

6.0

Statutes,
Regulations,
Consultations,
and Other
Requirements



6.0

Statutes, Regulations, Consultations, and Other Requirements

This chapter discusses the consultations and coordination the U.S. Department of Energy (DOE) has had with various agencies during the preparation of this Environmental Impact Statement (EIS). This chapter also analyzes the complex regulatory issues that arise when considering the various alternatives discussed previously.

When reviewing this chapter, it is important to remember the following: in the Purpose and Need discussion in Chapter 2 of this EIS, DOE has described the challenges it faces with its *mixed* high-level waste (HLW) at the Idaho National Engineering and Environmental Laboratory (INEEL) and its additional

challenge with facilities associated with mixed HLW management. It also described the decisions it intends to make; however, some of the issues collateral to the DOE decisions cannot be made by DOE alone. Instead, those collateral matters must be subject to negotiation with and agreement by the State of Idaho and/or other regulators. For example, DOE expects to make a decision about the treatment of mixed HLW at INEEL; however, with respect to any decision on how the waste tanks at the Idaho Nuclear Technology and Engineering Center (INTEC) will be closed, that approach cannot be decided by DOE alone. Instead, the tank closure decision must be negotiated with the State in a separate series of activities.

6.1 Consultations and Coordination

This section highlights the consultation and coordination DOE conducted in preparing this EIS. DOE informed the public and consulted Federal agencies that have jurisdiction by law or special expertise and State agencies that are authorized to develop and enforce environmental standards. DOE also consulted with the Shoshone-Bannock Tribes because of the proximity of the Fort Hall Indian Reservation and the Tribes' vested interest in the cultural and natural values and use of the lands comprising and surrounding the INEEL.

Synopsis and Chronology of Consultation – In litigation that started in 1991, the State of Idaho argued that DOE had violated the National Environmental Policy Act, claiming that the environmental impacts from the transportation and storage of spent nuclear fuel at INEEL had not been fully analyzed. In response, DOE prepared the SNF & INEL EIS (DOE 1995), which was completed in April of 1995. The lawsuit was settled between DOE, the Department of the Navy, and the State of Idaho on October 17, 1995. The Federal District Court then imposed upon the parties a Consent Order (USDC 1995) that incorporated as requirements all of the terms and conditions of the Settlement Agreement. One element of the Settlement Agreement (E.6.) requires that by December 31, 1999, DOE shall commence negotiating a plan and schedule with

the State of Idaho for calcined waste treatment. DOE decided to prepare this EIS and to involve the State as a cooperating agency in order to negotiate the plan and schedule from an informed position that integrates the requirements of the INEEL Site Treatment Plan and takes into account the feasibility and environmental consequences of a reasonable range of treatment alternatives.

In anticipation that an EIS would be required to analyze the possible environmental impacts of managing mixed HLW, DOE met with the Shoshone-Bannock Tribes on June 2, 1997 at Fort Hall, Idaho to discuss the Tribes' role in the consultation process. On June 5, 1997 the DOE Idaho Operations Office sent a letter to the Chairman of the Fort Hall Business Council to request an opportunity to brief the Business Council on the anticipated EIS and its scope.

On June 9, 1997, the Manager of the DOE Idaho Operations Office (DOE-ID) signed a determination that an EIS is required to analyze alternatives and assist in deciding a course of action for the management and treatment of INEEL mixed HLW and the ultimate disposition of HLW facilities. On September 15, 1997, the DOE Principal Deputy Assistant Secretary for Environment, Safety and Health signed a Notice of Intent stating that the Idaho HLW & FD EIS would be prepared; this Notice of Intent was published in the Federal Register on September 19, 1997 (62 FR 49209).

The Notice of Intent announced that public scoping on this EIS would run from September 19, 1997 to November 24, 1997, a period of sixty-six days. During this period, public scoping activities included open houses; booths and displays at shopping malls throughout southern Idaho; talks to schools and civic groups; individual briefings and interviews with key stakeholders such as government and tribal officials, interest groups, INEEL employees, and the INEEL Citizens Advisory Board. One formal public scoping meeting was held in Boise and another in Idaho Falls, Idaho. At the meetings, DOE officials and the State's Coordinator-Manager of the INEEL Oversight Program presented overviews of the EIS from their respective points of view. During the scoping period, DOE received more than 900 comments representing 49 issue categories. DOE prepared

a Scoping Activity Report that describes the process and shows how scoping input was categorized and used in preparing the EIS (DOE 1998).

In a letter dated November 25, 1997, DOE-ID requested a species list from the Snake River Basin Office, Columbia River Basin Ecoregion of the U.S. Fish and Wildlife Service. This request is part of the informal consultation process under Section 7 of the Endangered Species Act. The purpose of the request is to assist DOE in identifying any threatened or endangered species or critical habitat that may be affected by the actions analyzed in the EIS. In a letter dated December 16, 1997, the U.S. Fish and Wildlife Service replied that given the general nature of the proposal, it was their preliminary determination that the proposed action would be unlikely to impact any species listed under the Endangered Species Act.

On January 26, 1998, members of the Idaho HLW & FD EIS project staff met with the Shoshone-Bannock Tribes Cultural Committee. The meeting was to provide some educational background to EIS Project Staff and other DOE specialists on the Tribal concept of cultural resources to assist in the development of a better EIS. On April 6, 1998, EIS project staff met with the Fort Hall Business Council to discuss the purpose of this EIS and the involvement and role of the Tribes in preparing the EIS.

In early 1998, DOE commissioned the National Academy of Sciences' National Research Council to conduct an independent assessment of INEEL's HLW management program and alternative treatment technologies being considered. The Council held two public meetings in Idaho Falls. The purpose and theme of the first meeting, held August 17 to 19, 1998, was for the Council and interested public to gain an understanding of the history of HLW management and the known problems and treatment options. The purpose of the second meeting, held October 1 and 2, 1998, was to concentrate on the technical details of the treatment options presented in the August meeting. *In 1999, the Council issued Alternative High-Level Waste Treatments at the Idaho National Engineering and Environmental Laboratory (NAS 1999). This report, summarized in Appendix B of this EIS, evaluated technologies for treating the mixed transuranic waste/SBW at the INEEL.*

During DOE's initial activities preparing the EIS, it became apparent that the State of Idaho had special expertise and perspectives that could assist DOE in its data gathering and analysis activities. From the perspective of DOE it was advantageous to obtain input from the State on the regulatory implications of implementing the various alternatives considered in this EIS as early as possible in the process. From the State's perspective, early consideration of the regulatory implications and consideration of the technical aspects of the alternatives by State experts would improve this EIS and facilitate DOE's progress toward meeting the legal requirements of the Idaho Settlement Agreement/Consent Order. To formalize the role of the State of Idaho in providing this assistance, the State entered into a Memorandum of Understanding with DOE on September 24, 1998 to serve as a cooperating agency in the preparation of this EIS.

On January 28, 1999, DOE sent a second letter to the U.S. Fish and Wildlife Service to ask if any conditions with regard to endangered or threatened species or critical habitat had changed in the year since the U.S. Fish and Wildlife Service response of December 16, 1997. In a letter dated February 11, 1999 the U.S. Fish and Wildlife Service again replied that it was their preliminary determination that, given the general nature of the proposal, the project would be unlikely to adversely impact any species listed under the Endangered Species Act.

In a February 4, 1999, letter to the Chairman of the Shoshone-Bannock Tribal Business Council, DOE asked the Tribes to review the most recent internal draft version of the Affected Environment section of this EIS. The purpose of the request was to assure that the Tribe's input to date had been accurately and completely incorporated and that the Tribe's interests, concerns, and intentions were accurately reflected. On April 22, 1999, the Director of the Tribes' DOE Office indicated in a phone message that neither he nor the Heritage Tribal Office had any comments.

In a letter dated March 1, 1999, DOE-ID notified the State Historic Preservation Officer that DOE would be issuing this EIS. The letter stated that prior to the initiation of any activities that might affect cultural resources, DOE intended to con-

sult under Section 106 of the National Historic Preservation Act.

DOE provided a variety of notifications and opportunities for the public to review and comment on the Draft EIS. Table 6-1 provides a list of these public involvement activities. In the Comment Response Document, Chapter 11, DOE and the State of Idaho summarize the comments received and provide responses to those summaries. The comment documents are provided in Appendix D.

6.2 Pertinent Federal and State Statutes, Regulations, and Restrictions

This section identifies and summarizes the major statutes (both state and Federal), regulations, executive orders, and DOE Orders that may apply to the proposed action and alternatives at INEEL. This section also provides information concerning DOE's compliance with these requirements.

6.2.1 PLANNING AND CONSULTATION REQUIREMENTS

National Environmental Policy Act of 1969, as amended (42 USC 4321 et seq.), – The National Environmental Policy Act requires agencies of the Federal Government to prepare EISs on potential impacts of proposed major Federal actions that may significantly affect the quality of the human environment.

DOE has prepared this EIS in accordance with the requirements of the National Environmental Policy Act as implemented by Council on Environmental Quality regulations (40 CFR Parts 1500 through 1508) and DOE National Environmental Policy Act regulations (10 CFR Part 1021).

Executive Order 11514, National Environmental Policy Act, Protection and Enhancement of Environmental Quality – This Order directs Federal agencies to monitor and control their activities continually to protect and enhance the

quality of the environment. The Order also requires the development of procedures both to ensure the fullest practicable provision of timely public information and understanding of Federal plans and programs with environmental impacts, and to obtain the views of interested parties.

American Indian Religious Freedom Act of 1978 (42 USC 1996) – The American Indian Religious Freedom Act reaffirms Native American religious freedom under the First Amendment and establishes policy to protect and preserve the inherent and constitutional right of Native Americans to believe, express and exercise their traditional religions. This law ensures the protection of sacred locations and access of Native Americans to those sacred locations and traditional resources that are integral to the practice of their religions. Further, it establishes requirements that would apply to Native American sacred locations, traditional religious practices potentially affected by the construction and operation of any alternatives analyzed in this EIS.

Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001) – The Native American Graves Protection and Repatriation Act directs the Secretary of the Interior to guide the repatriation of Federal archaeological collections and collections that are culturally affiliated with Native American tribes and held by museums that receive Federal funding. Major actions to be taken under this law include (1) the establishment of a review committee with monitoring and policymaking responsibilities, (2) the development of regulations for repatriation, including procedures for identifying lineal descent or cultural affiliation needed for claims, (3) the oversight of museum programs designed to meet the inventory requirements and deadlines of this law, and (4) the development of procedures to handle unexpected discoveries of graves or grave goods during activities on Federal or tribal land. The provisions of the Act would be invoked if any excavations associated with the selected action led to unexpected discoveries of Native American graves or grave artifacts.

Endangered Species Act, as amended (16 USC 1531 et seq.) – The Endangered Species Act provides a program for the conservation of threatened and endangered species and the ecosystems

Table 6-1. Draft EIS public involvement activities.

<i>Activity</i>	<i>Date</i>	<i>Location</i>	<i>Number of stakeholders</i>
Public hearings			
<i>Idaho Falls hearing</i>	<i>February 7, 2000</i>	<i>Shilo Inn</i>	<i>75</i>
<i>Pocatello hearing</i>	<i>February 8, 2000</i>	<i>Idaho State University</i>	<i>16</i>
<i>Jackson Hole hearing</i>	<i>February 9, 2000</i>	<i>Snow King Resort</i>	<i>103</i>
<i>Twin Falls hearing</i>	<i>February 15, 2000</i>	<i>College of Southern Idaho</i>	<i>15</i>
<i>Boise hearing</i>	<i>February 17, 2000</i>	<i>Doubletree Riverside</i>	<i>19</i>
<i>Portland hearing</i>	<i>February 22, 2000</i>	<i>Doubletree Lloyd Center</i>	<i>8</i>
<i>Pasco hearing</i>	<i>February 24, 2000</i>	<i>Doubletree Pasco</i>	<i>20</i>
<i>Fort Hall hearing</i>	<i>March 2, 2000</i>	<i>Tribal Business Center</i>	<i>22</i>
Press releases and media advisories			
<i>Draft EIS availability, comment period</i>	<i>January 21, 2000</i>	<i>Regional media</i>	<i>NA</i>
<i>Addition of the Fort Hall hearing</i>	<i>February 7, 2000</i>	<i>Regional media</i>	<i>NA</i>
<i>Portland and Pasco hearings</i>	<i>February 14, 2000</i>	<i>Portland & Pasco media</i>	<i>NA</i>
<i>Extension of the public comment period</i>	<i>February 17, 2000</i>	<i>Regional media</i>	<i>NA</i>
<i>Close of the public comment period</i>	<i>April 13, 2000</i>	<i>Regional media</i>	<i>NA</i>
Display advertising announcing Draft EIS availability and hearings			
<i>Willamette Weekly</i>	<i>February 9, 2000</i>	<i>Willamette Valley, Oregon</i>	<i>NA</i>
<i>Oregonian</i>	<i>February 6, 2000</i>	<i>Portland</i>	<i>NA</i>
<i>East Oregonian</i>	<i>February 5, 2000</i>	<i>Eastern Oregon</i>	<i>NA</i>
<i>Tri-City Herald</i>	<i>February 6, 2000</i>	<i>Eastern Washington</i>	<i>NA</i>
<i>Spokesman Review</i>	<i>February 6, 2000</i>	<i>Spokane</i>	<i>NA</i>
<i>Lewiston Morning Tribune</i>	<i>February 6, 2000</i>	<i>Lewiston</i>	<i>NA</i>
<i>The Post Register</i>	<i>January 23, 2000</i>	<i>Idaho Falls</i>	<i>NA</i>
<i>Teton Valley News</i>	<i>January 27, 2000</i>	<i>Driggs/Victor/Tetonia</i>	<i>NA</i>
<i>Arco Advertiser</i>	<i>January 27, 2000</i>	<i>Arco</i>	<i>NA</i>
<i>The Idaho State Journal</i>	<i>January 24, 2000</i>	<i>Pocatello</i>	<i>NA</i>
<i>Jackson Hole News</i>	<i>January 26, 2000</i>	<i>Jackson</i>	<i>NA</i>
<i>Jackson Guide</i>	<i>February 23, 2000</i>	<i>Jackson</i>	<i>NA</i>
<i>West Yellowstone News</i>	<i>February 3, 2000</i>	<i>West Yellowstone, Montana</i>	<i>NA</i>
<i>Twin Falls Times News</i>	<i>January 31, 2000</i>	<i>Twin Falls</i>	<i>NA</i>
<i>Wood River Journal</i>	<i>February 2, 2000</i>	<i>Hailey/Ketchum/Sun Valley</i>	<i>NA</i>
<i>Idaho Mountain Express</i>	<i>February 2, 2000</i>	<i>Hailey/Ketchum/Sun Valley</i>	<i>NA</i>
<i>The Idaho Statesman</i>	<i>February 2, 2000</i>	<i>Boise</i>	<i>NA</i>

Table 6-1. Draft EIS public involvement activities (continued).

