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Nuclear  
Operations

August 1, 1990  
NRC-90-0130

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

References: 1) Fermi 2  
NRC Docket No. 50-341  
NRC License No. NPF-43  
  
2) NRC Inspection Report 89025,  
dated November 1, 1989

Subject: Proposed Technical Specification Change (License  
Amendment) - Refueling Platform (3/4.9.6)

Pursuant to 10CFR50.90, Detroit Edison Company hereby proposes to amend Operating License NPF-43 for the Fermi 2 plant by incorporating the enclosed changes into the Plant Technical Specifications. The proposed changes will clarify the reference points for setting the uptravel and downtravel stops on the refueling platform's hoists. This change will preclude inconsistent application and differing interpretations.

We are requesting your review and approval of this proposal prior to our second refueling outage which is currently scheduled for March, 1991.

Detroit Edison has evaluated the proposed Technical Specification against the criteria of 10CFR50.92 and determined that no significant hazards consideration is involved. The Fermi 2 Onsite Review Organization has approved and the Nuclear Safety Review Group has reviewed the proposed Technical Specification and concurs with the enclosed determinations. In accordance with 10CFR50.91, Detroit Edison has provided a copy of this letter to the State of Michigan.

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If you have any questions, please contact Mr. Gordon Nader at (313) 586-4513.

Sincerely,



Enclosure

cc: A. B. Davis

R. W. DeFayette

W. G. Rogers

J. F. Stang

Supervisor, Electric Operators, Michigan  
Public Service Commission - J. Padgett

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I, WILLIAM S. ORSER, do hereby affirm that the foregoing statements are based on facts and circumstances which are true and accurate to the best of my knowledge and belief.

*William S. Orser*

WILLIAM S. ORSER  
Senior Vice President

On this 1st day of August, 1990, before me personally appeared William S. Orser, being first duly sworn and says that he executed the foregoing as his free act and deed.

*Rosalie A. Armetta*  
Notary Public

ROSALIE A. ARMETTA  
Notary Public, Monroe County, MI  
My Commission Expires Jan. 11, 1992



### INTRODUCTION

The refueling platform provides a means for moving fuel bundles between the fuel storage pool and the reactor vessel. It allows spent fuel to be removed from the reactor and transported underwater to the fuel storage pool, and allows new fuel to be loaded into the reactor. Additionally, the various hoists mounted on the refueling platform are used in a variety of vessel servicing activities including installation and removal of control blades, blade guides, fuel support pieces, etc. Technical Specification (TS) 3/4.9.6 "REFUELING PLATFORM" requires that the Refueling Platform be OPERABLE during the handling of fuel assemblies or control rods within the reactor pressure vessel. The refueling platform is equipped with three motor-driven hoists for the handling of fuel assemblies or control rods: (1) the main fuel grapple hoist, (2) the frame mounted auxiliary hoist, and (3) the monorail auxiliary hoist. The main fuel grapple hoist consists of an electrically operated triangular telescoping mast and built-in grapple hook for engaging the bail handle of a fuel assembly. The frame mounted and monorail auxiliary hoists are electrically operated single cable hoists to which refueling tools are attached. Each hoist has uptravel and downtravel adjustable position switches which automatically stop the hoist. The uptravel stop prevents lifting of fuel assemblies and control rods beyond the specified TS level of 6 feet 6 inches below the refueling platform tracks. The uptravel stops maintain these irradiated components under sufficient water shielding for personnel safety. The downtravel stops prevent over extension of the hoists for equipment and load protection. The purpose of this proposal is to clarify the reference points for setting the uptravel and downtravel stops to preclude inconsistent application and differing interpretations. Reference 2 mentions that an interpretation concern has occurred in the past.

The uptravel stop surveillance requirement (TS 4.9.6.b, see attached) is not specific on the reference points that should be used to set the refueling platform hoists uptravel stops. Specifically, when using the main fuel grapple hoist the uptravel stop is set such that the distance from the refueling platform tracks down to the end of the fuel grapple is 6 feet 6 inches. This maintains the load at least 6 feet 6 inches below the refueling platform tracks which corresponds to 5 feet 6 inches of water shielding (assuming normal reactor cavity water level during refueling operation). However, when control rods are being removed or replaced, the frame mounted or monorail auxiliary hoist must be used and connected to a control rod grapple or control rod latch tool. Since the length of the tool increases the distance the control rod is below the refueling platform, the settings of the stops for these hoists must compensate for the added length of these tools. This consideration is very critical when moving control rods

through the refueling canal because there is not sufficient clearance between the control rod and the bottom of the refueling canal if the uptravel stops are set without compensating for the length of the tool. The current settings of these stops do not compensate for the length of the tool. Thus, control rods are not able to be transferred through the refueling canal without bypassing the uptravel stops. This problem does not exist for the transfer of fuel assemblies using the main fuel grapple hoist because the grapple (tool) is integrated into this hoist's mast.

