

## **16 EMERGENCY PLAN**

### **16.1 Conduct of Review**

This chapter of the Safety Evaluation Report evaluates the Emergency Plan submitted by the Foster Wheeler Environmental Corporation (2003a) in support of the application to construct and operate the Idaho Spent Fuel (ISF) Facility at the Idaho National Engineering and Environmental Laboratory (INEEL). An important aspect of the ISF Facility Emergency Plan is that it is consistent with and integrated within the INEEL Emergency Plan Resource Conservation and Recovery Act Contingency Plan. This INEEL-level plan is also the foundation for the emergency plan for the NRC-licensed Three Mile Island-2 ISFSI, located on the INEEL site in close proximity to the proposed location of the ISF. Additionally, because of its remote location, the INEEL site has its own medical, fire protection, and emergency response capabilities, minimizing the need for offsite support.

An applicant for a license for an independent spent fuel storage installation (ISFSI) must provide an emergency plan that complies with 10 CFR §72.32. 10 CFR §72.32(b), Emergency Plan, provides the specific regulatory requirements for ISFSI emergency plans. NUREG-1567, "Standard Review Plan for Spent Fuel Dry Storage Facilities" (U.S. Nuclear Regulatory Commission, 2000a), as revised by Interim Staff Guidance-16 (U.S. Nuclear Regulatory Commission, 2000b), provides guidance for staff reviewers.

An appendix to the ISF Facility Emergency Plan identifies which sections of the plan demonstrate compliance with the subsections of 10 CFR §72.32(b) and with the associated guidance from Interim Staff Guidance-16.

#### **16.1.1 Facility Description**

NRC regulations at 10 CFR §72.32(b)(1) require a brief description of the licensee's facility and the area near the site.

The Emergency Plan (EP) for the ISF Facility was submitted as part of the application package, which included the license application, safety analysis report (SAR) (Foster Wheeler Environmental Corporation, 2003b) and environmental report (ER). The EP describes the site, the ISF Facility, and its major areas and subareas and provides detailed maps of the site and its buildings and structures. Maps and descriptions of the area adjacent to the site and the area near the site are also provided. Information in the EP includes locations of population concentrations and primary facilities, access routes for emergency equipment or evacuation, and emergency support organizations. Important sites, types of terrain, and land use patterns are discussed, including information in Section 1.5, "Hazards Assessment." Sections 2.2.1, "Elements of the INEEL Incident Command System;" 5.1, "Notification;" 5.2, "Communications;" 7.2.1, "Sheltering;" 7.2.2, "Evacuation;" 11.1, "Emergency Facilities;" and 11.2, "Emergency Equipment;" include descriptions of site features affecting emergency response. These features include communications and assessment centers, assembly and relocation areas, and emergency equipment storage areas. Based on the information provided, the ISF Facility EP meets the requirements of 10 CFR §72.32(b)(1).

### **16.1.2 Types of Accidents**

NRC regulations at 10 CFR 72.32(b)(2) require that each type of radioactive materials accident that could occur at the facility be identified in the emergency plan.

Several sections of the EP address the types of accidents and related information. These include Section 1.5, "Hazards Assessment," and Chapters 2, "Emergency Response Organization;" 3, "Off-ISF Facility Response Interfaces;" 4, "Operational Emergency Event Classes;" 5, "Notifications and Communications;" and 7, "Protective Actions." Chapter 8 of the SAR provides detailed analyses of off-normal events and accidents for the facility. Accidents analyzed for the facility include transfer cask accidents, fuel packaging accidents, fuel storage accidents, and external events. Chapter 4 of the EP provides a brief description of the events or accidents that may occur at the facility and the emergency action levels (EALs) that would be associated with each one. This information also includes actions to prevent or minimize consequences, causes and locations of accidents, contributing or complicating factors, onsite and offsite consequences, and any nonradiological hazardous materials that could affect emergency response actions. Therefore, the information provided for the ISF Facility EP meets the requirements of 10 CFR §72.32(b)(2).

### **16.1.3 Classification of Accidents**

NRC regulations at 10 CFR §72.32(b)(3) require a system for classifying accidents. Additionally, NUREG-1567 (U.S. Nuclear Regulatory Commission, 2000a) provides guidance on the types of events that the emergency plan should consider.

