

10 CFR 50.90
10 CFR 50.91(a)(5)

April 1, 2020

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

Limerick Generating Station, Unit 1
Renewed Facility Operating License No. NPF-39
NRC Docket No. 50-352

SUBJECT: Emergency License Amendment Request
Proposed One-Time Change to Revise Main Steam
Isolation Valve Allowable Leakage Rate Limit

Pursuant to 10 CFR 50.90, "Application for amendment of license or construction permit," Exelon Generation Company, LLC (Exelon), proposes changes to the Technical Specifications (TS), Appendix A of Renewed Facility Operating License No. NPF-39 for Limerick Generating Station (LGS), Unit 1.

The proposed changes would modify LGS Unit 1 TS 3.6.1.2, "Primary Containment Leakage." Specifically, the proposed one-time change would involve the addition of a footnote which would modify LGS TS 3.6.1.2 to revise the allowable leakage rate limit for one main steam isolation valve (MSIV).

Unit 1 is currently in a refueling outage. During the MSIV local leakage rate testing (LLRT) performed on March 31, 2020, three of the outboard MSIVs each exceeded their as-found TS maximum allowable limit for one valve. Two of the MSIVs are being repaired during this outage. The requested TS amendment supports deferral of repairs on the remaining MSIV until the next Unit 1 refueling outage (Li1R19). The proposed changes are being requested on an emergency basis pursuant to 10 CFR 50.91(a)(5).

Emergency circumstances are present in that the Centers for Disease Control has issued recommendations advising "social distancing" or sequestering staff to prevent the spread of the COVID-19 Virus. The nature of the MSIV repair is in conflict with the recommendations in that it requires technicians to be in constant proximity to each other in a hot environment that increases the likelihood of individuals contracting COVID-19 and potentially inducing a rapid spread. Losing resources due to a virus spread would cause a situation where the proper technical knowledge would not be available to satisfactorily complete this work (minimal 14-day isolation and likely to be more than one individual based on having to work in close proximity for the work). Additionally, if a valve seat replacement is needed it would require pre- and post-heat treatment which could require out of state vendors, which may not be able to travel based on individual state restrictions on travel. This leaves the possibility of not being

Emergency License Amendment Request
Proposed One-Time Change to Revise
MSIV Allowable Leakage Rate Limit
Docket No. 50-352
April 1, 2020
Page 2

able to properly repair the valve once disassembled due to the likelihood of having to swap out specialty technicians with little or no notice.

As a result of the current pandemic situation, removing some conservatism from the current TS allowable limit to allow deferral of the repair until the next Unit 1 refueling outage has been determined to involve less risk than performing the repair under the current situation. The above circumstances were beyond the ability of Exelon to foresee and avoid. Accordingly, Exelon is requesting approval of this amendment request on an emergency basis.

Exelon requests approval of the proposed amendment by April 10, 2020. Upon NRC approval, the amendment shall be implemented within 2 days of issuance.

Evaluation of the proposed change is provided in Attachment 1. Markups of the proposed TS changes are provided in Attachment 2.

Exelon has concluded that the proposed change presents no significant hazards consideration under the standards set forth in 10 CFR 50.92.

This amendment request contains no regulatory commitments.

The proposed change has been reviewed and recommended for approval by the Plant Operations Review Committee in accordance with the Exelon Quality Assurance Program.

In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b), Exelon is notifying the Commonwealth of Pennsylvania of this emergency application for license amendment by transmitting a copy of this letter and its attachments to the designated State Official.

If you have any questions or require additional information, please contact Glenn Stewart at 610-765-5529.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 1st day of April 2020.

Respectfully,



David P. Helker
Sr. Manager, Licensing
Exelon Generation Company, LLC

Attachments: 1. Evaluation of Proposed Change
 2. Proposed Technical Specifications Markup Pages

Emergency License Amendment Request
Proposed One-Time Change to Revise
MSIV Allowable Leakage Rate Limit
Docket No. 50-352
April 1, 2020
Page 3

cc:	USNRC Region I, Regional Administrator	w/ attachments
	USNRC Project Manager, LGS	"
	USNRC Senior Resident Inspector, LGS	"
	Director, Bureau of Radiation Protection - Pennsylvania Department of Environmental Protection	"

ATTACHMENT 1

Emergency License Amendment Request

Limerick Generating Station, Unit 1

Docket No. 50-352

EVALUATION OF PROPOSED CHANGES

Subject: Proposed One-Time Change to Revise Main Steam Isolation Valve Allowable Leakage Rate Limit

- 1.0 SUMMARY DESCRIPTION**
- 2.0 DETAILED DESCRIPTION**
- 3.0 TECHNICAL EVALUATION**
- 4.0 REGULATORY EVALUATION**
 - 4.1 Applicable Regulatory Requirements/Criteria**
 - 4.2 Precedent**
 - 4.3 No Significant Hazards Consideration**
 - 4.4 Conclusions**
- 5.0 ENVIRONMENTAL CONSIDERATION**
- 6.0 REFERENCES**

1.0 SUMMARY DESCRIPTION

Pursuant to 10 CFR 50.90, "Application for amendment of license or construction permit," Exelon Generation Company, LLC (Exelon), proposes a one-time change to the Technical Specifications (TS), Appendix A of Renewed Facility Operating License No. NPF-39 for Limerick Generating Station (LGS), Unit 1.

