December 22, 1989

Docket No. 50-346

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Mr. Donald C. Shelton
Vice President, Nuclear
Toledo Edison Company
Edison Plaza - Stop 712
300 Madison Avenue
Toledo, Ohio 43652

Dear Mr. Shelton:

SUBJECT: AMENDMENT NO. 141 TO FACILITY OPERATING LICENSE NO. NPF-3 (TAC NO. 73243)

The Commission has issued Amendment No. 141 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 June 12, 1989, supplemented August 11, 1989.

This amendment extends the inspection interval for certain surveillance requirements for the emergency diesel generators in the Davis-Besse Techncial Specifications from at least once per 18 months during shutdown to a maximum inspection interval not to exceed 30 months.

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,

/S/

Thomas V. Wambach, Sr. Project Manager
Project Directorate III-3
Division of Reactor Projects - III, IV, V & Special Projects
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 141 to License No. NPF-3
2. Safety Evaluation

cc: See next page

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Date:	12/12/89	12/12/89	12/12/89	12/13/89	12/22/89

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Mr. Donald C. Shelton
Toledo Edison Company

Davis-Besse Nuclear Power Station
Unit No. 1

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

TOLEDO EDISON 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. 141
License No. NPF-3

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by the Toledo Edison Company and The Cleveland Electric Illuminating Company (the licensees) dated June 12, 1989, supplemented on August 11, 1989 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 I;

   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.

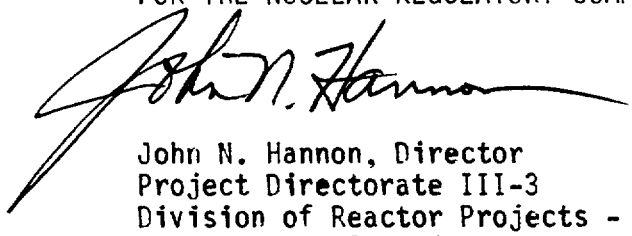
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-3 is hereby amended to read as follows:

(a) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 141 , 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



John N. Hannon, Director
Project Directorate III-3
Division of Reactor Projects - III, IV, V, & Special Projects
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: December 22, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 141

FACILITY OPERATING LICENSE NO. NPF-3

DOCKET NO. 50-346

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

Remove	Insert
3/4 8-4	3/4 8-4

SURVEILLANCE REQUIREMENTS (Continued)

1. Verifying the fuel level in the day fuel tank.

2. Verifying the fuel level in the fuel storage tank.

3. Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the day tank.

4. Verifying the diesel starts and accelerates up to 900 rpm, preceded by an engine prelube and/or appropriate other warmup procedures.

5. Verifying the generator is synchronized, loaded to $\geq$ 1000 kw, and operates for $\geq$ 60 minutes.

6. Verifying the diesel generator is aligned to provide standby power to the associated essential busses.

7. Verifying that the automatic load sequence timer is OPERABLE with each load sequence time within ± 10% of its required value.

b. At least once per 92 days by verifying that a sample of diesel fuel from the fuel storage tank is within the acceptable limits specified in Table 1 of ASTM D975-68 when checked for viscosity, water and sediment.

c. At least once per 184 days on a STAGGERED TEST BASIS by:

1. Verifying the fuel level in the day fuel tank.

2. Verifying the fuel level in the fuel storage tank.

3. Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the day tank.

4. Verifying the diesel starts from ambient condition and accelerates to at least 900 rpm in $\leq$ 10 seconds.

5. Verifying the generator is synchronized, loaded to $\geq$ 1000 kw, and operates for $\geq$ 60 minutes.

6. Verifying the diesel generator is aligned to provide standby power to the associated essential busses.

7. Verifying that the automatic load sequence timer is OPERABLE with each load sequence time within ± 10% of its required value.

SURVEILLANCE REQUIREMENTS (Continued)

d. At least once per 18 months during shutdown by:

1. Verifying the generator capability to reject a load equal to the largest single emergency load supplied by the generator without tripping.

2. Simulating a loss of offsite power in conjunction with a safety features actuation system (SFAS) test signal, and:

(a) Verifying de-energization of the essential busses and load shedding from the essential busses,

(b) Verifying the diesel starts from ambient condition on the auto-start signal, energizes the essential busses with permanently connected loads, energizes the auto-connected essential loads through the load sequencer and operates for $\geq$ 5 minutes while its generator is loaded with the essential loads.

