CHAPTER 1
INTRODUCTION AND PURPOSE AND NEED FOR AGENCY ACTION

1.0 INTRODUCTION AND PURPOSE AND NEED FOR AGENCY ACTION

Chapter 1 of this environmental impact statement (EIS) provides an overview of the U.S. Department of Energy (DOE) proposal for consolidation of nuclear operations supporting production of radioisotope power systems (RPSs). It includes background information, the purpose and need for agency action, and the scope of the *Environmental Impact Statement for the Proposed Consolidation of Nuclear Operations Related to Production of Radioisotope Power Systems* (*Consolidation EIS*) (DOE/EIS-0373D). This chapter also explains the decisions to be supported by this EIS, and describes other National Environmental Policy Act (NEPA) documents related to the consolidation proposal, as well as the public scoping process used to obtain public input on the issues addressed in this *Consolidation EIS.*

1.1 Purpose and Need for Agency Action

The purpose and need for agency action is to consolidate RPS production at a single site to reduce the security threat in a cost-effective manner, improve program flexibility, and to reduce interstate transportation of special nuclear material (SNM)[1] and other radioactive material. The infrastructure required to produce RPSs currently exists, or is planned to exist, at three geographically separate and distant DOE sites: Oak Ridge National Laboratory (ORNL), Tennessee; Los Alamos National Laboratory (LANL), New Mexico; and Idaho National Laboratory (INL), Idaho; (formerly known as Idaho National Engineering and Environmental Laboratory and Argonne National Laboratory-West, Idaho), (see **Figure 1–1**). After the events of September 11, 2001, DOE re-evaluated security requirements for the storage and transport of SNM. Since the nuclear material required to produce RPSs is SNM (plutonium-238), DOE has determined that consolidating plutonium-238 nuclear production operations at a single, highly-secure site would better protect these materials, eliminate the need for interstate transportation, and avoid the unnecessary costs of implementing security upgrades at multiple sites.

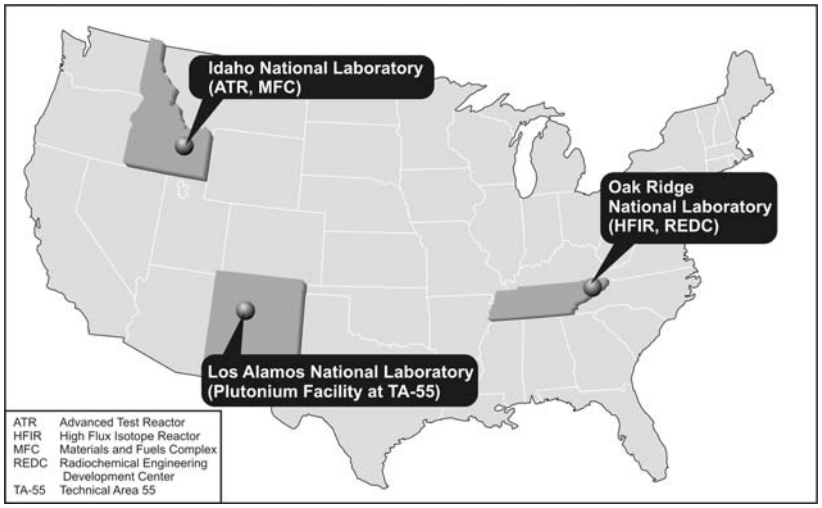

Figure 1–1 Current Locations of U.S. Department of Energy Nuclear Operations Supporting Radioisotope Power System Production

1.2 Background

DOE and its predecessor agencies have been producing RPSs for over 35 years. The RPS is a unique technology used in situations that require a long-term, unattended source of heat and/or supply of electrical power in harsh and remote environments. These systems are reliable, maintenance free, and capable of producing heat and/or electricity for decades. The unique characteristics of these systems make them especially well suited for applications where large solar arrays (panels of photoelectric cells that convert sunlight directly into

[1] *Plutonium-238 is classified as SNM by DOE. Neptunium-237 requires the same safeguards and protection as SNM (DOE 2003a). Discussed in greater detail in Appendix E of this Consolidation EIS.*

electricity) or batteries are not practical. As a heat source, an RPS can be used to warm critical components.

RPSs provide electrical power through the conversion of heat (thermal energy) generated by the decay of plutonium-238 to electricity. These systems currently utilize plutonium-238 fuel with static electrical converter systems that use thermoelectric elements to convert the heat directly into electricity (see cross-section schematics in **Figure 1–2**).[2] The major advantages of this process are its simplicity and reliability.

Under the authority of the Atomic Energy Act of 1954, the DOE mission includes "meeting the nuclear material needs of other Federal agencies." For the past 4 decades, DOE has supplied RPSs, including plutonium-238-fueled radioisotope thermoelectric generators (RTGs) and plutonium-238-fueled light-weight radioisotope heater units, as the source of electric power and heat for National Aeronautics and Space Administration (NASA) and national security missions. These RPSs are an irreplaceable enabling technology for space exploration and national security missions. NASA used RPSs in the Apollo lunar surface scientific packages and spacecraft like the Pioneer, Viking, Voyager, Galileo, Ulysses, Cassini, and the Mars Exploration Rovers. NASA's next mission that would use RPSs is called New Horizon and would survey the planet Pluto.[3] DOE's role in these missions reflects established ongoing cooperation between DOE and NASA to ensure that RPS production capabilities are maintained and coordinated to meet NASA mission requirements. The DOE RPS production infrastructure represents the sole national capability to produce RPSs. Without these power systems, NASA missions could not explore deep space and the surfaces of neighboring planets. For this reason, NASA is participating as a cooperating agency in the preparation of this *Consolidation EIS* (40 *Code of Federal Regulations* [CFR] 1501.6).

