewed sales

3.5.1 Mercury Management Alternatives

Comments received on the mercury management alternatives were divided into three issue categories: (1) treatment and storage alternatives; (2) sales alternative; and (3) other alternatives. These issues are discussed below.

3.5.1.1 Treatment and Storage Alternatives

ISSUE SUMMARY

One commentator suggested that a life-cycle approach, which includes evaluating the impacts of the eventual recovery of mercury from the stabilized condition, is needed to evaluate the impacts of alternatives involving the stabilization of mercury.

DNSC RESPONSE

It is unlikely that DNSC will evaluate an alternative in the MM EIS that would include stabilization and storage with eventual recovery of the mercury from the stabilized form. Because elemental mercury can be safely transported and stored in its current form until needed, DNSC does not want to incur environmental impacts and costs from stabilizing and refining the mercury and transporting the mercury between the various processing facilities.

The MM EIS will likely include an alternative for the stabilization (treatment) and disposal of mercury. Under this alternative, the mercury stockpile would be stabilized and disposed of with no plans for future recovery of the stabilized mercury.

3.5.1.2 Sales Alternative

ISSUE SUMMARY

A number of commentors recommended mercury sales as a means to disposition the stockpile. Others are concerned about or oppose the sale of mercury. One commentor suggested that sales should resume only if there are widespread shortages of mercury, as the sale of existing mercury would be preferable to new mercury mining. Other recommendations are related to how to treat the sale of mercury in the EIS. One commentor suggested that the EIS should clearly and comprehensively address the potential environmental impacts of mercury sales, while another stated that the sales alternatives should discuss mercury as a fungible (interchangeable) commodity.

DNSC RESPONSE

As described in the NOI and in greater detail in Section 2.2.4 of this document, the MM EIS will include the evaluation of sales alternatives. This may include sales at various rates and with various restrictions. The MM EIS will discuss the potential for impacts from renewed sales, including impacts from reduced mercury mining, adverse impacts on mercury recycling, and adverse impacts on industries that recover mercury as a byproduct of mining other materials.

3.5.1.3 Other Alternatives

ISSUE SUMMARY

A number of commentors expressed the desire to have mercury removed from storage at one or another of the existing sites, cited reasons why a specific site is not suitable for mercury storage, or opposed long-term storage in general. Other commentors recommended the addition of contingent long-term storage as an alternative in the EIS, suggested moving mercury to a temporary storage facility away from populated areas, or would like to have storage by private entities considered. Several commentors want DNSC to perform a complete review and analysis of all available “retirement” alternatives as part of its evaluation of mercury management alternatives.

DNSC RESPONSE

As required by CEQ and DLA NEPA regulations, the MM EIS must evaluate a range of reasonable alternatives. The fundamental alternatives for the management of materials such as mercury are storage, disposal, and sales. In addition, NEPA regulations require that the No Action Alternative (continuing to store mercury at current locations) be analyzed. Consolidation of mercury for long-term storage is a natural extension of continued storage as it would likely result in lower overall impacts and lower long-term storage costs and could allow closure or reuse of some current storage locations. Therefore, consolidated long-term storage of elemental mercury is considered to be a reasonable alternative. Retirement alternatives can include both long-term storage and disposal alternatives that will be evaluated in the MM EIS.

DNSC cannot move the mercury at this time because NEPA states that an organization may not take any action during the EIS process that would limit the choice of alternatives considered in the EIS or that would have an adverse environmental impact (40 CFR 1506.1). Moving the mercury would change the No Action and Consolidated Storage Alternatives. In addition, there is no urgent need to relocate the mercury since it is safely stored at its current locations.

On March 5, 2001, DNSC posted a Federal Register notice asking for expressions of interest from Federal agencies that might be interested in storing the DNSC mercury stockpile. Although some preliminary possibilities have been identified, additional time is needed for agencies to respond and develop information. Therefore, DNSC is still in the process of identifying potential mercury storage locations for evaluation in the EIS. For a variety of reasons, including security and liability issues, DNSC would prefer to store the mercury at a Federal facility in the continental United States but away from populated areas. If no Federal facilities are identified, then DNSC may explore the possibility of locating a storage facility on State, Native American, or private lands.

3.5.2 Storage Technologies

ISSUE SUMMARY

One commentor was concerned that the building the mercury is stored in does not meet the standard for this type of storage. Several commentors expressed concerns about the safety of mercury storage, in particular, that the containers of mercury should not be stored on wooden pallets or in proximity to other combustible materials.

Another commentor expressed the opinion that mercury stored in iron or steel flasks is fairly benign in terms of hazard to neighbors except in the unlikely event of a major fire. The commentor continued that scientific tests would need to be conducted to determine the long-term integrity of the flasks. Another commentor was concerned that overpacking the flasks in drums would prevent leaking flasks from being discovered because the flasks would not be visible. One commentor stated that overpacking would be a gross waste of taxpayer money.

Another commentor expressed concern that chemical treatment of mercury would be more hazardous than leaving it as is because volatile and soluble forms of mercury could be released to the environment during processing.

DNSC RESPONSE

The mercury at the DNSC storage locations is stored in compliance with applicable Federal and State laws and regulations. Given the lack of possible fire initiators and with sprinkler systems that protect the warehouses, it is unlikely that wooden pallets could produce a sustainable fire that would seriously jeopardize the integrity of the mercury storage containers. DNSC believes that the mercury is currently stored under safe conditions in warehouse sections isolated from other combustible commodities and protected by sprinkler systems.

Although mercury alloys with many other metals, it is recognized that iron is not one of the metals affected by contact with mercury. Therefore, the storage of mercury in steel flasks is considered to be safe and is the standard for the metals industry. DNSC has safely stored mercury in low-carbon steel flasks for over 50 years. The MM EIS will examine potential accidents that could result in the breach of mercury storage containers, including scenarios involving fire. The MM EIS will also examine the potential consequences of a terrorist attack.

Although a few flasks have failed in the past, these failures appear to be related to defects in the welds. During the overpacking project, all flasks will be thoroughly cleaned and inspected. Any suspected leaking flasks would be replaced with new seamless flasks before being sealed in the overpacking drums. Therefore, few flasks are expected to leak inside the drums. Although outside the scope of the MM EIS, the overpacking of mercury flasks that is occurring at the depots will provide additional containment to

ensure that mercury will not be released into the environment. The mercury at Y-12 was resealed in 1975 and will be overpacked only if it is relocated.

