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Part III

Department of Energy

Environmental Statements, Availability, Etc.; Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs: Notice

DEPARTMENT OF ENERGY

Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs

AGENCY: Department of Energy.

ACTION: Record of decision.

SUMMARY: The Department of Energy has issued a Record of Decision on Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs. The Record of Decision includes a Department-wide decision to regionalize spent nuclear fuel management by fuel type for Department-owned spent nuclear fuel. The Record of Decision also contains decisions dealing with site-wide environmental restoration and waste management programs at the Idaho National Engineering Laboratory. These decisions include the: (1) Continuation of environmental restoration activities; (2) development of cost-effective treatment technologies for spent nuclear fuel and waste management; and (3) implementation of projects and facilities to prepare waste and treat spent nuclear fuel for interim storage and final disposition.

ADDRESSES: Copies of the Department of Energy *Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs Environmental Impact Statement (DOE/EIS–0203–F)* and other information related to this Record of Decision are available in the public reading rooms and libraries identified in the **Federal Register** Notice that announced the availability of the final Environmental Impact Statement (60 FR 20979, April 28, 1995).

For further information on the Department's spent nuclear fuel management program and environmental restoration and waste management programs at the Idaho National Engineering Laboratory or to receive a copy of the Environmental Impact Statement, contact:

U.S. Department of Energy, Idaho Operations Office, Bradley P. Bugger, Office of Communications, 850 Energy Drive, MS 1214, Idaho Falls, ID 83403–3189, 208–526–0833.

For information on the Department's National Environmental Policy Act process, please contact:

Ms. Carol Borgstrom, Director, Office of NEPA Policy and Assistance, U.S. Department of Energy, 1000 Independence Ave. SW, Washington, D.C. 20585, 202–586–4600, 1–800–472–2756.

SUPPLEMENTARY INFORMATION:

1. Synopsis

The Record of Decision documents decisions made by the U.S. Department of Energy after the evaluation of the potential environmental impacts of a reasonable range of alternatives and appropriate nonenvironmental factors. The decisions fall into two categories, the first relating to the Department-wide management of Department of Energy-owned spent nuclear fuel for a period of up to forty years, pending the fuel's ultimate disposition, and the second relating to environmental restoration and waste management programs at the Idaho National Engineering Laboratory over a period of ten years. These decisions are based on information and analyses contained in the final Environmental Impact Statement *(Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs Environmental Impact Statement, DOE/EIS–0203–F)* and other relevant considerations. The Navy was a cooperating agency in the preparation of the Environmental Impact Statement, because spent nuclear fuel from Navy nuclear powered ships and prototypes is managed by the Department of Energy.

Spent Nuclear Fuel Management. The Department of Energy has decided to regionalize spent nuclear fuel management by fuel type at three sites: the Hanford Site, the Idaho National Engineering Laboratory and the Savannah River Site. Under this decision, the fuel type distribution would be as follows:

- Hanford production reactor fuel will remain at the Hanford Site;
- Aluminum clad fuel will be consolidated at the Savannah River Site; and
- Non-aluminum clad fuels (including spent nuclear fuel from the Fort St. Vrain Reactor and Naval spent fuel) will be transferred to the Idaho National Engineering Laboratory.

The Navy will resume shipments of its spent nuclear fuel to the Idaho National Engineering Laboratory immediately, upon the staying or dissolution of an injunction ordered by the United States District Court for the District of Idaho on May 19, 1995. The Department will prioritize and time-phase shipments of spent nuclear fuel from current storage locations to the selected sites and will implement the regional management strategy consistent with its other programmatic objectives (considerations will include fuel condition, facility availability, safety factors, budget and cost, transportation logistics and repository acceptance criteria). This regionalization strategy will result in the following inventories of spent nuclear fuel (in metric tons of heavy metal, i.e., uranium, plutonium and thorium, and percentage of total anticipated inventory) at each of the three sites:

Hanford Site—2103 (76%)

Idaho National Engineering Laboratory—426 (16%)

Savannah River Site—213 (8%)

This management strategy was selected using a formal decision management process that considered the analysis and evaluation of five management alternatives set forth in the Environmental Impact Statement (DOE/EIS–0203–F).

For each of the alternatives, the impacts of spent nuclear fuel management activities were analyzed for each of five sites: (1) the Hanford Site near Richland, Washington; (2) the Idaho National Engineering Laboratory, in southeastern Idaho; (3) the Savannah River Site, near Aiken, South Carolina; (4) the Oak Ridge Reservation, in Oak Ridge, Tennessee; and (5) Nevada Test Site, near Mercury, Nevada. In addition, four naval shipyards and one naval prototype site, the Kesselring Site (near West Milton, New York), were considered for management of naval spent fuel only. The four naval shipyards are: (1) Norfolk Naval Shipyard, Portsmouth, Virginia; (2) Portsmouth Naval Shipyard, Kittery, Maine; (3) Pearl Harbor Naval Shipyard, Honolulu, Hawaii; and (4) Puget Sound Naval Shipyard, Bremerton, Washington.

A short description of each of the alternatives evaluated, several of which included sub-alternatives or specific site options, is provided below:

- No Action—perform minimum activities required for safe and secure management at or close to the generation site or current storage location;
- Decentralization—store and stabilize most spent nuclear fuel at or near the generation site with limited shipments from university and non-Department of Energy facilities to Department of Energy facilities;
- 1992/1993 Planning Basis—transport to and store newly generated spent nuclear fuel at the Idaho National Engineering Laboratory or the Savannah River Site and consolidate some existing spent nuclear fuel at the Idaho National Engineering Laboratory;

• Regionalization—distribute existing and projected spent nuclear fuel among alternative Department of Energy sites based on fuel type or geographic location (an eastern regional site and a western regional site);

• Centralization—manage existing and projected spent nuclear fuel at one of the five Departmental sites.

The Department's decision, which furthers its mission to ensure safe, efficient and responsible management of spent nuclear fuel pending ultimate disposition, has certain benefits, including:

• Small potential environmental impacts (it is one of the environmentally preferable alternatives);

• Enabling the Navy to continue to defuel and refuel its ships in order to meet national defense commitments;

• Providing for the development of safe storage and ultimate disposition technologies and the continuation of research and development for naval reactor fuel;

• Positioning the Department to pursue a path forward for ultimate disposition of Department of Energy-owned spent nuclear fuel;

• Furthering the consolidation of fuel at Department of Energy sites where the best capability exists to manage that type of fuel, thus enhancing the flexibility to address future requirements for ultimate disposition of the fuel as they evolve; and

• Permitting the Department to balance potential environmental risks, safety consequences, public concerns, mission needs and costs.

Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs. The decisions regarding the Idaho National Engineering Laboratory site-wide spent fuel program and environmental restoration and waste management programs include: (1) Acceptance of non-aluminum-clad spent nuclear fuel for management, (2) continuation of the restoration of priority sites and the stabilization of other sites based on health and environmental risks and budget, (3) development of cost-effective waste treatment technologies, and (4) implementation of projects and facilities to prepare waste and spent nuclear fuel for final disposition and allow more efficient examination of naval spent nuclear fuel.

These decisions (which implement the preferred alternative—the Modified Ten-Year Plan as described in Volume 2 of the final Environmental Impact Statement) were made using a formal decision management process that considered the analysis and evaluation of four alternatives set forth in the Environmental Impact Statement. The following is a brief description of the alternatives evaluated and considered:

• No Action—complete all identified near-term actions and continue to operate most existing facilities;

• The Ten-Year Plan—complete all identified actions and initiate new projects to enhance cleanup, manage laboratory wastes and spent nuclear fuel;

• Minimum Treatment, Storage and Disposal—minimize treatment, storage and disposal activities to the extent possible, conduct minimum cleanup and decontamination and decommissioning activities prescribed by regulation, and transfer spent nuclear fuel and waste;

• Maximum Treatment, Storage and Disposal—maximize treatment, storage and disposal functions at the Idaho National Engineering Laboratory to accommodate waste and spent nuclear fuel from the Department of Energy complex, and conduct maximum cleanup and decontamination and decommissioning.

The Department's decisions enhance the ability of the Idaho National Engineering Laboratory to accomplish its mission and provide the following benefits, including:

• Small environmental impacts (it is one of the environmentally preferable alternatives);

• The continuation of progress with the cleanup and treatment of waste stored or buried at the Idaho National Engineering Laboratory;

• Consistency with the proposed site treatment plan requirements (under the Federal Facility Compliance Act) and flexibility to accommodate negotiations currently underway with the State of Idaho;

• Permitting the construction of a regional multi-purpose waste treatment facility in Idaho should the Department later decide to implement a regional waste treatment strategy (consistent with decisions which could result from the Department of Energy Waste *Management Programmatic Environmental Impact Statement* currently in preparation) and which would provide residues from treating off-site wastes to be returned to originating sites;

• Addressing concerns and legal requirements regarding cleanup of buried waste, treatment of stored wastes and protection of the Snake River Plain aquifer; and

• Reflecting a balanced approach that takes into consideration potential environmental risks, safety consequences, public concerns, Department and site mission mandates and costs.

The Department has examined the need for mitigation of impacts and found that no specific mitigative actions are required to implement the above decisions.

2. Introduction

During the last 40 years, the Department of Energy and its predecessor agencies have generated, transported, received, stored, and reprocessed spent nuclear fuel at facilities in the Department's nationwide complex. This spent nuclear fuel was generated from various sources, including: the Department's production reactors; Naval Nuclear Propulsion Program reactors; government, university, and other research and test reactors; special-case commercial power reactors; and foreign research reactors. The Department constructed and operated production reactors at the Hanford and Savannah River Sites to provide special nuclear materials and other isotopes for defense programs. These production reactors are no longer operating. Naval Nuclear Propulsion Program reactors and some test and research reactors are still operating. The Department of Energy has reprocessed spent nuclear fuel—more than 100,000 metric tons of heavy metal—at the Idaho National Engineering Laboratory, Hanford Site, and Savannah River Site to recover fissile materials (uranium-235 and plutonium-239) and other valuable nuclides for national defense or research and development programs.

The end of the Cold War has sharply reduced the need for special nuclear materials. In April 1992, the Department began to phase out reprocessing of spent nuclear fuel for recovery and recycling of highly enriched uranium and plutonium. Approximately 2,700 metric tons of Department of Energy spent nuclear fuel remain that have not been reprocessed. This spent nuclear fuel is in a wide range of enrichments and physical conditions, and is stored at various locations in the United States. The Environmental Impact Statement also analyzed the potential environmental impacts associated with foreign research reactor fuel containing U.S. enriched uranium, assuming a future decision is made to establish a policy to accept this fuel. This material requires safe and efficient management until a decision regarding its ultimate disposition is made and implemented. Additionally, Department of Energy-owned spent fuel containing approximately 100 metric tons of heavy metal is expected to be generated in the next 40 years.