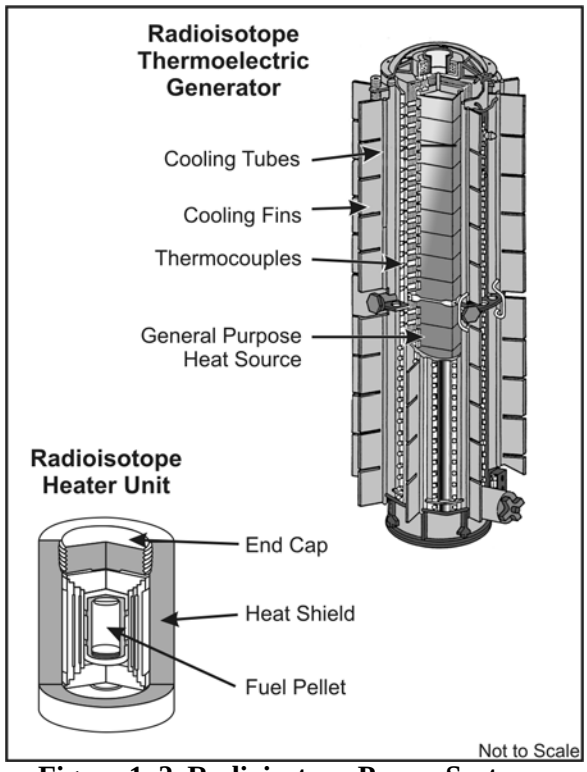

Figure 1–2 Radioisotope Power Systems: Radioisotope Thermoelectric Generator and Radioisotope Heater Unit

Along with NASA deep space satellite applications, plutonium-238, in radioisotope heater units and RTGs, is needed to support national security missions. By international agreement, no imported Russian plutonium-238 can be used for national security. Due to its classified nature, a national security application can be characterized by what it is not, as delineated below.

- It is not used in any nuclear weapons.
- It is not used in any nonnuclear weapons.

[2] *Next-generation RPSs may use Stirling Cycle engines. The Stirling Cycle is a thermal cycle that uses heat to generate electricity mechanically with moving parts.*

[3] *NASA issued a Notice of Availability for a Draft EIS for the mission on February 25, 2005 (70 Federal Register [FR] 9387).*

- It is not used in any military satellites or in space.
- It is not used in any missile defense systems.

After the events of September 11, 2001, the national security requirements for plutonium-238 RPSs have increased.

The nuclear infrastructure required to produce an RPS comprises three major components: (1) the production of plutonium-238; (2) the purification, pelletization, and encapsulation of plutonium-238 (heat source), as plutonium dioxide, into a usable fuel form; and (3) the assembly, testing, and delivery of RPSs to Federal users. Currently, DOE RPS production operations exist or are planned to exist at three separate sites: ORNL, Tennessee; LANL, New Mexico; and INL, Idaho. Safety, security, transportation issues, and economic considerations drive the proposed consolidation of the three major operational components of this mission to one DOE site. The first infrastructure component, plutonium-238 production, must be reestablished to meet future mission needs. The other two infrastructure components are operating to meet current mission needs. The three major components of the existing infrastructure, and the current status of each, are briefly described below.

Production of Plutonium-238—The plutonium-238 production process consists of the fabrication of neptunium-237 targets, irradiation of the targets in a nuclear reactor, and recovery of plutonium-238 from the irradiated targets through chemical extraction. In the past, plutonium-238 was produced at DOE's Savannah River Site (SRS) in South Carolina, using reactors that are no longer operating. The last operating reactor was shut down in 1996. After SRS stopped producing plutonium-238, DOE made use of existing plutonium-238 inventory stored at LANL. Beginning in 1992, this inventory was augmented by plutonium-238 purchased from Russia for peaceful applications to fuel power sources that provide heat and electricity for space missions.[4] DOE analyzed the need for reestablishment of plutonium-238 production capability in the *Programmatic Environmental Impact Statement for Accomplishing Expanded Civilian Nuclear Energy Research and Development and Isotope Production Missions in the United States, Including the Role of the Fast Flux Test Facility* (*NI PEIS*) (DOE/EIS-0310) (DOE 2000f), issued in December 2000. Based on the analysis in the *NI PEIS*, DOE issued a Record of Decision (ROD) on January 26, 2001 (66 FR 7877), to reestablish plutonium-238 production capability at ORNL using the Radiochemical Engineering Development Center (REDC) for the fabrication of targets and extraction of plutonium-238 from the irradiated targets, and the Advanced Test Reactor (ATR), located at INL, supplemented by the High Flux Isotope Reactor (HFIR), located at ORNL, for the irradiation of targets. This decision, however, has not been implemented, and DOE has expended no resources to establish plutonium-238 production at ORNL. The events of September 11, 2001, caused DOE to reconsider plutonium-238 production at ORNL due to increased security requirements.

Neptunium-237, the material incorporated in targets and irradiated to produce plutonium-238, had been stored at SRS, where plutonium-238 was historically produced. In the *NI PEIS* ROD, DOE decided to transfer this material to ORNL, as the plutonium-238 production capability was to be established there. DOE has determined that storage of neptunium-237 requires the same security and safeguards as SNM[5] (DOE 2003a). Because REDC at ORNL cannot meet the security requirements for storage of SNM without costly security upgrades, DOE amended the *NI PEIS* ROD on August 13, 2004, to change the storage location for neptunium-237 from ORNL to Argonne National Laboratory-West (now known as the Materials and Fuels Complex [MFC]) at INL, which has the required level of security (69 FR 50180).