Although there is currently no approved method for the treatment of high-concentration mercury wastes for land disposal, EPA is evaluating alternatives that may allow this to occur. Currently, high-concentration mercury wastes must be resealed to reclaim the mercury.

3.5.3 Health and Safety

ISSUE SUMMARY

One commentor suggested that the risk to public health is a major issue. Another commentor was concerned about health risks from mercury contamination, while another was concerned about the health risks associated with the storage of mercury. One commentor suggested that the mercury is safely stored.

DNSC RESPONSE

As described in the NOI to prepare the MM EIS, DNSC anticipated that one of the key areas of interest on the MM EIS would be human health risk. Therefore, the MM EIS will evaluate the risks to the health of the public as well as its workers from alternatives for mercury management, including mercury storage. Risks to human health will be assessed for the routine conduct of mercury management activities and during accidents.

3.5.4 Accidents and Natural Disasters

ISSUE SUMMARY

Several commentors were concerned about the potential for adverse human health effects from transportation and facility accidents. These accidents could be small spills and leaks of mercury or could be larger releases due to fire or other natural disasters (weather-related accidents). Another commentor was concerned that leaking mercury could get into surface water and contaminate fish that people will eat. One commentor suggested that monitoring equipment should be used to detect leaks. Another suggested that the MM EIS should describe current management practices, including monitoring and inspection of the stockpile, and how DNSC would address mercury leaks. Another suggested that a system should be used to warn people in the event of an accident. One commentor suggested that people near the site of a serious accident should be evacuated.

DNSC RESPONSE

The MM EIS will include an evaluation of the human health risks from accidents that could occur at the mercury management facilities and during transportation. This includes evaluating the potential human health risks from a range of accident scenarios, including spills, leaks, and fires and accidents caused by natural events such as high winds, tornadoes, and earthquakes. The accident scenarios will consider the potential routes of exposure to workers and the public, including air, surface water, groundwater, and contaminated food.

Inspections are routinely performed at the existing mercury storage facilities, including measuring the concentration of mercury in the warehouse air using a portable mercury vapor detector. The MM EIS will describe the monitoring and inspection procedures used at the existing mercury storage facilities and will discuss the process for cleaning up any spills or leaks that may occur.

In the event of a serious accident at one of the current mercury storage facilities, the local fire department has the primary first-response responsibility. Fire department personnel would be responsible for assessing the significance of any accident and determining if the evacuation of nearby residents were warranted.

3.5.5 Environment

ISSUE SUMMARY

One commentor expressed concern about potential impacts of mercury and the potential sale of mercury. A commentor suggested that risk to the environment and ecological communities are major issues for the MM EIS. Another commentor suggested that the EIS must include recommendations for managing the existing stockpile to ensure protection of the environment. Another commentor suggested that if population density, proximity to residential areas, proximity to children's recreation areas, and sensitive environmental resources were considered, it should be clear that the mercury should be removed from current depots.

DNSC RESPONSE

The MM EIS will contain analyses of potential impacts on the natural and manmade environment appropriate to the alternatives being evaluated. Impacts will be evaluated for meteorology, air quality and noise, waste management, socioeconomics, human health and ecological risk, transportation, geology and soils, water resources, ecological resources, cultural resources, land use and visual resources, infrastructure, and environmental justice. Cumulative impacts will also be evaluated. A range of reasonable mercury management alternatives will be evaluated, including No Action, Consolidated Storage, Treatment and Disposal, and Sales Alternatives. If the analyses presented in the MM EIS indicate that adverse impacts may occur, measures that could be used to mitigate the adverse impacts will be identified. The existing mercury stockpile is being safely stored in compliance with all applicable laws and regulations.

The assessment of the impacts from mercury management alternatives will include consideration of population density, proximity to residential and recreation areas, and sensitive environmental resources. At this time, DNSC does not have a preferred mercury management alternative. Before a mercury management decision is made, the impact analyses presented in the MM EIS will be reviewed and factors such as program needs, timing, cost, and public acceptance will be considered. CEQ NEPA regulations (40 CFR 1505.2[b]) require that the environmentally preferable (least impact) alternative be identified in the ROD, although there is no requirement that this alternative be selected.

3.5.6 Socioeconomics

ISSUE SUMMARY

One commentor suggested that the scope of the MM EIS should be expanded to include economic issues related to selling the DNSC mercury stockpile. One commentor suggested that a decision to sell mercury could adversely affect the mercury recycling and gold mining (mercury produced as a byproduct of mining) industries. Two other commentors asked that the MM EIS include a complete review and analysis of all socioeconomic impacts of mercury management alternatives on the domestic precious metal mining industry. Another commentor suggested that the MM EIS evaluate economic impacts from mercury sales, including impacts on price and worldwide use.

DNSC RESPONSE

The MM EIS will include an analysis of the socioeconomic impacts of mercury management alternatives, including a discussion of the potential impacts of renewed mercury sales on the mercury mining, domestic precious metal mining, and mercury recycling industries. The MM EIS will also evaluate the economic impacts from renewed mercury sales and will include a discussion of anticipated impacts on price and worldwide use.

3.5.7 Transportation

ISSUE SUMMARY

One commentor suggested that an additional study is needed to select a mode of transportation for the mercury if it is to be moved.

DNSC RESPONSE

The MM EIS will evaluate the transportation of the mercury overland by truck and rail; and for the Sales Alternatives, transport overseas by ship. Air transport is not considered to be a reasonable option because of the need to ship the mercury by truck or rail to and from the airports and the 10 to 20 times higher cost of air transport. In addition, the movement of mercury within the continental United States by barge is not considered to be a reasonable option due to the need to ship the mercury by truck or rail to and from the barge route and the limited areas of service of barge routes.

3.5.8 MM EIS Content and Structure

ISSUE SUMMARY

One commentor agreed with the list of issues that was presented in the NOI, but wanted the environmental impacts of mercury sales evaluated in the EIS, and wanted to be able to compare the impacts of the Storage and Sales Alternatives. This commentor also suggested that the statement in the NOI that mercury is found in “conventional lights in automobile interiors” may be misleading.

DNSC RESPONSE

To the extent possible, the environmental impacts of mercury sales will be evaluated. Because the locations of potential buyers and users of the DNSC mercury are not known, the assessment of environmental impacts from mercury sales is likely to be largely qualitative. It is not possible to determine the exact nature of impacts at unknown locations. In addition, the MM EIS will present data in a tabular format to facilitate comparison of the impacts of the various alternatives.

