

RS-01-123

June 26, 2001

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555

Dresden Nuclear Power Station, Units 2 and 3  
Facility Operating License Nos. DPR-19 and DPR-25  
NRC Docket Nos. 50-237 and 50-249

Subject: Request for License Amendment for Pressure-Temperature Limits

- (1) Letter from U. S. NRC to O. D. Kingsley (Commonwealth Edison Company), "Dresden – Issuance of Amendments – Revised Pressure-Temperature Limits," dated September 19, 2000
- (2) Letter from J. F. Klapproth (General Electric Company) to U. S. NRC, "Submittal of GE Proprietary Document NEDC-32983P, 'General Electric Methodology for Reactor Pressure Vessel Fast Neutron Flux Evaluations,'" dated September 1, 2000
- (3) Letter from R. M. Krich (Commonwealth Edison Company) to U. S. NRC, "Request for License Amendment for Power Uprate Operation," dated December 27, 2000

In accordance with 10 CFR 50.90, "Application for amendment of license or construction permit," Exelon Generation Company (EGC), LLC, formerly Commonwealth Edison (ComEd) Company, requests a change to Facility Operating License Nos. DPR-19 and DPR-25 for Dresden Nuclear Power Station (DNPS), Units 2 and 3, to extend the dates specified in Operating License Sections 2.C(8) and 3.P, "Pressure-Temperature Limit Curves," for DNPS, Units 2 and 3, respectively.

In Reference 1, the NRC approved revisions to the Technical Specifications (TS) for DNPS, Units 2 and 3, regarding the pressure-temperature (P-T) limits for the reactor pressure vessels (RPVs). The DNPS P-T limits were subject to a license condition approving their use until November 30, 2001, for DNPS Unit 2 and until October 30, 2002, for DNPS Unit 3.

In Reference 2, General Electric (GE) Company submitted a licensing topical report (LTR) to the NRC describing a proposed methodology for calculating RPV fast neutron fluence. This GE LTR is currently undergoing NRC review. EGC had planned to use the GE LTR results to support removal of the license conditions described above.

Because the GE LTR methodology is currently being reviewed by the NRC, EGC requests that the license conditions described above be modified to allow use of the current P-T limits specified in the DNPS TS until the following dates.

A 001

December 31, 2003, for DNPS Unit 2  
November 30, 2004, for DNPS Unit 3

These dates are approximately two to three weeks beyond the end dates of the next cycle of operation (i.e., Cycle 18) for each unit. We expect that the GE LTR would be approved by this time and provide the basis for removing the license condition on the P-T curves.

In Reference 3, EGC submitted a request for changes to the operating licenses and TS for DNPS, Units 2 and 3, to allow operation with an extended power uprate (EPU). The attached information supporting this request to extend the license condition for the P-T limits will remain applicable under uprated power conditions.

The attachments to this letter provide information supporting this proposed change.

1. Attachment A provides a description and safety analysis of the proposed change.
2. Attachment B includes the marked-up operating license pages with the proposed change indicated.
3. Attachment C describes our evaluation performed using the criteria in 10 CFR 50.91(a)(1) that provides information supporting a finding of no significant hazards consideration using the standards in 10 CFR 50.92(c).
4. Attachment D provides information supporting an Environmental Assessment.

Should you have any questions concerning this request, please contact Mr. A. R. Haeger at (630) 657-2807.

Respectfully,



R. M. Krich  
Director – Licensing  
Mid-West Regional Operating Group

cc: Regional Administrator - NRC Region III  
NRC Senior Resident Inspector - Dresden Nuclear Power Station  
Office of Nuclear Facility Safety - Illinois Department of Nuclear Safety

STATE OF ILLINOIS )  
COUNTY OF DUPAGE )  
IN THE MATTER OF )  
EXELON GENERATION COMPANY, LLC ) Docket Numbers  
DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3 ) 50-237 AND 50-249

**SUBJECT:** Request for License Amendment for Pressure-Temperature Limits

**AFFIDAVIT**

I affirm that the content of this transmittal is true and correct to the best of my knowledge, information and belief.