[4] *DOE declared its intention to continue purchasing plutonium-238 in a May 8, 2002, Joint Announcement by DOE and the Russian Federation Ministry for Atomic Energy.*

[5] *This determination was made in DOE's Manual for Control and Accountability of Nuclear Materials, DOE M 474.1-1B, June 13, 2003.*

Neptunium-237, in the form of an oxide, is currently being shipped from SRS to INL (shipments began in December 2004 and will end in 2006) for storage until needed for the fabrication of plutonium-238 production targets.

Purification, Pelletization, and Encapsulation of Plutonium-238—Plutonium-238 is purified and fabricated into plutonium dioxide pellets (or shards), then encapsulated in a metal capsule that is welded closed at the Plutonium Facility at Technical Area 55 (TA-55) at LANL. Lower purity plutonium-238 may be purified and blended with higher purity plutonium-238 prior to pelletization. Blending has always been an integral part of the purification, pelletization, and encapsulation process to meet the DOE specifications for chemical purity. These fuel capsules are used as a heat source in the RPS. The finished plutonium-238 fuel capsules are shipped from LANL to INL for assembly of the RPSs. Small amounts of transuranic waste generated during purification would be shipped to the Waste Isolation Pilot Plant (WIPP) in New Mexico under the alternatives analyzed in this *Consolidation EIS*.

RPS Assembly and Test Operations—From the early 1980s until August 2002, assembly and testing of RPSs was conducted at DOE's Mound Site in Miamisburg, Ohio. The events of September 11, 2001 resulted in increased security requirements and concerns at the Mound Site. In response, DOE transferred these operations to INL (a highly secure DOE site) to provide enhanced security in a cost-effective manner.

The environmental impacts of the transfer from the Mound Site to INL were assessed in the *Final Environmental Assessment for the Future Location of the Heat Source/Radioisotope Power System Assembly and Test Operations Currently Located at the Mound Site (Mound EA)* (DOE/EA-1438). Based on the *Mound EA*, DOE signed a Finding of No Significant Impact (FONSI) on August 30, 2002, and the transfer of the assembly and testing capability was initiated. The first RPS assembled and tested at INL will be in support of the proposed NASA New Horizon mission to survey the planet Pluto.

The current and planned configuration of RPS production operations capability and infrastructure is as follows:

- Neptunium-237, used in preparation of targets as feed material for the production of plutonium-238, being transferred and stored at INL (Amendment to the *NI PEIS* ROD).

- Plutonium-238 production capability is planned for ORNL, where the targets would be fabricated in REDC, irradiated in ATR at INL (supplemented by HFIR at ORNL if needed), and then processed in REDC to recover plutonium-238. Extracted plutonium-238 would be transported from ORNL to LANL (*NI PEIS* ROD).

- Plutonium-238 fuel is purified, pelletized, and encapsulated in fuel capsules within the Plutonium Facility at TA-55 at LANL and then transported to INL (*Mound EA* and FONSI).

- RPS assembly and test operations to be conducted at INL (*Mound EA* and FONSI).

1.3 The Proposed Action and Scope of the Environmental Impact Statement

DOE's Proposed Action is to consolidate all nuclear operations related to RPS production at a single, highly secure site within its complex. These operations include plutonium-238 production, purification, pelletization, encapsulation, and RPS assembly and testing.

The *Consolidation EIS* evaluates the environmental impacts of two action alternatives (Consolidation and Consolidation with Bridge Alternatives) and a No Action Alternative. Under the No Action Alternative,

plutonium-238 would be produced in accordance with the *NI PEIS* ROD and Amendment at existing DOE facilities. Under the Consolidation and Consolidation with Bridge Alternatives, RPS nuclear operations currently assigned to facilities at ORNL and LANL would be consolidated at INL. However, should new production of plutonium-238 be required prior to completion of the proposed new facilities at INL, DOE would utilize existing facilities on an interim basis for the production of plutonium-238, until the new facilities at INL are operational, which is the Consolidation with Bridge Alternative. The principal difference between the alternatives is the amount of radioactive material transported between DOE sites. The No Action and Consolidation with Bridge Alternatives involve interstate transportation greater than 12,900 kilometers (8,000 miles) for each shipment of neptunium-237 and plutonium-238, while consolidation of RPS nuclear production operations at INL would require no interstate transport for new plutonium-238 production. However, the Consolidation and Consolidation with Bridge Alternatives would require the one-time transportation of existing plutonium-238 from LANL and Pantex to INL.

Other consolidation alternatives were also considered, but were dismissed from detailed analysis. Chapter 2 of this EIS describes these alternatives and discusses the reasons why they were not analyzed in detail.

1.4 Decisions to Be Supported by the *Consolidation EIS*

The *Consolidation EIS* will provide DOE's decisionmaker with important environmental information for use in the overall decisionmaking process. Based on the analytical results presented in the EIS as well as cost, schedule, safeguards and security issues, and other programmatic considerations, which are not part of the EIS, DOE intends to make the following decisions concerning the consolidation of nuclear operations related to RPS production:

- Whether to consolidate nuclear operations related to RPS production at INL or continue with the ongoing and planned nuclear operations at INL, ORNL, and LANL. Consistent with the *NI PEIS* and its ROD, plutonium-238 production would be established at ORNL.