DNSC agrees that the statement in the NOI that mercury is found in “conventional lights in automobile interiors” is misleading. Mercury is used in some types of switches that automatically turn on and off the lights; automotive light bulbs generally do not contain mercury.

3.5.9 MM EIS Schedule

ISSUE SUMMARY

A commentor suggested that DNSC expedite completion of the EIS so that mercury disposition actions can proceed.

DNSC RESPONSE

NEPA requires Federal agencies to consider the environmental consequences of actions that could potentially affect the environment prior to taking that action. DNSC is preparing an EIS to decide the long-term management of its elemental mercury stockpile and cannot make any decisions that may limit any alternatives until the NEPA process is completed.

Much of the schedule for preparing an EIS is determined by prescribed review and quality assurance procedures and public involvement requirements. Other parts of the EIS preparation process require the collection and analysis of large amounts of information about the sites and mercury management alternatives. For this particular EIS, the solicitation and review of mercury treatment technologies and the search for alternate mercury storage locations are consuming significant additional time. EIS preparation activities must be performed thoroughly and properly; this takes time.

DNSC short-term strategy is to ensure safe storage and maintenance of all DNSC mercury by emphasizing safe physical storage, performing vapor testing and monitoring, and informing local communities of the progress.

3.5.10 Regulatory Compliance

ISSUE SUMMARY

A number of commentors suggested that DNSC perform a complete review and analysis of all regulatory changes required for the implementation of a mercury retirement program, and disclose all impacts on existing mercury regulations and controls due to any changes in DNSC's management strategy for surplus mercury. Another commentor asked that the MM EIS address the question of which laws and regulations apply to the mercury stockpile and which agencies have jurisdiction, including questions associated with the definition of mercury as a product or waste. This commentor asked the MM EIS to clarify how EPA's issuance of treatment standards for land disposal restrictions will mesh with the publication of the draft and final EISs. This commentor also asked DNSC to explain how they will consult with and seek necessary permits and concurrence with the State in which the mercury is now stored or in which it might be stored in the future. Another commentor suggested that mercury accumulated speculatively for more than 1 year should be considered a hazardous waste.

DNSC RESPONSE

The MM EIS will describe the environmental regulations, permits, and consultations applicable to the various mercury management activities that may occur. Federal laws and regulations; Executive orders; DoD and DLA directives, instructions, and manuals; other compliance actions related to the protection of the environment or to the management of mercury; and important anticipated changes to regulations will be described. Extensive discussions of agency jurisdiction and the permitting and concurrence process for each State where mercury management activities could be located is not necessary for an EIS where the principal focus is on assessing and comparing the environmental impacts of alternatives for mercury

management. The MM EIS will clearly describe alternatives where the mercury will be managed as a stored industrial commodity and under what circumstances it would be considered a waste. As recognized by EPA hazardous waste regulations (40 CFR 261), the 99.5 to 99.9 percent pure mercury stored by DNSC is a commodity and not a hazardous waste.

The DNSC mercury management program does not seek to change existing laws and regulations, but instead will seek to accomplish the safe and cost-effective disposition of the mercury within the existing regulatory framework. While EPA is in the process of evaluating alternatives to the current mercury treatment standards for land disposal, it is likely that this action would be required even without consideration of the DNSC mercury stockpile. Therefore, DNSC does not anticipate that the mercury management decision that will result from the MM EIS will affect mercury management laws and regulations. The MM EIS will describe the status of the EPA evaluation and discuss how the timeline for this process helps or hinders DNSC's mercury management decision.

3.5.11 Other Comments

ISSUE SUMMARY

One commentor was concerned about mercury contamination in and around the Oak Ridge Reservation in Oak Ridge, Tennessee. Another commentor was concerned that the U.S. Government used Allen County, Indiana, as a test area for involuntary chemical exposure.

DNSC RESPONSE

Mercury contamination in and around the Oak Ridge Reservation has been determined to have originated from past uranium enrichment activities and is not related to the storage of DNSC mercury at Y-12. Past mercury contamination at the Oak Ridge Reservation has been and is continuing to be addressed by DOE's responsibilities under CERCLA. Although the cleanup of the existing mercury contamination is outside the scope of the MM EIS, the EIS will consider the cumulative effects of DNSC mercury management activities when added to any existing or reasonably foreseeable related actions or contamination.

DNSC is not aware of past involuntary testing of Allen County residents. The scope of the MM EIS is confined to evaluating alternatives for the management of DNSC's mercury stockpile. Other unrelated past, present, or future activities are outside the scope of the MM EIS.

3.5.12 Public Outreach

ISSUE SUMMARY

One commentor was concerned that the meeting notice, which was published in the local newspaper, looked too much like a legal notice, which people tend to ignore. Another commentor asked for an additional scoping meeting in Reno, Nevada. A third commentor wanted DNSC to be honest and straightforward about DNSC's plans for the mercury. Another commentor was concerned that mercury was removed from one of the storage depots to calm public misgivings, but this same criterion is not being used to move the mercury out of the other storage depots.

DNSC RESPONSE

Although display advertisements were prominently placed in one weekday and one weekend edition of local newspapers, DNSC realizes that some individuals did not see these advertisements. Therefore, in the future, DNSC is considering mailing public meeting notices directly to persons on the MM EIS mailing list and to individuals and community organizations near public meeting sites and potentially affected locations.

DNSC conducted public scoping meetings in the vicinity of each of the four mercury storage locations because these areas are more likely to be directly affected by DNSC's decision on the management of its mercury inventory. In addition, a meeting was conducted in Washington, D.C., to engage national environmental and industry groups, elected officials, and other potentially impacted groups. For those individuals who could not attend one of the public meetings, DNSC provided other methods to submit comments: (1) through the MM EIS Web site (www.mercuryeis.com); (2) email (information@mercuryeis.com); (3) toll-free phone (1-888-306-6682); (4) toll-free fax (1-888-306-8818); and (5) U.S. mail. Additional public meetings will be conducted after the Draft MM EIS is published next year. DNSC will consider whether public meetings should be held at additional locations in the United States.

DNSC is committed to involving the public in the NEPA process. At this point in time, DNSC does not have a preferred alternative for the management of its mercury. If a preferred alternative is identified before the DEIS is issued, it will be reflected in the DEIS. If not, a preferred alternative will be described in the Final MM EIS, as required by NEPA regulations.

