

RS-03-026

January 31, 2003

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001Dresden 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 Technical Specifications Changes Related to Primary Containment Isolation Instrumentation for the Isolation Condenser System

In accordance with 10 CFR 50.90, "Application for amendment of license or construction permit," Exelon Generation Company (EGC), LLC, requests changes to the Technical Specifications (TS) of Facility License Nos. DPR-19 and DPR-25 for the Dresden Nuclear Power Station (DNPS), Units 2 and 3. The proposed changes modify the allowable values (AV) for two Isolation Condenser (IC) System isolation functions, Steam Flow – High and the Return Flow – High, specified in TS Table 3.3.6.1-1, "Primary Containment Isolation Instrumentation."

These proposed changes support a planned replacement of the existing instrumentation, which is currently environmentally qualified (EQ) to Division of Operating Reactors EQ guidelines, with Class 1E qualified flow switches. The analytical limits (ALs) for the functions are not changed. The subject flow switches will be installed during scheduled on-line system maintenance for Units 2 and 3 in the fall of 2003. Therefore, Exelon requests approval of the proposed TS changes by August 27, 2003. Once approved, the amendment is to be implemented within 90 days.

The attachments to this letter provide information supporting these proposed changes and are arranged as follows.

1. Attachment A provides a description and safety analysis of the proposed change, our evaluation supporting a finding of no significant hazards, and information regarding an Environmental Assessment.
2. Attachment B includes the applicable TS page mark-up with the proposed changes indicated.
3. Attachment C contains the revised TS page including the proposed changes.

These proposed TS changes have been reviewed by the DNPS Plant Operations Review Committee and approved by the Nuclear Safety Review Board in accordance with the requirements of the EGC Quality Assurance Program.

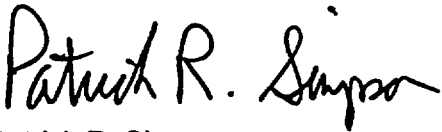
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January 31, 2003
U. S. Nuclear Regulatory Commission
Page 2

In accordance with 10 CFR 50.91(b), "Notice for public comment; State consultation," EGC is notifying the State of Illinois of this request for changes to the TS by transmitting a copy of this letter and its attachments to the designated State Official.

Should you have any questions concerning his letter, please contact Mr. Thomas G. Roddey at (630) 657-2811.

Respectfully,

A handwritten signature in black ink that reads "Patrick R. Simpson". The signature is written in a cursive style with a large initial "P" and "S".

Patrick R. Simpson
Manager - Licensing
Mid-West Regional Operating Group

Attachments: Affidavit
Attachment A: Description and Safety Analysis for Proposed Changes
Attachment B: Marked-up Technical Specifications Pages for Proposed Changes
Attachment C: Revised Technical Specifications Pages for Proposed Changes

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 Technical Specifications Changes Related to Primary Containment Isolation Instrumentation for the Isolation Condenser System

AFFIDAVIT

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

Patrick R. Simpson
Patrick R. Simpson
Manager – Licensing
Mid-West Regional Operating Group

Subscribed and sworn to before me, a Notary Public in and for the State above named, this 31st day of

January, 2003.

Anese L. Grigsby
Notary Public



Attachment A

DESCRIPTION AND SAFETY ANALYSIS FOR PROPOSED CHANGES

1. DESCRIPTION

In accordance with 10 CFR 50.90, "Application for amendment of license or construction permit," Exelon Generation Company (EGC), LLC, requests changes to Appendix A, Technical Specifications (TS), of Facility License Nos. DPR-19 and DPR-25 for the Dresden Nuclear Power Station (DNPS), Units 2 and 3. Specifically, EGC proposes to revise the allowable values (AVs) for two functions in Table 3.3.6.1-1, "Primary Containment Isolation Instrumentation," Function 4, "Isolation Condenser System Isolation." The changes affect Function 4.a, "Steam Flow – High," and Function 4.b, "Return Flow – High." These proposed changes support a planned replacement of the existing high flow isolation instrumentation, which is currently environmentally qualified (EQ) to Division of Operating Reactors (DOR) EQ guidelines, with flow switches qualified to NUREG-0588, "Interim Staff Position on Equipment Qualification of Safety-Related Electrical Equipment," Class 1E and 10 CFR 50.49, "Environmental qualification of electric equipment important to safety for nuclear power plants."

