SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION RELATED TO AMENDMENT NO. 226 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-19, AMENDMENT NO. 218 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-25, AMENDMENT NO. 238 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-29 AND AMENDMENT NO. 233 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-30

EXELON GENERATION COMPANY, LLC

AND

MIDAMERICAN ENERGY COMPANY

DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3, AND

QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2

DOCKET NOS. 50-237, 50-249, 50-254 AND 50-265

1.0 INTRODUCTION

By letter to the Nuclear Regulatory Commission (NRC, the Commission) dated April 12, 2007 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML071090282), as supplemented by letter dated January 18, 2008 (ADAMS Accession No. ML080300012), Exelon Generation Company, LLC, et al. (the licensee) requested changes to the technical specifications (TS), facility operating licenses, and surveillance requirements (SR) for Dresden Nuclear Power Station, Units 2 and 3 (DNPS) and Quad Cities Nuclear Power Station, Units 1 and 2 (QCNPS). The proposed changes would revise TS requirements related to control room envelope (CRE) habitability in accordance with Technical Specification Task Force (TSTF) Traveler TSTF-448, Revision 3, "Control Room Habitability."

The January 18, 2008, supplement contained clarifying information and did not change the NRC staff's initial proposed finding of no significant hazards consideration that was published in the *Federal Register* on June 5, 2007 (72 FR 31100).

On August 8, 2006, the commercial nuclear electrical power generation industry owners group TSTF submitted a proposed change, TSTF–448, Revision 3 (ML062210095), to the improved standard technical specifications (STS) (NUREGs 1430–1434, which are available on NRCs web site at http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff) on behalf of the industry (TSTF–448, Revisions 0, 1, and 2 were prior draft iterations). TSTF–448, Revision 3, was a proposal to establish more effective and appropriate action, surveillance, and administrative STS requirements related to ensuring the habitability of the CRE. In the NRC Generic Letter (GL) 2003–01 (ADAMS Accession No. ML031620248), licensees were alerted to findings at

facilities that existing TS SRs for the Control Room Emergency Ventilation (CREV) System (DNPS and QCNPS site specific system name) may not be adequate. Specifically, the results of American Society for Testing and Materials (ASTM) consensus standard E741, "Standard Test Method for Determining Air Change in a Single Zone by Means of a Tracer Gas Dilution" (ASTM E741) tracer gas tests to measure CRE unfiltered inleakage at facilities indicated that the differential pressure surveillance was not a reliable method for demonstrating CRE boundary operability. Licensees were requested to address existing TS as follows:

- Provide confirmation that your TSs verify the operability of the CRE boundary, and the assumed unfiltered inleakage rates of potentially contaminated air.

- If you currently have a differential pressure SR to demonstrate CRE boundary integrity, provide the basis for your conclusion that it remains adequate to demonstrate CRE integrity in light of the ASTM E741 testing results.

- If you conclude that your differential pressure SR is no longer adequate, provide a schedule for:

  (1) Revising the SR in your TS to reference an acceptable surveillance methodology (e.g., ASTM E741), and

  (2) Making any necessary modifications to your CRE [boundary] so that compliance with your new SR can be demonstrated.

- If your facility does not currently have a TS SR for your CRE integrity, explain how and at what frequency you confirm your CRE integrity and why this is adequate to demonstrate CRE integrity.

To promote standardization and to minimize the resources that would be needed to create and process plant specific amendment applications in response to the concerns described in the GL, the industry and the NRC proposed revisions to CRE habitability system requirements contained in the STS, using the STS change traveler process. This effort culminated in TSTF-448, Revision 3, for which the NRC staff published a Notice of Availability in the *Federal Register* (72 FR 2022) on January 17, 2007. Consistent with the traveler as incorporated into NUREG–1433, the licensee, in their April 12, 2007, request, proposed revising action and SRs in their TS 3.7.4, ''Control Room Emergency Ventilation (CREV) System'' and adding a new administrative control (AC) program, TS 5.5.14, ''Control Room Envelope Habitability Program'' for DNPS and TS 5.5.13 ''Control Room Envelope Habitability Program'' for QCNPS. The purpose of the changes is to ensure that CRE boundary operability is maintained and verified through effective surveillance and programmatic requirements, and that appropriate remedial actions are taken in the event of an inoperable CRE boundary.