- Should the decision be made to consolidate nuclear operations related to RPS production at INL, whether to use REDC and HFIR at ORNL (covered under the No Action Alternative) on an interim basis, if plutonium-238 production becomes necessary prior to the completion of new consolidation facilities at INL.

- Whether to consolidate existing, usable, and available plutonium-238 inventory, including the milliwatt RTG heat sources at LANL and Pantex, at INL (a one-time relocation of material) and blend this material gradually into the plutonium-238 purification process.

- Should the decision be made to consolidate nuclear operations related to RPS production at INL, which route to select to construct a new road for the safe secure transfer of targets between the MFC and ATR.

However, DOE is not revisiting any decision as to the need for RPS production at this time. For the past four decades, DOE has supplied plutonium-238 fueled power systems and plutonium-238 heat sources as the source of electric power and heat for NASA and national security missions. These RPSs are an irreplaceable enabling technology for space exploration and national security missions. DOE proposes to consolidate plutonium-238 operations and reestablish plutonium-238 production capability in order to produce these power systems in a secure and efficient manner. No other radioisotope is available, qualified, or economically and technically practical to fulfill the unique requirements as a long-term, unattended source of heat and/or supply of electrical power in harsh and remote environments. RPSs provide electrical power by the conversion of heat (thermal energy) generated by the decay of

plutonium-238 to electricity. The unique characteristics of these systems make them especially suited for applications where large solar arrays (panels of photoelectric cells that convert sunlight directly into electricity) or batteries are not practical.

The United States does not currently have the domestic capability to produce plutonium-238. Historically, the reactors and chemical processing facilities at SRS were used to produce plutonium-238. Downsizing of the DOE nuclear weapons complex resulted in the shutdown of the last remaining SRS operating reactor, K-Reactor, in early 1996 and a decision to phase out operations at the two chemical processing facilities (F-Canyon and H-Canyon) at SRS. Hence, DOE does not have a long-term supply of plutonium-238. Currently, plutonium-238 is being supplied by depleting the limited U.S. inventory of domestically produced plutonium-238 and by purchase of plutonium-238 from Russia. However, the plutonium-238 from Russia cannot be used for national security missions. Currently identified national security applications may consume almost all of the DOE's domestic plutonium-238 inventory by the end of the decade. The 2001 ROD for the *NI PEIS* authorized the reestablishment of the DOE's plutonium-238 production capability and the mission need was approved in February of 2004. As decided in the ROD for the *NI PEIS*, a production rate of 5 kilograms (11 pounds) per year of plutonium-238 is expected to be sufficient to meet estimated long-term requirements and will not be revisited. The *Consolidation EIS* does not analyze alternative annual production rates.

1.5 Related National Environmental Policy Act Reviews

This section explains the relationship between the *Consolidation EIS* and other relevant NEPA compliance impact analysis documents and the DOE Office of Nuclear Energy, Science and Technology[6] programs. Other NEPA actions not directly relevant to the proposed consolidation of RPS nuclear operations, but relevant to cumulative impacts at INL, are identified and discussed in the analysis of cumulative impacts at INL, in Chapter 4 of this EIS.

1.5.1 *Idaho High-Level Waste and Facilities Disposition Final Environmental Impact Statement* (DOE/EIS-0287)

The *Idaho High-Level Waste and Facilities Disposition Final Environmental Impact Statement* (DOE 2002e) was issued in September 2002. It evaluated alternatives for managing the high-level radioactive waste and associated radioactive waste and facilities at INL. Under the terms of the 1995 Settlement Agreement and Consent Order with the state of Idaho, DOE agreed to treat high-level radioactive waste currently stored at INL and to prepare the waste in a form ready to be shipped out of Idaho by 2035. The purpose of this EIS is to assist DOE in making decisions concerning the management of this radioactive waste to ensure compliance with applicable laws and regulations and to protect the environment and health and safety of workers and the public in a cost-effective manner.

In this EIS, DOE evaluated reasonable alternatives and options for treatment of high-level radioactive waste, sodium-bearing, and newly generated waste and for disposition of facilities associated with high-level radioactive waste generation, treatment, and storage at INL. In addition, this EIS is integrated with the ongoing Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Program at the Idaho Nuclear Technology and Engineering Center. The Proposed Action under this EIS would contribute to the cumulative impacts at INL discussed in this *Consolidation EIS*. DOE has not issued a ROD from this EIS.

[6] *The DOE Office of Nuclear Energy, Science and Technology is responsible for RPS production.*

1.5.2 *Finding of No Significant Impact and Final Environmental Assessment for the Future Location of the Heat Source/Radioisotope Power System Assembly and Test Operations Currently Located at the Mound Site* (DOE/EA-1438)

The *Finding of No Significant Impact and Final Environmental Assessment for the Future Location of the Heat Source/Radioisotope Power System Assembly and Test Operations Currently Located at the Mound Site* (DOE 2002c) were completed in August 2002. DOE has assembled and tested heat sources and RPSs, which included RTGs, at the Mound Site in Miamisburg, Ohio, for the past 35 years. After the events of September 11, 2001, a DOE-wide review of security identified the need for enhanced security measures at the Mound Site to safeguard the materials associated with DOE's heat source/RPS assembly and test operations. DOE analyzed a range of options to provide for the extra safeguards and security measures. These included either upgrading the safeguards and security infrastructure at the Mound Site to enable the program to remain at that location, or transferring the operations to a more secure building at the Mound Site itself. In addition, DOE considered two alternative locations, the Pantex Plant in Texas and the Argonne National Laboratory-West (now called MFC) at INL in Idaho, both of which have enhanced security and safeguards measures in place because of other ongoing programs. DOE prepared this environmental assessment to consider the potential environmental impacts associated with actions that might be taken with regard to the future location of heat source/RPS operations. Based on the analysis in the environmental assessment, DOE determined that the Proposed Action, the relocation of the heat source/RPS, would not constitute a major Federal action significantly affecting the quality of the human environment within the meaning of NEPA. The No Action Alternative assessed in this *Consolidation EIS* is consistent with the Proposed Action analyzed in this environmental assessment.

