

REQUEST FOR ADDITIONAL INFORMATION
REGARDING UPDATED DECOMMISSIONING FUNDING PLAN

(1) Provide additional information regarding work-hour calculations

This information is required to verify compliance with Title 10 of the *Code of Federal Regulations*, (10 CFR) Paragraph 70.25(e)(1) which requires, in part, that a Decommissioning Funding Plan (DFP) identify and justify key assumptions used in the cost estimate.

As described in the “Estimate Procedure” section, work-hours are calculated using the following steps:

- 1) To calculate the estimated number of operator hours for each task identified in the detailed facility description (including dismantling, decontamination, packaging, and shipment for disposal of all contaminated waste, where applicable), a difficulty factor is assigned to each task (ranging from 0.1 to 3 hours) and that factor is multiplied by the number of cubic feet of material that is associated with the task. The assignment of the difficulty factor is based on engineering judgement/analysis, as described in the “Estimate Procedure” section of the decommissioning funding plan (DFP) (page 5 of 12).
- 2) The total number of estimated operator hours (summed across all tasks) is allocated to one of five phases based on historical factors: Planning, Decontamination and Dismantling, Restoration of Contaminated Areas, Final Radiation Survey, and Long-Term Surveillance.
- 3) Within each phase, hours are allocated to other labor categories based on historical factors and a percentage of project operational hours. Other labor categories include: project managers, process engineers, environmental specialists, supervision, operational specialists, non-detectable activity (NDA) specialists, health physicists, maintenance, and radiation technicians.

Adequate information is provided to understand the key assumptions in Step 1 above, including identification of the difficulty factors assigned to each task. However, there is no explanation of the historical factors used in Steps 2 and 3 above. Only the resulting number of total hours for each labor category and phase are provided (See “Total Work Hours By Labor Category – NFS Liability” table on pages 110-112 of 128, “Total Work Hours By Labor Category – JV Liability” on pages 116-118 of 128, and “Total Work Hours By Labor Category – DOE Liability” on pages 104-106 of 128 of the DFP).

U.S. Nuclear Regulatory Commission (NRC) requests the following information:

- (1) Identification and justification of the historical factors used to allocate operator hours to each of the five phases of the project, and
- (2) Identification and justification of the historical factors and percentages of project operational hours used to allocate hours for the following other labor categories: project managers, process engineers, environmental specialists, supervision, operational specialists, NDA specialists, health physicists, maintenance, and radiation technicians.

Enclosure

(2) Provide additional information regarding non-labor cost estimates

This information is required to verify compliance with 10 CFR 70.25(e)(1) which requires, in part, that a DFP identify and justify key assumptions used in the cost estimate.

The “Materials and Supplies, Contract and Special Services, and Waste Disposal Costs” tables (on pages 122-124 of 128 of the cost estimate) outline non-labor costs for responsible parties. The assumptions underlying these costs were not sufficiently identified or justified. We were unable to verify the accuracy of the calculations for several categories of non-labor costs. In the bulleted list below, the methodology used to calculate non-labor costs in the Nuclear Fuel Services (NFS) liability portion of the cost estimate is described as an example of the problem. The same problems exist in the calculation of non-labor costs for other responsible parties.

- Contract Services (Final Survey Sample, Analysis, and Reporting), Contract Services (Lab Cost for Survey Samples), and Contract Services (Backfill): The “Estimate Procedure” section of the DFP states that the “Final survey, backfill and long term surveillance contract costs are based on the process area total square footage.” However, the process area total square footage is not provided in the DFP, nor is any justification provided for why this is a reasonable parameter for estimating final survey, backfill, and long term surveillance contract costs. In addition, the unit costs on page 11 of 128 of the cost estimate for Estimated Backfill Cost (cost per cubic feet), Estimated Final Survey Lab Cost (no units provided), and Estimated Final Survey Contract Cost (no units provided) are not provided based on a cost per square foot, indicating a potential inconsistency in the methodology described in the DFP for calculating final survey, backfill, and long term surveillance contract costs.

Because of the missing process area total square footage and/or inconsistent unit costs, the basis for the cost estimate is not adequately identified or justified. We request that the licensee provide process area total square footage, unit costs, and justification for the described methodology for calculating the following non-labor costs: Contract Services (Final Survey Sample, Analysis, and Reporting), Contract Services (Lab Cost for Survey Samples), and Contract Services (Backfill).

