

17 FINANCIAL QUALIFICATIONS AND DECOMMISSIONING FUNDING ASSURANCE

17.1 Conduct of Review

17.1.1 Background

The Idaho Spent Fuel (ISF) Facility will be constructed and operated by the Foster Wheeler Environmental Corporation (FWENC) at the Department of Energy (DOE) Idaho National Engineering and Environmental Laboratory (INEEL). FWENC is a United States corporation which is a wholly owned subsidiary of Foster Wheeler USA Corporation, which, in turn, is a wholly owned subsidiary of Foster Wheeler, Ltd. and is incorporated in the State of Texas and headquartered in Clinton, New Jersey.

The applicant stated that the ISF Facility is a key element of the DOE's National Spent Fuel Program for stabilizing its inventory of spent fuel prior to shipment to a permanent repository. The ISF will be used to store spent fuel and associated radioactive material from: (1) the first and second cores of the Peach Bottom Unit 1 reactor which is a high temperature gas-cooled reactor that operated from March 1966 to October 1973; (2) the Shippingport reactor, an experimental light water breeder reactor; and (3) certain Training, Research, and Isotope Reactors built by General Atomics (TRIGA).

The ISF Facility will employ dry storage technology with facilities for receipt and repackaging of spent fuel into sealed storage canisters. Following the receipt and repackaging of the spent fuel into sealed storage canisters, the canisters will be placed in individual storage tubes that are housed in concrete storage vaults that provide radiological shielding and passive natural convection air-cooling. The ISF Facility is designed to store spent fuel for up to 40 years, by which time it is anticipated that the spent fuel will have been transferred to a licensed repository and the ISF Facility can be decommissioned.

Title 10 of the Code of Federal Regulations at Part 72 (10 CFR 72) contains the licensing requirements for independent spent fuel storage, storage of high-level radioactive waste, and reactor-related greater than Class C waste. 10 CFR Part 72.22(e) states that the application must contain, "information sufficient to demonstrate to the Commission the financial qualifications of the applicant to carry out, in accordance with the regulations in this chapter the activities for which the license is sought." In addition, 10 CFR 72.22(e) states, "Except for DOE, the information must show that the applicant either possesses the necessary funds, or that the applicant has reasonable assurance of obtaining the necessary funds, or that by a combination of the two, the applicant will have the necessary funds available to cover the following: (1) estimated construction costs; (2) estimated operating costs; and (3) estimated decommissioning costs, and the necessary financial arrangements to provide reasonable assurance before licensing, that decommissioning will be carried out after the removal of the spent fuel, high-level radioactive waste, and/or reactor-related GTCC waste from storage."

10 CFR 72.30(b) requires that, "The proposed decommissioning plan must also include a decommissioning funding plan containing information on how reasonable assurance will be provided that funds will be available to decommission the ISFSI or MRS." In addition, 10 CFR 72.30(b) goes on to state, "This information must include a cost estimate for

decommissioning and a description of the method of assuring funds for decommissioning from [10 CFR 72.30(c)] including means of adjusting cost estimates and associated funding levels periodically over the life of the ISFSI or MRS.” 10 CFR 72.30(c) requires that, “Financial assurance for decommissioning must be provided by one of the following methods:...” and 10 CFR 72.30(c)(4) dictates specific requirements for Federal, State, and local governments. 10 CFR 72.30(c)(4) states, “In the case of Federal, State, or local government licensees, a statement of intent containing a cost estimate for decommissioning, and indicating that funds for decommissioning will be obtained when necessary.”

