

## **13 DECOMMISSIONING EVALUATION**

### **13.1 Conduct of Review**

The objective of this review is to determine whether the applicant's provisions for decommissioning the ISF Facility provide reasonable assurance that decontamination and decommissioning of the Facility at the end of its useful life will provide adequate protection to the health and safety of the public. The staff's review considered information presented in the Proposed Decommissioning Plan in Appendix C of the License Application (Foster Wheeler Environmental Corporation, 2003b), as well as SAR Sections 3.5, 6.4 and 9.6, to determine whether the following regulatory requirements are satisfied:

- 10 CFR 72.30 requires that each application under this part include a proposed decommissioning plan that contains sufficient information on the proposed practices and procedures for the decontamination of the site and for disposal of residual radioactive materials after all spent fuel has been removed. This plan must identify and discuss those design features of the ISFSI that facilitate decontamination and decommissioning. Also, a decommissioning funding plan must be included and financial assurance for decommissioning must be provided.
- 10 CFR 72.130 requires that the ISFSI be designed for decommissioning. Provisions must be made to facilitate decontamination of structures and equipment, minimize the quantity of radioactive wastes and contaminated equipment, and facilitate the removal of radioactive wastes and contaminated materials at the time the ISFSI is permanently decommissioned.

#### **13.1.1 Facility Design Features**

Section 2.0 of the applicant's Proposed Decommissioning Plan for the ISF Facility describes the approach to decommissioning the facility. The philosophy of the plan is to employ a "start clean, stay clean" approach to design and operation to the maximum extent practical, so that a majority of building surfaces and equipment may be released for unrestricted use. Decommissioning activities will consist of the decontamination of building equipment and surfaces, and the demolition and complete removal of the building, in order to free release as many items as possible for salvage or recycling.

The applicant has identified several design features of the facility that will enhance the decommissioning process. These features include:

- compartmentalizing the various ISF Facility processes, and placing the maximum amount of support equipment outside the radiologically-controlled area;
- applying protective coatings on concrete and steel surfaces in areas that may become contaminated;
- locating the liquid storage tanks to provide ready access;
- minimizing the amount of potentially contaminated equipment directly embedded in the concrete building structures; and
- minimizing the amount of piping inside tanks.

The primary areas of anticipated radioactive contamination in the ISF Facility are the Transfer area (FPA), solid waste processing area, HVAC systems, and portions of systems containing radioactive liquids. The structures and equipment in these areas are designed to maintain doses to personnel ALARA and to facilitate decontamination.

Radioactive contamination will be minimized in the storage area of the ISF Facility. Following welding operations in the CCA, the spent fuel will be contained in sealed metal storage canisters and placed in a dry, inert environment inside sealed storage tubes. The storage area components are not expected to have residual radioactive contamination because: (1) the canisters are sealed by welding; (2) when the fuel is loaded, measures will be taken to prevent contamination of the canister outer surface; (3) surveys will be performed to ensure that surface contamination levels are below specified limits; and (4) neutron activation of the storage components will be insignificant because the neutron flux from the spent fuel will be very low.

The staff finds that, in accordance with 10 CFR 72.130, the ISF Facility design features will satisfactorily facilitate decontamination, minimize the quantity of radioactive waste and contaminated equipment, and facilitate removal of radioactive wastes and contaminated material at the time that the ISF Facility is decommissioned.

### **13.1.2 Facility Operational Features**

The Proposed Decommissioning Plan also identifies the ISF Facility operational features that will facilitate eventual decontamination and decommissioning. These include minimizing contamination, maintaining accurate records of spills or other unusual occurrences involving the spread of contamination, and maintaining accurate as-built drawings. Implementation of the Radiation Protection Program, as required by Technical Specification 5.5.5, and application of ALARA principles during facility operation will also help to reduce the extent of necessary decontamination. Throughout the operating phase of the facility, radiological hazards will be monitored and evaluated, and routine decontamination of key areas, including the FPA and SWPA, will be performed.

The staff finds that the ISF Facility operational features will satisfactorily facilitate decontamination, minimize the quantity of radioactive waste and contaminated equipment, and facilitate removal of radioactive wastes and contaminated material at the time that the ISF Facility is decommissioned.

### **13.1.3 Decommissioning Plan**

The staff's review of the Proposed Decommissioning Plan included consideration of: (a) the overall adequacy and completeness of the Plan, including proposed decontamination and decommissioning activities, (b) the decommissioning cost estimate, and (c) the financial assurance mechanism. The review considered how the Proposed Decommissioning Plan and the SAR addressed the following requirements of 10 CFR 72.30, "Financial Assurance and Recordkeeping for Decommissioning:

- 10 CFR 72.30(a) requires that each application under this part include a proposed decommissioning plan that contains sufficient information on the proposed practices and procedures for the decontamination of the site and for

disposal of residual radioactive materials after all spent fuel has been removed. This plan must also identify and discuss those design features of the ISFSI that facilitate decontamination and decommissioning at the end of its useful life.

- 10 CFR 72.30(b) requires that the proposed decommissioning plan also include a decommissioning funding plan.
- 10 CFR 72.30(c) requires that the financial assurance for decommissioning be provided.
- 10 CFR 72.30(d), requires that records of information important to the decommissioning of a facility be kept until the site is released for unrestricted use.