The Department of Energy currently stores most of the fuel in 10- to 40-year-old water pools (designed for temporary storage of spent nuclear fuel until it could be reprocessed) at the Hanford Site, the Idaho National Engineering Laboratory, and the Savannah River Site. Smaller quantities are stored at approximately 55 university and government-owned research reactor facilities in the United States.

In November 1993, the Department of Energy identified potential environmental, safety, and health vulnerabilities at certain spent nuclear fuel storage facilities *(Spent Fuel Working Group Report on Inventory and Storage of the Department's Spent Nuclear Fuel and Other Reactor Irradiated Materials and Their Environmental Safety and Health Vulnerabilities).* The Department also identified the storage locations of fuel with degraded cladding [1] and other problems that would require action to ensure continued safe storage. In May 1994, the independent Defense Nuclear Facilities Safety Board also addressed these vulnerabilities in Recommendation 94–1, which concluded that imminent hazards could arise unless certain problems were corrected, including those related to spent nuclear fuel storage. In addition, a court order embodying a stipulation between the State of Idaho and the Department of Energy (as discussed in section 7), in part, dictated the scope of the *Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs Environmental Impact Statement* and the schedule for its preparation. Volume 1 of the Environmental Impact Statement evaluates the potential impacts of the proposed action to safely, efficiently, and responsibly manage existing and projected quantities of the Department's spent nuclear fuel through the year 2035, pending ultimate disposition.

The Department's activities at the Idaho National Engineering Laboratory have, over the past 50 years, resulted in the accumulation of spent nuclear fuel; waste requiring treatment, storage, and disposal; and sites requiring remediation. Volume 2 of the Environmental Impact Statement evaluates the potential impacts of the proposed action: (1) To develop appropriate facilities and technologies to manage waste and spent nuclear fuel currently and reasonably expected to be located at the Idaho National Engineering Laboratory during the next ten years; (2) to integrate more fully all environmental restoration and waste management activities to achieve cost and operations efficiencies, including pollution prevention and waste minimization; and (3) to responsibly manage environmental impacts from environmental restoration and waste management activities. Volume 2 assesses the environmental impacts from these environmental restoration and waste management actions that may be taken during a 10-year period, 1995–2005.

3. Decisions

The Atomic Energy Act of 1954 (42 U.S.C. § 2011 et seq.) and the Department of Energy Organization Act (42 U.S.C. § 7101 et seq.) establish the Department's responsibility for the management of its spent nuclear fuel. The decision process reflected in this document complies with requirements of the National Environmental Policy Act (42 U.S.C. § 4321 et seq.) and its implementing regulations at 40 CFR Parts 1500–1508 and 10 CFR Part 1021. These decisions affect activities under the authority of the U.S. Department of the Navy, and the Navy was a cooperating agency in the preparation of the Environmental Impact Statement. Pursuant to 10 CFR 1021.315, the Department of Energy may revise this Record of Decision at any time, so long as the revised decision is adequately supported by existing reviews prepared in accordance with the National Environmental Policy Act.

3.1 Programmatic Spent Nuclear Fuel Management Decision

The Department has decided to implement the preferred alternative identified in Volume 1 of the Environmental Impact Statement, Regionalization by Fuel Type (Alternative 4a). This decision will consolidate existing and newly generated spent nuclear fuel at three existing Departmental sites (i.e., the Hanford Site, the Idaho National Engineering Laboratory, and the Savannah River Site) based on the fuel type, pending future decisions on ultimate disposition. Existing Hanford production reactor spent nuclear fuel will remain at the Hanford Site. Aluminum-clad spent nuclear fuel will be consolidated at the Savannah River Site, and non-aluminum clad spent nuclear fuel (including Fort St. Vrain reactor spent fuel) will be consolidated at the Idaho National Engineering Laboratory. Consolidation of spent nuclear fuel at these sites will be accomplished on a time-phased basis dependent upon fuel condition, facility availability, safety, transport logistics, budget and cost considerations and repository acceptance criteria. Naval spent nuclear fuel will be transported to the Idaho National Engineering Laboratory for examination and storage. Spent nuclear fuel facility upgrades, replacements, and additions will be undertaken, as will research and development activities to resolve safety vulnerabilities and assure safe spent nuclear fuel interim storage in preparation for ultimate disposition. Section 5 of this Record of Decision details the attributes of the selected alternative.

The potential impacts associated with the management of foreign research reactor spent nuclear fuel are analyzed in the Environmental Impact Statement; however, the policy decision on whether to accept this spent nuclear fuel is the subject of a separate environmental impact statement, Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel Environmental Impact Statement (DOE/EIS–0218D), published in draft form for public review and comment in March 1995.

Table 3.1 shows the origin and interim management destination of specific fuels and the potential number of shipments. Each shipment, whether by truck or rail, was assumed to consist of one shipping container. Table 3.2 shows the cumulative inventory at the Department's three spent nuclear fuel management locations.

Except for some special-case commercial fuel, these decisions do not apply to management of spent nuclear fuel from commercial nuclear power plants. This Record of Decision also does not address the ultimate disposition of the Department's spent nuclear fuel. Decisions regarding ultimate disposition of this fuel will be consistent with the Nuclear Waste Policy Act of 1982 (42 U.S.C. § 10101 et. seq. and will follow appropriate review under the National Environmental Policy Act. Decisions on stabilization technologies, including processing, will be made after completion of site-specific and fuel-type-specific reviews under the National Environmental Policy Act and tiered from the Environmental Impact Statement on spent nuclear fuel management.

[1] Fuel cladding is the metallic outer covering that encloses the uranium fuel matrix and products of the fission process. Claddings are composed of various alloys of aluminum, steel, or zirconium. Graphite-based nuclear fuels generally do not have a metallic covering, instead using silicon carbide coatings around each fuel particle.

3.2 Idaho National Engineering Laboratory Decision

The Department has decided to implement the preferred alternative, identified in Volume 2 of the Environmental Impact Statement, the Modified Ten-Year Plan (Modified Alternative B), for the Idaho National Engineering Laboratory environmental restoration and waste management programs. See section 4.2.1 below for a discussion of the Volume 2 preferred alternative.

Generator or current storage	Destination [2]	
	Idaho National Engineering Laboratory	Savannah River Site
Aerotest (California)	3	.....
General Atomics (California)	8	.....
General Electric (California)	.....	4
McClellan Air Force Base (California)	3	.....
U.S. Geological Survey (Colorado)	6	.....
Fort St Vrain (Colorado)	244	.....
Idaho National Engineering Laboratory (Idaho)	.....	114
Argonne National Laboratory—East (Illinois)	11	.....
Armed Forces Research Institute (Maryland)	3	.....
National Institute of Science and Technology (Maryland)	.....	185
DOW Corp. (Michigan)	3	.....
Veterans Medical Center (Nebraska)	2	.....
Los Alamos National Laboratory (New Mexico)	.....	17
Sandia National Laboratory (New Mexico) [3]	12	15
Brookhaven National Laboratory (New York)	.....	71
West Valley Demonstration Project (New York)	83	.....
Savannah River Site (South Carolina)	121	.....
Oak Ridge Reservation (Tennessee) [3]	54	68
Babcock & Wilcox, Lynchburg (Virginia)	2	.....
Hanford Site (Washington)	524	.....
Foreign Research Reactors (various) [3, 4]	170	838
Navy	575	.....
Universities (various) [3]	116	403
Total	1,940	1,715

[1] Number of shipments analyzed in the Final Environmental Impact Statement, including either truck or rail shipments.
[2] The Hanford Site would not receive any additional fuel.
[3] The specific distribution would be based upon the fuel type (i.e., cladding material).
[4] A policy decision on acceptance of foreign research reactor spent nuclear fuel will be made after completion of a separate environmental impact statement.

TABLE 3.2—APPROXIMATE SPENT NUCLEAR FUEL INVENTORY IN METRIC TONS OF HEAVY METAL.[1]

Sites	Existing spent fuel inventory		Existing redistributed and newly generated inventory	
	(As of 1995)	(Percent of total)	(By year 2035) [2]	(Percent of total)
Hanford Site	2133	(81%)	[3] 2103	(76%) (Production reactor spent nuclear fuel)
Idaho National Engineering Laboratory	261	(10%)	426	(16%) (Non-aluminum-clad spent nuclear fuel)
Savannah River Site	206	(8%)	213	(8%) (Aluminum-clad spent nuclear fuel)
Other (Oak Ridge, other Department of Energy facilities, universities, special case commercial).	46	(1%)	[3] 0	
Total	2646	(100%)	2742	(100%)

[1] A ''metric ton of heavy metal'' is a common unit of measure for spent nuclear fuel, which is 1000 kilograms (2,200 pounds) of heavy metal (uranium, plutonium, thorium) contained in the spent fuel.
[2] Inventory shown assumes no final disposition (repository disposal or processing).
[3] The Hanford and Oak Ridge sites would ship some or all of their existing inventory to the Savannah River site and Idaho National Engineering Laboratory, depending on fuel type.

3.2.1 Idaho National Engineering Laboratory Spent Nuclear Fuel Program

The following Idaho National Engineering Laboratory projects or activities will be implemented as a result of the decision (see Appendix for description):

- Increased Rack Capacity for Building 666 at the Idaho Chemical Processing Plant;
- Dry Fuel Storage Facility; Fuel Receiving, Canning/Characterization, and Shipping;
- Fort St. Vrain Spent Nuclear Fuel Receipt and Storage; and
- Expended Core Facility Dry Cell Project.

Other projects that are ongoing or planned are listed below. Decisions regarding these projects will be made in the future pending further project definition, funding priorities, and any additional appropriate review under the National Environmental Policy Act. Descriptions of these projects can be found in Volume 2, Appendix C, of the Environmental Impact Statement.

- Electrometallurgical Process Demonstration;

• Experimental Breeder Reactor-II Blanket Treatment Project; and
• Additional Increased Rack Capacity for Building 666.

3.2.2 Idaho National Engineering Laboratory Waste Management Program

The waste management program at the Idaho National Engineering Laboratory is accomplished through planning, coordination, and direction of functions related to generation, minimization, handling, treatment, storage, transportation, and disposal of waste and spent nuclear fuel, as well as associated surveillance and maintenance activities. The waste management program ensures that current and future waste management practices minimize any potentially adverse environmental impacts. The following discussion describes by waste type the selected alternative, the Modified Ten-Year Plan, alternative.

3.2.2.1 High-Level Radioactive Waste. The Department's decision for liquid high-level waste is to convert the high-level liquid waste to calcine (a stable, solid waste form). The Department has decided to resume operation of the New Waste Calcining Facility to convert the high-level liquid and sodium-bearing liquid waste to calcine prior to further treatment. The conversion to calcine will allow the Idaho National Engineering Laboratory to meet current requirements of a December 9, 1991 consent order with the State of Idaho and the Environmental Protection Agency to cease use of the existing liquid waste storage tanks without building new tanks. The Department proposes to construct a facility to treat the calcined high level waste (and any remaining liquid waste), in accordance with the Resource Conservation and Recovery Act, on a schedule to be negotiated with the State of Idaho under the Federal Facility Compliance Act.

