



10 CFR 50.90

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U.S. Nuclear Regulatory Commission
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Limerick Generating Station, Units 1 and 2
Renewed Facility Operating License Nos. NPF-39 and NPF-85
NRC Docket Nos. 50-352 and 50-353

Subject: License Amendment Request – Proposed Relocation of Chlorine and Toxic Gas Detection System Technical Specifications

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Exelon Generation Company, LLC (Exelon), proposes changes to the Technical Specifications (TS), Appendix A of Renewed Facility Operating License Nos. NPF-39 and NPF-85 for Limerick Generating Station (LGS), Units 1 and 2, respectively.

The proposed changes relocate the following operability and surveillance requirements from the LGS TS to the LGS Technical Requirements Manual (TRM):

- TS Section 3.3.7.8.1, "Chlorine Detection System," and
- TS Section 3.3.7.8.2, "Toxic Gas Detection System."

Associated with the relocation of the Chlorine Detection System requirements, Surveillance Requirement 4.7.2.1.e.2, that requires verifying that the Control Room Emergency Fresh Air System automatically switches to the chlorine isolation mode upon a chlorine actuation signal (provided by the Chlorine Detection System), is proposed to be relocated to the TRM in conjunction with the relocated Chlorine Detection System instrumentation requirements.

The proposed changes conform to the requirements of 10 CFR 50.36, "Technical specifications," for the contents of TS, and are consistent with the improved Standard Technical Specifications issued by the NRC in NUREG-1433, "Standard Technical Specifications – General Electric BWR/4 Plants."

Exelon has concluded that the proposed changes present no significant hazards consideration under the standards set forth in 10 CFR 50.92, "Issuance of amendment."

The proposed changes have been reviewed by the LGS Plant Operations Review Committee in accordance with the requirements of the Exelon Quality Assurance Program.

ATTACHMENT 1

License Amendment Request

Limerick Generating Station, Units 1 and 2

Docket Nos. 50-352 and 50-353

EVALUATION OF PROPOSED CHANGES

**Subject: Proposed Relocation of Chlorine and Toxic Gas Detection System
Technical Specifications**

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1.0 SUMMARY DESCRIPTION

Pursuant to 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Exelon Generation Company, LLC (Exelon), proposes changes to the Technical Specifications (TS), Appendix A of Renewed Facility Operating License Nos. NPF-39 and NPF-85 for Limerick Generating Station (LGS), Units 1 and 2, respectively.

The proposed changes relocate the following operability and surveillance requirements from the LGS TS to the LGS Technical Requirements Manual (TRM):

- TS Section 3.3.7.8.1, "Chlorine Detection System," and
- TS Section 3.3.7.8.2, "Toxic Gas Detection System."

In accordance with LGS Updated Final Safety Analysis Report (UFSAR), Section 13.5.3 (Reference 1), the TRM is a licensee-controlled procedure described in the UFSAR and, therefore, changes to the TRM are subject to the requirements of 10 CFR 50.59, "Changes, tests and experiments." Accordingly, any future changes to Chlorine Detection System and Toxic Gas Detection System operability and surveillance requirements will be controlled in accordance with the requirements of 10 CFR 50.59.

Associated with the relocation of the Chlorine Detection System requirements, Surveillance Requirement (SR) 4.7.2.1.e.2, that requires verifying that the Control Room Emergency Fresh Air System (CREFAS) automatically switches to the chlorine isolation mode upon a chlorine actuation signal (provided by the Chlorine Detection System), is proposed to be relocated to the TRM in conjunction with the relocated Chlorine Detection System instrumentation requirements.

The proposed changes conform to the requirements of 10 CFR 50.36, "Technical specifications" (Reference 2), for the contents of TS, and are consistent with the improved Standard Technical Specifications issued by the NRC in NUREG-1433, "Standard Technical Specifications – General Electric BWR/4 Plants" (Reference 3).

2.0 DETAILED DESCRIPTION

The NRC provided guidance for the contents of TS in its "Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors" (58 FR 39132, July 22, 1993; Reference 4). In particular, the NRC indicated that certain items could be relocated from the TS to licensee-controlled documents. The Final Policy Statement identified future criteria to be used in determining whether particular safety functions are required to be included in the TS. The NRC subsequently adopted an amendment to 10 CFR 50.36, "Technical specifications," (60 FR 36953, July 19, 1995; Reference 5) to codify and incorporate these criteria. The criteria are restated below.

