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10 CFR 50.90

NMP2L2611

January 8, 2016

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 by the Office of Nuclear Reactor Regulation to Support Review of Nine Mile Point Nuclear Station, Unit 2, Relocation of Secondary Containment Bypass Leakage Paths Table from Technical Specifications to the Technical Requirements Manual

References:
1. Letter from J. Barstow (Exelon Generation Company, LLC) to U.S. Nuclear Regulatory Commission, "Relocation of Secondary Containment Bypass Leakage Paths Table from Technical Specifications to the Technical Requirements Manual," dated March 23, 2015.
2. Letter from Brenda Mozafari (Senior Project Manager, U.S Nuclear Regulatory Commission) to Mr. Bryan Hanson (Exelon), "Nine Mile Point Nuclear Station, Unit 2 - Request for Additional Information Regarding (CAC MF5900)," dated December 17, 2015.

By letter dated March 23, 2015, (Reference 1) Exelon Generation Company, LLC (Exelon) requested to change the Nine Mile Point Unit 2 (NMP2) Technical Specifications (TS). The proposed amendment request would modify NMP2 TS by relocating the secondary containment bypass leakage paths table from Technical Specifications to the Technical Requirements Manual.

On December 8, 2015, the U.S. Nuclear Regulatory Commission (NRC) emailed a draft Request for Additional Information (RAI). On December 11, 2015, a clarification teleconference was held between NRC and Exelon personnel. The formal RAI (Reference 2) was provided on December 17, 2015.

Attachment 1 to this letter contains the NRC's request for additional information immediately followed by Exelon's response.

Exelon has reviewed the information supporting a finding of no significant hazards consideration and the environmental consideration provided to the NRC 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.

If you should have any questions regarding this submittal, please contact Ron Reynolds at 610-765-5247.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 8th day of January 2016.

Respectfully,

David T. Gudger
Manager - Licensing & Regulatory Affairs
Exelon Generation Company, LLC

Attachment 1: Response to Request for Additional Information
Attachment 2: Mark-Up of Proposed Technical Specification and Bases Pages

		w/attachments
cc:	USNRC Region I Regional Administrator	"
	USNRC Senior Resident Inspector – NMP	"
	USNRC Project Manager, NRR – NMP	"
	A. L. Peterson, NYSERDA	"

ATTACHMENT 1

Response to Request for Additional Information

RAI STSB-1:

In the existing NMP2 TS, Table 3.6.1.3-1 specifies a numerical value for allowable leakage for each leakage path in standard cubic feet per hour. Surveillance Requirement (SR) 3.6.1.3.11 states:

> Verify the leakage rate for the secondary containment bypass leakage paths is within the limits of Table 3.6.1.3-1 when pressurized to ≥ 40 psig.

The proposed change is deletion of Table 3.6.1.3-1 and revision of SR 3.6.1.3.11 to state:

> Verify the leakage rate for the secondary containment bypass leakage paths is within the limits when pressurized to ≥ 40 psig.

The staff requests additional information to explain why a numerical value limit on the secondary containment bypass leakage is not retained within the proposed SR 3.6.1.3.11 itself. Typically, the safety analysis for a facility assumes a specific amount of bypass leakage when calculating dose consequences. This leakage limit is reflected in the TS to ensure operation within the bounds of the safety analysis.

The regulation at 10 CFR 50.36(c)(3) requires TSs to include items in the category of surveillance requirements, which are 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 the Limiting Conditions for Operations will be met. The leakage limit for the pathways to be considered operable must be specified in the TS.

The staff compared the proposed revision of SR 3.6.1.3.11 with the guidance provided in Generic Letter 91-08. The Generic Letter recommended that the limitation on containment leakage rate be revised to state:

> A combined leakage rate of less than or equal to [0.10 La] for all penetrations that are secondary containment bypass leakage paths when pressurized to Pa.

This requirement has also been retained in the Standard TS.

Provide a technical justification for not retaining a numerical limit on allowable leakage on the secondary containment bypass pathways or propose a change to SR 3.6.1.3.11 to reflect the appropriate limit. If it is proposed to specify the leakage limit in terms of a combined leakage rate, please review LCO 3.6.1.3 Condition D and its associated Required Actions to ensure consistency with the proposed change to SR 3.6.1.3.11.

