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November 3, 1981

Mr. A. Schwencer, Chief
Licensing Branch 2
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: LaSalle County Station Units 1 and 2
Fire Protection Program
Deviations From 10 CFR 50, Appendix R
NRC Docket Nos. 50-373/374

Dear Mr. Schwencer:

In response to informal inquiries from members of the NRC Staff made the week of October 19, 1981, the enclosed assessment of the LaSalle County Fire Protection Program is provided. This assessment identifies those deviations determined to exist between the LaSalle County Program which had been reviewed and approved by the Staff. Although certain technical deviations with Appendix R have been identified by the applicant, these deviations are not considered to be significant. The deviations identified are limited to the following areas:

1. Section III.E - Fire hose test interval
2. Section III.F - Fire Detection system design
3. Section III.G - Fire Protection system design
4. Section III.H - Fire brigade air supply
5. Section III.I. - Fire brigade training
6. Section III.K.12 - Fire fighting strategies
7. Section III.N - Fire door surveillance

Each of these areas was reviewed by the NRR Staff and the program developed for LaSalle County Station was accepted based on that review. The issues addressed in Appendix R Sections III.F. and III.G. (items 2 and 3 above) were subjected to a particularly thorough review including numerous site audits. Although minor

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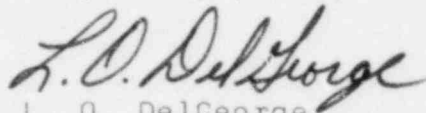
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technical deviations from the letter of the Appendix-R requirements have been identified, these deviations are not considered by the applicant to violate the underlying objective of the regulation and should, therefore, be accepted.

The materials enclosed in this letter are intended to demonstrate that the regulatory objective of Appendix R has been satisfied by the LaSalle County Fire Protection Program. It is judged that the minor deviations discussed do not comprise the adequacy of the that program. Furthermore, it is essential that we reach agreement on the basis of acceptability of this Program to facilitate implementation by the applicant as well as future inspection activities by your regional office of Inspection and Enforcement.

In the event you have any further questions in this regard, please direct them to this office.

Very truly yours,



L. O. DelGeorge
Director of Nuclear Licensing

Enclosure

cc: J. G. Keppler, Director - RIII
NRC Resident Inspector - LSCS

2792N

Enclosure

The following are the deviations in the LaSalle fire protection program from Appendix R:

1. Appendix R Section III.E requires interior standpipe hose to be tested every three years.

Deviation

LSCS will hydro test at intervals according to 1981 NFPA 1962 (1979) Vol. 12 Table 8-3. From the date of installation of the hose in the plant, the first test will be conducted in five years. Of the hose currently stored at LSCS, a representative sample will be tested prior to installation.

2. Appendix R Section III.F requires automatic fire detection systems in all areas containing safety-related systems or components. The detection system commitments accepted by the NRR Staff after lengthy review are documented in FSAP Appendix H, Tables H.3-1 and H.3-2. The deviations discussed herein are not considered significant and should be waived as they do not compromise compliance with the objectives of Appendix R.

Deviation

- a. Fire Area/Zone - 2C/3C

Status

Safety-related cable trays and cables are located in the fire zone, a fire loading of 2.68×10^4 BTU/ft² is estimated for this area/zone and no ionization detectors are provided. The fire detection provided does not conform to Appendix R.

Justification

Because of the low fire loading and the availability of manual fire protection, no fire detectors are required in this zone. In addition, none of the cable in this area is needed for safe shutdown.

- b. Fire Area/Zone - 2K/3K

Status

Safety-related conduit, electrical equipment, main steam isolation valves are located in this fire zone; no fire loading is considered as there are no combustible materials. No fire detection is

specifically provided in this zone; however, a local temperature detector is provided which measures leakage from the MSIV's and would detect any temperature increase if a fire did occur in this area. The fire detection provided meets the intent of Appendix R.

c. Fire Area/Zone - 4A

Status

This area/zone contains HVAC safety-related equipment, ductwork and non safety related switchgear, the standby gas treatment system monitoring panel, and the reactor building isolation dampers control panels. A fire loading of 39,000 BTU/ft² is estimated for this area and fire detectors are provided in the HVAC ducts. Ionization detectors are provided over the switchgear area only. The remainder of the area does not contain ionization detectors.

Justification

The ionization detectors in the switchgear area were requested by the Fire Protection Consultant. The present configuration of fire detectors meets the intent of Appendix R without further modifications.

d. Fire Area/Zone - 4B

Status

This area/zone contains safety-related ventilation equipment including power, control and instrumentation cabling, auxiliary electric equipment room ventilation system, control room ventilation system, control room emergency make-up filters, reactor building isolation dampers, and associated switchgear. A fire loading of 34,000 BTU/ft² is estimated for this area. Ionization detectors are provided over the switchgear area which has a heavy concentration of cables. The remainder of the area does not contain ionization detectors. Temperature detectors are located inside of the control room supply air filters, auxiliary electric room supply air filters, control room emergency make-up filters and primary containment purge air filters. Fire detection is also provided in the HVAC ducts. The remainder of this area does not contain fire detection.