The Department has selected a technology to be tested for potential use in a treatment facility. The technology selected is radionuclide partitioning for radioactive liquid and calcine waste treatment, grout for immobilizing the resulting low activity waste stream, and glass (vitrification) for immobilizing the resulting high-activity waste stream. For more information on this technology, see the Waste Immobilization Facility project description in Volume 2, Appendix C, of the Environmental Impact Statement.

There are two Idaho National Engineering Laboratory projects that will be implemented as a result of the decision (see Appendix for descriptions):

• Tank Farm Heel Removal Project; and
• Calcine Transfer Project.

Other projects which are planned are listed below. Decisions regarding these projects will be made in the future pending further project definition, funding priorities, or appropriate review under the National Environmental Policy Act. Descriptions of these projects can be found in Volume 2, Appendix C, of the Environmental Impact Statement.

• Waste Immobilization Facility;
• Radioactive Scrap/Waste Facility (Argonne National Laboratory-West); and
• Test Area North Pool Stabilization Project.

3.2.2.2 Transuranic Waste. The Department's decision will result in possible acceptance of some off-site transuranic waste from other Department facilities for treatment (depending upon future decisions made as a result of the Department of Energy *Waste Management Programmatic Environmental Impact Statement*). The Idaho National Engineering Laboratory will construct treatment facilities necessary to comply with the Federal Facility Compliance Act. Treatment of transuranic waste at a minimum will be for the purpose of meeting waste acceptance criteria for disposal at the Waste Isolation Pilot Plant (near Carlsbad, New Mexico) and will occur on a schedule to be negotiated with the State of Idaho.

Nominal additional quantities of transuranic waste will continue to be generated from on-site operations. The Site Treatment Plans developed under the Federal Facility Compliance Act may require that some types of waste be shipped from one Department of Energy site to another to take advantage of existing or future regionalized treatment capability. Off-site waste would be received depending on decisions based on: (1) Site Treatment Plan consent orders negotiated under the Federal Facility Compliance Act; and (2) the *Waste Management Programmatic Environmental Impact Statement.* Generally, after treatment, the waste residuals would be returned to the generator or transported to an approved off-site disposal facility (assumed to be the Waste Isolation Pilot Plant).

Projects for retrieving, characterizing, and treating transuranic waste will prepare the waste for transportation and disposal in a repository or for on-site disposal (for waste that can meet the on-site disposal performance criteria).

Projects that will be continued at the Idaho National Engineering Laboratory as a result of the decision (see Appendix for descriptions) are noted below:

• Transuranic Storage Area Enclosure and Storage Project; and
• Waste Characterization Facility.

Other projects which are planned are listed below. Decisions regarding these projects will be made in the future pending further project definition, funding priorities, or appropriate review under the National Environmental Policy Act. Descriptions of these projects can be found in Volume 2, Appendix C, of the Environmental Impact Statement.

• Private Sector Alpha-Contaminated Mixed Low-Level Waste Treatment;
• Radioactive Waste Management Complex Modifications to Support Private Sector; Treatment of Alpha-Contaminated Mixed Low-Level Waste;
• Idaho Waste Processing Facility;
• Mixed/Low-Level Waste Disposal Facility; and
• Plasma Hearth Process Project.

3.2.2.3 Mixed Low-Level Radioactive Waste. Pursuant to the selected alternative, the Idaho National Engineering Laboratory could accept off-site mixed low-level waste for treatment. This decision is subject to agreements being negotiated pursuant to the Federal Facility Compliance Act and the decisions resulting from the Department of Energy *Waste Management Programmatic Environmental Impact Statement.* If mixed low-level waste from other sites is accepted for treatment at the Idaho National Engineering Laboratory, the waste residuals would be returned to the generator or transported to an approved off-site disposal facility.

For the near term, stored and newly generated mixed low-level waste at the Idaho National Engineering Laboratory will be treated at the Waste Experimental Reduction Facility Incinerator (restart), the Nonincinerable Mixed Waste Treatment project, and the Sodium Processing Facility through generator treatment plans developed under 40 CFR 262.34, *Standards Applicable to Generators of Hazardous Waste—Accumulation Time.* Lead contaminated with radioactivity will be recycled at the Idaho National Engineering Laboratory and off-site.

The following projects will be implemented at the Idaho National Engineering Laboratory as a result of the decision (see Appendix for descriptions):

• Waste Experimental Reduction Facility Incineration;
• Nonincinerable Mixed Waste Treatment Project; and
• Sodium Processing Project.

Other projects which are planned are listed below. Decisions regarding these projects will be made in the future pending further project definition, funding priorities, or appropriate review under the National Environmental Policy Act. Descriptions of these projects can be found in Volume 2, Appendix C of the Environmental Impact Statement.

- Idaho Waste Processing Facility;
- Private Sector Alpha-Contaminated Mixed Low-Level Waste Treatment;
- Mixed/Low-Level Waste Disposal Facility; and
- Remote Mixed Waste Treatment Facility.

3.2.2.4 Low-Level Radioactive Waste. Idaho National Engineering Laboratory-generated low-level waste will be treated on-site and off-site and disposed of on-site. In addition, small amounts of off-site low-level waste may be received for treatment and disposal. Low-level waste that is suitable for incineration will be treated at the Waste Experimental Reduction Facility or at an off-site commercial facility. Current stabilization, compaction, and sizing operations at the Waste Experimental Reduction Facility will continue as will liquid low-level waste treatment at the Idaho Chemical Processing Plant and the Test Reactor Area. The Waste Experimental Reduction Facility will be restarted as a result of the decision (see Appendix for description).

Other projects which are planned are listed below. Decisions regarding these projects will be made in the future pending further project definition, funding priorities, and any further appropriate review under the National Environmental Policy Act. Descriptions of these projects can be found in Volume 2, Appendix C of the Environmental Impact Statement.

- Waste Handling Facility (Argonne National Laboratory—West);
- Mixed/Low-Level Waste Disposal Facility;
- Idaho Waste Processing Facility; and
- Private Sector Alpha-Contaminated Mixed Low-Level Waste Treatment.

3.2.2.5 Greater-Than-Class C Low-Level Waste. The Idaho National Engineering Laboratory will continue to plan and develop a program for the receipt and storage of greater-than-class C radioactive sealed-sources. Limited quantities of greater-than-class C waste may be stored in a new storage and recycle facility or an existing Idaho National Engineering Laboratory facility. It is possible that commercial facilities may be used, if available, for storage and recycling of all or part of the sources. (See Volume 2, Appendix C of the Environmental Impact Statement for more information on greater-than-class C dedicated storage at the Idaho National Engineering Laboratory.)

3.2.2.6 Hazardous Waste. Idaho National Engineering Laboratory nonradioactive hazardous waste will be treated, stored and disposed of at off-site commercial facilities. The Waste Handling Facility project at Argonne National Laboratory—West will be implemented as a result of the decision (see Appendix for description).

3.2.2.7 Industrial/Sanitary Waste. The Idaho National Engineering Laboratory will continue the existing industrial waste management program, with continued emphasis on reducing the amount of industrial waste generated through an intensive program of waste avoidance and recycling.

An Industrial/Commercial Landfill Expansion project is also planned. However, a decision regarding the start of this project will be made in the future pending further project definition, funding priorities, and any further appropriate review under the National Environmental Policy Act. A description of this project can be found in Volume 2, Appendix C of the Environmental Impact Statement.

3.2.3 Idaho National Engineering Laboratory Infrastructure Program

Existing Idaho National Engineering Laboratory facilities will be upgraded to comply with applicable state and Department of Energy requirements. In addition, new infrastructure projects may be needed to support ongoing operations.

The Gravel Pit Expansions project will be implemented as a result of the decision (see Appendix for a description).

Other projects which are planned are listed below. Decisions regarding these projects will be made in the future pending further project definition, funding priorities and any further appropriate review under the National Environmental Policy Act. Descriptions of these projects can be found in Volume 2, Appendix C of the Environmental Impact Statement.

- Industrial/Commercial Landfill Expansion;
- Central Facilities Area Clean Laundry and Respirator Facility;
- Health Physics Instrument Laboratory; and
- Radiological and Environmental Sciences Laboratory Replacement.

3.2.4 Idaho National Engineering Laboratory Environmental Restoration Program

With respect to environmental restoration, the Environmental Impact Statement recognizes that, with the exception of decontamination and decommissioning, the December 9, 1991 Federal Facility Agreement and Consent Order among the Department, the State of Idaho and the Environmental Protection Agency is the mechanism by which cleanup decisions are made for the Idaho National Engineering Laboratory Environmental Restoration Program. The Department of Energy's preferred alternative (Modified Ten-Year Plan) was selected because of its ability to provide for the remediation of critical sites while allowing the stabilization of the remaining sites. The selected alternative acknowledges the current industrial land use of the Idaho National Engineering Laboratory, but recognizes the need for flexibility to apply the criteria prescribed under the Comprehensive Environmental Response, Compensation and Liability Act in making cleanup decisions. The following Idaho National Engineering Laboratory projects will continue as a result of the decision (see Appendix for descriptions):

- Auxiliary Reactor Area Decontamination and Decommissioning;
- Boiling Water Reactor Experiment Decontamination and Decommissioning;
- Pit 9 Retrieval;
- Organic Contamination in Vadose Zone at Radioactive Waste Management Complex; and
- Remediation of Organic Ground Water Plume at Test Area North.

Other projects which are planned are listed below. Implementation decisions will be made in the future pending further project definition, funding priorities, and any further review under the Comprehensive Environmental Response, Compensation and Liability Act or the National Environmental Policy Act. Descriptions of these projects can be found in the Volume 2, Appendix C of the Environmental Impact Statement.

- Engineering Test Reactor Decontamination and Decommissioning;
- Materials Test Reactor Decontamination and Decommissioning;
- Fuel Processing Complex (CPP–601) Decontamination and Decommissioning;
- Fuel Receipt and Storage Facility (CPP–603) Decontamination and Decommissioning;
- Headend Processing Plant (CPP–640) Decontamination and Decommissioning;

- Waste Calcine Facility (CPP–633) Decontamination and Decommissioning; and
- Central Liquid Waste Processing Facility Decontamination and Decommissioning.

