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PSEG
Nuclear LLC

10 CFR 50.90

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September 2, 2015

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Salem Nuclear Generating Station Unit 1
Renewed Facility Operating License No. DPR-70
NRC Docket No. 50-272

Subject: Supplemental Information Needed for Review of Emergency License Amendment Request to Remove Pressurizer Power Operated Relief Valve (PORV) Position Indication Instrumentation from the Accident Monitoring Instrumentation Technical Specifications

References
1. PSEG letter to NRC, " Emergency License Amendment Request to Remove Pressurizer Power Operated Relief Valve (PORV) Position Indication Instrumentation from the Accident Monitoring Instrumentation Technical Specifications," dated August 31, 2015 (ADAMS Accession No. ML15243A491)

In the Reference 1 letter, PSEG Nuclear LLC (PSEG) submitted a license amendment request for Salem Nuclear Generating Station (Salem), Unit No. 1. The proposed amendment would remove the Pressurizer PORV position indication from Technical Specification (TS) 3/4.3.3.7, "Accident Monitoring Instrumentation."

The U.S. Nuclear Regulatory Commission staff requested that PSEG supplement the application with information necessary to enable the NRC staff to complete their review. The requested information is provided in Attachment 1. A revision to the 10 CFR 50.92 no significant hazards determination previously submitted is provided in Attachment 2 with changes marked with revision bars.

The information provided in this submittal does not affect the bases for concluding that neither an environmental impact statement nor an environmental assessment needs to be prepared in connection with the proposed amendment.

There are no regulatory commitments contained in this letter.

If you have any questions or require additional information, please contact Mr. Brian Thomas at 856-339-2022.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on September 2, 2015
(date)

Respectfully,

John F. Perry
Site Vice President
Salem Nuclear Generating Station

Attachments (2):

1. Supplemental Information Needed for Review of Emergency License Amendment Request to Remove Pressurizer Power Operated Relief Valve (PORV) Position Indication Instrumentation from the Accident Monitoring Instrumentation Technical Specifications

2. Revision of 10 CFR 50.92 No Significant Hazards Consideration

cc: Mr. D. Dorman, Administrator, Region I, NRC
Ms. C. Parker, NRC Project Manager, Salem
NRC Senior Resident Inspector, Salem
Mr. P. Mulligan, Chief, NJBNE
Mr. L. Marabella, Corporate Commitment Tracking Coordinator
Mr. T. Cachaza, Salem Commitment Tracking Coordinator

Attachment 1

Supplemental Information Needed for Review of Emergency License Amendment Request to Remove Pressurizer Power Operated Relief Valve (PORV) Position Indication Instrumentation from the Accident Monitoring Instrumentation Technical Specifications

REQUEST FOR ADDITIONAL INFORMATION
OFFICE OF NUCLEAR REACTOR REGULATION
EMERGENCY LICENSE AMENDMENT REQUEST REGARDING REMOVAL OF THE
PRESSURIZER POWER OPERATED RELIEF VALVE POSITION INDICATION
SALEM GENERATING STATION UNIT
PSEG, NUCLEAR LLC
EXELON GENERATION COMPANY, LLC
DOCKET NO. 50-272

By letter dated August 31, 2015, PSEG Nuclear, LLC (PSEG or the licensee) submitted an emergency license amendment request to remove the pressurizer power operated relief valve position indication from the Salem Nuclear Generating Station, Unit 1 technical specifications (TSs). To complete its review, the NRC staff requests a response to the questions below.

1. NUREG-0737, Item II.D.3 requires the direct indication of PORV/PSV valve position to be listed in the TSs. This requirement originated from Appendix A of NUREG 0578, Position 2.1.3.a, which states in part, "Reactor system relief and safety valves shall be provided with a positive indication in the control room derived from a reliable valve position detection device or a reliable indication of flow in the discharge pipe." NUREG 0578 also states, "The purpose of this position is to provide the operator a more positive indication of valve position and therefore provide additional assurance that the integrity of the reactor coolant pressure boundary can be maintained or a loss of integrity directly diagnosed." (underline added)

   NUREG 0737 Supplement 1 states: "Position: Reactor coolant system relief and safety valves shall be provided with a positive indication in the control room derived from a reliable valve-position detection device or a reliable indication of flow in the discharge pipe."