DNSC cannot move the mercury at this time for reasons dictated by NEPA, as discussed in detail in Section 3.5.1.3.

3.5.13 Other Site Issues

ISSUE SUMMARY

One commentator was concerned about the remediation of site contamination and that the site will remain contaminated even after materials are removed from the depot. Several commentators were concerned about possible contamination at Dockerty Park, in the vicinity of the Somerville Depot, and asked that DNSC sample soil and water at this location. Another commentator supported the long-term goal of the removal of all stored materials from the depot and cleanup and closure of the site. One commentator suggested that DNSC show evidence that the stockpile is being reduced, by publishing the stockpile inventory in a monthly newsletter. Another commentator wanted to know the results of water testing performed near the depot in February 2001. Another commentator suggested that the community has become a dumping ground for toxic waste because they are not located in a more upscale area. One commentator asked what products or munitions the military made using mercury.

DNSC RESPONSE

Because Congress has determined that most of the materials in the defense national stockpile are excess to the U.S. defense needs, these materials are being sold or otherwise disposed of, and plans are under way to close many of the DNSC storage depots. Contamination at the DNSC depots is being addressed by DNSC's Environmental Restoration Program responsibilities under CERCLA. The MM EIS will consider any cumulative effects of DNSC mercury management activities when added to existing contamination.

Possible contamination at Dockerty Park is not considered under the current Environmental Restoration Program at the Somerville Depot. The park is at some distance from the Somerville Depot and was formerly Veterans Administration property.

The results of the water testing conducted, will be reported in future documents that are prepared under the Environmental Restoration Program. Those documents will be available for public review in the local library or local government offices.

The scope of the MM EIS is limited to alternatives for the management of DNSC's mercury. Impacts from the management of other materials and wastes from existing or former depots that store or stored defense stockpile material are outside the scope of the MM EIS.

The MM EIS will include an analysis of potential environmental justice impacts that could be produced by alternatives for mercury management. Environmental justice impacts are defined as disproportionately high and adverse impacts on minority and low-income populations.

The National Defense Stockpile was established after World War II to ensure that the United States would have access to commodities needed for the nation's critical uses in times of defense and economic emergencies. Mercury was acquired for the stockpile because, at that time, it was used in many industrial and some military applications.

While the industrial and military uses of mercury overlap in most areas (e.g., pressure sensing devices, gauges, barometers, light switches and relays, navigational equipment, seals, valves, thermometers, security sensors), the following applications, although also used by commercial entities, relate to past military products and activities:

- "Man down" alarms
- Marine auto-pilot systems
- Airplane instrumentation
- Explosives (Mercury fulminate, which is no longer manufactured, was used in percussion caps and other detonators for explosive devices.)

References

CEQ (Council on Environmental Quality) 1997, *Environmental Justice, Guidance Under the National Environmental Policy Act*, Executive Office of the President, Washington, DC, December 10.

DLA (Defense Logistics Agency), 1981, *Environmental Considerations in DLA Actions in the United States*, DLAR 1000.22, June 1.

DNSC (Defense National Stockpile Center), 2001a, *Management of Excess Mercury; Expressions of Interest; Alternative Locations for the Long Term Storage of Mercury*, Federal Register, vol. 66, no. 43, March 5.

DNSC (Defense National Stockpile Center), 2001b, “Commercial Sector Provision of Elemental Mercury Processing Services – Request for Expressions of Interest,” *Commerce Business Daily*, May 24.

DOI (U.S. Department of Interior) 1986, *Visual Resource Contrast Rating Manual Handbook, BLM Manual Handbook H-8431-1*, Bureau of Land Management, Washington, DC, January 17.

EO (Executive Office of the President), 1994, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, Executive Order 12898, Washington, DC, February 11.

Lynch, D., 2001, Defense National Stockpile Center, Ft. Belvoir, VA, personal communication (email) to J. DiMarzio, Science Applications International Corporation, Germantown, MD, *Depot Information Request*, March 13.

Glossary

acute – Occurring over a short time, usually a few minutes or hours. An acute exposure can result in short-term or long-term health effects. An acute effect can occur a short time (up to 1 year) after exposure.

amalgamation – Forming a mixture or alloy of mercury with any of a number of metals or alloys as well as with some nonmetals.

ambient – Surrounding. For example, ambient air is usually outdoor air (as opposed to indoor air).

aquifer – A saturated geologic unit through which significant quantities of water can migrate under natural hydraulic gradients.

chronic – Occurring over a long period of time (more than 1 year).

concentration – The amount of one substance dissolved or contained in a given amount of another.

contaminant – Any substance or material that enters a system (the environment, human body, food, etc.) where it is not normally found.

critical habitat – As defined in the Endangered Species Act of 1973, “specific areas within the geographical area occupied by [an endangered or threatened] species . . ., essential to the conservation of the species and which may require special management considerations or protection; and specific areas outside the geographical area occupied by the species . . . that are essential for the conservation of the species.”

criteria pollutants – An air pollutant that is regulated by National Ambient Air Quality Standards. EPA must describe the characteristics and potential health and welfare effects that form the basis for setting, or revising, the standard for each regulated pollutant. Criteria pollutants include sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, lead, and two size classes of particulate matter, less than or equal to 10 micrometers (0.0004 inch) in diameter, and less than or equal to 2.5 micrometers (0.0001 inch) in diameter. New pollutants may be added to, or removed from, the list of criteria pollutants, as more information becomes available.

cultural resources – Archaeological sites, architectural features, traditional-use areas, and Native American sacred sites.

cumulative impacts – The incremental impact on the environment of an action in combination with other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal), private industry, or individual undertakes such other actions. Cumulative impacts can result from individually minor but collectively undertakes actions taking place over a period of time (40 CFR 1508.7).

emission – One or more substances released to the water, air, or soil in the natural environment.

environmental impact – Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization’s activities, products, or services.

exposure – Contact with a chemical by swallowing, by breathing, or by direct contact (such as through the skin or eyes). Exposure may be short term (acute) or long term (chronic).

floodplain – The lowlands adjoining inland and coastal waters and relatively flat areas, including, at a minimum, that area inundated by a 1-percent or greater-chance flood in any given year.

hazardous waste – According to the Resource Conservation and Recovery Act, a solid waste that because of its characteristics may (1) cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness, or (2) pose a substantial hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed. Hazardous wastes appear on special U.S. Environmental Protection Agency lists and possess at least one of the following characteristics: (1) ignitability, (2) corrosivity, (3) reactivity, or (4) toxicity.

historic resources – Archaeological sites, architectural structures, and objects dating from 1492 or later, after the arrival of the first Europeans to the Americas.

infrastructure – The basic facilities, services, and installations needed to support a plant or site, such as transportation and communication systems.

ingestion – Swallowing (such as eating or drinking). After ingestion, chemicals can be absorbed into the blood and distributed throughout the body.

inhalation – Breathing. Exposure may occur from inhaling contaminants because they can be deposited in the lungs, taken into the blood, or both.

media – Soil, water, air, plants, animals, or any other parts of the environment that can contain contaminants.

mercury – Mercury is a dense, naturally occurring, silver-colored metallic element that is liquid at room temperature.

