

February 24, 1989

Docket Nos.: 50-369  
50-370

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 AND FINDING OF NO SIGNIFICANT IMPACT  
(TACS 56472/56473)

Enclosed for your information is a copy of an "Environmental Assessment and Finding of No Significant Impact" related to your January 27, 1988, request for amendments to the operating licenses for the McGuire Nuclear Station, Units 1 and 2. The amendments would revise Technical Specifications related to groundwater level. The notice has been forwarded to the Office of the Federal Register for publication.

Sincerely,

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Darl S. Hood, Project Manager  
Project Directorate II-3  
Division of Reactor Projects -I/II  
Office of Nuclear Reactor Regulation

Enclosure:  
Environmental Assessment  
cc w/encl:  
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Duke Power Company

McGuire Nuclear Station

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UNITED STATES NUCLEAR REGULATORY COMMISSIONDUKE POWER COMPANYDOCKET NOS. 50-369 AND 50-370ENVIRONMENTAL ASSESSMENT AND FINDING OFNO SIGNIFICANT IMPACT

The United States Nuclear Regulatory Commission (the Commission) is considering issuance of amendments to Facility Operating License Nos. NPF-9 and NPF-17 issued to Duke Power Company (the licensee), for operation of the McGuire Nuclear Station, Units 1 and 2, located in Mecklenburg County, North Carolina.

ENVIRONMENTAL ASSESSMENTIdentification of Proposed Action:

The amendments would revise Technical Specification (TS) 3/4.7.13 "Groundwater Level" and referenced Table 3.7-7 "Groundwater Level Monitors." TS 3.7.13 presently requires that groundwater level be maintained at specified levels as determined from eleven interior and exterior groundwater level monitors situated in or near the Reactor Buildings, the Auxiliary Building and the Diesel Generator Buildings. The proposed change would delete the groundwater monitors for the Reactor Buildings and the Diesel Generator Buildings, leaving only the five monitors for the Auxiliary Building. The change would introduce a single alarm level (731 feet MSL) for the Auxiliary Building monitors, and would change the unit shutdown requirement from one alarmed monitor to three alarmed monitors out of a total of five for the Auxiliary Building. Duke Design Engineering has performed analyses which show that the Reactor Buildings and Diesel Generator Buildings can withstand a groundwater elevation corresponding

to plant grade, 760 feet MSL (which is also the full pond level for Lake Norman) and that, therefore, it is not necessary to continue monitoring the groundwater levels for these particular buildings. Elevation 737 feet MSL was calculated to be the maximum level that groundwater could rise before overturning due to buoyancy would begin for the Auxiliary Building. To avoid reaching this level, the proposed TS would require that if groundwater level exceeds elevation 731 feet MSL as indicated by 3 of 5 monitor alarms, and cannot be reduced in one hour, the McGuire Station (both units) must be in at least hot standby within 6 hours, and hot shutdown within the next 6 hours, and cold shutdown within the following 30 hours. The associated surveillance requirements would be changed to require that (1) the groundwater level be demonstrated each shift to be below elevation 731 feet MSL and (2) the groundwater level monitor instrument/loop for the specified locations be demonstrated operable annually by loop calibration or operational test.

The proposed action is in accordance with the licensee's application for amendments dated January 27, 1988, which replaced a previous related application dated October 31, 1984.

The Need for the Proposed Action:

The proposed change is needed to eliminate an inconsistency between the "alert" level needed to satisfy existing TS 3.7.13 and the detection capabilities of the interior groundwater monitoring instruments as actually installed at McGuire. The current TS requires specified action at an "alert" level that is 2 feet above floor level. As installed, the interior monitors are located in the exterior walls at 2 feet 8 inches above floor level and the pressure sensors are at 3 or 4 feet above floor level. Thus, the lowest possible level alarm

for these monitors is about 3 or 4 feet above floor level. The proposed action would eliminate the present inconsistency by substituting a new alarm level at 731 MSL as the basis for action. The proposed change would also avoid needless shutdown of the reactor at groundwater levels or localized increases for which licensee's design analyses have demonstrated no adverse effect to structures.