4. Alternatives Considered

4.1 Programmatic Spent Nuclear Fuel Alternatives Considered

The five programmatic management alternatives considered for spent nuclear fuel include: Alternative 1, No Action—perform minimum activities required for safe and secure management at or close to the generation site or current storage location; Alternative 2, Decentralization—storage and stabilization of most spent nuclear fuel at or near the generation site with limited shipments from university and non-Departmental facilities; Alternative 3, the 1992/1993 Planning Basis—transport to and store newly generated spent nuclear fuel at the Idaho National Engineering Laboratory or the Savannah River Site and consolidate some existing spent nuclear fuel at the Idaho National Engineering Laboratory; Alternative 4, Regionalization—distribute existing and projected spent nuclear fuel among alternative Department of Energy sites based on fuel type or geographic location (an eastern regional site and a western regional site); and Alternative 5, Centralization—manage existing and projected spent nuclear fuel at one site.

For all of the alternatives, the impacts of spent nuclear fuel management activities were analyzed for each of five sites: (1) The Hanford Site near Richland, Washington; (2) the Idaho National Engineering Laboratory, in southeastern Idaho; (3) the Savannah River Site, near Aiken, South Carolina; (4) the Oak Ridge Reservation, in Oak Ridge, Tennessee; and (5) the Nevada Test Site, near Mercury, Nevada. In addition, four naval shipyards and one naval prototype site, the Kesselring Site (near West Milton, New York), were considered for management of naval spent fuel only. The four naval shipyards are: (1) Norfolk Naval Shipyard, Portsmouth, Virginia; (2) Portsmouth Naval Shipyard, Kittery, Maine; (3) Pearl Harbor Naval Shipyard, Honolulu, Hawaii; and (4) Puget Sound Naval Shipyard, Bremerton, Washington.

4.1.1 Agency Preferred Alternative for Programmatic Spent Nuclear Fuel Management

The preferred alternative, Regionalization by Fuel Type, would distribute existing and projected inventories of spent nuclear fuel among Departmental sites based primarily on fuel type. Regionalization by Fuel Type would involve the use of the Idaho National Engineering Laboratory and Savannah River Site for storage of most newly generated spent fuel. Aluminum-clad fuel would be transported to the Savannah River Site; and non-aluminum clad fuel (including Fort St. Vrain and naval spent fuel) would be transported to the Idaho National Engineering Laboratory; Hanford production reactor spent fuel would remain at the Hanford Site. The timing of transportation of fuel between sites would be prioritized and time-phased depending on fuel condition, facility availability, safety, budget and cost, transport logistics, and activities necessary to meet repository acceptance criteria. Navy nuclear ships and prototypes would continue to be refueled and defueled as needed. Naval spent fuel would be transported to the Expended Core Facility at the Idaho National Engineering Laboratory for examination. Following examination, naval spent fuel would be stored at the Idaho National Engineering Laboratory. Spent nuclear fuel facility upgrades, replacements, and additions will be undertaken, as will research and development activities to resolve safety vulnerabilities and assure safe spent nuclear fuel interim storage in preparation for ultimate disposition.

The Department of Energy arrived at its preferred alternative through a formal screening process, which included developing screening and performance criteria. Since environmental impacts are substantially the same, they did not offer a strong basis for selection among the alternatives, as the environmental impacts of implementing any of the alternatives were evaluated in detail and determined to be small. The No Action, Decentralization A and B (no examination and limited examination of naval fuel respectively) and Centralization alternatives did not satisfy all of the screening criteria (regulatory compliance; accomplishment of Department and Navy missions; provision of technology development for stabilization and ultimate disposition) identified as necessary for alternatives to qualify for further consideration as candidates for the preferred alternative. Specifically, these alternatives would not have allowed the Department of Energy or the Navy to meet their mission needs, comply with applicable state and Federal laws and regulations, or provide for the necessary research and development of appropriate storage, treatment and disposal technologies. The No-Action alternative would not provide the capability for full examination of naval fuel. Similarly, Decentralization A and B (no examination and limited examination of naval fuel, respectively) would not provide capability for full examination of naval spent fuel. The Department did not prefer the Centralization alternative because it did not maintain backup capabilities for spent fuel management in order to accomplish vital spent fuel program activities. The remaining alternatives, Decentralization C (with full examination of naval fuel), the 1992/1993 Planning Basis, and Regionalization met all of the screening criteria.

The Department applied performance criteria (i.e., environmental impact; public concerns; cost; support of the spent fuel management mission; the need to honor contractual commitments and compliance agreements) to the four candidates that survived the screening process. Two of the four candidates, the 1992/1993 Planning Basis, and Regionalization by Fuel Type, rated the highest. These two candidate alternatives were then evaluated against a number of technical and nontechnical considerations, including environmental impact perception, indicated stakeholder preferences, implementation factors, regulatory risk, spent fuel processing potential, environmental justice, and fairness. As a result of this final evaluation, Regionalization by Fuel Type was identified as the preferred alterative.

4.1.2 Environmentally Preferable Alternatives for Programmatic Spent Nuclear Fuel Management

As indicated in the Environmental Impact Statement, the environmental consequences of the Decentralization, the 1992/1993 Planning Basis, Regionalization, and Centralization alternatives are small, including risks from normal operations, transportation, and potential accidents. While factors such as water quality, air quality, and land use for each alternative showed variations, these aggregated differences by themselves are not sufficient to identify one clearly environmentally preferable alternative. Accordingly, the Department regards all of these alternatives as environmentally preferable, based solely on the evaluation of environmental impacts. The selected alternative, Regionalization by Fuel Type, is among the environmentally preferred alternatives.

However, the No Action alternative would adversely affect the Department's

mission to ensure safe and secure management of spent nuclear fuel. Future deterioration of fuels and facilities may increase accident risks over current risk estimates. The Department would initially suffer from a loss of margin in storage capacity. In time, there would be little or no flexibility for repairs to existing facilities under the No Action alternative. Additionally, by limiting research and development to activities already approved, the Department's ability to safely store spent nuclear fuel would be adversely affected by the inability to conduct new research and development. For all of these reasons, compared to each of the action alternatives, the No Action alternative is environmentally nonpreferred.

4.2 Alternatives Considered for Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs

The alternatives related to environmental restoration and waste management for the Idaho National Engineering Laboratory include: Alternative A, No Action; Alternative B, Ten-Year Plan; Alternative C, Minimum Treatment, Storage, and Disposal; and Alternative D, Maximum Treatment, Storage, and Disposal. Each alternative included components for environmental restoration, decontamination and decommissioning, waste management, and spent nuclear fuel management, including the infrastructure, technology development, and transportation for spent nuclear fuel management.

4.2.1 Agency Preferred Alternative for Site-Specific Actions at the Idaho National Engineering Laboratory

The agency preferred alternative is a modification of the Ten-Year Plan (described in the Environmental Impact Statement), which includes additional features drawn from the Minimum and Maximum Treatment, Storage, and Disposal alternatives. Ongoing spent fuel management, environmental restoration, and waste management activities and projects would continue and be enhanced to meet current and expanded spent fuel and waste handling needs. These enhanced activities would be needed to comply with regulations and agreements and would result from acceptance of specific additional off site-generated materials and waste.

Non-aluminum-clad spent nuclear fuel (including Fort St. Vrain spent fuel and naval spent fuel) would be consolidated at the Idaho National Engineering Laboratory, except for the Hanford production reactor spent fuel. Transuranic and mixed low-level waste might be received from other sites, depending on consent orders negotiated under the Federal Facility Compliance Act and decisions resulting from the Department of Energy *Waste Management Programmatic Environmental Impact Statement.* The transuranic waste and mixed low-level waste received from other Departmental sites would be treated, and the residue returned to the original site (generator) or transported or shipped to an approved off site disposal facility, depending on arrangements reached under the Federal Facility Compliance Act with the State of Idaho, the Environmental Protection Agency and other affected states. Ongoing remediation and decommissioning and decontamination projects would be continued, and additional projects would be conducted.

In addition to existing facilities and projects, projects proposed under the preferred alternative for 1995 through 2005 would be implemented to meet the current mission of the Laboratory and to comply with negotiated agreements and commitments.

4.2.2 Environmentally Preferable Alternative for Site-Specific Actions at the Idaho National Engineering Laboratory

The Environmental Impact Statement analysis shows that potential environmental impacts on and near the Idaho National Engineering Laboratory from each of the action alternatives considered would be small. The Environmental Impact Statement focuses on the potential environmental impacts on or near the Laboratory. The longer-term programmatic waste management impacts across the Department's sites (complex-wide) will be the subject of another environmental impact statement presently under development (Department of Energy *Waste Management Programmatic Environmental Impact Statement).*

The following is a brief comparison of the impacts of the alternatives as analyzed, augmented by a qualitative discussion, albeit somewhat speculative, of considerations related to potential longer-term and complex-wide tradeoffs that may factor into later decision-making. The decision provides for extensive waste treatment that exchanges near-term impacts for longer-term impact reduction. Similarly, transferring wastes to Idaho exchanges near-term impacts there for impact reductions elsewhere within the Department of Energy complex.

The analyses indicate that, among the action alternatives, Alternative C (Minimum Treatment, Storage and Disposal) appears to have the lowest overall potential for environmental impacts at the Laboratory. The lower local impacts are accounted for by the fact that waste management activities, materials, and wastes would be transferred to other Department sites for treatment and storage, therefore transferring associated environmental impacts to the receiving sites. For example, all spent nuclear fuel and transportable wastes other than high-level wastes would be shipped to other Department sites for treatment and storage. Alternative C would not allow the Department to meet all of the requirements of the Proposed Site Treatment Plan submitted to the State of Idaho on March 30, 1995, in accordance with the Federal Facility Compliance Act.

Compared to Alternative C, the analyses show that Alternative B (Ten-Year Plan) would result in somewhat greater, but still small environmental impacts at the Laboratory. The difference in impacts results from the treatment of waste and management of spent nuclear fuel at the Laboratory as opposed to another Department site. While the near-term impacts resulting from proceeding with environmental restoration activities would be greater than those under Alternative C, these would be offset by decreases in the long-term presence of radioactive and hazardous wastes in the environment. This alternative would not provide the Department any significant ability to send wastes to the Laboratory from other sites, and thus would inhibit later programmatic decisions that might otherwise lessen the impacts across the complex.

The selected alternative, the Modified Ten-Year Plan, affords the Department better flexibility to implement actions proposed in the Federal Facility Compliance Act Site Treatment Plan and programmatic decisions that may result from the *Waste Management Programmatic Environmental Impact Statement,* presently being prepared. The local, near-term impacts of this Modified Ten-Year Plan, as analyzed, would be similar to those under Alternative B and less than those under Alternative D (Maximum Treatment, Storage and Disposal). The potential environmental impacts associated with waste management at other sites would be reduced in proportion to the amounts of waste shipped to the Laboratory for treatment.

The analyses show that, among the four alternatives, Alternative D (Maximum Treatment, Storage and Disposal) would probably have the greatest overall potential for short-term,

local environmental consequences. This alternative would also result in the largest commitment of Laboratory resources to address waste-related issues throughout the complex. Although the potential for offsetting complex-wide, long-term reductions in impacts exists, the Department judges that the overall impact of this alternative would still be higher than Alternative B (Ten-Year Plan) or the Modified Ten-Year Plan because of the greater waste treatment, storage and environmental restoration activities at the Laboratory.