The related plant design changes will be installed during on-line system maintenance scheduled in the fall of 2003. A complete description of the proposed changes is given in Section 2, "Proposed Changes," of this attachment. Attachment B provides the marked-up TS page indicating the proposed changes. Attachment C provides the revised TS page.

EGC has reviewed the proposed changes for impact on any DNPS submittals currently being reviewed by the NRC and has determined that there is no impact on any of these submittals. We request approval of these proposed changes by August 27, 2003, to support switch replacements during the fall of 2003. Once approved, the amendment is to be implemented within 90 days.

2. PROPOSED CHANGES

For this license amendment request, the two relevant input parameters to the IC isolation logic are IC steam flow and return flow. Currently, two locally-mounted, indicating differential pressure switches are used to monitor each variable. The existing high flow isolation differential pressure switches (i.e., Barton Model No. 288 series) will be replaced with similar Class 1E qualified differential pressure switches (i.e., Barton Model No. 580A-0) that will interface with the existing Primary Containment Isolation System (PCIS) logic. No change is being made to the circuit design or logic. The new differential pressure switches use proven technology, are highly reliable, and are currently used in the Main Steam Line Flow – High function at DNPS Unit 2.

DNPS proposes to replace existing switches, qualified to DOR requirements, with switches that are fully qualified to Class 1E requirements. The new switches are qualified to more stringent standards and differ from the existing switches in reference accuracy and in allowed setpoint drift associated with accident conditions. As a result, the calculated AVs for the new differential pressure switches vary from those calculated for the existing switches. The analytical limits are the same for both the existing and proposed replacement switches.

Attachment A

DESCRIPTION AND SAFETY ANALYSIS FOR PROPOSED CHANGES

The proposed changes to the allowable values for Function 4 of TS Table 3.3.6.1-1 are as follows.

1. Function 4.a, Steam Flow – High
Revise the allowable value from $\leq 290.76\%$ of rated steam flow to $\leq 273.65\%$ of rated steam flow.
2. Function 4.b, Return Flow – High
Revise the allowable value from ≤ 30.2 inches water (Unit 2) to ≤ 26.0 inches water (Unit 2).
Revise the allowable value from ≤ 13.7 inches water (Unit 3) to ≤ 10.7 inches water (Unit 3).

The proposed TS changes are reflected on a marked-up copy of the affected TS page in Attachment B. The revised TS page is provided in Attachment C.

3. BACKGROUND

In general, the primary containment isolation instrumentation and logic systems automatically initiate closure of appropriate primary containment isolation valves (PCIVs). The function of the PCIVs, acting in conjunction with other accident-mitigating systems, is to limit fission product release during and following postulated Design Basis Accidents. The isolation instrumentation includes sensors, relays, and switches that are necessary to initiate isolations of the primary containment and reactor coolant pressure boundary. When the setpoint is exceeded, the channel output relay actuates to provide a primary containment isolation signal to the isolation logic. Monitoring a wide range of independent parameters provides functional diversity.

For this license amendment request, the two relevant input parameters to the IC isolation logic are IC steam flow and return flow. The IC Flow – High functions are provided to detect a break of IC lines, initiating closure of the inboard and outboard steam and condensate return isolation valves and vent line isolation valves. If steam or condensate continues to flow out of the break, the reactor may be depressurized and the core uncovered. Therefore, the isolation is initiated on high flow to prevent or mitigate core damage. Redundant sensor inputs for each parameter provide for isolation initiation.

The IC Steam Flow – High and Return Flow – High functions each receive input from one channel via their respective associated flow switch. The steam flow switch and the condensate flow switch are connected in a one-out-of-two logic in each of two trip strings. Each of the two trip strings provides input into two trip systems in a one-out-of-two logic, and each trip system isolates either the inboard or outboard IC steam and condensate isolation valves. The IC functions isolate Group 5 valves.

The operability of primary containment instrumentation is dependent on the operability of the individual instrument channel functions specified in Table 3.3.6.1-1. Each function must have a required number of operable channels, with their setpoints within the specified AVs where applicable. Setpoint calibration is in accordance with applicable setpoint methodology assumptions. In general, the individual functions of Table 3.3.6.1-1 are required to be operable in modes 1, 2, and 3, consistent with the applicability of LCO 3.6.1.1, "Primary Containment."