<i>Activity</i>	<i>Date</i>	<i>Location</i>	<i>Number of stakeholders</i>
<i>Sho-Ban News</i>	<i>February 24, 2000</i>	<i>Fort Hall</i>	<i>NA</i>
<i>The Morning News</i>	<i>February 19, 2000</i>	<i>Blackfoot</i>	<i>NA</i>
<i>Missoula Independent</i>	<i>January 27, 2000</i>	<i>Missoula, Montana</i>	<i>NA</i>
<i>Butte Weekly</i>	<i>January 26, 2000</i>	<i>Butte, Montana</i>	<i>NA</i>
<i>Argus Observer</i>	<i>February 6, 2000</i>	<i>Ontario, Oregon</i>	<i>NA</i>
<i>Salt Lake Tribune</i>	<i>January 30, 2000</i>	<i>Salt Lake City, Utah</i>	<i>NA</i>
<i>Wyoming Tribune Eagle</i>	<i>January 23, 2000</i>	<i>Cheyenne, Wyoming</i>	<i>NA</i>
<i>Daily Rocket</i>	<i>January 29, 2000</i>	<i>Rock Springs, Wyoming</i>	<i>NA</i>
<i>Laramie Boomerang</i>	<i>January 30, 2000</i>	<i>Laramie, Wyoming</i>	<i>NA</i>
<i>Denver Rocky Mountain News</i>	<i>January 30, 2000</i>	<i>Denver, Colorado</i>	<i>NA</i>
<i>Las Vegas Review Journal</i>	<i>January 30, 2000</i>	<i>Las Vegas, Nevada</i>	<i>NA</i>
<i>Carlsbad Current Argus</i>	<i>January 30, 2000</i>	<i>Carlsbad, New Mexico</i>	<i>NA</i>
<i>Albuquerque Journal</i>	<i>January 30, 2000</i>	<i>Albuquerque, New Mexico</i>	<i>NA</i>
Radio spots announcing public hearings			
<i>KLCE-FM/KOSZ-FM</i>	<i>February 4, 2000</i> <i>February 5, 2000</i> <i>February 7, 2000</i>	<i>Idaho Falls/Blackfoot/ Pocatello areas</i>	<i>NA</i>
<i>KID-AM/FM</i>	<i>February 4, 2000</i> <i>February 5, 2000</i> <i>February 7, 2000</i>	<i>Idaho Falls/Blackfoot/ Pocatello areas</i>	<i>NA</i>
<i>La Super Caliente/KID-AM/FM</i>	<i>February 5, 2000</i> <i>February 6, 2000</i>	<i>Idaho Falls/Blackfoot/ Pocatello areas</i>	<i>NA</i>
<i>KECH/KSKI</i>	<i>February 12, 2000</i> <i>February 14, 2000</i> <i>February 15, 2000</i>	<i>Ketchum/Sun Valley/ Twin Falls areas</i>	<i>NA</i>
<i>KMTN/KSGT</i>	<i>February 7, 2000</i> <i>February 8, 2000</i> <i>February 9, 2000</i>	<i>Jackson area</i>	<i>NA</i>
<i>KZJH</i>	<i>February 7, 2000</i> <i>February 8, 2000</i> <i>February 9, 2000</i>	<i>Jackson area</i>	<i>NA</i>
<i>KUFO-FM</i>	<i>February 21, 2000</i> <i>February 22, 2000</i>	<i>Portland area</i>	<i>NA</i>
<i>KONA-AM/FM/KXRX/KEYW</i>	<i>February 22, 2000</i> <i>February 23, 2000</i> <i>February 24, 2000</i>	<i>Richland/Tri-Cities area</i>	<i>NA</i>
<i>KIDO</i>	<i>February 15, 2000</i> <i>February 16, 2000</i> <i>February 17, 2000</i>	<i>Boise area</i>	<i>NA</i>
Postcards			
<i>To request copies of the Draft EIS</i>	<i>June 1999</i>	<i>Nationwide</i>	<i>6,144</i>
Toll-free Line			
<i>Information or document requests</i>	<i>January- November, 2000</i>	<i>Nationwide</i>	<i>89</i>

Table 6-1. Draft EIS public involvement activities (continued).

<i>Activity</i>	<i>Date</i>	<i>Location</i>	<i>Number of stakeholders</i>
Stakeholder briefings			
<i>Daryl Siemer</i>	<i>January 10, 2000</i>	<i>Idaho Falls</i>	<i>1</i>
<i>Stan Hobson</i>	<i>January 11, 2000</i>	<i>Idaho Falls</i>	<i>1</i>
<i>Site union representative</i>	<i>January 13, 2000</i>	<i>Idaho Falls</i>	<i>1</i>
<i>Wayne Pierre, EPA</i>	<i>January 14, 2000</i>	<i>Teleconference</i>	<i>1</i>
<i>Jennifer Langston, Post Register</i>	<i>January 14, 2000</i>	<i>Idaho Falls</i>	<i>1</i>
<i>Idaho congressional staffs</i>	<i>January 18, 2000</i>	<i>Idaho Falls</i>	<i>6</i>
<i>Shoshone-Bannock Tribes</i>	<i>January 19, 2000</i>	<i>Fort Hall</i>	<i>14</i>
<i>Snake River Alliance</i>	<i>January 21, 2000</i>	<i>Pocatello</i>	<i>2</i>
<i>Wyoming congressional staffs</i>	<i>January 25, 2000</i>	<i>Jackson</i>	<i>4</i>
<i>INEEL Citizens Advisory Board</i>	<i>January 26, 2000</i>	<i>Boise</i>	<i>20</i>
<i>Representative M. Simpson's staff</i>	<i>January 26, 2000</i>	<i>Idaho Falls</i>	<i>1</i>
<i>University of Idaho class</i>	<i>February 1, 2000</i>	<i>Idaho Falls</i>	<i>8</i>
<i>INTEC employees open house</i>	<i>February 3, 2000</i>	<i>INEEL Site</i>	<i>88</i>
<i>Hanford Advisory Board subcommittee</i>	<i>February 3, 2000</i>	<i>Kennewick, Washington</i>	<i>6</i>
<i>Washington Congressional staffs</i>	<i>February 3, 2000</i>	<i>Richland, Washington</i>	<i>6</i>
<i>Mayor Linda Milam</i>	<i>February 7, 2000</i>	<i>Idaho Falls</i>	<i>1</i>
<i>Jackson Hole Alternative High School</i>	<i>February 9, 2000</i>	<i>Jackson</i>	<i>20</i>
<i>Keep Yellowstone Nuclear Free</i>	<i>February 10, 2000</i>	<i>Jackson</i>	<i>4</i>
<i>Teton County Commissioners</i>	<i>February 10, 2000</i>	<i>Jackson</i>	<i>5</i>
<i>Coalition 21</i>	<i>February 11, 2000</i>	<i>Idaho Falls</i>	<i>16</i>
<i>Senator L. Craig's staff</i>	<i>February 25, 2000</i>	<i>Washington DC</i>	<i>3</i>
Distribution			
<i>Summaries</i>	<i>January 2000</i>		<i>1971</i>
<i>Draft EIS (complete)</i>	<i>January 2000</i>		<i>897</i>

NA = not applicable.

on which those species rely. If a proposed action could adversely affect threatened or endangered species or their habitat, the Federal agency must assess the potential impacts and develop measures to minimize those impacts. The agency then must consult with the U.S. Fish and Wildlife Service (part of the U.S. Department of the Interior) and the National Marine Fisheries Service (part of the Department of Commerce), as required under Section 7 of the Act. The outcome of this consultation may be a biological opinion by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service that states whether the proposed action would jeopardize the continued existence of the species under consideration. If there is non-jeopardy opinion, but if some individuals might be killed incidentally as a result of the proposed action, the Services

can determine that such losses are not prohibited as long as measures outlined by the Services are followed. Regulations implementing the Endangered Species Act are codified at 50 CFR Part 15 and 402. For this EIS, DOE consulted with the U.S. Fish and Wildlife Service regarding impacts on any species listed under the Endangered Species Act. The outcome of this consultation was the U.S. Fish and Wildlife Service's determination that the project was unlikely to adversely impact any listed species.

National Historic Preservation Act, as amended (16 USC 470 et seq.) – The National Historic Preservation Act provides for the placement of sites with significant national historic value on the *National Register of Historic Places*. It requires no permits or certifications.

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DOE would evaluate activities associated with the selected action to determine if they would affect historic resources. If required after this evaluation, the Department would consult with the Advisory Council on Historic Preservation and the Idaho State Historic Preservation Officer. Such consultations generally result in the development of an agreement that includes stipulations to be followed to minimize or mitigate potential adverse impacts to a historic resource. DOE has notified the State Historic Preservation Office of its intent to consult on this project. Executive Order 11593 provides further guidance to Federal agencies on implementing this Act.

Archaeological Resources Protection Act, as amended (16 USC 470aa et seq.) – The Archaeological Resources Protection Act requires a permit for excavation or removal of archaeological resources from publicly held or Native American lands. Excavations must further archaeological knowledge in the public interest, and the resources removed are to remain the property of the United States. Requirements of the Archaeological Resources Protection Act would apply to any excavation activities that resulted in identification of archaeological resources.

Executive and DOE Orders – Executive Orders and DOE Orders to be considered in planning a Federal action include the following:

- **Executive Order 12088 [Federal Compliance with Pollution Control Standards (October 13, 1978), as amended by Executive Order 12580 (January 23, 1987)]** – This Order generally directs federal agencies to comply with applicable administrative and procedural pollution control standards established by, but not limited to, the Clean Air Act, Noise Control Act, Clean Water Act, Safe Drinking Water Act, Toxic Substances Control Act, and Resource Conservation and Recovery Act (RCRA). Compliance with these orders, as applicable, would be required for a range of DOE activities associated with the proposed action and alternatives.



- **Executive Order 12898 (Environmental Justice)** – This Order directs Federal agencies, to the extent practicable, to make the achievement of environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations in the United States and its territories and possessions. The order provides that the Federal agency responsibilities it establishes are to apply equally to Native American programs.
- **Executive Order 13045 (Protection of Children from Environmental Health Risks and Safety Risks)** – Because of the growing body of scientific knowledge that demonstrates that children may suffer disproportionately from environmental health and safety risks, Executive Order 13045 directs each Federal agency to make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children.
- **Executive Order 12699 (Seismic Safety)** – This Order requires Federal agencies to reduce risks to the lives of occupants of buildings owned, leased, or purchased by the Federal Government or buildings constructed with Federal assistance and to persons who would be affected by failures of Federal buildings in earthquakes, to improve the capability of existing Federal buildings to function during or after an earthquake, and to reduce earthquake losses of public buildings, all in a cost-effective manner. Each Federal agency responsible for the design and construction of a Federal building shall ensure that the building is designed and constructed in accordance with appropriate seismic design and construction standards.
- **DOE Order 5400.1 (General Environmental Protection Program)** – This Order establishes environmental protection program requirements, authorities, and responsibilities for DOE operations

for ensuring compliance with applicable Federal, state, and local environmental protection laws and regulations as well as internal DOE policies.

Future Coordination and Consultation Activities. Activities proposed in this EIS might result in the unlikely situation where unexpected cultural resources are found and could be impacted adversely. Should that occur, additional consultation and coordination would take place prior to any actions being carried out. Likewise, there are actions analyzed in this EIS that require ongoing coordination between DOE, the State of Idaho, and the U.S. Environmental Protection Agency (EPA) with regard to environmental restoration and facility disposition at INTEC. Where applicable, in accordance with the 1994 Secretarial Policy on the National Environmental Policy Act, documentation prepared for Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) activities at INTEC will incorporate the National Environmental Policy Act values as practical. The combined impacts of facility disposition under the alternatives analyzed in this EIS and the residual impacts of the CERCLA remedial actions at INTEC are analyzed in the Cumulative Impacts Section (Section 5.4) of this EIS.

6.2.2 RADIOACTIVE MATERIALS AND REPOSITORIES

Atomic Energy Act of 1954, as amended (42 USC 2011 et seq.) – The Atomic Energy Act, as amended, provides fundamental jurisdictional authority to DOE and the Nuclear Regulatory Commission over governmental and commercial use of nuclear materials. The Atomic Energy Act ensures proper management, production, possession, and use of radioactive materials. It gives the Nuclear Regulatory Commission specific authority to regulate the possession, transfer, storage, and disposal of nuclear materials, as well as aspects of transportation packaging design requirements for radioactive materials, including testing for packaging certification. Commission regulations applicable to the transportation of radioactive materials (10 CFR Part 71 and 73) require that shipping casks meet specified performance criteria under both normal transport and hypothetical accident conditions.

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The Atomic Energy Act provides DOE the authority to develop generally applicable standards for protecting the environment from radioactive materials. In accordance with the Atomic Energy Act, DOE has established a system of requirements that it has issued as DOE Orders.

DOE Orders and regulations issued under authority of the Atomic Energy Act include the following:

- **DOE Order 435.1 (Radioactive Waste Management)** – This Order and its associated Manual and Guidance establish authorities, responsibilities, and requirements for the management of DOE HLW, transuranic waste, low-level waste, and the radioactive component of mixed waste. Those documents provide detailed HLW management requirements including waste incidental to reprocessing determinations; waste characterizations, certification, storage, treatment, and disposal; and HLW facility design and closure.
- **DOE Order 440.1A (Worker Protection Management for DOE Federal and Contractor Employees)** – This Order establishes the framework for an effective worker protection program that will reduce or prevent injuries, illnesses, and accidental losses by providing DOE Federal and contractor workers with a safe and healthful workplace.
- **DOE Order 5400.5 (Radiation Protection of the Public and the Environment)** – This Order establishes standards and requirements for DOE and DOE contractors with respect to protection of members of the public and the environment against undue risk from radiation. The requirements of this Order are also codified in the proposed 10 CFR Part 834, Radiation Protection of the Public and the Environment.
- **DOE Order 414.1 (Quality Assurance)** – This Order sets forth DOE policy, sets forth requirements, and assigns responsibilities for establishing, implementing,

and maintaining plans and actions to assure quality achievement in DOE programs. Requirements from this Order for nuclear facilities were also issued April 5, 1994, under 10 CFR Part 830.120, Quality Assurance.