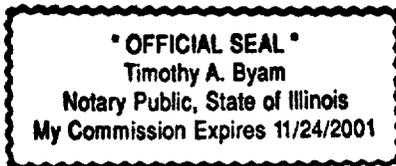


R. M. Krich  
Director - Licensing  
Mid-West Regional Operating Group

Subscribed and sworn to before me, a Notary Public in and  
for the State above named, this 26<sup>th</sup> day of  
June, 2001.



Notary Public



**Attachment A**  
**Request for License Amendment for Pressure-Temperature Limits**  
**Dresden Nuclear Power Station, Units 2 and 3**

**Description and Safety Analysis for Proposed Change**

**A. SUMMARY OF PROPOSED CHANGE**

Exelon Generation Company (EGC), LLC, formerly Commonwealth Edison (ComEd) Company, is requesting a change to Facility Operating License Nos. DPR-19 and DPR-25 for Dresden Nuclear Power Station (DNPS), Units 2 and 3, to extend the dates specified in Operating License Sections 2.C(8) and 3.P, "Pressure-Temperature Limit Curves," for Units 2 and 3, respectively.

In Reference 1, the NRC approved revisions to the Technical Specifications (TS) for DNPS, Units 2 and 3, regarding the pressure-temperature (P-T) limits for the reactor pressure vessel (RPV). The DNPS P-T limits were subject to license conditions approving their use until November 30, 2001, for Unit 2 and until October 30, 2002, for Unit 3.

In Reference 2, General Electric (GE) Company submitted a licensing topical report (LTR) to the NRC describing a proposed methodology for calculating RPV fast neutron fluence. This GE LTR is currently undergoing NRC review. EGC had planned to use the GE LTR results to support removal of the license conditions described above.

Because the GE LTR methodology is currently being reviewed by the NRC, EGC requests that the license conditions described above be modified to extend the applicability of the current P-T limits specified in the DNPS TS until the following dates.

December 31, 2003, for Unit 2  
November 30, 2004, for Unit 3

These dates are approximately two to three weeks beyond the end dates of the next cycle of operation (i.e., Cycle 18) for each unit. We expect that the GE LTR would be approved by this time and provide the basis for removing the license condition on the P-T curves.

**B. DESCRIPTION OF THE CURRENT REQUIREMENTS**

Facility Operating License No. DPR-19, for DNPS Unit 2, Section 2.C(8) states, "The pressure-temperature (P-T) limit curves issued by Amendment No. 179 are approved for use until November 30, 2001, unless Exelon Generation Company, LLC, the licensee, obtains approval from the Nuclear Regulatory Commission staff for use beyond November 30, 2001."

Facility Operating License No. DPR-25, for DNPS, Unit 3, Section 3.P states, "The pressure-temperature (P-T) limit curves issued by Amendment No. 174 are approved for use until October 30, 2002, unless Exelon Generation Company, LLC, the licensee, obtains approval from the Nuclear Regulatory Commission staff for use beyond October 30, 2002."

**C. BASES FOR THE CURRENT REQUIREMENTS**

The current TS P-T limits were approved by the NRC for use at DNPS in Amendments 179 and 174 for Units 2 and 3, respectively, in Reference 1. The NRC Safety Evaluation (SE) accompanying the approval in Reference 1 noted that the adjusted reference temperatures

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(ARTs) and the P-T limit curves were based on ComEd's neutron fluence projections for DNPS effective to 32 effective full power years (EFPYs). The SE further noted that ComEd had developed the neutron fluence values by extrapolation from earlier fluence values obtained from RPV surveillance capsules. The NRC review identified concerns with the capsule dosimetry measurements and the fluence calculations for the later years of the projection. Because of the difficulty in quickly resolving the NRC concerns, ComEd proposed in Reference 3 that the NRC grant interim approval of the 32 EFPY P-T limits, while new fluence calculations were completed. This interim approval was granted in Reference 1.