2.0 REGULATORY EVALUATION

2.1 Control Room and Control Room Envelope

NRC Regulatory Guide (RG) 1.196, "Control Room Habitability at Light-water Nuclear Power Reactors," Revision 0, May 2003 (ADAMS Accession No. ML063560144), uses the term "CRE" in addition to the term "control room" and defines each term as follows:

Control Room: The plant area, defined in the facility licensing basis, in which actions can be taken to operate the plant safely under normal conditions and to maintain the reactor in a safe condition during accident situations. It encompasses the instrumentation and controls necessary for a safe shutdown of the plant and typically includes the critical document reference file, computer room (if used as an integral part of the emergency response plan), shift supervisor's office, operator wash room and kitchen, and other critical areas to which frequent personnel access or continuous occupancy may be necessary in the event of an accident.

CRE: The plant area, defined in the facility licensing basis, that in the event of an emergency, can be isolated from the plant areas and the environment external to the CRE. This area is served by an emergency ventilation system, with the intent of maintaining the habitability of the control room. This area encompasses the control room, and may encompass other non-critical areas to which frequent personnel access or continuous occupancy is not necessary in the event of an accident.

NRC RG 1.197, "Demonstrating Control Room Envelope Integrity At Nuclear Power Reactors," Revision 0, May 2003 (ADAMS Accession No. ML031490664), also contains these definitions, but uses the term CRE to mean both. This is because the protected environment provided for operators varies with the nuclear power facility. At some facilities this environment is limited to the control room; at others, it is the CRE. In this safety evaluation (SE), consistent with the proposed changes to the STS, the CRE will be used to designate both.

2.2 Control Room Emergency Ventilation (CREV) System

The CREV System (the term used at the DNPS and the QCNPS) provides a protected environment from which operators can control the unit, during airborne challenges from radioactivity, hazardous chemicals, and fire byproducts, such as fire suppression agents and smoke, during both normal and accident conditions.

The CREV System is designed to maintain a habitable environment in the CRE for 30 days of continuous occupancy after a design-basis accident (DBA) without exceeding a five rem (roentgen equivalent man) total effective dose equivalent (TEDE).

The CREV System consists of a single train capable of maintaining the habitability of the CRE. The CREV System is considered operable when the individual components necessary to limit operator exposure are operable. The CREV System is considered operable when the associated:

- Booster fan (at least one) is operable;
- High efficiency particulate air (HEPA) filters and charcoal adsorbers are not excessively restricting flow, and are capable of performing their filtration functions;
- Train B air handling unit (excluding the refrigeration condensing unit) is operable;
- Heater, ductwork, valves, and dampers are operable, and air circulation can be maintained;
- CRE boundary is operable.

The CRE boundary is considered operable when the measured unfiltered air inleakage is less than or equal to the inleakage value assumed by the licensing basis analyses of DBA consequences to CRE occupants.