The proposed changes would modify TS for LGS Unit 1 associated with TS 3.6.1.2, "Primary Containment Leakage." Specifically, the proposed one-time change would involve the addition of a footnote which would modify LGS TS 3.6.1.2 to revise the allowable leakage rate limit for one main steam isolation valve (MSIV). This one-time change would be for the next LGS Unit 1 operating cycle (Cycle 19) which is scheduled to end in April 2022.

The Centers for Disease Control has issued recommendations advising "social distancing" or sequestering staff to prevent the spread of the COVID-19 Virus. The nature of the MSIV repair is in conflict with the recommendations in that it requires technicians to be in constant proximity to each other in a hot environment that increases the likelihood of individuals contracting COVID-19 and potentially inducing a rapid spread. Losing resources due to a virus spread would cause a situation where the proper technical knowledge would not be available to satisfactorily complete this work (minimal 14-day isolation and likely to be more than one individual based on having to work in close proximity for the work). Additionally, a valve seat replacement would require pre- and post-heat treatment which could require out of state vendors, which may not be able to travel based on individual state restrictions on travel. This leaves the possibility of not being able to properly repair the valve once disassembled due to the likelihood of having to swap out specialty technicians with little or no notice.

As a result of the current pandemic situation, removing some conservatism from the current TS allowable limit to allow deferral of the repair until the next Unit 1 refueling outage has been determined to involve less risk than performing the repair under the current situation.

The proposed change in MSIV leak rate limits was evaluated for impacts associated with 10 CFR 50.67 and 10 CFR 50.49 compliance. The conclusion of the evaluation is that the current design bases remain bounding for the proposed change

Markups of the proposed TS changes are provided in Attachment 2.

2.0 DETAILED DESCRIPTION

The four main steam lines, which penetrate the drywell, are automatically isolated by the MSIVs. There are two MSIVs on each steam line, one inside containment (i.e., inboard) and one outside containment (i.e., outboard). The MSIVs are functionally part of the primary containment boundary and leakage through these valves provides a potential leakage path for fission products to bypass secondary containment and enter the environment as a ground level release.

As a result of MSIV local leak rate testing (LLRT) during the current Limerick Unit 1 refueling outage (Li1R18), three of the outboard MSIVs each exceeded the 100 scfh limit for leakage rate through one MSIV in accordance with TS 3.6.1.2. Two of the MSIVs are being repaired during

the current outage. Postponing repair of the third MSIV would provide a dose savings, would reduce the outage duration, and would reduce required resources which would help reduce the impact of COVID-19.

The following changes are proposed to TS 3.6.1.2 as noted below and in the TS markups provided in Attachment 2:

TS 3.6.1.2, Item c. is modified with the addition of asterisks to read:

*Less than or equal to 100** scf per hour through any one main steam isolation valve not to exceed 200 scf per hour for all four main steam lines, when tested at P_t ,

TS 3.6.1.2, Action c is modified with the addition of asterisks to read:

With:

The measured leakage rate exceeding 100** scf per hour through any one main steam isolation valve, or exceeding 200 scf per hour for all four main steam lines,

and

restore:

The leakage rate to $\leq 100^{**}$ scf per hour for any main steam isolation valve that exceeds 100** scf per hour, and restore the combined maximum pathway leakage to ≤ 200 scf per hour,

The following footnote is added to TS 3.6.1.2 as noted below:

**** During Unit 1 Cycle 19, one main steam isolation valve may exceed 100 scf per hour provided the leakage is less than or equal to 105 scf per hour.**

3.0 TECHNICAL EVALUATION

The proposed change in MSIV leak rate limits was evaluated for impacts associated with 10 CFR 50.67 and 10 CFR 50.49 compliance. The conclusion of the evaluation is that the current design bases remain bounding for the proposed change. The following discussion provides a summary of the evaluation.

Alternative Source Term (AST) Loss of Coolant Accident (LOCA) Dose

The current AST LOCA analysis of record is consistent with the previous analysis submitted for the Limerick AST amendment (ADAMS Accession Nos. ML061780046 and ML061780047). The analysis models leakage through two of the four main steam lines, one of which is considered to be faulted. The leakage rate modeled in the current analysis of record is 100 scfh in each of the two modeled lines.