1.5.3 *Final Programmatic Environmental Impact Statement for Accomplishing Expanded Civilian Nuclear Energy Research and Development and Isotope Production Missions in the United States, Including the Role of the Fast Flux Test Facility* (DOE/EIS-0310)

The *Programmatic Environmental Impact Statement for Accomplishing Expanded Civilian Nuclear Energy Research and Development and Isotope Production Missions in the United States, Including the Role of the Fast Flux Test Facility (NI PEIS)* (DOE 2000f) was issued in December 2000. Under authority of the Atomic Energy Act of 1954, as amended, DOE is responsible for ensuring the availability of isotopes for medical, industrial, and research applications; meeting the nuclear material needs of other Federal agencies; and undertaking research and development activities related to development of nuclear power for civilian use. To meet these responsibilities, DOE maintains nuclear infrastructure capabilities that support various missions. Estimates of the future needs for medical and industrial isotopes, plutonium-238, and research requirements indicated that the current infrastructure would be insufficient to meet the projected demands. In the *NI PEIS*, DOE proposed to enhance these capabilities to provide for: (1) production of isotopes for medical and industrial uses, (2) production of plutonium-238 for use in advanced RPSs for future NASA space exploration missions, and (3) the nation's nuclear research and development needs for civilian application.

The *NI PEIS* evaluated the environmental impacts of a No Action Alternative (maintaining status quo), four alternative strategies to accomplish isotope production, and an alternative to permanently deactivate the Fast Flux Test Facility (FFTF) (located at the Hanford Site near Richland, Washington) with no new missions. Alternatives 2, 3, 4, and 5 also included permanent deactivation of FFTF. The alternatives considered were the No Action Alternative, (1) Restart FFTF at Hanford, Washington, (2) Use Only Existing Operational Facilities, (3) Construct One or Two New Accelerators, (4) Construct a New Research Reactor, and (5) Permanently Deactivate FFTF (with no new missions).

In the ROD, which was published in the *Federal Register* on January 26, 2001 (66 FR 7877), DOE selected the Preferred Alternative (Alternative 2, Option 7, Use Only Existing Operational Facilities).

DOE decided to reestablish domestic production of plutonium-238, as needed, using the ATR at INL and the HFIR at ORNL. DOE also decided to transport neptunium-237 (in oxide form) from SRS to the REDC at ORNL in Tennessee, which would also fabricate and process irradiated plutonium-238 targets. In the ROD, DOE also decided to permanently deactivate FFTF.

In an amended ROD, published in the *Federal Register* on August 13, 2004 (69 FR 50180), DOE decided to amend its decision on the storage location for neptunium-237 oxide from ORNL to Argonne National Laboratory-West (now the MFC) at INL. The impacts of this and other actions presented in the *NI PEIS* are factored into the assessment of impacts in this *Consolidation EIS*. The No Action Alternative assessed in this *Consolidation EIS* is consistent with the *NI PEIS* ROD and Amendment.

1.5.4 *Final Environmental Impact Statement for the Treatment and Management of Sodium-Bonded Spent Nuclear Fuel* (DOE/EIS-0306)

In July 2000, DOE issued the *Final Environmental Impact Statement for the Treatment and Management of Sodium-Bonded Spent Nuclear Fuel* (DOE 2000c). This document evaluated strategies to remove or stabilize the reactive sodium contained in a portion of DOE's spent nuclear fuel inventory to prepare the spent nuclear fuel for disposal in a geologic repository. Under the Proposed Action, the EIS analyzed six alternatives that employ one or more of the following technology options at nuclear fuel management facilities at SRS or INL: electrometallurgical treatment, the plutonium-uranium extraction process, packaging in high-integrity cans, and the melt and dilute treatment process. In the ROD published in the *Federal Register* on September 19, 2000 (65 FR 56565), DOE decided to implement the Preferred Alternative of electrometallurgically treating the Experimental Breeder Reactor-II spent nuclear fuel and miscellaneous small lots of sodium-bonded spent nuclear fuel at Argonne National Laboratory-West (now the MFC at INL). Because of the different physical characteristics of the Fermi-1 sodium-bonded blanket spent nuclear fuel also analyzed in the EIS, DOE decided to continue to store this material while alternative treatments are evaluated. The Proposed Action under this EIS contributed to the cumulative impacts at the site discussed in this *Consolidation EIS*.

