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W3F1-2010-0049

June 8, 2010

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555-0001

Subject: Response to Request for Additional Information Associated with  
Technical Specification 3/4.9.7, Crane Travel – Fuel Handling Building  
Waterford Steam Electric Station Unit 3  
Docket No. 50-382  
License No. NPF-38

- REFERENCES:
1. W3F1-2009-0046, License Amendment Request To Modify Technical Specification 3/4.9.7, Crane Travel - Fuel Handling Building, September 9, 2009 [ADAMS Accession Number ML092540575].
  2. NRC Letter, Request for Additional Information Re: License Amendment Request to Modify Technical Specification 3/4.9.7 Crane Travel - Fuel Handling Building (TAC No. 2221) March 31, 2010 [ADAMS Accession Number ML100680144].

Dear Sir or Madam:

In Reference 1, Entergy Operations, Inc. (Entergy) proposed a change to Waterford Steam Electric Station Unit 3 (Waterford 3) Technical Specifications (TS) 3/4.9.7 associated with the Fuel Handling Building (FHB) crane travel.

During the submittal review process, the Nuclear Regulatory Commission (NRC) determined that a Request for Additional Information (RAI) was required to complete the review of the Entergy request (Reference 2).

A001  
NRR

The response to the RAI is included in the attachment to this letter. This letter contains no new commitments.

If you have any questions or require additional information, please contact William Steelman at 504-739-6685.

I declare under penalty of perjury that the foregoing is true and correct. Executed on June 8, 2010.

Sincerely,

A handwritten signature in black ink, appearing to be 'JAK/WJS', written in a cursive style.

JAK/WJS

Attachment: Response to Request for Additional Information

cc: Mr. Elmo E. Collins, Jr.  
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**Attachment to**

**W3F1-2010-0049**

**Response to Request for Additional Information**

## **NRC REQUEST FOR ADDITIONAL INFORMATION**

In Reference 1, Entergy Operations, Inc. (Entergy) proposed a change to Waterford Steam Electric Station Unit 3 (Waterford 3) Technical Specifications (TS) 3/4.9.7 associated with the Fuel Handling Building (FHB) crane travel. During the submittal review process, the Nuclear Regulatory Commission (NRC) determined that a Request for Additional Information (RAI) was required to complete the review of the Entergy request (Reference 2).

The following lists the Waterford 3 NRC RAIs and responses associated with the Fuel Handling Building crane travel.

### **RAI 1**

In Section 5.1 of its letter dated September 9, 2009 (ADAMS No. ML092540575), the licensee stated that the lifting devices should be selected to satisfy either of the following criteria:

1. A special lifting device that satisfies [American National Standards Institute] ANSI N14.6 should be used for recurrent load movements in critical areas (reactor head lifting, reactor vessel internals, spent fuel casks). The lifting device should have either dual, independent load paths or a single load path with twice the design safety factor specified by ANSI N14.6 for the load.
2. Slings should satisfy the criteria of [American Society of Mechanical Engineers] ASME B30.9 and be constructed of metallic material (chain or wire rope). The slings should be either (a) configured to provide dual or redundant load paths or (b) selected to support a load twice the weight of the handled load.

In Sections 3.0 and 4.0 of its letter, the licensee stated that the handling devices in its single-failure-proof handling system are designed per ANSI N14.6 and ASME B30.9. The NRC staff requests that the licensee verify that the crane and handling system meet the single-failure-proof handling criteria of ANSI N14.6 and ASME B30.9 (with devices constructed of metallic material (chain or wire rope)). In addition, please verify that the lifting devices will have either dual, independent load paths or a single load path with twice the design safety factor specified by ANSI N14.6 for the load and slings should be either (a) configured to provide dual or redundant load paths or (b) selected to support a load twice the weight of the handled load.

