

July 25, 1990

Docket Nos. 50-237
and 50-249

Mr. Thomas J. Kovach
Nuclear Licensing Manager
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Dear Mr. Kovach:

SUBJECT: ISSUANCE OF AMENDMENT NOS. 111 AND 107 TO REVISE SURVEILLANCE
INTERVAL FOR RPS ELECTRICAL PROTECTION ASSEMBLIES
(TAC NOS. 76664 AND 76655)

The Commission has issued the enclosed Amendment No. 111 to Provisional
Operating License No. DPR-19 for Dresden, Unit 2, and Amendment No. 107
to Facility Operating License No. DPR-25 for Dresden, Unit 3. The amendments
are in response to your application dated April 18, 1990.

The amendments revise the surveillance interval requirement for functional
testing of the Reactor Protection System Electrical Protection Assemblies
to eliminate the potential for unnecessary scrams from power.

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

Sincerely,

/s/

Byron L. Siegel, Project Manager
Project Directorate III-2
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 111 to
License No. DPR-19
2. Amendment No. 107 to
License No. DPR-25
3. Safety Evaluation

cc w/enclosures:
See next page

DOCUMENT NAME: [AMENDMENT 76655/76664]

Office: LA/PDIII-2
Surname: CMoore
Date: 7/20/90

PM/PDIII-2
BSiegel:ta
7/20/90

PD/PDIII-2
for JWechselberger
7/25/90

OGC
Buchmann
7/23/90
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PDR ADDCK 05000237
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

July 25, 1990

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Mr. Thomas J. Kovach
Nuclear Licensing Manager
Commonwealth Edison Company-Suite 300
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Dear Mr. Kovach:

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(TAC NOS. 76664 AND 76655)

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The amendments revise the surveillance interval requirement for functional testing of the Reactor Protection System Electrical Protection Assemblies to eliminate the potential for unnecessary scrams from power.

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

Sincerely,

A handwritten signature in black ink, reading "Byron L. Siegel".

Byron L. Siegel, Project Manager
Project Directorate III-2
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 111 to License No. DPR-19
2. Amendment No. 107 to License No. DPR-25
3. Safety Evaluation

cc w/enclosures:
See next page

Mr. Thomas J. Kovach
Commonwealth Edison Company

Dresden Nuclear Power Station
Unit Nos. 2 and 3

cc:

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

COMMONWEALTH EDISON COMPANY

DOCKET NO. 50-237

DRESDEN NUCLEAR POWER STATION, UNIT 2

AMENDMENT TO PROVISIONAL OPERATING LICENSE

Amendment No. 111
License No. DPR-19

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by the Commonwealth Edison Company (the licensee) dated April 18, 1990, 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 3.B. of Provisional Operating License No. DPR-19 is hereby amended to read as follows:

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B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 111, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective no later than 60 days from the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION


for

Jacob F. Wechselberger, Acting Director
Project Directorate III-2
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: July 25, 1990

ATTACHMENT TO LICENSE AMENDMENT NO. 111

PROVISIONAL OPERATING LICENSE NO. DPR-19

DOCKET NO. 50-237

Revise the Appendix A Technical Specifications by removing the pages identified below and inserting the attached pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change.

REMOVE

3/4.1-2

INSERT

3/4.1-2

3.1 LIMITING CONDITIONS FOR OPERATION
(Cont'd.)

- a. The APRM scram and rod block settings shall be reduced to the values given by the equations in Specifications 2.1.A.1 and 2.1.B. This may be accomplished by increasing APRM gains as described therein.
 - b. The power distribution shall be changed such that the fuel design limiting ratio for centerline melt (FDLRC) for any fuel assembly no longer exceeds 1.0.
3. Two RPS electric power monitoring channels for each inservice RPS MG set or alternate source shall be OPERABLE at all times.

4.1 SURVEILLANCE REQUIREMENTS
(Cont'd.)

- a. Maximum fuel design limiting ratio for centerline melt (FDLRC).
 - b. Deleted
3. The RPS power monitoring system instrumentation shall be determined OPERABLE:
- a. By performance of a CHANNEL FUNCTIONAL TEST each time the unit is in COLD SHUT-DOWN for a period of more than 24 hours, unless performed in the previous 6 months.