Justification

The ionization detectors in the switchgear area were requested by the Fire Protection Consultant. The present fire detection arrangement meets the intent of Appendix R without further modifications.

e. Fire Area/Zone - 4C3

Status

This area contains ESF Division 1 and ESF Division 3 control and instrumentation cables for Unit 2. The fire loading for the area is 30,500 BTU/ft² and no fire detectors are provided except for ionization type detectors in the ventilation ductwork. This fire detection provided does not conform to Appendix R.

Justification

Due to the low fire loading, less than a fire severity of 1/2 hour, and the occupancy factor for this area, no special additional fire detection is required.

f. Fire Area/Zone - 5C11

Status

This fire area/zone contains power and instrumentation cables for the ESF Divisions 1 and 2 diesel generators. The fire loading for this zone is estimated as 11,069 BTU/ft². Automatic ionization detectors which sound an alarm in the control room are provided in regions of high cable concentration. The described fire detection arrangement meets the intent of Appendix R.

Justification

The localized ionization detectors are adequate to notify the operators of any fire hazard in this area. Additional ionization detectors throughout this area are not required.

Fire Area/Zone - 5B4

Status

This fire area/zone contains only a turbine first stage pressure switch and the MS line low pressure switch which are safety-related and fail safe. No other

safety related equipment can be found in this area. The estimated fire loading for this area is 31,500 BTU/ft². No fire detection instrumentation is provided in this area; therefore, the present design is at variance with the requirements of Appendix R.

Justification

Because of the low fire loading and the fail safe mode of the instruments in this area, no fire detection is required.

h. Fire Area/Zone - GE

Status

This fire area/zone contains only MSIV leakage control system instrument panels which are safety related. No other safety-related equipment is located in this area. The fire loading in this area is 50,000 BTU/ft² and no fire detection is provided. The present configuration is at variance with the requirements of Appendix R.

Justification

Because of the low fire loading and the limited safety-related equipment in this area, no fire detection is required in this Fire Area.

Notes:

Description of Types of Fire Detection

The LaSalle County Station utilizes fire detection systems as called for in Appendix R to 10CFR50. The detection system consists of four basic systems as discussed below:

- 1) Temperature Detection which initiates deluge systems
- 2) Fusible Links which initiate sprinkler systems
- 3) Ultra Violet Detection
- 4) Ionization Detectors

Temperature Detectors

In general, temperature detectors actuate the CO₂ flooding systems or the deluge systems and sound an alarm locally and in the control room. They are capable of operating with or without offsite power. As described, the temperature detectors meet the requirements of 10CFR50 Appendix R, Section III.F. In some cases the temperature detectors sound an alarm in the control room thus informing the operator to manually initiate a deluge system (Fire Zone/Area 2B1).

Fusible Link Detectors

The Fusible Link Sprinkler initiation with water flow alarms can be considered an automatic fire detection system as high temperature will actuate the sprinkler system and sound an alarm locally and in the control room. This system is capable of operating with or without offsite power. As described, this configuration meets the requirements of 10CFR50, Appendix R, Section III.F.

Ultra Violet Detectors

Ultra Violet Detectors are fully automatic fire detectors which, upon detection of a fire, alarm locally and in the control room. They are capable of operating with or without offsite power. As described, they meet the requirements of 10CFR50, Appendix R, Section III.F.

Ionization Detectors

Ionization Detectors are fully automatic fire detectors which, upon detection of a fire, alarm locally and in the control room and are capable of operating with or without offsite power. As described, they meet the requirements of 10CFR50, Appendix R, Section III.F.

General

Although it can be argued that temperature detectors and fusible links which initiate fire protection systems are not fire detection systems, they function in a manner consistent with that of a true fire detection system and therefore are considered fire detection systems.

3. Appendix R Section III.G identifies fire protection features associated with safe shutdown capability.

Deviations

- a. Section H.4 of the FSAR describes LaSalle's Safe Shutdown capability. The analysis in this section demonstrated that for a fire in any single plant fire area/zone of LaSalle 1, there existed at least one method to achieve and maintain a safe shutdown condition independent of that fire area/zone. Assuming the definition of associated non-safety circuits (as used in Appendix R Section III.G) is any non-safety circuits required to operate equipment needed for safe shutdown, then associated non-safety circuits were included in this analysis. All the equipment, both safety-related and non safety-related, needed for Safe Shutdown was identified and the Fire Zones in which this equipment is located were identified. Also, the cables, both safety-related and non safety-related, required to operate this equipment were identified and the Fire Zones in which these cables are located were identified.