Criterion 1: Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.

- Criterion 2: A process variable, design feature, or operating restriction that is an initial condition of a Design Basis Accident or Transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.
- Criterion 3: A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a Design Basis Accident or Transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.
- Criterion 4: A structure, system, or component which operating experience or probabilistic safety assessment has shown to be significant to public health and safety.

The NRC policy statement provides that those existing TS requirements which do not satisfy these four specified criteria may be relocated to licensee-controlled documents, such that future changes could be made to these provisions pursuant to 10 CFR 50.59. In accordance with LGS UFSAR Section 13.5.3 (Reference 1), the TRM is a licensee-controlled procedure described in the UFSAR and, therefore, changes to the TRM are subject to the requirements of 10 CFR 50.59. Accordingly, any future changes to Chlorine Detection System and Toxic Gas Detection System operability and surveillance requirements will be controlled by 10 CFR 50.59.

Additionally, the nuclear steam supply system owners' groups and the NRC staff developed improved Standard Technical Specifications (STS) that established models of the Commission's policy for each primary reactor type. The NRC issued the improved STS for General Electric BWR/4 plants as NUREG-1433, which was developed utilizing the guidance and criteria in the Commission's policy statement.

The changes requested by this amendment application, based on the criteria specified in the NRC Final Policy Statement, the requirements of 10 CFR 50.36 and the guidance provided in NUREG-1433, are described below.

1. TS Index, page ix for LGS, Units 1 and 2, under Section 3/4.3.7, "Monitoring Instrumentation," will be revised to replace the titles "Chlorine Detection System" and "Toxic Gas Detection System," with words "Deleted; refer to note on page."
2. TS Section 3.3.7.8.1, on TS page 3/4 3-90 for LGS, Units 1 and 2, will be deleted in its entirety. Page 3/4 3-90 will indicate "Section 3/4.3.7.8.1 (Deleted)," and will state that the information from this TS section has been relocated to the TRM.
3. TS Section 3.3.7.8.2, on TS page 3/4 3-91 for LGS, Units 1 and 2, will be deleted in its entirety. Page 3/4 3-91 will indicate "Section 3/4.3.7.8.2 (Deleted)," and will state that the information from this TS section has been relocated to the TRM.
4. TS Section 3.7.2 on TS page 3/4 7-8 for LGS, Units 1 and 2, will be revised to replace the SR 4.7.2.1.e.2 text with the phrase "Relocated to the TRM."

The marked-up pages that reflect the proposed changes are provided in Attachment 2 (TS pages) and Attachment 3 (TS Bases pages - information only). Prior to implementation of the amendment, relocated requirements for the Chlorine Detection System and Toxic Gas Detection System will be incorporated into the LGS TRM as indicated above. Any subsequent changes to

the LGS TRM requirements will be performed in accordance with 10 CFR 50.59 and station procedures.

3.0 TECHNICAL EVALUATION

The proposed license amendment relocates the Chlorine Detection System and Toxic Gas Detection System operability and surveillance requirements and Surveillance Requirement 4.7.2.1.e.2, that requires verifying that the Control Room Emergency Fresh Air System (CREFAS) automatically switches to the chlorine isolation mode upon a chlorine actuation signal (provided by the Chlorine Detection System), from the LGS TS to the LGS TRM. In accordance with LGS UFSAR, Section 13.5.3, the TRM is a licensee-controlled document with changes controlled as a procedure described in the LGS UFSAR and, therefore, changes are subject to the requirements of 10 CFR 50.59. The TRM has been used to capture and control other previously relocated TS requirements.

As discussed previously, the NRC concluded that those existing TS requirements which do not satisfy the screening criteria specified in 10 CFR 50.36 may be deleted from the TS, and the requirements established in licensee-controlled documents that are subject to the controls of 10 CFR 50.59.

An assessment of the subject Chlorine and Toxic Gas Detection Systems and the Chlorine Isolation Mode of CREFAS against the four criteria of 10 CFR 50.36 is provided below.

