



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

June 13, 1986

Docket No. 50-341

Mr. B. Ralph Sylvia
Group Vice President - Nuclear Operations
Detroit Edison Company
6400 North Dixie Highway
Newport, Michigan 48166

Dear Mr. Sylvia:

Subject: Issuance of Amendment No. 2 to Facility Operating License
No. NPF-43, Fermi-2

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 2 to Facility Operating License No. NPF-43 for the Fermi-2 facility. This amendment is in response to your letter dated May 5, 1986.

The amendment revises the Fermi-2 Technical Specifications to incorporate the different values of the float voltage and the specific gravity of the electrolyte in the replacement dc batteries.

A copy of the related safety evaluation supporting Amendment No. 2 to Facility Operating License No. NPF-43 is enclosed.

Sincerely,

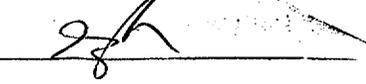
for Elinor G. Adensam, Director
RWR Project Directorate No. 3
Division of BWR Licensing

Enclosures:

1. Amendment No. 2 to NPF-43
2. Safety Evaluation

cc w/enclosure:
See next page

DESIGNATED ORIGINAL

Certified By 

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PDR

Mr. B. Ralph Sylvia
Detroit Edison Company

Fermi-2 Facility

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

DETROIT EDISON COMPANY

WOLVERINE POWER SUPPLY COOPERATIVE, INCORPORATED

DOCKET NO. 50-341

FERMI-2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 2
License No. NPF-43

1. The Nuclear Regulatory Commission (the Commission or the NRC) has found that:
 - A. The application for amendment filed by the Detroit Edison Company (the licensee), dated May 5, 1986, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the regulations of the Commission;
 - C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the enclosure to this license amendment and paragraph 2.C.(2) of the Facility Operating License No. NPF-43 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 2, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. DECo shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This amendment is effective as of date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, appearing to read "E. Adensam", written in a cursive style.

for Elinor G. Adensam, Director
BWR Project Directorate No. 3
Division of BWR Licensing

Enclosure:
Changes to the Technical
Specifications

Date of Issuance: June 13, 1986

ENCLOSURE TO LICENSE AMENDMENT NO. 2

FACILITY OPERATING LICENSE NO. NPF-43

DOCKET NO. 50-341

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by Amendment number and contain a vertical line indicating the area of change.

REMOVE

3/4 8-12
B 3/4 8-2

INSERT

3/4 8-12
3/4 8-12a
B 3/4 8-2
B 3/4 8-2a

TABLE 4.8.2.1-1

BATTERY SURVEILLANCE REQUIREMENTS

Parameter	CATEGORY A ⁽¹⁾	CATEGORY B ⁽²⁾	
	Limits for each designated pilot cell	Limits for each connected cell	Allowable ⁽³⁾ value for each connected cell
Electrolyte Level	>Minimum level indication mark, and $\leq \frac{1}{4}$ " above maximum level indication mark	>Minimum level indication mark, and $\leq \frac{1}{4}$ " above maximum level indication mark	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 volts	≥ 2.13 volts ⁽⁴⁾	> 2.07 volts
Specific Gravity ⁽⁵⁾	≥ 1.195	≥ 1.190 Average of all connected cells > 1.200	Not more than 0.020 below the average of all connected cells Average of all connected cells ≥ 1.190 ⁽⁶⁾

TABLE 4.8.2.1-1 (Continued)

TABLE NOTATIONS

- (1) For any Category A parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that within 24 hours all the Category B measurements are taken and found to be within their allowable values, and provided all Category A and B parameter(s) are restored to within limits within the next 6 days.
- (2) For any Category B parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that the Category B parameters are within their allowable values and provided the Category B parameter(s) are restored to within limits within 7 days.
- (3) Any Category B parameter not within its allowable value indicates an inoperable battery.
- (4) May be corrected for average electrolyte temperature.
- (5) Corrected for electrolyte temperature and level.
- (6) Or battery charging current is less than 2 amperes when on float charge.
- (7) For the remainder of the first fuel cycle until restart after the first re-fuel outage the Float Voltage Limits and Allowable Values, for Division II if replacement batteries are not installed, may be:

Parameter	CATEGORY A ⁽¹⁾	CATEGORY B ⁽²⁾	
	Limits for each designated pilot cell	Limits for each connected cell	Allowable ⁽³⁾ value for each connected cell
Float Voltage	≥ 2.16 volts	≥ 2.16 volts ⁽⁴⁾	> 2.10 volts

- (8) For the remainder of the first fuel cycle until restart after the first re-fuel outage the Specific Gravity Limits and Allowable Values, for Division II if replacement batteries are not installed, may be:

Parameter	CATEGORY A ⁽¹⁾	CATEGORY B ⁽²⁾	
	Limits for each designated pilot cell	Limits for each connected cell	Allowable ⁽³⁾ value for each connected cell
Specific Gravity ⁽⁵⁾	≥ 1.235 ⁽⁶⁾	≥ 1.230	Not more than 0.020 below the average of all connected cells
		Average of all connected cells > 1.240	Average of all connected cells ≥ 1.230 ⁽⁶⁾

ELECTRICAL POWER SYSTEMS

BASES

A.C. SOURCES, D.C. SOURCES, and ONSITE POWER DISTRIBUTION SYSTEMS (Continued)

The surveillance requirements for demonstrating the OPERABILITY of the unit batteries are in accordance with the recommendations of Regulatory Guide 1.129 "Maintenance Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants," February 1978, and IEEE Std 450-1972, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations."

Verifying average electrolyte temperature above the minimum for which the battery was sized, total battery terminal voltage on float charge, connection resistance values and the performance of battery service and discharge tests ensures the effectiveness of the charging system, the ability to handle high discharge rates and compares the battery capacity at that time with the rated capacity.

Table 4.8.2.1-1 specifies the normal limits for each designated pilot cell and each connected cell for electrolyte level, float voltage and specific gravity. The limits for the designated pilot cells float voltage and specific gravity, greater than 2.13 volts and 0.015 below the manufacturer's full charge specific gravity or a battery charger current that had stabilized at a low value, is characteristic of a charged cell with adequate capacity. The normal limits for each connected cell for float voltage and specific gravity, greater than 2.13 volts and not more than 0.020 below the manufacturer's full charge specific gravity with an average specific gravity of all the connected cells not more than 0.010 below the manufacturer's full charge specific gravity, ensures the OPERABILITY and capability of the battery.

Operation with a battery cell's parameter outside the normal limit but within the allowable value specified in Table 4.8.2.1-1 is permitted for up to 7 days. During this 7-day period: (1) the allowable values for electrolyte level ensures no physical damage to the plates with an adequate electron transfer capability; (2) the allowable value for the average specific gravity of all the cells, not more than 0.020 below the manufacturer's recommended full charge specific gravity ensures that the decrease in rating will be less than the safety margin provided in sizing; (3) the allowable value for an individual cell's specific gravity ensures that an individual cell's specific gravity will not be more than 0.020 below the manufacturer's full charge specific gravity and that the overall capability of the battery will be maintained within an acceptable limit; and (4) the allowable value for an individual cell's float voltage, greater than 2.07 volts, ensures the battery's capability to perform its design function.

ELECTRICAL POWER SYSTEMS

BASES

A.C. SOURCES, D.C. SOURCES, and ONSITE POWER DISTRIBUTION SYSTEMS (Continued)

Footnotes (7) and (8) of Table 4.8.2.1-1 can be applied, for the remainder of the first fuel cycle until restart after the first refuel outage, to Division II if replacement batteries are not installed.

Footnotes (7) and (8) of Table 4.8.2.1-1 specify the normal limits for each designated pilot cell and each connected cell for electrolyte level, float voltage and specific gravity. The limits for the designated pilot cells float voltage and specific gravity, greater than 2.16 volts and 0.015 below the manufacturer's full charge specific gravity or a battery charger current that had stabilized at a low value, is characteristic of a charged cell with adequate capacity. The normal limits for each connected cell for float voltage and specific gravity, greater than 2.16 volts and not more than 0.020 below the manufacturer's full charge specific gravity with an average specific gravity of all the connected cells not more than 0.010 below the manufacturer's full charge specific gravity, ensures the OPERABILITY and capability of the battery.