The ISF Facility EP provides a variety of information related to accident classification. Chapters 1, "Introduction," and 4, "Operational Emergency Event Classes," provide criteria and definitions for alerts or site area emergencies. Sections 4.2, "Emergency Action Level Background Information," and 4.7, "Emergency Action Levels," and Chapter 7, "Protective Actions," identify the events for which alerts or site area emergencies will be declared. Events that might initiate an alert are discussed and identified in Chapters 1, "Introduction;" 4, "Operational Emergency Event Classes;" 7, "Protective Actions," and Section 4.7, "Emergency Action Levels." Similarly, events that might initiate a site area emergency are discussed and identified in Chapters 1, "Introduction;" 4, "Operational Emergency Event Classes;" and 7, "Protective Actions." Chapters 2, "Emergency Response Organization;" 4, "Operational Emergency Event Classes;" 5, "Notifications and Communications;" 6, "Consequence Assessment;" and 7, "Protective Actions;" describe the mobilization of the emergency response organization, steps taken to mitigate accident consequences, notifications for offsite response organizations, and modification of the accident classification. Based on this information, the EP meets the requirements of 10 CFR §72.32(b)(3).

### **16.1.4 Detection of Accidents**

NRC regulations at 10 CFR 72.32(b)(4) require that the emergency plan contain a description of the means of detecting an accident condition.

Sections 4.2, "Emergency Action Level Background Information," and 4.7, "Emergency Action Levels," and Chapters 7, "Protective Actions," and 11, "Emergency Facilities and Equipment," of

the EP provide a description of the means for detecting accident conditions applicable to each potential accident identified for the ISF Facility. The plan includes the means for notifying staff of accident conditions. Therefore, the information provided in the EP meets the requirements of 10 CFR §72.32(b)(4).

#### **16.1.5 Mitigation of Consequences**

NRC regulations at 10 CFR 72.32(b)(5) require that the emergency plan include a brief description of the means of mitigating the consequences of each type of accident and a description of the program in place for maintaining emergency equipment.

Mitigating actions are described throughout the ISF Facility EP including Sections 1.5, "Hazards Assessment;" 2.2, "Emergency Direction and Control;" 2.3, "ISF Facility Emergency Management Operations;" 4.2, "Emergency Action Level Background Information;" 4.4, "Dose Calculations;" 4.7, "Emergency Action Levels;" 8.1, "Medical Support System Description;" 8.2, "INEEL Occupational Medical Program Staff;" 8.3, "Facilities and Equipment;" 8.4, "Transportation and Evacuation;" 8.6, "Communications;" 9.2, "Re-Entry;" 13.1, "Drills;" and Chapters 3, "Off-ISF Facility Response Interfaces;" 5, "Notifications and Communications;" 6, "Consequence Assessment;" 7, "Protective Actions;" and 11, "Emergency Facilities and Equipment."

The EP describes the equipment to be installed and the associated design features that mitigate emergency events. The plan describes means and equipment for limiting the consequences of accidents, and specifies the actions to be taken and the systems available to reduce the impact of a radioactive material release. The consequences considered include those to the public and workers. The EP discusses the actions to be taken to place the ISF Facility in a safe condition. The EP also describes the availability and capability of onsite and offsite protective actions, their areas of applicability, and the criteria for implementing them. Notification procedures and equipment are discussed and described. Mitigation actions included in the EP are sheltering, evacuation, protective equipment use, and contamination control. Protective action criteria for radiological incidents are addressed. Personnel accountability, responsibilities and actions are described. Both onsite and offsite medical facilities and capabilities are included in the plan. The EP includes the location and types of emergency response equipment available at the ISF Facility, at the INEEL site, and from offsite organizations. Procedures are described for establishing on-scene and facility command and control. Emergency response team communications equipment and procedures are detailed. Primary and backup communications equipment and command centers are described. Offsite protective actions and protective action recommendation procedures are described in the EP. Based on this information, the EP meets the requirements of 10 CFR §72.32(b)(5).

#### **16.1.6 Assessment of Releases**

NRC regulations at 10 CFR §72.32(b)(6) require that the emergency plan contain a brief description of the methods and equipment that will be used to assess releases of radioactive material.