Attachment A

DESCRIPTION AND SAFETY ANALYSIS FOR PROPOSED CHANGES

The isolation signals generated by the primary containment isolation instrumentation are implicitly assumed in safety analyses to limit offsite doses by initiating valve closures. For the purposes of this specification, an IC Steam Flow – High function channel and associated Return Flow – High function channel must be operable (one separate channel for each trip system). Primary containment isolation instrumentation satisfies Criterion 3 of 10 CFR 50.35(c)(2)(ii). The isolation, along with the scram function of the reactor protection system (RPS), ensures that the fuel peak cladding temperature remains below the limits of 10 CFR 50.46. Specific credit for these functions is not assumed in any UFSAR accident analyses since the bounding analysis is performed for large failures such as recirculation system or main steam line breaks (MSLB). However, these instruments prevent the IC steam flow or return flow breaks from becoming bounding.

4. TECHNICAL ANALYSIS

For this license amendment request, the Safety Analyses, LCOs, and applicability discussions that follow are relevant only to Function 4, IC System Isolation of Table 3.3.6.1-1. Function 4 of Table 3.3.6.1-1 specifies three AVs for IC System Isolation and the following applicable SRs for the existing indicating differential pressure switches.

| <u>Table 3.3.6.1-1</u> | <u>Allowable Value</u> | <u>Applicable Modes</u> |
|---------------------------------|-------------------------------|-------------------------|
| Function 4.a Steam Flow – High | ≤ 290.76% of rated steam flow | 1, 2, 3 |
| Function 4.b Return Flow – High | ≤ 30.2 inches water (Unit 2) | 1, 2, 3 |
| | ≤ 13.7 inches water (Unit 3) | 1, 2, 3 |

| <u>Surveillance Requirements</u> | <u>Frequency</u> |
|--|------------------|
| SR 3.3.6.1.2, CHANNEL FUNCTIONAL TEST | 92 days |
| SR 3.3.6.1.4, CHANNEL CALIBRATION | 92 days |
| SR 3.3.6.1.7, LOGIC SYSTEM FUNCTIONAL TEST | 24 months |

The proposed TS changes support the replacement of a differential pressure switch with a functionally equivalent indicating differential pressure switch. Since there are no functional changes and no change in analytical limits, surveillance requirements and their frequencies remain unchanged.

DNPS proposes to replace existing switches qualified to DOR requirements with switches that are fully qualified to Class 1E requirements. The new switches are qualified to more exacting standards and differ from the existing switches in switch performance values such as reference accuracy and allowed setpoint drift due to accident environment effects. As a result, the calculated AV for the new differential pressure switches differs from that calculated for the existing switches. The AL is the same for both the existing and proposed replacement switches. The proposed change will not alter the existing circuit design or initiation logic.

The allowable values are chosen low enough to ensure that the trip occurs to prevent fuel damage and maintain the MSLB event as the bounding event. For both the Steam Flow – High and the Return Flow – High, the existing analytical limit of 300% normal flow is retained. For Return Flow –

Attachment A

DESCRIPTION AND SAFETY ANALYSIS FOR PROPOSED CHANGES

High, the AV is expressed in engineering units of “inches water,” but the underlying AL corresponds to 300% normal flow.

The proposed allowable values remain well above 200% of normal flow. Therefore, lowering the allowable values and corresponding setpoints will have no adverse effect on normal operation of the IC.

The AVs are revised to be consistent with those calculated using the EGC methodology found in NES-EIC-20.04, “Analysis of Instrument Channel Setpoint Error and Instrument Loop Accuracy,” Revision 3. This protocol was previously reviewed and approved by the NRC as part of the Improved Technical Specifications submittal (References 1 and 2). No ALs are changed.

5. REGULATORY SAFETY ANALYSIS

5.1 No Significant Hazards Consideration

According to 10 CFR 50.92, “Issuance of amendment,” paragraph (c) 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.

In support of this determination, an evaluation of each of the three criteria set forth in 10 CFR 50.92 is provided below regarding the proposed license amendment.