(c) Verifying that all diesel generator trips, except engine overspeed and generator differential, are automatically bypassed upon loss of voltage on the essential bus and/or an SFAS test signal.*

3. Verifying the diesel generator operates for $\geq$ 60 minutes while loaded to $\geq$ 2000 kw.

4. Verifying that the auto-connected loads to each diesel generator do not exceed the 2000 hour rating of 2838 kw.

e. At least once per 30 months by subjecting the diesels to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service.*

* The provisions of Specification 4.0.2 are not applicable.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 141 TO FACILITY OPERATING LICENSE NO. NPF-3

TOLEDO EDISON COMPANY

AND

THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

DAVIS-BESSE NUCLEAR POWER STATION, UNIT NO. 1

DOCKET NO. 50-346

1.0 INTRODUCTION

In its letter dated June 12, 1989, the Toledo Edison Company (the licensee) requested an amendment to the operating license for the Davis-Besse Nuclear Power Station, Unit No. 1, which would increase the inspection interval required by the plant's Technical Specifications (TS) of certain surveillance requirements for the emergency diesel generators (EDGs) contained in the present TS 4.8.1.1.2.d.1. The proposed change would extend the affected inspection interval from its present requirement of at least once per 18 months during shutdown to a maximum inspection interval not to exceed 30 months. The present surveillances in TS 4.8.1.1.2.d.1 require that each emergency diesel generator be inspected by procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service. The subject amendment also proposes to delete the applicability of the extension provisions of Specification 4.0.2 from this particular inspection. However this request is partially superseded by Amendment No. 140 to the Davis-Besse license dated October 27, 1989, which deleted a portion of Specification 4.0.2.

The licensee also proposes an administrative change consisting of a renumbering of the steps in Specification 4.8.1.1.2.d.

The licensee subsequently submitted supplemental information regarding its original amendment request in its letter dated August 11, 1989. This supplemental information was a copy of the Morrison-Knudsen Report No. 6993-2 (Revision 2) originally issued on February 16, 1989 and subsequently modified on March 2 and August 2, 1989; Morrison-Knudsen is the manufacturer of the Davis-Besse EDGs. The subject report is the manufacturer's evaluation of the proposed extension of the surveillance interval cited above.

2.0 DISCUSSION

The present surveillance interval for the EDGs of 18 months was originally predicated on a 12-month fuel cycle followed by a refueling outage of about 2 to 3 months. Since Specification 4.0.2.a permits a 25 percent extension for this surveillance, the maximum interval allowed by the TSs is 22.5 months. While this maximum interval provides sufficient time for a problem-free fuel cycle and subsequent problem-free refueling outage, it leaves very little margin in the event of either an extended shutdown during a fuel cycle or an extended refueling outage after the fuel cycle was extended to about 18 months.

Since the surveillance requirement in TS 4.8.1.1.2.d.1 for the EDGs cannot be performed within the 72-hour period permitted by the applicable Limiting Condition of Operation (LCO), the required EDG surveillance must be performed during an extended shutdown. The most appropriate opportunity for the required surveillance is during a refueling outage. However, the present maximum permitted surveillance interval of 22.5 months may not allow this if any problems occur during a fuel cycle or the subsequent refueling outage as discussed above. Accordingly, the requested extension is intended to introduce flexibility into the scheduling of the EDG surveillance requirements thereby avoiding an extended shutdown during a fuel cycle.

The modification to Specification 4.0.2 in Amendment No. 140 to the Davis-Besse TS cited above removed the provision that limited the combined time interval for three consecutive surveillances to less than 3.25 times the specified interval. This change does not affect the amendment request being considered in this evaluation.

3.0 EVALUATION

The principal safety-related concern associated with the proposed extension of the surveillance interval is whether the reliability of the EDGs will be adversely affected by the increase in the interval from a maximum of 22.5 months to a maximum of 30 months. The normal mode of operation for an EDG is to be operable with a periodic test run about every 31 days, in accordance with Specification 4.8.1.1.2.a. Accordingly, each EDG will have at most an additional seven load tests conducted per Specification 4.8.1.1.2.a.4 which are attributable to this proposed increase in the surveillance interval. Since the load tests are conducted for about 1 to 2 hours, each EDG will be subject to a maximum additional running time of about 14 hours. All but one of these additional load tests will be preheated, prelubed starts since only one fast, cold (i.e., ambient temperature) load test is required every 6 months in accordance with Specification 4.8.1.1.2.c.

