

**Foster Wheeler Environmental Corporation
Idaho Spent Fuel (ISF) Facility
Preparation of ISF Environmental Report**

The ISF ISFSI will be constructed within the DOE INEEL site directly adjacent to the existing INTEC facility, in which resides the existing TMI-2 ISFSI. The TMI-2 ISFSI is operated by the DOE and was licensed by the NRC in 1999. The proposed ISF ISFSI site area has been previously studied and extensively characterized and the environmental assessments described below have concluded that spent fuel management and storage activities such as the ISF Facility can be constructed and operated within the INEEL without significant or undue adverse impact on the environment. The ISF Environmental Report represents a compilation of this previously published data, updated as appropriate to reflect current information and to address unique and specific features and potential environmental impacts of the construction and operation of the ISF Facility.

Previous Environmental Impact Statements/Environmental Reports

As a result of the 1995 Settlement Agreement signed between the State of Idaho, the Department of the Navy, and the DOE, the United States District Court for the District of Idaho required the finalization of an EIS specific to interim storage of spent nuclear fuel at the INEEL. The DOE responded with the issuance of the DOE Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs Final Environmental Impact Statement (FEIS)¹.

The FEIS addresses each of the options available to the DOE for spent nuclear fuel management and the environmental impacts of each option. The ISF Facility is one of the actions identified by the spent nuclear fuel management program. Because this assessment enveloped the entire INEEL and specifically addressed the establishment of an interim storage facility, the results included the ISF Facility. The DOE FEIS concluded that these spent fuel management activities could be accomplished without significant adverse effects on the environment.

In addition, the DOE prepared an environmental report in support of the nearby Three Mile Island Unit Two (TMI-2) ISFSI. As part of the NRC's review of the TMI-2 license application, the NRC issued a FEIS on the TMI-2 ISFSI.²

¹ DOE (1995), Department of Energy Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs Final Environmental Impact Statement, DOE/EIS-0203-F, April.

² NUREG-1626 – Final Environmental Impact Statement for the Construction and Operation of an Independent Spent Fuel Storage Installation to Store the Three Mile Island Unit 2 Spent Fuel at the Idaho National Engineering and Environmental Laboratory, March 1998.

Subsequently in 1999, the DOE published a draft EIS for the overall high-level radioactive waste and facilities disposition at the INEEL site.³

Therefore, much of the information related to the environmental impact of the ISF Facility is contained in the above referenced Environmental Impact Statements, and the TMI-2 ISFSI Environmental Report.

Development of the ISF Environmental Report

The DOE's FEIS addressed the impact of spent nuclear fuel storage at the INEEL, including potential dry storage facilities at the INEEL. However, this FEIS did not evaluate the specific design features and exact location of a dry storage facility. Accordingly, FWENC developed an Environmental Report that consolidated the previously developed generic information relative to the site (regional geology, hydrology, ecology, etc.), updated this information where appropriate, and addressed specific design and siting information relative to the ISF.

At the time of preparation of the ISF ER, specific NRC guidance documents did not exist for environmental reports for ISFSIs. In lieu of specific guidance, FWENC reviewed NRC guidance documents for environmental reports for other types of facilities to identify issues applicable to an ISFSI. Guidance documents reviewed for content included:

- Regulatory Guide 3.8, Preparation of Environmental Reports for Uranium Mills
- Regulatory Guide 4.2, Preparation of Environmental Reports for Nuclear Power Stations
- Regulatory Guide 4.9, Preparation of Environmental Reports for Commercial Uranium Enrichment Facilities
- NUREG-1555, Environmental Standard Review Plan

Regulatory Guide 4.2 was used as the primary guide to develop the format of the ISF Environmental Report since it contains the most extensive list of topics and its information requirements was deemed most applicable to an ISFSI environmental report.

In compiling the generic/regional information relative to the ISF Facility site, FWENC relied on the following sources:

- TMI-2 ISFSI Environmental Report
- TMI-2 ISFSI Safety Analysis Report
- DOE Spent Nuclear Fuel Management FEIS
- DOE Draft EIS for High-Level Waste and Facilities Disposition at the INEEL

³ DOE-ID (1999) Idaho High-Level Waste & Facilities Disposition Draft Environmental Impact Statement, DOE/EIS-0287D, December.

To supplement the previously compiled information, FWENC also;

- Conducted local site specific review of potential impacts on cultural resources (performed by the DOE Cultural Resources Group)
- Sponsored an ecological evaluation of the local site (performed by Stoller Corporation, DOE contractor for environmental monitoring at the INEEL).
- Updated the population density and distribution data using 2000 census data.
- Reviewed and updated meteorological data (ambient temperatures and precipitation), as appropriate.
- Updated INEEL workforce population (from DOE public affairs office).

The ISF Environmental Report is the summation of the information collected from environmental reports addressing the area within the Eastern Snake River Plain. The ISF Environmental Report is presented in a format consistent with NRC guidance to facilitate NRC review and licensing of the ISF Facility.

A discussion of each chapter of the ISF Environmental Report is presented below.

Chapter 1 – Purpose of the Facility

Chapter 1 described the planned use and purpose of the ISF Facility. The chapter provides a broad overview of the project, including historical background information and the regulatory requirements applicable to the facility.

