

# DUKE POWER COMPANY

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W. H. OWEN  
EXECUTIVE VICE PRESIDENT  
ENGINEERING & CONSTRUCTION

July 13, 1984

(704) 373-4120

Mr. Harold R. Denton, Director  
Office of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Re: Catawba Nuclear Station, Unit 1  
Docket No. 50-413

Subject: Applicants' Application for Partial  
Exemption from Appendix J

Dear Mr. Denton:

By letter dated July 11, 1984 Applicants requested an exemption from 10 CFR 50, Appendix J for the following items:

- (a) Testing of bellows on mechanical penetrations
- (b) Venting and draining of certain penetrations during Type A tests
- (c) Testing of containment airlocks

The purpose of this letter is to supplement the arguments concerning the exigent circumstances supporting issuance of these exemptions.

Concerning item (a), the Catawba mechanical penetrations are a second generation Duke Power Company design, based on the McGuire design which is performing satisfactorily. Enhancements over the McGuire design consist of a protective sleeve over the bellows and an improved weld design of the bellows. Duke has every expectation that the Catawba penetrations will perform their design function equally as well as the original design used at McGuire. Based on satisfactory performance at McGuire, Duke would utilize the same basic design for a future station. In fact, penetrations for the Cherokee Nuclear Station, which represented a third generation design, retained the two-ply bellows feature, including the low between-the-plys test pressure. Stiffening of the inner ply to better resist increased test pressures would cause engineering compromises contrary to the overall design requirements. Increased between-the-plys test pressure would only increase sensitivity of the test to detect very small leaks and would not significantly increase the capability of the current test pressure to detect such leaks. Modified designs to increase this test pressure are not practical, are not necessary, and safety of the plant or the public would not be enhanced.

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Estimated materials and labor costs to replace mechanical penetrations, designed and procured in the mid-1970's, would be in the tens of millions of dollars for one Catawba unit. Lost power and many other factors would also impose additional costs; all of which would result in costs and hardships without a compensating increase in the level of quality of safety.

As previously discussed, item (b) relates to venting and draining of certain penetrations equipped with a seal water system during Type A tests. The containment isolation valve seal water system was developed for Catawba after problems were identified at McGuire with obtaining acceptable Type C leakage rates from a number of valves. The seal water system relies on injection of a fluid into the bonnet of the isolation valve which prevents leakage from containment. The "reverse" check valves used to prevent overpressurization of the penetration assembly are not amenable to a fluid seal because there is no bonnet cavity. Thus, these valves must be Type C tested. Additionally, leakage cannot be excluded in a Type A test since they may be open to containment atmosphere after a design basis accident. In order for the penetrations to be drained for a Type A test, sealing water injection to the main isolation valves must be suspended (since the acceptable levels of sealing water injection leakage could fill the "reverse" check valve). This results in having the main isolation valves drained and exposed to the Type A leakrate test when, in fact, these valves will not be a potential leak path after an accident. A more accurate method of determining the Type A leak rate is to not drain and vent the penetrations listed in our April 5, 1984 letter, but to add the leakage of the "reverse" check valve determined by their Type C test to the results of the Type A test.

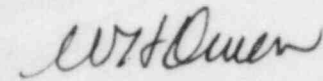
For this case Applicants have made a good faith effort to improve the design of Catawba based on problems identified at the McGuire Nuclear Station. Applicants would have to expend significant resources to bring Catawba into full compliance with Appendix J and these modifications would not enhance the level of safety presently attained by Catawba.

In regard to item (c), the current requirement contained in 10 CFR 50, Appendix J, III.D.2(b)(ii) poses a significant burden. The airlocks will usually be opened during outages to facilitate equipment transport into and out of containment. Then just prior to entry into Mode 4, the overall airlock leakage test must be performed. Installing strongbacks, performing the test, and removing strongbacks will require at least six hours per airlock during which access through the airlock is prohibited. Any access and egress to lower containment during testing of the lower airlock will involve climbing through the emergency hatch between upper and lower containment. This will result in more contamination in upper containment which will usually be cleaner than lower containment. Similarly, access to upper containment while testing the upper airlock will require passing through lower containment where radiation levels will be higher, thus increasing radiation exposure to personnel and increasing contamination in upper containment. The proposed changes would allow better scheduling of the overall airlock leakage test during periods when the need for access to containment is minimal.

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Applicant's original request for exemption to Appendix J was for the duration of the license on Catawba Unit 1. If NRC's review of this application warrants, Applicants would accept an exemption for the period of fuel loading and pre-critical testing. Exemption requests for operation subsequent to this period would be submitted at a later date.

Very truly yours,



W. H. Owen

NAR:scs

cc: Mr. J. P. O'Reilly, Regional Administrator  
U. S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30323

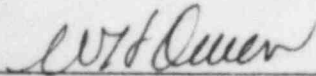
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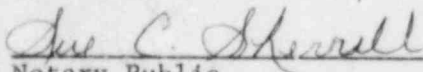
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W. H. OWEN, being duly sworn, states that he is Executive Vice President of Duke Power Company; that he is authorized on the part of said Company to sign and file with the Nuclear Regulatory Commission this application; and that all statements and matters set forth therein are true and correct to the best of his knowledge.



W. H. Owen, Executive Vice President

Subscribed and sworn to before me this 13th day of July, 1984.



Notary Public

My Commission Expires:

September 20, 1984