

location of the environmental monitoring program sampling points, the frequency of sample collection, and the trends of the sampling program results in conjunction with the environmental pathway and exposure analysis and concluded that the monitoring program provides adequate protection of public health and safety.

#### *Environmental Impacts of Proposed Action*

##### **Radiological Impacts**

The basic limits on radiation exposures, as well as the minimum radiation protection practices required of any NRC licensee, are specified in 10 CFR part 20, "Standards for Protection Against Radiation" (Ref. 5). The models used in part 20 to regulate internal doses are those described in ICRP Publications 26 and 30, adopted by ICRP in 1977 and 1978, respectively (Ref. 6, 7). Much of the basic structure of these models was developed in 1966, although some of its components and parameters were altered somewhat between 1966 and their formal adoption by ICRP in 1978. In the same year that the Commission approved the final Part 20 rule (1991), ICRP published a major revision of its radiation protection recommendations, ICRP 60 (Ref. 8). In the several years following this revision, ICRP published a series of reports in which it described the components of an extensively updated and revised internal dosimetry model. Due to the restrictions in part 20, NRC licensees are not permitted to use the revised and updated internal dosimetry models, without requesting an exemption to the regulations.

Although the dose per unit intake calculated using the new models does not differ by more than a factor of about two from the values in Part 20 for most radionuclides, the differences are substantial for some, particularly for the isotopes of thorium, uranium, and some of the transuranic radionuclides. For example, for inhalation of insoluble thorium-232 ( $^{232}\text{Th}$ ), the dose per unit intake calculated using the revised ICRP lung model is a factor of about 15 times lower than that in part 20. Because protective measures are based on the hazard, and since the hazard is proportional to dose, part 20 requires significantly more protective measures when using  $^{232}\text{Th}$  than would be warranted based on the revised models. This is NFS's primary concern, and has requested that it be allowed to use DAC and ALI values based on the dose coefficients listed in ICRP 68. The staff concluded during the license renewal on July 2, 1999, that NFS, due to

adequate training and expertise, is qualified to utilize the ICRP Model's such as ICRP-68 in a manner equivalent to those values listed in 10 CFR 20.1201(d), *i.e.*, doses to less than NRC's regulatory limit of 5 rem, in its Radiation Safety Program. Therefore, NFS' request for an exemption under 10 CFR 20.2301 and 10 CFR 70.14(a) is acceptable, because it gives its workers equivalent radiological protection as required by 10 CFR part 20. Thus, the exemption is authorized by law and will not result in an undue hazard to life or property.

##### **Nonradiological Impacts**

The NRC determined that there are no nonradiological impacts associated with the proposed action.

##### **Cumulative Impacts**

The NRC determined that there are no cumulative impacts associated with the proposed action.

#### *Alternatives to the Proposed Action*

NRC considered one alternative to the proposed action which was to deny the amendment request. This alternative was rejected because the impacts of the proposed action on the health and safety of the workers, the public, and the environment were determined to be insignificant. In addition, the licensee will be able to save time and resources on implementing protective measures, upon approval of the proposed action.

#### *Agencies and Persons Contacted*

The NRC contacted the Director of Radiological Health at the Tennessee Department of Environment and Conservation (TDEC) concerning this request. There were no comments, concerns or objections from the state.

Because the proposed action is entirely within existing facilities, and does not involve new or increased effluents or accident scenarios, the NRC has concluded that there is no potential to affect endangered species or historic resources, and therefore consultation with the State Historic Preservation Society and the U.S. Fish and Wildlife Service was not performed.

### **III. Finding of No Significant Impact**

Based upon the environmental assessment, the staff concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the staff has determined that preparation of an environmental impact statement is not warranted.

### **IV. Further Information**

The following documents are related to the proposed action:

1. B.M. Moore, Nuclear Fuel Services, Inc., Letter to U.S. Nuclear Regulatory Commission, "License Amendment Request to Use ICRP 68 for ALI and DAC Determinations," January 23, 2003. (ADAMS Accession Number ML030290097).
2. International Commission on Radiological Protection, "Dose Coefficients for Intake of Radionuclides by Worker," Publication 68, Elsevier Science, 1995.
3. T. Cox, U.S. Nuclear Regulatory Commission, Letter to T.S. Baer, Nuclear Fuel Services, Inc., "Finding of No Significant Impact and Environmental Assessment," January 29, 1999.
4. U.S. Nuclear Regulatory Commission, Special Nuclear Material License SNM-124.
5. *U.S. Code of Federal Regulations*, "Standards for Protection Against Radiation," Part 20, Chapter 1, Title 10, Energy.
6. International Commission on Radiological Protection, "Recommendations of the International Commission on Radiological Protection," Publication 26, Elsevier Science, 1977.
7. International Commission on Radiological Protection, "Limits for the Intake of Radionuclides by Workers," Publication 30, Elsevier Science, 1978.

These references may be examined and/or copied for a fee at the NRC's Public Document Room, located at One White Flint North, 11555 Rockville Pike, Rockville, MD 20852. The references with ADAMS accession numbers may also be viewed in the NRC's Electronic Public Document Reading Room at <http://www.nrc.gov/reading-rm/adams.html>. Any questions with respect to this action should be referred to Ms. Mary Adams, Fuel Cycle Facilities Branch, Division of Fuel Cycle Safety and Safeguards, U.S. Nuclear Regulatory Commission, Mail Stop T-8 A33, Washington, DC 20555-0001. Telephone 301-415-7249.

Dated at Rockville, Maryland, this 7th day of July, 2003.

For the Nuclear Regulatory Commission.

**Susan M. Frant,**

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