



NMP2L2578

March 20, 2015

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

Nine Mile Point Nuclear Station, Unit 2
Renewed Facility Operating License No. NPF-69
NRC Docket No. 50-410

Subject: Response to Request for Additional Information - License Amendment Request - Primary Containment Isolation Instrumentation Technical Specification Allowable Value Change

- References:**
1. Letter from J. Barstow (Exelon Generation Company, LLC) to U.S. Nuclear Regulatory Commission, "License Amendment Request - Primary Containment Isolation Instrumentation Technical Specification Allowable Value Change," dated November 17, 2014
 2. Email from Bhalchandra K. Vaidya (Licensing Project Manager, U.S. Nuclear Regulatory Commission) to Exelon, "Nine Mile Point Nuclear Station Unit No. 2; TAC No. MF5193 - REQUEST FOR ADDITIONAL INFORMATION (RAI) RE: License Amendment Request-Primary Containment Isolation Instrumentation Technical Specification Allowable Value Change," dated February 10, 2015
 3. Clarification Call on Draft RAI between U.S. Nuclear Regulatory Commission and Exelon held on February 19, 2015

In the Reference 1 letter, Exelon Generation Company, LLC (Exelon) requested changes that would revise the NMP2 Technical Specification (TS) Allowable Value for the Main Steam Line Tunnel Lead Enclosure Temperature-High instrumentation from an ambient temperature dependent (variable setpoint) to ambient temperature independent (constant Allowable Value). The changes would delete Surveillance Requirement (SR) 3.3.6.1.2 and revise the Allowable Value for Function 1.g on Table 3.3.6.1-1, "Primary Containment Isolation Instrumentation." In addition, the associated Bases will be revised. In Reference 2, the U.S. Nuclear Regulatory Commission (NRC) requested additional information regarding a summary of calculation results, clarification on the location of the Lead Enclosure, request for GOTHIC files, clarification on leak rate change from 25 gpm to 45 gpm, and describe any assumptions used in the GOTHIC computer code that are less conservative than that used in THREED code. In reference 3, a clarification call between the NRC and Exelon held on

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February 19, 2015, resulted in clarifying language added to Question SCVB-3. Enclosed with this letter is a CD titled "NMP Gothic.gth" containing the GOTHIC files requested by the Staff in Request for Additional Information Question SCVB-1. Attachment 1 contains our response.

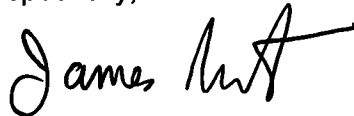
Exelon has reviewed the information supporting a finding of no significant hazards consideration and the environmental consideration provided to the U.S. Nuclear Regulatory Commission in Reference 1. The additional information provided in this response does not affect the bases for concluding that the proposed license amendment does not involve a significant hazards consideration. Furthermore, the additional information provided in this response 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 commitments contained in this response.

Should you have any questions concerning this letter, please contact Ron Reynolds at (610) 765-5247.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 20th day of March 2015.

Respectfully,



James Barstow
Director - Licensing & Regulatory Affairs
Exelon Generation Company, LLC

Attachment 1: Response to Request for Additional Information

cc: USNRC Region I, Regional Administrator
USNRC Senior Resident Inspector, NMP
USNRC Licensing Project Manager, NMP
Director, Bureau of Radiation Protection - NY Department of Environmental Resources

ATTACHMENT 1

License Amendment Request

Nine Mile Point Nuclear Station, Unit 2

Docket No. 50-410

Response to Request for Additional Information

**License Amendment Request Regarding
Primary Containment Isolation Instrumentation
Technical Specification Allowable Value Changes**

Response to Request for Additional Information

License Amendment Request Regarding Primary Containment Isolation Instrumentation Technical Specification Allowable Value Changes

