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Operations

May 5, 1986  
VP-86-0049

Director of Nuclear Reactor Regulation  
Ms. Elinor G. Adensam, Director  
Project Directorate No. 3  
Division of BWR Licensing  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Ms. Adensam:

Reference: Fermi 2  
NRC Docket No. 50-341  
NRC License No. NPF-43

Subject: Request for Amendment to Fermi 2 Technical  
Specifications Governing Division I and II  
D.C. Source Battery Surveillance  
Requirements

In accordance with 10CFR50.90 Detroit Edison requests an amendment to the Fermi 2 Technical Specifications that would alter the Category A and Category B Battery Surveillance Requirements for the Float Voltage and Specific Gravity. The requested amendment would change the limits and allowable values for the Float Voltage and the Specific Gravity in Table 4.8.2.1-1 of surveillance specification 4.8.2.1 and associated Bases. The proposed change is necessary to allow the replacement of divisional D.C. source batteries.

Detroit Edison has been planning for the removal and replacement of the existing Division I and II D.C. Power Supply System Batteries (FSAR Section 8.3.2) prior to restart following the first refueling outage. Replacement is necessary to ensure the long-term availability of the batteries to support plant operation. Since Fermi 2 is currently in an outage, we have advanced the replacement schedule to take advantage of the current outage opportunity to replace at least one division, and if time and logistics permit, complete the entire changeout prior to restart from the current outage.

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The replacement batteries are manufacturer duplicates of those currently installed in the plant. However, due to adjustments made to the installed batteries during the pre-operational test program, the replacement batteries have different manufacturer's full "charge" specific gravity and Float Voltage values. Therefore, the battery replacement requires a corresponding adjustment to the battery surveillance requirements in the Fermi 2 Technical Specifications which assure adequate battery capacity to support plant operation.

Battery replacement increases the divisional interrelationships that must be considered to maintain Fermi 2 within the plant configuration required by the Technical Specifications. Since the current batteries are capable of supporting continued plant operation during the first fuel cycle as discussed in the technical justification (Attachment 1), and to guard against the possibility of some unforeseen occurrence causing battery replacement to extend the outage, we wish to retain the ability to change only one battery division at this time. Should this occur, the other division would be replaced before restart following the first refueling outage. Consequently, the proposed Technical Specifications in Attachment 3 allow for operation of the plant through the first fuel cycle with one division of batteries meeting the current surveillance specifications. We will take the special precautions, as described in the technical justification to assure that the batteries are tested to the applicable surveillance requirements.

To allow the outage to proceed according to plan, this Technical Specification amendment should be effective on June 9, 1986. Physical replacement of one division of batteries and performance of the necessary surveillance tests to declare them operable takes approximately 30 days. The outage plan anticipates the evolution from one division to the other on or about June 9. This will allow the necessary local leak rate tests to proceed to the next division on schedule. Corresponding evolution from operability of one division of batteries to the next is essential to successful completion of the outage on schedule.

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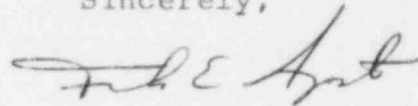
Attachment I provides the technical justification for the proposed change, Attachment 2 is the significant hazards analysis and Attachment 3 is a copy of the affected Fermi 2 Technical Specifications with the proposed changes indicated.

Detroit Edison has evaluated this amendment request in accordance with the criteria in 10CFR170.21 and has enclosed an application fee of one hundred and fifty dollars (\$150.00) as initial payment for this application for amendment under Facility Category A (Power Reactors).

In accordance with 10CFR50.91, the State of Michigan has been provided a copy of this letter.

Should you have any questions concerning this amendment request, please contact Mr. R. L. Woolley (313) 586-4211.