The Chlorine and Toxic Gas Detection Systems ensure that an accidental chlorine and/or toxic gas release will be detected promptly, and the necessary protective actions will be automatically initiated for chlorine and manually initiated for toxic gas to provide protection for control room personnel. Upon detection of a high concentration of chlorine, the control room emergency ventilation system will automatically be placed in the chlorine isolation mode of operation to provide the required protection. Upon detection of a high concentration of toxic gas, the control room emergency ventilation system will manually be placed in the chlorine isolation mode of operation to provide the required protection. The detection systems are consistent with the recommendations of Regulatory Guide 1.95, "Protection of Nuclear Power Plant Control Room Operators against an Accidental Chlorine Release," February 1975.

Criterion 1: Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.

This criterion addresses instrumentation installed to detect excessive reactor coolant system (RCS) leakage. LGS TS Sections 3.3.7.8.1, 3.3.7.8.2, and SR 4.7.2.1.e.2 do not cover installed instrumentation that is used to detect and indicate in the control room, a significant degradation of the reactor coolant pressure boundary. The Chlorine and Toxic Gas Detection Systems ensure that an accidental chlorine and/or toxic gas release will be detected promptly, and the necessary protective actions will be automatically initiated for chlorine and manually initiated for toxic gas to provide protection for control room personnel. Therefore, the Chlorine Detection System, Toxic Gas Detection System, and Chlorine Isolation Mode of CREFAS do not satisfy Criterion 1.

Criterion 2: A process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

The purpose of this criterion is to capture those process variables that have initial values assumed in the design basis accident and transient analyses, and that are monitored and controlled during power operation. This criterion also includes active design features (e.g., high-pressure/low-pressure system valves and interlocks) and operating restrictions (pressure/temperature limits) needed to preclude unanalyzed accidents and transients.

The Chlorine and Toxic Gas Detection Systems ensure that an accidental chlorine and/or toxic gas release will be detected promptly, and the necessary protective actions will be automatically initiated for chlorine and manually initiated for toxic gas to provide protection for control room personnel. These detection systems do not involve process variables that have initial values assumed in the design basis accident and transient analyses, and that are monitored and controlled during power operation. Therefore, the Chlorine Detection System, Toxic Gas Detection System, and Chlorine Isolation Mode of CREFAS do not satisfy Criterion 2.

Criterion 3: A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

The purpose of this criterion is to capture only those structures, systems, and components that are part of the primary success path of the safety analysis (an examination of the actions required to mitigate the consequences of the design basis accident and transients). The primary success path of a safety analysis consists of the combinations and sequences of equipment needed to operate so that the plant response to the design basis accident and the transients limits the consequences of these events to within the appropriate acceptance criteria. Also captured by this criterion are those support and actuation systems that are necessary for items in the primary success path to successfully function, but the criterion does not include backup and diverse equipment.

The Chlorine and Toxic Gas Detection Systems ensure that an accidental chlorine and/or toxic gas release will be detected promptly, and the necessary protective actions will be automatically initiated for chlorine and manually initiated for toxic gas to provide protection for control room personnel. These detection systems do not function or actuate to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. Therefore, the Chlorine Detection System, Toxic Gas Detection System, and Chlorine Isolation Mode of CREFAS do not satisfy Criterion 3.

Criterion 4: A structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety.

The purpose of this criterion is to capture only those structures, systems, and components that operating experience or probabilistic risk assessment has shown to be significant to public health and safety.

The Chlorine and Toxic Gas Detection Systems ensure that an accidental chlorine and/or toxic gas release will be detected promptly, and the necessary protective actions will be automatically initiated for chlorine and manually initiated for toxic gas to provide protection for control room personnel. The Chlorine Detection System, Toxic Gas Detection System, and Chlorine Isolation Mode of CREFAS are not a structure, system, or component that operating experience or probabilistic risk assessment has shown to be significant to public health and safety.

A review of industry operating experience did not produce any examples where the failure of the Chlorine Detection System, Toxic Gas Detection System, and Chlorine Isolation Mode of CREFAS had a significant adverse effect on public health and safety.