When the staff applied the financial assurance requirements in 10 CFR Part 72 to the review of the FWENC application, it took an approach similar to that used in the review of the earlier submitted Private Fuel Storage (PFS) Facility application, in which the staff took into consideration the Commission’s ruling in Louisiana Energy Services, L.P. (Claiborne Enrichment Center), CLI-97-15, 46 NRC 294 (1997), which pertains to an application by Louisiana Energy Services (LES) to construct and operate a uranium enrichment facility pursuant to 10 CFR Part 70. Among other things, that ruling held that, “the NRC is not required as a matter of law to apply the strict financial qualification provisions of Part 50 to all Part 70 license applications.” *Id.*, 46 NRC at 298. Rather, “Part 70 calls for a case-by-case inquiry into whether the applicant ‘appears to be financially qualified’ to take safety measures necessary to assure that activities under the license will not create undue risk to public health and safety.” *Id.* at 299. The Commission further observed that the shorter, more flexible language in Part 70 allows “a less rigid, more individualized approach” to determine whether an applicant has demonstrated its financial qualifications, and stated that if the Commission “had intended the Part 50 standards and criteria to apply to all Part 70 applicants . . . the regulations would have either restated the Part 50 criteria or incorporated them by reference.” *Id.* at 300. In summary, the Commission concluded that “the general language of Part 70 leaves the Commission free to review the reasonableness of an applicant’s financial plan in light of all relevant circumstances,” which might or might not lead to application of any or all of the criteria stated in Part 50. *Id.* at 302.

FWENC’s application for an ISFSI under Part 72 has some significant similarities to the LES Part 70 application, and although the language in Part 72 differs from the Part 70 language, it is also less prescriptive than Part 50, and provides a similar basis for why the staff did not find it necessary or appropriate to rely on only Part 50 standards and criteria for its review of the FWENC application. The staff’s basis for review of FWENC’s application is the same basis that it had previously applied in the review of the PFS application.

The staff evaluated the information in the license application of November 19, 2001, as amended, as well as the supplemental submittals dated January 22, 2003, and August 28, 2003, which responded to our requests for additional information (RAI) of October 25, 2002, and June 4, 2003, respectively.

17.1.2 Financial Assurance for the Design, Construction and Operation Phases

In the November 19, 2001, license application, FWENC stated that the construction cost of the ISF Facility would be about \$114 million in 1999 dollars. In its October 25, 2002, RAI, the staff requested that the applicant explain the basis for this figure.

In their January 22, 2003, response to the staff's RAI, the applicant detailed the schedule and estimated cost of each of the eight major activities to be completed during the construction phase. Those activities, schedules and costs are identified in the applicant's submittal dated January 22, 2003; some of these specific details are proprietary to FWENC. The applicant based its cost estimate on a conceptual facility design. In making its cost estimates, FWENC relied on the experience of its employees who have constructed similar facilities. The staff finds that the applicant's identification of the eight major activities as well as the estimated start and finish date of each the activities and the cost associated with each activity supported the licensee's cost estimate of \$114 million in 1999 dollars, or \$122,154,778 escalated to 2002 dollars based on a 7.89 percent escalation factor calculated in accordance with Section B.5 of the contract, and that this cost reasonably represents the cost to design and construct the ISF Facility.

In the November 19, 2001, license application, FWENC stated that they were to receive an initial payment from DOE following the docketing and acceptance of their application for review. The design of the ISF Facility is divided into Phases IA and IB. Phase IA consists of initial design and NRC license application. FWENC's parent company, Foster Wheeler USA Corporation, has committed to provide interim funding of these activities pending milestone payments from DOE. The license application is under review and the lump sum payment has been made to FWENC. The actual amount of the lump sum payment is considered proprietary to FWENC; however, the contracted amount of the payment was \$67,092,232.

By letter dated March 12, 2003, FWENC informed the staff that, effective March 7, 2003, it had sold many of its assets to Tetra Tech, Inc. (Tetra Tech) and many of the key officers of the company and key ISF project employees have become employees of Tetra Tech. FWENC has contracted with Tetra Tech to retain cognizant staff to continue the implementation of the ISF Facility project. FWENC retains the authority and responsibility for the licensing, construction, and operation of the ISF.

Phase IB of the design phase of the project consists of support for NRC licensing and final design. This phase is to be financed under a cost plus fixed fee method on a monthly basis. The estimated cost for this phase was \$5,467,467.

The actual fabrication and construction of the facility is referred to as Phase II. There are no additional payments for this phase. For this phase of the work, FWUSA guarantees the interim funding to support the construction and initial operation. The terms of the performance guarantee are described in the Section J, Attachment J-N of the Contract No. DOE-AC07-001D13279.