The proposed change would redistribute the leakage to 105 scfh in the first (faulted) line and 95 scfh in the second line. Given the ruptured line has less volume modeled due to the assumed fault, the slight increase of 5 scfh would result in a slightly larger dose than the corresponding decrease in dose in the second line afforded by the 5 scfh decrease in leakage. Overall, it

would be expected that the total dose from all MSIV leakage would increase slightly in this scenario.

The slight increase is compensated by many inherent margins in the analysis. In this case, the conservatism associated with neglecting the holdup and deposition in the two steam lines not modeled would compensate. If all four lines are included in the model, the leak rate associated with the non-faulted lines is reduced to 1/3 of the 95 scfh discussed above. This large reduction in volumetric flow rate will amplify the holdup and deposition, which in turn will substantially lower the dose consequences associated with the non-faulted steam lines. Overall, it is expected that with four lines modeled, the total MSIV dose will be less than the analysis of record. Therefore, there is reasonable assurance that the dose limits prescribed by 10 CFR 50.67 will continue to be met.

Environmental Qualification (EQ)

The EQ program has been evaluated for both chemical-mechanical and radiological impacts from MSIV leakage. The High Energy Line Break (HELB) scenario evaluated significantly more moisture and heat deposition on the equipment than the MSIV leakage would impose. The zone radiation calculations already incorporate a lumped leakage rate of 200 scfh. Therefore, there is no impact to the EQ program from MSIV leakage as long as the total leak rate does not exceed 200 scfh.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

The evaluation of the loss of coolant accident (LOCA) radiological dose analysis is performed in accordance with the Alternative Source Term methodology which has been established as the licensing basis for this accident. The regulatory requirements provided in 10 CFR 50.67 and guidance in Regulatory Guide 1.183 and Standard Review Plan 15.0.1 are used in the evaluation. The conclusion of the evaluation is that the current design bases remain bounding for the proposed change.

The evaluation of the environmental qualification (EQ) design impacts is performed in accordance with the methodology which has been established in the current analyses of record. The regulatory requirements provided in 10 CFR 50.49 are used in the evaluation. The conclusion of the evaluation is that the current design bases remain bounding for the proposed change.

4.2 Precedent

None

4.3 No Significant Hazards Consideration

Pursuant to 10 CFR 50.90, "Application for amendment of license or construction permit," Exelon Generation Company, LLC (Exelon), proposes a one-time change to the Technical

Specifications (TS), Appendix A of Renewed Facility Operating License No. NPF-39 for Limerick Generating Station (LGS), Unit 1. The proposed one-time change would involve the addition of a footnote which would modify LGS TS 3.6.1.2 to revise the allowable leakage rate limit for one main steam isolation valve (MSIV).

Exelon has evaluated whether a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

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

Response: No.

The increase in the leakage rate limit of one MSIV has been assessed against the radiological consequence analysis of the Loss of Coolant Accident (LOCA). Based on the results of the assessment, it has been demonstrated that, with the requested change, the dose consequences of the currently approved LOCA analysis remain bounding and are within the acceptance criteria provided by the NRC for use with the Alternative Source Term (AST) methodology in 10 CFR 50.67.

The proposed change to the MSIV leakage limit does not involve a physical change to any plant structure, system, or component. As a result, no new failure modes of the MSIVs have been introduced.

The proposed change does not affect the normal design or operation of the facility before the accident; rather, it affects leakage limit assumptions that constitute inputs to the evaluation of the consequences. The radiological consequences of the analyzed LOCA have been evaluated using the plant licensing basis for this accident. The evaluation concludes that the currently approved LOCA analysis bounds the proposed Technical Specification change. Adequate margin to the regulatory limits specified in 10 CFR 50.67 for control room and offsite doses is still available.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

Response: No.

The change in the MSIV leakage rate limits does not affect the design, functional performance, or normal operation of the facility. Similarly, it does not affect the design or operation of any component in the facility such that new equipment failure modes are created. This is supported by operating experience at other Exelon sites that have increased their MSIV leakage limits. As such, the proposed change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

In addition, the proposed change to TS 3.6.1.2 does not alter the protection system design, create new failure modes, or change any modes of operation. The proposed change does not involve a physical alteration of the plant; and no new or different kind of equipment will be installed. Consequently, there are no new initiators that could result in a new or different kind of accident.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

This proposed license amendment involves changes in the MSIV leakage rate limits. The MSIV leakage rate limits are used in the analysis of the LOCA radiological consequences. The analysis has been performed using conservative methodologies. Safety margins and analytical conservatisms have been evaluated and have been found to adequately address the effects of the proposed MSIV leakage limits. The analyzed LOCA event has been carefully selected and margin has been retained to ensure that the analysis adequately bounds the postulated event scenario. The dose consequences of this limiting event are within the acceptance criteria presented in 10 CFR 50.67 for control room operator and offsite doses. The margin of safety is that provided by meeting the applicable regulatory limits.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, Exelon 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.