Exelon Response to RAI STSB-1

The secondary bypass leakage paths and limits specified in the current TS Table 3.6.1.3-1 are incorporated into the approved Alternative Source Term (AST) licensing basis for Nine Mile Point Unit 2 (NMP2) for the Loss of Coolant Accident (LOCA) evaluation as submitted in Attachment 7 to License Amendment Request dated May 31, 2007 (Reference 1) and approved by Amendment 125 (Reference 2). These pathways release activity across four different release points; each release point having unique atmospheric dispersion coefficients. Additionally, each pathway has unique flow and fission product removal characteristics. As a result of these varying release pathway characteristics, the current approved LOCA AST licensing basis is not configured to transform the multiple leakage limits into a single value for use in the proposed Surveillance Requirement (SR) 3.6.1.3.11.

The revision to SR 3.6.1.3.11 as shown in Attachment 2 reflects that the AST analyzed bypass leakage paths limits are within 10 CFR 50 Appendix J Testing Program Plan leakage criteria. Reference to the TS Section 5.5.12 10 CFR 50 Appendix J Testing Program Plan refers directly to the NMP2 AST calculation, which demonstrates that the allowable leak rates found in the current TS Table 3.6.1.3-1 are acceptable. The TS Table 3.6.1.3-1 will be relocated to the Technical Requirements Manual (TRM) and acceptable leakage values will be maintained by the 10 CFR 50 Appendix J Testing Program Plan. Changes to the allowed leak rates and TRM are performed under the 10 CFR 50.59 process.

Attachment 2 to this submittal includes the revised TS and Bases marked-up pages and supersedes the previously submitted Attachment 2 in its entirety.

References:

1. Letter from Kevin J. Nietmann (Nine Mile Point Nuclear Station) to Document Control Desk (U.S. NRC), "License Amendment Request Pursuant to 10 CFR 50.90: Application of Alternate Source Term," dated May 31, 2007 (ML071580314).
2. Letter from Richard V. Guzman (Senior Project Manager, U.S Nuclear Regulatory Commission) to Mr. Keith J. Polson (Nine Mile Point Nuclear Station), "Nine Mile Point Nuclear Station, Unit 2 - Issuance of Amendment RE: Implementation of Alternative Radiological Source Term (TAC NO. MD5758)," dated May 29, 2008 (ML081230439).

ATTACHMENT 2

Mark-Up of Proposed Technical Specification and Bases Pages

TS Pages 3.6.1.3-1, -12, -14 and -15

Bases Pages B3.6.1.3-1 through -3

TRM Pages 3.6-23a and -23b

Secondary Containment Bypass Leakage Valve

DELETE

3.6 CONTAINMENT SYSTEMS

3.6.1.3 Primary Containment Isolation Valves (PCIVs)

LCO 3.6.1.3 Each PCIV and each ~~non-PCIV listed in Table 3.6.1.3-1~~ shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
When associated instrumentation is required to be OPERABLE per LCO 3.3.6.1, "Primary Containment Isolation Instrumentation."

ACTIONS

---------- NOTES ----------

1. Penetration flow paths may be unisolated intermittently under administrative controls.

2. Separate Condition entry is allowed for each penetration flow path.

3. Enter applicable Conditions and Required Actions for systems made inoperable by PCIVs.

4. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when PCIV leakage results in exceeding overall containment leakage rate acceptance criteria.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ----------NOTE---------- Only applicable to penetration flow paths with two or more PCIVs. ---------- One or more penetration flow paths with one PCIV inoperable except due to leakage not within limit.	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. AND	4 hours except for main steam line AND 8 hours for main steam line (continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.6	Perform leakage rate testing for each primary containment purge valve with resilient seals.	184 days AND Once within 92 days after opening the valve
SR 3.6.1.3.7	Verify the isolation time of each MSIV is ≥ 3 seconds and ≤ 5 seconds.	In accordance with the Inservice Testing Program
SR 3.6.1.3.8	Verify each automatic PCIV actuates to the isolation position on an actual or simulated isolation signal.	24 months
SR 3.6.1.3.9	Verify a representative sample of reactor instrumentation line EFCVs actuates to the isolation position on an actual or simulated instrument line break signal.	24 months
SR 3.6.1.3.10	Remove and test the explosive squib from each shear isolation valve of the TIP System.	24 months on a STAGGERED TEST BASIS
SR 3.6.1.3.11	Verify the leakage rate for the secondary containment bypass leakage paths is within the limits of ~~Table 3.6.1.3-1~~ when pressurized to ≥ 40 psig.	In accordance with 10 CFR 50 Appendix J Testing Program Plan