In the Severe Accident Risk Assessment (SARA) for LGS submitted to the NRC in 1983 (Reference 6), toxic releases were included as a hazard group. The scope included the chemicals monitored by the toxic gas and chlorine detectors. This included the onsite storage of chlorine gas and vinyl chloride from a nearby chemical plant in the scope of the hazard. The results of that analysis showed that the core damage risk was $6.3E-08$ (Section 7.1.7 of Reference 6). This is less than the other analyzed hazards groups (i.e., internal events, internal flooding, seismic and fire), and thus, would not be considered significant to public health and safety.

The review of the SARA by the NRC in NUREG/CR-3493 (Reference 7) was limited to seismic and fire hazard groups because they are the dominant contributors to risk. This reinforces that the environmental hazards monitored by the toxic gas and chlorine detection systems are not a significant contributor to risk.

Since the time of the SARA report, the site has ceased using gaseous chlorine for water treatment and the fixed offsite source (Hooker Chemical in the SARA) has ceased operation, further reducing the contribution to risk by these systems.

In addition, the Chlorine Detection System, Toxic Gas Detection System, and Chlorine Isolation Mode of CREFAS are not modeled in the LGS probabilistic risk assessment.

Therefore, the Chlorine Detection System, Toxic Gas Detection System, and Chlorine Isolation Mode of CREFAS do not satisfy Criterion 4.

The requirements contained in the TS Sections 3.3.7.8.1, 3.3.7.8.2 and TS SR 4.7.2.1.e.2 do not meet any of the 10 CFR 50.36(c)(2)(ii) criteria for items that must be in the TS. In addition, NUREG-1433 identifies improved TS that were developed based on the screening criteria in the "Final Commission Policy Statement on Technical Specifications Improvement for Nuclear Power Reactors," that were subsequently codified in 10 CFR 50.36. NUREG-1433 does not contain any operability or surveillance requirements for the Chlorine or Toxic Gas Detection Systems or the Chlorine Isolation Mode of the Main Control Room Environmental Control System.

The proposed changes do not alter the physical design of any plant structure, system, or component; therefore, the proposed changes have no adverse effect on plant operation, or the availability or operation of any accident mitigation equipment. The plant response to the design

basis accidents does not change. The proposed changes do not require any new or unusual operator actions. The proposed changes do not introduce any new failure modes that could result in a new accident. There is no change being made to safety analysis assumptions, safety limits or limiting safety system settings that would adversely affect plant safety as a result of the proposed changes.

Therefore, the Chlorine Detection System and Toxic Gas Detection System operability and surveillance requirements, and the Surveillance Requirement for testing actuation of the Chlorine Isolation Mode of CREFAS, may be relocated to the TRM.

TS Bases Sections B 3/4.3.7.8

The TS Bases for the Chlorine Detection System (TS Section 3/4.3.7.8.1) and the Toxic Gas Detection System (TS Section 3/4.3.7.8.2) contained in TS Bases Section B 3/4.3.7.8, "Chlorine and Toxic Gas Detection Systems," will be relocated to the TRM. Changes to the TRM will be made to reflect the proposed changes to the respective TS. The marked up TS Bases pages that reflect the proposed changes are provided in Attachment 3 for information purposes only.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

The NRC provided guidance for the contents of TS in its "Final Policy Statement on Technical Specifications Improvement for Nuclear Power Reactors" (58 FR 39132, July 22, 1993). In particular, the NRC indicated that certain items could be relocated from the TS to licensee-controlled documents and identified criteria to be used to determine the functions to be included in the TS. The NRC adopted revisions to 10 CFR 50.36 to codify and incorporate these criteria.

Section 50.36c(2)(ii) of Title 10 of the Code of Federal Regulations (10 CFR 50.36c(2)(ii)) contains the requirements for items that must be in TS. This regulation provides the four criteria that can be used to determine the requirements that must be included in the TS. A TS limiting condition for operation (LCO) of a nuclear reactor must be established for each item meeting one or more of the following criteria:

- Criterion 1: Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.
- Criterion 2: A process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.
- Criterion 3: A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

Criterion 4: A structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety.

Items not meeting any of these four criteria can be relocated from the TS to a licensee-controlled document. The licensee can then change the relocated requirements, if necessary, in accordance with 10 CFR 50.59.