EP Section 4.7, "Emergency Action Levels," and Chapter 6, "Consequence Assessment," describe the radiological sampling and monitoring methods and equipment that will be used to

assess the extent of radioactive releases and to determine appropriate response actions for accidents. The plan describes sampling and monitoring for radioactive and hazardous materials at the ISF Facility, onsite at INEEL, and off of the INEEL site. The EP identifies the personnel who will be trained and qualified in the methods and use of the instrumentation and equipment for the assessment of radioactive releases. Therefore, the EP meets the requirements of 10 CFR §72.32(b)(6).

#### **16.1.7 Responsibilities**

NRC regulations at 10 CFR §72.32(b)(7) require that the emergency plan provide a brief description of the responsibilities of personnel should an accident occur, including identification of personnel responsible to promptly notify offsite response organizations and the NRC. Personnel responsible for developing, maintaining, and updating the emergency plan are also required to be identified.

Personnel responsibilities are discussed throughout the EP including Chapters 2, "Emergency Response Organization;" 5, "Notifications and Communications;" 6, "Consequence Assessment;" 7, "Protective Actions;" and 14, "Program Administration;" and Sections 4.3, "Classification of Events;" 7.4, "Records;" 9.1.2, "Debriefing or Critique;" 11.2.5, "Records;" 12.15, "Emergency Plan Training Program Administration;" and 13.7, "Report." The EP describes the normal site organization and identifies personnel responsible for maintaining and updating the Emergency Plan and related records and implementing procedures. The EP identifies the personnel responsible for ensuring offsite notifications are performed promptly. The EP describes the emergency response organization and the responsibilities and authority of key positions within it. Personnel are identified with the responsibility to declare emergencies and to respond to emergencies at any time. Minimum staffing levels are defined. The EP identifies the communications chain for notifying and mobilizing emergency response personnel during normal and nonworking hours. The EP describes methods for activation of staff necessary for Emergency Plan implementation. During emergencies, the facility uses key principles of the INEEL Incident Command System and is integrated with the INEEL into an overall emergency plan. The personnel responsible for overall direction of emergency response and notification of State and local agencies, as well as the NRC, are identified for normal and off-normal hours. Requirements are described for annual review and audit of the EP. Responsibilities are defined for reporting and recording information relating to accidents. Emergency planning records are described. The roles and responsibilities of government agencies and other organizations having emergency response actions are specified. Therefore, the ISF Facility EP meets the requirements of 10 CFR §72.32(b)(7).

#### **16.1.8 Notification and Coordination**

NRC regulations at 10 CFR 72.32(b)(8) require that the emergency plan contain a commitment to and a brief description of the means to promptly notify offsite response organizations and request offsite assistance; that a control point be established; that notification and coordination be planned; and that unavailability of some personnel, parts of the ISF Facility, and some equipment will not prevent notification and coordination. The applicant also must commit to notify the U.S. Nuclear Regulatory Commission immediately after notification of the appropriate offsite response organizations and not later than 1 hour after an emergency is declared.

Emergency response notification and communication are addressed in the ISF Facility EP, Sections 2.1, "Organization Structure;" 2.2, "Emergency Direction and Control;" 2.3, "ISF Facility Emergency Management Operations;" 4.7, "Emergency Action Levels;" 5.1, "Notification;" 5.2, "Communications;" and Chapters 1, "Introduction," and 3, "Off-ISF Facility Response Interfaces." The plan contains a commitment to promptly notify offsite response organizations. The EP describes the means to notify offsite response organizations; the means to request offsite assistance, including medical assistance; and means to identify personnel responsible to perform the notifications. The EP also discusses the means to detect and notify the staff of abnormal operating conditions or dangers. The organization described in the EP is responsible for activating the emergency response organization and performing notifications in a timely manner for accident conditions, during normal and off-normal hours. Diverse methods of notification are described. Various facilities with notification equipment are spatially separated. These features allow notification and activation to be performed even if some personnel, equipment, or parts of the ISF Facility are unavailable. The EP contains a commitment to notify the U.S. Nuclear Regulatory Commission Headquarters Operations Center after completion of local notifications, but not later than 1 hour after the accident is declared. Therefore, the ISF Facility EP meets the requirements of 10 CFR §72.32(b)(8).

#### **16.1.9 Information to be Communicated**

NRC regulations at 10 CFR §72.32(b)(9) require that the emergency plan provide a brief description of the types of information on facility status, radioactive releases, and recommended protective actions, if necessary, to be given to offsite response organizations and the U.S. Nuclear Regulatory Commission.

