

during the handling of special nuclear material, personnel would be alerted to that fact and would take appropriate action. At a commercial nuclear power plant, the provisions of 10 CFR 70.24 relate to an inadvertent criticality event that could occur during fuel handling operations. The special nuclear material that could be assembled into a critical mass at a commercial nuclear power plant is in the form of nuclear fuel; the quantity of other forms of special nuclear material that is stored on site is small enough to preclude achieving a critical mass.

By letter dated April 18, 2002, as supplemented by letters dated August 7 and October 9, 2002, and January 15, 2003, the licensee submitted an application for revisions to the McGuire Technical Specifications (TSs) to address the spent fuel pool Boraflex degradation issues. The analysis supporting this application proposed to take partial credit for boron in the spent fuel pool water. Therefore, a part of the technical basis for the granting of the exemption from 10 CFR 70.24 on July 31, 1997, is revised. Accordingly, the exemption and the associated environmental assessment are being reissued to reflect the revision in the design basis assumptions for the spent fuel pool in the calculation of the limiting value of the criticality parameter, k -effective. Because the fuel is not enriched beyond 4.75 weight percent Uranium-235 and because commercial nuclear plant licensees have procedures and features designed to prevent inadvertent criticality, the staff has determined that it is unlikely that an inadvertent criticality could occur due to the handling of special nuclear material at a commercial power reactor. The requirements of 10 CFR 70.24, therefore, are not necessary to ensure the safety of personnel during the handling of special nuclear materials at commercial power reactors.

Environmental Impacts of the Proposed Action

The NRC has completed its evaluation of the proposed action and concludes that there is no significant environmental impact if the exemption is granted. Inadvertent or accidental criticality will be precluded through compliance with the McGuire TSs, the design of the fuel storage racks that provide geometric spacing of fuel assemblies in their storage locations, and administrative controls imposed on fuel handling procedures. The TS requirements specify reactivity limits for the fuel storage racks and minimum spacing between the fuel assemblies in the storage racks.

Appendix A of 10 CFR part 50, "General Design Criteria for Nuclear Power Plants," Criterion 62, requires that criticality in the fuel storage and handling system be prevented by physical systems or processes, preferably by use of geometrically safe configurations. This is met at McGuire, as identified in the TS Section 4.3 and in the Updated Final Safety Analysis Report (UFSAR), Section 9.1, by detailed procedures that must be available for use by refueling personnel. Therefore, as stated in the TSs, these procedures, the TS requirements, and the design of the fuel handling equipment with built-in interlocks and safety features, provide assurance that it is unlikely that an inadvertent criticality could occur during refueling. In addition, the design of the facility does not include provisions for storage of spent fuel in a dry location within the fuel storage building.

UFSAR Section 9.1.1, "New Fuel Storage," states that new fuel is stored in the New Fuel Storage Racks located within a New Fuel Storage Vault at each McGuire unit. The new fuel storage racks are arranged to provide dry storage. The racks consist of vertical cells grouped in parallel rows, 6 rows wide and 16 cells long, which provide support for the new fuel assemblies and maintain a minimum center-to-center distance of 21 inches between assemblies. (Note that in none of these locations would criticality be possible.)

The proposed exemption would not result in any significant radiological impacts. The proposed exemption would not affect radiological plant effluents nor cause any significant occupational exposures since the TSs, design controls (including geometric spacing and design of fuel assembly storage spaces) and administrative controls preclude inadvertent criticality. The amount of radioactive waste would not be changed by the proposed exemption.

The proposed exemption does not result in any significant nonradiological environmental impacts. The proposed exemption involves features located entirely within the restricted area as defined in 10 CFR part 20. It does not affect nonradiological plant effluents and has no other environmental impact. Accordingly, the Commission concludes that there are no significant nonradiological environmental impacts associated with the proposed action.

Alternatives to the Proposed Action

Since the Commission has concluded that there is no measurable environmental impact associated with the proposed action, any alternatives

with equal or greater environmental impact need not be evaluated. As an alternative to the proposed action, the staff considered denial of the proposed action (*i.e.*, the "no-action" alternative). Denial of the application would result in no change in current environmental impacts. The environmental impacts of the proposed action and the alternative action are similar.

Alternative Use of Resources

This action does not involve the use of any resources not previously considered in NUREG-0063, "Final Environmental Statement Related to the Operation of William B. McGuire Nuclear Station, Units 1 and 2," April 1976, and the Addendum to NUREG-0063 issued in January 1981.

Agencies and Persons Contacted

In accordance with its stated policy, on January 27, 2003, the staff consulted with the North Carolina State official, Mr. Johnny James of the Division of Environmental Health, Radiation Protection Section, North Carolina Department of Environment and Natural Resources, regarding the environmental impact of the proposed amendments. The State official had no comments.

Finding of No Significant Impact

On the basis of the environmental assessment, the NRC concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the NRC has determined not to prepare an environmental impact statement for the proposed action.

For further details with respect to the proposed action, see the licensee's letter requesting an exemption that was dated February 4, 1997, and supplemented by letter dated March 19, 1997, and the licensee's letters dated April 18, August 7, October 9, 2002, and January 15, 2003, proposing a revision in certain design basis assumptions related to the issuance of the exemption from 10 CFR 70.24. Documents may be examined, and/or copied for a fee, at the NRC's Public Document Room (PDR), located at One White Flint North, Public File Area O1 F21, 11555 Rockville Pike (first floor), Rockville, Maryland. Publicly available records will be accessible electronically from the Agencywide Documents Access and Management System (ADAMS) Public Electronic Reading Room on the Internet at the NRC Web site, <http://www.nrc.gov/reading-rm/adams.html>. Persons who do not have access to ADAMS or who encounter problems in accessing the documents located in ADAMS should contact the NRC PDR Reference staff by