National Environmental Policy Act of 1969 – An act constituting the basic national charter for protection of the environment. The act calls for the preparation of an environmental impact statement for every major Federal action that may significantly affect the quality of the human or natural environment. Its main purpose is to provide environmental information to decisionmakers so that their actions are based on an understanding of the potential environmental consequences of a proposed action and the reasonable alternatives.

noise – Any sound that is undesirable because it interferes with speech and hearing, is intense enough to damage hearing, or is otherwise annoying or undesirable.

pathways – The paths or routes by which contaminants are transferred from a source to a receptor.

plume – An area of chemicals in a particular medium, such as air or groundwater, moving away from its source in a long band or column. A plume can be a column of smoke from a chimney or chemicals moving with groundwater.

prehistoric – Predating written history.

prime farmland – Land with the best combination of physical and chemical characteristics (soil quality, growing season, and moisture supply) for economically producing high yields of food, feed, forage, fiber,

and oilseed crops, with minimum inputs of fuel, fertilizer, pesticides, and labor without intolerable soil erosion (Farmland Policy Protection Act of 1981, 7 CFR 7, paragraph 658). Land classified as prime farmland includes cropland, pastureland, rangeland, and forest land, but not urban or built-up land or land covered with water. The Natural Resources Conservation Service designates prime farmlands.

recycling – The process of reusing material for the production of new goods or services on the same quality level.

risk – The risk assessment, the probability that something will cause injury, combined with the potential severity of that injury. In quantitative terms, risk is expressed in values ranging from zero (representing the certainty that harm will not occur) to one (representing the certainty that harm will occur).

risk assessment – The determination of the kind and degree of hazard posed by an agent, the extent to which a particular group of people has been or may be exposed to the agent, and the present or potential health risk that exists due to the agent.

runoff – The portion of rainfall, melted snow, or irrigation water that flows across the ground surface and eventually enters streams.

threatened species – As defined in the Endangered Species Act of 1973, any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

viewshed – The extent of the area that may be viewed from a particular location. Topographic features such as hills or mountains generally bound viewsheds.

visual resources – Natural and cultural features by which the appearance of a particular landscape is defined.

waste – An output with no marketable value that is discharged to the environment. Normally the term “waste” refers to solid or liquid materials.

wastewater – Water originating from human sanitary water use (domestic wastewater) and from a variety of industrial processes (industrial wastewater).

wetland – Land areas exhibiting hydric soil conditions, saturated or inundated soil during some portion of the year, and plant species tolerant of such conditions.

Appendix A
Federal Register Notices

A.1 NOTICE OF INTENT

A.2 NOTICE OF PUBLIC MEETINGS

Appendix B

Preliminary Annotated Outline for the Draft Mercury Management Environmental Impact Statement

Cover Sheet. This will contain the title of the proposed action, i.e., the subject of the EIS; the responsible agency; any cooperating agencies; a one-page abstract of the EIS; the name of the DNSC contact for written comments; the name, address, and phone number of a DNSC contact for questions regarding the EIS; a summary of the public comment process; and a statement inviting comments and when they are due. A cover sheet will be included in the Executive Summary and in the first volume of the EIS.

Summary. This will be a separately bound, stand-alone summary of the EIS. It will briefly discuss background, history, proposed action, purpose and need, alternatives, impacts, and mitigation measures (if any).

Table of Contents. All volumes of the EIS will have a Table of Contents.

List of Figures. All volumes of the EIS will have a List of Figures.

List of Tables. All volumes of the EIS will have a List of Tables.

List of Acronyms. This section will contain a list of all acronyms and abbreviations that are used in the EIS. This includes acronyms and abbreviations from common usage of the English language, discipline-specific acronyms and abbreviations, and DNSC-unique acronyms and abbreviations. Acronyms and abbreviations will be kept to a minimum to make reading the EIS easier for the public.

Metric Conversion Chart and Metric Prefixes. This page will contain English to metric and metric to English conversions for those units used in the EIS. Metric system prefixes will also be defined, such as micro, milli, and mega.

1.0 Background, Purpose of, and Need for Proposed Action. Chapter 1 will describe the background related to the preparation of the EIS, the purpose of and the need for a mercury management solution, the decisions to be made in the ROD for this EIS, a summary of the issues identified during scoping, the scope of the EIS, the preferred alternative (if any), the relationship of this proposed action to other actions or programs, cooperating agencies, and the organization of the EIS.

1.1 Background. The history and background of the mercury management program and how it relates to the preparation of the EIS will be described here.

1.2 Purpose of and Need for Action. This section will describe the purpose of and need for selecting and implementing an environmentally safe and cost-effective solution for management of the DNSC mercury inventory.

1.3 Decisions to be Made. The decisions that DNSC expects to make based on the analytical results of the EIS process, the risk assessment report, and other cost and schedule considerations will be described.

1.4 Issues Identified During the Scoping Period. This section will describe the public scoping process, including where and when scoping meetings were held, format of the

meetings, and the number of comments received and how they were tracked. A summary of the concerns identified during the public scoping process will be presented, along with a discussion of how these concerns were addressed. This section will reference the *Scope of the MM EIS* for more detailed information on the comments received during the public scoping period.