Operation with a battery cell's parameter outside the normal limit but within the allowable value specified in footnotes (7) and (8) of Table 4.8.2.1-1 is permitted for up to 7 days. During this 7-day period: (1) the allowable values for electrolyte level ensures no physical damage to the plates with an adequate electron transfer capacity; (2) the allowable value for the average specific gravity of all the cells, not more than 0.020 below the manufacturer's recommended full charge specific gravity ensures that the decrease in rating will be less than the safety margin provided in sizing; (3) the allowable value for an individual cell's specific gravity ensures that an individual cell's specific gravity will not be more than 0.020 below the manufacturer's full charge specific gravity and that the overall capability of the battery will be maintained within an acceptable limit; and (4) the allowable value for an individual cell's float voltage, greater than 2.10 volts, ensures the battery's capability to perform its design function.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 2 TO FACILITY OPERATING LICENSE NO. NPF-43

DETROIT EDISON COMPANY

FERMI-2

DOCKET NO. 50-341

1.0 INTRODUCTION

During battery testing in 1984, Detroit Edison (the licensee) discovered that the specific gravity of the electrolyte in its dc batteries could not be maintained within the manufacturer's recommended nominal range of 1.210. To bring the specific gravity of the cell electrolyte up to the nominal value of 1.210, acid was added to the cells using the manufacturer's recommended procedure. However, the actual specific gravity value achieved was 1.250 instead of the target value of 1.210. (A higher electrolyte specific gravity indicates a larger concentration of acid.) The licensee analyzed this matter in consultation with the battery vendor to determine the effect of this higher electrolyte specific gravity on the performance of the batteries. The results of this review indicated that the batteries' aging characteristics were still within the design limits, but there was a possible reduction in battery life due to the higher specific gravity of the electrolyte. Accordingly, the specific gravity and related float voltage surveillance requirements in the Fermi-2 Technical Specifications were proposed by the licensee for the original Technical Specifications to correspond with the actual electrolyte specific gravity of 1.250. Surveillance testing performed weekly and quarterly in accordance with the Fermi-2 Technical Specifications has demonstrated that the operability of the batteries has not been impaired by this higher specific gravity.

Due to the possible reduction in battery life mentioned above, the licensee is planning to replace both divisions of the original C&D type KC-17 batteries with the same type of batteries. The licensee will replace the Division I batteries during the current outage and will also attempt to replace the Division II batteries. Should the licensee be unable to replace the Division II batteries during the current outage due to insufficient time, they will be replaced by the end of the first refueling outage.

2.0 EVALUATION

The licensee has proposed a revision to Table 4.8.2.1-1 in its letter dated May 5, 1986, to reflect the changes in float voltage and specific gravity for the replacement (i.e., the new) batteries for Division I. For Division II, the licensee proposes to add notes 7 and 8 to Table 4.8.2.1-1 to reflect the present values of specific gravity and float voltage parameters in the existing batteries if the replacement batteries are not installed in the current outage. In this event, the values of these two parameters for the

Division II batteries will remain in effect for the first fuel cycle until the Division II batteries are replaced during the first refueling outage. The replacement batteries (C&D Type KC-17) are the manufacturer's duplicates of those originally installed in the plant. The licensee states that the presently installed batteries as well as the replacement batteries meet the applicable regulatory requirements and have sufficient capacity to perform their required safety functions.

Because there is no adverse impact on either the availability or the performance characteristics of the dc batteries as a result of replacing the present batteries and the proposed changes in the related Fermi-2 Technical Specifications, we find that these proposed changes are acceptable.

We conclude, therefore, on the basis of the preceding discussion, that the proposed changes in the values of the float voltage and the specific gravity of the electrolyte of the replacement dc batteries in Specification 3/4.8.2 is acceptable. However, our conclusion on this matter is based on the requirement that if the Division II dc batteries are not replaced during the current outage, they will be replaced prior to restart after the first refueling outage.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change in the installation and use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes in surveillance requirements. The staff has determined that this amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents which may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

4.0 CONCLUSION

The Commission made a proposed determination that the subject amendment involves no significant hazards consideration which was published in the Federal Register (51 FR 17692) on May 14, 1986, and consulted with the State of Michigan. No public comments were received, and the State of Michigan did not have any comments.

We have concluded, based on the considerations discussed above, that: (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 the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Narinder Trehan, NRR

Dated: June 13, 1986

AMENDMENT NO. 2 TO FACILITY OPERATING LICENSE NO. NPF-43 - FERMI, UNIT 2

DISTRIBUTION:

Docket No. 50-341

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