The NRC published improved Standard Technical Specifications in NUREG-1433. The TS requirements proposed for relocation do not meet the four screening criteria, and therefore, are not included in NUREG-1433. Operability and surveillance requirements for the Chlorine Detection System and Toxic Gas Detection System and SR 4.7.2.1.e.2 will be maintained in a licensee-controlled document (i.e., the LGS TRM), such that future changes could be made to these provisions pursuant to 10 CFR 50.59.

4.2 Precedence

A similar change, to relocate the operability and surveillance requirements for the Chemical Detection Systems from TS to a licensee-controlled document, was approved by the NRC by issuance of Amendment Nos. 76 and 65 for South Texas Project, Units 1 and 2, respectively, by letter dated July 6, 1995 (Reference 8).

4.3 No Significant Hazards Consideration

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Exelon Generation Company, LLC (Exelon), proposes changes to the Technical Specifications (TS), Appendix A of the Renewed Facility Operating License Nos. NPF-39 and NPF-85 for Limerick Generating Station (LGS), Units 1 and 2, respectively.

The proposed changes relocate certain operability and surveillance requirements for the Chlorine Detection System and Toxic Gas Detection System and Surveillance Requirement 4.7.2.1.e.2, that requires verifying that the Control Room Emergency Fresh Air System automatically switches to the chlorine isolation mode upon a chlorine actuation signal (provided by the Chlorine Detection System), from the LGS TS to a licensee-controlled document.

The proposed changes conform to the requirements of 10 CFR 50.36, "Technical specifications," for the contents of TS, and are consistent with the improved Standard Technical Specifications issued by the NRC in NUREG-1433, "Standard Technical Specifications – General Electric BWR/4 Plants."

Exelon has evaluated the proposed changes, using the criteria in 10 CFR 50.92, "Issuance of amendment," and has 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 changes do not alter the physical design of any plant structure, system, or component; therefore, the proposed changes have no adverse effect on plant operation, or the availability or operation of any accident mitigation equipment. The plant response to the design basis accidents does not change. Operation or failure of the Chlorine Detection System and the Toxic Gas Detection System are not assumed to be initiators of any analyzed event in the Updated Final Safety Analysis Report (UFSAR) and cannot cause an accident. Whether the requirements for the Chlorine Detection System and the Toxic Gas Detection System are in TS or another licensee-controlled document has no effect on the probability or consequences of any accident previously evaluated.

Therefore, the proposed changes do not involve 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 do not alter the plant configuration (no new or different type of equipment is being installed) or require any new or unusual operator actions. The proposed changes do not alter the safety limits or safety analysis assumptions associated with the operation of the plant. The proposed changes do not introduce any new failure modes that could result in a new accident. The proposed changes do not reduce or adversely affect the capabilities of any plant structure, system, or component in the performance of their safety function. Also, the response of the plant and the operators following the design basis accidents is unaffected by the proposed changes.

Therefore, the proposed changes do 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 have no adverse effect on plant operation, or the availability or operation of any accident mitigation equipment. The plant response to the design basis accidents does not change. The proposed changes do not adversely affect existing plant safety margins or the reliability of the equipment assumed to operate in the safety analyses. There is no change being made to safety analysis assumptions, safety limits or limiting safety system settings that would adversely affect plant safety as a result of the proposed changes.

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

Based on the above evaluation, Exelon concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92, paragraph (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 the health and safety of the public.

5.0 ENVIRONMENTAL CONSIDERATION

Exelon has determined that the proposed amendment 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, "Standards for Protection Against Radiation." However, the proposed amendment does not involve: (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22, "Criterion for categorical exclusion; identification of licensing and regulatory actions eligible for categorical exclusion or otherwise not requiring environmental review," paragraph (c)(9). Therefore, pursuant to 10 CFR 51.22, paragraph (b), no environmental impact statement or environmental assessment needs to be prepared in connection with the proposed amendment.

6.0 REFERENCES

1. Limerick Generating Station, Updated Final Safety Analysis Report, Section 13.5.3, "Operations Technical Requirements Manual (TRM)."
2. 10 CFR 50.36, "Technical Specifications."
3. NUREG-1433, "Standard Technical Specifications-General Electric BWR/4 Plants," Revision 4.0, dated April 2012.
4. NRC "Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors," 58 FR 39132, dated July 22, 1993.
5. NRC Final Rule, 10 CFR 50.36, "Technical Specifications," 60 FR 36953 (July 19, 1995).