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

COMMONWEALTH EDISON COMPANY

DOCKET NO. 50-249

DRESDEN NUCLEAR POWER STATION, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 107
License No. DPR-25

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by the Commonwealth Edison Company (the licensee) dated April 18, 1990, 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 3.B. of Facility Operating License No. DPR-25 is hereby amended to read as follows:

B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 107, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective no later than 60 days from the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

J. F. Wechselberger
For

Jacob F. Wechselberger, Acting Director
Project Directorate III-2
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: July 25, 1990

ATTACHMENT TO LICENSE AMENDMENT NO. 107

FACILITY OPERATING LICENSE NO. DPR-25

DOCKET NO. 50-249

Revise the Appendix A Technical Specifications by removing the pages identified below and inserting the attached pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change.

REMOVE

3/4.1-2

INSERT

3/4.1-2

3.1 LIMITING CONDITIONS FOR OPERATION
(Cont'd.)

- a. The APRM scram and rod block settings shall be reduced to the values given by the equations in Specifications 2.1.A.1 and 2.1.B. This may be accomplished by increasing APRM gains as described therein.
 - b. The power distribution shall be changed such that the fuel design limiting ratio for centerline melt (FDLRC) for any fuel assembly no longer exceeds 1.0.
3. Two RPS electric power monitoring channels for each inservice RPS MG set or alternate source shall be OPERABLE at all times.

4.1 SURVEILLANCE REQUIREMENTS
(Cont'd.)

- a. Maximum fuel design limiting ratio for centerline melt (FDLRC).
 - b. Deleted.
3. The RPS power monitoring system instrumentation shall be determined OPERABLE:
- a. By performance of a CHANNEL FUNCTIONAL TEST each time the unit is in COLD SHUTDOWN for a period of more than 24 hours, unless performed in the previous 6 months.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 111 TO PROVISIONAL OPERATING LICENSE NO. DPR-19
AND AMENDMENT NO. 107 TO FACILITY OPERATING LICENSE NO. DPR-25

COMMONWEALTH EDISON COMPANY
DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3
DOCKET NOS. 50-237 AND 50-249

1.0 INTRODUCTION

By letter dated April 18, 1990, Commonwealth Edison (the licensee) provided a request for a license amendment to change the Appendix A Technical Specifications (TS). The proposed change would modify the surveillance interval requirements for functional testing of the Reactor Protection System (RPS) Electrical Protective Assemblies (EPAs). The test interval for EPAs would be changed from once every six months, which is also specified in the Boiling Water Reactor (BWR) Standard Technical Specifications (STS), to every cold shutdown of more than 24 hours unless performed in the previous six months.

2.0 EVALUATION

Redundant EPAs are provided that monitor the output of each RPS motor-generator (MG) set power source. Breakers located between the MG sets and the RPS are tripped upon sensing an abnormal MG set output voltage or frequency. This protects the the RPS from the effects of continuous operation with a degraded power source. Because the RPS is not qualified for operation under degraded power source conditions, the EPAs preclude the potential for RPS system failures that could preclude the capability for initiating a scram or other safety actions due to abnormal MG set electrical output conditions.

Operating experience has shown that the EPAs are highly reliable devices and that the potential for MG failures resulting in degraded output voltage or frequency, are low probability events. The licensee noted that no failures of EPAs have occurred in over 336 tests at Dresden, Units 2 and 3. In addition, the combined experience at the Quad Cities and LaSalle units is only one failure in over 500 tests. Therefore, it was proposed that the test interval for EPAs be changed from every six months to during cold shutdowns of more than 24 hours duration if not performed in the previous six months on the basis of this experience.

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The incentive for this change is to reduce the number of tests required to be performed during power operation where the unit is placed in a half-scrum or half-isolation condition. The Dresden units have experienced unnecessary reactor scrams and group isolations while testing EPAs due to inadvertent trips on the remaining half of the RPS logic when in a half-trip condition.

Finally, the licensee noted that this change was also proposed and accepted by the staff as an update for the LaSalle, Unit 1 TS in order to be consistent with the TS proposed for issuance with the LaSalle, Unit 2 operating license. However, whatever basis that may have been set forth for this change could not be located in a search of the LaSalle docket files or the licensee's letter that proposed this change for the LaSalle units. The staff's Safety Evaluation Report (SER) for Amendment 11 to the LaSalle, Unit 1 license had included this change in with a group of TS changes that were judged to be more conservative than those which they replaced and, therefore, acceptable on this basis. The SER did not elaborate on the basis for this conclusion.

