

DUKE POWER COMPANY

P.O. BOX 33189
CHARLOTTE, N.C. 28242

HAL B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

TELEPHONE
(704) 373-4531

May 23, 1986

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

ATTENTION: Mr. B.J. Youngblood, Project Director
PWR Project Directorate #4

Subject: McGuire Nuclear Station Docket Nos. 50-369 and 50-370
TN-8, TN-8L Multielement Spent Fuel Casks License Amendments

Dear Mr. Denton:

My letter of March 20, 1986 submitted proposed license amendments (pursuant to 10 CFR 50.90) to Facility Operating Licenses NPF-9 and NPF-17 for McGuire Nuclear Station Units 1 and 2, respectively. The proposed amendments seek to permit use of the multielement TN-8 (and TN-8L) spent fuel casks for receipt of irradiated Oconee fuel in addition to the previously authorized NFS-4 (NAC-1) and NLI-1/2 single fuel assembly casks.

In telecons on May 12 and 15, 1986 between Mr. Darl Hood et. al. of your staff and Mr. P.B. Nardoci et. al. (DPC) during which NRC concerns related to the subject amendments were discussed, certain additional information was requested to support NRC staff review of the proposed amendments. This additional information concerning modifications necessary to allow use of the TN-8 and TN-8L casks, procedural changes and personnel training to be performed, compliance with NUREG-0612 Sections 5.1.1 and 5.1.2, and heat loads/decay time limits is provided as follows:

- Modifications required include: 1) enlarging the grating opening in the decontamination pit near elevation 764'-10" to permit use of the larger casks (see Drawing MC-1206-6-A, enclosed), 2) adding grating at the bottom of the decon pit elevated approximately 3", 3) adding permanent lighting in the decon pit near elevation 760' + 0", 4) Fabricate and mount a new spent fuel handling tool/crane hook adapter storage bracket in the transfer canal area, and 5) Fabricate and mount storage stand for the cask primary lift beam on the south wall of the decontamination pit (see Drawing MC-1207-7-A, enclosed).

These modifications do not affect major structural components. The modifications are relatively simple and necessary to accommodate the additional handling tools and larger envelope of the cask.

8605300236 860523
PDR ADOCK 05000369
P PDR

A001
11

Aperture Card Dist
Drawings
To: Reg Files

- Attachment 1 provides a summary of the procedure (OP/O/A/6550/13) used for B&W spent fuel receipt, storage and shipping with an NLI cask; and Attachment 2 provides a summary of the TN-8L unloading procedure for the McGuire Station. In addition, also included as Attachments 1A and 2A are copies of the procedures themselves. Comparison of the attachments readily identifies procedural differences for use of the NLI-1/2 and TN-8L casks. It should be noted that the TN-8L unloading procedure is a draft supplied by the cask vendor - the final version will be written at McGuire and will include appropriate limits and precautions (e.g. Technical Specifications and Load Paths) and receive appropriate QA and Station reviews/approvals prior to implementation. A similar procedure will be developed and implemented for the TN-8 cask should any shipments be made using the TN-8 cask. Other station procedures (e.g. Spent Fuel Ventilation procedures) are unaffected by use of the TN-8/8L casks.

Training with regard to use of the TN-8/8L casks will basically consist of "hands on" experience through dry runs with the TN-8L cask using the appropriate procedures to be conducted at Oconee and McGuire in July, 1986 (any appropriate additional training will be given prior to any use of the TN-8 cask). Classroom training with respect to adherence to Technical Specifications, Fuel Handling Operations, etc. is essentially unchanged by use of the TN-8/8L casks.

- A new crane hook adaptor is being purchased. The adaptor is used to move the cask between the platform at elevation 756' 6" and the cask loading area and return without wetting the crane block or cables. This method of handling the TN-8 and TN-8L casks is similar to operation with the NLI-1/2 cask. However, a different adaptor is used for the NLI-1/2 cask. The crane hook adaptor will be designed, manufactured, tested and maintained in accordance with ANSI N146-1978, "Standard for Special Lifting Devices for Shipping Containers Weighing 10,000 Pounds (4500 kg) or More for Nuclear Materials."

In addition, new handling tools are being purchased for use with the TN-8/8L casks (although the fuel assemblies being transported in the casks are the same as those transported in the NLI-1/2 cask, the current handling tools cannot release the grapple in the TN-8/8L casks due to dimensional restrictions in the cask). However, these handling tools are not subject to the provisions of NUREG-0612.

All other components of the handling system are addressed in Duke's NUREG-0612 submittals and T.M. Novack's letter to H.B. Tucker of March 12, 1985 and are acceptable for use with the TN-8/8L casks (e.g. the cask weight is within the NUREG-0612 tested capacity of the crane, appropriate load paths are adhered to, etc.).