Operating experience with EDGs demonstrates that the preheated, prelubed starts of an EDG and the subsequent runs at power introduce negligible wear on the internal components of the diesel. One of the main causes of wear on the internal diesel components of the EDGs is attributable to cold fast starts (i.e., accelerating to 900 revolutions per minute within 10 seconds).

Since the proposed increase in surveillance interval will add at most one additional cold fast start to each EDG, there will be relatively little additional wear on the diesel internal components and therefore, there will be a negligible effect on the reliability of the EDGs attributable to the proposed amendment.

Nevertheless, the licensee has proposed to institute a performance trending of seven sets of selected EDG parameters. These particular parameter sets are listed on pages 3 and 4 in the Morrison-Knudsen Report No. 6993-2. The data which will be trended by the licensee will be primarily compiled from the monthly EDG load tests required by Specifications 4.8.1.1.2.a and 4.8.1.1.2.c and include such items as the diesel cylinder exhaust temperatures, the diesel crankcase pressure readings, the generator temperature, power output, voltage and frequency. A monthly diesel lube oil analysis will also be performed and trended; about 20 different lube oil characteristics and potential lube oil contaminants will be monitored. This monitoring will alert the licensee to a number of potential diesel engine component problems. For example, a rapid increase in lead concentration in the lube oil or a lead concentration greater than 75 parts per million would be indicative of bearing distress. While an EDG monitoring program cannot provide absolute assurance of reliability, major problem areas such as excessive bearing wear or water leaks which could contribute to a decrease in EDG reliability, will be detected. The net effect of this performance trending will be to provide assurance that the limited amount of additional operating time and the potential for one additional cold fast start for each EDG do not degrade reliability.

As a further effort to increase the reliability of the EDGs, certain of the surveillance requirements (about 20 percent) such as filter changes on the diesel will be required to be performed more frequently. As an example, these preventative maintenance steps will be performed annually rather than at the 18-month surveillance interval. Considering that the present TSs permit these preventative maintenance measures to be taken at a maximum of 22.5 months, this is a significant improvement.

In support of its proposed change, the licensee cites in its submittal dated June 12, 1989, the excellent reliability of both of its two EDGs. Specifically, EDG 1-1 had only one failure to start in its last 100 starts and there were no failures to start for EDG 1-2 in its last 100 starts as of the date of this submittal. This yields a combined average reliability of 0.995 per demand which exceeds the industry average for EDG reliability of 0.98 per demand cited in the staff's Generic Letter 84-15.

The licensee also cites its recent experience with operating both EDGs for about 27 months between surveillance inspections as permitted by Amendment No. 105 to the Davis-Besse license. The EDG surveillance inspection on both EDGs after 27 months showed no indications of unusual wear of the diesel internal components. While this is not a sufficient basis in itself to support the requested change, it does support the licensee's assertion that an extra few months of EDG operation do not reduce the reliability of the EDGs as evidenced by the fact that there were no failures to start for either EDG in the past 50 starts as of the date of its submittal.

The manufacturer, Morrison-Knudsen, has reviewed and approved the licensee's proposal for extending the surveillance interval for certain portions of the EDG preventative maintenance program as documented in its Report No. 6993-2. This approval is based on both the performance program trending which will be conducted by the licensee and on its own field service experience with diesels and on its engineering judgement.

The staff agrees with the licensee and the vendor of the EDGs that there is reasonable assurance that the proposed increase in the surveillance interval for certain specified parts of the preventative maintenance program will not adversely affect the reliability of the Davis-Besse EDGs based on: (1) the performance trending of certain EDG performances parameters; (2) the present high reliability of the EDGs; (3) the experience and judgement of Morrison-Knudsen as it relates to the preventative maintenance program; and (4) the increased frequency of certain other preventative maintenance measures. Based on these considerations, the staff concludes that the proposed increase in the EDG surveillance interval to a maximum of 30 months is acceptable; the 25 percent extension allowed by TS 4.0.2 will not apply. Accordingly, the deletion of the present specification 4.8.1.1.2.d.1 and the addition of Specification 4.8.1.1.2.e including its associated footnote is acceptable.

4.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change to a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 or a change to 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 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 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, 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: M.D.Lynch

Dated: December 22, 1989