2.3 Regulations Applicable to Control Room Habitability

In Appendix A, "General Design Criteria for Nuclear Power Plants," to Title 10 of the Code of Federal Regulations (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," General Design Criteria (GDC) 1, 2, 3, 4, 5, and 19 apply to CRE habitability. However, DNPS and QCNPS were originally designed and constructed prior to the issuance of the GDC. Proposed GDC were issued in July 1967, during the construction of these plants. The proposed GDC were not adopted as regulatory requirements at the time these units were built. The proposed GDC (issued July 1967) were used by the Atomic Energy Commission as guidance in evaluating the original design of DNPS and QCNPS. This evaluation of the original design indicated that based on the applicant's understanding of the intent of the proposed GDC, these units fully satisfied the intent of the criteria. The proposed GDC contained many aspects that required modification or clarification prior to adoption of the current GDC. By Staff Requirements Memorandum, SECY-92-223, issued on September 18, 1992, (ADAMS Accession No. ML003763736) the Commission approved the NRC staff's proposal to not apply the GDC to plants with construction permits issued prior to May 21, 1971. At the time of promulgation of Appendix A to 10 CFR Part 50, the Commission stressed that the GDC were not new requirements and were promulgated to more clearly articulate the licensing requirements and practices in effect at that time. While compliance with the intent of the GDC is important, each plant licensed before the GDC were formally adopted was evaluated on a plant specific basis, determined to be safe, and licensed by the Commission. The licensee provided a summary of the DNPS and QCNPS units design basis relative to the proposed and current GDC in their December 9, 2003, GL 2003-01 response (ADAMS Accession No. ML033560302).

DNPS and the QCNPS implemented 10 CFR 50.67, "Accident source term" on September 11, 2006, (ADAMS Accession No. ML062070290) for adoption of an alternate source term accident dose analysis.

Prior to incorporation of TSTF-448, Revision 3, the STS requirements addressing CRE boundary operability resided only in the following CRE ventilation system specifications:

- NUREG-1430, TS 3.7.10, "Control Room Emergency Ventilation System (CREVS),"
- NUREG-1431, TS 3.7.10, "Control Room Emergency Filtration System (CREFS),"
- NUREG-1432, TS 3.7.11, "Control Room Emergency Air Cleanup System (CREACS),"
- NUREG-1433, TS 3.7.4, "Main Control Room Environmental Control (MCREC) System,"
- NUREG-1434, TS 3.7.3, "Control Room Fresh Air (CRFA) System."

In these specifications, for the facilities that pressurize the CRE, the SR associated with demonstrating the operability of the CRE boundary required verifying that the CREV System could maintain a specific value of positive pressure, relative to the areas adjacent to CRE

boundary during the pressurization mode of operation at a predetermined makeup flow rate. Facilities that pressurize the CRE during the emergency mode of operation of the CREV System have similar SRs. Other facilities that do not pressurize the CRE have only a system flow rate criterion for the emergency mode of operation. Regardless, the results of ASTM E741 tracer gas tests to measure CRE unfiltered inleakage at facilities indicated that the differential pressure surveillance (or the alternative surveillance at non-pressurization facilities) is not a reliable method for demonstrating CRE boundary operability. That is, licensees were able to obtain differential pressure flow measurements satisfying the SR limits, even though unfiltered inleakage was determined to exceed the value assumed in the safety analyses.

In addition to an inadequate SR, the action requirements of these specifications were ambiguous regarding CRE boundary operability in the event CRE unfiltered inleakage is found to exceed the analysis assumption. The ambiguity stemmed from the view that the CRE boundary may be considered operable but degraded in this condition, and that it would be deemed inoperable only if calculated radiological exposure limits for CRE occupants exceeded a licensing basis limit; i.e., as stated in GDC 19, even while crediting compensatory measures.

NRC Administrative Letter (AL) 98-10, “Dispositioning of Technical Specifications That Are Insufficient to Assure Plant Safety,” (ADAMS Accession No. ML031110108) states that “The discovery of an improper or inadequate TS value or required action is considered a degraded or nonconforming condition,” which is defined in NRC Inspection Manual Chapter 9900; see latest guidance in Regulatory Issue Summary (RIS) 2005-20 (ADAMS Accession No. ML052020360). AL 98-10 also states that “imposing administrative controls in response to an improper or inadequate TS is considered an acceptable short-term corrective action. The [NRC] staff expects that, following the imposition of administrative controls, an amendment to the [inadequate] TS, with appropriate justification and schedule, will be submitted in a timely fashion."