The No Action alternative, Alternative A, is not environmentally preferable because it would not permit the flexibility for the Department to fully meet all negotiated and anticipated agreements and commitments (e.g., the Federal Facility Agreement and other consent orders or obligations to receive university, Fort St. Vrain and West Valley Demonstration Project spent nuclear fuel). The No Action alternative would also result in longer-term impacts from the environmental burden and risks associated with untreated, stored, and buried wastes at the Laboratory left undisturbed. No offsetting long-term or complex-wide impact reductions would accrue from this alternative, since it would limit future programmatic decisions that may lessen impacts across the complex.

The Department anticipates that the Modified Ten-Year Plan, when viewed in terms of broader complex-wide impacts over an extended time period, would result in impacts that are comparable to or less than those under Alternative C. Because the Modified Ten-Year Plan would provide for full treatment of waste currently at the Laboratory in addition to treating wastes currently located at other sites, it is reasonable to expect that long-term reductions in environmental impact will be achieved proportionately to reductions in waste volumes from conversion of toxic and hazardous waste forms to stable and more benign forms.

Consequently, in view of the fact that the environmental impacts are small and the balance among the near-term local, long-term and complex-wide impacts may show that there is no clear distinction among Alternatives B, C, and the selected alternative (Modified 10-Year Plan), the Department considers these three alternatives to be equally environmentally preferable alternatives.

5. Selected Alternatives

This section compares important characteristics of the selected alternatives with other evaluated alternatives and presents the basis for the selection.

5.1 Basis for Decisions

These decisions result from a systematic evaluation process used to identify the preferred alternatives (see Chapter 3 of the Environmental Impact Statement). The Department used the following general considerations when making these decisions:

- Environmental and safety considerations;
- Mission accomplishment considerations; and
- Public preference considerations.

These considerations aided the Department in striking a reasoned balance between potential environmental risks and public and mission (including budgetary) concerns.

5.1.1 Environmental and Safety Considerations

Environmental and safety considerations used in making the decisions included the following:

- The potential environmental and safety consequences resulting from actions to be implemented under the decisions would be small and in compliance with applicable environmental laws, regulations, executive orders, Departmental orders, permits and compliance agreements with regulatory agencies.
- The potential environmental impacts resulting from actions to be implemented under the decisions would not constitute a disproportionately high and adverse impact on minority or low income communities.

5.1.2 Mission Accomplishment Considerations

Mission considerations used in making the decisions included the following:

- The decisions provide for the safe and efficient management of the Department's spent nuclear fuel during the next 40 years.
- The decisions position the Department to implement a path forward for ultimate disposition of its spent nuclear fuel.
- The decisions enable the Naval Nuclear Propulsion Program to refuel and defuel nuclear-powered ships and examine naval spent fuel.
- The decisions balance cost considerations with budgetary goals of the Department and congressional mandates.
- The decisions are implementable and reasonable, considering the availability of resources, current technology, and expected technology development.
- The decisions continue environmental restoration and waste management activities at the Idaho National Engineering Laboratory and provide a framework for new activities that may be necessary to comply with negotiated agreements. This includes conducting mixed waste treatment at the Laboratory in accordance with the Federal Facility Compliance Act.

5.1.3 Public Preference Considerations

Significant public preferences and comments considered in the decisions included the following:

- Minimize unnecessary movement of spent nuclear fuel.
- Provide an equitable sharing among states and localities of the perceived burdens for management of spent nuclear fuel.
- Focus the actions of the Department on identification and implementation of a path forward for ultimate disposition of Department-owned spent nuclear fuel.
- Continue the cleanup activities already underway at the Idaho National Engineering Laboratory.
- Protect aquifers from being degraded by the Department's activities.

Public involvement is further discussed in section 9.

5.2 Programmatic Spent Nuclear Fuel Decision Basis

5.2.1 Environmental and Safety Considerations

Application of the environmental and safety considerations (presented in section 5.1.1) is described below with respect to the decision on programmatic spent fuel management. The selected alternative—Regionalization by Fuel Type—is one of several spent nuclear fuel management alternatives considered to be environmentally preferable, as discussed in section 4.1.2 above. As indicated in the Environmental Impact Statement, the environmental and safety consequences of any of the five spent nuclear fuel management alternatives would be small. For example, analyses of air quality, water quality, and land use for each alternative showed little or no impact.

The cumulative impact analysis in the Environmental Impact Statement evaluated the incremental impacts associated with implementing each alternative plus the impacts of other past, present and reasonably foreseeable future actions on a nationwide and site-specific basis. These analyses indicate that the contribution to cumulative impacts from activities required for spent nuclear fuel management would

be very small, both nationwide and at sites where fuel is managed. Similarly, on a site-specific basis, the implementation of any of the alternatives would not significantly contribute to cumulative impacts. For example, radiological emissions from normal operations and from transportation of spent nuclear fuel would be well within regulatory requirements, and the volumes of waste produced would be a small addition to other waste volumes generated at the sites.

As discussed in Appendix L to the Environmental Impact Statement, the evaluated potential impacts resulting from all alternatives were found to present no significant risk to potentially affected populations. Similarly, no disproportionately high and adverse effects are expected for any particular segment of the population, including minority populations and low-income populations.

5.2.2 Mission Accomplishment Considerations

The selection of the Regionalization by Fuel Type alternative included the consideration of several nonenvironmental factors, including the Department's ability to meet mission requirements, and cost.

5.2.2.1 Mission Accomplishment. The selected alternative meets the Department's mission requirements to manage its spent nuclear fuel safely and efficiently by consolidating the spent fuel by fuel type, thereby allowing efficiencies in management and technology development for stabilization and ultimate disposal. It also facilitates the construction of new or upgraded facilities for the safe and efficient management of spent nuclear fuel. The selected alternative allows the Navy to fulfill its mission to efficiently refuel and defuel nuclear powered ships and provide full examination of naval fuel. In contrast, the No Action and Decentralization alternatives would not meet the Department's objectives because leaving the spent fuel where it is generated or currently stored would not allow the Department to efficiently stabilize spent fuel for safe interim storage if necessary, or initiate new research and development for stabilization and ultimate disposition. In addition, the No Action and two of the three Decentralization alternatives would not allow full examination of naval fuel.

5.2.2.2 Cost Considerations. The Department is committed to operating cost-effective programs that meet all applicable safety, environmental, and regulatory requirements. The relative costs for implementation of the analyzed alternatives over 40 years have been examined in a report entitled *Spent Nuclear Fuel Management Cost Evaluation Report* (DOE/SNF/REP–PS–001, March 1995). The selected alternative is slightly less expensive than the Decentralization and Planning Basis alternatives. The selected alternative is somewhat more expensive than Regionalization by Geography, or any of the Centralization scenarios; however, these alternatives would be more capital-intensive (especially in the early years) than the selected alternative, and thus not as desirable. These relative rankings would remain the same for possible future spent nuclear fuel disposal scenarios including direct geologic repository disposal (in suitable containers) or processing followed by disposal.

5.2.3 Public Preference Considerations

A discussion of the public involvement process is presented in section 9; however, two important public concerns/preferences are discussed here.

Many commentors stated that spent nuclear fuel should not be stored in their locality. Until spent nuclear fuel is either finally disposed of or otherwise processed, it must be safely managed somewhere. Foreign storage, examination, and/or processing of spent fuel already in the Department's possession have been considered; however, at this time, concerns about security and nuclear material nonproliferation have caused the Department not to pursue this option programmatically. However, future analyses under the National Environmental Policy Act that are specific to sites or to spent nuclear fuel types may consider these options, and subsequent decisions could result in selected foreign storage or processing. For example, the *Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel Draft Environmental Impact Statement (DOE/EIS–0218D)* evaluates foreign and domestic options for storage, as well as chemical separation.

Many commentors also expressed a preference for minimizing the amount of spent nuclear fuel transportation. Although the potential environmental impacts due to transportation are very small, the Department acknowledges this public concern. The estimated number of shipments over the next 40 years analyzed ranges from about 200 shipments under No Action up to 7,400 shipments for Centralization. The selected alternative may involve up to 3,700 shipments over 40 years. The Regionalization by Geography and Centralization alternatives would require up to twice as many shipments, and the increased transportation was a consideration in not selecting those alternatives. Several other alternatives have lower shipment estimates but, as previously discussed, would impair the ability to meet mission requirements. The selected alternative allows a reasonable balance between the public preference for minimizing the extent of shipments and Department of Energy and Navy mission needs. It should be noted that the estimated number of shipments is conservative, and the number of actual shipments under the selected alternative is likely to be lower.

5.3 Site-wide Environmental Restoration and Waste Management Decision Basis

5.3.1 Environmental and Safety Considerations

Volume 2 of the Environmental Impact Statement evaluated many site-wide environmental parameters. The potential impacts were small for each alternative except that: (1) Fugitive dust would be generated during construction operations; and (2) the potential exists that acceptable visual color shift criteria could be exceeded at some sensitive areas if certain of the proposed projects were implemented without application of an air emission control technology. In actuality, fugitive construction dust would be controlled by standard practices (such as wetting). Additionally, through the State of Idaho Permit to Construct process, proposed projects are required to demonstrate that there will be no adverse impacts on the ambient air quality, including visibility.

The Environmental Impact Statement shows that the selected alternative generally causes potential impacts that fall between the Minimum Treatment, Storage, and Disposal alternative—Alternative C—and the Maximum Treatment, Storage, and Disposal alternative—Alternative D. The results reflect the fact that positive action—i.e., treatment of waste to render it more environmentally benign and stable over the long term—will result in short-term increases in releases of radionuclide and criteria pollutant emissions. However, all projected impacts are within applicable regulatory and Department of Energy requirements to ensure protection of public health and safety. Also, all alternatives involve continuation of existing projects or new projects to remediate or prevent contamination of the Snake River Plain aquifer.

5.3.2 Mission Accomplishment Considerations

The selection of the Modified Ten-Year Plan considered several nonenvironmental factors, including the flexibility to implement waste treatment options to be negotiated under the Federal Facility Compliance Act, cost-effective waste treatment and remedial actions.

5.3.2.1 Federal Facility Compliance Act Flexibility. Negotiations with the State of Idaho are underway on a consent order for treating mixed-waste streams that contain Resource Conservation and Recovery Act hazardous constituents. The No Action and Minimum Treatment, Storage, and Disposal alternatives would not enable the Department to implement treatment activities that would satisfy anticipated consent order requirements. The selected alternative, as well the Maximum Treatment, Storage, and Disposal alternatives, would provide the necessary flexibility.