6. "Limerick Generating Station Severe Accident Risk Assessment," Philadelphia Electric Company, April 1983.
7. NUREG/CR-3493, "A review of the Limerick Generating Station Severe Accident Risk Assessment," USNRC, July 1984.
8. Letter from T. W. Alexion (USNRC) to W. T. Cott, Houston Lighting & Power Company, "South Texas Project, Units 1 and 2 – Amendment Nos. 76 and 65 to Facility Operating License Nos. NPF-76 and NPF-80 (TAC Nos. M91611 and M91612)," dated July 6, 1995.

ATTACHMENT 2

License Amendment Request

**Limerick Generating Station, Units 1 and 2
Docket Nos. 50-352 and 50-353**

**Proposed Relocation of Chlorine and Toxic Gas
Detection System Technical Specifications**

Markup of Proposed Technical Specifications Pages

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LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

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DELETED; Refer to note on page

CHLORINE DETECTION SYSTEM

LIMITING CONDITION FOR OPERATION

3.3.7.8.1 Two independent chlorine detection system subsystems shall be OPERABLE with their alarm and trip setpoints adjusted to actuate at a chlorine concentration of less than or equal to 0.5 ppm

APPLICABILITY: ALL OPERATIONAL CONDITIONS.

ACTION:

- a. With one chlorine detection subsystem inoperable, restore the inoperable detection system to OPERABLE status within 7 days or, within the next 6 hours, initiate and maintain operation of at least one control room emergency filtration system subsystem in the chlorine isolation mode of operation.
- b. With both chlorine detection subsystems inoperable, within 1 hour initiate and maintain operation of at least one control room emergency filtration system subsystem in the chlorine isolation mode of operation.

SURVEILLANCE REQUIREMENTS

4.3.7.8.1 Each of the above required chlorine detection system subsystems shall be demonstrated OPERABLE by performance of a CHANNEL CHECK, CHANNEL FUNCTIONAL TEST, and CHANNEL CALIBRATION in accordance with the Surveillance Frequency Control Program.

↳ Delete

Insert

THE INFORMATION FROM THIS TECHNICAL SPECIFICATIONS SECTION HAS BEEN RELOCATED TO THE TECHNICAL REQUIREMENTS MANUAL (TRM).

Section 3/4.3.7.8.2 (Deleted) reinsert

TOXIC GAS DETECTION SYSTEM

LIMITING CONDITION FOR OPERATION

3.3.7.8.2 Three independent toxic gas detection system subsystems shall be OPERABLE with their alarm setpoints adjusted to actuate at a toxic gas concentration of less than or equal to:

<u>CHEMICAL</u>	<u>MONITOR SET POINT (ppm)</u>
Ammonia	25
Ethylene Oxide	50
Formaldehyde	5
Vinyl Chloride	10
Phosgene	0.4

APPLICABILITY: All OPERATIONAL CONDITIONS.

ACTION:

- a. With one toxic gas detection subsystem inoperable, place the inoperable subsystem in the tripped condition within 24 hours.
- b. With two toxic gas detection system subsystems inoperable, place one inoperable subsystem in the tripped condition within 1 hour, restore one inoperable detection subsystem to OPERABLE status within 7 days, or initiate and maintain operation of at least one control room emergency filtration subsystem in the chlorine isolation mode of operation.
- c. With three toxic gas detection subsystems inoperable, within 1 hour initiate and maintain operation of at least one control room emergency filtration subsystem in the chlorine isolation mode of operation.

SURVEILLANCE REQUIREMENTS

4.3.7.8.2 Each of the above required toxic gas detection system subsystems shall be demonstrated OPERABLE by performance of a CHANNEL CHECK, CHANNEL FUNCTIONAL TEST, and CHANNEL CALIBRATION in accordance with the Surveillance Frequency Control Program.

Delete

Insert THE INFORMATION FROM THIS TECHNICAL SPECIFICATIONS SECTION HAS BEEN RELOCATED TO THE TECHNICAL REQUIREMENTS MANUAL (TRM).

