

July 16, 1991

Docket No. 50-346

Mr. Donald C. Shelton, Vice President
Nuclear - Davis-Besse
c/o Toledo Edison Company
300 Madison Avenue
Toledo, Ohio 43652

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Dear Mr. Shelton:

SUBJECT: AMENDMENT NO.158 TO FACILITY OPERATING LICENSE NO. NPF-3
(TAC NO. 79672)

The Commission has issued Amendment No.158 to Facility Operating License No. NPF-3 for the Davis-Besse Nuclear Power Station, Unit No. 1. The amendment revises the Technical Specifications in response to your application dated March 1, 1991.

This amendment allows an alternate method of determining battery operability following service or performance discharge surveillance testing.

A copy of the Safety Evaluation is also enclosed. Notice of issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

~~original signed by~~

Jon B. Hopkins, Sr. Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 158 to License No. NPF-3
2. Safety Evaluation

cc: See next page

LA/PDIII-3/DRPW
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DOCUMENT NAME: 79672 AMD

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Davis-Besse Nuclear Power Station
Unit No. 1

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

TOLEDO EDISON COMPANY
CENTERIOR SERVICE COMPANY

AND

THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

DOCKET NO. 50-346

DAVIS-BESSE NUCLEAR POWER STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 158
License No. NPF-3

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by the Toledo Edison Company, Centerior Service Company, and the Cleveland Electric Illuminating Company (the licensees) dated March 1, 1991 complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter 1;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and 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;
 - 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 attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-3 is hereby amended to read as follows:

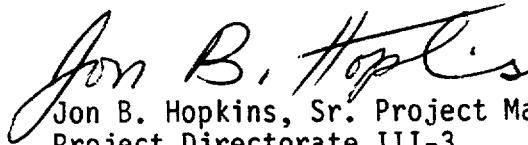
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(a) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 158, are hereby incorporated in the license. The Toledo Edison Company shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented not later than 45 days after issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Jon B. Hopkins, Sr. Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of issuance: July 16, 1991

ATTACHMENT TO LICENSE AMENDMENT NO. 158

FACILITY OPERATING LICENSE NO. NPF-3

DOCKET NO. 50-346

Replace the following pages of the Appendix "A" Technical Specifications with the attached pages. The revised pages are identified by amendment number and contain vertical lines indicating the area of change. The corresponding overleaf pages are also provided to maintain document completeness.

Remove

3/4 8-10

B 3/4 8-1

Insert

3/4 8-10

B 3/4 8-1

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

2. Verifying total battery terminal voltage is greater than or equal to 129 volts on float charge.
- b. At least once per 92 days and within 7 days after a battery discharge (battery terminal voltage below 110 volts), or battery overcharge (battery terminal voltage above 150 volts), by:
 1. Verifying that the parameters in Table 4.8-1 meet the Category B limits,
 2. Verifying that there is no visible corrosion at either terminals or connectors, or the connection resistance of these items is less than 150×10^{-6} ohms, and
 3. Verifying that the average electrolyte temperature of every sixth connected cell is above 60°F.
- c. At least once per 18 months by verifying that:
 1. The cells, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration,
 2. The cell-to-cell and terminal connections are clean, tight and coated with anti-corrosion material,
 3. The resistance of each cell-to-cell and terminal connection is less than or equal to 150×10^{-6} Ohms, and
 4. The battery charger will supply at least 475 amperes at a minimum of 130 volts for at least 8 hours.
- d. At least once per 18 months, during shutdown, by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status all of the actual or simulated emergency loads for the design duty cycle when the battery is subjected to a battery service test.
- e. At least once per 60 months, during shutdown, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. Once per 60 month interval this performance discharge test may be performed in lieu of the battery service test.
- f. Every 18 months, during shutdown, performance discharge tests of battery capacity shall be given to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.

TABLE 4.8-1

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 ^(b)	> 2.07 volts
Specific Gravity ^(a)	≥ 1.200 ^(c)	≥ 1.195	Not more than .020 below the average of all connected cells
		Average of all connected cells > 1.205	Average of all connected cells ≥ 1.195 ^(c)

(a) Corrected for electrolyte temperature and level.

