ATTACHMENT 1

LIMERICK GENERATING STATION

UNITS 1 AND 2

Docket Nos. 50-352
50-353

License Nos. NPF-39
NPF-85

TECHNICAL SPECIFICATIONS CHANGE REQUEST

No. 93-11-0

"Revise Technical Specifications Section 3.3.7.8.2 and Associated Bases 3/4.3.7.8 to Modify the Main Control Room Toxic Gas Detection System Alarm Logic"

Supporting Information for Changes - 5 pages

Philadelphia Electric Company (PECo), Licensee under Facility Operating License Nos. NPF 39 and NPF-85 for Limerick Generating Station (LGS), Units 1 and 2, respectively, requests that the Technical Specifications (TS) contained in Appendix A to the Operating Licenses be amended as proposed herein, to revise TS Section 3.3.7.8.2 and associated Bases 3/4.3.7.8 to modify the Main Control Room toxic gas detection system alarm logic. This proposed TS change will reflect implementation of a modification designed to change the MCR high toxic chemical concentration alarm logic, thereby reducing the number of false high toxic chemical concentration alarms received by the MCR.

The proposed changes to the TS are indicated by a vertical bar in the margin of TS pages 3/4 3-91 and B 3/4 3-6. In addition, TS Index page xix and Bases page B 3/4 3-7 were also revised since it was necessary to relocate Section B 3/4.3.7.10, "Loose-Part Detection System," from page B 3/4 3-6 to page B 3/4 3-7 to accommodate the proposed change to Section B 3/4.3.7.8. The TS pages showing the proposed changes are contained in Attachment 2.

We request that, if approved, the amendments to the LGS, Units 1 and 2, TS be issued by November 1, 1993, to support implementation of the modification and that these amendments be effective within 15 days following issuance of the amendments.

This TS Change Request provides a discussion and description of the proposed TS changes, a safety assessment of the proposed TS changes, information supporting a finding of No Significant Hazards Consideration, and information supporting an Environmental Assessment.

Discussion and Description of the Proposed Changes

The Main Control Room (MCR) Heating, Ventilation, and Air Conditioning (HVAC) system is designed to ensure habitability following any of the design basis radiological release accident or chemical release accidents. To ensure that operators in the MCR are adequately protected in the event of a radiological or chemical release accident, the MCR HVAC is designed with three (3) distinct accident modes of operation. These modes of operation are 1) the chlorine isolation mode, 2) the toxic chemical isolation mode, and 3) the radiation isolation mode.

In the event of a chlorine or radiation release accident, normal MCR HVAC is automatically isolated and the Control Room Emergency Fresh Air Supply (CREFAS) system initiates for either the chlorine or radiation isolation mode of HVAC operation to maintain MCR habitability. However, in the event of a toxic chemical accident, normal MCR HVAC is manually isolated and CREFAS system is placed in operation when the predetermined toxic chemical concentrations are detected and alarmed in the MCR.

Upon receipt of a high toxic chemical concentration alarm in the MCR, plant procedures require that MCR personnel don self-contained breathing apparatus (SCBA) and take manual action to isolate the normal MCR HVAC initiate the CREFAS system. A review of plant records revealed that a majority of the high toxic chemical concentration alarms received by the MCR are attributed to system

hardware malfunctions. As a result, a significant number of Licensee Event Reports (LERs) were prepared and submitted to the NRC. In addition, these false high toxic chemical concentration alarms have resulted in an unnecessary challenge to the associated safety-related systems and equipment.

To reduce the number of false high toxic chemical concentration alarms received by the MCR, a plant modification is planned to change the design of the high toxic chemical concentration alarm logic. The current alarm logic requires that only one (1) out of the two (2) chemical analyzers currently installed initiate to cause a MCR high toxic chemical concentration alarm. The proposed modification will install a third chemical analyzer and the MCR high toxic chemical concentration alarm logic will be redesigned to require that two (2) out of the three (3) chemical analyzers must detect toxic gas concentrations at or above the detector setpoint to cause an MCR high toxic chemical concentration alarm.

Therefore, to reflect implementation of this plant modification, changes to Technical Specifications (TS) Section 3.3.7.8.2, "Toxic Gas Detection System," and associated Bases 3/4.3.7.8, "Chlorine and Toxic Gas Detection Systems," are proposed to accommodate operation of the toxic gas detection system with a third chemical analyzer and an "Auto-Trip" selector switch.

Safety Assessment

The toxic chemical detection system is a non-safety related system designed to protect Main Control Room (MCR) personnel from the effects of an offsite release of toxic chemicals. The toxic chemical detection system provides for annunciation in the MCR of the presence of toxic chemicals in the MCR outside air intake plenum. The system is designed to measure and record the concentration of predetermined toxic chemicals in the outside intake plenum and to automatically initiate a MCR alarm in the event a monitored gas concentration exceeds a preset level. When a toxic chemical alarm is received in the MCR, procedures require that MCR personnel don self-contained breathing apparatus (SCBA) and take manual action to isolate the normal MCR Heating, Ventilation, and Air Conditioning (HVAC) and initiate CREFAS to ensure MCR habitability.

