



**DUKE POWER**

March 21, 1990

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D. C. 20555

Subject: Catawba Nuclear Station, Units 1 and 2  
Docket Nos. 50-413 and 50-414  
Control of Heavy Loads at Nuclear Power Plants

Gentlemen:

My letter dated March 15, 1990 requested NRC approval of a revision to a station commitment that was made in response to NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants." The commitment change would allow the station to handle heavy loads inside the reactor building during Modes 1 - 4 for two specific activities. These activities consist of preventive maintenance on the reactor building polar crane and the removal of the pressurizer enclosure hatch to facilitate inspections inside the pressurizer cavity. Duke Power's analyses of load drop scenarios associated with the two activities showed no adverse impact on safe shutdown functions.

During a conference call on March 16, 1990 with the NRC Staff, several questions were raised by Messrs. Kirslis and Wagner. Duke has completed the additional review and analysis based on the questions and the results are summarized as follows:

1. Upper Containment piping composite drawings and Upper Containment electrical equipment drawings were reviewed and no safety related components were in the drop paths. This was verified in Unit 1 with a visual inspection. A similar inspection will be performed for Unit 2.
2. A drop analysis was performed for two additional cases: the pressurizer hatch edge (impact area = 58 square inches) striking the operating floor or CRDM missile shields; and the pressurizer hatch corner (impact area = 28.27 square inches) striking the operating floor or CRDM missile shields. These drop analyses were done with the same conditions as outlined in the March 15, 1990 letter with the exception of the impact areas. The results of the two additional cases were the pressurizer hatch does not penetrate the target areas, and the structural stability and functional requirements are maintained, and no secondary missiles due to scabbing are generated.

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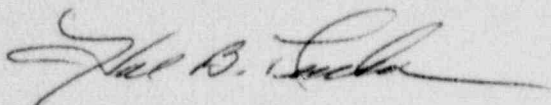
3. An additional review of the polar crane load block and hook drop was performed. The crane hook hitting the operating floor or missile shields on its edge (impact area = 131 square inches) is the bounding drop scenario. The results of the above bounding case were that the operating floor/missile shields were not penetrated, the structural stability and functional requirements are maintained, and no secondary missiles due to scabbing are generated.

Additionally, several more questions were raised by Messrs. Kirslis and Chan during a conference call on March 21, 1990. Duke has completed an additional review based on the latest questions and the results are summarized as follows:

1. Summary of impact dimensions used to obtain impact areas are as follows:
  - a) Pressurizer Hatch Flat Drop: 41" x 41"
  - b) Pressurizer Hatch Edge Drop: 29" x 2"
  - c) Pressurizer Hatch Corner Drop: effective diameter = 6"
  - d) Polar Crane Block & Cable Drop: Hook edge = 16 1/8" x 8 1/8"
2. Summary of reinforcing spacing:
  - a) Operating Floor: #11 bars @ 6", Top and Bottom, each direction.
  - b) CRDM Missile Shields: #11 bars @ 6", Top and Bottom
3. The ductility ratio in bending mode for the target concrete (operating floor and/or CRDM Missile Shields) was kept at or below 10.
4. The polar crane bridge seismic restraints are designed for SSE loads and protect against both lateral and uplift/overturning loads.

In conclusion, there are no safety related components in the drop zones, and the analyses of the postulated load drops indicate that the intent of NUREG-0612 has been met.

Very truly yours,



Hal B. Tucker

RGM/03199001

Attachment

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