(b) Corrected for average electrolyte temperature.

(c) Or battery charging current, following a service or performance discharge test, is less than two amps, when on a float charge.

(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 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 they are within their allowable values and provided the parameter(s) are restored to within limits within 7 days.

(3) Any Category B parameter not within its allowable value indicates an inoperable battery.

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

The OPERABILITY of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety related equipment required for 1) the safe shutdown of the facility and 2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criterion 17 of Appendix "A" to 10 CFR 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the safety analyses and are based upon maintaining at least one of each of the onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss of offsite power and single failure of the other onsite A.C. source.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the facility status.

The Surveillance Requirements for demonstrating the OPERABILITY of the station batteries are based on 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. 450-1980, "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 4.8-1 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 .015 below the manufacturer's full charge specific gravity or a battery charger current of less than two amps 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 .020 below the manufacturer's full charge specific gravity with an average specific gravity of all the connected cells not more than .010 below the manufacturer's full charge specific gravity, ensures the OPERABILITY and capability of the battery. Exceptions to the specific gravity requirements are taken to allow for the normal deviations experienced after a battery discharge and subsequent recharge associated with a service or performance discharge test. The specific gravity deviations are recognized and discussed in IEEE 450-1980.

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

Operation with a battery cell's parameter outside the normal limit but within the allowable value specified in Table 4.8-1 is permitted for up to seven days. During this seven-day period: (1) the allowable value 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 .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 .040 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.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 158 TO FACILITY OPERATING LICENSE NO. NPF-3

TOLEDO EDISON COMPANY

CENTERIOR SERVICE COMPANY

AND

THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

DAVIS-BESSE NUCLEAR POWER STATION, UNIT NO. 1

DOCKET NO. 50-346

1.0 INTRODUCTION

By letter dated March 1, 1991, Toledo Edison Company (the licensee) proposed an amendment to the Technical Specifications (TS) for the Davis-Besse Nuclear Power Station, Unit No. 1. The proposed change involves TS Table 4.8-1, "Battery Surveillance Requirements," and its bases. The amendment would allow an alternate method of determining battery operability following service or performance discharge surveillance testing.

2.0 EVALUATION

The amendment would add a footnote to TS Table 4.8-1 which allows the use of a battery charging current of less than 2 amps when on a float charge in lieu of specific gravities as a means of determining station battery operability following battery service or performance discharge surveillance testing. The proposed change is in accord with guidance provided in a letter from the NRC (T. Novak) to Toledo Edison (R. Crouse) dated July 16, 1981.

IEEE Standard 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations," allows for the use of a stabilized battery charging current as indication that a battery is charged in lieu of specific gravities. The licensee requested information from the station battery manufacturer on the validity of using less than two amps battery charging current as indication of sufficient charge on the station battery as discussed in the IEEE Standard. In February 1991, the manufacturer conducted testing to determine the state of charge on a battery if, following a battery service or performance discharge test, a battery is recharged until a battery charging current of

less than two amps is reached. The manufacturer stated that at this point, a battery, such as the station battery, would be approximately 95 percent fully charged.

The current station battery has a 20-year design life and is certified by the manufacturer for a nuclear service life of 16 years. The station battery was sized to include a 25-percent margin to account for aging. The licensee has reviewed the station battery loading calculations and has determined that, even including the 95 percent factor discussed above, the station battery will still be able to satisfy its design load requirements at the end of service life.

The NRC staff has reviewed this issue and finds that use of a stabilized battery charging current of less than 2 amps in lieu of specific gravities to indicate that the station battery is charged is allowed by IEEE 450-1980, is in accord with the NRC guidance of July 16, 1981, and will assure that the station battery will be able to meet its design load requirements. Therefore, the staff finds the proposed amendment to be acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Ohio State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

This amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 or changes a surveillance requirement. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that 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 the amendment involves no significant hazards consideration and there has been no public comment on such finding (56 FR 13671). Accordingly, the 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 the amendment.

5.0 CONCLUSION

The staff has 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) 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: Jon B. Hopkins, PDIII-3

Date: July 16, 1991