Information to be communicated is described in Sections 5.1, "Notification," and 5.2, "Communications," and Chapter 3, "Off-ISF Facility Response Interfaces." The EP provides a description of information that will be communicated to offsite response organizations and the NRC in an emergency. The format and content of information to be communicated are specified on an INEEL form, and communication protocols with agencies off the INEEL site are defined by memoranda of agreement or understanding. The criteria for determining Protective Action Guidelines (PAG) are described. The responsible INEEL and offsite agencies are listed in the EP. Therefore, the ISF Facility EP meets the requirements of 10 CFR §72.32(b)(9).

#### **16.1.10 Training**

NRC regulations at 10 CFR §72.32(b)(10) require that the emergency plan briefly describe the training the licensee will provide to workers on how to respond to an emergency and any special instructions and orientation tours that will be offered to fire, police, medical, and other emergency personnel.

The EP describes emergency response organization training in Sections 3.1.2, "Contractor Off-INEEL Site Interface," and 10.3.2, "News Media Orientation," and Chapter 12, "Training." The training will address how facility and site staff are to respond to an emergency, including instructions and orientations provided to offsite emergency response organizations. The training will address the requirements for each position, the implementation and administration of the training program, and retraining requirements. The EP describes the training program



that will be offered to offsite support agency personnel who may be called on to provide support to the ISF Facility. Therefore, the EP meets the requirements of 10 CFR §72.32(b)(10).

#### **16.1.11 Safe Condition**

NRC regulations at 10 CFR §72.32(b)(11) require that the emergency plan provide a brief description of means for restoring the ISF Facility to safe operation after an accident.

Means for placing the ISF Facility in a safe condition are addressed in EP Chapter 9, "Recovery and Re-Entry." The plan describes the procedures for restoring the ISF Facility to a safe status and for developing and executing a recovery plan. These actions include measures for checking and restoring supplies and equipment important to safety to normal operation and a condition of readiness. For situations not covered by normal operating procedures, special written recovery procedures will be developed by the facility staff and approved by the ISF Facility Recovery Manager. The EP contains criteria for the return to operations and a commitment to ensure that equipment important to safety has been checked and restored to normal condition before the ISF Facility is returned to operation. Therefore, the ISF Facility EP meets the requirements of 10 CFR §72.32(b)(11).

#### **16.1.12 Exercises**

NRC regulations at 10 CFR §72.32(b)(12) require that the emergency plan provide a description of the program for conduct of exercises, drills, and communications tests. Specifically, the plan must contain provisions for conducting quarterly communications checks with offsite response organizations, biennial onsite exercises to test response of simulated emergencies, and semiannual radiological/health physics, medical and fire drills.

The ISF Facility EP addresses these requirements in Chapter 13, "Drills and Exercises." The plan describes the drill and exercise program. This program includes biennial emergency exercises, semiannual radiological drills, semiannual medical drills, and semiannual fire drills. The EP states offsite response organizations will be invited to participate in the biennial exercises. The EP commits to check communications equipment quarterly, including verifying and updating all necessary phone numbers. The EP describes the evaluation of drills, the correction of identified deficiencies, and the confidentiality of exercise scenarios. The EP identifies the Emergency Planning and Security Coordinator as the responsible individual for determining and implementing corrective actions in response to deficiencies identified during exercises and drills and for monitoring performance trends. Therefore, the ISF Facility EP meets the requirements of 10 CFR §72.32(b)(12).

#### **16.1.13 Hazardous Chemicals**

NRC regulations at 10 CFR §72.32(b)(13) require that the emergency plan certify the licensee has met its responsibilities with respect to hazardous materials at the facility according to the Emergency Planning and Community Right-to-Know Act of 1986, Title III, Pub. L. 99-499.

This requirement is addressed in EP Sections 1.1, "Purpose," and 1.5, "Hazards Assessment." There are no ISF-specific contingency plans for hazardous materials incidents because only minor amounts of these materials will be present at the ISF Facility. Although the ISF Facility

is considered part of the INEEL for waste accountability, it would qualify, on its own, to be classified by the U.S. Environmental Protection Agency as a “conditionally exempt small quantity generator.” The ISF Facility will be in compliance with the Emergency Planning and Community Right-to-Know Act of 1986, Title III, Pub. L. 99-499. The ISF Facility personnel will respond to INEEL hazardous waste incidents in accordance with the INEEL Emergency Plan. Therefore, the ISF Facility EP meets the requirements of 10 CFR §72.32(b)(13).