### **RAI 1 Response:**

The lifting devices below the hook on the fuel handling building overhead crane that will be used during travel over irradiated fuel in the MPC canister during canister operations will be designed to meet either ANSI N14.6 or ASME B30.9. Entergy Letter W3F1-2009-0046 Section 5.1 (ML092540575) describes that special lifting devices used during canister operations will be designed to meet ANSI N14.6. The ASME B30.9 standard only applies to slings, and will be used for any required slings used

during canister operations that are not a special lifting device. The metallic sling requirement was contained in Entergy Letter W3F1-2009-0046 commitment which stated the following:

When the Multi-Purpose Canister (MPC) lid is connected to the transfer cask lift yoke and the lift yoke extension if used, designed to ANSI N14.6 requirements as specified in the HI-STORM FSAR during handling of the MPC lid over the loaded MPC-32 canister, the slings between the lid and the lifting device shall be constructed of metallic wire rope and meet the requirements of ASME B30.9 and NUREG-0612.

The special lifting devices referred to above will have either dual, independent load paths or a single load path with twice the design safety factor specified by ANSI N14.6.

The slings referred to above will be either (a) configured to provide dual or redundant load paths, or (b) selected to support a load twice the weight of the handled load.

## **RAI 2**

- a. Please provide the weights of the old trolley and the new trolley.
- b. Please provide the weights of the lift yoke, the lift yoke extension, and the slings.

## **RAI 2 Response:**

- a. Weight of old trolley –
  - 50,530 lbs. (without wire rope and load block)
  - 59,430 lbs. (with wire rope and load block)Weight of new trolley –
  - 55,325 lbs. (without wire rope and load block)
  - 65,763 lbs. (with wire rope and load block)
- b. Weight of lift yoke – 5,369 lbs.  
Weight of lift yoke extension – 5,067 lbs.  
The weights of the slings are not known at this time, but will be defined later in the design process for the project.

## **RAI 3**

For the seismic analysis of the new trolley and qualification of the existing bridge, please provide confirmation that the bridge with the newly installed trolley and any additional weight, resulting from the single-failure-proof upgrade, will be seismically qualified to the requirements of ASME-NOG-1-2004, "Rules for Construction of Overhead and Gantry Cranes (Top Running Bridge, Multiple Girder)."

**RAI 3 Response:**

As part of the engineering design change for the new single-failure-proof upgrade for the Fuel Handling Building overhead crane, a document is being issued to document a step-by-step comparison of the ASME-NOG-1-2004 and the design of the new trolley. The newly upgraded FHB overhead crane does meet the seismic requirements of ASME-NOG-1-2004.

**RAI 4**

Please provide confirmation that the runway crane supporting structure will be seismically qualified in accordance with the current licensing basis criteria to support the crane with the new trolley and additional weight resulting from the single-failure-proof upgrade.

**RAI 4 Response:**

Calculations were performed to verify that the crane rails and the supporting structure of the Fuel Handling Building will meet all seismic and structural requirements for the upgraded overhead crane.

**RAI 5**

Please provide a simple sketch of the layout showing the arrangements for the Safe Load Path as per NUREG-0612, Control of Heavy Loads at Nuclear Power Plants, July 1980.