**D. NEED FOR REVISION OF THE REQUIREMENTS**

EGC had planned to use the GE LTR methodology of Reference 2 to determine new 32 EFPY fluence projections to support removal of the license conditions described above. The GE LTR methodology is currently being reviewed by the NRC. The requested extension of the license conditions is needed to avoid having to shut down Unit 2 on November 30, 2001, and Unit 3 on October 30, 2002.

**E. DESCRIPTION OF THE PROPOSED CHANGE**

The license condition in Section 2.C(8) of Facility Operating License No. DPR-19 is revised to read, "The pressure-temperature (P-T) limit curves issued by Amendment No. 179 are approved for use until December 31, 2003, unless Exelon Generation Company, LLC, the licensee, obtains approval from the Nuclear Regulatory Commission staff for use beyond December 31, 2003."

The license condition in Section 3.P of Facility Operating License No. DPR-25 is revised to read, "The pressure-temperature (P-T) limit curves issued by Amendment No. 174 are approved for use until November 30, 2004, unless Exelon Generation Company, LLC, the licensee, obtains approval from the Nuclear Regulatory Commission staff for use beyond November 30, 2004."

We expect that the GE LTR would be approved by this time and provide the basis for removing the license condition on the P-T curves.

**F. SAFETY ANALYSIS OF THE PROPOSED CHANGE**

The proposed dates for the use of the P-T limits are approximately two to three weeks beyond the end dates of the next cycle of operation (i.e., Cycle 18) for each unit. The end of Cycle 18 is projected to be late November 2003 for Unit 2 and late October 2004 for Unit 3. The maximum RPV operating times attained at the end of the proposed period will be 21.6 EFPYs for Unit 2 and 20.9 EFPYs for Unit 3. These operating times represent a maximum of 67.5% of the 32 EFPY period assumed in the current P-T limits. In Reference 4, ComEd submitted a license amendment request to permit operation with an extended power uprate (EPU). If this EPU amendment request is approved, DNPS would operate Cycle 18 with a Rated Thermal Power (RTP) of approximately 17% greater than the current RTP. Even with this increase in RTP, the RPV operating times at the end of Cycle 18 provide significant margin to ensure that the current 32 EFPY fluence projection of  $5.1 \times 10^{17}$  n/cm<sup>2</sup> will not be exceeded.

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**Description and Safety Analysis for Proposed Change**

Additionally, two features of DNPS design result in minimizing the neutron fluence at the RPV wall. While these features do not change the assumptions made in the current fluence calculations, they explain why the DNPS projected fluence is relatively low compared to other Boiling Water Reactors (BWRs) and ensure that the assumptions in the fluence projections are preserved.

First, the DNPS RPVs are unique in that they have an unusually large diameter (i.e., 251 inches inside diameter (ID)) with a low thermal power core (i.e., 2527 megawatts thermal (MWt)). Many BWRs with low thermal power cores have significantly smaller diameter RPVs (i.e., 218 inches ID). These smaller ID RPVs have a narrower annulus and less clearance between the fuel and shroud, and therefore less water shielding to the RPV wall. Additionally, most BWR RPVs with 251 inch IDs have considerably higher thermal powers and a resulting higher neutron flux density. As a result, the fluence at the DNPS RPV wall is relatively low compared to most BWRs.

Second, DNPS cores are designed to obtain low neutron leakage. Low neutron leakage core designs place older, low power fuel on the perimeter of the core. This fuel operates at relatively low thermal power and effectively shields the RPV wall. The DNPS core designs have been low neutron leakage since the initial core load. For the EPU condition, this low neutron leakage loading pattern will continue. Because of the increase in reactor power due to EPU, the neutron flux at the RPV wall will increase in approximate proportion to the extent of the power uprate, but this increase in neutron flux over the one cycle approval period will have only a small effect on the accumulated RPV fluence.

In summary, the proposed use of the 32 EFPY P-T limits until December 31, 2003, for Unit 2 and November 30, 2004, for Unit 3 is conservative because the limited term of the requested approval provides significant margin to ensure that the basis for the current P-T limits will not be exceeded.