(continued)

the 10 CFR 50 Appendix J Testing Program Plan

DELETE

Table 3.6.1.3-1 (page 1 of 2)
Secondary Containment Bypass Leakage Paths Leakage Rate Limits

VALVE NUMBER	PER VALVE LEAK RATE (SCFH)
2MSS*MOV111 2MSS*MOV112	1.875
2MSS*MOV208	0.625
2CMS*SOV74A, B (d) 2CMS*SOV75A, B (d) 2CMS*SOV76A, B (d) 2CMS*SOV77A, B (d)	0.2344
2DER*MOV119 2DER*RV344	(a)
2DER*MOV120	1.25
2DER*MOV130 2DER*MOV131	0.625
2DFR*MOV120	1.875
2DFR*MOV121 2DFR*RV228	(b)
2DFR*MOV139 2DFR*MOV140	0.9375
2WCS*MOV102 2WCS*MOV112	2.5
2FWS*V23A, B 2FWS*V12A, B	12.0
2CPS*AOV104 2CPS*AOV106	4.38
2CPS*AOV105 2CPS*AOV107	3.75

(continued)

(a) The combined leakage rate for these two valves shall be ≤ 1.25 SCFH.

(b) The combined leakage rate for these two valves shall be ≤ 1.875 SCFH.

The information from this Technical Specification section has been relocated to the TRM and maintained in accordance with the 10 CFR 50 Appendix J Testing Program Plan.

Table 3.6.1.3-1 (page 2 of 2)
Secondary Containment Bypass Leakage Paths Leakage Rate Limits

VALVE NUMBER	PER VALVE LEAK RATE (SCFH)
2CPS*SOV119 2CPS*SOV120 2CPS*SOV121 2CPS*SOV122	0.625
2IAS*SOV164 2IAS*V448	0.9375
2IAS*SOV165 2IAS*V449	0.9375
2GSN*SOV166 2GSN*V170	(c)
2IAS*SOV166 2IAS*SOV184	(c)
2IAS*SOV167 2IAS*SOV185	(c)
2IAS*SOV168 2IAS*SOV180	(c)
2CPS*SOV132 2CPS*V50	(c)
2CPS*SOV133 2CPS*V51	(c)

(c) The combined leak rate for these penetrations shall be ≤ 3.6 SCFH. The assigned leakage rate through a penetration shall be that of the valve with the highest leakage rate in that penetration. However, if a penetration is isolated by one closed and de-activated automatic valve, closed manual valve, or blind flange, the leakage through the penetration shall be the actual pathway leakage.

(d) The LCO requirements and leakage rate limit shall apply until such time as a modification eliminates the potential secondary containment bypass leakage path.

The information from this Technical Specification section has been relocated to the TRM and maintained in accordance with the 10 CFR 50 Appendix J Testing Program Plan.

B 3.6 CONTAINMENT SYSTEMS

B 3.6.1.3 Primary Containment Isolation Valves (PCIVs)

BASES

Secondary Containment Bypass Leakage Valves

DELETE

DELETE

BACKGROUND

The function of the PCIVs and the ~~non-PCIVs listed in Table 3.6.1.3-1 (2CMS*SOV74A, 74B, 75A, 75B, 76A, 76B, 77A, and 77B)~~, in combination with other accident mitigation systems, is to limit fission product release during and following postulated Design Basis Accidents (DBAs) to within limits. Primary containment isolation within the time limits specified for those PCIVs designed to close automatically ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a DBA.