1.5.5 *Advanced Mixed Waste Treatment Project Final Environmental Impact Statement* (DOE/EIS-0290)

The *Advanced Mixed Waste Treatment Project Final Environmental Impact Statement* (DOE 1999b) was issued in January 1999 and assessed the potential environmental impacts associated with four alternatives related to the construction and operation of the Advanced Mixed Waste Treatment Facility at INL. The alternatives analyzed were: (1) a No Action Alternative, under which existing waste management operations, facilities, and projects would continue; (2) the Proposed Action/Preferred Alternative, under which BNFL, Inc., would build and operate an Advanced Mixed Waste Treatment Project Facility using proposed thermal and nonthermal treatment technologies for certification and shipment to WIPP in New Mexico or to another acceptable disposal facility; (3) a nonthermal treatment alternative, under which some treatment of transuranic, alpha, and mixed low-level radioactive waste would occur at an advanced mixed waste treatment project facility at the same location as the Proposed Action, and waste requiring thermal treatment would be repackaged for storage; and (4) a treatment and storage alternative that would include the same processes as the Proposed Action/Preferred Alternative, except the treated waste would be placed in permitted storage units at the onsite Radioactive Waste Management Complex at INL for long-term storage. The ROD was published in the *Federal Register* on April 7, 1999 (64 FR 16948). The impacts of the action DOE decided to implement are factored into the assessment of potential cumulative impacts at INL discussed in the *Consolidation EIS*.

1.5.6 *Site-Wide Environmental Impact Statement for Continued Operation of the Los Alamos National Laboratory, Los Alamos, New Mexico* (DOE/EIS-0238)

In January 1999, DOE issued the *Site-Wide Environmental Impact Statement for Continued Operation of the Los Alamos National Laboratory, Los Alamos, New Mexico (LANL SWEIS)* (DOE 1999a). The *LANL SWEIS* assessed four alternatives for the operation of LANL: (1) No Action, (2) Expanded Operations, (3) Reduced Operations, and (4) a Greener Alternative. The ROD for the *LANL SWEIS* was published in the Federal Register on September 20, 1999 (64 FR 50797). In the ROD, DOE selected the Expanded Operations Alternative with a lower level of certain weapons-related work. The Expanded Operations Alternative described in the *LANL SWEIS* analyzed the impacts from the continuation of all present activities at LANL, at the highest level of activity.

In mid-2004, the National Nuclear Security Administration (NNSA) undertook the preparation of a Supplement Analysis of the *LANL SWEIS* pursuant to DOE's regulatory requirement to evaluate site-wide NEPA documents at least every 5 years (10 CFR 1021.330) and determine whether the existing EIS remains adequate, to prepare a new Site-wide EIS (SWEIS), or to prepare a supplement to the existing SWEIS. On January 5, 2005, NNSA announced its intent to proceed immediately with the preparation of a supplemental SWEIS to update the analyses presented in the 1999 *LANL SWEIS* (70 FR 807) and the process for participation in public scoping of the document's impact analysis. After carefully considering scoping comments, NNSA determined that it would be necessary to prepare a new SWEIS to provide appropriate NEPA compliance for the possibility of enhancement of LANL's stockpile stewardship interim pit production capability. The No Action Alternative for the new SWEIS is the continued implementation of the 1999 SWEIS ROD, together with other actions described and analyzed in subsequent NEPA reviews. The new SWEIS will analyze an expanded operations alternative that includes the enhancement of pit production capability, as well as a reduced operations alternative.

The No Action Alternative assessed in the *Consolidation EIS* is consistent with the Expanded Operations Alternative identified in the 1999 *LANL SWEIS* and its associated ROD. The effects of the Expanded Operations Alternative level of activity at LANL are discussed in Chapter 4, "Environmental Consequences," of the 1999 *LANL SWEIS*, and have been included in the description of the Affected Environment at LANL.

1.5.7 *Final Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Wastes* (DOE/EIS-0200)

In May 1997, DOE issued the *Final Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Wastes* (DOE 1997b). This programmatic environmental impact statement (PEIS) examined the potential environmental and cost impacts of strategic management alternatives for managing five types of radioactive and hazardous wastes resulting from nuclear defense and research activities at sites around the United States. The five waste types are mixed low-level radioactive waste, low-level radioactive waste, transuranic waste, high-level radioactive waste, and hazardous waste. This PEIS provided information on the impacts of various siting alternatives to assist DOE in deciding at which sites to locate additional treatment, storage, and disposal capacity for each waste type. This information included the cumulative impacts of combining future siting configurations for the five waste types and the collective impacts of other past, present, and reasonably foreseeable future capabilities.

The selective waste management facilities considered for the five waste types were treatment and disposal facilities for mixed low-level radioactive waste, treatment and disposal facilities for low-level radioactive waste, treatment and storage facilities for transuranic waste (in the event that treatment is required before disposal), storage facilities for canisters of treated (vitrified) high-level radioactive waste, and treatment

of nonwastewater hazardous waste by DOE and commercial vendors. In addition to the No Action Alternative, which included only existing or approved waste management facilities, the alternatives for each of the five waste type configurations included decentralized, regionalized, and centralized alternatives for using existing and operating new waste management facilities. However, the siting, construction, and operation of any new facility at a selected site would not be decided until completion of a site-wide or project-specific environmental review.

DOE published four decisions from this PEIS. In its "ROD for the Treatment and Management of Transuranic Waste," published in the *Federal Register* (63 FR 3629) and subsequent revisions to this ROD (65 FR 82985, 66 FR 38646, and 67 FR 56989), DOE decided (with one exception) that each DOE site that currently has or will generate transuranic waste would prepare its transuranic waste for disposal and store the waste onsite until it could be shipped to WIPP near Carlsbad, New Mexico, for disposal.

In the second ROD (63 FR 41810), DOE decided to continue using offsite facilities for treatment of major portions of the nonwastewater hazardous waste generated at DOE sites. This decision did not involve any transfer of nonwastewater hazardous waste among DOE sites.