Licensees that have found unfiltered inleakage in excess of the limit assumed in the safety analyses and have yet to either reduce the inleakage below the limit or establish a higher bounding limit through re-analysis, have implemented compensatory actions to ensure the safety of CRE occupants, pending final resolution of the condition, consistent with RIS 2005-20. However, based on GL 2003-01 and AL 98-10, the NRC staff expects each licensee to propose TS changes that include a surveillance to periodically measure CRE unfiltered inleakage in order to satisfy 10 CFR 50.36(c)(3), which requires a facility's TS to include SRs, which it defines as “requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and *that limiting conditions for operation will be met*.” (Emphasis added)

The NRC staff also expects facilities to propose unambiguous remedial actions, consistent with 10 CFR 50.36(c)(2), for the condition of not meeting the limiting condition for operation (LCO) due to an inoperable CRE boundary. The action requirements should specify a reasonable completion time to restore conformance to the LCO before requiring a facility to be shut down. This completion time should be based on the benefits of implementing mitigating actions to ensure CRE occupant safety and sufficient time to resolve most problems anticipated with the CRE boundary, while minimizing the chance that operators in the CRE will need to use mitigating actions during accident conditions.

Because the design of the plant is not being changed by the proposed amendment, the plant continues to meet the intent of GDC 1, 2, 3, 4, 5 and 19.

This SE was prepared based on the model SE published in the *Federal Register* on January 17, 2007, (72 FR 2022). Changes were made to accommodate plant-specific design variations from that assumed in the model, but are consistent with the intent of the model and are acceptable.

2.4 Regulation Applicable to TS Changes

Section 182a of the Atomic Energy Act requires applicants for nuclear power plant operating licenses to include TSs as part of the license. The TSs ensure the operational capability of structures, systems, and components that are required to protect the health and safety of the public. The NRC's regulatory requirements related to the content of the TSs are contained in 10 CFR 50.36 that requires that the TSs include items in the following categories: (1) safety limits, limiting safety systems settings, and limiting control settings; (2) LCOs; (3) SRs; (4) design features; and (5) ACs. However, the rule does not specify the particular requirements to be included in a plant's TSs. As stated in 10 CFR 50.36(c)(2)(i), the “limiting conditions for operation are the lowest functional capability or performance levels of equipment required for safe operation of the facility. When a limiting condition for operation of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the technical specifications ....” SRs are, in accordance with 10 CFR 50.36(c)(3).

2.5 Adoption of TSTF-448, Revision 3, by DNPS and QCNPS

Adoption of TSTF-448, Revision 3, will assure that the facility's TS LCO for the CREV System is met by demonstrating unfiltered leakage into the CRE is within limits; i.e., the operability of the CRE boundary. In support of this surveillance, which specifies a test interval (frequency) described in RG 1.197, TSTF-448 also adds TS ACs to assure the habitability of the CRE between performances of the ASTM E741 test. In addition, adoption of TSTF-448 will establish clearly stated reasonable required actions in the event CRE unfiltered inleakage is found to exceed the analysis assumption.

The changes made by TSTF-448 to the STS requirements for the CREV System and the CRE boundary conform to 10 CFR 50.36(c)(2) and 10 CFR 50.36(c)(3). Their adoption will better assure that DNPS and QCNPS CREs will remain habitable during normal operation DBA conditions. These changes are, therefore, acceptable from a regulatory standpoint in that they meet 10 CFR 50.36.

3.0 TECHNICAL EVALUATION

The NRC staff reviewed the proposed changes against the corresponding changes made to the STS by TSTF-448, Revision 3, which the NRC staff has found to satisfy applicable regulatory requirements, as described above in Section 2.0. The emergency operational mode of the CREV Systems at DNPS and the QCNPS pressurizes the CREs with a single safety-related filter train to minimize unfiltered air inleakage. The proposed changes are consistent with this design.

3.1 Proposed Changes

The proposed amendments would strengthen CRE habitability TS requirements by changing TS 3.7.4, and adding a new TS ACs program on CRE habitability. Accompanying the proposed TS changes are appropriate conforming technical changes to the TS Bases. The proposed revision

to the TS Bases also includes editorial and administrative changes to reflect applicable changes to the corresponding STS Bases, which were made to improve clarity, conform to the latest information and references, correct factual errors, and achieve more consistency among the STS NUREGs. Except for plant specific differences, all of these changes are consistent with STS as revised by TSTF-448, Revision 3.