The planned modification will change the design of the high toxic chemical concentration alarm logic by adding a third chemical analyzer to the alarm logic. The current alarm logic requires that one only (1) out of the two (2) chemical analyzers currently installed will, once the detected concentration reaches the setpoint, initiate a MCR high toxic chemical concentration alarm. The intent of adding this third chemical analyzer is to create a "two-out-of-three" alarm logic, thereby reducing the probability of false high toxic gas alarms. To ensure that the "two-out-of-three" alarm logic is maintained, an "Auto-Trip" selector switch will be added to each of the three (3) chemical analyzers. Each selector switch will allow the associated analyzer to be placed in a "tripped" condition when the analyzer is inoperable. With one (1) of the analyzers in a "tripped" condition, only one (1) of the remaining two (2) chemical analyzers is required to reach its setpoint to satisfy the planned "two-out-of-three" high

toxic chemical concentration alarm logic. This modification will eliminate MCR high toxic chemical concentration false alarms resulting from a single chemical analyzer malfunction or failure. This will result in a reduction in the number of License Event Reports (LERs) and the number of unnecessary challenges to the associated safety-related systems and equipment.

The proposed TS changes and implementation of modification for the toxic chemical detection system will not change the function or response time of the system from that described in the LGS, Units 1 and 2, Updated Final Safety Analysis Report (UFSAR) Sections 6.4.3.2.3 and 6.4.4.2.2. This system will continue to function as designed to maintain MCR habitability and to afford MCR operators protection against the effects of toxic chemicals.

Information Supporting a Finding of No Significant Hazards Consideration

We have concluded that the proposed changes to the Limerick Generating Station (LGS), Units 1 and 2, Technical Specifications (TS) Section 3.3.7.8.2 and associated Bases 3/4.3.7.8 to revise the Main Control Room (MCR) toxic chemical detection system alarm logic do not involve a Significant Hazards Consideration. In support of this determination, an evaluation of each of the three (3) standards set forth in 10 CFR 50.92 is provided below.

1. The proposed Technical Specifications (TS) changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

   The proposed changes will reflect adding a third chemical analyzer to the toxic chemical detection system and changing the system's high toxic chemical concentration alarm logic. The system will continue to function as designed to preclude the effects of an offsite release of toxic chemicals from affecting the habitability of the Main Control Room (MCR) as described in Sections 6.4.3.2.3 of the Updated Final Safety Analysis Report (UFSAR). The toxic chemical detection system is a non-safety related system dedicated to monitoring and alarming only. Operator action is required to isolate the MCR Heating, Ventilation, and Air Conditioning (HVAC) and initiate the Control Room Emergency Fresh Air Supply (CREFAS) system following a high toxic chemical concentration alarm in the MCR.

   The proposed changes will not affect the operation of other plant systems or equipment important safety. The MCR HVAC and CREFAS systems will continue to operate as designed to ensure habitability of the MCR during normal operations and in the event of a toxic chemical release affecting the plant. The toxic chemical detection system does not perform any control function for other systems and none are being added. Therefore, a malfunction of the new chemical

analyzer can not cause an accident and will not affect the operation of the other two (2) chemical analyzers currently installed, since the operation of all the chemical analyzers are independent of each other. The proposed changes will eliminate MCR high toxic chemical concentration false alarms caused by a single chemical analyzer failure or malfunction.

Therefore, the proposed TS changes do not involve an increase in the probability or consequences of an accident previously evaluated.

2. The proposed TS changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed changes will not affect the operation of other plant systems and equipment important to safety. Since it only detects and alarms, a malfunction of the toxic chemical detection system that includes a third analyzer or associated equipment could not cause an accident. The toxic chemical detection system will continue to function as designed to preclude the effects of an offsite release of toxic chemicals from affecting the habitability of the MCR. The system is a non-safety related system dedicated to monitoring and alarming. The system is designed to preclude the effects of an offsite release of toxic chemicals from affecting the habitability of the MCR. Operator action is required to isolate the MCR HVAC and initiate CREFAS following a high toxic chemical concentration alarm in the MCR. The MCR HVAC and CREFAS systems will continue to operate as designed to ensure habitability of the MCR during normal operations and in the event of a toxic chemical release affecting the plant. The toxic chemical detection system is independent of other plant systems and equipment and does not provide any automatic initiation function, nor will any be introduced. Therefore, the proposed TS changes do not create the possibility of a new or different kind accident from any previously evaluated.