In the third ROD, published on August 26, 1999 (64 FR 46661), DOE decided to store immobilized high-level radioactive waste in a final form at the site of generation (Hanford Site, INL, SRS, and the West Valley Demonstration Project, in New York) until transfer to a geologic repository for ultimate disposal.

DOE addressed the management and disposal of low-level radioactive waste and mixed low-level radioactive waste in a fourth ROD, published on February 25, 2000 (65 FR 10061). In this ROD, DOE decided to perform minimal treatment of low-level radioactive waste at all sites and continue, to the extent practicable, disposal of onsite low-level radioactive waste at INL, LANL, the Oak Ridge Reservation, and SRS. DOE decided to treat mixed low-level radioactive waste at the Hanford Site, INL, the Oak Ridge Reservation, and SRS, with disposal at the Hanford Site and the Nevada Test Site.

Radioactive and hazardous wastes generated by current and future nuclear operations related to production of RPSs would continue to be managed in accordance with these and amended RODs.

1.6 Public Participation and Scoping

During the NEPA process, there are opportunities for public involvement (see **Figure 1–3**). As a preliminary step in development of an EIS, regulations established by the Council on Environmental Quality (CEQ) (40 CFR 1501.7) and DOE require "an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a Proposed Action." The purpose of this scoping process is to inform the public about a Proposed Action and the alternatives being considered and to identify and clarify issues that are relevant to the EIS by soliciting public comments. This process is initiated by publication of the Notice of Intent (NOI) in the *Federal Register*. As part of the scoping process (40 CFR 1501.7[a]), CEQ requires the agency preparing an EIS to:

- Invite the participation of affected Federal, state, and local agencies, American Indian tribes, and other interested persons;
- Determine the scope and significant issues to be analyzed in the EIS;
- Identify and eliminate from detailed study the issues that are not significant or have been covered under other environmental reviews;
- Allocate assignments for EIS preparation among lead and cooperating agencies;

- Indicate any other NEPA documents that are being or will be prepared that are related to the EIS but not part of the scope;
- Identify other environmental review and consultation requirements so that other necessary analyses and studies can be prepared concurrently and integrated with the EIS; and
- Indicate the relationship between the timing of the preparation of environmental analyses and the agency's tentative planning and decisionmaking schedule.

On November 16, 2004, DOE published an NOI in the *Federal Register* (69 FR 67139) to prepare the *Consolidation EIS*. In this NOI, DOE invited public comment on the proposed scope of the *Consolidation EIS*. The NOI listed the issues initially identified by DOE for evaluation in the EIS. Public citizens, civic leaders, American Indian tribal representatives, and other interested parties were invited to comment on these issues and to suggest additional issues that should be considered in the EIS. The NOI informed the public that comments on the scope of issues to be addressed and for identifying the significant issues related to the Proposed Action could be communicated via the U.S. mail, a special DOE Website on the Internet, a toll-free phone line, a toll-free fax line, and in person at public meetings (40 CFR 1501.7).

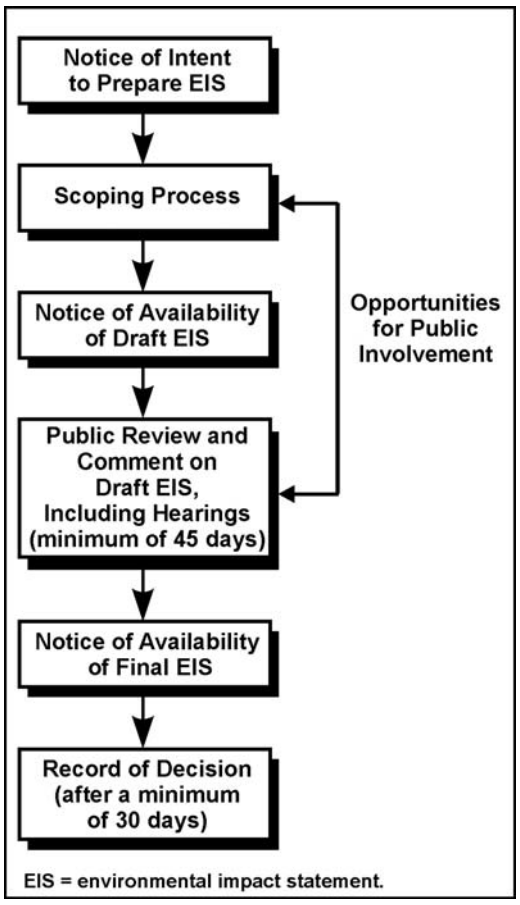

Figure 1–3 National Environmental Policy Act Process for the *Consolidation EIS*

During the public scoping period from November 16, 2004 to January 31, 2005, DOE conducted seven public scoping meetings. A total of approximately 120 attendees were present at these meetings. The locations and dates of these public meetings were as follows:

- December 6, 2004, in Idaho Falls, Idaho
- December 7, 2004, in Jackson, Wyoming
- December 8, 2004, in Fort Hall, Idaho
- December 9, 2004, in Twin Falls, Idaho
- December 13, 2004, in Los Alamos, New Mexico
- December 15, 2004, in Oak Ridge, Tennessee
- December 17, 2004, in Washington, DC

As a result of previous experience and positive responses from attendees of other DOE NEPA public meetings and hearings, DOE chose an interactive format for the scoping meetings. Each meeting began with a presentation by DOE representatives who explained the proposed RPS consolidation and the NEPA process. Afterward, the floor was opened to questions, comments, and concerns from the audience. DOE representatives were available to respond to questions and comments. The proceedings

and formal comments presented at each meeting were recorded verbatim, and a transcript of each meeting was produced. The public was also encouraged to submit written or oral comments during the meetings or to submit comments via letters, the DOE *Consolidation EIS* Website (http://consolidationeis.doe.gov/), toll-free phone line, and toll-free fax line until the end of the scoping period. DOE reviewed all comments received during the public scoping period for consideration in preparing the Draft *Consolidation EIS*.