**G. IMPACT ON PREVIOUS SUBMITTALS**

EGC has reviewed the proposed change regarding its impact on any previous submittals. The proposed change does not impact any changes proposed in any previous submittals.

**H. SCHEDULE REQUIREMENTS**

EGC requests approval of the proposed change by October 30, 2001, to support startup with the revised license conditions from Unit 2 refueling outage 17, currently scheduled to end on approximately November 6, 2001, and to avoid the need to shut down Unit 2 on November 30, 2001.

**I. REFERENCES**

1. Letter from U. S. NRC to O. D. Kingsley (ComEd), "Dresden – Issuance of Amendments – Revised Pressure-Temperature Limits," dated September 19, 2000

**Attachment A**  
**Request for License Amendment for Pressure-Temperature Limits**  
**Dresden Nuclear Power Station, Units 2 and 3**

**Description and Safety Analysis for Proposed Change**

2. Letter from J. F. Klapproth (GE Company) to U. S. NRC, "Submittal of GE Proprietary Document NEDC-32983P, 'General Electric Methodology for Reactor Pressure Vessel Fast Neutron Flux Evaluations,'" dated September 1, 2000
3. Letter from Preston Swafford (ComEd) to U. S. NRC, "Supplement to request for an Amendment to Technical Specifications Section 3/4.6K, 'Primary System Boundary,' and Section 3/4.12.C, 'Special Test Exceptions,' and Request for Exemption from 10 CFR 50.60, 'Acceptance criteria for fracture prevention measures for lightwater nuclear power reactors for normal operation,'" dated July 17, 2000
4. Letter from R. M. Krich (ComEd) to U. S. NRC, "Request for License Amendment for Power Uprate Operation," dated December 27, 2000

**Attachment B**  
**Request for License Amendment for Pressure-Temperature Limits**  
**Dresden Nuclear Power Station, Units 2 and 3**

**Marked Up License Pages**

REVISED PAGES

Facility Operating License DPR-19, page 4  
Facility Operating License DPR-25, page 7

(6) Surveillance Requirements

The Surveillance Requirements contained in Appendix A Technical Specifications and listed below are not required to be performed immediately upon implementation of Amendment No. 150:

- a. Surveillance Requirement 4.1.A.2 - RPS Logic System Functional Test
- b. Surveillance Requirement 4.2.A.2 - Primary & Secondary Containment Logic System Functional Test
- c. Surveillance Requirement 4.2.J.2 - Feedwater Pump Trip Logic System Functional Test
- d. Surveillance Requirement 4.6.F.1.b - Relief Valve Logic System Functional Test
- e. Surveillance Requirement 4.9.A.9 - Simultaneous Diesel Generator Start
- f. Surveillance Requirement 4.9.A.10 - Diesel Storage Tank Cleaning (Unit 3 and Unit 2/3 only)

Each of the above Surveillance Requirements shall be successfully demonstrated prior to entering into MODE 2 on the first plant startup following the fifteenth refueling outage (D2R15).

(7) Additional Conditions

The Additional Conditions contained in Appendix B, as revised through Amendment No. 163, are hereby incorporated into this license. The licensee shall operate the facility in accordance with the Additional Conditions.

(8) Pressure-Temperature Limit Curves

*December 31, 2003*

Am. 179  
09/19/00

The pressure-temperature (P-T) limit curves issued by Amendment No. 179 are approved for use until ~~November 30, 2001~~, unless Exelon Generation Company, LLC, the licensee, obtains approval from the Nuclear Regulatory Commission staff for use beyond ~~November 30, 2001~~.

(9) Fuel Burnup

*December 31, 2003*

Am. 180  
09/21/00

The maximum rod average burnup for any rod shall be limited to 60 GWD/MTU until the completion of an NRC environmental assessment supporting an increased limit.