Chapter 2 – Site and Environmental Interfaces

Chapter 2 of the Environmental Report describes the features and characteristics of the INEEL site and surrounding region. This chapter discusses the general geography of the region and the demographics of the area. The general geographic information was compiled primarily from previous DOE environmental assessments of the area. However, since it has been several years since the last demographic information was compiled, FWENC used the data from the 2000 census to provide updated information relative to the population density and distribution of the area surrounding the INEEL.

In addition to the regional ecological data derived from previous environmental assessments, FWENC sponsored an additional study of the local ISF Facility site. Stoller Corporation, the DOE contractor for environmental monitoring at the INEEL, performed this review. This review is presented in an appendix to the ISF Environmental Report.⁴

This chapter also addresses the meteorology of the site area. FWENC utilized current NOAA data from local monitoring stations to update meteorological data provided in previous environmental assessments.

⁴ Appendix A, Ecological Resources of the Idaho National Engineering and Environmental Laboratory and Potential Effects Of the Independent Spent Fuel Facility, S.M. Stoller Corporation (2001)

The discussions of hydrology, geology, and seismology, presented in Chapter 2 were primarily compiled from data presented in previous environmental assessments and referenced source documents.

Discussions of regional cultural and archeological features were based on information previously compiled by the DOE⁵ and presented in existing DOE environmental assessments. A detailed archeological assessment was performed for the local ISF Facility site. This review is presented in an appendix to the ISF Environmental Report.⁶

The discussion of visual and scenic resources presented in Chapter 2 was adapted from information presented in the previous environmental assessments of the INEEL.

Chapter 3 – Facility

Chapter 3 of the ER provides an overall description of the ISF Facility. This information was compiled in conjunction with the concurrent preparation of the ISF Facility SAR using applicable FWENC design information. However, previous environmental assessments are cited in this chapter as appropriate. For example, the potential impact of sanitary waste is noted as being addressed by the DOE EIS for the high-level waste program.

Chapter 4 – Environmental Effects of Site Preparation and Facility Construction

This chapter addresses the potential impact of construction activities on the ISF Facility site. In preparing this chapter, FWENC adapted information presented in the DOE Spent Fuel Program FEIS to address the site-specific parameters. General information relative to the surrounding area (water resources, vegetation, fauna, etc.) was compiled from previous environmental assessments. This data was combined with site-specific information relative to the scope of construction activities to provide the required assessment. Information relative to the potential radiation exposure to workers from existing DOE facilities was taken from the DOE EIS for the high-level waste program at INEEL.

Chapter 5 – Environmental Effects of Facility Operation

Chapter 5 of the ISF Environmental Report addresses the potential impact of ISF Facility operations. General information relative to the surrounding area (water resources, vegetation, fauna, etc.) was compiled from previous environmental assessments. This data was combined with site-specific information relative to operation activities. This information was compiled concurrently with the development of the ISF Facility SAR and Decommissioning Plan.

⁵ Miller, S.J. (1995). Idaho National Engineering Laboratory Management Plan for Cultural Resources, Final Draft, DOE/ID-10361, Idaho Falls, Idaho.

⁶ Appendix B, Cultural Resources Investigations for the Idaho Spent Fuel Facility at the Idaho National Engineering and Environmental Laboratory, INEEL/EXT-2001-457 (2001).

Chapter 6 – Effluent and Environmental Measurements and Monitoring Programs

Since the ISF Facility will be located within the existing INEEL, the site is subject to extensive existing environmental monitoring activities by the DOE and their M&O contractor for the INEEL. Chapter 6 primarily discusses these existing programs (described in previous DOE environmental assessments). The chapter also discusses site-specific monitoring activities that FWENC will perform to supplement the existing programs where needed.

Chapter 7 – Environmental Effects of Accidents

Information regarding the potential environmental effects of accidents was compiled concurrently with the ISF Facility SAR utilizing FWENC applicable design calculations.

Chapter 8 – Economic and Social Effects of Construction and Operation

Chapter 8 of the ISF Environmental Report discusses the potential impact of the ISF Facility (construction and operation) on local communities. This chapter was prepared by adapting the information from the DOE FEIS for the spent fuel management program to the specific parameters of the ISF Facility. For example, FWENC updated the information on INEEL workforce size and the local community populations (using 2000 census data). Site-specific estimates for the construction workforce and operations staff were also used to confirm the overall conclusions of the DOE FEIS.

Chapter 9 – Spent Fuel Storage Alternatives

This chapter summarizes information from the DOE Spent Fuel Program FEIS that led to the decision to construct the ISF Facility.

Chapter 10 – Facility Design Alternatives

This chapter describes the design constraints imposed on the facility by the DOE as a result of the 1995 settlement agreement establishing milestones to be accomplished by the DOE Spent Fuel Program and the subsequent DOE contract for the ISF Facility.⁷ The chapter describes how these constraints led to the conceptual design of the ISF Facility.

Chapter 11 – Summary of Cost-Benefit Analysis

This chapter combines information from the DOE spent fuel program FEIS with the information presented in preceding chapters to provide an assessment of the environmental cost-benefit of the project.

⁷ DOE-ID (2000), Contract Award and Notice to Proceed, Contract No. DE-AC07-00 ID13729, Spent Nuclear Fuel Dry Storage Project, May. (<http://www.id.doe.gov/doiid/psd/SNFDSPContract.htm>)

Chapter 12 – Environmental Approvals and Consultations

This chapter details the environmental approvals (other than the NRC) and consultations that are applicable to this project.