Nuclear Waste Policy Act of 1982, as amended (42 USC 10101, et seq.) – The Nuclear Waste Policy Act directs the EPA to promulgate generally applicable standards for protection of the environment from offsite releases from radioactive material in repositories. It also requires the Nuclear Regulatory Commission to consider and approve or disapprove an application (if DOE submits one) for authorization to construct a repository and for a license to receive and possess spent nuclear fuel and high-level radioactive waste in a repository. The Nuclear Regulatory Commission licensing requirements, found at 10 CFR 60, contain criteria governing the issuance of a construction authorization and license for a geologic repository. The Nuclear Regulatory Commission regulations at 10 CFR 51.67 establish the basic requirements for DOE's EIS that will be used in its geologic repository license application. In addition, the Nuclear Waste Policy Act directs DOE to characterize and evaluate the suitability of the Yucca Mountain site as a potential geologic repository for the disposal of spent nuclear fuel and HLW. After considering the suitability of the site and other information, the Secretary may then recommend approval of the site to the President.

Energy Policy Act of 1992 (PL 102-486) – Section 801 (a) of the Energy Policy Act of 1992 directed EPA (1) to retain the National Academy of Sciences to make findings and recommendations on reasonable public health and safety standards for a geologic repository, and (2) to establish specific standards based on and consistent with these findings and recommendations. The DOE repository design must meet Nuclear Regulatory Commission requirements for demonstrating compliance with EPA standards. The National Academy of Sciences issued its findings and recommendations in a 1995 report (National Research Council 1995). EPA *considered the National Academy of Sciences' findings and recommendations in establishing* its final standards at 40 CFR Part 197 (*66FR 32074; June 13, 2001*).

Section 801 (b) of the Energy Policy Act directs the Nuclear Regulatory Commission to revise its general technical requirements and criteria for geologic repositories (10 CFR Part 60) to be consistent with the standard established by the EPA. In **November 2001**, the Nuclear Regulatory Commission issued site-specific technical requirements and criteria (10 CFR Part 63). The Commission **will** use these requirements and criteria to approve or disapprove an application to construct a repository to receive and possess spent nuclear fuel at such a repository, and to close and decommission such a repository.

Waste Isolation Pilot Plant Land Withdrawal Act (P.L. 102-579) and the Waste Isolation Pilot Plant Land Withdrawal Act Amendments (P.L. 104-201) – The Waste Isolation Pilot Plant Land Withdrawal Act withdrew land from the public domain for the purposes of creating and operating the Waste Isolation Pilot Plant, the geologic repository in New Mexico designated as the national disposal site for defense transuranic waste. In addition to establishing the location for the facility, the Land Withdrawal Act also defines the characteristics and amount of waste that will be disposed of at the facility. The Amendments to the Waste Isolation Pilot Plant Land Withdrawal Act exempt waste to be disposed of at the Waste Isolation Pilot Plant from the RCRA land disposal restrictions. Any waste sent to the Waste Isolation Pilot Plant would have to comply with the document *Waste Acceptance Criteria for the Waste Isolation Pilot Plant* (DOE 1996).

10 CFR Part 61 – The regulations in 10 CFR Part 61 establish, for land disposal of low-level radioactive waste, the procedure, criteria, and terms and conditions upon which the Nuclear Regulatory Commission issues licenses for the disposal of radioactive waste containing byproduct, source, and special nuclear material. These regulations do not apply to HLW but do apply to low-level waste designated as Class A, Class B, and Class C radioactive waste. Disposal facilities for radioactive waste other than DOE-regulated facilities would have to obtain a Nuclear Regulatory Commission or agreement state license and comply with these regulations.

10 CFR Part 63 – These regulations contain the site-specific technical criteria for the licensing

and operation of the **proposed** repository at Yucca Mountain. The Nuclear Regulatory Commission's **regulations at 10 CFR Part 63** would apply only to the repository at Yucca Mountain and the existing generic regulations at 10 CFR 60 would remain in place and would not apply to the repository at Yucca Mountain.

40 CFR Part 197 - These regulations contain site-specific public health and safety standards governing storage or disposal of radioactive material within the proposed repository at Yucca Mountain.

Permits or Licenses Required – Any repository for HLW sited under the Nuclear Waste Policy Act would be required to be licensed by the Nuclear Regulatory Commission. DOE-managed activities currently taking place at a DOE-owned facility do not require a permit or license from the Nuclear Regulatory Commission. Nuclear Regulatory Commission licensing is also required for the containers in which waste will be shipped to a repository. Cask development and testing activities have been ongoing at the national level to support a licensing determination.

6.2.3 AIR QUALITY PROTECTION AND NOISE

Clean Air Act, as amended (42 USC 7401 et seq.) – The Clean Air Act is intended to "protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population." Section 118 of the Act requires Federal agencies such as DOE, with jurisdiction over any property or facility that might result in the discharge of air pollutants, to comply with "all Federal, state, interstate, and local requirements" related to the control and abatement of air pollution.

The Clean Air Act requires the EPA to establish National Ambient Air Quality Standards to protect public health, with an adequate margin of safety, from any known or anticipated adverse effects of a regulated pollutant (42 USC 7409). It also requires the establishment of national standards of performance for new or modified stationary sources of atmospheric pollutants (42 USC 7411) and the evaluation of specific emis-

sion increases to prevent a significant deterioration in air quality (42 USC 7470). In addition, the Clean Air Act regulates emissions of hazardous air pollutants, including radionuclides, through the National Emission Standards for Hazardous Air Pollutants program (40 CFR Parts 61 and 63). Air emission standards are established at 40 CFR Parts 50 through 99. The following describes four key aspects of the Clean Air Act.

- **Prevention of Significant Deterioration** – Prevention of Significant Deterioration, as defined by the Clean Air Act, applies to major stationary sources and is designed to permanently limit the degradation of air quality from specific pollutants in areas that meet attainment standards. The Prevention of Significant Deterioration regulations apply to new construction and to major modifications made to stationary sources. A major modification is defined as a net increase in emissions beyond thresholds listed at 40 CFR 51.166(b)(23) and IDAPA 58.01.01 Section 581. Construction or modifications of facilities that fall under this classification are subject to a preconstruction review and permitting under the program that is outlined in the Clean Air Act. In order to receive approval, DOE must show that the source (1) will comply with ambient air quality levels designed to prevent deterioration of air quality, (2) will employ “best available control technology” for each pollutant regulated under the Clean Air Act that will emit significant amounts, and (3) will not adversely affect visibility.
- **Title V Operating Permit** – Congress amended the Clean Air Act in 1990 to include requirements for a comprehensive operating permit program. Title V of the 1990 amendments requires EPA to develop a Federally enforceable operating permit program for air pollution sources to be administered by the state and/or local air pollution agencies. The purpose of this permit program is to consolidate in a single document all of the Federal and state regulations applicable

to a source, in order to facilitate source compliance and enforcement. The EPA promulgated regulations at Section 107 and 110 of the Clean Air Act that define the requirements for state programs.

- **Hazardous Air Pollutants** – Hazardous air pollutants are substances that may cause health and environmental effects at low concentrations. Currently, 189 compounds have been identified as hazardous air pollutants. A major source is defined as any stationary source, or a group of stationary sources located within a contiguous area under common control, that emits or has the potential to emit at least 10 tons per year of any single hazardous air pollutant or 25 tons per year of a combination of pollutants.

The 1990 amendments to the Clean Air Act substantially revised the program to regulate potential emissions of hazardous air pollutants. The aim of the new control program is to require state-of-the-art pollution control technology on most existing and all new emission sources. These provisions regulate emissions by promulgating emissions limits reflecting use of the maximum achievable control technology. These emission limits are then incorporated into a facility’s operating permit.

- **National Emission Standards for Hazardous Air Pollutants for Radionuclides** – Radionuclide emissions other than radon from DOE facilities are also covered under the National Emission Standards for Hazardous Air Pollutants program (40 CFR 61.90-97). To determine compliance with the standard, an effective dose equivalent value for the maximally exposed members of the public is calculated using EPA-approved sampling procedures, computer models, or other EPA-approved procedures.

Any fabrication, erection, or installation of a new building or structure within a facility that emits pollutants in excess of 0.1 millirem per year would require that an application be submitted to EPA.

This application must include the name of the applicant, the location or proposed location of the source, and technical information describing the source. If the application is for a modification of an existing facility, information provided to EPA must include the precise nature of the proposed changes, the productive capacity of the source before and after the changes are completed, and calculations of estimates of emissions before and after the changes are completed.

Responsibilities for Regulation of Air Quality – Under EPA regulations, the State of Idaho has been delegated authority under the Clean Air Act to maintain the Primary and Secondary National Ambient Air Quality Standards (40 CFR Part 52, Subpart N), to issue permits under the Prevention of Significant Deterioration (40 CFR Part 52.683), to enforce performance standards for new stationary sources, and to issue permits to operate. The State of Idaho also administers a permit program that regulates sources that are too small to qualify as a major source under Prevention of Significant Deterioration. To date, the State of Idaho does not have authority delegated from EPA to administer the National Emission Standards for Hazardous Air Pollutants program regulating emissions of radionuclides at DOE facilities, so that authority remains with EPA (40 CFR 61.90 through 61.97). In addition to radionuclides, the National Emission Standards for Hazardous Air Pollutants program includes a limit for asbestos during demolition and renovation activities (40 CFR 61.145) that is likely to be important to the facility disposition alternatives considered in this EIS. *EPA Region X has approved the Idaho Department of Environmental Quality's request for program approval and delegation of authority to implement and enforce specific National Emission Standards for Hazardous Air Pollutants as they apply to major sources in Idaho required to obtain an operating permit under Title V of the federal Clean Air Act. EPA delegated certain 40 CFR Part 61 and 63 subparts to the Idaho Department of Environmental Quality based on its ability to carry out implementation and enforcement responsibilities for Title V sources subject to these standards. EPA did not delegate all of the 40 CFR Part 61 subparts per-*

taining to radon or radionuclides. Additionally, EPA did not delegate the regulations that implement Clean Air Act sections 112(g) and 112(j), codified at 40 CFR Part 63, Subpart B, to the Idaho Department of Environmental Quality. This delegation was effective March 25, 2002. (67 FR 3106; January 23, 2002)

Noise Control Act of 1972 (42 USC 4901 et seq.) – Section 4 of the Noise Control Act directs Federal agencies to carry out programs in their jurisdictions “to the fullest extent within their authority” and in a manner that furthers a national policy of promoting an environment free from noise that jeopardizes health and welfare. This law provides requirements related to noise that would be generated by construction, operation, or closure activities associated with the proposed action and alternatives.

Permits or Approvals Required – Several of the activities under this EIS would involve construction of a source of air emissions. DOE would need to obtain a permit to construct and would need to conduct a National Emission Standards for Hazardous Air Pollutants review prior to commencing construction. New facilities would also be required to be included in the Title V Operating Permit after construction and start up.

On November 9, 2000, President Clinton signed a Presidential Proclamation that expanded the boundaries of Craters of the Moon, a national monument (Clinton 2000). Associated with this national monument is a wilderness area, which is designated as a Class I area under the Prevention of Significant Deterioration program. The boundaries of the wilderness area (and thus the Class I area) may change as a result of the increased size of the national monument. Future applications for a permit to construct under the Prevention of Significant Deterioration program would consider any changes to the Class I area boundary. DOE does not expect the potential changes to the Class I area boundary to have significant implications for future air quality compliance. The State air quality rules provide for additional opportunities for the Federal land manager of Craters of the Moon to review any applications for a permit to construct under the Prevention of Significant Deterioration program.

6.2.4 WATER QUALITY PROTECTION

Clean Water Act, as amended (33 USC 1251 et seq.) – The purpose of the Clean Water Act, which amended the Federal Water Pollution Control Act, is to "restore and maintain the chemical, physical, and biological integrity of the Nation's water." The Clean Water Act prohibits the "discharge of toxic pollutants in toxic amounts" to navigable waters of the United States. Section 313 of the Act generally requires all departments and agencies of the Federal Government engaged in any activity that might result in a discharge or runoff of pollutants to surface waters to comply with Federal, state, interstate, and local requirements.

Under the Clean Water Act, states generally set water quality standards, and EPA or states regulate and issue permits for point-source discharges as part of the National Pollutant Discharge Elimination System permitting program. In Idaho, EPA is responsible for issuing these permits. EPA regulations for this program are codified at 40 CFR Part 122. If the construction or operation of the selected action would result in point-source discharges, DOE could need to obtain a National Pollutant Discharge Elimination System permit from the EPA.

Section 401 and 405 of the Water Quality Act of 1987 added Section 402(p) to the Clean Water Act. Section 402(p) requires the EPA to establish regulations for the Agency or individual states to issue permits for stormwater discharges associated with industrial activity, including construction activities that could disturb five or more acres (40 CFR Part 122). The EPA administers these permits in Idaho.

Construction of new facilities or modifications to existing facilities at INTEC will require the development of written stormwater discharge plans that conform to requirements of the existing discharge permit that has been issued for INEEL. The INEEL discharge permit will then need to be appended to include the additional or modified facilities.

The Clean Water Act at 33 USC 1313 directs states to formulate programs to address water quality and avoid pollution from non-point sources. Idaho Water Quality Standards and

Wastewater Treatment Requirements (IDAPA 58.01.02) and *Wastewater-Land Application Permit Rules (IDAPA 58.01.17)* require protection of designated water uses and the establishment of water quality standards that will protect those uses. The State of Idaho has established groundwater quality standards and is enforcing them under state authority (IDAPA 58.01.11). The State of Idaho requires a wastewater land application permit for the treatment, by land application, of municipal and industrial wastewaters. A permit application must be submitted to the State at least 180 days prior to the day on which the land application of wastewater is to begin.