- 1.5 Scope of the MM EIS.** This section will briefly describe the scope of the EIS, including the type and amount of material in the inventory and the activities to be undertaken under each of the alternatives.
- 1.6 Preferred Alternative (if any).** This section will describe the regulatory requirements for a “Preferred Alternative” and its definition. If a preferred alternative has been identified by DNSC, it will be described here. (Note that according to CEQ NEPA regulations, a preferred alternative need not be identified in the DEIS although one must be identified in the final EIS).
- 1.7 Relationship to Other Actions and Programs.** This section will describe the relationship of the mercury management alternatives to related activities of DNSC/DLA, cooperating agencies such as DOE, and other agencies such as EPA. Cooperating agency participation requirements will be defined and described.
 - 1.7.1 DNSC/DLA Activities
 - 1.7.2 Depot Activities
 - 1.7.3 Cooperating Agencies
- 1.8 Organization of the MM EIS.** This section will describe how the EIS is organized, including a description of the contents of each chapter and appendix.
- 1.9 References**
- 2.0 Alternatives for Management of Mercury.** Chapter 2 will describe the mercury management alternatives evaluated in the EIS. This section will include a description of the processes and facilities that could be used to manage the mercury stockpile.
 - 2.1 Materials Analyzed in the MM EIS.** This section will describe the DNSC mercury analyzed in the EIS, including the origin of the mercury, amount of mercury, purity, storage locations, and storage situation.
 - 2.2 Alternatives Analyzed in the MM EIS.** The alternatives analyzed in the EIS will be listed and described here. The alternatives will be combined into four major groups that have similar attributes. These groups are listed below.
 - 2.2.1 No Action Alternative
 - 2.2.2 Consolidated Storage Alternatives
 - 2.2.3 Treatment and Disposal Alternatives
 - 2.2.4 Sales Alternatives
 - 2.3 Description of Potential Mercury Disposition Activities.** This section will include descriptions of the activities that make up the alternatives, and will include flow diagrams, figures, and tables to provide sufficient detail to support the evaluation of

environmental impacts. Detailed information on the facilities and processes will be included in Appendix C.

- 2.3.1 Storage
- 2.3.2 Treatment
- 2.3.3 Disposal
- 2.3.4 Sales
- 2.3.5 Transportation

2.4 Alternatives Considered but Eliminated from Detailed Study. This section will list alternatives that were considered and will describe why they were eliminated from detailed consideration. This may include alternatives that do not meet the purpose and need, are unproven, are not timely, or are prohibitively expensive.

2.5 Summary of Impacts of the Proposed Mercury Disposition Alternatives. The impacts of the alternatives will be summarized in two tables to enable side-by-side comparison of the impacts by alternative or by site.

- 2.5.1 Summary of Impacts by Alternative
- 2.5.2 Summary of Impacts by Site

2.6 References

3.0 Affected Environment. Chapter 3 will describe the environment of the areas that may be affected by the alternatives under consideration. The environments to be described include each of the current mercury storage locations, any consolidated mercury storage locations, and commercial mercury treatment locations. Commercial disposal locations and sales and reuse locations will be described, but at a lesser level of detail, because these are existing commercial facilities that commonly perform these activities and the exact location of the facilities that would perform the service are not known.

3.1 Approach to Defining the Affected Environment. This section will briefly describe what resources are evaluated in the affected environment section, why they were selected, and the definition and use of regions of influence.

3.2 New Haven Depot. This section will provide a concise introduction to the setting at the New Haven Depot. This section will briefly describe the site size and its location relative to regional landmarks (e.g., population centers, national and State parks, Native American reservations, and military installations).

3.2.1 Meteorology, Air Quality, and Noise. This section will briefly summarize air resources of the site, including regional meteorology and climatology, severe weather conditions, atmospheric dispersion characteristics, air quality, and acoustic conditions. Attainment/nonattainment status of the area and location relative to any Class I areas will also be summarized.

- 3.2.1.1 Meteorology
- 3.2.1.2 Air Quality
- 3.2.1.3 Noise

- 3.2.2 Waste Management.** This section will describe the site waste management facilities, waste generation rates, waste storage and treatment capacities, and waste-handling procedures. The use of commercial offsite waste treatment and disposal will also be described.
- 3.2.3 Socioeconomics.** This section will summarize the socioeconomic and community characteristics of the site region. This will include descriptions of population, employment, economy, housing, and local community services.
- 3.2.3.1 Regional Economic Characteristics
 - 3.2.3.2 Population and Housing
 - 3.2.3.3 Community Services
- 3.2.4 Human Health Risk.** This section will discuss the extent of hazardous substances in the environment of the site and surrounding region with particular attention paid to elemental mercury and other mercury compounds. Any studies of the effects of mercury on the health of persons residing in the region surround the sites will be described. The history of accidents at the sites will be summarized and the emergency preparedness system described.
- 3.2.4.1 Health Effects Studies
 - 3.2.4.2 Accident History
 - 3.2.4.3 Emergency Preparedness
- 3.2.5 Geology and Soils.** This section will briefly describe the site and regional geology and soils conditions. This will include summary descriptions of geologic hazards such as earthquakes, volcanoes, sinkholes, and soil failures. Emphasis will be on identifying any geologic or soil conditions that could endanger the mercury management facilities or be impacted by mercury management activities.
- 3.2.6 Water Resources.** This section will summarize the site and regional water resources to include surface water systems, surface water flow, surface water quality, surface water uses, surface water rights and flooding. In addition, this section will summarize the major site hydrogeologic units, groundwater flow, groundwater levels, groundwater quality, site and regional groundwater use, and groundwater rights.
- 3.2.7 Ecological Resources.** This section will describe the ecological resources at and in proximity to the site. This will include summary descriptions of terrestrial resources; wetlands; aquatic resources; and threatened, endangered, or otherwise sensitive species.
- 3.2.7.1 Nonsensitive Habitats and Species
 - 3.2.7.2 Sensitive Habitats and Species
- 3.2.8 Cultural Resources.** This section will describe the prehistoric, historic, and Native American resources of the site and surrounding region. The description will include areas and sites listed and eligible for inclusion in the NRHP.

3.2.9 Land Use and Visual Resources. The land resources of each site and the surrounding region will be described in this section. Land resources on and in the vicinity of each site will be characterized based on land ownership, historical and existing land uses, existing land-use plans and policies, and future land-use plans. For visual resources, the existing regional and local visual character of the viewshed at each site will be described in terms of the landforms, water surfaces, vegetation, and manmade features that are present.

3.2.10 Infrastructure. This section will describe the infrastructure serving the site, including utilities and transportation facilities. Lack of sufficient existing infrastructure capacity will be noted.