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- e. In accordance with the Surveillance Frequency Control Program by:
1. Verifying that the pressure drop across the combined prefilter, upstream and downstream HEPA filters, and charcoal adsorber banks is less than 6 inches water gauge while operating the subsystem at a flow rate of 3000 cfm \pm 10%; verifying that the prefilter pressure drop is less than 0.8 inch water gauge and that the pressure drop across each HEPA is less than 2 inches water gauge.
 2. *Insert*
Relocated to the TRM Verifying that on each of the below chlorine isolation mode actuation test signals, the subsystem automatically switches to the chlorine isolation mode of operation and the isolation valves close within 5 seconds:
 - a) Outside air intake high chlorine, and
 - b) Manual initiation from the control room.*Delete*
 3. Verifying that on each of the below radiation isolation mode actuation test signals, the subsystem automatically switches to the radiation isolation mode of operation:
 - a) Outside air intake high radiation, and
 - b) Manual initiation from control room.
- f. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter bank satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 while operating the system at a flow rate of 3000 cfm \pm 10%.
- g. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorber bank satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a halogenated hydrocarbon refrigerant test gas while operating the system at a flow rate of 3000 cfm \pm 10%.

4.7.2.2 The control room envelope boundary shall be demonstrated OPERABLE:

- a. At a frequency in accordance with the Control Room Envelope Habitability Program by performance of control room envelope unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.

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LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

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DELETED; Refer to note on page	3/4 3-92

DELETED; Refer to note on page

CHLORINE DETECTION SYSTEMLIMITING CONDITION FOR OPERATION

3.3.7.8.1 Two independent chlorine detection system subsystems shall be OPERABLE with their alarm and trip setpoints adjusted to actuate at a chlorine concentration of less than or equal to 0.5 ppm

APPLICABILITY: ALL OPERATIONAL CONDITIONS.

ACTION:

- a. With one chlorine detection subsystem inoperable, restore the inoperable detection system to OPERABLE status within 7 days or, within the next 6 hours, initiate and maintain operation of at least one control room emergency filtration system subsystem in the chlorine isolation mode of operation.
- b. With both chlorine detection subsystem inoperable, within 1 hour initiate and maintain operation of at least one control room emergency filtration system subsystem in the chlorine isolation mode of operation.

SURVEILLANCE REQUIREMENTS

4.3.7.8.1 Each of the above required chlorine detection system subsystems shall be demonstrated OPERABLE by performance of a CHANNEL CHECK, CHANNEL FUNCTIONAL TEST, and CHANNEL CALIBRATION in accordance with the Surveillance Frequency Control Program.

↳ Delete

Insert

THE INFORMATION FROM THIS TECHNICAL SPECIFICATIONS SECTION HAS BEEN RELOCATED TO THE TECHNICAL REQUIREMENTS MANUAL (TRM).

TOXIC GAS DETECTION SYSTEM

LIMITING CONDITION FOR OPERATION

3.3.7.8.2 Three independent toxic gas detection system subsystems shall be OPERABLE with their alarm setpoints adjusted to actuate at a toxic gas concentration of less than or equal to:

<u>CHEMICAL</u>	<u>MONITOR SET POINT (ppm)</u>
Ammonia	25
Ethylene Oxide	50
Formaldehyde	5
Vinyl Chloride	10
Phosgene	0.4

APPLICABILITY: ALL OPERATIONAL CONDITIONS.

ACTION:

- a. With one toxic gas detection subsystem inoperable, place the inoperable subsystem in the tripped condition within 24 hours.
- b. With two toxic gas detection system subsystems inoperable, place one inoperable subsystem in the tripped condition within 1 hour, restore one inoperable detection subsystem to OPERABLE status within 7 days, or initiate and maintain operation of at least one control room emergency filtration subsystem in the chlorine isolation mode of operation.
- c. With three toxic gas detection subsystems inoperable, within 1 hour initiate and maintain operation of at least one control room emergency filtration subsystem in the chlorine isolation mode of operation.

SURVEILLANCE REQUIREMENTS

4.3.7.8.2 Each of the above required toxic gas detection system subsystems shall be demonstrated OPERABLE by performance of a CHANNEL CHECK, CHANNEL FUNCTIONAL TEST, and CHANNEL CALIBRATION in accordance with the Surveillance Frequency Control Program.