Safe Drinking Water Act, as amended (42 USC 300(f) et seq.) – The primary objective of the Safe Drinking Water Act is to protect the quality of water supplies. This law grants EPA the authority to protect quality of public drinking water supplies by establishing national primary drinking water regulations. In accordance with the Safe Drinking Water Act, the EPA has delegated authority for enforcement of drinking water standards to the states. Regulations (40 CFR Part 123, 141, 145, 147, and 149) specify maximum contaminant levels, including those for radioactivity, in public water systems, which are generally defined as systems that serve at least 15 service connections or regularly serve at least 25 year-round residents.

On December 7, 2000, EPA published revisions to the national primary drinking water regulations (40 CFR Part 141), including maximum contaminant levels for certain radionuclides (65 FR 76708). The new rule includes requirements for uranium, which was not previously regulated, and revisions to monitoring requirements. EPA decided to retain the current standards for combined radium-226 and -228 and gross alpha particle radioactivity. EPA also retained the current maximum contaminant level for beta particle and gamma radioactivity pending further review. As a regulatory policy and practice, the Safe Drinking Water Act maximum contaminant levels are also used as groundwater protection standards. The new standard for uranium will be considered with the other maximum contaminant levels for radionuclides in assessing the cumulative impacts to groundwater from the facility disposition activities under this EIS.



The Safe Drinking Water Act also authorizes EPA to regulate the underground injection of waste and other contaminants into wells. The Agency has codified its regulations at 40 CFR Part 144. The proposed action or alternatives would not involve underground injection.

The State of Idaho has received authorization from EPA to implement the public drinking water system program and the underground injection control program under the Safe Drinking Water Act. The Idaho Rules for Public Drinking Water Systems (IDAPA 58.01.08) set forth maximum contaminant levels for public drinking water systems. The *Department* of Environmental Quality sets forth monitoring and reporting requirements for inorganic and organic chemicals, and radiochemicals.

The Safe Drinking Water Act also provides for designation of aquifers to be protected from degradation due to their importance as the sole source of drinking water.

The Snake River Plain Aquifer underlying INEEL has been designated as a sole source aquifer by EPA (40 FR 100-109, October 7, 1991) because groundwater supplies 100 percent of the drinking water consumed within the Eastern Snake River Plain and an alternative source or sources is not available.

Executive Orders 11988 (Floodplain Management) and 11990 (Protection of Wetlands) – Executive Order 11988 directs federal agencies to establish procedures to ensure that any Federal action taken in a floodplain considers the potential effects of flood hazards and floodplain management and avoids floodplain impacts to the extent practicable.

Executive Order 11990 directs Federal agencies to avoid new construction in wetlands unless there is no practicable alternative and unless the proposed action includes all practicable measures to minimize harm to wetlands that might result from such use. DOE requirements for compliance with floodplain and wetlands activity are codified at 10 CFR 1022.

Compliance and Floodplain/Wetland Environmental Review Requirements (10CFR 1022) - Federal regulations (10 CFR Part 1022) establish policy and procedures for discharging DOE responsibilities regarding the consideration of floodplain/wetlands factors in DOE planning and decisionmaking. These regulations also establish DOE procedures for identifying proposed actions located in floodplains, providing opportunity for early public review of such proposed actions, preparing floodplain assessments, and issuing statements of findings for actions in a floodplain. The rules apply to all DOE proposed floodplain actions.

If DOE determines that an action it proposes would take place wholly or partly in a floodplain, it is required to prepare a notice of floodplain involvement and a floodplain assessment containing a project description, a discussion of floodplain effects, alternatives, and mitigations. For a proposed floodplain action for which a National Environmental Policy Act document such as an environmental impact statement or an

environmental assessment is required, DOE is to include the floodplain assessment in the document. For floodplain actions for which DOE does not have to prepare such a document, the Department is to issue a separate document as the floodplain assessment. After the conclusion of public comment, DOE is to reevaluate the practicability of alternatives and of mitigation measures, considering all substantive comments.

If it is found that no practicable alternative to locating in the floodplain is available, DOE must design or modify its action to minimize potential harm to and within the floodplain. For actions in a floodplain, DOE must publish a statement of findings of three pages or less containing a brief description of proposed action, a location map, an explanation indicating the reason for locating the action in the floodplain, a list of alternatives considered, a statement indicating whether the action conforms to applicable State or local floodplain protection standards, and a brief description of steps DOE will take to minimize potential harm to or within the floodplain. For floodplain actions that require the preparation of an EIS, the Final EIS can incorporate the statement of findings. Before implementing a proposed floodplain action, DOE must endeavor to allow at least 15 days of public review of the statement of findings.

In accordance with 10 CFR 1022, DOE has prepared a floodplain assessment in Section 5.2.7.3 of this EIS based on a flood study completed by the U.S. Geological Survey in 1998. DOE used the 1998 study as an upper bound estimate of the 100-year Big Lost River flood for analysis purposes. The 1998 study indicates the 100-year flood could affect a portion of INTEC. Ongoing studies, which incorporate information from the existing geologic record, indicate that the 100-year flood elevation would be substantially less than that estimated by the 1998 study. DOE will complete further studies in coordination with the U.S. Geological Survey and Bureau of Reclamation to refine the projected 100-year and 500-year flood elevations. A final floodplain determination will be issued upon completion of these studies. At that time, DOE will consider any alternatives to locating facilities within the floodplain and identify mitigation measures to minimize potential harm to and within the floodplain. For the purposes of obtaining a RCRA permit for the

several hazardous waste facilities at INTEC, DOE-ID determined, as an interim measure pending a final flood determination, to use the most conservative flood elevation for the INTEC. That elevation is 4,916 ft (24,870 cfs) and is the estimated peak water elevation from a 100-year flood coupled with the failure of Mackay Dam.

Permits Required – The existing INTEC Stormwater Pollution Prevention Plan required as part of the National Pollutant Discharge Elimination System permit program might need to be revised to reflect any new construction activities.

6.2.5 CONTROL OF POLLUTION

Resource Conservation and Recovery Act, as amended (42 USC 6901 et seq.) – RCRA regulates the treatment, storage, and disposal of hazardous wastes. The EPA regulations implementing RCRA are found in 40 CFR Parts 260-280. These regulations define hazardous wastes and specify hazardous waste transportation, handling, treatment, storage, and disposal requirements. For purposes of the Idaho HLW & FD EIS, this set of laws is very significant, regardless of which alternative is chosen by DOE. All alternatives under consideration in this EIS involve some sort of RCRA regulation. Also noteworthy is that this area of the law deals with two different approaches to regulation. First, RCRA regulates the wastes themselves and sets standards for waste forms that may be disposed of. Second, RCRA regulates the design and operation of the waste management facilities and establishes standards for their performance.

EPA defines waste that exhibits the characteristics of ignitability, corrosivity, reactivity, or toxicity as “characteristic” hazardous waste. EPA has also identified certain materials as hazardous waste by listing them in the RCRA regulations. These materials are referred to as “listed” hazardous waste. “Mixed waste” is radioactively contaminated hazardous waste. The definition of “solid waste” in RCRA specifically excludes the radiological component (source, special nuclear, or byproduct material as defined by the Atomic Energy Act). As a result, mixed waste is regulated under multiple authorities: by RCRA, as implemented by EPA or authorized states for

the hazardous waste components; and by the Atomic Energy Act for radiological components as implemented by either DOE or the Nuclear Regulatory Commission.

RCRA applies mainly to active facilities that generate and manage hazardous waste. This law imposed management requirements on generators and transporters of hazardous waste and upon owners and operators of treatment, storage, and disposal facilities. EPA has established a comprehensive set of regulations governing all aspects of treatment, storage, and disposal facilities, including location, design, operation, and closure. A facility is regulated as a “treatment facility” if the operator uses any process that is designed to change the physical, chemical, or biological character, or the composition of any waste. Storage means the holding of hazardous waste for a temporary period, at the end of which, the waste is treated, disposed of, or stored elsewhere. A facility that stores hazardous waste is subject to different types of storage requirements based upon the amount and toxicity of the hazardous waste as well as the time of storage. A “disposal facility” is a facility at which hazardous waste is intentionally placed and will remain after closure. The owner and operator of a new treatment, storage, or disposal facility must obtain a RCRA permit. RCRA requires every owner/operator of an existing facility to obtain a permit or close.

Key issues under RCRA that affect this EIS are as follows:

- **RCRA Permits** - In order for a facility to be granted a RCRA permit, it must submit a RCRA Part A and B application. The RCRA Part A application is a short form to provide basic information about the facility, such as name, location, description of processes used for treating, storing, and disposing of hazardous wastes, a topographical map of the facility site, and an indication if the facility is new or existing. Submission of the Part A application allows an existing facility to continue to operate under interim status until the Part B application is submitted and approved.

Interim status is the period of operation for existing facilities until the RCRA

permitting process is complete or the facility is closed. The design and operating standards for interim status facilities are largely equivalent to those for permitted facilities. This EIS analyzes new facilities that will be permitted under RCRA and existing facilities that are operating under interim status. Facilities that are operating under interim status, such as the New Waste Calcining Facility, bin sets, and the Process Equipment Waste Evaporator, may be required to obtain a RCRA permit or be shut down.

A RCRA Part B application requires comprehensive and detailed information to demonstrate compliance with the applicable technical standards for treatment, storage, and disposal facilities. The Part B application includes specific waste management plans and procedures mandated by 40 CFR 270.14 and outlined in 40 CFR 264. The final RCRA permit governs the application of those standards (which include operation, management, emergency, and closure procedures) to the particular facility. The hazardous waste regulations that establish the requirements for obtaining RCRA permits are published in 40 CFR 270. The State of Idaho is authorized by EPA to administer its own RCRA program and is responsible for reviewing applications and issuing permits.

Treatment or disposal activities at other sites may require RCRA permits or approvals. The states of Nevada, Washington, and New Mexico carry out programs similar to Idaho’s in which the federal requirements are enforced under state law. Therefore, any hazardous waste management activities taking place in other states as a result of implementing one of the alternatives would be subject to the hazardous waste requirements of that particular state.

- **Listed Hazardous Waste and the Delisting Process** - Listed hazardous waste remains hazardous waste to be managed under RCRA even after treatment. Delisting is EPA’s designated

method to exclude a listed waste from the hazardous waste regulations under RCRA. This method is defined under 40 CFR 260.22. The basic premise for delisting is to demonstrate that listed wastes, residues resulting from the treatment of listed wastes, or mixtures containing listed wastes will not pose a hazard to human health or the environment under a reasonable worst-case management scenario. For a waste to be excluded, it must not meet the criteria for which it was listed, exhibit any hazardous characteristics, or exhibit any additional factors, including additional constituents, which may cause the waste to be hazardous.

Different types of delisting exclusions may be granted (standard, conditional, or upfront) depending on the variability of the waste and whether the waste already exists or has not yet been generated. In 1995, EPA delegated the Federal delisting program to its regional offices. In addition to the regional offices, the State of Idaho and approximately 18 other states have received EPA authorization to administer a delisting program.

- **Land Disposal Restrictions and Determination of Equivalent Treatment** - The Hazardous and Solid Waste Amendments of 1984 added provisions to RCRA to prohibit the land disposal of untreated hazardous wastes. These restrictions are intended to minimize reliance on land disposal of untreated hazardous wastes and to require advanced treatment and recycling of wastes. The RCRA land disposal restrictions require that hazardous waste be treated to meet applicable standards set forth in 40 CFR 268 prior to disposal. The standards may consist of required treatment technologies or concentration levels that must be achieved for hazardous constituents. Characteristic hazardous wastes (e.g., corrosive or toxic) must generally be “decharacterized” (treated to no longer exhibit the hazardous characteristic). Once hazardous

waste is treated in accordance with the applicable treatment standards, it may be disposed of under applicable requirements.

In 1990, EPA established several treatment standards specific to mixed wastes (i.e., waste that contains hazardous waste and source, special nuclear, or byproduct material subject to the Atomic Energy Act). These standards include vitrification of mixed HLW exhibiting the hazardous characteristics of corrosivity and toxicity for certain metals. Vitrification and other treatment technologies are evaluated in this EIS to treat INEEL mixed HLW. If DOE elects to use a treatment technology other than vitrification for mixed HLW, it will be necessary to obtain a “determination of equivalent treatment” under RCRA [40 CFR 268.42(b)]. This determination will require that DOE demonstrate that the alternative technology (e.g., hot isostatic press, hydroceramic cement) achieves performance equivalent to that of vitrification. DOE would be required to demonstrate that the alternative treatment is in compliance with Federal, state, and local requirements and is protective of human health and the environment.

Idaho Hazardous Waste Management Act, Idaho Code 39-4400 et seq.; The Idaho Hazardous Waste Management Regulations, Idaho Department of Health and Welfare, Rules and Regulations (IDAPA 58.01.05) adopt the Federal regulations regarding hazardous waste rulemaking, hazardous waste delisting, and identification of wastes – The State of Idaho has been given authority from EPA to enact and carry out a hazardous waste program that enables the state to assume primacy over hazardous waste management in the State of Idaho. This includes authority to issue permits for treatment, storage, and disposal of hazardous waste. The Idaho regulations include requirements for hazardous waste generators, transporters, and management facilities as well as detailed procedures for permitting these activities. Under the state’s law (Idaho Code 39-4404), regulations may not be promulgated that impose conditions



or requirements more stringent or broader in scope than RCRA and the RCRA regulations of EPA.

Federal Facility Compliance Act (42 USC 6921 and 6961) – The Federal Facility Compliance Act amended RCRA in 1992 and requires DOE to prepare plans for developing treatment capacity for mixed wastes stored or generated at each facility. After consultation with other affected states, the host-state or EPA must approve each plan. The appropriate regulator must also issue an order requiring compliance with the plan.

DOE and the State of Idaho have an approved plan, known as the “Site Treatment Plan,” and associated consent order. Some of the waste being analyzed in this EIS has been designated for treatment according to terms in the INEEL Site Treatment Plan. If DOE makes a decision based on this EIS that differs from that agreed to with the State of Idaho in the Site Treatment Plan, that Plan would be subject to renegotiation.

Notice of Noncompliance Consent Order – The EPA Notice of Noncompliance Consent Order (Monson 1992) addresses concerns regarding RCRA secondary containment requirements for the INEEL HLW tanks by prescribing dates by which they must be removed from service. In accordance with the Consent Order and an August 18, 1998 modification (Cory 1998), five

of the tanks (known as pillar and panel tanks) must be removed from service on or before June 30, 2003 and the remaining tanks on or before December 31, 2012. A third modification to the Consent Order (Kelly 1999) further stipulates that DOE must place the calciner at the New Waste Calcining Facility in standby mode by June 1, 2000 unless, and until, the facility receives a hazardous waste permit for continued operation.