4.4 Conclusions

In conclusion, based on the considerations discussed above, (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.

5.0 ENVIRONMENTAL CONSIDERATION

The proposed change would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed change does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in

the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed change.

6.0 REFERENCES

None

ATTACHMENT 2

Emergency License Amendment Request

**Limerick Generating Station, Unit 1
Docket No. 50-352**

**Proposed One-Time Change to Revise Main Steam
Isolation Valve Allowable Leakage Rate Limit**

Proposed Technical Specifications Markup Pages

Unit 1 TS Pages

3/4 6-2

3/4 6-3

CONTAINMENT SYSTEMS

PRIMARY CONTAINMENT LEAKAGE

LIMITING CONDITION FOR OPERATION

- 3.6.1.2 Primary containment leakage rates shall be limited to:
- a. An overall integrated leakage rate (Type A Test) in accordance with the Primary Containment Leakage Rate Testing Program.
 - b. A combined leakage rate in accordance with the Primary Containment Leakage Rate Testing Program for all primary containment penetrations and all primary containment isolation valves that are subject to Type B and C tests, except for: main steam line isolation valves*, valves which are hydrostatically tested, and those valves where an exemption to Appendix J of 10 CR 50 has been granted..
 - c. *Less than or equal to 100** scf per hour through any one main steam isolation valve not to exceed 200 scf per hour for all four main steam lines, when tested at P_t , 22.0 psig.
 - d. A combined leakage rate of less than or equal to 1 gpm times the total number of containment isolation valves in hydrostatically tested lines which penetrate the primary containment, when tested at 1.10 P_a , 48.4 psig.

APPLICABILITY: When PRIMARY CONTAINMENT INTEGRITY is required per Specification 3.6.1.1.

ACTION:

With:

- a. The measured overall integrated primary containment leakage rate (Type A Test) exceeding the leakage rate specified in the Primary Containment Leakage Rate Testing Program, or
- b. The measured combined leakage rate exceeding the leakage rate specified in the Primary Containment Leakage Rate Testing Program for all primary containment penetrations and all primary containment isolation valves that are subject to Type B and C tests, except for: main steam line isolation valves*, valves which are hydrostatically tested, and those valves where an exemption to Appendix J of 10 CFR 50 has been granted, or
- c. The measured leakage rate exceeding 100** scf per hour through any one main steam isolation valve, or exceeding 200 scf per hour for all four main steam lines, or
- d. The measured combined leakage rate for all containment isolation valves in hydrostatically tested lines which penetrate the primary containment exceeding 1 gpm times the total number of such valves,

restore:

- a. The overall integrated leakage rate(s) (Type A Test) to be in accordance with the Primary Containment Leakage Rate Testing Program, and

*Exemption to Appendix J of 10 CFR Part 50.

**During Unit 1 Cycle 19, one main steam isolation valve may exceed 100 scf per hour provided the leakage is less than or equal to 105 scf per hour.

CONTAINMENT SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

- b. The combined leakage rate to be in accordance with the Primary Containment Leakage Rate Testing Program for all primary containment penetrations and all primary containment isolation valves that are subject to Type B and C tests, except for: main steam line isolation valves*, valves which are hydrostatically tested, and those valves where an exemption to Appendix J of 10 CFR 50 has been granted, and
- c. The leakage rate to $\leq 100^{**}$ scf per hour for any main steam isolation valve that exceeds 100** scf per hour, and restore the combined maximum pathway leakage to ≤ 200 scf per hour, and
- d. The combined leakage rate for all containment isolation valves in hydrostatically tested lines which penetrate the primary containment to less than or equal to 1 gpm times the total number of such valves,

prior to increasing the reactor coolant system temperature above 200°F.

SURVEILLANCE REQUIREMENTS

- 4.6.1.2 The primary containment leakage rates shall be demonstrated to be in accordance with the Primary Containment Leakage Rate Testing Program, or approved exemptions, for the following:
- a. Type A Test
 - b. Type B and C Tests (including air locks)
 - c. Main Steam Line Isolation Valves
 - d. Hydrostatically tested Containment Isolation Valves

* Exemption to Appendix "J" to 10 CFR Part 50.

**During Unit 1 Cycle 19, one main steam isolation valve may exceed 100 scf per hour provided the leakage is less than or equal to 105 scf per hour.