The OPERABILITY requirements for PCIVs help ensure that an adequate primary containment boundary is maintained during and after an accident by minimizing potential paths to the environment. Therefore, the OPERABILITY requirements provide assurance that the primary containment function assumed in the safety analysis will be maintained. These isolation devices consist of either passive devices or active (automatic) devices. Manual valves, de-activated automatic valves secured in their closed position (including check valves with flow through the valve secured), blind flanges (which include plugs and caps as listed in Reference 1), and closed systems are considered passive devices. Check valves, or other automatic valves designed to close without operator action following an accident, are considered active devices. Two barriers in series are provided for each penetration, except for penetrations isolated by excess flow check valves, so that no single credible failure or malfunction of an active component can result in a loss of isolation or leakage that exceeds limits assumed in the safety analysis. One of these barriers may be a closed system.

The 12 and 14 inch primary containment purge valves are PCIVs that are qualified for use during all operational conditions. The 12 and 14 inch primary containment purge valves are normally maintained closed in MODES 1, 2, and 3 to ensure the primary containment boundary is maintained. However, the purge valves may be open when being used for pressure control, inerting, de-inerting, ALARA, or air quality considerations since they are fully qualified.

(continued)

BASES

BACKGROUND (continued)

A two inch bypass line is provided when the primary containment full flow line to the Standby Gas Treatment (SGT) System is isolated.

Secondary Containment Bypass Leakage Valves

APPLICABLE SAFETY ANALYSES

The PCIVs LCO was derived from the assumptions related to minimizing the loss of reactor coolant inventory, and establishing the primary containment boundary during major accidents. As part of the primary containment boundary, PCIV (and ~~non-PCIVs listed in Table 3.6.1.3-1~~) OPERABILITY supports leak tightness of primary containment. Therefore, the safety analysis of any event requiring isolation of primary containment is applicable to this LCO.

DELETE

The DBAs that result in a release of radioactive material for which the consequences are mitigated by PCIVs are a loss of coolant accident (LOCA) and a main steam line break (MSLB) (Refs. 2 and 3). In the analysis for each of these accidents, it is assumed that PCIVs are either closed or function to close within the required isolation time following event initiation. This ensures that potential paths to the environment through PCIVs (including primary containment purge valves) are minimized. Of the events analyzed in References 2 and 3, the LOCA is the most limiting event due to radiological consequences. In addition, the ~~non-PCIVs listed in Table 3.6.1.3-1~~ are also assumed to be closed during the LOCA. The closure time of the main steam isolation valves (MSIVs) is a significant variable from a radiological standpoint. The MSIVs are required to close within 3 to 5 seconds since the 3 second closure time is assumed in the MSIV closure (the most severe overpressurization transient) analysis (Ref. 4) and 5 second closure time is assumed in the MSLB analysis (Ref. 3). Likewise, it is assumed that the primary containment isolates such that release of fission products to the environment is controlled.

Secondary Containment Bypass Leakage Valves

DELETE

The Secondary Containment Bypass Leakage paths leakage rate limits are relocated to the Technical Requirements Manual (TRM) Table 3.6.1-3 and the Alternate Source Term (AST) established leak rate values are maintained in accordance with the 10 CFR 50 Appendix J Testing Program Plan.

The DBA analysis assumes that isolation of the primary containment is complete and leakage terminated, except for the maximum allowable leakage, L_a, prior to fuel damage.

The single failure criterion required to be imposed in the conduct of unit safety analyses was considered in the original design of the primary containment purge valves. Two valves in series on each purge line provide assurance that both the supply and exhaust lines could be isolated even if a single failure occurred.

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

PCIVs satisfy Criterion 3 of Reference 5.

LCO

PCIVs form a part of the primary containment boundary. The PCIV safety function is related to minimizing the loss of reactor coolant inventory and establishing the primary containment boundary during a DBA.

The power operated, automatic isolation valves are required to have isolation times within limits and actuate on an automatic isolation signal. The valves covered by this LCO are listed with their associated stroke times in Ref. 1.

The normally closed manual PCIVs are considered OPERABLE when the valves are closed and blind flanges in place, or open under administrative controls. Normally closed automatic PCIVs, which are required by design (e.g., to meet 10 CFR 50 Appendix R requirements) to be de-activated and closed, are considered OPERABLE when the valve is closed and de-activated. These passive isolation valves and devices are those listed in Reference 1. Purge valves with resilient seals, secondary containment bypass valves, MSIVs, and hydrostatically tested valves must meet additional leakage rate requirements. Other PCIV leakage rates are addressed by LCO 3.6.1.1, "Primary Containment," as Type B or C testing.