5.3.2.2 Cost Effective Idaho National Engineering Laboratory Activities. Some alternatives provide a greater opportunity for cost effective Idaho National Engineering Laboratory waste operations than other alternatives. For example, the Ten-Year Plan Alternative would include new high-level liquid waste tanks estimated to cost $160 million. However, the selected alternative, Modified Ten-Year Plan, eliminates this cost by using the existing calcination process to eliminate the liquid high-level waste. In addition, the selected alternative allows flexibility in future decisions on, and operation of new waste treatment facilities with the possibility of treating multiple waste streams in one facility. The 1992/1993 Planning Basis and Maximum Treatment, Storage, and Disposal alternatives would also allow the desired flexibility, but the No Action and Minimum Treatment, Storage, and Disposal alternatives would not.

5.3.3 Public Preference Considerations

Public involvement activities are described in section 9. Several of the more important public concerns and preferences with respect to the selected alternative are discussed below.

Many comments stated that the Department must protect the environment, particularly the Snake River Plain aquifer. The Department discontinued direct liquid discharges to the aquifer in 1989 and is now actively cleaning up previous contamination. It should be noted that all safe drinking water standards are being met at the Laboratory site boundary. All of the action alternatives proposed in the Environmental Impact Statement would avoid any further degradation of the aquifer, and several alternatives, including the selected alternative, would continue current or propose additional aquifer cleanup actions. The No Action alternative would not protect the aquifer over a long period of time because treatment of existing waste to convert it to a more environmentally benign form would not be implemented.

Public comments also expressed a strong preference that the Idaho National Engineering Laboratory should not become the only waste treatment, storage, and disposal center for the Department. This is one reason why the Maximum Treatment, Storage, and Disposal alternative was not selected. Although the selected alternative would allow regional treatment of some selected waste streams, the residues from the treatment would be returned to the generator or transported to approved off-site storage or disposal facilities. By not selecting the Maximum Treatment, Storage, and Disposal alternative, the Department has also limited the number of waste shipments, an important consideration in many of the comments received.

6. Mitigation

6.1 Programmatic Spent Nuclear Fuel Management

The strictly controlled conduct of operations associated with Department of Energy and Naval Nuclear Propulsion Program spent fuel management activities are mitigation measures integral with the selected alternative. The Department of Energy and the Naval Nuclear Propulsion Program have orders and regulations for conduct of spent nuclear fuel management operations. All government spent fuel shipments must comply with Department of Energy and Department of Transportation regulations. The Department of Energy and the Navy have adopted stringent controls for minimizing occupational and public radiation exposure. The policy of these programs is to reduce radiation exposures to as low as reasonably achievable. Singly and collectively, these measures avoid, reduce, or eliminate any potentially adverse environmental impacts from spent nuclear fuel management activities. The Department has not identified a need for additional mitigation measures.

6.2 Site-wide Idaho National Engineering Laboratory Environmental Restoration and Waste Management

Volume 2, section 5.19 of the Environmental Impact Statement presents an overview of routine measures that minimize the risk associated with Department of Energy activities. Because the Department's compliance program requires self-assessments, external oversight, and audits, mitigation measures are an integral part of the Department's operations. Singly and collectively they avoid, reduce, or eliminate potentially adverse environmental impacts from environmental restoration and waste management activities. The Idaho National Engineering Laboratory has issued an Environmental Compliance Planning Manual that identifies the various requirements of Federal and state agencies that are applicable to its activities. Additional routine measures taken to reduce or avoid potential risks from Idaho National Engineering Laboratory environmental restoration and waste management activities encompassed by the decision are summarized below:

- Establishment and maintenance of cultural resources management plans, including consultations with the Shoshone-Bannock tribes and appropriate state and local agencies;
- Continued development of future land use plans in consultation with the Environmental Management Site Specific Advisory Board;
- Coordination with local communities and county planning agencies regarding labor and capital impacts;
- Evaluation of potential non-radiological air emissions for new facilities in specific Permit to Construct applications to demonstrate there will be no adverse air quality impacts;
- Evaluation of controls to reduce radiological emissions based on the nature of the activity and types and amounts of radionuclides; and
- Continued reduction in the generation of all types of waste.

Because of these activities and the Laboratory's commitment to operating in compliance with all applicable laws, regulations, executive orders, Departmental orders, permits, and compliance agreements with regulatory agencies, no additional mitigative actions are needed to implement this decision.

7. Legal and Regulatory Considerations

7.1 Litigation

7.1.1 History of Case

In 1965, the Public Service Company of Colorado and the then General Atomic Division of the General Dynamics Corporation signed a contract with the Atomic Energy Commission (now the Department of Energy) to pursue commercial power demonstration at the Fort St. Vrain Reactor in Colorado. The terms of that contract stipulated that a specified amount of spent fuel be shipped to the Idaho National Engineering Laboratory for interim storage. To meet this commitment, the Atomic Energy Commission constructed the Irradiated Fuels Storage Facility at the Idaho National Engineering Laboratory.

Pursuant to this contract, three segments of spent fuel were shipped from Colorado to the Idaho National Engineering Laboratory for storage in the early 1980s. In the late 1980s, Idaho Governor Cecil Andrus alerted the Department to the State of Idaho's concern about becoming a permanent repository for spent nuclear fuel. Governor Andrus declared that until the Department of Energy made a decision about a permanent repository, he would oppose further spent fuel shipments to Idaho. At that time, the Department was not in a position to make a decision about a permanent repository, and thus, disputes between the Department and the State of Idaho continued. In 1992, Idaho alleged that the Department had violated the National Environmental Policy Act by failing to prepare an Environmental Impact Statement on the continued receipt of spent fuel at the Idaho National Engineering Laboratory. Although the Department had prepared an Environmental Assessment on the impacts of receiving Fort St. Vrain fuel, and determined that the impacts of managing spent fuel were small, the State of Idaho pressed for an Environmental Impact Statement. In June 1993, the Federal District Court for the District of Idaho ruled that the Department was required to prepare an Environmental Impact Statement. See *Public Service Company v. Andrus,* 825 F. Supp. 1483 (D. Idaho 1993). In addition, the court enjoined the Department from further shipment of spent nuclear fuel to the Laboratory until the Environmental Impact Statement was completed. Following negotiations with the State of Idaho, an amended court order was entered on December 22, 1993, which contained a schedule for completion of the Environmental Impact Statement and provided for a limited number of naval shipments while the Environmental Impact Statement was prepared. On May 19, 1995, the District Court ordered an extension of the injunction.

During this same period, the Department was already in the process of preparing a site-wide environmental impact statement for proposed environmental restoration and waste management activities at the Idaho National Engineering Laboratory. Following the negotiated settlement with the State of Idaho and entry of the December 22, 1993 court order regarding spent fuel shipments to the Laboratory, the Department consolidated the site-specific environmental impact statement with the spent fuel environmental impact statement in a single document, now known as the *Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs Environmental Impact Statement.*

7.1.2 Compliance with the Court Order

Issuance of this decision is a part of ongoing compliance with the court's order of December 22, 1993. By fulfilling all of the Environmental Impact Statement preparation requirements, and other spent nuclear fuel requirements and milestones, a significant portion of the court's order has been satisfied.

7.2 Legal Requirements

The Department of Energy is mandated by Congress to comply with applicable Federal and state laws and regulations, among which are the:

- National Environmental Policy Act;
- Clean Air Act;
- Clean Water Act;
- Safe Drinking Water Act;
- Floodplains Protection Act;
- Federal Facility Compliance Act;
- Resource Conservation and Recovery Act; and
- American Indian Religious Freedom Act and Native American Graves Protection and Repatriation Act.

The selected alternatives provide for compliance with these and other applicable laws and regulations governing actions within the Department's responsibility.

8. Implementation

8.1 Programmatic Spent Nuclear Fuel Management Decision Implementation

Implementation of the Department of Energy spent nuclear fuel decision will be managed by the Department's Office of Spent Fuel Management in conjunction with the affected operations offices. Naval spent fuel shipments will be conducted by the Naval Nuclear Propulsion Program. For planning purposes, the Department of Energy assumes that its spent nuclear fuel that is not otherwise dispositioned would be emplaced in the first geologic repository for spent nuclear fuel and high-level radioactive waste, subject to physical and statutory limits, payment of fees, and meeting repository acceptance requirements.

Since this is a programmatic decision, only intersite spent fuel movement is addressed. Naval spent fuel shipments will resume immediately upon the lifting of the injunction imposed by the court's order dated May 19, 1995, barring such shipments. The consolidation of Department of Energy-owned spent fuel types from current storage locations to the selected locations will be prioritized and time-phased depending on fuel condition, facility availability, safety, budget and cost, transport logistics, and repository acceptance criteria.

As indicated in the *Spent Nuclear Fuel Management Cost Evaluation Report* (SNF–REP–PS–001), spent fuel storage under the Regionalization by Fuel Type alternative may cost from $9.1 to $17.6 billion (in constant 1995 dollars) over forty years, depending on whether existing or new facilities are used. This range is associated with an assumption of no funding limitations; however, implementation of Regionalization by Fuel Type is subject to congressional and Department funding priorities, which will affect the timing of spent fuel management activities.

8.2 Environmental Restoration and Waste Management Decision Implementation at the Idaho National Engineering Laboratory

The Department's Idaho Operations Office will manage implementation of Laboratory-specific activities described in this Record of Decision. The Naval Nuclear Propulsion Program will manage projects and activities located at the Naval Reactor Facility, while the Department's Chicago Operations Office will manage those projects and activities located at Argonne National Laboratory-West. Implementation of the site-wide decisions is subject to a number of constraints, several of which are described below.

8.2.1 Funding

All of the site's activities are dependent on Congressional and Departmental funding priorities. Implementation of activities and projects will be prioritized by Departmental management, taking into account negotiations with the State of

Idaho and recommendations from the Laboratory's Site-Specific Advisory Board.

8.2.2 Federal Facility Compliance Act Negotiations

All of the waste types, except nonradioactive hazardous and sanitary wastes, can also be subdivided into a mixed waste category, i.e., waste that contains both hazardous waste regulated under the Resource Conservation and Recovery Act and source, special nuclear, or byproduct material defined by the Atomic Energy Act. Under the Federal Facility Compliance Act, the Laboratory was required to develop a Site Treatment Plan that addresses how the mixed waste in storage and to be generated will be treated to meet the Land Disposal Restrictions under the Resource Conservation and Recovery Act. The Laboratory's Proposed Site Treatment Plan was submitted to the State of Idaho on March 30, 1995, and includes detailed plans on how mixed waste will be treated. The Proposed Site Treatment Plan also included the treatment of waste to be received from off-site. The Federal Facility Compliance Act requires that the regulatory authority (i.e., the State of Idaho) approve, approve with modification, or disapprove the submitted Plan within six months. A consent order implementing the Proposed Site Treatment Plan is expected to be negotiated between the Department and the State of Idaho prior to October 6, 1995. The projects and activities identified in the Proposed Site Treatment Plan are included in the preferred alternative for the Final Environmental Impact Statement and in the alternative selected in this Record of Decision. Upon receipt the consent order implementing the Proposed Site Treatment Plan, this Record of Decision will be reviewed to assure consistency. The consent order will provide schedules and milestones for most of the waste management projects identified for implementation in this Record of Decision.