The NRC staff compared the proposed TS changes to the STS and the STS markups and evaluations in TSTF-448. The NRC staff verified that differences from the STS were adequately justified on the basis of plant-specific design or retention of current licensing basis. The NRC staff also reviewed the proposed changes to the TS Bases for consistency with the STS Bases and the plant-specific design and licensing bases, although approval of the Bases is not a condition for accepting the proposed amendment. TS 5.5.10, "Technical Specifications (TS) Bases Control Program" provides assurance that the licensee has established and will maintain the adequacy of the Bases. The proposed Bases for TS 3.7.4 refer to specific guidance in Nuclear Energy Institute (NEI) 99-03, "Control Room Habitability Assessment Guidance," Revision 0, dated June 2001 (ADAMS Accession No. ML020600236), which the NRC staff has formally endorsed, with exceptions, through RG 1.196, dated May 2003. Based on its review of the changes to the Bases, the NRC staff has not identified any problems with the changes.

3.2 Editorial Changes

The licensee proposed editorial changes to TS 3.7.4, to establish standard terminology, such as "CRE" in place of "control room," except for the plant-specific name for the MCREC (Main Control Room Environmental Control System), and "radiological, chemical, and smoke hazards" in place of various phrases to describe the hazards that CRE occupants are protected from by the CREV System. These changes improve the usability quality of the presentation of the TS, have no impact on safety, and meet 10 CFR 50.36. Therefore, the NRC staff concludes that these changes are acceptable.

3.3 TS 3.7.4, "Control Room Emergency Ventilation (CREV) System"

The licensee proposed to establish new action requirements in TS 3.7.4, for an inoperable CRE boundary. Currently, if the CRE is determined to be inoperable due to an inoperable CRE boundary, existing Action A would apply and require restoring the CREV System (and the CRE boundary) to operable status in seven days. This existing Action is more restrictive than would be appropriate in situations for which CRE occupant implementation of compensatory measures or mitigating actions would temporarily afford adequate CRE occupant protection from postulated airborne hazards. To account for such situations, the licensee proposed to revise the action requirements to add a new Condition B, "CREV System inoperable due to inoperable CRE boundary in MODE 1, 2, or 3." New Action B.3 would allow 90 days to restore the CRE boundary to operable status, provided that mitigating actions are immediately implemented (new Action B.1) and within 24 hours are verified to ensure, that in the event of a DBA, CRE occupant radiological exposures will not exceed the calculated dose of the licensing basis analyses of DBA consequences, and that CRE occupants are protected from hazardous chemicals and smoke (new Action B.2).

The 24-hour Completion Time of new Required Action B.2 is reasonable based on the low probability of a DBA occurring during this time period, and the use of mitigating actions. The 90-day Completion Time is reasonable based on the determination that the mitigating actions will ensure protection of CRE occupants within analyzed limits while limiting the probability that CRE occupants will have to implement protective measures that may adversely affect their

ability to control the reactor and maintain it in a safe shutdown condition in the event of a DBA. The 90-day Completion Time of new Required Action B.3 is a reasonable time to diagnose, plan, and possibly repair, and test most anticipated problems with the CRE boundary. Therefore, proposed new Actions B.1, B.2, B.3 are acceptable.

With the addition of a new Condition B, existing Conditions B and C are re-designated C and D respectively.

Based on the above evaluation of the proposed changes to the conditions in TS 3.7.4, except for the proposed change to existing Condition C, the NRC staff concludes that the proposed changes meet 10 CFR 50.36 and are, therefore, acceptable. The proposed change to existing Condition C (proposed Condition D) is addressed in a following paragraph of this SE.