Overview

In accordance with 10 CFR 50.90, “Application for amendment of license or construction permit,” EGC is requesting a change to Appendix A, Technical Specifications (TS), of Facility Operating License Nos. DPR-19 and DPR-25, for DNPS Units 2 and 3. The proposed change modifies the allowable value (AV) for two primary containment isolation instrumentation functions. Specifically, Isolation Condenser System Isolation Function 4.a, Steam Flow – High and Function 4.b Return Flow – High AVs are revised due to planned replacement of differential pressure switches, currently qualified to Division of Operating Reactors requirements, with switches qualified to Class 1E requirements. Differences between the two differential pressure switches result in differences in calculated AVs. No analytical value is changed and there are no functional changes.

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

The proposed TS changes support the replacement of a differential pressure switch with a functionally equivalent differential pressure switch. Since there are no functional changes and no

Attachment A

DESCRIPTION AND SAFETY ANALYSIS FOR PROPOSED CHANGES

change in analytical limits, there is no significant increase in the probability or consequences of an accident previously evaluated.

Additionally, these changes will not increase the consequences of an accident previously evaluated because the proposed changes do not adversely impact structures, systems, or components. Furthermore, there will be no change in the types or significant increase in the amounts of any effluents released offsite as a result of the proposed change.

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

The proposed TS changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

The change does not adversely impact the manner in which the instrument will operate under normal and abnormal operating conditions. Therefore, these changes provide an equivalent level of safety and will not create the possibility of a new or different kind of accident from any accident previously evaluated. The changes in allowed values do not affect the current safety analysis assumptions. Therefore, these changes will not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed TS changes do not involve a significant reduction in a margin of safety.

The proposed changes do not affect the probability of failure or availability of the affected instrumentation. The revised AVs do not affect the analytical limits assumed in the safety analyses for actuation of instrumentation. Therefore, the proposed changes do not result in a reduction in the margin of safety.

Conclusion

Based upon the above evaluation, EGC has concluded that the criteria of 10 CFR 50.92(c) are satisfied and that the proposed TS changes involve no significant hazards consideration: 1) there is reasonable assurance that the health and safety of the public will not be endangered by the proposed change, 2) such activities will be conducted in compliance with the Commission's regulations, and 3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

5.2 Applicable Regulatory Requirements/Criteria

Function 4, "Isolation Condenser System Isolation", Functions 4.a, "Steam Flow – High" and 4.b, "Return Flow – High" provide for primary containment isolation and, along with the scram function of the reactor protection system (RPS), ensure that the fuel peak cladding temperature remains below the limits of 10 CFR 50.46. Therefore, the IC Steam Flow – High and Return Flow – High functions must be included in the Dresden Units 2 and 3 TS in accordance with 10 CFR 50.36(c)(2)(ii).

Attachment A

DESCRIPTION AND SAFETY ANALYSIS FOR PROPOSED CHANGES

6. ENVIRONMENTAL CONSIDERATIONS

EGC has evaluated these proposed changes in accordance with 10 CFR 51.21, "Criteria for and identification of licensing and regulatory actions requiring environmental assessments." EGC has determined that these proposed changes meet the criteria for a categorical exclusion concurrent with 10 CFR 51.22, "Criterion for categorical exclusion identification of licensing and regulatory actions eligible for categorical exclusion or otherwise not requiring environmental review," paragraph (c)(9). As such, no irreversible consequences exist in accordance with 10 CFR 50.92, "Issuance of amendment," paragraph (b). This determination is based on the fact that these changes are being proposed as an amendment to a license issued pursuant to 10 CFR 50, "Domestic Licensing of Production and Utilization Facilities," which changes a surveillance requirement (SR), and the amendment meets the following specific criteria:

- (1) **The proposed changes involve no significant hazards consideration.**

As demonstrated in Section 5.1, the proposed changes do not involve a significant hazards consideration.

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

The proposed changes, which revise two allowable values for Isolation Condenser System Isolation, Function 4.a, Steam Flow – High and Function 4.b, Return Flow – High, are consistent with the plant design basis. There is no change to the existing analytical limits for these functions. There will be no significant increase in the amounts of any effluents released offsite. The proposed changes do not result in an increase in power level, do not increase the production, nor alter the flow path or method of disposal of radioactive waste or byproducts. Therefore, the proposed change will not affect the types or increase the amounts of any effluents released offsite.

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

The proposed changes will not result in functional changes in the 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.