The December 9, 1991 Federal Facility Agreement and Consent Order is the mechanism by which cleanup decisions are made at the Idaho National Engineering Laboratory. Schedules for activities and projects identified for the Environmental Restoration Program will be implemented under the Federal Facility Agreement and Consent Order Action Plan.

8.2.3 Department of Energy Waste Management Programmatic Environmental Impact Statement

The Waste Management Programmatic Environmental Impact Statement, currently in preparation, is analyzing alternative strategies and policies to maximize efficiency for the Department's national Waste Management Program. The analyses will support the Department's complex-wide decisions. Volume 2 of the Environmental Impact Statement on Idaho National Engineering Laboratory environmental restoration and waste management programs has been coordinated with the preparation of the Waste Management Programmatic Environmental Impact Statement. Upon issuance of a record of decision for the Waste Management Programmatic Environmental Impact Statement, this Record of Decision will be reviewed for program consistency and possible changes.

9. Public Involvement

On October 22, 1990, the Department of Energy published a Notice of Intent in the **Federal Register** (55 FR 42633) announcing its intent to prepare a programmatic Environmental Impact Statement addressing Department-wide environmental restoration and waste management (including spent nuclear fuel management) activities. The Department invited the public to submit written comments on the scope of the document. Twenty-three scoping meetings were held across the country, and a draft Environmental Impact Statement Implementation Plan reflecting public comments was prepared. The Department held additional public meetings on the draft Implementation Plan and recorded public comments at these meetings.

On October 5, 1992, the Department published a Notice of Intent in the **Federal Register** (57 FR 45773) announcing its intent to prepare an environmental impact statement addressing environmental restoration and waste management and spent nuclear fuel management at Idaho National Engineering Laboratory. In the Notice of Intent, public comment was solicited on the proposed scope of the study. Five scoping meetings were held in Idaho, and public comments at those meetings were recorded.

As a result of a court order, the Department issued a Notice of Opportunity in the **Federal Register** (58 FR 46951) on September 3, 1993, announcing its intent to expand the scope of the ongoing Idaho National Engineering Laboratory Environmental Restoration and Waste Management Environmental Impact Statement to include a Department-wide review of the alternatives for managing spent fuel, including naval spent fuel. The notice also invited the public to comment on the expanded scope. Public comments received in response to the Notice of Opportunity, as well as public comments provided in the original scoping processes for both the Idaho National Engineering Laboratory Environmental Impact Statement and Department-wide Environmental Restoration and Waste Management Programmatic Environmental Impact Statement, were considered and summarized in the Environmental Impact Statement Implementation Plan issued on October 29, 1993.

These and other public outreach efforts, in conjunction with the public comment period discussed below, provided opportunities for the public to identify issues of concern relating to the Department's spent nuclear fuel management and Idaho National Engineering Laboratory environmental restoration and waste management activities.

9.1 Public Comments on the Draft Environmental Impact Statement

The public comment period on the Draft Environmental Impact Statement began on July 1, 1994 and closed on September 30, 1994. More than 1,400 individuals, agencies, and organizations provided approximately 5,000 comments. Comments were received from all affected Department of Energy and shipyard communities.

Many of the issues surrounding the management of the Department's spent nuclear fuel, raised during the public comment period, were not new. For example, the report entitled *Spent Fuel Working Group Report on Inventory and Storage of the Department's Spent Nuclear Fuel and Other Reactor Irradiated Materials and Their Environmental Safety and Health Vulnerabilities* documented current and potential vulnerabilities regarding existing storage facilities. Stakeholders raised many of the issues identified in this report in 33 public meetings held on the Draft Environmental Impact Statement in 1994.

The comments came from many states, from Maine to Hawaii. The origins of the comments indicated that Volume 1 (Spent Fuel Management) addressed issues of national interest, while Volume 2 (Idaho Engineering National Laboratory activities) was the subject of concern primarily to the citizens of Idaho. Recurring and controversial issues raised during the

public comment period included comments on the Department of Energy and Navy credibility; the apparent lack of a clear path forward with respect to ultimate disposition of spent nuclear fuel and nuclear waste; continued generation of spent nuclear fuel; cost of implementation; safety of, and risk to, the public; transportation of spent nuclear fuel and waste; impacts of accidents and perceived risk on local economies and the quality of life; and United States nuclear, defense, energy, and foreign policies.

In response to these comments the Department of Energy and the Navy consulted with other Federal agencies, states, and Tribal Nations to achieve a better understanding of the bases for their comments. Discussions during these consultations resulted in resolution of many comments and further improvements in the final Environmental Impact Statement. These comments and concerns resulted in approximately 500 changes to the final document. For example, a brief summary of the costs associated with the various alternatives was added. Also, the Department of Energy determined that for planning purposes, Department of Energy spent nuclear fuel that is not otherwise dispositioned will be emplaced in the first geologic repository for spent nuclear fuel and high-level radioactive waste, subject to physical and statutory limits, payment of fees, and meeting acceptance requirements. Volume 1 was enhanced to include a description that clarifies the relationship between the Environmental Impact Statement and other National Environmental Policy Act reviews related to spent fuel management. Further, the Department clarified the relationship between the Environmental Impact Statement and the Department's spent fuel vulnerability assessment action plans. As a direct result of public comment, the Department expanded discussion in Volume 2 of the potential impacts to Native American cultural resources, and the potential impacts on air quality at the Idaho National Engineering Laboratory. With regard to naval spent fuel, enhancements to Appendix D (Naval Spent Nuclear Fuel Management) provide additional information in the following areas: importance of naval spent fuel examination, impacts of not refueling or defueling nuclear-powered vessels, the transition period required to implement naval spent fuel alternatives, potential accident scenarios at naval shipyards, and uncertainties in calculating potential environmental impacts. Editorial changes were made to the Environmental Impact Statement to correct errors, none of which were considered substantive, and to clarify discussions.

The Summary of the Environmental Impact Statement provides an overview of public comments received on the draft document and Departmental actions to address these comments in the Final Environmental Impact Statement. The Department also added Volume 3 to the Environmental Impact Statement in order to consider, individually and collectively, all comments.

9.2 Response to Public Comments on the Final Environmental Impact Statement

The Department of Energy received comments and inquiries following issuance of the final Environmental Impact Statement. Commentors did not recommend any new alternatives or raise any issues that had not already been considered during preparation of the Final Environmental Impact Statement. The comments are summarized as follows.

- Commentors did not want any additional waste or spent fuel moved into the State of Idaho because of concerns for the aquifer and perception of potential for earthquakes to occur in Idaho.
- The State of Idaho filed a motion in Federal District Court maintaining that the Environmental Impact Statement does not comply legally or technically with the Court's order of December 22, 1993.
- The State of Maryland generally concured with the Department's selection of the preferred alternatives. For Programmatic spent fuel management, regionalization by fuel type is endorsed provided that adequate transportation safeguards are applied and that groundwater is fully protected at all three sites.

10. Decision and Approval

This decision constitutes the Department's final programmatic action regarding spent nuclear fuel management. This decision does not constitute the final agency action for site-specific projects at the Idaho National Engineering Laboratory that are subject to further negotiations among the Environmental Protection Agency, the State of Idaho, and the Department of Energy under the Federal Facility Compliance Act, or those projects subject to further National Environmental Policy Act review.

Issued in Washington, D. C., this 30th day of May, 1995.

Hazel R. O'Leary,

Secretary of Energy.

Appendix

The following describes actions which will occur as a result of the programmatic spent nuclear fuel management decision and decisions on the waste management and environmental restoration programs at the Idaho National Engineering Laboratory. Volume 2, Appendix C, of the Environmental Impact Statement contains further detail on the projects described below.

Idaho National Engineering Laboratory Spent Nuclear Fuel Management

Implementation of the selected programmatic alternative, Regionalization by Fuel Type, results in consolidation of non aluminum-clad spent nuclear fuel (including Fort St. Vrain spent fuel) at the Idaho National Engineering Laboratory. Aluminum-clad spent nuclear fuel currently stored at the Idaho National Engineering Laboratory will be shipped to the Savannah River Site. Navy fuel will be transported to the Laboratory and continue to be examined at the Expended Core Facility and then stored at the Idaho Chemical Processing Plant. The Expended Core Facility Dry Cell Project will be implemented at the Naval Reactors Facility. Additional storage space at the Idaho Chemical Processing Plant will be gained by installing additional racks in the storage pools at Building CPP–666. Wet storage at Building CPP–603 will be phased out by transferring fuel to both Building CPP–666 and the Irradiated Fuel Storage Facility at the Idaho Chemical Processing Plant. New dry storage capacity will be constructed and phased in. Spent fuels currently stored at various locations at the Idaho National Engineering Laboratory will be consolidated at the Idaho Chemical Processing Plant facilities as funding allows. Idaho National Engineering Laboratory management efforts will be concentrated on placing spent fuel from aging facilities and future spent fuel receipts into new dry fuel storage systems with parallel emphasis on qualifying the spent fuel forms to emerging repository acceptance criteria. A new dry storage system for the storage of Three Mile Island fuel currently stored in an aging facility at Test Area North will be constructed upon receipt of any required approvals by the Nuclear Regulatory Commission. (This project is also the subject of an Environment Assessment.) The facility

construction and operation were included in the cumulative impacts analyzed in the Environmental Impact Statement.

The following spent nuclear fuel management projects and activities will be implemented at the Idaho National Engineering Laboratory as a result of the decision:

Increased Rack Capacity for Building 666 at the Idaho Chemical Processing Plant—Ensures the near-term capability of the Idaho Chemical Processing Plant to receive and store spent nuclear fuel by increasing the storage capability of three pools in the Fluorinel Dissolution Process and Fuel Storage Facility Building (CPP–666). This project involves replacing existing storage racks and rearranging fuel within the racks. This project will start in calendar year 1995.

Dry Fuel Storage Facility; Fuel Receiving, Canning/Characterization, and Shipping—A multi-functional project that will accommodate receipt and storage of the various fuel types currently in inventory at the Idaho National Engineering Laboratory and the fuels projected to be received at the Idaho National Engineering Laboratory. The project will assist in the safe, environmentally sound management of spent nuclear fuel until final disposition can be achieved. The project consists of two major facilities that will be integrated but that can be constructed in phases. One facility is the Fuel Receiving, Canning/Characterization, and shipping facility. The second facility is the Dry Fuel Storage Facility consisting of a Modular Aboveground Dry Storage system. Procurement is expected to start in 2002 with the facility becoming operational in 2004.

