Docket Nos.: 50-369 and
50-370

18 APR 1986

Mr. H. B. Tucker, Vice President
Nuclear Production Department
Duke Power Company
422 South Church Street
Charlotte, North Carolina 28242

Dear Mr. Tucker:

SUBJECT: ENVIRONMENTAL ASSESSMENT - MCGUIRE NUCLEAR STATION, UNITS 1 AND 2

Enclosed for your information is a copy of the "Environmental Assessment and Finding of No Significant Impact" related to your May 9, October 2 and 14, December 17 and 23, 1985; January 14, March 17, and April 8, 1986, requests for operation up to full power with the Upper Head Injection Accumulator System functionally disabled or physically removed.

The notice has been forwarded to the Office of the Federal Register for publication.

Sincerely,

Original signed by:
D. Hood

Darl Hood, Project Manager
PWR Project Directorate #4
Division of PWR Licensing-A

Enclosure:
As stated

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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DAPL Hood

Darl Hood, Project Manager
PWR Project Directorate #4
Division of PWR Licensing-A

Enclosure:
As stated

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UNITED STATES NUCLEAR REGULATORY COMMISSION

DUKE POWER COMPANY

DOCKET NOS. 50-369 AND 50-370

ENVIRONMENTAL ASSESSMENT AND FINDING OF

NO SIGNIFICANT IMPACT

The U. S. Nuclear Regulatory Commission (the Commission) is considering issuance of amendments to the Duke Power Company (the licensee) for the McGuire Nuclear Station, Units 1 and 2, located in Mecklenburg County, North Carolina.

ENVIRONMENTAL ASSESSMENT

Identification of Proposed Action: The proposed amendments would change the Technical Specifications to provide for operation up to full power with the Upper Head Injection Accumulator (UHI) System functionally disabled (i.e., with UHI isolation valves closed) or with UHI physically removed.

Other changes associated with UHI isolation or removal would also be made to appropriate Technical Specifications. These include deletion of Technical Specifications requiring UHI system maintenance, surveillance, and leakage verification and modification of Technical Specifications to reflect deletion of UHI related containment penetrations and associated conductor overcurrent protective devices, containment isolation valves, and system piping snubbers. The proposed Technical Specifications also reflect changes to the ECCS cold leg injection accumulators to increase the operable range limits of the nitrogen gas cover-pressure (from 430 and 484 psig to 585 and 639 psig), and to decrease the operable range limits of their water volume (from 8022 and 8256 gallons to 6870 and 7342 gallons). The changes to the ECCS cold leg injection accumulators would also be accompanied by appropriate modifications to

instrumentation alarm functions and procedures, and by replacement of flow restricting orifices in their discharge piping with orifices of smaller diameter; however, these accompanying changes do not involve a change to the Technical Specifications.

The proposed action is in accordance with licensee's letters dated May 9, October 2 and 14, December 17 and 23, 1985, January 14, March 17, and April 8, 1986.

The Need for the Proposed Action: The licensee has requested this action because the UHI system has been found to cause frequent maintenance problems and operational delays. Filling and venting requirements of the UHI System add about 10 hours to a startup from cold shutdown conditions. The system contributes to occupational radiation exposure during normal operation (i.e., during surveillance and maintenance) and during refueling outages requiring removal or reconnection of injection piping to the reactor vessel upper head. The continuing operational difficulties and radiological exposures associated with the UHI system would be eliminated upon completion of system removal.

Environmental Impacts of the Proposed Action

A. Plant Radiological Releases

The UHI system performs no function during normal operation but serves to mitigate accidents after they occur. Therefore, no adverse change in plant radiological or non-radiological releases would occur for normal operation of the plant with the UHI system isolated or removed.

Plant performance and consequences after an accident or transient are the same with the UHI system functionally disabled (isolated) as with the UHI system physically removed. By letter dated October 2, 1985, and amended March 17, 1986, the licensee provided safety analyses for

loss-of-coolant accidents (LOCA) and non-LOCA transients for the planned configuration (no UHI operation, modified cold-leg injection) using Commission approved analytical models and methodology. The Commission has reviewed these analyses and finds that the radiological and non-radiological releases for accidents and transients are not increased. The Commission, with the technical assistance of a contractor, Sandia National Laboratories, has also performed independent plant performance analyses of a LOCA using more realistic models (TRAC) and assumptions and finds that the UHI system is of only marginal (if any) benefit in mitigating conditions during and after a LOCA, and that no significant changes in fuel damage or radiological releases would occur after a LOCA without UHI operation.

Accordingly, Commission findings in the Final Environmental Statement Related to Operation of William B. McGuire Nuclear Station, Units 1 and 2, dated April 1976, and its January 1981 addendum, regarding radiological and non-radiological releases from the plant during normal operation or after accidents are not adversely altered by this action.