Mr. Harold R. Denton

May 23, 1986

Page 3

- The TN-8L multielement spent fuel cask has a single assembly decay heat limit of 7.9 kw. This is slightly lower than the 10.6 kw limit for the NLI cask currently being used for shipment of Oconee fuel. The TN-8 cask decay heat limit is 12.0 kw which is slightly higher than the NLI limit. The existing license allowing for these shipments dictates a minimum cooling time of 270 days which corresponds to approximately 5.7 kw of decay heat. Since this 270 day limit falls well below the ratings for either of the TN casks or the NLI cask, the transition to the larger TN-8/8L casks will have no significant impact on the safety margin.

In addition to the safety margin provided by the 270 day decay limit, it should be pointed out that from a heat removal standpoint, the cask certificate of compliance (CoC) limits have ample margin built in already such that they could well serve as safe limits by themselves. As long as these shipments are made within the limits established by the license itself and by the cask certificates then decay heat limits are not a concern.

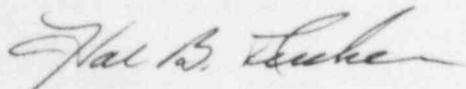
The table below illustrates the relationship between the cask design limits, license limits and actual conditions. Calculations are based on Branch Technical Position APCS 9-2. This and other data is further illustrated in Figure 1.

| | <u>Decay Heat Limit</u> | <u>Days Cooled</u> |
|------------------|-------------------------|--------------------|
| Actual Shipments | 0-0.5 kw | 5-10 years |
| License Limit | 5.7 kw | 270 days |
| TN-8L CoC Limit | 7.9 kw | 180 days |
| NLI CoC Limit | 10.6 kw | 130 days |
| TN-8 CoC Limit | 12.0 kw | 96 days |

In summary then, the combined safety margin provided by the extremely low decay heat load for the actual shipments, the license limit, and the cask design limits are not significantly impacted by introducing the larger TN-8 or TN-8L casks into Duke's transportation efforts.

Duke would like to reiterate its request that the proposed amendments receive approval by July 1, 1986 for the reasons outlined in the March 20, 1986 submittal and expanded upon in subsequent discussions with Mr. Hood. Should there be any questions or if additional information is required, please advise.

Very truly yours,



Hal B. Tucker

PBN/jgm

Attachments
Enclosures

Mr. Harold R. Denton

May 23, 1986

Page 4

xc: w/o enclosures

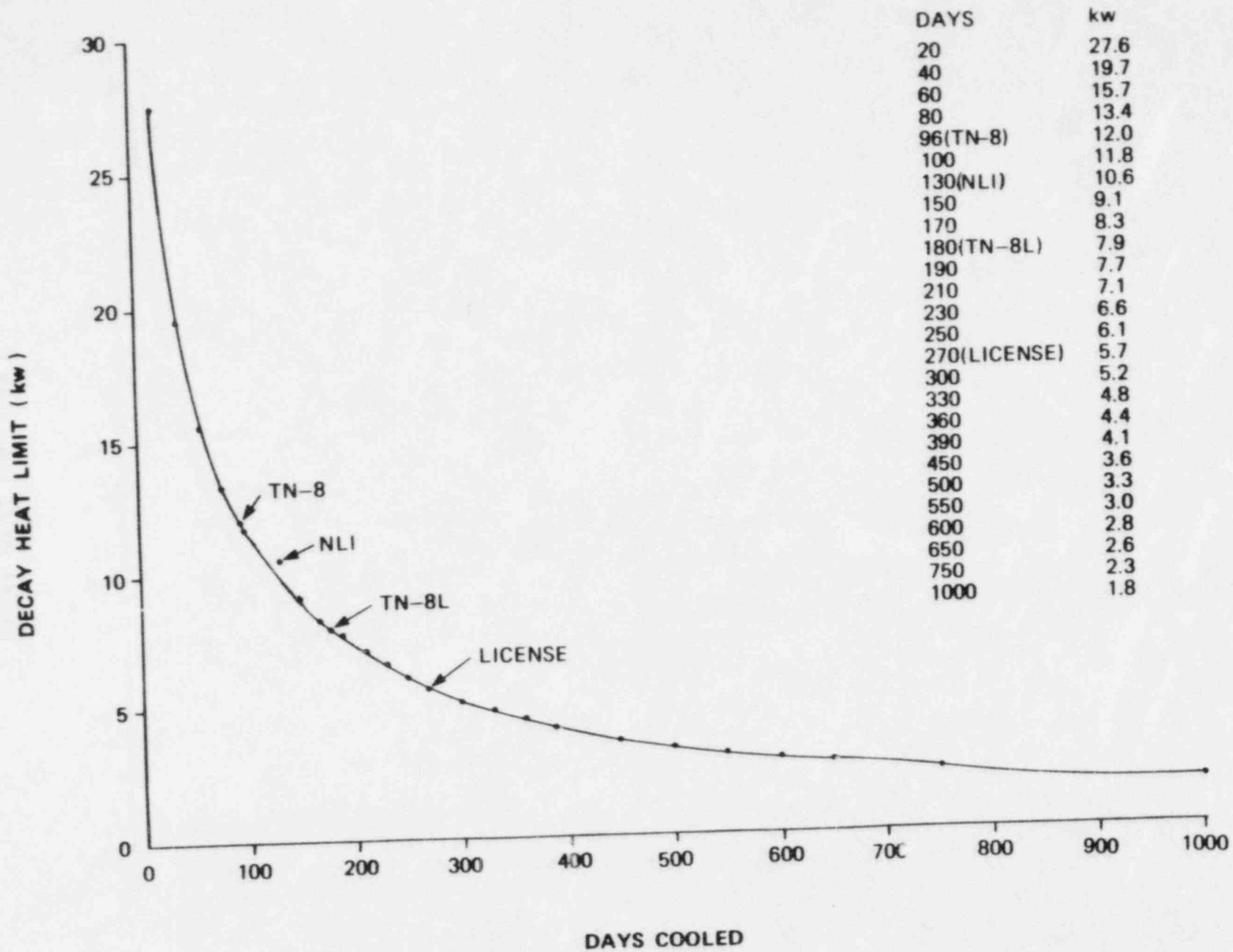
Dr. J. Nelson Grace, Regional Administrator
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Mr. Dayne Brown, Chief
Radiation Protection Branch
Division of Facility Services
Department of Human Resources
P.O. Box 12200
Raleigh, North Carolina 27605