The licensee also proposed to modify the CREV System LCO by adding a NOTE allowing the CRE boundary to be opened intermittently under ACs. As stated in the LCO Bases, this NOTE "only applies to openings in the CRE boundary that can be rapidly restored to the design condition, such as doors, hatches, floor plugs, and access panels. For entry and exit through doors, the AC of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls should be proceduralized and consist of stationing a dedicated individual at the opening who is in continuous communication with operators in the CRE. This individual will have a method to rapidly close the opening and to restore the CRE boundary to a condition equivalent to the design condition when a need for CRE isolation is indicated." The allowance of this NOTE is acceptable because the ACs will ensure that the opening will be quickly sealed to maintain the validity of the licensing basis analyses of DBA consequences and it meets 10 CFR 50.36.

The licensee proposed to expand the existing Condition C (proposed Condition D) of TS 3.7.4 by adding "OR CREV System inoperable due to an inoperable CRE boundary during movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs." OPDRVs are operations with a potential for draining the reactor vessel. The specified Required Actions proposed for this Condition addition are the same as for the existing Condition C (proposed Condition D). The practical result of this presentation in format is the same as specifying two separate line item Conditions with a repetition of the same two Actions. Its advantage is to make the TS Actions table easier to use by avoiding having an additional row in the Actions table. This addition to proposed Condition/Action D is needed because proposed Condition B will only apply in Modes 1, 2, and 3. As such, this change will ensure that the Actions table continues to specify a condition for an inoperable CRE boundary during refueling and OPDRVs. Therefore, this change is administrative, is not changing any requirements in the TSs, and meets 10 CFR 50.36. Based on this, the NRC staff concludes the proposed change is acceptable.

In the airborne radiation protection mode of operation, the CREV System isolates unfiltered ventilation air supply intakes, filters the emergency ventilation air supply to the CRE, and pressurizes the CRE to minimize unfiltered air inleakage past the CRE boundary. The licensee proposed to delete the CRE pressurization SR. This SR requires verifying that the CREV System can maintain a pressure of at least 0.125 inches water gauge relative to the adjacent areas (outside the CRE) during the pressurization mode at a makeup flow rate of less than or equal to 2000 cubic feet per minute. The deletion of this SR is proposed because measurements of unfiltered air leakage into the CRE at numerous reactor facilities demonstrated that a basic assumption of this SR, an essentially leak-tight CRE boundary, was incorrect for most facilities. Hence, meeting this SR by achieving the required CRE pressure is

not necessarily a conclusive indication of CRE boundary leak-tightness, i.e., CRE boundary operability. In its response to GL 2003-01, dated December 9, 2003 (ADAMS Accession No. ML033560302), the licensee reported that it had determined that the DNPS and the QCNPS CREV pressurization surveillance, SR 3.7.4.4, was not an accurate predictor of unfiltered air inleakage into the CRE, and proposed to add a CRE Habitability Program in TS Section 5.0. In its April 12, 2007, license amendment request, the licensee proposed replacing the pressurization SR 3.7.4.4 with an inleakage measurement SR to be performed in accordance with the proposed TS Section 5.5 CRE Habitability Program that would be in accordance with TSTF-448, Revision 3.

The proposed CRE inleakage measurement SR states, "Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program." The CRE Habitability Program TS, proposed TS 5.5.14 (DNPS) and TS 5.5.13 (QCNPS), requires that the program include Requirements for determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the frequencies specified in Sections C.1 and C.2 of RG 1.197, Revision 0. This guidance references ASTM E741 as an acceptable method for ascertaining the unfiltered leakage into the CRE. The licensee has proposed to follow this method. Therefore, the NRC staff concludes that the proposed CRE inleakage measurement SR is acceptable.

3.4 CRE Habitability Program TS

The proposed ACs program TSs are consistent with the model program TS in TSTF-448, Revision 3. In combination with SR 3.7.4.4, these programs are intended to ensure the operability of the CRE boundary, which as part of an operable CREV System will ensure that CRE habitability is maintained such that CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under DBA conditions without personnel receiving radiation exposures in excess of five rem total effective dose equivalent (TEDE) for the duration of the accident.