   NUREG-0737, Item II.D.3 points out that direct valve position indication (or acoustic monitors) should be part of the plant technical specifications: (i.e.,) Technical Specification Changes Required."

   Please explain how Salem will continue to meet this criteria after removal of the PORV position indications from the Technical Specifications.

Response:

Although NUREG-0737 stated that the Power Operated Relief Valve (PORV) position indication for post-accident monitoring should be included in the Technical Specifications (TS), the current regulation 10 CFR 50.36 clarifies those items that are required to be contained in the plant's TS. As discussed in Reference 1, PSEG has reviewed the four criteria of 10 CFR 50.36(c)(2)(ii) and determined that the PORV position indication does not satisfy any of these criteria and therefore is not required to be contained in the TS. This conclusion is supported by the absence of operability and surveillance requirements for the PORV position indication instrumentation in the Improved Standard Technical Specifications (ISTS) presented in NUREG-1431. NUREG-1431 states that the instrument channels required to be included in the limiting condition for operation

(LCO) are the Regulatory Guide (RG) 1.97 Type A and Category 1 variables. The Salem Updated Final Safety Analysis Report (UFSAR) identifies "Primary System Safety Relief Valve Positions (including PORV and code valves) or Flow Through or Pressure in Relief Valve Lines" as Type D, Category 2 Variables, consistent with RG 1.97 (UFSAR Section 7.5).

The Criterion 1 requirement for "installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary," is satisfied as described below. Criterion 16, "Monitoring Reactor Coolant Pressure Boundary," in Section 3.1 of the Salem UFSAR states that "means shall be provided for monitoring the reactor coolant pressure boundary to detect leakage." (Note: Salem was licensed to the AEC Proposed General Design Criteria (GDC) dated July 1967. Criterion 16 of the proposed AEC GDC is the equivalent of the 10 CFR 50 Appendix A GDC 14). The Salem UFSAR states:

> "Positive indications in the control room of leakage of coolant from the Reactor Coolant System to the lower containment compartment are provided by equipment which permits continuous monitoring of the lower containment compartment air activity and humidity, and condensate run-off from the fan coolers. This equipment provides indication of normal background which is indicative of a basic level of leakage from primary systems and components. Any increase in the observed parameters will be an indication of change within the lower containment compartment, and the equipment provided is capable of monitoring this change. The basic design criterion is the detection of deviations from normal containment environmental conditions including air particulate activity, radiogas activity, humidity, condensate, and in addition, in the case of gross leakage, the liquid inventory in the process systems and containment sump.
>
> Means of detecting leakage from the Reactor Coolant System is also provided by measuring and indicating changes in makeup requirements and containment sump levels."

The instrumentation identified in response to Criterion 16 are contained in Salem Unit 1 TS 3.4.6.1, Reactor Coolant System Leakage, Leakage Detection Systems.

Even though the PORV position indication is being removed from the Salem Unit 1 TS Tables 3.3-11 and 4.3-11, the PORV position indication is not being modified and will continue to satisfy its Regulatory Guide 1.97 requirements. These requirements are documented in Salem Updated Final Safety Analysis Report (UFSAR) Section 7.5 (Table 7.5-4, Variable 29). Appendix A of the Salem UFSAR documents PSEG's response to the NUREG-0578. Section 2.1.3.a of Appendix A addresses the "Relief and Safety Valve Position Indications."