Mr. W.T. Orders
NRC Resident Inspector
McGuire Nuclear Station

Mr. Darl Hood, Project manager
Division of Licensing
Office of Nuclear Regulatory Commission
Washington, D.C. 20555

FIGURE 1



ATTACHMENT 1

SUMMARY OF NLI-1/2 CASK PROCEDURE

| <u>ENCLOSURE</u> | <u>SECTION</u> | <u>DESCRIPTION</u> |
|------------------|----------------|--|
| 4.1 | --- | Parking trailer in fuel building |
| | 1.0 | Initial Conditions |
| | 2.0 | Receive shipping papers; inspect cask and trailer |
| 4.2 | --- | Upending, accessing, unloading, closing, replacing cask on trailer |
| | 1.0 | Verify crane inspections, Area Radiation Monitors (EMF's) operable; tool list with current calibrations; verify air and water supplies; verify RWP is issued; verify lift adapters inspected |
| | 2.0 | <u>Steps 2.1 to 2.13:</u> suspend the cask and move to decon pit |
| | | <u>Steps 2.14 to 2.32:</u> fill cask with water and vent to fuel building ventilation duct |
| | | <u>Steps 2.33 to 2.37:</u> loosen inner head bolts |
| | | <u>Steps 2.38 to 2.46:</u> transfer cask to upper shelf of decon pit using designated load path (Enclosure 4.5 or 4.6) |
| | | <u>Steps 2.47 to 2.59:</u> attach long lift adapter; attached remote actuation system for lift yoke; lower cask to lower platform of cask pit; remove inner closure head while detaching yoke remotely REMOVE AND STORE FUEL ASSEMBLY |
| 4.3 | --- | Return cask to trailer and prepare to ship |
| | 1.0 | Verify cranes are inspected, lift adapters inspected, and area radiation monitors operable |
| | 2.0 | <u>Steps 2.1:</u> decontamination |
| | | <u>Steps 2.2 to 2.12:</u> transfer cask to trailer |
| | | <u>Step 2.13:</u> final contamination survey |
| | | <u>Steps 2.14 to 2.17:</u> install personnel barrier; provide shipping papers |
| | | <u>Steps 2.101 to 2.112:</u> closing the cask |

| <u>ENCLOSURE</u> | <u>SECTION</u> | <u>DESCRIPTION</u> |
|------------------|----------------|---|
| 4.4 | Part 1 | Receiving Inspection |
| | Part 2 | Cask Inspection |
| | Part 3 | Record fuel assembly I.D. and storage location |
| | Part 4 | Outer Closure Head Inspection |
| | Part 5 | Record torque wrench I.D.'s and calibration dates |
| 4.5 | --- | Travel path Unit 1 |
| 4.6 | --- | Travel path Unit 2 |
| 4.7 | --- | Authorization from reactor engineer to receive and store spent fuel |
| 4.8 | --- | Identification of valves |
| 4.9 | --- | Cross-sectional view of cask |
| 4.10 | --- | Torquing sequence for inner and outer closure heads |
| 4.11 | A | Document daily visual inspection of short lift adapter |
| | B | Document daily visual inspection of long life adapter |
| | C | Document daily visual inspection of lift yoke |