Am. 174  
09/19/00

P. Pressure-Temperature Limit Curves *November 30, 2004*

The pressure-temperature (P-T) limit curves issued by Amendment No. 174 are approved for use until ~~October 30, 2002~~ unless Exelon Generation Company, LLC, the licensee, obtains approval from the Nuclear Regulatory Commission staff for use beyond ~~October 30, 2002~~.

Am. 175  
09/21/00

Q. Fuel Burnup *November 30, 2004*

The maximum rod average burnup for any rod shall be limited to 60 GWD/MTU until the completion of an NRC environmental assessment supporting an increased limit.

R. Exelon Generation Company, LLC shall provide the Director of the Office of Nuclear Reactor Regulation a copy of any application, at the time it is filed, to transfer (excluding grants of security interests or liens) from Exelon Generation Company, LLC to its direct or indirect parent, or to any other affiliated company, facilities for the production, transmission, or distribution of electric energy having a depreciated book value exceeding ten percent (10%) of Exelon Generation Company, LLC's consolidated net utility plant, as recorded on Exelon Generation Company, LLC's books of account.

S. Exelon Generation Company, LLC shall have decommissioning trust funds for Dresden, Unit 3, in the following minimum amount, when Dresden, Unit 3, is transferred to Exelon Generation Company, LLC:

Dresden, Unit 3	\$262,231,719
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T. The decommissioning trust agreement for Dresden, Unit 3, at the time the transfer of the unit to Exelon Generation Company, LLC is effected and thereafter, is subject to the following:

- (1) The decommissioning trust agreement must be in a form acceptable to the NRC.
- (2) With respect to the decommissioning trust fund, investments in the securities or obligations of Exelon Corporation or affiliates thereof, or their successors or assigns are prohibited. Except for investments tied to market indexes or other non-nuclear sector mutual funds, investments in any entity owning one or more nuclear power plants are prohibited.
- (3) The decommissioning trust agreement for Dresden, Unit 3, must provide that no disbursements or payments from the trust shall be made by the trustee unless the trustee has first given the Director of the Office of Nuclear Reactor Regulation, 30 days prior written notice of payment. The decommissioning trust agreement shall further contain a provision that no disbursements or payments from the trust shall be made if the trustee receives prior written notice of objection from the NRC.

**Attachment C**  
**Request for License Amendment for Pressure-Temperature Limits**  
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**Information Supporting a Finding of**  
**No Significant Hazards Consideration**

According to 10 CFR 50.92(c), "Issuance of amendment," 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; or,
- (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.

Exelon Generation Company (EGC), LLC, formerly Commonwealth Edison (ComEd) Company, is proposing a change to Facility Operating License Nos. DPR-19 and DPR-25 for Dresden Nuclear Power Station (DNPS), Units 2 and 3, to extend the dates specified in Sections 2.C(8) and 3.P, "Pressure-Temperature Limit Curves," for Units 2 and 3, respectively. These sections provide license conditions that limit the use of the pressure-temperature (P-T) limit curves until November 30, 2001, and October 30, 2002, for Units 2 and 3, respectively.

The proposed change is to modify the license conditions described above to allow use of the current P-T limits specified in the DNPS Technical Specifications (TS) until the following dates.

December 31, 2003, for Unit 2  
November 30, 2004, for Unit 3

These dates are approximately two to three weeks beyond the end dates of the next cycle of operation for each unit. We expect to remove the license conditions by these dates.

Information supporting the determination that the criteria set forth in 10 CFR 50.92 are met for this amendment request is indicated below.

**Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?**

The proposed change to the operating license to extend the limitations on the use of the P-T limits does not affect the operation or configuration of any plant equipment. Thus, no new accident initiators are created by this change.