### **Proposed Decommissioning Plan, 10 CFR 72.30(a)**

The applicant submitted a Proposed Decommissioning Plan, which describes the conceptual program for decontaminating and decommissioning the ISF Facility. The plan indicates that the objective of decommissioning activities is to remove or decontaminate equipment, structures, and other portions of the facility and site to a level that permits license termination shortly after the cessation of facility operations.

The proposed decommissioning plan describes the applicant's approach to minimizing radioactive contamination through design features and ongoing surveys and decontamination activities. At the end of facility operation, all spent fuel will be shipped offsite, and decontamination and dismantlement of the ISF Facility will proceed. During this phase, contaminated systems and components will either be decontaminated and removed; or packaged and shipped to an off-site processing facility or a low-level waste disposal site.

Decontamination methods may include washing, wiping, vacuuming, scabbling, spalling, abrasive blasting and limited chemical application. Any liquids collected from decontamination activities, or in cleaning of tanks or radwaste systems will be collected and processed appropriately. Decontamination of concrete surfaces will be performed using techniques intended to minimize the volume of material removed. Vacuum equipment with HEPA filters will be used as needed to minimize the spread of contamination resulting from abrasive techniques. Dismantlement methods will consist of disassembly, cutting, and/or demolition techniques, (primarily for concrete structures).

Radiological surveys to support decommissioning of the ISF Facility will be performed in three phases. Phase I will consist of a scoping survey and site characterization performed 2 years prior to anticipated termination of the license. This phase will allow for more detailed planning and cost estimates for decommissioning, by identifying the location and extent of significant contamination. Phase II radiological surveys will be conducted to directly support decontamination and dismantlement activities. In Phase III, a final radiation survey will be conducted to verify that site radiological conditions meet the NRC criteria for license termination. The final survey plan will be based on guidance provided in NUREG/CR-5849 (U.S. Nuclear Regulatory Commission, 1992).

Section 3.5 of the Proposed Decommissioning Plan describes the radioactive waste management activities during facility decommissioning. The processing of solid and liquid wastes throughout decommissioning will be managed and monitored in accordance with the Facility's radiation protection program, radioactive effluent controls program and environmental monitoring program. The goal is to minimize the amount of waste material generated and to maintain the discharge of radioactive material below design limits. Packaging, storage and shipment of decommissioning generated waste will be controlled by procedures for: sorting and segregating the waste; classifying the waste in accordance with Department of Transportation (DOT) and NRC requirements; packaging and labeling the waste in accordance with DOT and disposal site criteria; temporarily storing the waste; and shipping the waste in accordance with DOT and NRC requirements.

The staff has reviewed the Proposed Decommissioning Plan. The staff finds that the Proposed Decommissioning Plan includes sufficient discussion of the applicant's proposed practices and procedures for minimizing contamination at the ISF Facility. The plan also includes sufficient discussion of the applicant's conceptual program for decommissioning the ISF Facility. The Proposed Decommissioning Plan sufficiently identifies and discusses the design and operational features of the ISF Facility that facilitate its decontamination and decommissioning. The staff finds that the Preliminary Decommissioning Plan for the ISF Facility satisfies 10 CFR 72.30(a).

#### **Financial Assurance, 10 CFR 72.30(b) and 72.30(c)**

The applicant's financial qualifications are evaluated in Chapter 17 of this SER. The objective of that evaluation is to determine compliance with the decommissioning funding and financial assurance requirements of 10 CFR 72.30(b) and 72.30(c).

#### **Records of Information Important to Decommissioning, 10 CFR 72.30(d)**

In Section 9.6 of the SAR, the applicant has committed to maintain the following records that are identified by 10 CFR 72.30(d) as important to decommissioning:

- records of spills or other unusual occurrences involving the spread of contamination [required by 10 CFR 72.30(d)(1)];
- as-built drawings and modifications of structures and equipment in restricted areas [required by 10 CFR 72.30(d)(2)];
- a document, which is updated a minimum of every 2 years, listing all areas designated at any time as restricted areas and all areas outside of restricted areas involved in a spread of contamination [required by 10 CFR 72.30(d)(3)]; and
- records of the cost estimate performed for the decommissioning funding plan [as required by 10 CFR 72.30(d)(4)].

## **13.2 Evaluation Findings**

The staff has reviewed the SAR and the Proposed Decommissioning Plan submitted by the applicant for the ISF Facility. The staff has determined that the proposed decommissioning plan submitted by the applicant provides reasonable assurance that decommissioning issues for the ISF Facility have been adequately discussed, so that the site may be made available for unrestricted use. The staff, therefore, concludes that the proposed decommissioning plan complies with 10 CFR Part 72.

## **13.3 References**

Foster Wheeler Environmental Corporation. *Idaho Spent Fuel Facility Safety Analysis Report*. ISF-FW-RPT-0033. Docket 72-25. Amendment 03. Morris Plains, NJ: Foster Wheeler Environmental Corporation. November 2003a.

Foster Wheeler Environmental Corporation. *Idaho Spent Fuel Facility License Application. Appendix C, Proposed Decommissioning Plan*. ISF-FW-RPT-0127. Docket 72-25. Revision 3. Morris Plains, NJ: Foster Wheeler Environmental Corporation. November 2003b.

U.S. Nuclear Regulatory Commission. NUREG/CR-5849, *Manual for Conducting Radiological Surveys in Support of License Termination*, 1992.