June 21, 2007

Mr. Christopher M. Crane
President and Chief Nuclear Officer
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3 - ISSUANCE OF AMENDMENTS TO INCREASE THE DRESDEN SAFETY VALVE AS-FOUND SETPOINT TOLERANCE FROM 1 PERCENT TO 3 PERCENT (TAC NOS. MD2166 AND MD2167)

Dear Mr. Crane:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 223 to Renewed Facility Operating License No. DPR-19 and Amendment No. 215 to Renewed Facility Operating License No. DPR-25 for Dresden Nuclear Power Station (DNPS), Units 2 and 3. The amendments are in response to your application dated June 2, 2006, as supplemented by letters dated August 18, 2006, October 5, 2006, and January 11, 2007, the licensee for DNPS, which submitted a request for amendment to the DNPS, Units 2 and 3 technical specifications (TS).

The amendments revise TS to increase the allowable as-found main steam safety valve code safety function lift setpoint tolerance from ±1 percent to ±3 percent to align DNPS with the American Society of Mechanical Engineers Code for Operation and Maintenance of Nuclear Power Plants and reduce the number of non-safety significant Licensee Event Reports written due to TS violations caused by setpoint drifting.

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,

/RA/
Christopher Gratton, Senior Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-237 and 50-249

Enclosures:
1. Amendment No. 223 to DPR-19
2. Amendment No. 215 to DPR-25
3. Safety Evaluation

cc w/encls: See next page

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President and Chief Nuclear Officer
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4300 Winfield Road
Warrenville, IL 60555

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EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-237

DRESDEN NUCLEAR POWER STATION, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No.223
Renewed License No. DPR-19

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

   A. The application for amendment by the Exelon Generation Company, LLC (the licensee) dated June 2, 2006, as supplemented by letters dated August 18, 2006, October 5, 2006, and January 11, 2007, 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 Renewed Facility Operating License No. DPR-19 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 223, are hereby incorporated into this renewed operating license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance and shall be implemented prior to unit startup from the fall 2007 refueling outage.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Russell Gibbs, Chief
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications and Facility Operating License

Date of Issuance: June 21, 2007

EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-249

DRESDEN NUCLEAR POWER STATION, UNIT 3

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 215
Renewed License No. DPR-25

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

   A. The application for amendment by the Exelon Generation Company, LLC (the licensee) dated June 2, 2006, as supplemented by letters dated August 18, 2006, October 5, 2006, and January 11, 2007, 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 Renewed 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. 215, are hereby incorporated into this renewed operating license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance and shall be implemented within 60 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Russell Gibbs, Chief
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications and Facility Operating License

Date of Issuance: June 21, 2007

ATTACHMENT TO LICENSE AMENDMENT NOS. 223 AND 215

RENEWED FACILITY OPERATING LICENSE NOS. DPR-19 AND DPR-25

DOCKET NOS. 50-237 AND 50-249

Replace the following pages of the Facility Operating License and Appendix "A" Technical Specifications with the attached pages. The revised pages are identified by amendment number and contain marginal lines indicating the area of change.

Remove	Insert
License DPR-19 Page 3	License DPR-19 Page 3
License DPR-25 Page 4	License DPR-25 Page 4
TS 3.4.3-2	TS 3.4.3-2

(2) Exelon Generation Company, LLC, pursuant to the Act and 10 CFR Part 70, to receive, possess and use at any time special nuclear materials as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Updated Final Safety Analysis Report, as supplemented and amended;

(3) Exelon Generation Company, LLC, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

(4) Exelon Generation Company, LLC, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and

(5) Exelon Generation Company, LLC, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to possess, but not separate, such byproduct special nuclear materials as may be produced by the operation of the facility.

C. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I; is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

The licensee is authorized to operate the facility at steady state reactor core power levels not in excess of 2957 megawatts thermal (100 percent rated power) in accordance with the conditions specified herein.

(2) Techical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 223, are hereby incorporated into this renewed operating license. The licensee shall operate the facility in accordance with the Technical Specifications.

(3) Operation in the coastdown mode is permitted to 40% power.

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 fourteenth refueling outage (D3R14).

3. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations: 10 CFR Part 20, Section 30.34 of 10 CFR Part 30, Section 40.41 of 10 CFR Part 40, Sections 50.54 and 50.59 of 10 CFR Part 50, and Section 70.32 of 10 CFR Part 70; is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

A. Maximum Power Level

The licensee is authorized to operate the facility at steady state power levels not in excess of 2957 megawatts (thermal), except that the licensee shall not operate the facility at power levels in excess of five (5) megawatts (thermal), until satisfactory completion of modifications and final testing of the station output transformer, the auto-depressurization interlock, and the feedwater system, as described in the licensee's telegrams; dated February 26, 1971, have been verified in writing by the Commission.

B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No.215, are hereby incorporated into this renewed operating license. The licensee shall operate the facility in accordance with the Technical Specifications.

C. Reports

The licensee shall make certain reports in accordance with the requirements of the Technical Specifications.

D. Records

The licensee shall keep facility operating records in accordance with the requirements of the Technical Specifications.

E. Restrictions

Operation in the coastdown mode is permitted to 40% power.

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION RELATED

TO AMENDMENT NO. 223 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-19

AND AMENDMENT NO. 215 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-25

EXELON GENERATION COMPANY, LLC

DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3

DOCKET NOS. 50-237 AND 50-249

1.0 INTRODUCTION

By letter to the Nuclear Regulatory Commission (NRC, the Commission) dated June 2, 2006, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML062130031), and supplemented by letters dated August 18, 2006 (ADAMS Accession No. ML062420088), October 5, 2006 (ADAMS Accession No. ML062790121), and January 11, 2007 (ADAMS Accession No. ML070110416), Exelon Generation Company, LLC (Exelon), the licensee for Dresden Nuclear Power Station (DNPS), Units 2 and 3, submitted an amendment request to DNPS technical specifications (TS). The proposed TS change to increase the allowable as-found main steam safety valve (MSSV) code safety function lift setpoint tolerance from ±1 percent to ± 3 percent would align DNPS with the American Society of Mechanical Engineers Code for Operation and Maintenance of Nuclear Power Plants (ASME OM Code) and reduce the number of non-safety significant Licensee Event Reports written due to TS violations caused by setpoint drifting. The change also satisfies one of the additional conditions (i.e., item 5) of license amendments 208 and 200 for Dresden, Units 2 and 3, respectively, dated July 30, 2004 (ADAMS Accession No. ML042120554).

The August 18, 2006, October 5, 2006, and January 11, 2007, supplements contained clarifying information and did not change the NRC staff's initial proposed finding of no significant hazards consideration.

The proposed change revises the lift setpoint tolerances for the MSSVs that are listed in Surveillance Requirement (SR) 3.4.3.1 of DNPS TS 3.4.3, "Safety and Relief Valves." The proposed revision implements a wider MSSV lift setpoint tolerance to better match the TS performance requirements with the installed valve capabilities. The intended change increases the allowable MSSV lift setpoint tolerance from 1 percent of the nominal lift setpoint to 3 percent of the nominal lift setpoint. This change only applies to the as-found tolerance and not to the as-left tolerance, which will remain unchanged at 1 percent of the nominal lift setpoint. The as-found tolerances are used for determining operability. The proposed change does not alter the TS requirements for the number of MSSVs required to be operable, the nominal lift setpoints, the MSSV testing frequency, or the manner in which the valves are operated.

The June 2, 2006, application also proposed to revise SR 3.1.7.10 to increase the enrichment of sodium pentaborate used in the standby liquid control system from > 30.0 atom percent boron-10 to > 45 atom percent boron-10. This portion of the licensee's submittal was previously reviewed and approved by the NRC staff on November 16, 2006 (ADAMS Accession No. ML062920138), to meet an accelerated deadline requested by the applicant.

2.0 REGULATORY EVALUATION

The DNPS, Units 2 and 3, Updated Final Safety Analysis Report (UFSAR) Section 3.1.2, "Compliance with Final Design Criteria," states that DNPS conforms to the intent of the General Design Criteria (GDC) of Appendix A to Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50. The UFSAR, under Criterion 15, "Reactor Coolant System [RCS] Design," states that the reactor vessel is designed and fabricated to meet the ASME Boiler and Pressure Vessel Code (ASME Code), Section III, Subsection A. Additionally, the auxiliary, control, and protection systems associated with the RCS act to provide sufficient margin to ensure that the design conditions of the reactor coolant pressure boundary (RCPB) are not exceeded during any condition of normal operation, including anticipated operational occurrences.