The proposed change extends the use of the pressure – temperature (P-T) limits for an additional cycle of operation on each unit. The P-T limits are based on the projected reactor pressure vessel (RPV) neutron fluence at 32 effective full power years (EFPYs) of operation. At the end of the next cycle of operation, the Dresden Nuclear Power Station (DNPS) units will have attained a maximum of 67.5% of the 32 EFPY operating times. Separately, we submitted a license amendment request to permit operation with an extended power uprate (EPU). Even with an approximately 17% increase in reactor power for one cycle due to the

**Attachment C**  
**Request for License Amendment for Pressure-Temperature Limits**  
**Dresden Nuclear Power Station, Units 2 and 3**

**Information Supporting a Finding of**  
**No Significant Hazards Consideration**

EPU, this provides significant margin to ensure that the current 32 EFPY fluence projection of  $5.1 \times 10^{17}$  n/cm<sup>2</sup> will not be exceeded. This ensures that the basis for proposed applicability of the P-T limits is conservative and that the RPV integrity is protected under all operating conditions. Therefore, neither the probability nor the consequences of an accident are increased.

Therefore, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

**Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?**

The proposed change to the operating license to extend the limitations on the use of the P-T limits does not affect the operation or configuration of any plant equipment. The current P-T limits will remain valid and conservative during the proposed extension. Thus, no new or different accidents are created by this proposed change.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

**Does the proposed change involve a significant reduction in a margin of safety?**

The proposed change extends the use of the P-T limits for an additional cycle of operation on each unit. The P-T limits are based on the projected RPV neutron fluence at 32 EFPYs of operation. At the end of the next cycle of operation, the DNPS units will have attained a maximum of 67.5% of the 32 EFPY operating times. In a separate license amendment request, ComEd submitted a license amendment request to permit operation with an extended power uprate (EPU). Even with an approximately 17% increase in reactor power for one cycle due to the EPU, this provides significant margin to ensure that the current 32 EFPY fluence projection of  $5.1 \times 10^{17}$  n/cm<sup>2</sup> will not be exceeded. This ensures that the basis for the P-T limits is conservative and therefore ensures that the reactor pressure vessel integrity is protected under all operating conditions. Therefore, the proposed change does not involve a significant reduction in the margin of safety.

Based upon the above evaluation, EGC has concluded that these changes involve no significant hazards consideration.

**Attachment D**  
**Request for License Amendment for Pressure-Temperature Limits**  
**Dresden Nuclear Power Station, Units 2 and 3**

**Information Supporting an Environmental Assessment**

Exelon Generation Company (EGC), LLC, has evaluated this proposed change against the criteria for identification of licensing and regulatory actions requiring environmental assessment in accordance with 10 CFR 51.21, "Criteria for and identification of licensing and regulatory actions requiring environmental assessment." EGC has determined that this proposed change meets the criteria for a categorical exclusion set forth in 10 CFR 51.22(c)(9), "Criteria for categorical exclusion; identification of licensing and regulatory actions eligible for categorical exclusion or otherwise not requiring environmental review," and as such, has determined that no irreversible consequences exist in accordance with 10 CFR 50.92(b), "Issuance of amendment." This determination is based on the fact that this change is being proposed as an amendment to a license issued pursuant to 10 CFR 50, "Domestic Licensing of Production and Utilization Facilities," which changes a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, "Standards for Protection Against Radiation," or that changes an inspection or a surveillance requirement, and the amendment meets the following specific criteria.

- (i) The amendment involves no significant hazards consideration.

As demonstrated in Attachment C, this proposed change does not involve any significant hazards consideration.

- (ii) There is no significant change in the types or significant increase in the amounts of any effluent that may be released offsite.

The proposed change is limited to extending the use of the current pressure-temperature limit curves. This change does not allow for an increase in the unit power level, does not increase the production, nor alter the flow path or method of disposal of radioactive waste or byproducts. Therefore, the proposed change does not affect actual unit effluents.

- (iii) There is no significant increase in individual or cumulative occupational radiation exposure.

The proposed changes will not result in changes in the operation or configuration of the facility. There will be no change in the level of controls or methodology used for processing of radioactive effluents or handling of solid radioactive waste, nor will the proposal result in any change in the normal radiation levels within the plant. Therefore, there will be no increase in individual or cumulative occupational radiation exposure resulting from this change.