3.2.10.1 Transportation

3.2.10.2 Electricity

3.2.10.3 Fuel

3.2.10.4 Water

3.2.10.5 Site Safety Services

3.2.11 Environmental Justice. This section will describe the distribution of minority and low-income populations near the sites.

3.3 Somerville Depot (subsections as shown above)

3.4 Warren Depot (subsections as shown above)

3.5 Y-12 National Security Complex (subsections as shown above)

3.6 Other Consolidated Storage Location (subsections as shown above)

3.7 Other Treatment Location (subsections as shown above)

3.8 Regional and Global Affected Environment. The affected environment for regional and global environmental issues will be described. This includes the global cycling of mercury in the environment.

3.9 References

4.0 Environmental Consequences. Chapter 4 will provide a discussion of the possible environmental impacts associated with the various mercury management alternatives at each location. Impacts produced by construction (if any) and operations as well as cumulative impacts will be considered. When potentially significant impacts are identified, possible measures to mitigate the impacts will be identified.

4.1 Introduction. This section will describe the scope and content of Chapter 4.

4.2 Alternative 1: No Action – Continued Storage at Current Locations. The environmental impacts of the No Action Alternative will be described. Impacts will be described by resource and then for each site.

4.2.1 Meteorology, Air Quality, and Noise. This section will assess the impacts of the mercury management alternatives on air quality. This will include identifying new emission sources, describing emission rates of criteria air pollutants and toxic materials, identifying mobile emission sources, and assessing air quality impacts of routine releases against appropriate criteria and standards. This section will also describe the effects of noise on workers and the general

public. This will include an assessment of compliance with applicable noise regulations and standards.

4.2.1.1 New Haven Depot

4.2.1.2 Somerville Depot

4.2.1.3 Warren Depot

4.2.1.4 Y-12

4.2.2 Waste Management (subsections as shown above). This section will describe the impacts of additional waste generation on the waste management infrastructure of the site.

4.2.3 Socioeconomics (subsections as shown above). This section will assess the impacts of the alternatives on socioeconomic conditions, including regional population, employment, housing, and community services (e.g., health care and human services, schools, police, and fire).

4.2.4 Human Health and Ecological Risk (subsections as shown above). This section will evaluate the potential for chronic health risks to workers and the general public during normal operations. Pathways of exposure to be examined include inhalation, skin contact, and ingestion of food and water. This section will also evaluate risks to plants and animals from routine mercury management activities.

4.2.5 Facility Accidents (subsections as shown above). This section will evaluate the potential for acute health risks to workers and the general public during facility accidents. This assessment will include a range of accidents, including accidents initiated by natural phenomena (e.g., wind, flood, and earthquake), human error, and sabotage. Risks to plants and animals from facility accidents will also be evaluated.

4.2.6 Transportation (subsections as shown above). This section will evaluate the potential for health risks to workers and the general public during transportation of mercury and other materials. Health risks will be estimated for exhaust emissions during normal transportation, risks from trauma during an accident, and risks from mercury releases during an accident. Because the mercury is contained in steel flasks and overpacks, there are no mercury emissions during normal transportation. Risks to plants and animals from emissions of mercury during transportation accidents will also be evaluated.

4.2.7 Geology and Soils (subsections as shown above). This section will assess the impacts of the alternatives on geology and soils. Geology and soils impacts may include subsidence, erosion, slope instability, interference with recovery of economic mineral resources, and disturbance of prime farmland soils.

4.2.8 Water Resources (subsections as shown above). Impacts on surface water and groundwater availability and quality from increased water use, releases of wastewater and storm water, and sedimentation will be assessed. Increased water use at the sites will be compared to water rights and/or allotments. Water quality will be compared to applicable standards.

- 4.2.9 Ecological Resources** (subsections as shown above). This section will address the impacts of alternatives on sensitive habitats, commercially and recreationally valuable species, and Federal- and State-listed threatened, endangered, and special status species. Impacts on terrestrial and aquatic resources include loss of habitat and effects of effluents on flora and fauna. Impacts on wetlands will be described, including loss of or modification to wetlands due to activities such as dredging or filling.
- 4.2.10 Cultural Resources** (subsections as shown above). This section will include a discussion of the impacts of the mercury management alternatives on prehistoric, historic, and Native American resources. Impacts on archaeological sites, sites listed or eligible for listing on the NRHP, and sites important to Native American groups will be assessed.
- 4.2.11 Land Use and Visual Resources** (subsections as shown above). The impacts of the alternatives on the land resources of each site and the surrounding region will be described. The analysis of land-use impacts will consider direct impacts that could result from land-use changes on or adjacent to each site, and indirect impacts resulting from any population growth in the communities surrounding each site. Visual impacts will be assessed based on whether changes in existing facilities or the construction of new facilities would appear uncharacteristic in each site's visual setting.
- 4.2.12 Infrastructure** (subsections as shown above). This section will describe the potential impacts on the utility and transportation infrastructure serving the site. Impacts will be highlighted where existing infrastructure capacity is likely to be exceeded.
- 4.2.13 Environmental Justice** (subsections as shown above). This section will evaluate the possibility that mercury management alternatives may adversely affect minority or low-income populations at the mercury management locations and along the transportation routes.

4.3 Alternative 2: Consolidated Storage – New Haven Depot

- 4.3.1 Meteorology, Air Quality, and Noise
- 4.3.2 Waste Management
- 4.3.3 Socioeconomics
- 4.3.4 Human Health and Ecological Risk
- 4.3.5 Facility Accidents
- 4.3.6 Transportation
- 4.3.7 Geology and Soils
- 4.3.8 Water Resources
- 4.3.9 Ecological Resources
- 4.3.10 Cultural Resources
- 4.3.11 Land Use and Visual Resources
- 4.3.12 Infrastructure
- 4.3.13 Environmental Justice