Attachment A

DESCRIPTION AND SAFETY ANALYSIS FOR PROPOSED CHANGES

7. REFERENCES

1. Letter from R. M. Krich (Commonwealth Edison Company) to U. S. NRC, "Request for Technical Specifications Changes for Dresden Nuclear Power Station, Units 2 and 3, LaSalle County Station, Units 1 and 2, and Quad Cities Nuclear Power Station, Units 1 and 2, to Implement Improved Standard Technical Specifications," dated March 3, 2000
2. Letter from Stewart N. Bailey (U. S. NRC) to O. D. Kingsley (Exelon), "Issuance of Amendments," dated March 30, 2001

Attachment B

MARKED-UP TECHNICAL SPECIFICATIONS PAGE FOR PROPOSED CHANGES

REVISED TS PAGE

3.3.6.1-6

Primary Containment Isolation Instrumentation
3.3.6.1

Table 3.3.6.1-1 (page 2 of 3)
Primary Containment Isolation Instrumentation

| FUNCTION | APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS | REQUIRED CHANNELS PER TRIP SYSTEM | CONDITIONS REFERENCED FROM REQUIRED ACTION C.1 | SURVEILLANCE REQUIREMENTS | ALLOWABLE VALUE |
|---|--|--|--|--|--|
| 3. High Pressure Coolant Injection (HPCI) System Isolation | | | | | |
| a. HPCI Steam Line Flow-High | 1,2,3 | 1 | F | SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7 | ≤ 290.16% of rated steam flow (Unit 2) ≤ 288.23% of rated steam flow (Unit 3) |
| b. HPCI Steam Line Flow-Timer | 1,2,3 | 1 | F | SR 3.3.6.1.2 SR 3.3.6.1.6 SR 3.3.6.1.7 | ≥ 3.2 seconds and ≤ 8.8 seconds |
| c. HPCI Steam Supply Line Pressure-Low | 1,2,3 | 2 | F | SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7 | ≥ 104 psig |
| d. HPCI Turbine Area Temperature-High | 1,2,3 | 4 ^(a) | F | SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7 | ≤ 189°F |
| 4. Isolation Condenser System Isolation | | | | | |
| a. Steam Flow-High | 1,2,3 | 1 | F | SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.7 | ≤ 290.16% of rated steam flow |
| b. Return Flow-High | 1,2,3 | 1 | F | SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.7 | ≤ 66.2 inches water (Unit 2) ≤ 22.5 inches water (Unit 3) |

(continued)

(a) All four channels must be associated with a single trip string.

273.65

26.0

10.7

Attachment C

REVISED TECHNICAL SPECIFICATIONS PAGE FOR PROPOSED CHANGES

REVISED TS PAGE

3.3.6.1-6

Primary Containment Isolation Instrumentation
3.3.6.1

Table 3.3.6.1-1 (page 2 of 3)
Primary Containment Isolation Instrumentation

| FUNCTION | APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS | REQUIRED CHANNELS PER TRIP SYSTEM | CONDITIONS REFERENCED FROM REQUIRED ACTION C.1 | SURVEILLANCE REQUIREMENTS | ALLOWABLE VALUE |
|---|--|--|--|--|--|
| 3. High Pressure Coolant Injection (HPCI) System Isolation | | | | | |
| a. HPCI Steam Line Flow-High | 1,2,3 | 1 | F | SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7 | ≤ 290.16% of rated steam flow (Unit 2) ≤ 288.23% of rated steam flow (Unit 3) |
| b. HPCI Steam Line Flow-Timer | 1,2,3 | 1 | F | SR 3.3.6.1.2 SR 3.3.6.1.6 SR 3.3.6.1.7 | ≥ 3.2 seconds and ≤ 8.8 seconds |
| c. HPCI Steam Supply Line Pressure-Low | 1,2,3 | 2 | F | SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7 | ≥ 104 psig |
| d. HPCI Turbine Area Temperature-High | 1,2,3 | 4 ^(a) | F | SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7 | ≤ 189°F |
| 4. Isolation Condenser System Isolation | | | | | |
| a. Steam Flow-High | 1,2,3 | 1 | F | SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.7 | ≤ 273.65% of rated steam flow |
| b. Return Flow-High | 1,2,3 | 1 | F | SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.7 | ≤ 26.0 inches water (Unit 2) ≤ 10.7 inches water (Unit 3) |

(continued)

(a) All four channels must be associated with a single trip string.