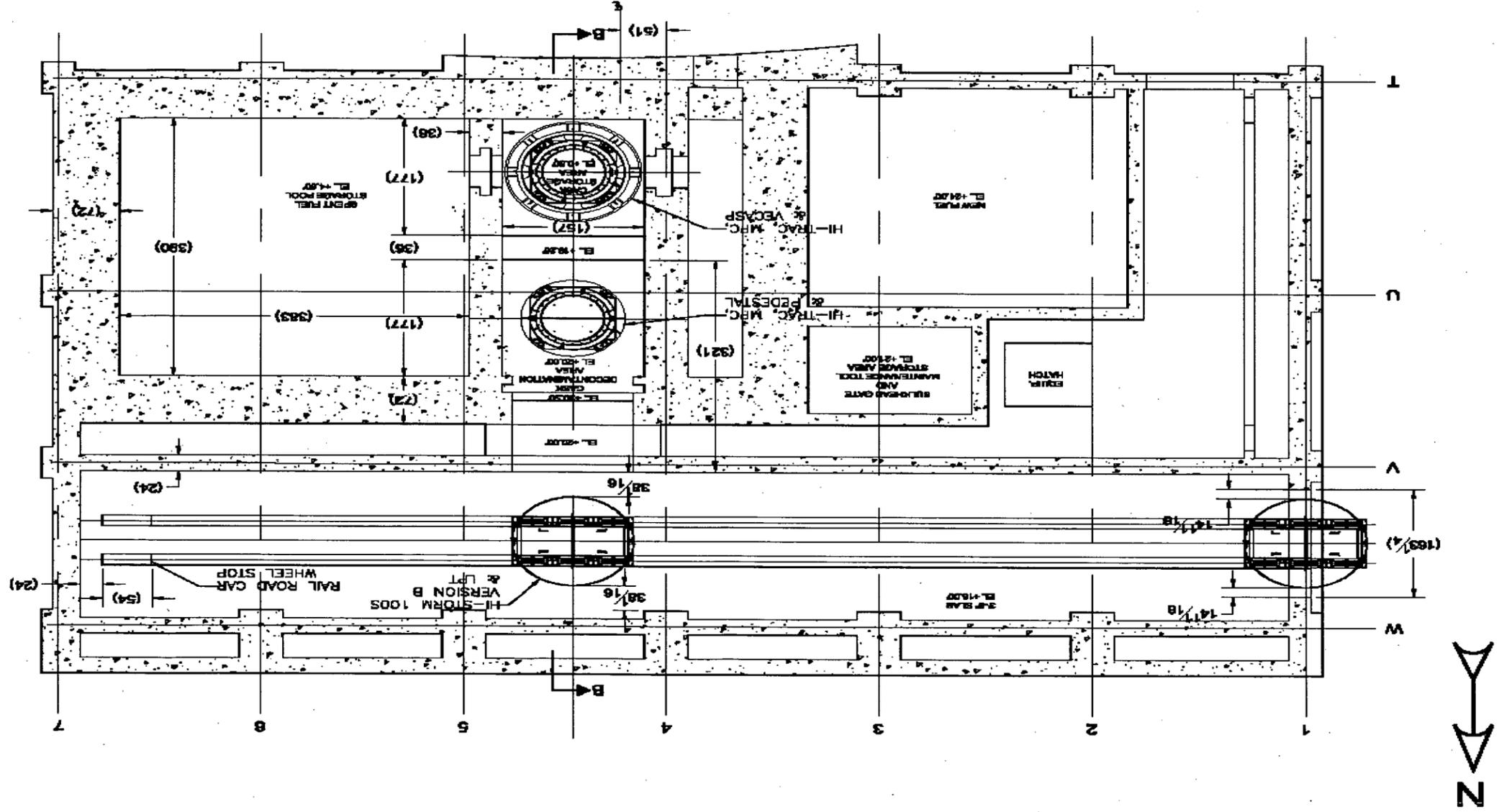
**RAI 5 Response:**

The attached sketch shows the layout of the areas where the spent fuel cask will be set down inside the Fuel Handling Building. The cask will be loaded with fuel in the cask storage area. The HI-TRAC and the MPC will then be lifted up to clear the gates in the pool, moved due north, and set down in the cask decontamination area. Once all ancillary activities are completed, the cask will then be lifted up, and moved further north with the cask transfer taking place on top of the low profile transporter in the FHB train bay.

The installation of the HI-TRAC and a new empty MPC will follow the opposite path for installation back in the cask storage area.

The path followed by the HI-TRAC and MPC will be the load path originally defined as the path for a spent fuel cask during the design phase of Waterford 3.

There will be other heavy loads that will be moved, such as the MPC lid, and some ancillary equipment, however, the load paths for this equipment have not yet been defined. Waterford 3 is still defining the proper lay down and storage locations for some of this equipment, which will define the required safe load path.



## REFERENCES

1. W3F1-2009-0046, License Amendment Request To Modify Technical Specification 3/4.9.7, Crane Travel - Fuel Handling Building, September 9, 2009 [ADAMS Accession Number ML092540575].
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