There are a number of considerations which would lead to a qualitative conclusion that plant safety is insensitive to the proposed TS change. They include the low probability of a failure of the redundant EPAs. The low probability of MG set failures could produce a sustained abnormal voltage or frequency that could pose a threat to the protection systems components that are supplied power from the MG sets. The low probability that even if the protection systems were damaged due to an abnormal MG set electrical output, assuming the EPAs failed, such would not be detected by other on-line testing of the protection systems before the occurrence of a valid scram or isolation demand. Also, the low probability that these independent events would occur in the required sequence could result in a challenge to plant safety. Finally, any significant threat to safety would also require the failure of ATWS mitigation systems and operator action. However, because the licensee had not attempted to quantify the impact on safety of changing the surveillance interval for EPAs, the staff requested that such analysis be performed to support the proposed TS change.

In response, the licensee quantified the reliability of the EPAs based upon operating experience at Dresden, Quad Cities, LaSalle and Grand Gulf. This experience included four failures of EPAs over a time interval of 311 EPA-years. However, no attempt was made to quantify experience with MG set failures or the probability of events that could lead to a potential threat to safety. It was, however, noted that other BWR TS had requirements as proposed for Dresden, Units 2 and 3.

A review was, therefore, made of the BWR operating licenses that had been issued in the past 10 years. It was found that nine units (LaSalle 1 and 2, Nine Mile Point 2, Perry, River Bend, Shoreham, Susquehanna 1 and 2, and Washington Nuclear Power 2) have TS as proposed for the Dresden units while only five units (Clinton, Grand Gulf, Hope Creek, Fermi 2, and Limerick) have the six months test interval as included in the current BWR STS. Because

the TS change for Nine Mile Point-2 (NMP) had been implemented following the issuance of the operating license, an evaluation had been provided by the licensee to support the license amendment for the proposed change in the EPA surveillance interval.

The impact of the change in the EPA surveillance interval was evaluated for NMP-2 using the methodology included in the BWR Owners Group Topical Reports NEDC-30844 and -30851P. These reports provided the justification for an extension of on-line test intervals and allowable out-of-service times for BWR Reactor Protection Systems (RPS). The staff had previously approved the use of these Topical Reports to support proposed TS changes for the RPS on an individual plant basis. The results of the NMP-2 analysis was provided by Niagara Mohawk Power Corporation in support of the TS change for the EPA surveillance intervals by their letter dated December 15, 1988.

The results of the NMP-2 analysis showed that the change in failure probability of the RPS scram solenoids increased by 4.7×10^{-8} failures per year due to the increase in EPA surveillance interval. The change in core damage frequency was 6.2×10^{-12} per year when failure probabilities for the alternate rod insertion and standby liquid control system were considered. The reduction in inadvertent scrams by eliminating the testing of EPAs during power operation was determined to be 1.8×10^{-3} scrams per year which was determined to result in a decrease in core damage frequency of 1×10^{-10} per year.

These results confirm the qualitative judgement that safety is insensitive to the proposed increase in EPA surveillance intervals. In fact, the result is a net benefit to safety, yet negligibly small by any relevant standard. We find that NMP-2 quantitative analysis of the impact on safety of the change in EPA surveillance interval provides a suitable basis for acceptance of this TS change and confirms the acceptability of the proposed surveillance interval as included in the TS of those plants licensed in the past 10 years as noted above. Therefore, we find the proposed TS change to be acceptable for Dresden, Units 2 and 3.

3.0 ENVIRONMENTAL CONSIDERATION

These amendments involve changes 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. The staff has determined that the amendments involve 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 these amendments involve no significant hazards consideration and there has been no public comment on such finding. Accordingly, these amendments meet 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 nor environmental assessment need be prepared in connection with the issuance of these amendments.

4.0 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 (3) the issuance of these amendments will not be inimical to the common defense and security nor to the health and safety of the public.

Principal Contributor: Thomas G. Dunning

Dated: July 25, 1990