The Idaho Hazardous Waste Facility Siting Act (Idaho Code 39-5B01 et seq.) – This act requires commercial facilities to obtain a hazardous waste facility siting license prior to commencing construction. A panel including representatives of the nearest community is convened to review and approve the siting application.

This Act applies to commercial facilities; therefore, it would be applicable to any privatized facilities used for waste processing and facilities disposition.

The Idaho Solid Waste Management Rules and Standards, (IDAPA 58.01.06) – These regulations provide standards for the management of non-hazardous solid wastes to minimize the detrimental effects of disposal. These state regulations could affect the activities under this EIS involving management of non-hazardous wastes.

Comprehensive Environmental Response, Compensation, and Liability Act, as amended (42 USC 9601 et seq.) – CERCLA, as amended by the Superfund Amendments and Reauthorization Act, authorizes EPA to require responsible site owners, operators, arrangers, and transporters to clean up releases of hazardous substances, including certain radioactive substances. This Act applies to both the Federal government and to private citizens. Executive Order 12580 delegates to heads of executive departments and agencies the responsibility for undertaking remedial actions for releases or threatened releases at sites that are not on the National Priorities List and removal actions other than emergencies where the release is from any facility under the jurisdiction or control of executive departments or agencies.

Statutes, Regulations, Consultations, and Other Requirements

Sites determined to have a certain level of risk to health or the environment are placed upon the National Priorities List so that their clean up can be scheduled and tracked to completion. INEEL was placed on the National Priorities List in 1989 due to confirmed releases of contaminants to the environment. Over 350 known and potential individual release sites have been identified at INEEL. In addition, there are over 300 contaminated facilities on INEEL. The three agencies involved in the cleanup of those sites are the State of Idaho, EPA, and DOE as the lead agency. These three agencies signed the Federal Facility Agreement and Consent Order in 1991 that outlines a process and schedule for conducting investigation and remediation activities at INEEL. To better manage the investigation and cleanup, the Agreement divides the INEEL into 10 "Waste Area Groups." INTEC is within Waste Area Group 3.

CERCLA also establishes an emergency response program in the event of a release or a threatened release to the environment. The Act includes requirements for reporting to Federal and state agencies releases of certain hazardous substances in excess of specified amounts. The requirements of the Act could apply to the proposed project in the event of a release of hazardous substances to the environment.

CERCLA also addresses damages for the injury, destruction, or loss of natural resources that are not or cannot be addressed through the remedial action. The Federal government, state governments, and Indian tribes are trustees of the natural resources that belong to, are managed by, or are otherwise controlled by those respective governing bodies. As trustees, they may assess damages and recover costs necessary to restore, replace, or acquire equivalent resources when there is injury to natural resources as a result of release of a hazardous substance.

Emergency Planning and Community Right-to-Know Act of 1986 (42 USC 11001 et seq.) (also known as SARA Title III) – Under Subtitle A of the Emergency Planning and Community Right-to-Know Act, Federal facilities, including those owned by DOE, must provide information on hazardous and toxic chemicals to state emergency response commissions, local emergency

planning committees, and EPA. The goal of providing this information is to ensure that emergency plans are sufficient to respond to unplanned releases of hazardous substances. The required information includes inventories of specific chemicals used or stored and descriptions of releases that occur from sites. This law, implemented at 40 CFR Parts 302 through 372, requires agencies to provide material safety data sheet reports, emergency and hazardous chemical inventory reports, and toxic chemical release reports to appropriate local, state, and Federal agencies. DOE has been complying with the provisions of the Emergency Planning and Community Right-to-Know Act and with regulations for maintaining and using inventories of chemicals for site characterization activities. If the proposed action or alternative is implemented, DOE would continue to comply with such provisions, as applicable, in storing and using chemicals for project activities.

Executive Order 12856, Right to Know Laws and Pollution Prevention Requirements – This Order directs Federal agencies to reduce and report toxic chemicals entering any waste stream; improve emergency planning, response, and accident notification; and encourage the use of clean technologies and testing of innovative prevention technologies. In addition, the Order states that Federal agencies are persons for purposes of the Emergency Planning and Community Right-to-Know Act (SARA Title III), which requires agencies to meet the requirements of the Act. Compliance with these orders, as applicable, would be required for a range of DOE activities associated with the proposed action or alternatives.

Toxic Substances Control Act (15 USC 2601 et seq.) – The Toxic Substances Control Act provides EPA with the authority to require testing of both new and old chemical substances entering the environment and to regulate them where necessary. The Act also regulates the treatment, storage, and disposal of certain toxic substances not regulated by RCRA or other statutes, specifically polychlorinated biphenyls, chlorofluorocarbons, asbestos, dioxins, certain metal-working fluids, and hexavalent chromium. Some disposal activities under this Act might require a permit from EPA.

Hazardous Materials Transportation Act, 49 U.S.C. 1801 and Regulations – Federal law provides for uniform regulation of the transportation of hazardous and radioactive materials. Transport of hazardous and radioactive materials, substances, and wastes is governed by U.S. Department of Transportation, Nuclear Regulatory Commission, and EPA regulations. These regulations may be found in 49 CFR 100-178, 10 CFR 71, and 40 CFR 262, respectively. U.S. Department of Transportation hazardous material regulations govern the hazard communication (marking, hazard labeling, vehicle placarding, and emergency response telephone number) and transport requirements, such as required entries on shipping papers or EPA waste manifests. Nuclear Regulatory Commission regulations applicable to radioactive materials transportation are found in 10 CFR 71 and detail packaging design requirements, including the testing required for package certification. EPA regulations govern offsite transportation of hazardous wastes. DOE Order 460.1A (Packaging and Transportation Safety) sets forth DOE policy and assigns responsibilities to establish safety requirements for the proper packaging and transportation of DOE offsite shipments and onsite transfers of hazardous materials and for modal transport. (Offsite is any area within or outside a DOE site to which the public has free and uncontrolled access; onsite is any area within the boundaries of a DOE site or facility to which access is controlled.)

Individual states and Tribes often have their own statutes and/or regulations governing transportation of hazardous or radioactive materials. These laws might also be applicable to DOE transportation activities. As long as the laws are narrowly tailored to address a local concern, they do not conflict with Federal requirements or federal sovereign immunity, and they do not restrict interstate commerce. On the other hand, if the local laws impose an unreasonable burden on DOE, a Federal court would determine that the law was unconstitutional. An example of a local law that affects transportation of materials offsite from the INEEL is the Shoshone-Bannock Tribal Ordinance, the Nuclear Materials Transportation

Act, ENVR 92-S5, which restricts transportation of radioactive materials across the Shoshone-Bannock Reservation.

Pollution Prevention Act of 1990 (42 USC 13101 et seq.) – The Pollution Prevention Act of 1990 establishes a national policy for waste management and pollution control that focuses first on source reduction, then on environmental safe recycling, treatment, and disposal. DOE requires each of its sites to establish specific goals to reduce the generation of waste. If the Department were to build and operate facilities, it would also implement a pollution prevention plan.

The Idaho Settlement Agreement/Consent Order – In October 1995, the State of Idaho, the Department of the Navy, and DOE settled the cases of Public Service Co. of Colorado v. Batt, No. CV-91-0035-S-EJL (D. Id.) and United States v. Batt, No. CV-91-0054-S-EJL (D. Id.). Under the Idaho Settlement Agreement, DOE is obligated to meet the milestones *listed in the text box on page 6-22* related to management of calcined waste and sodium-bearing liquid high-level wastes.

6.2.6 OVERVIEW OF REGULATORY COMPLIANCE AT INTEC

Air Quality – INTEC is part of the INEEL's Title V permit-to-operate application submitted in July 1995. The State of Idaho is currently reviewing this application.

Water Quality – INTEC has a plan in place for control of stormwater run-on and run-off. The existing percolation ponds at INTEC have permits under the state wastewater land application program. There are no underground injection wells currently operated at INTEC. Projections indicate that for all alternatives (see Section 5.2.12, Utilities and Energy), all sanitary, wastewater would be treated in existing facilities, and the existing drinking water wells would be adequate to service new facilities or modified existing facilities.

Elements of the 1995 Idaho Settlement Agreement/Consent Order Pertaining to HLW Management

- Complete calcination of liquid mixed HLW by June 30, 1998 (done).
- Begin calcination of liquid mixed transuranic waste/SBW by June 2001 (started).
- Complete calcination of liquid mixed transuranic waste/SBW by December 2012.
- Start negotiations with the State of Idaho regarding a plan and schedule for treatment of calcined waste by December 31, 1999 (started).
- "DOE shall accelerate efforts to evaluate alternatives for the treatment of calcined waste so as to put it into a form suitable for transport to a permanent repository or interim storage facility outside of Idaho."
- **"DOE shall treat all HLW currently at the INEL so that it is ready to be moved out of Idaho for disposal by a target date of 2035."**

CERCLA – As noted in the previous discussion, INEEL is currently on the National Priorities List. Issues involving clean-up on INEEL are subject to the requirements in the Federal Facility Agreement and Consent Order. Activities carried out under the Federal Facility Agreement and Consent Order will be assumed to meet any corrective action requirements of the RCRA Section 3008(h) Consent Order and Compliance Agreement. A Record of Decision addressing clean up of certain portions of INTEC was final in October 1999.

RCRA Permits – In October 1985, DOE submitted RCRA permit applications to EPA Region X for a number of hazardous waste units at INEEL. INEEL has several units operating under RCRA "interim status" rules and the Part B permit. In

addition, there are several Consent Orders that specify how INEEL complies with RCRA.

RCRA Notices of Violation – DOE has received *nine* Notices of Violation from the State of Idaho *resulting in eight* signed Consent Orders *and one pending Consent Order*. *All eight signed* Consent Orders have been closed because DOE has taken the appropriate actions to address the violation. *A Consent Order addresses the most recent RCRA Notice of Violation*.

EPA Notice of Noncompliance – On January 29, 1990, DOE received a Notice of Noncompliance from EPA Region X. That Notice of Noncompliance was based primarily on secondary containment issues for the INTEC Tank Farm. In 1992, DOE and the Idaho Department of Health and Welfare signed a Consent Order to resolve this Notice of Noncompliance (Monson 1992). In accordance with the Notice of Noncompliance Consent Order and an August 18, 1998 modification (Cory 1998), DOE must cease use of the five pillar and panel tanks on or before June 30, 2003 and the remaining tanks on or before December 31, 2012. DOE and the Idaho Department of Environmental Quality have agreed to define "cease use" as emptying the tanks to their heels using the existing waste transfer equipment.

The third modification of the Notice of Noncompliance Consent Order (Kelly 1999) further stipulates that DOE must place the calciner at the New Waste Calcining Facility in standby mode by June 1, 2000 unless, and until, the facility receives a hazardous waste permit for continued operation.

DOE placed the calciner in standby prior to the deadline of June 1, 2000. Shutdown activities included flushing the system. DOE submitted a two-phased, partial closure plan on August 29, 2000, for the calciner portion of the New Waste Calcining Facility consistent with the Consent Order milestone and 40 CFR 265.112(a). The closure plan describes and accommodates the EIS decision-making process and schedule. The closure plan states that if DOE decides in the Record of Decision to upgrade and permit the calciner, DOE plans to modify the closure plan accordingly through the permitting process.

Toxic Substances Control Act – The waste stream described in this EIS contains very small amounts of polychlorinated biphenyl contamination. DOE is presently working with EPA to reach agreement on what measures are necessary to insure compliance with the Toxic Substances Control Act at INTEC.

6.3 Compliance of Alternatives with Regulatory Requirements

This section identifies the permits, licenses, and approvals that apply to the different alternatives being evaluated. Section 6.3.1 identifies which alternatives require RCRA, air, water, Nuclear Regulatory Commission, and/or U.S. Department of Transportation permits, licenses, or approvals, and also lists the delisting and “determination of equivalent treatment” approvals required. Significant issues related to regulatory requirements are discussed in Section 6.3.2. Section 6.3.3 provides a discussion of the specific issues involved with each alternative.

6.3.1 PERMITS, LICENSES, AND/OR APPROVALS REQUIRED FOR EACH ALTERNATIVE

Examples of waste processing facilities that would require permits, licenses, and/or approvals are listed in Table 6-2. These facilities include existing facilities that would require permits, licenses, and/or approvals to continue to operate, or new facilities that would require permits, licenses, and/or approvals to commence construction and to operate once they are constructed. Table 6-3 summarizes which RCRA, air, water, Nuclear Regulatory Commission, and U.S. Department of Transportation permits, licenses, or approvals would be required for each alternative. Table 6-4 lists the Federal permits, licenses, and other entitlements that may be required to implement the proposed actions. The permitting requirements are described in a general manner. For example, the designation of “solid and hazardous waste” would encompass any permitting requirements under RCRA, or

any state solid or hazardous waste permitting requirements. “Air” would encompass any permitting requirements under the Clean Air Act or state equivalent and would also include any approvals needed to be obtained, such as approvals required under the National Emission Standards for Hazardous Air Pollutants. Finally, “water” would encompass any permitting requirements under the Clean Water Act and related programs, including National Pollutant Discharge Elimination System permits in general and for stormwater discharge, wastewater applications permits (specific to the State of Idaho), and any approvals required under the Safe Drinking Water Act.

6.3.2 ISSUES AND IMPLICATIONS OF REGULATORY REQUIREMENTS

The previous sections have identified the requirements for permits and licenses associated with the various alternatives as well as the current assumptions under which the program is proceeding. There is uncertainty regarding the ability of DOE to reach agreement with the regulatory agencies on many of these issues. The consequences of not being able to develop a regulatory framework upon which all parties can agree may have serious implications. This section discusses some of those implications.

6.3.2.1 Delisting

As described in Section 6.2.5, delisting is EPA’s designated method to exclude listed hazardous waste from regulation under RCRA. Because the treated forms of the INTEC wastes that would be the subject of the delisting do not currently exist, DOE would seek the type of delisting known as an “upfront” exclusion. This is a special type of conditional exclusion that could be granted for a waste that has not yet been generated.