PSEG's process for assessing functionality of non-TS SSCs is aligned with current NRC guidance found in Inspection Manual Chapter IMC 0326, "Operability Determinations & Functionality Assessments for Conditions Adverse to Quality or Safety." PSEG performs functionality determinations to assess the ability of non-TS SSCs to perform functions, other than necessary support functions for SSCs explicitly required to be operable by TSs. These other functions include those described in the UFSAR. When an SSC is determined to be non-functional, Operations shift management is responsible to determine any compensatory measures or corrective actions required, and any impact on supported TS functions.

2. What alternate methods are available to detect opening of the PORVs, and consequently comply with the criteria established in GDC 14 and the requirement

established in 10 CFR 50.36 (c)(2) (ii), "Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary."

Response:

Compliance with Salem GDC 16 (the equivalent of 10 CFR 50 Appendix A GDC 14) is discussed in the response to Question 1.

Multiple diverse methods are available to alternately detect the opening of the PORVs. The wide range RCS pressure instrumentation (2 independent devices, 1PT403 and 1PT405) is the first alternate method of determining if a PORV has opened. These instruments are required by TS 3.3.3.7. Other alternate methods of detecting the opening of a PORV are Pressurizer Relief Tank level and temperature, as well as PORV tailpipe temperature (these are contained in the ** footnote of TS Table 3.3-11). These indications are surveilled monthly.

3. If the PORV position indication is deleted from the technical specifications, will it be maintained in the TRM or FSAR or any other plant licensing document? If so, how will any surveillance requirements for the PORV position indication be maintained in the plant documents?

Response:

The requirement for PORV Indication, as required by Regulatory Guide 1.97, is still being maintained in the Salem UFSAR Section 7.5 "Safety-Related Display Instrumentation," Table 7.5-4 "Summary of Instrumentation Compliance with Regulatory Guide 1.97". Variable Reference No. 29 of Table 7.5-4 includes the "Primary System Safety Relief Valve Positions (including PORV and code valves) or flow through or Pressure in relief Valve Lines." It is also being retained in the UFSAR Appendix A, "TMI Lessons Learned", Section 2.1.3.a "Relief and Safety Valve Position Indications."

See Question #4 for specific surveillance testing on the PORVs. The functionality of the PORV position indication will continue to be demonstrated in conjunction with the PORV surveillance testing in accordance with TS 3.4.3, "Reactor Coolant System Relief Valves", 3.4.9.3, "Reactor Coolant System Overpressure Protection Systems", and 6.8.4.j, "Inservice Testing Program."

4. Please describe the functional tests that will be performed to confirm that the PORV is in the required demand condition. What will be the frequency of this functional test, and under what plant conditions will it be performed?

Response:

The following Technical Specification surveillance testing verifies the PORV is in the required demand condition and the functionality of the PORV position indication (specifically control room Closed and Open lights and associated alarm). These surveillances are performed at the frequencies specified in the table below:

Maintenance Plan	Frequency	Description	Technical Specification
S1960515	Quarterly while in Modes 5 - 6 or Defueled (Cold Shutdown Test)	Functionally strokes the PORVs, verifies control room indication	T/S 6.8.4.j T/S 3.4.3 T/S 3.4.9.3
S1101288	Each Cold Shutdown if >92 days since last performance.	Functionally strokes the PORVs, verifies control room indication	T/S 6.8.4.j T/S 3.4.3 T/S 3.4.9.3
S1407865	Each Refueling	Functionally strokes the PORVs, verifies control room indication.	T/S 6.8.4.j T/S 3.4.3 T/S 3.4.9.3
S1100299	Each Refueling	Functionally strokes the PORVs, verifies Remote Position Indication: physical PORV position matches control room indication.	T/S 6.8.4.j, T/S 3.4.3 T/S 3.4.9.3

5. On the bottom of page 4 of Section 4.0, Technical Analysis there is a statement regarding the Emergency Operating Procedures (EOPs) which in part states, “Individual EOPs using PORV position can be accomplished using alternate means regardless of whether PORV position instrumentation is available.” Please explain what is meant by this statement, and identify the specific alternate means to which this refers

Response:

EOPs include steps to verify if the PORVs are closed and determine if they are operating properly (e.g., 1-EOP-TRIP-1). If the PORVs should be closed and are not, they are directed to be closed, and if unsuccessful, the associated block valve(s) are closed. The operator will use not only the limit switch indication to make this determination, but will also verify by alternate means (tailpipe temperatures, PRT temperature and PRT level) as necessary if the validity of

the position indication is in doubt. Diagnostic guidance is contained in plant abnormal and emergency operating procedures.