The requirements of GDC 15 specify that "the reactor coolant system and associated auxiliary, control, and protection systems shall be designed with sufficient margin to assure that the design conditions of the RCPB are not exceeded during any condition of normal operation, including anticipated operational occurrences." The overpressure protection system is relied upon to maintain RCS pressure within acceptable design limits during certain analyzed transients. Application of GDC 15 to the overpressure protection system provides assurance that the RCPB will have an extremely low probability of failure during transients.

The overpressure protection requirements are further specified in the ASME Code, which requires the reactor pressure vessel be protected from overpressure during upset conditions by self-actuated safety valves. As part of the nuclear pressure relief system, the size, setpoint, and number of safety valves are selected such that peak pressure in the nuclear system will not exceed the ASME Code limits for the RCPB. The overpressure protection system must accommodate the most severe pressurization transient.

The NRC staff's review of the proposed TS amendment is based on the compliance with GDC 15 requirements, as implemented in accordance with the Section III of the ASME Code overpressure requirements.

3.0 TECHNICAL EVALUATION

The ASME Code requires the reactor pressure vessel (RPV) be protected from overpressure during upset conditions by self-actuated safety valves. Each DNPS unit is designed with nine safety valves. Eight of these valves are spring safety valves and are used to perform the safety function of the safety/relief valves (S/RVs) as discussed in NEDC-31753P, "BWROG [Boiling Water Reactor Owners Group] In-Service Pressure Relief Technical Specification Revision Licensing Topical Report." The remaining valve is a dual function Target Rock safety/relief valve (S/RV). The term MSSV is used throughout this evaluation, and is intended to include both the eight safety valves and the Target Rock S/RV.

The nine MSSVs provide reactor vessel overpressure protection for plant operations at licensed core thermal power. The MSSVs are designed to limit the RPV to 110 percent of the design pressure during a main steam isolation valve (MSIV) closure with reactor scram on high neutron flux. The MSSVs are located on the main steam lines between the reactor vessel and the first isolation valve within the drywell. All nine MSSVs are required to be operable per TS 3.4.3, "Safety and Relief Valves." In addition to the safety valves and S/RV, each unit is designed with four relief valves, which actuate in the relief mode to control reactor coolant system (RCS) pressure during transient conditions to prevent the need for safety valve actuation (except S/RV) following such transients. The relief valves are also located on the main steam lines between the reactor vessel and the first isolation valve within the drywell.

The use of ±1 percent allowable as-found MSSV safety function lift setpoint tolerance in plant TS has been a generic industry issue. Nuclear power plant licensees have experienced difficulty in meeting the typical ±1 percent setpoint for MSSVs. As a result, the BWROG developed NEDC-31753P, "BWROG In-Service Pressure Relief Technical Specification Revision Licensing Topical Report," to support the use of ±3 percent setpoint tolerance, which is consistent with ASME OM Code requirements (formerly Section XI requirements). NEDC-31753P was reviewed and approved by the NRC as documented in its safety evaluation report (SER) dated March 8, 1993. In its SER, the NRC determined that it is acceptable for licensees to submit TS amendment requests to revise the S/RV code safety function lift setpoint tolerance to ±3 percent, provided that the setpoints for those S/RVs tested are restored to ±1 percent prior to reinstallation. The NRC also indicated in its SER that licensees planning to implement TS changes to increase the S/RV setpoint tolerances should provide the following plant specific analyses:

1. Transient analysis, using NRC approved methods, of abnormal operational occurrences (AOOs) as described in NEDC-31753P utilizing ±3 percent setpoint tolerance for the safety mode of the S/RVs.

2. Analysis of the design basis overpressure event using the ±3 percent tolerance limit for the S/RV setpoints to confirm that the vessel pressure does not exceed the ASME pressure vessel code upset limits.

3. Plant specific analyses described in Items 1 and 2 should assure that the number of S/RVs included in the analyses corresponds to the number of valves required to be operable in the TS.

4. Re-evaluation of the performance of high pressure systems (pump capacity, discharge pressure, etc.), motor-operated valves, and vessel instrumentation and associated piping considering the ±3 percent tolerance limit.

5. Evaluation of the ±3 percent tolerance on any plant specific alternate operating modes (e.g., increased core flow, extended operating domain, etc.).

6. Evaluation of the effects of the ±3 percent tolerance limit on the containment response during loss-of-coolant accidents (LOCAs) and the hydrodynamic loads on the S/RV discharge lines and containment.