4.4 Alternative 3: Consolidated Storage – Somerville Depot (subsections as shown above)

4.5 Alternative 4: Consolidated Storage – Warren Depot (subsections as shown above)

- 4.6 **Alternative 5: Consolidated Storage – Other Site** (subsections as shown above)
- 4.7 **Alternative 6: Treatment at the Current Storage Locations with Disposal in the Eastern United States** (subsections as shown above)
- 4.8 **Alternative 7: Treatment at the Current Storage Locations with Disposal in the Western United States** (subsections as shown above)
- 4.9 **Alternative 8: Commercial Treatment at Site X with Disposal in the Eastern United States** (subsections as shown above)
- 4.10 **Alternative 9: Commercial Treatment at Site X with Disposal in the Western United States** (subsections as shown above)
- 4.11 **Alternative 10: Commercial Treatment at Site Y with Disposal in the Eastern United States** (subsections as shown above)
- 4.12 **Alternative 11: Commercial Treatment at Site Y with Disposal in the Western United States** (subsections as shown above)
- 4.13 **Alternative 12: Sale of Mercury at the Maximum Market Allowable Rate** (subsections as shown above)
- 4.14 **Alternative 13: Sale of Mercury at a Rate Other Than the Maximum Market Allowable Rate** (subsections as shown above)
- 4.15 **Avoided Environmental Impacts Associated with Using Mercury from DNSC Stockpile versus Mining New Ore.** This section will describe the environmental impacts from mercury mining that can be avoided by selling stockpile mercury. These impacts include exposure of mine workers to mercury, releases of mercury to air and water near the mine, and utility and material usage. This section would also have to recognize the adverse impact to employment in the region if some of the mine workers and refinery workers lost their jobs.
- 4.16 **Decontamination and Decommissioning.** This section will briefly describe the impacts associated with decontamination and decommissioning the mercury management facilities. These impacts would likely include additional waste generation and worker exposure to residual mercury. This section will also discuss the potential impacts of cleanup that may be required for mercury contamination produced as a result of releases to air or water.
- 4.17 **Cumulative Impacts.** Cumulative impacts will be described in this section for each site evaluated in the EIS. It is expected that cumulative impacts would be evaluated for the following areas: materials and resources used, air quality, waste management, socioeconomics, human health risk, and transportation.
 - 4.17.1 New Haven Depot
 - 4.17.1.1 Materials and Resources Used
 - 4.17.1.2 Air Quality
 - 4.17.1.3 Waste Management
 - 4.17.1.4 Socioeconomics
 - 4.17.1.5 Human Health Risk
 - 4.17.1.6 Transportation
 - 4.17.2 Somerville Depot (subsections as shown above)
 - 4.17.3 Warren Depot (subsections as shown above)
 - 4.17.4 Y-12 (subsections as shown above)
 - 4.17.5 Other Federal Facility for Storage (subsections as shown above)
 - 4.17.6 Other Sites as Appropriate (subsections as shown above)

4.17.7 Regional and Global

- 4.17.7.1 Mercury Concentrations
- 4.17.7.2 Human Health Risk
- 4.17.7.3 Transportation
- 4.17.7.4 Socioeconomics

4.18 Irreversible and Irretrievable Commitments of Resources. This section will describe the irreversible and irretrievable commitment of resources that may occur due to the implementation of the various options. This will include the irreversible use of land areas, the irretrievable use of materials and energy in the construction and operation of the facilities, and the unavoidable generation of wastes.

- 4.18.1 Land Use
- 4.18.2 Materials
- 4.18.3 Energy
- 4.18.4 Waste

4.19 Relationship Between Local Short-term Uses of the Environment and the Maintenance and Enhancement of Long-term Productivity. This section will discuss the impacts of the short-term uses of the environment on the maintenance and enhancement of its long-term productivity.

4.20 References

5.0 Environmental Regulations, Permits, and Consultations

5.1 Laws, Regulations, and Executive Orders. This section will describe the environmental regulations, permits, and consultations applicable to the various mercury management activities that may occur. Federal laws and regulations; Executive orders; DoD and DLA directives, instructions, and manuals; other compliance actions related to the protection of the environment or to the management of mercury; and anticipated changes to regulations will be described.

- 5.1.1 Environment, Health, and Safety
- 5.1.2 Materials Packaging and Transportation
- 5.1.3 Emergency Management and Response

5.2 Regulatory Activities. The regulatory requirements, including permitting for each of the mercury management alternatives, will be summarized and described.

- 5.2.1 Mercury Storage
- 5.2.2 Mercury Treatment
- 5.2.3 Mercury Disposal
- 5.2.4 Mercury Sales

5.3 Consultations. Any required consultations related to Native American, archaeological and historical resources, and threatened and endangered and other species of concern or their critical habitat will be described. The status of these consultations will be included in the Final MM EIS.

- 5.3.1 Native American Consultations
- 5.3.2 Archaeological and Historical Resources Consultations
- 5.3.3 Endangered Species Act Consultations

- 6.0 Glossary.** This section will contain a definition of important technical terms that may not be commonly used in the English language. This includes both discipline-specific and DNSC-unique terms.
- 7.0 List of Preparers.** This section will identify the preparers of the EIS. This information includes both DNSC and contractor-employed personnel. Information will be provided for each preparer in the following areas: (1) name, (2) affiliation, (3) education, (4) experience, and (5) EIS responsibility.
- 8.0 Distribution List.** This section will contain the distribution list for the EIS. This list is the external distribution only and will include: (1) members of Federal, State, and local government agencies; (3) Federal, State, and local elected officials; (4) Native American groups; (5) environmental and political action groups; and (6) organizations and individuals that requested or were sent a copy of the EIS.
- 9.0 Index.** The index will be generated by the word processing software and will be based on key words found in the EIS.
- Appendix A Federal Register Notices.** This appendix will include copies of Federal Register notices related to the MM EIS, including the NOI, the notice soliciting Expressions of Interest for a consolidation location, and the notice announcing the public scoping meetings.
- Appendix B Contractor Disclosure Statement.** This appendix will include a copy of the signed contractor disclosure statement as required by the CEQ regulations implementing NEPA.
- Appendix C Facility/Activity Data.** This appendix will contain information on the mercury management alternatives that supports Chapter 2. Detailed information on facilities and processes will be included in this appendix.
- Appendix D Cost-Benefit Analysis.** This appendix will contain the detailed analysis of the costs/benefits of the alternatives.
- Appendix E Impact Assessment Methods.** This appendix will describe the methods used to evaluate the impacts of the mercury management alternatives. Methods will be described for each resource area.
- Appendix F Meteorology and Air Quality.** This appendix will include detailed information to support the analysis of impacts on air quality, including a description of any modeling performed and the input parameters and assumptions used in the models.
- Appendix G Environmental Justice.** This appendix will include detailed information to support the analysis of impacts on environmental justice, including a description of any modeling performed and the input parameters and assumptions used.
- Appendix H Consultations.** Copies of any consultation letters cited in Chapter 5 will be included here.