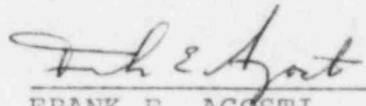
Sincerely,



cc: Mr. M. D. Lynch  
Resident NRC Inspector  
Supervisor, Advance Planning and Review Section  
Michigan Public Service Commission  
USNRC Document Control Desk  
Washington, D.C. 20555

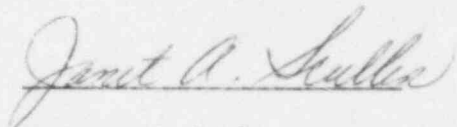
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I, FRANK E. AGOSTI, do hereby affirm that the foregoing statements are based on facts and circumstances which are true and accurate to the best of my knowledge and belief.



FRANK E. AGOSTI  
Vice President  
Nuclear Operations

On this 5th day of May, 1986,  
before me personally appeared Frank E. Agosti, being  
first duly sworn and says that he executed the foregoing  
as his free act and deed.



Notary Public

*Acting in Wayne County*

JANET A. SCULLEN  
Notary Public, Macomb County, MI  
My Commission Expires July 31, 1989

## Attachment One: Technical Justification

Technical Specifications AffectedElectrical Power Systems, 3/4.8.2 D.C. Sources

- o 3/4.8.2.1 D.C. Sources - Operating
- o 3/4.8.2.2 D.C. Sources - Shutdown
- o 3/4.8 Electric Power Systems, Bases: 3/4.8.1, 3/4.8.2, and 3/4.8.3 A.C. Source, D.C. Sources and Onsite Power Distribution Systems

Amendment Request

The proposed amendment changes CATEGORY A and CATEGORY B surveillance requirements for the Float Voltage and Specific Gravity in Table 4.8.2.1-1 to correspond to the performance characteristics of the replacement batteries.

Discussion

The original C&D type KC-17 batteries are being replaced with manufacturer duplicates. The replacement batteries, are also C&D type KC-17, lead-calcium cells. However, due to adjustments made since installation as discussed below, the original batteries and replacement batteries have different nominal values of cell specific gravity.

The originally installed batteries were manufactured by C & D Batteries in 1973 and stored on charge by the vendor until 1977. In late 1977 the original batteries were shipped to Fermi, installed, and placed on charge in their present location. The batteries are warranted for 20 years and are now approximately 13 years old.

During battery testing in 1984, the specific gravity of the original battery electrolyte could not be kept within the manufacturer's recommended nominal range for a battery with a 1.210 specific gravity and an electrolyte and a capacity rating of 660 ampere-hours. A subsequent review of the maintenance and storage records for the batteries indicated that the specific gravity was consistently below the nominal range required. To bring the specific gravity of the cell electrolyte up to the 1.210 nominal level, acid was added to the cells using the manufacturer's recommended procedure. After the electrolyte adjustment procedure was completed, the cell test results showed the actual specific gravity level reached was 1.250 instead of the target 1.210.

The effect of this higher specific gravity was analyzed with the battery vendor to determine effects. The results of this review in 1984 indicated that the batteries' aging characteristics were still within the design and that the batteries were expected to perform as designed during the remaining nine years of the battery warranty. The warranty period ends in 1993.

The specific gravity and related Float Voltage surveillance requirements in the Fermi 2 Technical Specifications were established to correspond with the adjusted 1.250 specific gravity electrolyte condition. Technical Specification surveillance testing performed weekly, quarterly and one 18 month service test performed in late 1985 continues to support the operability of the batteries.

Detroit Edison is planning to replace both divisions of the original batteries early to guard against any impact on Fermi 2 availability. The early replacement decision was based on the results of a review of the history of the batteries performed in 1984 and the possible reduction in battery life due to the higher specific gravity electrolyte.

To ensure that premature degradation of the batteries will not impact Fermi 2 availability, plans were developed for battery replacement prior to restart from the first refueling outage. The current outage is an opportune time to effect at least the replacement of one division of batteries. The presently installed batteries as well as the replacement batteries meet the regulatory requirements and have sufficient capacity to perform their required safety function. Should we be unable to replace both divisions of batteries during the current outage, the 18 month surveillance will be run on the remaining original battery division prior to restart of Fermi 2. This will give added confidence that the installed batteries are adequate through the first fuel cycle. In any event, both divisions will be replaced by the end of the first refueling outage.