Summary of Major Scoping Comments and U.S. Department of Energy Responses

Many comments were received from individuals, interest groups, agencies, American Indian tribal representatives, and local officials during the public scoping period. A number of comments asked DOE to consider using the FFTF, a nuclear reactor in Hanford, Washington, for the production of plutonium-238. Commentors expressed their belief that circumstances had changed since the publication of the *NI PEIS*.

Many commentors expressed concern regarding the introduction of plutonium operations at INL. They considered plutonium to be dangerous and the Proposed Action as a precursor to the introduction of nuclear weapons to INL. The attractiveness of plutonium to terrorists was also expressed as a negative factor regarding the consolidation of RPS nuclear production at INL. Several commentors stated concern for worker safety in handling plutonium and questioned the effectiveness of filtration systems in new facilities to prevent or minimize plutonium releases to the environment.

Numerous comments were received expressing opposition to the use of plutonium-238 in RTGs and in deep space missions. NASA's safety record, especially in light of the Challenger accident, was cited as a reason that plutonium should not be used in space. General opposition to the production, use, handling, and management of plutonium was frequently discussed in comments.

Specific environmental impact concerns expressed by commentors included the use of water resources, air pollution, and impacts on American Indian sacred lands. The generation, handling, management, and ultimate disposition of radioactive waste was an issue of concern for some commentors.

The following major issues identified during the scoping process are addressed in this *Consolidation EIS*:

- Consolidation alternatives at other DOE sites,
- National security and the transportation and storage of plutonium-238,
- Plutonium-238 from Russia,
- Waste management and pollution prevention,
- Emergency response capability, training, and planning for plutonium-238 transportation within the United States,
- Plutonium-238 transportation/shipping container design safety,
- Use of plutonium-238 in nuclear weapons, "dirty bombs," and its attractiveness to terrorists,
- American Indian cultural resources,

- Continuity between the *NI PEIS* and this *Consolidation EIS* to avoid segmentation,
- Cost of each alternative, and
- Displacement of isotope production by plutonium-238 production.

Specifically, as a result of commentors asking DOE to consider additional consolidation alternatives, a new alternative, the Consolidation with Bridge Alternative, has been added to the alternatives identified in the NOI. In addition, detailed discussions have been provided for alternatives considered and dismissed, especially for the use of FFTF in the production of plutonium-238. Chapter 2 of this EIS also provides information in response to scoping comments concerning additional RPS consolidation alternatives at other DOE sites and the need for plutonium-238 from Russia. Waste management, emergency response capability, training, and planning for plutonium-238 transportation within the United States, and American Indian cultural resources are discussed in detail in Chapter 3 of this EIS. Appendix D of this EIS addresses plutonium-238 transportation/shipping container design safety and security concerns regarding transportation and storage of plutonium-238. Concerns regarding the use of plutonium-238 use in nuclear weapons, "dirty bombs," and its attractiveness to terrorists resulted in the development of an appendix, Appendix E, to address these concerns. Continuity between the *NI PEIS* and this *Consolidation EIS* to avoid NEPA segmentation is addressed in Chapter 2 of this EIS. The estimated cost of each alternative has been included in the description of alternatives.

1.7 Organization of this Environmental Impact Statement

This EIS is presented in one volume with a Summary available separately. This EIS contains the main analyses and supporting technical appendices, along with additional project and public participation information. It contains 10 chapters that include the following information:

Chapter 1 – Introduction and Purpose and Need for Agency Action

Chapter 1 describes the RPS program; purpose and need for agency action; Proposed Action, EIS scope, and alternatives; relationship of the *Consolidation EIS* to other DOE NEPA actions and programs; and issues identified during the scoping process.

Chapter 2 – Project Description and Alternatives

Chapter 2 provides a description of the mission and project; description of the alternatives and facilities; summary comparison of potential environmental impacts of the EIS alternatives; and the Preferred Alternative.

Chapter 3 – Affected Environment

Chapter 3 describes the aspects of the environment that could be affected by the EIS alternatives.

Chapter 4 – Environmental Consequences

Chapter 4 provides a discussion of the potential environmental impacts of the EIS alternatives, as well as the projected environmental impacts from no action.

Chapter 5 – Applicable Laws, Regulations, and Other Requirements

Chapter 5 describes the environmental, safety, and health laws, regulations, and standards applicable to the Proposed Action. The requirements and status of the consultation process are also provided in this chapter.

Chapters 6 – 10

Chapters 6 through 10 contain a list of references; a glossary; an index; a list of preparers; and a distribution list of agencies, organizations, and persons to whom copies of the *Consolidation EIS* were sent.

The EIS contains eight appendices, which provide technical information in support of the environmental analyses presented in the chapters. The appendices contain the following information: overview of the public participation process, environmental impact methodologies, human health effects of normal operations and facility accidents, human health effects of overland transportation, relationship to nuclear weapons and the DOE NNSA nuclear weapons complex, preliminary floodplain assessment, *Federal Register* notices, and a contractor disclosure statement.