FWENC plans for the ISF to operate for 30 years. Phase III is referred to by the applicant as the Operations phase. The current schedule has fuel storage operations taking place from June of 2006 until November of 2009. The remainder of the 30 years will consist of post-storage operations. The cost of the storage of the first 800 fuel assemblies is covered by the construction costs; the cost of these first 800 assemblies, therefore, is not an operational cost but a charge allowed by the contract to recover capital costs. The cost of subsequent fuel storage was originally estimated at \$31 million. The applicant based this cost estimate on their estimated staffing levels for facility operations and other fixed and variable costs. FWENC broke these costs down in detail in their January 22, 2003, response to the staff's RAIs. The applicant based the estimated cost on their experience with fuel handling operations.

Modification No. M103 to the original contract excluded certain fuels from the scope of the facility's operations, resulting in a revised operation cost of about \$27 million. The NRC staff finds that the licensee's cost estimate of \$27 million represents a reasonable estimate of the cost for these activities.

The costs for post-storage operations were based on estimated staffing levels once all fuel had been placed in storage. The activities to be performed are maintenance, security, and surveillance. The \$1.85 million annual cost covers the cost of the maintenance of the dry storage facility (\$75,309/month) and the maintenance of the dry transfer facility in the standby mode (a \$78,902/ month).

The fuel handling phase is referred to as Phase III. This phase will be reimbursed through monthly payments. The rate for handling a unit of fuel will be fixed and the monthly payment will depend on the number of units handled. The current contract contains the following prices:

Amortized capital costs for Peach Bottom fuel: 800 units at \$141527/unit	\$113,221,595
Processing of Peach Bottom fuel: 1605 units at \$12509/unit	\$ 20,076,945
Processing of LWBR fuel: 2971 fuel rods at \$1107/rod	\$ 3,288,403
Processing of TRIGA fuel: 1600 elements at \$2413/element	\$ 3,860,800
Subtotal for actual operating costs	\$ 27,226,148
TOTAL	\$140,447,743

In addition, the staff reviewed FWENC's 5-year funding projections, and the assumptions that supported the five year projections, as well as reviewing FWENC's consolidated balance sheets. The FWENC 5-year projection was provided in the January 22, 2003, submittal. The staff believes that the licensee's supporting basis validated the funding projections and that the consolidated balance sheets help to demonstrate the financial health of the company.

The staff finds that FWENC has submitted sufficient information to address the requirements of both 10 CFR 72.22(e)(1) and (e)(2). The staff reviewed FWENC's estimates of the costs to construct and to operate the ISF facility and concludes that the estimates are reasonable and that the DOE/FWENC contract (DE-AC07-00ID13729) provides reasonable assurance that funds will be available to construct and operate the ISF.

17.1.3 Financial Assurance for the Decommissioning Phase

FWENC's April 2, 2003, submittal requested an exemption in accordance with 10 CFR 72.7 from the decommissioning funding surety requirements of 10 CFR 72.30(c), because the financial assurance regarding decommissioning funding has clearly been established through the overall funding in contract No. DE-AC07-00ID13729 between FWENC and the DOE. The applicant stated that the ISF Facility is unique in that FWENC is being funded by DOE to build and operate the facility on behalf of DOE.

The decommissioning plan for the ISF (ISF-FW-PLN-0027) estimated the cost for the radiological decommissioning of the facility at \$22,600,000 and was divided into major

components which included dismantlement, decontamination, remediation, waste disposal, and final survey. The cost elements represent the key activities necessary to decommission the ISF facility. The staff finds that \$22,600,000 represents a reasonable estimate of the costs to decommission the facility.

For reference, 10 CFR 72.30(b) goes on to state, "This information must include a cost estimate for decommissioning and a description of the method of assuring funds for decommissioning from [10 CFR 72.30(c)] including means of adjusting cost estimates and associated funding levels periodically over the life of the ISFSI or MRS." 10 CFR 72.30(c) requires, "Financial assurance for decommissioning must be provided by one of the following methods:...." In addition, 10 CFR 72.30(c)(4) also requires, "In the case of Federal, State, or local government licensees, a statement of intent containing a cost estimate for decommissioning, and indicating that funds for decommissioning will be obtained when necessary."