Environmental Impacts of the Proposed Action:

Since the lower elevations of some Category 1 structures at the McGuire Nuclear Station are below the natural water table, a permanent groundwater dewatering (drainage) system was installed during initial construction to lower the water table. The groundwater system relieves subsurface hydrostatic loadings by collecting groundwater in wall drains, basemat flow channels and sumps, thereby creating a depression in the water table in the vicinity of the powerblock. This protects the structures by limiting structural stresses exerted upon the Auxiliary and Reactor Buildings due to hydrostatic pressures and uplift forces as a result of high groundwater levels. During normal operation of the underdrain system, groundwater level is maintained at or below elevation 712 feet MSL in the Auxiliary Building areas and elevation 717 feet MSL in the Reactor Building areas. Groundwater collected in the underdrain sumps is pumped to the Yard Storm Drain System or to the Turbine Building sumps via sump pumps located in the Auxiliary Building and is subsequently discharged to the Catawba River by way of the Conventional Waste Water Basin.

The proposed changes do not alter the design of the dewatering system or its function. Therefore, the groundwater levels normally maintained by this system and groundwater hydrology for the site are not changed. Similarly, the quantity and quality of groundwater collected and discharged from the station are not changed.

The purpose of the TS is to ensure that groundwater levels are monitored and prevented from rising to a potential failure limit for the Auxiliary Building (such as could result from gross failure of the undrain system, followed by prolonged inattention). The potential failure limit is based on engineering calculations indicating that the Auxiliary Building is susceptible to overturning due to buoyancy at elevation 737 feet MSL. Under the requirements of the proposed TS change, if groundwater level at the Auxiliary Building exceeds elevation 731 feet MSL as indicated by 3 of 5 specified groundwater monitor alarms, and cannot be reduced in 1 hour, the McGuire units would be placed in a cold shutdown condition. Other analyses have determined that the Reactor Buildings and the Diesel Generator Buildings are designed to withstand hydrostatic loadings due to groundwater levels up to top of grade (760 feet MSL) which is also the full pond level for nearby Lake Norman. Therefore, no TS requirement is needed regarding groundwater for the Reactor Buildings or Diesel Generator Buildings.

The staff has reviewed the proposed changes and has found them to be based upon conservative analyses of limiting structural concerns due to groundwater, and to provide for reliable and timely indications of the need for actions to place the facility in a safer condition before groundwater levels sufficient to cause the limiting structural concerns could be reached. The requirement to be in cold shutdown before groundwater levels at structural limits can be reached is consistent with the existing TS. Thus, the proposed change does not increase the probability or consequences of accidents.

The groundwater system is a non-radiological system. The proposed change involves no adverse change in the types or amounts of radiological (or non-radiological) effluents that may be released offsite, and no increase in allowable individual or cumulative occupational radiation exposure.

Accordingly, the Commission concludes that this proposed action would result in no significant adverse environmental impact.

Alternative to the Proposed Action:

Since the Commission concluded that there are no significant environmental effects that would result from the proposed action, any alternatives with equal or greater environmental impacts need not be evaluated.

The principal alternative would be to deny the requested amendments. This would not reduce environmental impacts of plant operation and could result in reduced operational flexibility and needless shutdowns.

Alternative Use of Resources:

This action does not involve the use of resources not previously considered in connection with the "Final Environmental Statement Relating to Operation of the William B. McGuire Nuclear Station, Units 1 and 2," dated April 1976 or its addendum dated January 1981.

Agencies and Persons Consulted:

The NRC staff has reviewed the licensee's request and did not consult other agencies or persons.

FINDING OF NO SIGNIFICANT IMPACT

The Commission has determined not to prepare an environmental impact statement for the proposed license amendments.

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

For further details with respect to this action, see the application for amendments dated January 27, 1988 and a previous application of October 31, 1984,

which it replaced. Also see the licensee's letters dated April 26, June 21, and August 25, 1988, which provided revised or supplemental information in support of the January 27, 1988 application. A detailed description of the groundwater system can be found in McGuire FSAR section 2.4.13. These documents are available for public inspection at the Commission's Public Document Room, 2120 L Street, N. W., Washington, D. C. and at the Atkins Library, University of North Carolina, Charlotte (UNCC Station), North Carolina 28223.

Dated at Rockville, Maryland, this 24th day of February 1989.

FOR THE NUCLEAR REGULATORY COMMISSION

Original Signed By:

David B. Matthews, Director  
Project Directorate II-3  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

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