In order to move control rods through the refueling canal without bypassing the uptravel stops and maintain the rods 6 feet 6 inches below the refueling platform tracks (TS limit), the uptravel stop settings on the frame mounted and monorail auxiliary hoists must be measured and set from the top of the refueling platform tracks to the point of attachment of the control rod to the refueling tools. Thus, for the frame mounted and monorail auxiliary hoists the refueling tool length must be included as part of the TS length of 6 feet 6 inches. Setting the uptravel stops in this manner will allow the transfer of the control rods through the refueling canal and still maintain the TS required shielding because the control rods will be 6 feet 6 inches below the top of the refueling platform tracks. Additionally, setting the frame mounted and monorail auxiliary hoists in this manner will be consistent with the method of setting the main fuel grapple hoist, which has its grapple (tool) integrated into its mast. The current wording of TS 4.9.6.b does not clearly define the setting reference points for these stops. The proposed changes to TS 4.9.6.b and the Bases clarify this situation.

Surveillance 4.9.6.c (see attached) ensures that the main fuel grapple hoist and the frame mounted and monorail auxiliary hoists downtravel stops are OPERABLE. The downtravel stop for the main fuel grapple provides indication to refueling personnel that a fuel assembly is completely inserted into the core and prevents extending the hoist's mast below the fuel's top guide to prevent damage during refueling platform motion. The downtravel stops for the frame mounted and monorail auxiliary hoists are provided to prevent unraveling of their cables off the hoist's wrap-up drums. The current wording of TS 4.9.6.c does not clearly define the setting reference position for these stops. The proposed changes clarify this situation.

A final clarification to TS 3/4.9.6 is the deletion of the word "crane" from the Surveillance Requirements and Bases. The refueling platform's lifting devices, as briefly described above, are all commonly referred to as hoists, not cranes.

## **EVALUATION**

Fuel assemblies and control rods are raised to the uptravel stop position in order to clear the refueling canal. It has been estimated for irradiated fuel assemblies in this position that the dose rate at the floor of the operator's cab of the refueling platform will be about 14 mRem/hr. This is based on normal reactor cavity water level during refuel operations which corresponds to 5 feet 6 inches of water and 6 feet additional distance from the water surface to the operator's cab above the top of the fuel assembly bail handle.

During the replacement of 20 control rods at Fermi 2 (first refueling outage) a maximum water surface dose rate of 80 mRem/hr was observed. The top of the subject control rod was approximately 5 feet 6 inches under the surface of the water. This dose rate would correspond to about 20 mRem/hr at the floor of the operator's cab. This configuration (e.g., 5 feet 6 inches of water and 6 feet of additional length above the top of the control rod bail handle) is consistent with the configuration specified by the proposed Technical Specification 4.9.6.b.

During Fermi 2's second refueling outage we currently plan on replacing all the remaining control rods which contain pins and rollers made out of cobalt alloy material in order to reduce future plant radiation levels from the accumulation of Co-60. One hundred-sixty five control rods (out of 185) will be replaced with rods that contain non-cobalt pins and rollers. For the control rods which are scheduled to be removed from the core during the second refueling outage, the source strengths and dose rates will be different from the first refueling values. The highest-activity control rods will be the 17 control rods containing the cobalt alloy material which were used in control cell core locations during cycle two. It is estimated that for these 17 control rods the dose rate at the floor of the operator's cab will be about 40 mRem/hr with a normal water depth of 5 feet 6 inches. In considering these values, it should be noted that the actual transit time with the control rods at the uptravel stop position is short (0.5-2 minutes per control rod) and the dose rate from the majority of the control rods will be less than 40 mRem/hr because their accumulative exposures are smaller. Additionally, future control rod replacement (following replacement of control rods with pins and rollers containing the cobalt alloy material) will not have as high Cobalt-60 activities.

Setting of the frame mounted and/or monorail hoists uptravel stop based on a specific tool length will require additional administrative control. Administrative controls will be established to properly match refueling tools with a hoist's uptravel stop setting to ensure



the TS uptravel stop limit is correctly established (i.e., to ensure that the tool length plus the length of the hoist's cable, based on the existing uptravel stop setpoint, is greater than or equal to 6 feet 6 inches below the top of the refueling platform tracks). The Bases have been modified to specifically state that the point of attachment is where the bail handle rests in the fuel grapple.