The details of the financial arrangement between FWENC and DOE are not directly addressed by the current regulatory requirements; however, the staff finds that the intent of the regulation is met and that the commitments identified in the requested exemption are consistent with the requirements of 10 CFR 72.30(c)(4). In the April 2, 2003, exemption request, the applicant attached a Statement of Intent, dated March 24, 2003, from Warren E. Bergholz, Jr., Acting Manager of the DOE-Idaho Operations Office. DOE's Statement of Intent commits the Department to make a timely request for funds from the United States Congress when necessary, consistent with the ISF Facility decommissioning plan estimates. The staff supports the exemption request and proposes to address the decommissioning funding issues through license conditions which will require the licensee to maintain a current Statement of Intent from DOE, and to periodically revise the decommissioning cost estimates to ensure that the decommissioning funding and other funding/cost concerns identified in this SER will be provided.

The staff concludes that the FWENC/DOE contract No. DE-AC07-00ID13729, DOE's Statement of Intent dated March 24, 2003, and the proposed license conditions LC 17-1 and LC 17-2, meet the requirements of 10 CFR 72.22(e), 10 CFR 72.30(b) and the intent of 10 CFR 72.30(c), and provide reasonable assurance that funds will be available to decommission the facility.

17.2 Evaluation Findings

The staff finds that the financial requirements of 10 CFR 72.22(e)(1), 72.22(e)(2), 72.22(e)(3), 10 CFR 72.30(b), and the intent of 10 CFR 72.30(c) have been met. The bases for these findings are discussed in Section 17.1.2, "Financial Assurance for the Design, Construction and Operation Phases," and in Section 17.1.3, "Financial Assurance for the Decommissioning Phase."

FWENC will be the licensee for the ISF Facility, and the term of the license will be for 20 years. FWENC's contract with DOE (Contract No. DE-AC07-00ID13729) requires it to operate the ISF Facility through 2010. At that point, DOE may elect to extend its contract with FWENC, or may seek (with the assistance of FWENC as the license holder) to transfer the facility license to a successor contractor or to itself, upon obtaining the necessary regulatory approvals. However,

because DOE will be relied on for funding during the operational and decommissioning phases of the Facility, the staff is requiring the following license conditions:

Proposed License Conditions

LC 17-1: The licensee shall maintain a current Statement of Intent from the US Department of Energy in which the Department commits to make a timely request for the necessary funds from the United States Congress for the decommissioning of the ISF Facility, based on decommissioning cost estimates throughout the entire term of the license. The licensee shall promptly notify NRC, in writing, of any changes to the current contract with DOE for the ISF Facility (Contract No. DE-AC07-00ID13729) that would significantly impact the decommissioning cost estimates.

LC 17-2: The licensee shall provide to NRC an updated estimate of the operations, maintenance, security and decommissioning costs at a minimum of every 5 years; or in a timely manner whenever these costs are significantly impacted (such as a change in storage capacity, imposition of additional security requirements, etc.).

The imposition of these conditions resolves any concerns about additional costs associated with the operation, maintenance, security or potential changes in storage capacity of the ISF Facility, as well as providing reasonable assurance that funds will be available to decommission the ISF Facility when needed.

17.3 References

Foster Wheeler Environmental Corporation. *License Application, Idaho Spent Fuel Facility*. Docket No. 72-25. ISF-FW-RPT-0127. Rev. 0. Morris Plains, NJ: Foster Wheeler Environmental Corporation. November 2001.

Foster Wheeler Environmental Corporation. *Response to Request for Additional Information*. Idaho Spent Fuel Facility License Application. FW-NRC-ISF-03-0010. Richland, WA: Foster Wheeler Environmental Corporation, Idaho Spent Fuel Facility Project. January 22, 2003.

Foster Wheeler Environmental Corporation. *Response to NRC Second Round Request for Additional Information*. Idaho Spent Fuel Facility License Application. FW-NRC-ISF-03-0198. Richland, WA: Foster Wheeler Environmental Corporation, Idaho Spent Fuel Facility Project. August 28, 2003.

Foster Wheeler Environmental Corporation. *Request for Exemption from Decommissioning Funding Requirements*. Idaho Spent Fuel Facility. FW-NRC-ISF-03-0079. Richland, WA: Foster Wheeler Environmental Corporation, Idaho Spent Fuel Facility Project. April 2, 2003.