3.1 Analysis of AOO Transients

A plant specific review of the events in Chapter 15 of the DNPS UFSAR was performed to determine if any other events are impacted by the setpoint tolerance increase. According to the licensee, the AOOs analyses for DNPS conservatively do not credit the opening of the MSSVs and the results of the analyses demonstrate that the minimum critical power ratio (MCPR) occurs prior to the time that any MSSV would be expected to open. Based on these results, the licensee concluded that increasing the MSSV setpoint to +3 percent above nominal will not affect the calculated thermal limit results. For a decrease in MSSV opening pressure of -3 percent below the nominal setpoint, the licensee states the results of the analysis continue to demonstrate that the MCPR occurs prior to the time that any MSSV would be expected to open. Based on these results, the licensee concluded that decreasing the MSSV setpoint to -3 percent below nominal will not affect the calculated thermal limit results if the MSSVs are assumed to open.

The NRC staff reviewed the licensee's evaluation of the effects of the increased MSSV setpoint tolerance on AOOs. Based on the above evaluation and on GE generic evaluation of AOOs included in the NRC-approved NEDC-31753P, the increase in MSSV code safety function lift setpoint from ±1 percent to ±3 percent is acceptable for AOO events.

3.2 Reactor Vessel Overpressure Protection

The ASME Code requires that the peak vessel pressure remains less than 110 percent of the vessel design pressure. The design pressure of the DNPS reactor vessel is 1250 psig, therefore, 110 percent of the design pressure is 1375 psig (110% x 1250 psig = 1375 psig). TS Safety Limit 2.1.2, "Reactor Coolant System Pressure," requires that the reactor steam dome pressure not exceed 1345 psig, which is equivalent to 1375 psig at the lowest elevation of the RCS.

GE performed overpressure analysis transients for DNPS Units 2 and 3 in accordance with NRC-approved methods described in NEDE-24011P-A, "General Electric [GE] Standard Application for Reactor Fuel." The licensee evaluated the effects of pressurization transients on the fuel thermal limits to determine whether the increase in MSSV code safety function lift setpoint tolerance from ±1 percent to ±3 percent would be acceptable. The overpressure protection system must accommodate the most severe pressurization transient. The MCPR and fuel thermal-mechanical limits were considered in this evaluation. The licensee has identified the most severe transient is the closure of all MSIVs, followed by reactor scram on high neutron flux (i.e., failure of the direct scram associated with MSIV position). For the current DNPS reload analyses (Unit 2, Cycle 20 and Unit 3, Cycle 19), only eight of nine MSSVs were credited. The relief valves and the relief function of the S/RV are conservatively not credited to function during this event. The results of the DNPS, Unit 2 and Unit 3 MSIV full closure analyses are 1365 psig and 1361 psig, respectively. The analysis results demonstrate that the design safety valve capacity is capable of maintaining reactor pressure below the ASME Code limit of 110 percent of vessel design pressure (1375 psig).

The safety function of all nine MSSVs is required to be operable to satisfy the assumptions of the safety analysis per TS 3.4.3. Limiting condition for operation 3.4.3 helps to ensure that the acceptance limit of 1375 psig is met during the design basis event. The safety valve setpoints are established to ensure that the ASME Code limit for peak reactor pressure is satisfied. The

transient evaluations in the UFSAR are based on these setpoints; however, the licensee stated that they also include the additional lift setpoint tolerance uncertainties to provide an added degree of conservatism. The reactor vessel overpressure protection event is reanalyzed each reload to verify that the ASME Code overpressure protection criterion continues to be met as required by TS 5.6.5 entitled "Core Operating Limits Report."

The NRC staff reviewed the licensee's evaluation of the effects of the increased MSSV setpoint tolerance on reactor vessel overpressure protection and finds that the increase in MSSV code safety function lift setpoint from ±1 percent to ±3 percent does not prevent DNPS, Units 2 and 3 from maintaining reactor pressure below the ASME Code limit of 110 percent of vessel design pressure. Based on the above evaluation and NRC-approved methodology NEDE-24011P-A, the increase in MSSV code safety function lift setpoint from ±1 percent to ±3 percent is acceptable for reactor vessel overpressure protection and shall accommodate the most severe pressurization transient.

3.3 Number of MSSVs

DNPS has a total of nine MSSVs. All MSSVs are required to be operational per TS 3.4.3 in Modes 1, 2, and 3. The results of the previously discussed analyses are based on nine operational MSSVs and no change to this number is required per this license amendment request.

Based on the discussion above, the NRC staff finds that the increase in MSSV code safety function lift setpoint from ±1 percent to ±3 percent is acceptable because the analysis and TS operability requirements are consistent.