A CRE Habitability Program TS acceptable to the NRC staff requires the program to contain the following elements:

- Definitions of CRE and CRE boundary. This element is intended to ensure that these definitions accurately describe the plant areas that are within the CRE, and also the interfaces that form the CRE boundary, and are consistent with the general definitions discussed in Section 2.1 of this SE. Establishing what is meant by the CRE and the CRE boundary will preclude ambiguity in the implementation of the program.

- Configuration control and preventive maintenance of the CRE boundary. This element is intended to ensure the CRE boundary is maintained in its design condition. Guidance for implementing this element is contained in RG 1.196, which endorsed, with exceptions, NEI 99-03. Maintaining the CRE boundary in its design condition provides assurance that its leak-tightness will not significantly degrade between CRE inleakage determinations.

- Assessment of CRE habitability at the frequencies stated in Sections C.1 and C.2 of RG 1.197, Revision 0, and measurement of unfiltered air leakage into the CRE in accordance with the testing methods and at the frequencies stated in Sections C.1 and

C.2 of RG 1.197. This element is intended to ensure that the plant assesses CRE habitability consistent with Sections C.1 and C.2 of RG 1.197. Assessing CRE habitability at the NRC accepted frequencies provides assurance that significant degradation of the CRE boundary will not go undetected between CRE inleakage determinations. Determination of CRE inleakage using test methods acceptable to the NRC staff assures that test results are reliable for ascertaining CRE boundary operability. Determination of CRE inleakage at the NRC accepted frequencies provides assurance that significant degradation of the CRE boundary will not occur between CRE inleakage determinations.

- Measurement of CRE pressure with respect to all areas adjacent to the CRE boundary at designated locations for use in assessing the CRE boundary at a frequency of 24 months. This element is intended to ensure that CRE differential pressure is regularly measured to identify changes in pressure warranting evaluation of the condition of the CRE boundary. Obtaining and trending pressure data provides additional assurance that significant degradation of the CRE boundary will not go undetected between CRE inleakage determinations.

- Quantitative limits on unfiltered inleakage. This element is intended to establish the CRE inleakage limit as the CRE unfiltered infiltration rate assumed in the CRE occupant radiological consequence analyses of design basis accidents. Having an unambiguous criterion for the CRE boundary to be considered operable in order to meet LCO 3.7.4, will ensure that associated action requirements will be consistently applied in the event of CRE degradation resulting in inleakage exceeding the limit.

Consistent with TSTF-448, Revision 3, the program states that the provisions of SR 3.0.2 are applicable to the program frequencies for performing the activities required by program element “c”, parts (i) and (ii) (assessment of CRE habitability and measurement of CRE inleakage), and program element “d” (measurement of CRE differential pressure). This statement is needed to avoid confusion. SR 3.0.2 is applicable to the surveillance that references the testing in the CRE Habitability Program. However, SR 3.0.2 is not applicable to ACs unless specifically invoked. The NRC staff concludes that providing this statement in the program eliminates any confusion regarding whether SR 3.0.2 is applicable, and is acceptable.

Proposed TS 5.5.14 (DNPS) and TS 5.5.13 (QCNPS) state that (1) a CRE Habitability Program shall be established and implemented, (2) the program shall include all of the NRC-staff required elements, as described above, and (3) the provisions of SR 3.0.2 shall apply to program frequencies. The NRC staff concludes that this is consistent with the model program TS approved by the NRC staff in TSTF-448, Revision 3, and the proposed TS 5.5.14 (DNPS) and TS 5.5.13 (QCNPS) are acceptable.

4.0 STATE CONSULTATION

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

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change the requirements with respect to the 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 (72 FR 31100; June 5, 2007). 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 proposed license amendments and as delineated in the above regulatory and technical evaluation sections has determined that they are consistent with the intent of the approved TSTF-448, Revision 3 wording changes, varying only to accommodate existing plant specific terminology and design bases, and are therefore acceptable.

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

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