The INTEC waste streams are a combination of characteristic (e.g., corrosive or toxic) and listed hazardous wastes that are regulated under RCRA. Without delisting, the treated waste forms produced from these materials under the various alternatives in this EIS would continue to be regulated as mixed wastes under RCRA even if the applicable land disposal restrictions were met. INEEL presently has no mixed waste

Table 6-2. Examples of facilities that may require permits, licenses, and/or approvals.

Existing facilities	Description
Tank Farm	The Tank Farm stores mixed transuranic waste (SBW and newly generated liquid waste).
New Waste Calcining Facility (NWCF)	The calciner at the NWCF was developed to convert liquid waste solutions stored in the Tank Farm into a more stable granular form called calcine. The waste solution is evaporated in a fluidized bed calciner and the off-gas produced passes through a cyclone, an offgas cleanup system, and HEPA filters before it is discharged to the main stack.
Calcined Solids Storage Facilities (bin sets)	After calcination, the calcine and the fines particles collected by the cyclone are pneumatically transferred to the bin sets for storage. Air circulates through the bin sets to remove heat that is generated by the radionuclides present in the calcine.
High-Level Liquid Waste Evaporator (HLLWE)	The HLLWE concentrates solutions currently stored in the Tank Farm. The HLLWE concentrates the waste solutions to a specific gravity that approaches the design basis of the Tank Farm. The vapors generated are condensed for further processing in the PEWE. The concentrated bottoms are transferred back to the Tank Farm for storage.
Process Equipment Waste Evaporator (PEWE)	The PEWE concentrates the mixed transuranic newly generated liquid waste. The PEWE bottoms are transferred to the Tank Farm for storage and the overhead vapors condensed for processing at the LET&D Facility.
Liquid Effluent Treatment and Disposal (LET&D) Facility	The LET&D Facility is used to concentrate the nitric acid in the waste solutions. The concentrated acid is recycled to the NWCF for use as scrub solution or sent to the Tank Farm for storage. The process offgas is filtered and discharged at the main stack.
Proposed facilities	Description
Vitrification Facility (two types)	The vitrification process would combine the waste stream with glass formers for processing in a glass melter. Vitrification facilities would be used under the Full Separations Option (separated high-level waste fraction) and Early Vitrification Option (mixed transuranic waste/SBW and calcine treated separately).
Hot Isostatic Press Facility	In the Hot Isostatic Pressed Waste Option, silicates and titanium or aluminum powder would be blended with retrieved calcine, placed in special HIP cans, and subjected to high pressure and temperature to form a glass-ceramic product.
Cementation Facility	The Direct Cement Waste Option would involve blending calcine with pozzolan clay, blast furnace slag, caustic soda, and water. The mixture would be placed in stainless steel canisters, cured at elevated temperatures, and then heated under vacuum to produce a cement waste form.
Grout Facility (two types)	The grout facility would evaporate and denitrate the low-level waste fraction to produce low-level Class A or C type grout. The grout formed in the Full Separations and Planning Basis Options would be considered Class A type, while the grout formed in the Transuranic Separations Option would be classified as Class C type due to higher concentrations of radioactivity.
Calcine Retrieval and Transport System	The Calcine Retrieval and Transport System would retrieve the calcine from the bin sets. After retrieval, the calcine would be transported to another bin set (e.g., transfer from bin set 1 to bin set 6 or 7 under No Action and Continued Current Operations Alternatives) or to other facilities to be further processed.
Waste Separations Facility (two types)	This facility would receive mixed transuranic waste/SBW from the Tank Farm and mixed HLW calcine from the bin sets. After some initial treatment of these feed streams, the radionuclides would be chemically separated into two streams, the high-level waste fraction or transuranic fraction would contain the transuranic nuclides, cesium, and strontium. The low-level waste fraction would contain the rest of the nuclides. Under the Transuranic Separations Option, the cesium and strontium would not be separated and would remain in the low-level waste fraction.
Interim Storage Facility	This facility provides interim storage for road-ready HLW until shipment to a geologic repository.
Low-Activity Waste Disposal Facility	This facility receives containerized low-level waste Class A or Class C type grout for disposal.

HEPA = High Efficiency Particulate Air.

Table 6-3. Air, water, NRC, DOT, and RCRA permits, licenses, or approvals required for each alternative.

Waste Processing Alternatives											State of Idaho's Preferred Alternative		
Permit, License, and/or approval type	No Action	Continued Current Operations	Separations Alternative			Non-Separations Alternative				Min. INEEL Processing	Direct Vitrification		
			Full Separations	Planning Basis	Transuranic Separations	Hot Isostatic Pressed Waste	Direct Cement Waste	Early Vitrification	Steam Reforming		Vitrification Without Calcine Separations	Vitrification With Calcine Separations	
Air													
Permit to construct	— ^a	● ^b	●	●	●	●	●	●	●	●	●	●	●
Title V Operating	—	●	●	●	●	●	●	●	●	●	●	●	●
Maximum Achievable Control Technology ^c	—	●	—	●	—	●	●	—	—	—	—	—	—
Water													
National Pollutant Discharge Elimination System	—	—	●	●	●	●	●	●	●	●	●	●	●
U.S. Nuclear Regulatory Commission													
Incidental Waste Consultation	—	●	●	●	●	●	●	●	●	●	●	●	●
Container License	—	●	●	●	●	●	●	●	●	●	●	●	●
U.S. Department of Transportation													
Transportation	—	●	●	●	●	●	●	●	●	●	●	●	●
Resource Conservation and Recovery Act Part B													
Treatment	—	●	●	●	●	●	●	●	●	●	●	●	●
Storage	(d)	●	●	●	●	●	●	●	●	●	●	●	●
Disposal	—	—	—	—	—	—	—	—	—	—	—	—	—
Resource Conservation and Recovery Act approval													
Delisting	—	●	●	●	●	●	●	●	●	●	●	●	●
Determination of Equivalent Treatment	—	—	—	—	—	●	●	—	●	—	—	—	—
a. Dash indicates that no permit/license/approval is required. b. ● indicates that a permit/license/approval is required. c. These entries indicate that the Maximum Achievable Control Technology Rule for hazardous waste combustors would be applicable to calciner operations under these alternatives and options. d. Future RCRA permit requirements for the Tank Farm and bin sets are uncertain.													

Table 6-4. Facility-specific list of permits, licenses, and approvals that may be required.

Facility	Hazardous waste	Air	Water
Tank Farm	● ^a	— ^b	—
New Waste Calcining Facility	●	●	—
Calcined Solids Storage Facilities (bin sets)	●	●	—
High-Level Liquid Waste Evaporator	●	●	—
Process Equipment Waste Evaporator	●	●	—
Liquid Effluent Treatment and Disposal Facility	●	●	—
Vitrification Facility (two types)	●	●	—
Hot Isostatic Press Facility	●	●	—
Cementation Facility	●	●	—
Steam Reforming Facility	●	●	—
Grout Facility (two types)	●	●	—
Calcine Retrieval and Transport System	●	●	—
Waste Separations Facility (two types)	●	●	—
Interim Storage Facility	—	—	—
Low-Activity Waste Disposal Facility	—	●	—

a. ● indicates that a permit/license/approval is required.
b. Dash indicates that no permit/license/approval is required.

disposal capacity. Some offsite low-level mixed waste disposal capacity is available but it is limited by the radiological characteristics of the wastes that may be disposed of. Capacity for mixed transuranic waste exists at the Waste Isolation Pilot Plant, although not all types of hazardous wastes in the INTEC mixed waste streams have been identified on the Waste Isolation Pilot Plant hazardous waste permit. The candidate geologic repository at Yucca Mountain does not plan to accept RCRA-regulated hazardous wastes. Therefore, DOE may need to obtain a “delisting” to exclude treated INEEL waste from RCRA regulation in order to implement the selected action. There are uncertainties associated with DOE’s ability to delist the wastes produced from mixed HLW and mixed transuranic waste/SBW treatment. Among these uncertainties are:

- Delisting action will require a comprehensive evaluation of waste characteristics, most likely including analytical results of representative samples of the wastes to be delisted. The information likely to be required by the regulatory agencies is beyond that which is cur-

rently available. At a minimum, testing of the inputs and outputs of the treatment process will be required. Because of the current storage configuration of the waste in the bin sets and Tank Farm, it will be difficult to obtain representative samples of the waste forms. This is complicated by the presence of very high radiation levels associated with the waste, which make it very difficult to obtain the samples or perform the required analysis.

- Delisting actions are normally based, at least partially, on the results of treatability studies. These studies provide the information to demonstrate that the proposed treatment processes are actually capable of producing a waste form that could be considered non-hazardous. The technological maturity of some of the proposed treatment processes, and the level of their development is immature, and it will be some time in the future before such treatability studies could be conducted. Without data from such studies, it is uncertain that the reg-

ulatory agencies will commit to a delisting strategy.

- Delisting actions normally require some sort of verification testing of the final waste forms. Even if treatability studies show that adequate treatment is possible, testing of the final waste form will be required. As a result, DOE will not be sure that the proposed processes are capable of supporting a delisting until they have been proven in a full-scale production environment.
- The delisting process would take place in a complex regulatory environment. Two EPA regional offices and authorized states all have authority to act on a delisting petition, although a state's decision applies only within its borders and cannot improperly interfere with interstate commerce. Therefore, coordination and consultation with a number of states and EPA regional offices would be required prior to waste shipment for disposal. In addition, each listed waste stream will have its own delisting action, requiring multiple petitions and determinations.

Alternate approaches available to DOE to address the listed waste issue in lieu of delisting include: (1) development of alternative strategies, under initiatives such as EPA's Project XL, that would replace or modify regulatory requirements on the condition that the alternative requirements produce greater environmental benefits and (2) exclusion by Congressional amendment.

President Clinton created Project XL, which stands for "eXcellence and Leadership," with his March 15, 1995, Reinventing Environmental Regulation initiative. This program is designed to give regulated sources the flexibility to develop alternative strategies that will replace or modify specific regulatory requirements, on the condition that they produce greater environmental benefits. A successful proposal will develop alternative pollution reduction strategies that meet eight criteria: better environmental results; cost savings and paperwork reduction; stakeholder support; test of an innovative strategy; transferability; feasibility; identification of mon-

itoring, reporting, and evaluation methods; and avoidance of shifting risk burden. The ability for DOE to meet the requirements of an XL proposal are uncertain at this time. A Congressional Amendment could occur if Congress determined that methods employed to treat waste destined for a geologic repository and the design of the repository were adequate to protect human health and the environment without further regulation under RCRA. The likelihood of that kind of congressional action is also uncertain, but a similar, albeit limited, action has occurred for the Waste Isolation Pilot Plant.

There are several implications of the failure to achieve a determination that treated waste forms are no longer subject to RCRA. Long-term RCRA-compliant storage will be required for those waste forms for which delisting is not granted. The cost of both building and operating RCRA-compliant storage facilities is higher than for non-regulated units. Worker radiation exposures could be higher due to increased inspection requirements. Most significantly, without delisting no disposal site has been identified for the final HLW form. Current plans for the proposed Yucca Mountain repository exclude RCRA-regulated hazardous wastes. This implies that the treated HLW would remain in Idaho until a repository or storage site meeting RCRA requirements becomes available.

6.3.2.2 Waste Incidental to Reprocessing

The terms "incidental waste" or "waste incidental to reprocessing" refer to a process for identifying waste streams that might otherwise be considered HLW due to their origin, but are actually low-level or transuranic waste, if the waste incidental to reprocessing requirements contained in DOE Manual 435.1-1 are met (DOE 1999). Thus, it is a process by which the DOE can make a determination that, for example, waste residues remaining in HLW tanks, equipment, or transfer lines, are managed as low-level or transuranic waste if the requirements in Section II.B of DOE Manual 435.1-1 have been or will be met. The requirements contained in this section of DOE Manual 435.1-1 are divided into two processes, the "citation" process and the "evaluation" process, and are explained further in the following discussion.

Statutes, Regulations, Consultations, and Other Requirements

Waste resulting from processing spent nuclear fuel that is determined to be incidental to reprocessing is not HLW, and shall be managed under DOE's regulatory authority in accordance with the requirements for transuranic waste or low-level waste, as appropriate. When determining whether spent nuclear fuel processing plant wastes are another waste type or HLW, either the citation or evaluation process described below shall be used.

Citation – Waste incidental to reprocessing by citation includes spent nuclear fuel reprocessing plant wastes that meet the "incidental waste" description included in the Notice of Proposed Rulemaking (34 FR 8712; June 3, 1969) for promulgation of proposed Appendix D, 10 CFR Part 50, Paragraphs 6 and 7. These radioactive wastes are the result of processing plant operations. Examples of wastes that have been determined to be included within the citation process are:

- Contaminated "job wastes," a general category of wastes that are generated during HLW transfer, pretreatment, treatment, storage and disposal activities and includes protective clothing, personnel protective equipment, work tools, ventilation filter media, and other job-related materials necessary to complete HLW management activities
- Sample media (e.g., sampling vials, crucibles, other hardware)
- Decontamination media and decontamination solutions (e.g., swabs, other "decon" work-related materials)
- Laboratory clothing, tools, and equipment.

Those waste that have been interpreted to be excluded from the citation process are:

- Ion exchange beds
- Sludges
- Process filter media
- Contaminated components and equipment.

The authority and responsibility for using the citation process resides with the Field Element Manager at the DOE Field or Operations Office. Consultation and coordination with the DOE Office of Environmental Management is encouraged to support consistent interpretations across the DOE complex, but is not required.

Evaluation – Determinations that any waste is incidental to reprocessing by the evaluation process shall be developed under good record-keeping practices, with an adequate quality assurance process, and shall be documented to support the determinations. Such wastes may include, but are not limited to, spent nuclear fuel reprocessing plant wastes that:

- (a) Will be managed as low-level waste and meet the following criteria:
 - (1) Have been processed, or will be processed, to remove key radionuclides to the maximum extent that is technically and economically practical. Although not formally defined; it is generally understood that "key radionuclides" applies to those radionuclides that are controlled by concentration limits in 10 CFR 61.55. A technically practical process must be evaluated to a sufficient degree through a formal, documented assessment of such factors as technical risk, incompatible physical or chemical requirements with the waste, and potential impacts to the public, the worker, and the environment. The "economically practical" part of the requirement is determined by the development of total life-cycle costs for an alternative, or unit costs (e.g., cost per curie removed).
 - (2) Will be managed to meet safety requirements comparable to the performance objectives set out in 10 CFR Part 61, Subpart C, "Performance Objectives." An assessment will need to be prepared that documents a reasonable expectation that DOE Manual 435.1-1, Chapter IV, low-level waste performance objectives, will be met.
 - (3) Are to be managed, pursuant to DOE's authority under the Atomic Energy Act of 1954, as amended, and in accordance

with provisions of Chapter IV of DOE Manual 435.1-1, provided the waste will be incorporated in a solid physical form at a concentration that does not exceed the applicable concentration limits for Class C low-level waste set out in 10 CFR 61.55, "Waste Classification" or will meet alternative requirements for waste classification and characterization as DOE may authorize. DOE will need to demonstrate that the calculated concentration of major radionuclides expected in the treated waste will not exceed the limits in 10 CFR 61.55, or an analysis that provides reasonable expectation that compliance with DOE Manual 435.1-1, Chapter IV, performance objectives can be achieved.