Fort St. Vrain Spent Nuclear Fuel Receipt and Storage—Implementation of this activity will involve the transportation, receipt, and storage (at the Idaho Chemical Processing Plant) of approximately 16 metric tons of Fort St. Vrain spent nuclear fuel from the Public Service Company of Colorado.

Expended Core Facility Dry Cell Project—This facility will be used to prepare naval spent nuclear fuel modules for examination and storage by removing the nonfuel structural section from the fuel. This activity is currently performed in water pools at the Expended Core Facility. The facility will be a shielded concrete structure with remotely operated equipment. The facility will be integral with the existing Expended Core Facility building. The contracting process for the Expended Core Facility Dry Cell Project is expected to resume in 1995.

Idaho National Engineering Laboratory Waste Management Program

As previously stated, the projects and actions needed to manage the waste and spent nuclear fuel associated with each alternative were identified in the Environmental Impact Statement. The following projects and activities associated with waste management for each of the waste types will be implemented as a result of the programmatic and site-specific decisions.

High-Level Radioactive Waste

Tank Farm Heel Removal Project—This project involves the design, procurement, and installation of equipment, and performance of necessary tank systems modifications in order to remove the liquid and solid heels from the 11 storage tanks in the Idaho Chemical Processing Plant tank farm. The schedule for heel removal will be included in a closure plan yet to be negotiated with the State of Idaho, but is anticipated to start about 2009.

Calcine Transfer Project—This project involves the design, procurement, and installation of equipment to retrieve calcined high-level waste from Bin Set #1 as the first step in developing and demonstrating equipment to retrieve and transfer calcined waste to the Waste Immobilization Facility. The schedule for this project depends on the schedule for the Waste Immobilization Facility to be negotiated under the Federal Facility Compliance Act.

Transuranic Waste

For purposes of this Record of Decision, ''transuranic waste'' also includes alpha low-level radioactive waste. Transuranic waste contains transuranic contamination over 100 nanoCuries/gram. Alpha low-level waste contains transuranic contamination of more than 10 nanoCuries/gram but less than 100 nc/g and has traditionally been managed at the Idaho National Engineering Laboratory as transuranic waste. These waste types are generally expected to be managed in the same manner; therefore, the projects and activities for the selected alternative are described together.

Transuranic Storage Area Enclosure and Storage Project—The potential environmental impacts of this project were evaluated by the Department in an Environmental Assessment and was the subject of a Finding of No Significant Impact. The project was included in the Environmental Impact Statement because it is an ongoing project that will begin operation during the period analyzed in the Environmental Impact Statement. This project involves the construction of a facility to retrieve and re-store transuranic waste to achieve compliance with Resource Conservation and Recovery Act requirements. The project includes both the Transuranic Storage Area Enclosure Facility project and the Storage Facility Project.

Waste Characterization Facility—This project involves the design, construction, and operation of a Waste Characterization Facility at the Radioactive Waste Management Complex. The Waste Characterization Facility will provide facilities to open containers of contact-handled alpha low-level waste, alpha mixed low-level waste, transuranic, mixed transuranic waste, and mixed low-level waste; obtain and examine samples; and repackage the characterized waste in an environment designed to contain alpha-type contamination.

Mixed Low-Level Radioactive Waste

Mixed low-level waste is currently managed on-site, and limited amounts have been treated/recycled or disposed of at commercial off-site facilities. Existing and newly generated Idaho National Engineering Laboratory mixed low-level waste would continue to be stored in existing facilities, pending on-site incineration and non-incineration treatment and off-site treatment, as needed. Prior to disposal, Idaho National Engineering Laboratory treated and untreated waste would be stored in existing facilities on-site. Other treated waste meeting the waste acceptance criteria for the Radioactive Waste Management Complex would be disposed of on-site. Treated waste will be stored until disposed of off-site in a Resource Conservation and Recovery Act Subtitle C disposal facility or until an on-site mixed waste disposal facility becomes operational.

Mixed waste management projects that will be implemented at the Idaho National Engineering Laboratory as a result of the decision are:

Waste Experimental Reduction Facility Incineration (restart)—The objective of the Waste Experimental Reduction Facility Incineration project for mixed low-level waste is to treat the waste to render it nonhazardous, or to meet the Land Disposal Restriction regulations. The project will modify the existing organic liquid waste injection system to provide the capability to incinerate either organic or aqueous waste through direct injection into the incinerator and to provide a location for liquid waste sampling, blending, and repackaging operations. The proposed

date of operations for the incineration of mixed low-level waste is June 1996.

Nonincinerable Mixed Waste Treatment Project—The general objective of this project is to provide treatment capabilities for some of the mixed low-level waste that is not suitable for incineration. This project will use several technologies including ion exchange (Portable Water Treatment Unit), stabilization, macroencapsulation, neutralization and mercury amalgamation/retort. This facility will be located at the Power Burst Facility/Auxiliary Reactor Area. The mixed low-level waste treatment units under this project are scheduled to begin operation at different dates from June 1998, through June 2000.

Sodium Processing Project—This project involves construction and operation of a process system to convert sodium hydroxide to a disposable waste form, sodium carbonate. The project will provide for a modification to the existing Sodium Process Facility. A thin film evaporator, operating with a carbon dioxide atmosphere, would be used for hydroxide to the carbonate conversion process. The sodium conversion system will be sized to be compatible with the existing elemental sodium-to-sodium-hydroxide processing rate. Auxiliary equipment for packaging the sodium and for recycling process water is included. The planned operational date for this facility is March 1997.

Low-Level Radioactive Waste

Low-level waste at the Idaho National Engineering Laboratory is being generated, treated on-site, treated off-site at commercial facilities, and disposed of on-site at the Radioactive Waste Management Complex. The Waste Experimental Reduction Facility Incineration project described below will be implemented at the Idaho National Engineering Laboratory as a result of the decision.

Waste Experimental Reduction Facility Incineration—This project will provide volume reduction of low-level waste by incineration. The incinerator is a dual-chambered, controlled-air combustion unit with a maximum rated combustion capacity of 5.5 million British Thermal Units per hour. This facility has operated for six years previously and will resume incinerating low-level waste in 1995.

Industrial/Sanitary Waste

The industrial waste program (which includes sanitary waste) manages nonhazardous and nonradioactive solid wastes generated during manufacturing or industrial processes. The waste generated at the Idaho National Engineering Laboratory is currently disposed of at the Central Facilities Area Landfill and the Bonneville County Landfill. The current Idaho National Engineering Laboratory disposal area is located in a 4.8-hectare (12-acre) gravel pit.

An active recycling program is helping to reduce the amount of industrial waste. This recycling program includes such activities as recycling office waste and scrap metal and converting scrap wood into mulch. Other ongoing efforts to reduce industrial waste include waste avoidance and waste segregation programs.

The Idaho National Engineering Laboratory will continue the existing industrial waste program, with continued emphasis on reducing the amount of industrial waste generated, through an intensive program of waste avoidance, recycling, and segregation. Continuation of the existing program will require an expansion of the industrial/commercial landfill. This project will extend the boundaries of the Central Facilities Area Landfill Complex to provide 91 additional hectares (225 acres) of land to provide capacity for industrial waste disposal and operations for at least the next 30 years. The Landfill Complex extension provides a centralized area for various functions, including waste minimization operations, treatment and disposal of petroleum-contaminated media, and recyclable collection and transportation.

Idaho National Engineering Laboratory Infrastructure Program

Infrastructure support is part of ensuring the continued safe operation of Idaho National Engineering Laboratory facilities. Infrastructure support at the Idaho National Engineering Laboratory includes general plant projects to maintain and upgrade the current facilities, buildings, roads, and utilities that support operations. Recent projects include a new transportation complex, upgrades to the sewer system, and a new electrical system.

The decision is to continue the existing infrastructure support program. Existing facilities will be upgraded to comply with applicable state and Department requirements. In addition, new infrastructure projects may be needed to support ongoing Idaho National Engineering Laboratory operations. The Idaho National Engineering Laboratory industrial landfill facilities may be expanded as discussed above in the Industrial/Sanitary Waste subsection. Gravel pits located at several locations around the Idaho National Engineering Laboratory will be expanded as described below.

Gravel Pit Expansions—This project will expand existing gravel borrow pit operations to provide gravel and fill material for existing and future road and other construction activities at the Idaho National Engineering Laboratory during the 10-year period from June 1995 to June 2005. Some examples are gravel and fill material in support of new construction for spent nuclear fuel consolidation at the Idaho Chemical Processing Plant, and gravel and fill to support capping areas at the existing landfill and at the Radioactive Waste Management Complex. A total of eight gravel pits and borrow areas are located at the Idaho National Engineering Laboratory. The future needs of the Idaho National Engineering Laboratory will result in most if not all of the areas being utilized to some extent.

Idaho National Engineering Laboratory Environmental Restoration Program

In selecting the Modified Ten-Year Plan alternative, the Department acknowledges the current industrial land use of the Idaho National Engineering Laboratory, but recognizes the need for flexibility to apply the criteria prescribed under the Comprehensive Environmental Response, Compensation and Liability Act in making cleanup decisions. All of the following projects have been previously reviewed in accordance with the National Environmental Policy Act and are at various stages of implementation.

Auxiliary Reactor Area Decontamination and Decommissioning—The Auxiliary Reactor Area-II consists of radiologically contaminated buildings, structures, utilities, and other miscellaneous items. This project will ensure the facilities are in a safe configuration to determine and execute appropriate decontamination activities and to decommission the facilities. This action will reduce the risk of radioactive exposure and eliminate the need for and cost of continued surveillance and maintenance.

Boiling Water Reactor Experiment Decontamination and Decommissioning—This project will remove the Boiling Water Reactor Experiment facility from the list of surplus facilities, remove or stabilize potential sources of contamination and reduce the risk of radioactive exposure, and eliminate the need for and cost of continued surveillance and maintenance.

Pit 9 Retrieval—Pit 9 is an Interim Action initiated under the Idaho

National Engineering Laboratory Federal Facility Agreement and Consent Order. The project will reduce the potential for exposure of workers, the public, and the environment to contaminants disposed in Pit 9; expedite the overall cleanup of the Radioactive Waste Management Complex at the Idaho National Engineering Laboratory; and reduce the potential for migration of Pit 9 wastes to the Snake River Plain Aquifer.

Organic Contamination in Vadose Zone Remediation—This project will prevent organic contaminant migration to the Snake River Plain Aquifer in groundwater contaminant concentrations exceeding acceptable risk levels and/or Federal and State maximum contaminant levels. Through the use of vapor-vacuum extraction, volatile organic contaminants found in the unsaturated hydrogeological zone (vadose zone) will be removed and treated.

Remediation of Organic Ground/Water Plume—This project will reduce the contamination in the vicinity of an injection well located in the Test Area North Technical Support Facility. Ground water will be extracted by pumping, contaminants will be removed from the ground water in a treatment facility, and the cleaned water will be discharged to a surface impoundment.

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