The replacement batteries are manufacturer's duplicates of those originally installed in the plant. The replacement batteries meet all of the specifications of the 260/130 Vdc Class IE Power System as described in the Fermi 2 FSAR, Section 8.3.2.1.1. The batteries differ only slightly in that the replacement batteries will have different full charge specific gravity and Float Voltage specifications than the currently installed batteries. This difference was caused by the adjustments made during the pre-operational test phase as discussed above.

The manufacturer's full charge specific gravity for the replacement batteries is 1.210 with a corresponding minimum Float Voltage of 2.17 volts per cell. The corresponding values for the installed batteries are 1.250 specific gravity and 2.20 volts per cell. Consistent with the Bases for Technical Specification 3/4.8.2 and the provisions of IEEE Standard 450-1972, the surveillance requirements in the Technical Specifications must be modified to be applicable to the replacement batteries as indicated on the attached marked-up Table 4.8.2.1-1 and Bases page B 3/4 8-2.

The replacement of the redundant Division 1 and Division 2 batteries is scheduled to occur during the current outage. Since installation or testing delays may prevent replacement of one of the divisional battery banks during this outage, the revised Technical Specifications reflect the "original" (presently installed) parameters as well as the "replacement" (new) parameters.

The application of the dual battery surveillance requirements for the original and replacement batteries by plant personnel will be via applicable procedures and training. Special precautions will be taken to assure that the batteries are tested to the applicable surveillance requirements should we be unable to change both divisions during the current outage. The replacement cells will be clearly identified. New procedures for surveillance and operation, based on the revised Technical Specification values, will be written for the replacement batteries. Battery charging and metering equipment will also be identified specifically for the replacement batteries. These precautions will minimize the possibility of an error due to the existence of two sets of specific gravity and Float Voltage values. It should be noted that Division 1 batteries and Division 2 batteries are located in separate rooms. This will aid implementation of separate surveillance specifications.

Attachment TwoSignificant Hazards Analysis

As stated in 10CFR50.92(c) a proposed amendment to an operating license involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated,
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.

The proposed revision to Table 4.8.2.1-1 of Specification 3/4.8.2 would add the float voltage and specific gravity surveillance requirements applicable to the replacement batteries which are planned to be installed in mid-1986. The capacity and performance characteristics of the replacement batteries as well as the original batteries will meet the original Fermi 2 design requirements. This change does not change any of the parameters in previous accident analysis. Introduction of new surveillance specifications with the same basis as those in the original specification will not significantly increase the probability or consequences of an accident previously evaluated.

The proposed changes do not create the possibility of a new or different kind of accident from any accidents previously evaluated. The original batteries will be replaced with manufacturer's duplicates which meet all of the functional requirements of the original batteries and support the assumptions in the accident analysis. The surveillance requirements for the new batteries are developed on the same basis as those for the original batteries. No new accident possibilities are created by modifying the battery surveillance specifications to apply to the new batteries.



The proposed changes do not involve a significant reduction in a margin of safety. The battery surveillance frequency is unchanged and the technical basis for the surveillance requirements is unchanged also. The batteries ability to satisfy the design requirements (battery duty cycle) of the D. C. System is not reduced from the original plant design.

Introduction of two different surveillance specifications applicable to different battery divisions to allow the ability to replace only one division during the current outage does increase the possibility that an incorrect surveillance could be performed. This increased possibility will only exist if we are unable to complete battery replacement in both divisions during this outage and will be limited to the first fuel cycle. Special precautions will be taken to minimize incorrect surveillances as described in the technical justification.

Replacement of the 13 year old batteries with new ones will ensure that the batteries will not impact Fermi 2 availability. The margin of safety in the plant design will be maintained by replacement with manufacturer's duplicate batteries in a timely, orderly manner. Further, this margin of safety will not be significantly reduced if we do not replace both divisions during the current outage because the surveillance procedures will be appropriately modified.

#### Summary

Based on the technical justification and the analysis above, Detroit Edison has determined that the proposed change to the Technical Specifications does not involve any significant hazards considerations.