- Contract Services (Building Demo Labor): The “Estimate Procedure” section of the DFP states that the “demolition cost is estimated based on the square footage footprint of the building using factors from historical projects.” Page 11 of 128 of the cost estimate provides a “Cost per square foot to demolish each building” of \$34.07. Square footage is listed for two buildings under NFS liability: B-311 (4,950 ft²) and B-440 (3,793 ft²). Multiplying the demolition unit cost by the sum of the square footage of B-311 and B-440 results in a total cost of \$297,874, which differs from the provided cost for Contract Services (Building Demolition Labor) of \$262,290. Because multiplying the unit cost by the relevant building square footage does not appear to be equal to the stated estimated demolition cost, the basis for this cost element is unclear. We request that the licensee justify the calculations for the Contract Services (Building Demolition Labor) cost estimate.

(3) Revise or justify labor rate for NDA Specialist, Health Physicist, and Radiation Technician labor categories to reflect costs of an independent contractor

This information is needed to verify compliance with 10 CFR 70.25(e)(1) which requires, in part, that the cost estimate reflect the cost of an independent contractor to perform all decommissioning activities.

The “Worker Unit Cost Schedules” tables on pages 125-127 of 128 of the cost estimate provide salary and benefits, overhead rates, and total costs per hour for each labor category in the DFP. For the NDA Specialist, Health Physicist, and Radiation Technician categories, the salary, benefits, and overhead are based on the “Avg. of NFS NDA Salary and Benefits,” and an 8 percent “contract overhead” is added to determine the total cost per hour for each of those labor categories.

NUREG/CR-6477, “Revised Analyses of Decommissioning Reference Non-Fuel-Cycle Facilities” (December 2002), describes the results of an NRC-sponsored study of decommissioning costs. Although the NRC study focused on non-fuel cycle facilities (e.g., laboratories), the findings regarding contractor profit and overhead costs are applicable to other types of facilities. NUREG/CR-6477 addresses the bases for decommissioning cost estimates, including overhead rates and contractor profit. The NRC study found that an appropriate overhead rate for owner/operator personnel is between 50 to 70 percent. For contracted personnel, the NRC concludes that an overhead rate of 110 percent, plus 15 percent profit on labor and its overhead is appropriate. The study describes the basis for a higher overhead rate for contractor personnel relative to owner/operator personnel in the following way:

Overhead rates applied to staff labor are expected to be significantly higher for the decommissioning contractor than they are for the site owner/operator. These higher overhead rates apply because of the larger ratio of supervisory and support personnel to direct labor that usually exists in contractor organizations and because of travel and living expenses associated with having personnel in the field rather than in an office. In Table A.1 in Appendix A, an overhead rate on direct staff labor of 110%, plus 15% profit on labor and its overheads, is applied for all contractor personnel. (NUREG/CR-6477, Section 7.1.1).

The total costs for the NDA Specialist, Health Physicist, and Radiation Technician categories appear to underestimate the full third-party cost of decommissioning in two ways: (1) the salary, benefits, and overhead included in the labor rates are based on NFS labor costs, not that of an independent contractor, and the 8 percent “contract overhead” does not appear to account for the difference between licensee costs and the costs of an independent contractor; and (2) independent contractor profit does not appear to be included in the labor rates.

We request that NFS revise its cost estimate for the NDA Specialist, Health Physicist, and Radiation Technician labor categories to reflect a contractor overhead rate of 110 percent and contractor profit of 15 percent on labor and overhead.

(4) Explain how the cost estimate incorporates all costs of decommissioning, including any “miscellaneous costs”

This information is required to verify compliance with 10 CFR 70.25(e)(1) which requires, in part, that the cost estimate reflect the cost to perform all decommissioning activities.

The cost estimate categorized costs into five categories: Planning and Preparation, Decontamination and/or Dismantling of Radioactive Facility Components, Restoration of Contaminated Areas on Facility Grounds, Final Radiation Survey, and Site Stabilization and Long Term Surveillance. The estimate did not contain a category for miscellaneous costs not reflected in these five categories and does not explicitly include costs for items like license fees, insurance, taxes, or security. Appendix A of NUREG-1757, Volume 3, Rev. 1 states that “Non-labor costs...may include... miscellaneous expenses (e.g., license fees, insurance, taxes, security).” We request that NFS either explain how all “miscellaneous costs” are reflected in the current cost estimate or revise the estimate to account for these costs.

(5) Explain how the cost estimate incorporates the disposal cost of non-waste material in the inventory.

This information is needed to verify compliance with 10 CFR 70.25(e)(1) which requires, in part, that the cost estimate reflect the cost of an independent contractor to perform all decommissioning activities.

At any given time, NFS has an inventory of non-waste material. Site decommissioning will require that material to be transferred to another site. Explain the plan for disposing of the material and the cost of an independent contractor to execute the plan. The information should estimate the cost to package, load and transport the material to an authorized recipient and explain how the costs covered (i.e., existing contracts with customers, line item in cost estimate, etc.).