3.4 High Pressure System Performance

This section documents the evaluation of the impact of the proposed MSSV opening setpoint tolerance changes on the performance of the following high-pressure systems:

- High Pressure Coolant Injection
- Isolation Condenser System

3.4.1 High Pressure Coolant Injection (HPCI)

The purpose of the HPCI system at DNPS is to provide high pressure emergency cooling water to the reactor to prevent excessive peak fuel clad temperature following small line breaks that do not result in rapid depressurization. The HPCI system at DNPS also functions as a backup to the isolation condenser in case of a failure of those systems following this transient. To achieve this purpose, the HPCI system is designed to supply makeup water to the reactor at a capacity of 5600 gpm over a reactor pressure range of 1120.3 psig to 150.3 psig (1135 psia to 165 psia).

The staff reviewed the licensee's evaluation of the effects of the increased MSSV setpoint tolerance on the performance of the HPCI steam line containment isolation motor-operated valves (MOVs). These MOVs are normally open with the system in standby and must close against the differential pressure represented by the MSSV nominal setpoint plus the increased setpoint tolerance. At DNPS the MOVs are evaluated to be capable of closing against a

differential pressure of approximately 1147 psid. This closing differential pressure is based on the current MSSV nominal setpoint of 1135 psig and a 1 percent setpoint tolerance (1147 psig). The proposed change to a 3 percent setpoint tolerance will increase the upper analytical limit to 1169.1 psig. Exelon confirmed that they will assure that the HPCI steam line MOVs are evaluated to operate acceptably with a RPV of 1169.1 psig prior to implementation. Performing this evaluation is consistent with 10 CFR 50.55a(b)(3)(ii), which requires that licensees establish a program to ensure that MOVs continue to be capable of performing their design basis safety functions.

Based on the above evaluation, the licensee's review of the MSSV setpoint tolerance change will affect the DNPS HPCI steam line MOV performance indicating some reduction in margins with respect to the maximum closure differential pressure. The maximum closure pressure will increase to 1169.1 psig, but a margin of at least 10 percent capability would be retained for all MOVs. Therefore the ability of the MOVs to meet their safety functions is not affected by this change. The staff finds that the effects of the increased S/RV setpoint tolerance have been adequately evaluated and are acceptable.

3.4.2 Isolation Condenser (IC) System

The purpose of the IC system at DNPS is to provide reactor core cooling in the event that the RPV becomes isolated from the main condenser by closure of the MSIV. The licensee identified that this event concurrent with the loss of all feedwater flow (LOFW) by the loss of offsite power is the design transient for the IC system. The licensee stated that the increase in setpoint tolerance only applies to the spring safety valves and the safety mode of the Target Rock Dual Mode S/RV. The relief valve setpoint tolerance remains unaffected.

Automatic initiation of the IC operation occurs when a high reactor pressure signal of 1068 psig exists for more than 15 seconds. The initiation setpoint and time delay are independent of the MSSV setpoint and setpoint tolerance increase. The MSSV has a setpoint of 1135 psig. For a 1 percent setpoint tolerance, the upper analytical setpoint is 1146.4 psig. For a 3 percent setpoint tolerance, the upper analytical setpoint is 1169.1 psig. Both of these setpoints are above the IC high reactor pressure initiation signal of 1068 psig. This setpoint exceeds the IC initiation setpoint, therefore, the proposed MSSV upper analytical setpoint tolerance change does not affect the IC initiation.

The increase in setpoint tolerance lowers the low end of the setpoint tolerance band for the MSSVs. Based on the nominal setpoint of 1135 psig the lower analytical setpoint for the 3 percent tolerance change results in an MSSV setpoint of 1101 psig. This is higher than the peak reactor pressure of 1085.2 psig in the previous LOFW analysis. Therefore, the MSSV will not lift during the LOFW event with the 3 percent setpoint tolerance.

Based on the above evaluation, the performance of the IC is not impacted by increasing the MSSV setpoint tolerance to ±3 percent, and therefore, is acceptable.

3.5 Containment Response During LOCA and the Hydrodynamic Loads on MSSV Discharge Lines and Containment

The increase in the MSSV setpoint tolerance to ±3 percent was assessed to determine the potential impact on the containment design limits. The two primary areas of concern for the

containment structures are (1) the pressure and temperature response and (2) the containment hydrodynamic loads from the MSSV discharge lines.