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Insert

THE INFORMATION FROM THIS TECHNICAL SPECIFICATIONS SECTION HAS BEEN RELOCATED TO THE TECHNICAL REQUIREMENTS MANUAL (TRM).

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- 2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows the methyl iodide penetration of less than 2.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86°F) and a relative humidity of 70%.
- 3. Verifying a subsystem flow rate of 3000 cfm ± 10% during subsystem operation when tested in accordance with ANSI N510-1980.
- d. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows the methyl iodide penetration of less than 2.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86°F) and a relative humidity of 70%.
- e. In accordance with the Surveillance Frequency Control Program by:

- 1. Verifying that the pressure drop across the combined prefilter, upstream and downstream HEPA filters, and charcoal adsorber banks is less than 6 inches water gauge while operating the subsystem at a flow rate of 3000 cfm ± 10%; verifying that the prefilter pressure drop is less than 0.8 inch water gauge and that the pressure drop across each HEPA is less than 2 inches water gauge.

Insert
Relocated to the TRM

- 2. ~~Verifying that on each of the below chlorine isolation mode actuation test signals, the subsystem automatically switches to the chlorine isolation mode of operation and the isolation valves close within 5 seconds.~~
 - a) ~~Outside air intake high chlorine, and~~
 - b) ~~Manual initiation from the control room.~~

Delete

- 3. Verifying that on each of the below radiation isolation mode actuation test signals, the subsystem automatically switches to the radiation isolation mode of operation:
 - a) Outside air intake high radiation, and
 - b) Manual initiation from control room.

ATTACHMENT 3

License Amendment Request

**Limerick Generating Station, Units 1 and 2
Docket Nos. 50-352 and 50-353**

**Proposed Relocation of Chlorine and Toxic Gas
Detection System Technical Specifications**

**Markup of Proposed Technical Specifications Bases Pages
(For Information Only)**

Unit 1 TS Bases Pages

xix
B 3/4 3-6

Unit 2 TS Bases Pages

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INSTRUMENTATION

Insert 2

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3/4.3.7.7 (Deleted) - INFORMATION FROM THIS SECTION RELOCATED TO THE TRM.

3/4.3.7.8 CHLORINE AND TOXIC GAS DETECTION SYSTEMS

Delete

The OPERABILITY of the chlorine and toxic gas detection systems ensures that an accidental chlorine and/or toxic gas release will be detected promptly and the necessary protective actions will be automatically initiated for chlorine and manually initiated for toxic gas to provide protection for control room personnel. Upon detection of a high concentration of chlorine, the control room emergency ventilation system will automatically be placed in the chlorine isolation mode of operation to provide the required protection. Upon detection of a high concentration of toxic gas, the control room emergency ventilation system will manually be placed in the chlorine isolation mode of operation to provide the required protection. The detection systems required by this specification are consistent with the recommendations of Regulatory Guide 1.95, "Protection of Nuclear Power Plant Control Room Operators against an Accidental Chlorine Release," February 1975.

There are three toxic gas detection subsystems. The high toxic chemical concentration alarm in the Main Control Room annunciates when two of the three subsystems detect a high toxic gas concentration. An Operate/Inop keylock switch is provided for each subsystem which allows an individual subsystem to be placed in the tripped condition. Placing the keylock switch in the INOP position initiates one of the two inputs required to initiate the alarm in the Main Control Room.

Surveillance intervals are determined in accordance with the Surveillance Frequency Control Program and maintenance outage times have been determined in accordance with GENE-770-06-1, "Bases for Changes to Surveillance Test Intervals and Allowed Out-of-Service Times for Selected Instrumentation Technical Specifications," as approved by the NRC and documented in the SER (letter to R.D. Binz, IV, from C.E. Rossi dated July 21, 1992).

3/4.3.7.9 (Deleted) - INFORMATION FROM THIS SECTION RELOCATED TO THE TRM.

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INSTRUMENTATION

BASES

Insert
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3/4.3.7.7 (Deleted) - INFORMATION FROM THIS SECTION RELOCATED TO THE TRM.

3/4.3.7.8 CHLORINE AND TOXIC GAS DETECTION SYSTEMS

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