In the Reference 1 letter, Exelon Generation Company, LLC (Exelon) requested changes that would revise the NMP2 Technical Specification (TS) Allowable Value for the Main Steam Line Tunnel Lead Enclosure (MSLTLE) Temperature-High instrumentation from an ambient temperature dependent (variable setpoint) to ambient temperature independent (constant Allowable Value). The changes would delete Surveillance Requirement (SR) 3.3.6.1.2 and revise the Allowable Value for Function 1.g on Table 3.3.6.1-1, "Primary Containment Isolation Instrumentation." In addition, the associated Bases will be revised. The NRC reviewed the license amendment request and identified the need for additional information in order to complete their evaluation of the amendment request. A Request for Additional Information (RAI) was electronically transmitted to Exelon on February 10, 2015 (Reference 2). Reference 3 is a clarification call between the NRC and Exelon held on February 19, 2015, resulting in clarifying language added to Question SCVB-3. The questions are restated below along with Exelon's response.

EICB-1: Please provide a summary and results of the calculation that evaluated the acceptability of the fixed allowable value. The leak rate as evaluated has increased from 25 gallons per minute (gpm) to 45 gpm. Since the change is significant, the licensee is requested to explain how the margin of safety has been maintained for both summer and winter months.

Response:

The Analytical Limit (AL) associated with the fixed 175.6°F Allowable Value (AV) remains the same as currently allowed, 180°F, by the setpoint analysis of record. Therefore, there is no change in the margin of safety as it relates to the instrument setpoints.

With 45 gpm (equivalent condensate) steam leakage, the predicted MSLTLE temperature is 181.4°F in winter using worst-case combination of initial conditions. The predicted area temperature is 1.4°F conservative with respect to the AL.

The predicted MSLTLE temperature in summer months is 203°F assuming the same 45 gpm leak rate as the winter case. This assumes the initial MSLTLE temperature is 120°F for the summer months which sets the initial conditions ≈30°F less than recorded peak temperatures in the MSLTLE (≈150°F). Thus, the predicted summer temperature with 45 gpm leak rate has ≈23°F margin to the AL. Alternatively speaking, the AL would be reached with leakage significantly less than the 45 gpm.

During the 2/19/15 clarification call, the staff requested clarification regarding the application of TSTF-493 for the MSLTLE setpoint. The "Main Steam Line Tunnel Lead Enclosure Temperature - High" function does not provide an automatic trip setpoint that protects against violating the Reactor Core Safety Limit or Reactor Coolant System Pressure Safety Limit during Anticipated Operational Occurrences or Design Basis Accidents. Therefore, "Main Steam Line

Tunnel Lead Enclosure Temperature - High" function is not a Safety Limit related Limiting Safety System Settings. Thus, this function falls outside TSTF 493.

Based the above, there is no reduction in margin of safety as it relates to the temperature setpoints.

EICB-2: The licensee has used the term "Main Steam Line Tunnel Lead Enclosure." NRC staff could not find the definition or an explanation of this term in any of the plant licensing documents. Please advise if the explanation of this term is contained in any of the existing plant license documents. If available please provide the document or a reference to the document. If this term has not been previously defined or explained then provide an explanation along with a sketch and name the plant license document where the subject explanation will be documented.

Response:

Figure 1 illustrates the location of the MSLTLE area as the horizontal portion of the Main Steam Tunnel on Elevation 292'-0" divided between the Turbine Building and Reactor Building represented by MST-5 and MST-6. NMP Unit 2 USAR will be updated to clearly identify MSLTLE area and associated discussion in USAR Section 5.2.5.1.3, "Detection of Leakage External to the Primary Containment," Section 5.2.5.2.2, "Leak Detection Instrumentation and Monitoring External to Primary Containment," and Section 7.3.1.1.2 "Primary Containment and Reactor Vessel Isolation Control System (PCRVICES) - Instrumentation and Controls."

SCVB-1: Please provide the GOTHIC 8.0 files that have the extension ".GTH" used for the subcompartment analysis.