(b) Will be managed as transuranic waste and meet the following criteria:

- (1) Have been processed, or will be processed, to remove key radionuclides to the maximum extent that is technically and economically practical. The process for meeting this requirement is the same as described for low-level waste management in (a)(1) above.
- (2) Will meet alternative requirements for waste classification and characteristics, as DOE may authorize. The DOE Field Element would request that the DOE Office of Environmental Management accept, on a case by case basis, the designation of a waste stream as transuranic. DOE Headquarters shall be consulted and an analysis submitted for review and acceptance that provides reasonable assurance that after the evaluation of the specific characteristics of the waste, disposal site characteristics, and method of disposal, compliance with the 40 CFR 191 performance objectives measures can be achieved.
- (3) Are managed pursuant to DOE's authority under the Atomic Energy Act of 1954, as amended, in accordance with the provisions of Chapter III of DOE Manual 435.1-1, as appropriate. This will require the preparation of a performance assessment that provides reasonable

expectation that the performance objective measures of 40 CFR 191 can be achieved. When using the Evaluation Process, the Field Office Element is required to consult and coordinate with the DOE Office of Environmental Management. Consultation with the Nuclear Regulatory Commission is also strongly encouraged.

In developing the waste processing alternatives, DOE made assumptions regarding the radioactive waste classification of the input waste streams, HLW calcine and mixed transuranic waste (SBW and newly generated liquid waste), and the output waste streams (e.g., HLW, transuranic waste, low-level waste Class A or Class C type grout). DOE will classify all wastes in accordance with the processes in DOE Manual 435.1-1 as described above.

6.3.2.3 Hazardous Waste Codes Applicable to INEEL's HLW & SBW

Currently, the mixed HLW and mixed transuranic waste/SBW at INTEC are being evaluated to determine precisely what hazardous waste codes are applicable to these wastes. That evaluation will be critical to determine whether the transuranic waste streams meet the waste acceptance criteria at the Waste Isolation Pilot Plant because some of the waste codes on the current RCRA Part A application for the INTEC HLW systems are not acceptable for disposal at the Waste Isolation Pilot Plant.

The INEEL mixed HLW is also characterized by more waste codes than those encompassed by the vitrification treatment standard for HLW. Multiple treatment technologies may be associated with these additional codes, and it would be impractical to treat INEEL waste using all of the specified methods. For those waste codes that are not eliminated after further evaluation, DOE would need to seek a determination of equivalent treatment under 40 CFR 268.42(b) to demonstrate that a proposed treatment process provides adequate treatment for all hazardous constituents contained in the waste. In order to accomplish this, DOE would need to demonstrate that the proposed treatment provides a measure of performance equivalent to the land disposal restric-

tions standard. If radiological exposure risk considerations indicate that it is impractical to perform the required sampling and analysis, DOE could pursue one of two options:

- Establish operating limits over which the technology has been demonstrated to achieve the required concentration levels for hazardous constituents. These operating limits could be determined using nonradioactive surrogates to minimize radiological exposures. All waste produced under these operating conditions would be considered to achieve the required performance.
- Establish alternate test methods that reduce radiological exposure from that associated with conventional sampling and analysis techniques.

6.3.2.4 Repository Capacity and Waste Acceptance Criteria

The Nuclear Waste Policy Act limited the amount of spent nuclear fuel and HLW that could be placed in the Nation's first geologic repository until a second repository would become operational. At the time, the projected inventory of spent nuclear fuel that would require disposal was approximately 140,000 metric tons of heavy metal (MTHM). The limitation was meant to provide "regional equity" among potential repository sites. When the Nuclear Waste Policy Act was amended in 1987, it authorized DOE to characterize only one candidate site and required DOE to terminate all activities on a potential second repository. In this regard, DOE was directed to report to Congress no sooner than January 2007 on the need for a second repository. However, the statutory limit of 70,000 MTHM on first repository emplacement was never revised. Estimates of the amount of spent nuclear fuel that will require geologic disposal are less now, perhaps as little as 86,000 MTHM. This inventory, plus additional quantities of DOE-owned and managed spent nuclear fuel and HLW, clearly exceeds the statutory limit on emplacement in the first repository.

For planning purposes, DOE would emplace 10,000 to 11,000 waste packages containing no

more than 70,000 MTHM of spent nuclear fuel and HLW in the repository. Of that amount, 63,000 MTHM would be spent nuclear fuel assemblies that would be shipped from commercial sites to the repository. The remaining 7,000 MTHM would consist of about 2,333 MTHM of DOE spent nuclear fuel and HLW currently estimated to be approximately 8,315 canisters (the equivalent of 4,667 MTHM) that DOE would ship to the repository (DOE 2002). To determine the number of canisters of HLW included in the waste inventory, DOE used 0.5 MTHM per canister of defense HLW. DOE has used the 0.5 MTHM per canister approach since 1985. In 1985, DOE published a report in response to Section 8 of the Nuclear Waste Policy Act (of 1982) that required the Secretary of Energy to recommend to the President whether defense HLW should be disposed of in a geologic repository along with commercial spent nuclear fuel. That report, *An Evaluation of Commercial Repository Capacity for the Disposal of Defense High-Level Waste* (DOE 1985) provided the basis, in part, for the President's determination that defense HLW should be disposed of in a geologic repository. Given that determination, DOE decided to allocate 10 percent of the capacity of the first repository for the disposal of DOE spent nuclear fuel (2,333 MTHM) and HLW (4,667 MTHM) (Dreyfus 1995; Lytle 1995).

Calculating the MTHM quantity for spent nuclear fuel is straightforward. It is determined by the actual heavy metal content of the spent fuel. However, an equivalence method for determining the MTHM in defense HLW is necessary because almost all of its heavy metal has been removed. A number of alternative methods for determining MTHM equivalence for HLW have been considered over the years. Four of those methods are described in the following paragraphs.

Historical Method - Table 1-1 of DOE (1985) provided a method to estimate the MTHM equivalence for HLW based on comparing the radioactive (curie) equivalence of commercial HLW and defense HLW. The method relies on the relative curie content of a hypothetical (in the early 1980s) canister of defense HLW from the Savannah River Site, Hanford, or INEEL, and a hypothetical canister of vitrified waste from processing of high-burnup commercial spent nuclear fuel. Based on commercial HLW con-

taining 2.3 MTHM per canister (heavy metal has not been removed from commercial waste) and defense HLW estimated to contain approximately 22 percent of the radioactivity of a canister of commercial HLW, defense HLW was estimated to contain the equivalent of 0.5 MTHM per canister. Since 1985, DOE has used this 0.5 MTHM equivalence per canister of defense HLW in its consideration of the potential impacts of the disposal of defense HLW, including the analysis presented in the *Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada* (DOE/EIS-0250). Less than 50 percent of the total inventory of HLW could be disposed of in the repository within the 4,667 MTHM allocation for HLW. There has been no determination of which waste would be shipped to the repository, or the order of shipments.

Spent Nuclear Fuel Reprocessed Method - Another method of determining MTHM equivalence, based on the quantity of spent nuclear fuel processed, would be to consider the MTHM in the HLW to be the same as the MTHM in the spent nuclear fuel before it was processed. Using this method, less than 5 percent of the total inventory of HLW could be disposed of in the repository within the 4,667 MTHM allocation for HLW.

Total Radioactivity Method - The total radioactivity method, would establish equivalence based on a comparison of radioactivity inventory (curies) of defense HLW to that of a standard MTHM of commercial spent nuclear fuel. For this equivalence method the standard spent nuclear fuel characteristics are based on pressurized-water reactor fuel with uranium-235 enrichment of 3.11 percent and 39.65 gigawatt-days per MTHM burnup. Using this method, 100 percent of the total inventory of HLW could be disposed of in the repository within the 4,667 MTHM allocation for HLW.

Radiotoxicity Method - The radiotoxicity method, uses a comparison of the relative radiotoxicity of defense HLW to that of a standard MTHM of commercial spent nuclear fuel, and is thus considered an extension of the total radioactivity method. Radiotoxicity compares the inventory of specific radionuclides to a regulatory release limit for that radionuclide, and

uses these relationships to develop an overall radiotoxicity index. For this equivalence, the standard spent nuclear fuel characteristics are based on pressurized-water reactor fuel with uranium-235 enrichment of 3.11 percent and 39.65 gigawatt-days per MTHM burnup. Using this method, 100 percent of the total inventory of HLW could be disposed of in the repository within the 4,667 MTHM allocation for HLW.

A recent INEEL report (Knecht et al. 1999) promotes the use of either the Total Radioactivity Method or the Radiotoxicity Method rather than the continued use of the Historical Method.

Therefore, under any scenario analyzed in this Idaho HLW & FD EIS, there will be a degree of uncertainty regarding the ability of one or more repositories to dispose of all of the projected canisters of HLW around the DOE complex. Additional uncertainty includes the potential for schedule delays, funding reductions, and technical complexities to license, construct, and operate a national geologic repository. Delays in the availability of disposal capacity for INEEL HLW should be considered as a contingency requiring safe storage at an interim site.

Currently, borosilicate glass is the only approved waste form for HLW destined for a repository. Other HLW forms (e.g., grouted HLW) identified in some of the alternatives would need to be demonstrated equivalent to the vitrified waste form. Without that determination, any HLW form other than vitrified waste would have to be placed into long-term storage. The acceptance of that waste form into the second repository would be uncertain.

6.3.2.5 Cumulative Risk to the Groundwater

In accordance with the Federal Facility Agreement and Consent Order, the existing contamination from releases at INTEC was assessed for risk to human health and the environment, including the Snake River Plain Aquifer, as part of Operable Unit 3-13. That assessment only evaluated the hazardous substances (radionuclides and non-radionuclides) that have already been released to the environment. Under CERCLA, remedial action is required to mitigate the risk to acceptable levels if contamination pre-

sents an unacceptable risk (greater than 1 in 10,000 chance of developing a tumor) or exceeds the national primary drinking water standards (40 CFR 141) maximum contaminant levels. Currently, there is contamination in the INTEC area (soils and groundwater) that exceeds acceptable risk levels. Any contaminant inventory remaining in the INTEC facilities after they are dispositioned in accordance with applicable requirements will result in the potential for additional contamination to migrate and impact the Snake River Plain Aquifer. Cumulative risk evaluated by this EIS includes the risk from both the INTEC facility disposition activities and releases that have already occurred. Therefore, any facility disposition scenario that results in unacceptable cumulative risk would require additional actions to mitigate the risks to acceptable levels. Those additional actions could be additional work (added contaminant removal, stabilization, or other controlling mechanisms) for the facility disposition activity. If these additional actions are not taken under the facility disposition process, the CERCLA remedial action on the Snake River Plain Aquifer would be required to implement additional activities to reduce the impacts to acceptable levels. The methodologies used to evaluate the long-term risk from the disposition of HLW facilities are described in Appendix C.9. Section 5.4 presents the cumulative risk of these facility disposition activities and the existing contamination from releases of INTEC being evaluated under CERCLA.

6.3.2.6 RCRA Closure

When hazardous waste management facilities cease operation, they must be closed in a manner that ensures they will not pose a future threat to human health and the environment. RCRA provides two types of closure for hazardous waste management facilities.

Under the first type, known as RCRA clean closure, the facility is decontaminated in accordance with the closure standard. The closure performance standard calls for removal of hazardous wastes and decontamination of all hazardous waste residuals. The action, however, does not address any radiological contamination that may be present. This standard can be achieved in two ways: (1) decontamination of

hazardous contaminants to concentrations at background levels or analytical detection limits or (2) decontamination of hazardous contaminants to performance-based concentration limits (i.e., levels at which the hazardous constituents no longer pose a threat to human health or the environment). After the RCRA clean closure is certified to be complete, the facility is no longer subject to RCRA permitting requirements.

The other type of closure, known as closure to landfill standards, imposes no specific residual contamination limits but would require that DOE place an engineered cap over the facility and implement post-closure care. This would include maintenance of the facility, monitoring for releases of hazardous constituents to the environment, and taking corrective action if releases occur. A post-closure permit or alternate enforceable document would be issued covering maintenance, monitoring, and corrective action provisions.

The disposal options evaluated in this EIS include use of RCRA closed INTEC HLW management facilities (Tank Farm, bin sets) as disposal sites for the low-level waste fraction produced under the Separations Alternative. These disposal options assume that the facility undergoes a performance-based closure prior to low-level waste fraction disposal operations. Substantial efforts will be necessary to remove residual contamination from these facilities to reach the performance-based closure standards. Inability to achieve a RCRA clean closure could prevent these INTEC facilities from being used for low-level waste fraction disposal.

6.3.2.7 RCRA/CERCLA Interface

INEEL was placed on the National Priorities List under CERCLA in 1989. In response to this listing, DOE, EPA, and the State of Idaho negotiated a Federal Facility Agreement and Consent Order that describes how DOE will implement CERCLA remedial activities and RCRA corrective action obligations at the INEEL.

INTEC is designated as Waste Area Group 3 in the Federal Facility Agreement and Consent Order. Waste Area Group 3 contains 99 release sites. Many of these release sites are co-located with or surrounding the HLW management facil-

ities considered under this EIS. DOE is currently initiating remedial action for Waste Area Group 3 under the requirements of CERCLA.

Risk management decisions under the facilities disposition alternatives must be integrated with the CERCLA evaluation and decisionmaking for Waste Area Group 3. Decisions on the final end state for the INTEC must consider the cumulative impacts of soil and groundwater contamination influence by the release sites as well as the contributions from the waste processing and facility disposition alternatives.