3. The proposed TS changes do not involve a significant reduction in a margin of safety.

The proposed TS changes will not change the toxic chemical detection system alarm setpoints or response times. The modified toxic chemical detection system will continue to function as designed to monitor and alarm in the MCR when high toxic chemical concentrations are present. Operators will continue to take the necessary manual actions of isolating the normal MCR HVAC and initiating CREFAS and donning self-contained breathing apparatus (SCBA) in response to a high toxic chemical concentration alarm. The operation of the MCR HVAC and CREFAS systems is not affected by this proposed change, and

these systems will continue to function as designed. This proposed TS change will reduce false MCR high toxic chemical concentration alarms and reduce the number of unnecessary challenges to the associated safety-related systems and equipment. Therefore, the proposed TS changes do not involve a reduction in a margin of safety.

Information Supporting an Environmental Assessment

An Environmental Assessment is not required for the changes proposed by this Change Request because the requested changes to the LGS, Units 1 and 2, TS conform to the criteria for "actions eligible for categorical exclusion," as specified in 10 CFR 51.22(c)(9). The requested changes will have no impact on the environment. The proposed changes do not involve a Significant Hazards Consideration as discussed in the preceding section. The proposed changes do not involve a significant change in the types or significant increase in the amounts of any effluents that may be released offsite. In addition, the proposed changes do not involve a significant increase in individual or cumulative occupational radiation exposure.

Conclusion

The Plant Operations Review Committee and the Nuclear Review Board have reviewed these proposed changes to the LGS, Units 1 and 2, TS and have concluded that they do not involve an unreviewed safety question, and will not endanger the health and safety of the public.

ATTACHMENT 2

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UNITS 1 AND 2

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TECHNICAL SPECIFICATIONS CHANGE REQUEST

No. 93-11-0

LIST OF AFFECTED PAGES

Unit 1	Unit 2
3/4 3-91	3/4 3-91
B 3/4 3-6	B 3/4 3-6
B 3/4 3-7	B 3/4 3-7
Index xix	Index xix

BASES

INSTRUMENTATION

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:

CHEMICAL	MONITOR SET POINT (ppm)
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:

a. CHANNEL CHECK at least once per 12 hours,

b. CHANNEL FUNCTIONAL TEST at least once per 31 days, and

c. CHANNEL CALIBRATION at least once per 18 months.

3/4.3.7.8 CHLORINE AND TOXIC GAS DETECTION SYSTEMS

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 place 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.

3/4.3.7.9 FIRE DETECTION INSTRUMENTATION

OPERABILITY of the detection instrumentation ensures that both adequate warning capability is available for prompt detection of fires and that fire suppression systems, that are actuated by fire detectors, will discharge extinguishing agent in a timely manner. Prompt detection and suppression of fires will reduce the potential for damage to safety-related equipment and is an integral element in the overall facility fire protection program.

Fire detectors that are used to actuate fire suppression systems represent a more critically important component of a plant's fire protection program than detectors that are installed solely for early fire warning and notification. Consequently, the minimum number of OPERABLE fire detectors must be greater.

The loss of detection capability for fire suppression systems, actuated by fire detectors, represents a significant degradation of fire protection for any area. As a result, the establishment of a fire watch patrol must be initiated at an earlier stage than would be warranted for the loss of detectors that provide only early fire warning. The establishment of frequent fire patrols in the affected areas is required to provide detection capability until the inoperable instrumentation is restored to OPERABILITY.

The surveillance requirements for demonstrating the OPERABILITY of the fire detectors are based on the recommendations of NFPA 72E - 1990 Edition.

3/4.3.7.10 LOOSE-PART DETECTION SYSTEM

The OPERABILITY of the loose-part detection system ensures that sufficient capability is available to detect loose metallic parts in the primary system and avoid or mitigate damage to primary system components. The allowable out-of-service times and surveillance requirements are consistent with the recommendations of Regulatory Guide 1.133, "Loose-Part Detection Program for the Primary System of Light-Water-Cooled Reactors," May 1981.

3/4.3.7.11 (Deleted) - INFORMATION FROM THIS SECTION RELOCATED TO THE ODCM.

3/4.3.7.12 OFFGAS MONITORING INSTRUMENTATION

This instrumentation includes provisions for monitoring the concentrations of potentially explosive gas mixtures and noble gases in the off-gas system.

3/4.3.8. TURBINE OVERSPEED PROTECTION SYSTEM

This specification is provided to ensure that the turbine overspeed protection system instrumentation and the turbine speed control valves are OPERABLE and will protect the turbine from excessive overspeed. Protection from turbine excessive overspeed is required since excessive overspeed of the turbine could generate potentially damaging missiles which could impact and damage safety related components, equipment or structures.

3/4.3.9 FEEDWATER/MAIN TURBINE TRIP SYSTEM ACTUATION INSTRUMENTATION

The feedwater/main turbine trip system actuation instrumentation is provided to initiate action of the feedwater system/main turbine trip system in the event of failure of feedwater controller under maximum demand.

BASES

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:

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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:

a. CHANNEL CHECK at least once per 12 hours,

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