#### **16.1.14      Comments on the Emergency Plan**

NRC regulations at 10 CFR §72.32(b)(14) require the licensee to allow those offsite response organizations expected to respond in case of an accident 60 days to comment on the initial submission of the Emergency Plan before submitting it to the NRC and to provide any comments received to the NRC.

The EP addresses this requirement in Section 14.2.3, “Control of Other Documents.” The EP contains copies of letters from offsite organizations documenting that the EP has been reviewed by the applicable offsite response organizations. The EP contains a summary of the applicant’s response to comments from offsite organizations. The EP commits to providing plan revisions to the offsite response organizations. Therefore, the ISF Facility EP meets the requirements of 10 CFR §72.32(b)(14).

#### **16.1.15      Offsite Assistance**

NRC regulations at 10 CFR §72.32(b)(15) require that the emergency plan include (i) a brief description of arrangements for requesting and effectively using offsite assistance; (ii) provisions for prompt communications among principal response organizations; (iii) provision for adequate emergency facilities and equipment to support onsite emergency response; (iv) provision for adequate methods, systems, and equipment for assessing and monitoring radiological consequences; (v) arrangements for medical services for onsite contaminated and injured individuals; and (vi) provision for radiological emergency response training for offsite responders.

The EP addresses these requirements in Chapters 1, “Introduction;” 2, “Emergency Response Organization;” 3, “Off-ISF Facility Response Interfaces;” 5, “Notifications and Communications;” 13, “Drills and Exercises;” and 14, “Program Administration;” and Section 1.1, “Purpose.” The ISF Facility is located within the boundaries of the INEEL, and will be able to access the resources of the Fire Department and Emergency Services at INEEL in the event of an emergency. Agreements for services from outside the boundaries of the INEEL site with other Federal, state, county, and local agencies have been made between those agencies and DOE-ID. The ISF Facility EP describes the means for requesting assistance from those offsite response organizations when necessary. The EP states that mutual aid agreements with these organizations are documented in memoranda of understanding or agreement and these agreements will be periodically reviewed and renewed. The EP also describes the training that will be offered to offsite response organizations. Based on the information provided, the ISF Facility EP meets the requirements of 10 CFR §72.32(b)(15).

### **16.1.16      Offsite Information**

NRC regulations at 10 CFR §72.32(b)(16) require that the emergency plan describe the arrangements made for providing emergency information to the public.

The EP addresses this requirement in Section 2.2.1.2, “Command Facilities,” and Chapter 10, “Public Information.” The plan describes the facilities and responsibilities for coordinating information with the public. It also describes the public information organization, the public education program, the public information center, and the methods to respond to public inquiries. Therefore, the EP meets the requirements of 10 CFR §72.32(b)(16).

### **16.2            Evaluation Findings**

NRC regulations at 10 CFR §72.40(a)(11) require that the applicant’s Emergency Plan comply with 10 CFR §72.32. The EP submitted in support of the license application for the ISF Facility meets the requirements of 10 CFR §72.32(b). The NRC staff has reviewed the EP, the SAR, and the contract between Foster Wheeler Environmental Corporation and DOE-ID. Based upon the staff’s review, the ISF Facility Emergency Plan meets the requirements in 10 CFR 72.32, and there is reasonable assurance that the licensee will be able to adequately respond to an emergency situation at the facility.

### **16.3            References**

Foster Wheeler Environmental Corporation. *Emergency Plan, Idaho Spent Fuel Facility*. Docket No. 72-25. ISF-FW-PLN-0021. Morris Plains, NJ: Foster Wheeler Environmental Corporation. Revision 2. November 2003a.

Foster Wheeler Environmental Corporation. *Safety Analysis Report, Idaho Spent Fuel Facility*. Amendment 3. Docket No. 72-25. ISF-FW-RPT-0033. Morris Plains, NJ: Foster Wheeler Environmental Corporation. November 2003b.

U.S. Nuclear Regulatory Commission. NUREG-1567, *Standard Review Plan for Spent Fuel Dry Storage Facilities*. Washington, DC: U.S. Nuclear Regulatory Commission. 2000a.

U.S. Nuclear Regulatory Commission. *Interim Staff Guidance-16, Emergency Planning*. Washington, DC: U.S. Nuclear Regulatory Commission, Spent Fuel Project Office. 2000b.