6.3.2.8 Maximum Achievable Control Technology Standards for Hazardous Waste Combustion

On April 19, 1996, EPA proposed to revise the standards for hazardous waste combustion facilities under joint authority of the Clean Air Act and RCRA (61 FR 17358). EPA revised the proposed emissions standards on May 2, 1997 (62 FR 24212) and finalized this rule on September 30, 1999 (64 FR 52827). Any facility identified in this EIS that would qualify as a hazardous waste combustion unit or similar miscellaneous unit will be required to comply with these new standards. The standards were developed under Clean Air Act provisions concerning the maximum achievable level of control over hazardous air pollutants, taking into consideration the cost of achieving the emission reduction. Those Maximum Achievable Control Technology standards would impose strict limits for dioxins/furans, mercury, semi-volatile and low volatility metals, particulate matter, and hydrochloric acid/chlorine gas from facilities that burn hazardous waste. Standards were also established for carbon monoxide and hydrocarbons to control other toxic organic emissions. Monitoring and recordkeeping would be required to ensure the emission limits are not exceeded. Compliance with the emission standards and associated monitoring requirements must be achieved within 3 years of the effective date (with potential for a 1-year extension). If an existing facility cannot be modified to comply with the standards within that period, it must be shut down until the new emissions controls are in operation. Several alternatives involve

upgrades to the New Waste Calcining Facility in anticipation of more stringent air emission standards under this rule.

6.3.2.9 Compliance with Existing Agreements

None of the proposed alternatives would meet all of the commitments under the Idaho Settlement Agreement/Consent Order, the Site Treatment Plan, and the Notice of Noncompliance Consent Order. Table 6-5 lists the compliance status of the proposed alternatives with the enforceable milestones applicable to the INEEL HLW Program.

6.3.3 ADDITIONAL WASTE PROCESSING ALTERNATIVE SPECIFIC ISSUES

6.3.3.1 No Action Alternative

The No Action Alternative results in noncompliance with the final commitments in the Notice of Noncompliance Consent Order and the Idaho Settlement Agreement/Consent Order. Several of the INTEC units, such as the Tank Farm and bin sets, are operating as interim status units. Future RCRA permit requirements are uncertain.

6.3.3.2 Continued Current Operations Alternative

Significant modifications would be required to bring the calciner at the New Waste Calcining Facility into compliance with the Maximum Achievable Control Technology standards for hazardous waste combustion facilities.

This alternative has issues related to delisting and incidental waste as discussed in Sections 6.3.2.1 and 6.3.2.2. In order for the mercury produced as a result of the calcining process to be disposed of as low-level waste, it must be delisted and classified as incidental waste. The alternative also has the issues related to ability of DOE to permit the Tank Farm and bin sets as described in the No Action Alternative.

Table 6-5. Compliance status of the proposed alternatives with the INEEL HLW enforceable milestones.

Waste Processing Alternatives											State of Idaho's Preferred Alternative	
Milestone	No Action	Continued Current Operations	Separations Alternative			Non-Separations Alternative				Min. INEEL Processing	Direct Vitrification	
			Full Separations	Planning Basis	Transuranic Separations	Hot Isostatic Pressed Waste	Direct Cement Waste	Early Vitrification	Steam Reforming		Vitrification Without Calcine Separations	Vitrification With Calcine Separations
June 30, 2003 - Cease use of pillar and panel tanks in Tank Farm ^a	● ^b	●	●	●	●	●	●	●	●	●	●	●
December 31, 2012 - Cease use of monolithic tanks in Tank Farm ^c	— ^d	—	—	●	—	—	—	—	—	●	—	—
December 31, 2012 - Complete calcination of mixed transuranic waste/SBW ^e	—	—	—	●	—	—	—	—	—	—	—	—
December 31, 2035 - HLW ready for disposal outside of Idaho ^f	—	—	●	●	●	●	●	●	●	●	●	●
December 31, 2035 - All waste ready for disposal outside of Idaho ^g	—	—	●	●	●	●	●	●	●	●	●	●

a. Notice of Noncompliance Consent Order, Section 6.20.B.3.
b. ● indicates that the proposed alternative would satisfy the milestone.
c. Notice of Noncompliance Consent Order, Section 6.20.B.5.
d. Dash indicates that the proposed alternative would not satisfy the milestone.
e. Idaho Settlement Agreement/Consent Order, Section E.5.
f. Idaho Settlement Agreement/Consent Order, Section E.6.
g. "All Waste" means that waste identified in the Idaho Settlement Agreement/Consent Order Sections E.4, E.5, and E6.

6.3.3.3 Separations Alternative

The three options considered in the Separations Alternative are the Full Separations Option, the Planning Basis Option, and the Transuranic Separations Option. The disposal options evaluated in this EIS include use of closed INTEC HLW management facilities (Tank Farm, bin sets) as disposal sites for the low-level waste fraction produced under the Separations Alternative. These disposal options assume that the facilities undergo a performance-based closure **and are freed from RCRA post-closure requirements** prior to low-level waste fraction disposal operations. Substantial efforts will be necessary to remove residual hazardous waste contamination from these facilities to reach the performance-based closure standards. ***If DOE failed to meet the performance-based closure standards, those facilities may be unavailable for the disposal of the low-level waste fraction.***

These options have issues related to delisting, incidental waste, and hazardous waste codes applicable to INEEL's mixed HLW and mixed transuranic waste/SBW as discussed in Sections 6.3.2.1 through 6.3.2.3. The waste streams that must be delisted for the Full Separations and Planning Basis Options include the vitrified HLW, mixed low-level waste Class A type grout, and mercury. In addition to delisting, the mixed low-level waste Class A type grout and the mercury must be classified as incidental waste. The waste streams that must be delisted for the Transuranic Separations Option include the mixed low-level waste Class C type grout and mercury. These same waste streams must also be classified as incidental waste under this option.

6.3.3.4 Non-Separations Alternative

The **four** options considered in the Non-Separations Alternative are (1) Hot Isostatic Pressed Waste Option, (2) Direct Cement Waste Option, (3) Early Vitrification Option, **and (4) Steam Reforming Option. These options have issues related to delisting, incidental waste, and hazardous waste codes applicable to INEEL's mixed HLW and mixed transuranic waste/SBW as discussed in Sections 6.3.2.1 through 6.3.2.3.**

Hot Isostatic Pressed Waste Option

Two additional concerns associated with this alternative are permitting issues related to New Waste Calcining Facility operations, as identified in the Continued Current Operations Alternative, and a determination of equivalent treatment. The Hot Isostatic Press Facility must be able to demonstrate performance equivalent to the RCRA treatment performance standard of vitrification for HLW. The waste streams that must be delisted for this option include the treated HLW, grout produced from the mixed transuranic newly generated liquid waste, and mercury. In addition to delisting, the mercury must be classified as incidental waste.

Direct Cement Waste Option

Two additional concerns associated with this alternative are permitting issues related to New Waste Calcining Facility operations, as identified in the Continued Current Operations Alternative, and a determination of equivalent treatment. The Direct Cement Facility must be able to demonstrate performance equivalent to the RCRA treatment standard of vitrification for HLW. The waste streams that must be delisted for this option include the treated HLW, grout produced from the mixed transuranic newly generated liquid waste, and mercury. In addition to delisting, the mercury must be classified as incidental waste.

Early Vitrification Option

This alternative does not have any additional issues to those previously identified for all **four** non-separations alternatives. The waste streams that must be delisted for this option include the treated HLW, grout produced from the vitrification plant offgas, and mercury. In addition to delisting, the grout and mercury must be classified as incidental waste.

Steam Reforming Option

In addition to the issues identified for all four non-separations alternatives, this alternative

has one more concern related to sending non-vitrified HLW to a geologic repository. The HLW calcine does not meet the current waste acceptance criteria for the potential repository. DOE will have to demonstrate the packaged waste form meets performance requirements of the waste acceptance criteria for the potential geologic repository.

6.3.3.5 Minimum INEEL Processing Alternative

The Minimum INEEL Processing Alternative has delisting, incidental waste, and hazardous waste codes applicable to INEEL's HLW and mixed transuranic waste/SBW issues as previously discussed in Sections 6.3.2.1 through 6.3.2.3. The waste streams that must be delisted for this alternative include the vitrified high-level waste fraction, vitrified low-level waste fraction, and grout produced from the mixed transuranic newly generated liquid waste.

6.3.3.6 Direct Vitrification Alternative - State of Idaho's Preferred Alternative

The two options considered under the Direct Vitrification alternative are: Vitrification without Calcine Separations and Vitrification with Calcine Separations. These options have issues related to delisting, incidental waste, and hazardous waste codes applicable to INEEL's mixed HLW and mixed transuranic waste/SBW, as discussed in Section 6.3.2.1 through 6.3.2.3.

The waste streams that must be delisted for the Direct Vitrification Alternative include the vitrified HLW and potentially the mixed low-level waste fraction produced under the Vitrification with Calcine Separations Option. In addition to delisting, DOE must determine that the low-level waste fraction can be managed as mixed low-level waste through an incidental waste determination using the process established in DOE Manual 435.1-1 (DOE 1999).

Vitrified calcine or any separated vitrified HLW fraction resulting from calcine separations would be placed in interim storage at INTEC

pending transport to a geologic repository. Under current waste acceptance criteria, DOE would not accept RCRA-regulated HLW at the proposed geologic repository at Yucca Mountain. Therefore, DOE may need to obtain a delisting to exclude the treated HLW from RCRA regulation in order to implement the Direct Vitrification Alternative. Alternate approaches available to DOE to address the listed waste issue in lieu of delisting include: (1) development of alternative strategies, under initiatives such as EPA's Project XL (which stands for "eXcellence and Leadership"), and (2) a legislative strategy that would exclude the treated HLW from regulation under RCRA.

The SBW will be placed in a road-ready form by 2035. The SBW will undergo an incidental waste determination to determine whether the treated waste form should be managed as HLW or transuranic waste. The outcome of the incidental waste determination will determine the disposal site for the treated SBW. If DOE determines that the SBW should be managed as HLW, the treated SBW would be placed in interim storage pending transport to a national geologic repository. If DOE determines that the SBW is transuranic waste, the treated SBW would be shipped to the Waste Isolation Pilot Plant for disposal. Not all types of hazardous wastes in the INEEL SBW have been identified on the Waste Isolation Pilot Plant hazardous waste permit. Additional waste codes would need to be included in the permit or DOE may need to obtain a delisting to exclude the treated SBW from RCRA regulation in order to implement the Direct Vitrification Alternative.

The Nuclear Waste Policy Act limited the amount of spent nuclear fuel and HLW that could be placed in the Nation's first geologic repository until a second repository would become operational. The projected inventory of commercial spent nuclear fuel, DOE-owned and managed spent nuclear fuel, and HLW exceeds the statutory limit on emplacement in the first repository. Varying amounts of HLW could be accommodated within the statutory limit of 70,000 MTHM depending on the method used to establish MTHM equivalence for HLW. DOE has not determined which HLW would be shipped to the repository, or the order of shipments. The Direct Vitrification Alternative provides for interim storage of vitri-

fied HLW, including any vitrified SBW that DOE determines should be managed as HLW, until repository capacity or an interim storage site outside of Idaho is available.

6.3.4 ADDITIONAL FACILITY DISPOSITION ALTERNATIVES SPECIFIC ISSUES

Facility disposition activities would be carried out in accordance with DOE requirements for closure of HLW facilities as described in DOE Manual 435.1-1 (DOE 1999). At closure, the facility must be decontaminated to meet DOE decommissioning requirements or, if the facility cannot meet the decommissioning requirements, closed consistent with applicable disposal site standards. Alternatives that do not result in complete removal of HLW from the INTEC facilities would require that any residual waste satisfy the waste incidental to reprocessing requirements (see Section 6.3.2.2). The applicable disposal site standards would be determined by the characteristics of the residual material (i.e., low-level waste or transuranic waste). DOE may also follow the CERCLA process in accordance with Executive Order 12580 (see Section 6.2.5) to demonstrate compliance with the applicable radioactive waste disposal standards.

DOE is currently developing a *waste incidental to reprocessing* determination for the tank heels in the INTEC Tank Farm. Decisions *regarding* whether the tank heels and other residual HLW satisfy the waste incidental to reprocessing criteria are important in determining the applicable standards for evaluating the facility disposition alternatives. For example, if the tank heels were classified as HLW or transuranic waste, DOE would be required to evaluate the performance of the closed Tank Farm against the performance objectives in 40 CFR 191. DOE may seek technical consultation with the Nuclear Regulatory Commission regarding its waste incidental to reprocessing determination. The ultimate disposition of the tank heels will be determined through RCRA *tank* closure plans that must be negotiated with the State of Idaho.

Due to the configuration of many of the buildings and facilities at INTEC, one building may have within its confines several different regula-

tory or programmatic drivers. For example, a facility might have one area being operated and closed in accordance with RCRA requirements, another area being closed in accordance with CERCLA requirements, and another area to be operated as a permitted unit. This poses a complicated environment for decisionmaking and will require an integrated approach to ensure consistency.

Consistent with the objectives and requirements of DOE Order 430.1A, Life Cycle Management, and DOE Manual 435.1-1, Radioactive Waste Management Manual, all newly constructed facilities implementing any waste processing alternative would be designed and constructed consistent with measures that facilitate clean closure methods. The preferred facility disposition alternative includes the use of performance-based closure methods for existing HLW facilities. During facility disposition, residual wastes would be reduced to the extent technically and economically feasible in order to satisfy the waste incidental to reprocessing requirements. The remaining residual wastes would be immobilized by methods such as grouting, disposed in-place, and monitored in accordance with applicable requirements under RCRA and the Idaho Hazardous Waste Management Act. DOE would determine whether the residual waste satisfied the incidental waste criteria set forth in DOE Manual 435.1-1. That decision would determine the applicable standards for the preferred facility disposition alternative.

Facility disposition would be a long-term process implemented incrementally as the facilities associated with generation, treatment, and storage of HLW and associated waste reach the end of their mission life. Each individual facility action would be evaluated on a case-by-case basis by considering the impact on the allowable cumulative risk in the INTEC area resulting from residual contamination from all facilities. Facility disposition activities, CERCLA remedial activities, and any other in-place disposal actions would be performed in accordance with applicable regulations and controlled so as not to exceed the calculated cumulative risk value established to be protective of the Snake River Plain Aquifer.