MSSV actuation exerts pressure and drag loads on containment structures and these discharge loads are potentially affected by an increase in discharge flow associated with an increased MSSV setpoint tolerance.

The NRC staff reviewed the licensee's evaluation of the effects of the increased MSSV setpoint tolerance on the structural integrity of the MSSV discharge lines. A relaxed setpoint tolerance can increase the MSSV opening pressure, thus increasing dynamic loads. The licensee has credited two items, not credited in previous analyses, to offset the increased dynamic loads that could result from the wider MSSV setpoint tolerance.

First, dynamic loads are dependent, in part, on flow capacity and opening pressure, water wave length, valve opening time, and discharge line geometric parameters. Slower valve main disk opening times reduce the transient wave thrust load on the discharge piping, while shorter stroke times result in higher loading. The licensee states that the original computer code (RVFOR) analysis used to define the blowdown-force time histories used a value of 0.02 seconds to model an actual opening time of 0.05 seconds in the benchmarking and validation process for the code. When the same adjustment factor (2.5) is applied to the actual time of 0.25 seconds used in the DNPS analysis, the computer code modeling time is 0.1 seconds. This increase in MSSV opening time resulted in a load reduction of approximately 2 percent in the model output.

Second, the licensee states that there was an error in the original GE RVFOR that caused over-prediction of blowdown force loads by as much as 50 percent. The existing DNPS analysis was completed with the version of RVFOR predating the discovery of the error, and therefore includes the additional conservatism afforded by the error. Removal of the error further offsets the increased S/RV dynamic loads resulting from the larger setpoint tolerance.

Based on the above evaluation, the NRC staff finds that crediting the above two items offset the increase in dynamic loads resulting from the increased MSSV setpoint tolerance. Therefore, the change to the MSSV setpoint tolerance is acceptable with respect to dynamic loading of discharge piping.

In addition to loads on MSSV discharge piping, the licensee has also evaluated potential changes to containment dynamic loading as a result of the wider MSSV setpoint tolerance. The licensee states that the containment pressure and temperature responses for the design basis accident LOCA are not affected because the vessel depressurizes without any MSSV actuations. The containment pressure and temperature responses drive hydrodynamic loads such as pool swell, vent thrust condensation oscillation and chugging. Because the containment pressure and temperature responses are not affected by the potential increase in the MSSV setpoint, the associated containment hydrodynamic loading is also not affected.

Based on the above evaluation, the NRC staff finds that the licensee has adequately addressed the effects of the increased MSSV setpoint tolerance on MSSV discharge lines and containment structures; therefore, the proposed setpoint tolerance change is acceptable.

3.6 Alternate Operating Modes Evaluation

The licensee stated that this review is based on any additional requirement imposed by the MSSV setpoint tolerance increase that would affect a specific option. The licensee-specific General Electric evaluation includes evaluations of average power range monitor rod-block TS changes that could affect the analysis of the anticipated operational occurrences. The overpressure evaluation bounds the maximum extended load line limit analysis region, and the increased core flow region. GE noted that an S/RV out of service (OOS) has been previously evaluated, and this option does not meet the overpressure criteria under EPU. This conclusion remains for the setpoint tolerance increase, therefore, the S/RV OOS option remains unacceptable for DNPS.

The NRC staff reviewed the licensee's evaluation of the effects of the increased MSSV setpoint tolerance on the alternate modes of operation at DNPS. Based on the above evaluation, the increase in MSSV code safety function lift setpoint from ±1 percent to ±3 percent is acceptable.

4.0 STATE CONSULTATION

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

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change the requirements with respect to installation or use of a facility's components located within the restricted area as defined in 10 CFR Part 20. The NRC 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 the amendments involve no significant hazards consideration, and there has been no public comment on such finding (71 FR 46929; August 15, 2006). Accordingly, the 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 or environmental assessment need be prepared in connection with the issuance of the amendments.

6.0 CONCLUSION

The NRC staff has reviewed the licensee's responses to the six conditions listed in Reference 2 and discussed in Section 3.0 above. The NRC staff finds that the licensee has adequately addressed these six conditions, therefore, the proposed TS change to increase the allowable as-found MSSV code safety function lift setpoint tolerance from ±1 percent to ±3 percent is acceptable.

Additionally, the licensee modified the TS Bases to reflect the change. The licensee included the revised TS Bases pages in the June 2, 2006, application for information. The NRC staff does not approve changes to the TS Bases, but reviewed them for consistency with the proposed amendment and have no objection to the changes.

The Commission 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 the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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