

Mr. J. A. Scalice  
 Chief Nuclear Officer and  
 Executive Vice President  
 Tennessee Valley Authority  
 6A Lookout Place  
 1101 Market Street  
 Chattanooga, Tennessee 37402-2801

September 1, 1999

SUBJECT: WATTS BAR UNIT 1 - PARTIAL WITHDRAWAL OF AMENDMENT REQUEST  
 (TAC NO. MA1131)

Dear Mr. Scalice:

By letter dated October 26, 1996, you applied for an amendment to the Watts Bar, Unit 1 Facility Operating License No. NPF 90. Portions of that application authorizing the spent fuel pool storage capacity increase were responded to by Facility License Amendment No. 6 on July 28, 1997. The portion that was not approved proposed the installation of spent fuel racks in the cask pit area for an additional 225 storage spaces and the use of an impact shield over the fuel in the cask pit when heavy loads are moved near or across the cask pit area.

Subsequently by letter dated July 22, 1999, you withdrew the remainder of the amendment request. Your letter acknowledged the additional review information discussed with your staff on April 13, 1999 and stated that, after reviewing the additional information needed, Tennessee Valley Authority had decided not to pursue this portion of the license amendment request at this time. The additional information discussed on April 13, 1999, is described in Enclosure 1.

The Commission has filed the enclosed Notice of Withdrawal of Application for Amendment to Facility Operating License with the Office of the Federal Register for publication.

Sincerely,  
**Original signed by:**  
 Robert E. Martin, Senior Project Manager, Section 2  
 Project Directorate II  
 Division of Licensing Project Management  
 Office of Nuclear Reactor Regulation

Docket No. 50-390

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Enclosures: 1. Additional Information  
 2. Notice of Withdrawal

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

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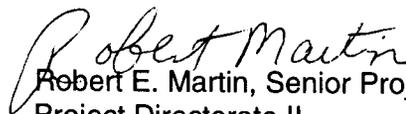
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**REQUEST FOR ADDITIONAL INFORMATION**

**TENNESSEE VALLEY AUTHORITY**

**WATTS BAR NUCLEAR PLANT**

**DOCKET NUMBER 50-390**

Tennessee Valley Authority's (TVA's) application of October 23, 1996 proposed increasing the spent fuel assembly capacity to 1835 storage cells. This included 225 storage cell spaces that were proposed to be added to the spent fuel cask loading pit area. TVA's submittal provided a brief discussion indicating that an impact shield had been designed and would be placed over the cask loading area of the cask pit when fuel is to be stored in the racks. The shield would provide protection against the accidental drop of a heavy load over the fuel to be stored in that area. The staff requests a level of information comparable in scope and detail to that provided in TVA's submittal of July 23, 1993 on the control of heavy loads. Please provide the following information:

1. Identify all heavy loads to be handled in the vicinity of the cask pit area, including critical loads, their approximate weights, range of vertical lifts and lateral movements, and the reasons and objectives for moving the loads.
2. Discuss the basic load handling activities for each load, including a schedule (time period) for moving the loads and the plant status (operational mode of the facility) during the handling of each load, and the load paths for the planned movement of the loads including the specific hazards.
3. Briefly describe the lifting devices, including devices to be used to lift the impact shield and any planned modifications to and testing of such devices. Also, specifically describe the lifting devices stress design and load testing that will be used to satisfy the guidelines in NUREG-0612 and ANSI N14.6.
4. Discuss key heavy load control requirements to be implemented by the plant administrative control procedure mentioned in Section 2.4 of Reference 1. Additionally, discuss the extent to which the guidelines of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants," are followed by the administrative procedure.
5. Discuss any needed structural modification to the fuel cask loading pit structure. As applicable, discuss the analysis method and the critical load combinations to be used for the cask pit modification, including an identification of the pertinent structural acceptance criteria such as strain and stress limits.
6. Referring to Section 7.6 of Reference 1, discuss in greater detail the impact analysis performed for the structural shield, including the basis for the generation of Figure 7.6.1, basic assumptions, time-dependent impact loading functions, specific limit load analysis method, basis for selecting appropriate dimensions of impact areas for a range

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of heavy loads analyzed and the extent to which the Watts Bar Final Safety Analysis Report's structural acceptance criteria were used in the shield design.

7. Referring to Section 2.5 of Reference 1, provide a copy of References 1 and 7.

Reference 1: TVA Report titled, "Spent Fuel Pool Modification for Increased Storage Capacity," Watts Bar Unit 1, Docket No. 50-390, dated October 1996.

#### CASK PIT POOL COOLING

1. Please provide the following information:
  - a. Decay heat generation rates from the spent fuel assemblies (SFAs) stored in the cask storage pit as a function of time.
  - b. Cask storage pit water temperature as a function of time.
  - c. Detailed description of how the decay heat generated from the SFAs stored in the cask storage pit will be removed (with and without the impact shield in place over the cask loading area). Information should include cooling system design parameters, equipment redundancy, seismic category, etc., and drawings to show cooling system configuration.
2. If HOLTEC's computer code, "Computational Fluid Dynamics (CFD)," was used to demonstrate that adequate cooling is provided by natural circulation in the cask storage pit, provide the following information:
  - a. Provide schematic drawing showing the nodalization (number of control volumes) used in the analysis. The nodal volume, initial temperature, heat source and interconnecting flow path areas for each node should also be indicated on the drawing.
  - b. Describe the nodalization sensitivity studies performed to determine the minimum number of nodes required to predict the water flow from the fuel cask pit to the spent fuel pool (SFP). The nodalization sensitivity studies should include consideration of spatial temperature variation; i.e., temperature variations circumferentially, axially and radially within each node.
  - c. Describe in detail how the velocity vectors and temperature gradients in the gateway between the cask storage pit and the SFP will be verified.
  - d. Provide an estimated pool fluid exchange rate between the cask storage pit and the SFP. Describe in detail how the exchange flow rate will be verified.
  - e. Describe the procedures established to ensure that the gate between the cask storage pit and the SFP will be removed whenever SFAs are stored in the cask storage pit.

3. To evaluate the maximum local pool water temperature and local fuel cladding temperature (as shown in October 23, 1996 submittal), HOLTEC assumed that the decay heat generated from SFAs proposed to be stored in the cask storage pit is approximately  $0.253 \times 10^6$  Btu/hr. How long are the 225 SFAs required to be stored in the SFP prior to be transferred to the cask storage pit? Will this time requirement be included in the Technical Specification? If not, describe how this requirement will be assured.