

**FOIA/PA NO: 2016-0311**

**RECORDS BEING RELEASED IN THEIR ENTIRETY**

1. 06/18/1984 "Forwards requests for addl info re GDC 51, 'Fracture Prevention of Containment Pressure Boundary,' TMI Item III.D.1.1 on primary coolant outside containment & use of methylcellulose bags in ice baskets." (8 pages)



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

June 18, 1984

Docket Nos.: 50-413  
and 50-414

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

Dear Mr. Tucker:

SUBJECT: REQUESTS FOR ADDITIONAL INFORMATION - CATAWBA NUCLEAR STATION

As part of the NRC staff's review of Catawba compliance with GDC 51 "Fracture Prevention of Containment Pressure Boundary," the staff has identified the need for additional information in this area (Enclosure 1).

Enclosure 2 is a request for additional information regarding TMI Item III.D.1.1, based on the staff's review of Revision 9 to Catawba Final Safety Analysis Report.

Furthermore, the staff has performed a preliminary review of your submittal transmitted by letter dated March 7, 1984, regarding the proposed use of methyl cellulose bags in about 1/3 of the ice baskets to reduce ice sublimation. Enclosures 3 and 4 are requests for additional information related to that area. The staff considers the use of methyl cellulose bags to represent a major design change. Therefore, the information needed to address the staff's safety concerns may require further additional information and/or testing, which may not be completed on a schedule consistent with a June 1984 fuel load date. However, the staff is prepared to approve the trial use of the methyl cellulose bags in six to twelve ice baskets.

In order for the NRC staff to review, in a timely manner, your responses to the above issues, we request that you provide your responses no later than June 27, 1984. If you require any clarification of this matter, please contact the project manager, Kahtan Jabbour, at (301) 492-7800.

The reporting and/or recordkeeping requirements contained in this letter affect fewer than ten respondents; therefore, OMB clearance is not required under P.L. 96-511.


Sincerely,

Elinor G. Adensam, Chief  
Licensing Branch No. 4  
Division of Licensing

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CF ADOCK 05000413  
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Enclosures:  
As stated

cc w/enclosures



CATAWBA

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CATAWBA NUCLEAR STATION

COMPLIANCE WITH GDC 51  
"Fracture Prevention of Containment Pressure Boundary"

The NRC Materials Engineering Branch (MTEB) concluded from its review that the information submitted by letter dated May 23, 1984, is incomplete in that Enclosure 1 of the submittal, which addressed power piping and mechanical penetrations, does not identify (1) the limiting materials by specification and location, (2) does not identify the limiting environmental conditions under which the limiting materials are called upon to provide a pressure boundary during operating, maintenance, testing and postulated accident conditions as cited by GDC 51, and (3) does not provide limiting material test certifications to confirm their presence.

NETR QUESTION FOR  
CATARA NUCLEAR STATION, UNIT NOS. 1 AND 2  
FINAL SAFETY ANALYSIS REPORT  
REVISION 9

460.13  
(1.9)

NUREG-0737, "Clarification of TMI Action Plan Requirements," Item III.D.1.1, "Integrity of Systems Outside Containment Likely to Contain Radioactive Material," provides that applicants shall implement a program to reduce leakage from systems outside containment that could contain highly radioactive fluids during a serious transient or accident; and that applicants provide justification for exclusion of systems containing radioactive materials from this program.

Prior to Revision 9, the FSAR included the refueling water system in the list of systems for which a periodic leak rate test would be written. In Revision 9, the refueling water system does not appear in this list of systems and no justification is provided for exclusion of this system.

The FSAR states that the refueling water in the refueling water storage tank and the refueling water cavity is circulated through the Spent Fuel Cooling System demineralizers and filters for cleanup by using the refueling water pump. Regulatory Guide 1.25 provides assumptions for evaluating radiological consequences of a fuel handling accident.

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Provide justification for exclusion of the refueling water system or include it in the list of systems for which a periodic leak test would be written.

CATAWBA NUCLEAR STATION  
CONTAINMENT SYSTEMS BRANCH  
REQUEST FOR ADDITIONAL INFORMATION

1. A more detailed discussion of methyl cellulose bag material behavior in the presence of steam/water is needed. Of concern is the time it would take for the bag material to disintegrate.
2. The potential for, and effect of, steam bypassing of the bagged baskets before the bags disintegrate should be addressed.
3. The potential for non-uniform ice melting, due to the presence of the bagged baskets, should be addressed. Non-uniform ice melting early in an accident could lead to selected ice basket meltout and subsequent steam bypass of the remaining ice.
4. The potential for the methyl cellulose, or the anti-foaming agent included in the design, becoming sources of hydrogen gas should be addressed.
5. The impact on the subcompartment analysis due to the reduced effectiveness of the ice condenser during the early phase of a LOCA should be analyzed in greater detail and justifications provided for the assumptions used.



CATAWBA NUCLEAR STATION  
STRUCTURAL AND GEOTECHNICAL ENGINEERING BRANCH  
REQUEST FOR ADDITIONAL INFORMATION

Structural concerns which should be addressed as a result of removing the cruciform supports from the bagged baskets and replacing them with a cable cruciform system, include:

- a) seismic design adequacy of modified ice-basket systems;
- b) potential for changes in vibration loads, and dynamic response characteristics of the modified ice-basket systems when subject to LOCA and/or SSE conditions;
- c) the implication of ice weight support being concentrated at the top of the ice baskets and design adequacy of localized support connections;
- d) structural integrity of connections between ice-basket segments;
- e) the implication of potential changes in load distributions, support and anchoring conditions;
- f) the implication of potential reduction of strengths of materials due to corrosion or other chemical changes as a result of using plastic ice bags; and
- g) the implication of potential changes in the design, erection and maintenance procedures of the ice-basket systems due to the adoption of the ice bags.