References:

1. PSEG letter to NRC, "Emergency License Amendment Request to Remove Pressurizer Power Operated Relief Valve (PORV) Position Indication Instrumentation from the Accident Monitoring Instrumentation Technical Specifications," dated August 31, 2015 (ADAMS Accession No. ML15243A491)

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Attachment 2

Revision of 10 CFR 50.92 No Significant Hazards Consideration

5.0 REGULATORY ANALYSIS

10 CFR 50.36 (a)(1) requires that each applicant for a license authorizing operation of a production or utilization facility shall include in its application proposed TS in accordance with the requirements of section 50.36. The TS are part of the facility operating license and any changes to the operating license and TS must be in accordance with 10 CFR 50.90. The changes proposed by this license amendment request conform to these regulations.

No Significant Hazards Consideration

PSEG requests an amendment to the Salem Unit 1 Operating License. The proposed change would remove the Pressurizer Power Operated Relief Valve (PORV) position indication from the Accident Monitoring Instrumentation Technical Specifications (TS) 3/4.3.3.7 Tables 3.3-11 and 4.3-11 for the Salem Generating Station (Salem) Unit 1.

PSEG has evaluated the proposed changes to the TS, using the criteria in 10 CFR 50.92, and determined that the proposed changes do not involve a significant hazards consideration. The following information is provided to support a finding of no significant hazards consideration.

1. Do the proposed changes involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No

   The proposed change to the TS would remove the PORV position indication from the Accident Monitoring Instrumentation TS for Salem Unit 1. The failure of this instrumentation is not assumed to be an initiator of any analyzed event in the UFSAR. Therefore the probability of an accident previously evaluated is not significantly increased.

   The proposed changes do not alter the design of the PORVs or any other system, structure, or component (SSC). The proposed changes conform to NRC regulatory guidance regarding the content of plant TS, as identified in 10 CFR 50.36, NUREG-1431, and the NRC Final Policy Statement in 58 FR 39132. TS Operability requirements are retained for Type A and Category 1 variables. Operability of these instruments ensures sufficient information is available to monitor and assess plant status during and following an accident. Alternate means for diagnosing and responding to PORV malfunctions (Pressurizer Relief Tank level and temperature, and PORV tailpipe temperature) are unaffected by the proposed change. Therefore, the consequences of an accident previously evaluated are not significantly increased.

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

2. Do the proposed changes create the possibility of a new or different kind of accident from any accident previously evaluated?

   Response: No

   The proposed changes to the TS would remove the PORV position indication from the Accident Monitoring Instrumentation TS for Salem Unit 1. The proposed change does not

involve a modification to the physical configuration of the plant or change in the methods governing normal plant operation. The proposed changes will not impose any new or different requirement or introduce a new accident initiator, accident precursor, or malfunction mechanism.

Additionally, there is no change in the types or increases in the amounts of any effluent that may be released off-site and there is no increase in individual or cumulative occupational exposure. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Do the proposed changes involve a significant reduction in a margin of safety?

   Response: No

   The proposed changes to the TS would remove the PORV position indication from the Accident Monitoring Instrumentation TS for Salem Unit 1. This instrumentation is not needed for manual operator action necessary for safety systems to accomplish their safety function for the design basis events. The PORV position instrumentation does not provide an input to any automatic trip function or impact the response of the PORVs to a design basis accident.

   Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

Based upon the above, PSEG concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of “no significant hazards consideration” is justified.

In conclusion, based on the considerations discussed above, (1) there is a 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 NRC'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.