Secondary Containment Bypass Leakage Valves

This LCO provides assurance that the PCIVs will perform their designed safety functions to minimize the loss of reactor coolant inventory and establish the primary containment boundary during accidents. In addition, the LCO ensures leakage through the ~~non-PCIVs listed in Table 3.6.1.3-1~~ are within the limits assumed in the accident analysis.

APPLICABILITY

In MODES 1, 2, and 3, a DBA could cause a release of radioactive material to primary containment. In MODES 4 and 5, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, most PCIVs are not required to be OPERABLE and the primary containment purge valves are not required to be normally closed in MODES 4 and 5. Certain valves are required to be OPERABLE, however, to prevent inadvertent reactor vessel draindown. These valves are

(continued)

TRM Table 3.6.1-3 (page 1 of 2)
Secondary Containment Bypass Leakage Paths Leakage Rate Limits

VALVE NUMBER	VALVE DESCRIPTION	PER VALVE LEAK RATE (SCFH)
2MSS*MOV111 2MSS*MOV112	Main steam drain line (inboard)	1.875
2MSS*MOV208	Main steam drain line (outboard)	0.625
2CMS*SOV74A, B (d) 2CMS*SOV75A, B (d) 2CMS*SOV76A, B (d) 2CMS*SOV77A, B (d)	4 Post-accident sampling lines	0.2344
2DER*MOV119 2DER*RV344	Drywell equipment drain lines	(a)
2DER*MOV120		1.25
2DER*MOV130 2DER*MOV131	Drywell equipment vent line	0.625
2DFR*MOV120	Drywell floor drain line	1.875
2DFR*MOV121 2DFR*RV228		(b)
2DFR*MOV139 2DFR*MOV140	Drywell floor vent line	0.9375
2WCS*MOV102 2WCS*MOV112	RWCU line	2.5
2FWS*V23A, B 2FWS*V12A, B	Feedwater line	12.0
2CPS*AOV104 2CPS*AOV106	CPS supply line to drywell	4.38
2CPS*AOV105 2CPS*AOV107	CPS supply line to supp. chamber	3.75

(continued)

(a) The combined leakage rate for these two valves shall be ≤ 1.25 SCFH.

(b) The combined leakage rate for these two valves shall be ≤ 1.875 SCFH.

TRM Markup provided for information only.

TRM Table 3.6.1.3-1 (page 2 of 2)
Secondary Containment Bypass Leakage Paths Leakage Rate Limits

VALVE NUMBER	VALVE DESCRIPTION	PER VALVE LEAK RATE (SCFH)
2CPS*SOV119 2CPS*SOV120 2CPS*SOV121 2CPS*SOV122	CPS supply line to supp. chamber	0.625
2IAS*SOV164 2IAS*V448	Inst. air to ADS accumulators	0.9375
2IAS*SOV165 2IAS*V449	Inst. air to ADS accumulators	0.9375
2GSN*SOV166 2GSN*V170	N2 purge to TIP index mechanism	(c)
2IAS*SOV166 2IAS*SOV184	Inst. air to SRV accumulators	(c)
2IAS*SOV167 2IAS*SOV185	Inst. air to drywell	(c)
2IAS*SOV168 2IAS*SOV180	Inst. air to CPS valve in supp. chamber	(c)
2CPS*SOV132 2CPS*V50	Inst. air to CPS valve in supp. chamber	(c)
2CPS*SOV133 2CPS*V51	Inst. air to CPS valve in supp. chamber	(c)

(c) The combined leak rate for these penetrations shall be ≤ 3.6 SCFH. The assigned leakage rate through a penetration shall be that of the valve with the highest leakage rate in that penetration. However, if a penetration is isolated by one closed and de-activated automatic valve, closed manual valve, or blind flange, the leakage through the penetration shall be the actual pathway leakage.

(d) The LCO requirements and leakage rate limit shall apply until such time as a modification eliminates the potential secondary containment bypass leakage path.

TRM Markup provided for information only.