The reference points used for setting the downtravel stops on all the refueling platform hoists are the top of the platform tracks and the end of each hoist. For the main fuel grapple the length is 52 feet 3 inches from the top of the refueling platform tracks to the end of the hoist's built-in grapple. For the frame mounted and monorail auxiliary hoists this length is 85 feet from the top of the refueling platform tracks to the end of the hoists (i.e., without a refueling tool attached).

In conclusion, the intent of the current TS is more accurately and clearly specified by the proposed TS changes. The proposed change to TS 4.9.6.b clarifies the reference points for the setting of the uptravel stops. This change/clarification will result in re-adjustment of the frame mounted and/or monorail auxiliary hoist's uptravel setpoint but it will not reduce the shielding of the transferred control rods as currently required by the TS. The transferred control rods will still be maintained 6 feet 6 inches below the top of the refueling platform tracks (TS limit) which is consistent with the transfer configuration of fuel assemblies using the main fuel grapple hoist. The proposed change to TS 4.9.6.c clarifies the reference points for the setting of the downtravel stops. This clarification does not change the downtravel stop setpoint. Finally, the refueling platform's lifting devices are all commonly referred to as "hoists"; thus, the deletion of the word "crane" from the surveillance requirements and Bases clarifies this TS.

#### **SIGNIFICANT HAZARDS CONSIDERATION**

In accordance with 10CFR50.92, Detroit Edison has made a determination that the proposed amendment involves no significant hazards considerations. To make this determination, Detroit Edison must establish that operation in accordance with the proposed amendment would not: 1) involve a significant increase in the probability or consequences of an accident previously evaluated, or 2) create the possibility of a new or different kind of accident from any accident previously evaluated, or 3) involve a significant reduction in a margin of safety.

- 1) The proposed changes do not significantly increase the probability or consequences of an accident previously evaluated because the proposed changes do not change or affect any accident or transient analysis and they do not significantly modify the plant or introduce a new manner of plant operation. These changes do not affect the postulated drop height of a fuel assembly; thus, the consequences of the Fuel Handling Accident is unaffected. The proposed changes clarify the reference points for setting the uptravel and downtravel stops on the refueling platform hoists. These changes will preclude inconsistent application and differing interpretations. The proposed changes to the uptravel stop surveillance requirement and Bases do not reduce the amount of shielding currently required by Technical Specification. The proposed change to the downtravel stop surveillance requirement does not change the setting of the downtravel stops. Additionally, the refueling platform's lifting devices are all commonly referred to as "hoists"; thus, the deletion of the word "crane" from the surveillance requirements and Bases clarifies this TS.
- 2) The proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated because the proposed change does not significantly modify the plant or introduce a new manner of plant operation. Administrative controls will be established to properly match refueling tools and hoists to ensure that the TS uptravel stop setting is established.
- 3) The proposed changes do not involve a significant reduction in a margin of safety because, as mentioned in item 1, the change does not significantly modify the plant or introduce a new manner of plant operation. The proposed changes do not change any safety limit or limiting safety system setpoint. The proposed change to the uptravel stop surveillance does not reduce the amount of water shielding currently required by the TS. The proposed change to the downtravel stop surveillance requirement does not change the setting of the downtravel stops. Additionally, the refueling platform's lifting devices are all commonly referred to as "hoists"; thus, the deletion of the word "crane" from the surveillance requirements and Bases clarifies this TS.

Based on the above, Detroit Edison has determined that the proposed amendment does not involve a significant hazards consideration.



### **ENVIRONMENTAL IMPACT**

Detroit Edison has reviewed the proposed Technical Specification changes against the criteria of 10CFR51.22 for environmental considerations. The proposed change does not involve a significant hazards consideration, nor significantly change the types or significantly increase the amounts of effluents that may be released offsite, nor significantly increase individual or cumulative occupational radiation exposures. In considering radiation exposures, it must be noted that the actual transit time with the control rods at the uptravel stop position is short (0.5-2 minutes per control rod) and future control rod replacement (following replacement of control rods with pins and rollers containing the Cobalt alloy material) will not have the high activity due to the Cobalt. Therefore, exposures will not significantly increase. Based on the foregoing, Detroit Edison concludes that the proposed Technical Specifications do meet the criteria given in 10CFR51.22(c)(9) for a categorical exclusion from the requirements for an Environmental Impact Statement.

### **CONCLUSION**

Based on the evaluation above: 1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and 2) such activities will be conducted in compliance with the Commission's regulations and proposed amendments will not be inimical to the common defense and security or to the health and safety of the public.