

PHILADELPHIA ELECTRIC COMPANY  
 NUCLEAR GROUP HEADQUARTERS  
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July 22, 1991

NUCLEAR ENGINEERING &amp; SERVICES DEPARTMENT

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U.S. Nuclear Regulatory Commission  
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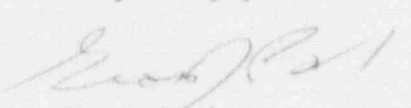
SUBJECT: Limerick Generating Station, Units 1 and 2  
 Updated Final Safety Analysis Report Revision 1  
 Revised Page Replacement Instructions and  
 Reissue of Three Revision 1 Pages

On June 28, 1991, we provided one original and ten copies of Revision 1 of the Updated Final Safety Analysis Report (UFSAR) for Limerick Generating Station (LGS), Units 1 and 2. UFSAR Revision 1 was provided on a page replacement basis with a list of effective pages identifying the latest revision date of all current pages. With the list of effective pages, we provided page replacement instructions for incorporating Revision 1 into the NRC copies of the LGS UFSAR. Subsequent to the June 28, 1991 transmittal, we identified several items in the UFSAR Revision 1 package which we wish to correct.

Several errors were identified in the page replacement instructions as well as a collating error and a correction to the list of effective pages. Therefore, we have reissued the page replacement instructions (attached), and three corrected UFSAR Revision 1 pages are attached as page replacements. These pages correct a collating error in UFSAR Revision 1 Section 9.4 and an error on page 1-8 in the list of effective pages. We apologize for any inconvenience this may have caused.

If you have any questions or require further information, please contact us.

Very truly yours,

  
 G. J. Beck  
 Manager-Licensing

Attachments

cc: T. T. Martin, Administrator, Region I, USNRC, w/ 2 copies of atts  
 T. J. Kenny, USNRC Senior Resident Inspector, LGS, w/ 1 copy of atts

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This essential area has been provided with redundant HVAC equipment to maintain the required air flows and temperatures under normal and accident conditions. For failure mode and effects analysis, see Table 9.4-3 for both normal and accident conditions.

The control room HVAC system is designed to maintain environmental conditions within the space as specified for habitability and equipment operation under normal and abnormal operating conditions. The control room, which is the only critical manned area, will not exceed the comfort zone defined by ASHRAE during operating or accident conditions. Equipment in the system is designed to seismic Category I requirements, except for the humidification equipment, roll filters, and electric duct heaters (seismic Category IIA). All duct-work and supports for the safety-related systems meet seismic Category I requirements. Habitability systems are further discussed in Section 6.4.

A radiation monitoring system is provided in the outside air intake to detect high radiation and initiate measures to ensure that personnel safety and equipment functions are not impaired and that the requirements of 10CFR20 are satisfied. In the event of a high radiation condition, the normal outside air supply to the control room HVAC system is diverted through the emergency fresh air filter train before being delivered to the control room. All isolation valves in the control room HVAC system close, except those on the emergency fresh air intake. These operations are annunciated in the control room.

The emergency fresh air filter train and the control room shielding are designed to limit the occupational dose level, as required by GDC 19.

The introduction of a controlled quantity of outside air maintains the control room and the other areas served by the control room HVAC system at a positive pressure with respect to surrounding areas. This positive pressure is maintained during all the plant operating conditions, except when the system is in the recirculation mode.

Offsite toxic chemical and chlorine detectors are provided at the outside air intake to detect toxic chemical or chlorine in the environment. In the event of a high chlorine or toxic chemical concentration, all isolation valves in the control room HVAC system close automatically for chlorine or manually for all other toxic chemicals, including those on the emergency fresh air intakes. The control room HVAC system is switched to the recirculation mode to cycle room air through the emergency fresh air filter train (charcoal adsorber) system. The filter system is discussed in Section 6.5.1.

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The logic of the isolation signals with the control room HVAC system initially in the radiation isolation mode is such that a single failure of the chlorine detection system could allow the filtered outside air intake to remain open, and thus, the control room HVAC system would remain in the radiation isolation mode. Under these circumstances, once the chlorine has been detected and alarmed in the control room, manual action can be taken to realign the system to the chlorine isolation mode. Analysis of this event assumes that the system remains in the radiation isolation mode with 525 cfm of outside air being mixed with recirculated control room air for a total of 3,000 cfm being passed through the charcoal adsorber filter trains, and that the filter has no effect on removal of chlorine. The results of the analysis indicate that, with the control room HVAC system in the radiation isolation mode, the necessity for automatic chlorine isolation is not required to satisfy General Design Criterion (GDC) 19 of 10CFR50 of Appendix A, and that the control room operators would have sufficient time to don breathing apparatus after an alarm is sounded in the control room (as shown in Table 2.2-6).

Note: the possibility exists for a chlorine accident to occur while the control room HVAC system is operating in the radiation isolation mode for testing purposes or as required by the Action statement of an associated Technical Specifications Limiting Condition of Operation, and likewise, a high radiation accident could occur while the control room HVAC system is operating in the chlorine isolation mode for the same purposes. The mode of system operation with the control room HVAC system in these initial system configurations is described in Sections 2.2.3, 6.4.3 and 15.6.

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A smoke purge system is provided with a capability to purge the control room or auxiliary equipment room areas. In the event of smoke as a result of fire in the control room areas or auxiliary equipment room areas, the operating personnel may elect to purge the space by manually switching the supply and exhaust systems to PURGE, which repositions outside air and exhaust dampers so that 100% fresh air and 100% exhaust air provides once-through purge ventilation until the smoke is removed; then manually switch back to normal operation. The purge system is shown in Figure 9.4-1.

The steam flooding isolation dampers have an active safety-related function in the control enclosure HVAC system. The function of the dampers is to contain the steam resulting from a pipe break within the equipment compartment in which the break occurs and preclude the spread of the steam through HVAC openings or duct-work into adjacent spaces which may contain safeguard equipment. The dampers are redundant series mounted fast closing counterweighted or spring-operated back pressure dampers. The dampers are normally open. Closure of the dampers is actuated by a pressure switch sensing the rise in pressure created by the discharge of fluid from a broken pipe. The switch activates a solenoid which disengages a pin and allows the damper blade to free fall or spring action into the closure position.

Each trouble alarm on the local control panel is alarmed in the control room as a panel group alarm. Indicating lights on the local panel identify the failed damper, which can be manually reset to the open position.

Refer to the following sections for further safety considerations included in the design:

- |    |   |               |
|----|---|---------------|
| a. | Protection from wind and tornado effects  | Section 3.3   |
| b. | Flood design  | Section 3.4   |
| c. | Missile protection  | Section 3.5   |
| d. | Protection against dynamic effects associated with the postulated rupture of piping | Section 3.6   |
| e. | Environmental design  | Section 3.11  |
| f. | Fire protection   | Section 9.5.1 |