Response: The GOTHIC file for the most limiting winter case with conservative initial conditions and supply air temperatures (file "U2TUN_45_IC80_S70_BC70_1%RHOA_R2.GTH") is in the CD enclosed with this letter. The GOTHIC file contained on the CD is a special computer input file and not a typical Word or Excel file.

SCVB-2: In Attachment 1, Page 3 of 7 of your submittal you state, "To achieve this change, the leak detection basis requires revision from 25 to 45 gpm (equivalent steam leakage) for the lead enclosure only. Other locations in the main steam tunnel remain capable of detection of a 25 gpm equivalent steam leak." Please explain these statements.

Response:

Figure 1 shows the main steam tunnel (including the lead enclosure). The area labeled as MST-1, MST-2, MST-3, and MST-4 are equipped with 4 ambient and 4 differential temperatures sensors. These sensors remain capable of detecting and isolating the primary containment for 25 gpm steam leak. The proposed change (25 to 45 gpm) is applicable for leaks in, MST-5, and MST-6. These areas contain 12 ambient temperature sensors (at three different locations in a cluster of 4 per location). These 12 sensors will detect and isolate the primary containment at 45 gpm.

SCVB-3: The existing design basis model used the Stone & Webster Engineering Corporation (SWEC) THREED computer code incorporated an equivalent steam leak of 25 gpm, while the GOTHIC model has a 45 gpm. Describe all changes and the assumptions used in the proposed methodology (GOTHIC) that result in a less conservative input than used in the current methodology (THREED). Provide justification for those inputs and assumption for which conservatism in the proposed methodology is reduced. **[NOTE: The last sentence was added as a result of the clarification call on 2/19/15]**

Response:

The supporting analysis for the proposed change included benchmarking of GOTHIC and THREED results. The GOTHIC model used the same THREED nodalization, same heat load, and same heat sinks that were originally used in the setpoint analysis. One of the differences is that the GOTHIC model included elevation/height details, whereas THREED did not use elevation/height. The other difference is related to heat transfer coefficient; GOTHIC used recommended "Direct" with Uchida for condensing heat transfer coefficients, whereas THREED used Uchida heat transfer coefficient with 12% re-evaporation. These two differences are minor and the benchmark shows the difference has an insignificant impact. The results are as follows:

Initial Temperature = 80°F and Supply Air Temperature = 70°F
 (25 gpm Steam Leak)

Parameter	THREED	GOTHIC
Node 5 Temperature	283.2°F	288.2°F
Node 6 Temperature	155.6°F	156.1°F

25 gpm Steam Leak (Node 6 Temperature)

Temperature	THREED	GOTHIC
80°F Initial & 70°F Supply Air	155.6°F	156.1°F
90°F Initial & 80°F Supply Air	158.3°F	158.0°F
130°F Initial & 90°F Supply Air	185.1°F	184.3°F

Based on the above comparison, the GOTHIC temperature predictions are essentially the same as THREED. The supporting analysis for the proposed change uses the same set of initial conditions (temperature, relative humidity, pressure) and physical characteristics of the main steam tunnel. The only change is leak rate, 25 vs. 45 gpm.-

SCVB-4: Provide the most limiting winter and summer ambient temperatures (or initial temperatures in the steam tunnel in the analysis) used for the THREED and GOTHIC analyses. Additionally, provide the leak rates corresponding to 180 degrees F in the winter versus the summer for the GOTHIC analyses.

Response:

The initial conditions used in the analysis as follows:

Winter Case

Parameter	THREED	GOTHIC
Area Temperature	80°F	80°F
HVAC Supply Air	70°F	70°F

Summer Case

Parameter	THREED	GOTHIC
Area Temperature	130°F	130°F
HVAC Supply Air	90°F	90°F

For winter case, the required leak rate is 45 gpm to reach 180°F, whereas for summer case, slightly less than 25 gpm will be required to reach 180°F.

Figure 1