B. Occupational Radiological Aspects of UHI Removal

By letters dated October 29, 1985 and December 23, 1985, the licensee described the construction changes and activities associated with UHI removal. The principal tasks involve (1) replacing or reboring four cold leg accumulator flow element orifice plates, (2) cutting of the reactor vessel head penetrations and welding on caps, followed by hydrotesting,

(3) removing UHI piping, valves, support/restraints and instrumentation, (4) capping various UHI piping interfaces with other systems, (5) capping two 12-inch containment penetrations, (6) relocating the level transmitters on the cold leg accumulators and (7) capping accumulator lines at the accumulator. The submittals compared the dose incurred from task performance (144 person-Rem for the two units) with dose avoided through reduced maintenance, inspection and operational requirements (420 person-Rem for the two units), and found a net exposure savings of 276 person-Rem over plant life due to UHI removal. The Commission has evaluated the radiological aspects of the proposed changes against the criteria of Chapter 12 of the Standard Review Plan (NUREG-0800) and Regulatory Guide 8.8, "Information Relevant to Ensuring that Occupational Radiation Exposures at Nuclear Power Stations will be as Low as is Reasonably Achievable," and has concluded that the radiological aspects of UHI removal have been fully considered, and that the radiation protection measures planned for the tasks are acceptable to protect the workers, and will result in doses that are as low as is reasonably achievable.

C. Waste

Removal of the UHI related components and associated tasks is estimated by the licensee to generate about 807 cubic feet of contaminated components for each McGuire unit, mostly comprised of various-diameter pipe, valves, hangers, Grayloc disconnectors and thermal sleeves. About 94% of this component volume is estimated to contain low or medium radiation and contamination levels for a total waste activity of about 1.4 curies; and the other 6% (about 55 cubic feet) from near the reactor vessel

head area is estimated to contain high radiation and contamination levels for a total waste activity of about 5.2 curies. The total estimated radioactivity associated with these components is, therefore, 6.6 curies. The components will either be decontaminated and scrapped or transported to Barnwell, South Carolina for burial as low-level waste. The licensee estimates that using the decontamination option would reduce the waste volume for disposal to about one cubic foot. The total estimated activity of 6.6 curies represents only approximately 3.0% of the total activity shipped from McGuire in solid waste in 1985. Disposal and shipment of radioactive materials will be performed in accordance with applicable regulatory requirements.

D. Conclusion

Plant radiological and non-radiological releases during normal operation or after an accident will not be increased by the proposed action. Disposal of system components would add only a small fraction to the radioactivity normally shipped from the site in solid waste. The radiological exposure of construction workers during UHI removal will be as low as is reasonably achievable, and will be less than the dose which would, otherwise, result to personnel observing and maintaining the UHI system for the remainder of plant life. Accordingly, we conclude that this proposed action would result in no significant adverse environmental impact.

Alternative to the Proposed Actions: Since we have concluded that the environmental effects of the proposed action are negligible, any alternatives with equal or greater environmental impact need not be evaluated.

The principal alternative would be to deny the requested amendments. That alternative, in effect, is the same as the "no action" alternative. Neither alternative would reduce environmental impacts of plant operation but would result in increased personnel radiation exposure during plant life.

Alternative Use of Resources: This action does not involve the use of resources not previously considered in connection with the Nuclear Regulatory Commission's Final Environmental Statement dated April 1976 or its addendum dated January 1981 related to this facility.

Agencies and Persons Consulted: The NRC staff reviewed the licensee's requests of May 9, October 2 and 14, December 17 and 23, 1985, and January 14, March 17 and April 8, 1986. The NRC staff discussed this action with the ACRS Subcommittee on ECCS on February 21, 1985, and March 26, 1986, and with the ACRS Full Committee on April 10, 1986.

Finding of No Significant Impact: The Commission has determined not to prepare an environmental impact statement for the proposed license amendments.

Based upon this environmental assessment, we conclude that the proposed action will not have a significant effect on the quality of the human environment.

For further details with respect to this action, see the request for amendment dated May 9, 1985, and its supplements dated October 2 and 14, December 17 and 23, 1985, January 14, March 17, and April 8, 1986; the Final Environmental Statement related to operation of William B. McGuire Nuclear Station, Units 1 and 2 (NUREG-0063) dated April 1976, including its addendum dated January 1981; and ACRS Transcripts dated February 21, 1985, March 26 and April 10, 1986 which are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C., and at the Atkins Library, University of North Carolina, Charlotte (UNCC Station), North Carolina 28242.

Dated at Bethesda, Maryland this 16th day of April 1986.

FOR THE NUCLEAR REGULATORY COMMISSION

Darl S. Hood, Acting Director
PWR Project Directorate #4
Office of Nuclear Reactor Regulation