If the definition of associated circuits as used in Appendix R is interpreted as the definition given in IEEE-384, then an analysis would be required to determine whether the requirements of Appendix R have been met. We expect this analysis would take as long to complete as the Safe Shutdown Analysis. (approximately 3,500 manhours)

- b. In the Safe Shutdown Analysis, we relied on separation of redundant equipment by 20-ft. or more as justification to divide some of the fire zones in the Reactor Building into two subzones. The fire zones which were divided are 2E, 2F, 2G, 2H1, 2I1. This 20-ft. separation was suggested in NRC Question 010.56(7). However, the NRC indicated this was not to be interpreted to mean 20-ft. separation in itself is adequate. Therefore, the NRC reviewed during a site visit each one of these fire zones. Only one area of concern resulted from this review. In fire zone 2I, Reactor Building, Elevation 740', cables for the redundant safe shutdown trains were separated by approximately 40-ft. Kaowool was wrapped around the cable tray for one of the redundant safe shutdown trains which resolved the concern of the NRC.
- c. The Safe Shutdown Analysis pointed out other areas of concern. The separation of the control room and the auxiliary electric equipment room ventilation systems' equipment. Justification for our design was presented in Section H.4.3 of FSAR. This section indicates that there are 8 to 10 hours available to restore ventilation to the Auxiliary Electric Equipment Room before the temperature in the room exceeds design limits, in

the event a fire disables both Ventilation Systems. The 8 to 10 hour time period can be further extended by turning off additional lighting and de-energizing unnecessary BOP equipment panels. Also, the local control panels for the Auxiliary Electric Equipment Room Ventilation System, OPL42J and OPL43J are separated by 65-ft. which is a sufficient distance to prevent them from being affected by the same fire, thus, at least one panel will always be available. Therefore, the plant can still be brought to a safe shutdown condition in spite of a fire on the lower ventilation equipment floor.

- d. The Safe Shutdown Analysis demonstrated that for a fire in any single plant fire zone of LaSalle 1, there exists at least one method to achieve and maintain a safe shutdown condition independent of that fire zone. It is our understanding that the safe shutdown panel and its associated plant systems as currently described in the FSAR have been accepted by the NRR Staff as satisfying the guidelines for dedicated safe shutdown capability defined in Appendix R Section III.G.3. Confirmation of NRR acceptance of that panel and system should be documented to preclude future enforcement problems.
4. Appendix R Section III.H requires 10 air packs with a 6 hour supply of reserve air for fire brigade personnel.

Deviation

The LSCS FSAR commitment is 5 air packs with 2 extra bottles for each pack plus a six hour supply (for 5 men) that is not dedicated.

5. Appendix R Section III.I

Paragraph 1.a(1) requires specific and assigned identification of each individual's responsibility.

Deviation

LSCS does not believe this to be prudent. The training program ensures each member is qualified to fight fires (see our response to III.K.12.e.)

Paragraph 1. d & e requires 100% attendance at meetings and training sessions.

Deviation

100% attendance cannot be guaranteed. Therefore, an alternative method will be developed for instructing members who have missed instruction.

Paragraph 2 requires each shift fire brigade to practice as a team at least once per year.

Deviation

Scheduling problems and complexity of the training program prohibit team practice. The LSCS program is bi-annual.

Paragraph 3.b requires drills at certain frequencies.

Deviation

LSCS will conduct approximately 24 drills per year, most of which will be unannounced.

6. Appendix R Section III.K.12 requires fire fighting strategies to be defined. LSCS has deviations with paragraphs b, c, d, e, f, g, and i.

- a. Paragraph b

Deviation

The fire extinguishants are designated on the fire plan for each fire area.

- b. Paragraph c

Deviation

LSCS believes this is best addressed during training with the final decision to be made at the time of actually fighting a fire.

- c. Paragraph d

Deviation

This is covered in operator and fire brigade training programs.

- d. Paragraph e

Deviation

This is covered in operator and fire brigade training programs.

- e. Paragraph f

Deviation

Fire Brigade/Company personnel receive extensive training in the area of fighting different types of fires utilizing varying methods and equipment with both classroom and practical training sessions. The Fire Brigade/Company are adequately knowledgeable and versatile in the area of fire fighting to the degree required of a Fire Brigade.

Since the Fire Brigade is versatile and trained in the use of all plant fire fighting equipment, individual fire fighting duties are not pre-assigned. These duties will be assigned as necessary by the Fire Chief either at the fire scene or while enroute to the fire scene.

The Fire Brigade/Company structure can be found in LAP 900-14 Fire Protection Program.

f. Paragraph g

Deviation

Radiological hazards are covered in annual NGET Training. Toxic hazards are covered in fire brigade training.

g. Paragraph i

Deviation

LAP 900-14 (Fire Protection Program) and LSCS emergency procedures cover this item.

7. Appendix R Section III.N. requires fire door hardware to be inspected semi-annually and fire doors that are not locked closed to be inspected daily.

Deviation

The currently defined surveillance program at LaSalle County does not require a semi-annual fire door hardware inspection. In accordance with the technical specifications, a periodic (18 month) inspection of fire barriers is performed.

Approximately 50% of the LaSalle County fire doors (127 doors) are locked but not electrically supervised. The currently defined surveillance program at LaSalle County does not require weekly inspection of these locked doors. These locked doors are inspected on the 18 month surveillance interval defined by the technical specifications.

Approximately 25% of the LaSalle County fire doors (40 doors) are unlocked. These doors are also not electrically supervised. The currently defined surveillance program at LaSalle County does not require a daily inspection of these unlocked doors. The unlocked doors are inspected on the 18 month surveillance interval defined by the technical specifications.