D. Notley

MAY 16 1988

Docket No.: 50-293

MEMORANDUM FOR: Richard H. Wessman, Project Director
Project Directorate I-3
Division of Reactor Projects I/II

FROM: Conrad E. McCracken, Chief
Chemical Engineering Branch
Division of Engineering & Systems Technology

SUBJECT: SAFETY EVALUATION REPORT CONCERNING LICENSEE'S REQUEST FOR EXEMPTION FROM PROVISIONS OF SECTION III.G.2.a of APPENDIX R TO 10 CFR 50 IN CERTAIN AREAS OF THE PLANT - PILGRIM NUCLEAR POWER STATION (TAC NO. 53416)

Plant Name: Pilgrim Nuclear Power Station
Licensee: Boston Edison Company
Docket No.: 50-293
Review Basis: Exemption Requests - Section III.G of Appendix R to 10 CFR Part 50
Review Status: Complete

Our revised Safety Analysis Report of the licensee's request for exemptions from specific technical requirements of Section III.G.2.a of Appendix R to 10 CFR Part 50 in several different areas of the plant is enclosed (Enclosure 1). This revised SER corrects inconsistencies and supersedes the one transmitted to your Project Directorate by memo, subject as above, to Victor Nerses from Conrad E. McCracken, dated October 28, 1987.

Our SALP input, unchanged from that originally sent, is provided in Enclosure 2. We consider our efforts on TAC No. 53416 to be complete.

Original signed by
Conrad E. McCracken, Chief
Chemical Engineering Branch
Division of Engineering & Systems Technology

Enclosures:
(1) SER for Pilgrim Nuclear Station
(2) SALP Report

cc: L. Shao
J. Richardson
S. Varga
B. Boger
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ENCLOSURE 1

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION RELATIVE TO APPENDIX R EXEMPTIONS REQUESTED FOR BOSTON EDISON COMPANY PILGRIM NUCLEAR POWER STATION DOCKET NO. 50-293

1.0 INTRODUCTION

By letter dated November 16, 1983 (BECo 83-281) the licensee, Boston Edison Company (BECo), requested four exemptions from the technical provisions of Section III.G of Appendix R to 10 CFR Part 50. The four exemptions requested were: Nos. 11 and 12 which pertained to lack of rated fire barriers between the Reactor Building Torus Compartment and the Control Rod Drive Quadrant rooms; No. 13 which pertained to unprotected structural steel in the Reactor Building Torus Compartment; and No. 14 which pertained to unprotected structural steel in the Reactor Building Steam Tunnel. These four requested exemptions are the subject of this Safety Evaluation. (In order to simplify the review, Nos. 11 and 12 are considered together as one requested exemption in Section 2.0 below and Nos. 13 and 14 are considered in Sections 3.0 and 4.0 respectively.) By letters dated December 27, 1984 (BECo 84-214), July 28 (BECo 86-110) and November 14, 1986 (BECo 86-176), April 21 (BECo 87-062) and August 4, 1987 (BECo 87-132), and a meeting on November 24, 1987, the licensee submitted additional information in support of the requests. Region I fire protection engineers visited the site on April 1, 1986 to review the fire protection modifications committed to by the licensee for compliance with Appendix R, and the fire areas where the exemptions from Appendix R had been requested. A site fire protection inspection and audit was also conducted by the Region I fire protection engineer assisted by NRR and Brookhaven National Laboratory (contractor) staff on May 11-15, 1987. Information furnished by the licensee and/or gathered during the site visits was used for this evaluation.

This safety evaluation is based in part on a Technical Evaluation Report (TER) generated by NRR contractor Franklin Research Center (FRC). The staff has reviewed the TER and agrees with the FRC conclusions.

Section III.G.1 of Appendix R requires fire protection features to be provided for structures, systems, and components important to safe shutdown and capable of limiting fire damage so that:

a. One train of systems necessary to achieve and maintain hot shutdown conditions from either the control room or emergency control station(s) is free of fire damage; and

b. Systems necessary to achieve and maintain cold shutdown from either the control room or emergency control station(s) can be repaired within 72 hours.

Section III.G.2 of Appendix R requires that one train of cables and equipment necessary to achieve and maintain safe shutdown be maintained free of fire damage by one of the following means:

a. Separation of cables and equipment and associated nonsafety circuits of redundant trains by a fire barrier having a 3-hour rating. Structural steel forming a part of or supporting such fire barriers shall be protected to provide fire resistance equivalent to that required of the barrier.

b. Separation of cables and equipment and associated nonsafety circuits of redundant trains by a horizontal distance of more than 20 feet with no intervening combustibles or fire hazards. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area.

c. Enclosure of cable and equipment and associated nonsafety circuits of one redundant train in a fire barrier having a 1-hour rating. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area.

If the above conditions are not met, Section III.G.3 requires that there be alternative or dedicated shutdown capability independent of the fire area of concern. It also requires that fire detection and a fixed suppression system be installed in the fire area of concern. These alternative requirements are not deemed to be equivalent; however, they provide equivalent protection for those configurations in which they are accepted.

Because it is not possible to predict the specific conditions under which fires may occur and propagate, design basis protective features rather than the design basis fire are specified in the rule. Plant-specific features may require protection different from the measures specified in Section III.G. In such a case, the licensee must demonstrate, by means of a detailed fire hazards analysis, that existing protection or existing protection in conjunction with proposed modifications will provide a level of safety equivalent to the technical requirements of Section III.G of Appendix R.

In summary, Section III.G is related to fire protection features for ensuring that systems and associated circuits used to achieve and maintain safe shutdown are free of fire damage. Fire protection configurations must meet the specific requirements of Section III.G or an alternative fire protection configuration must be justified by a fire hazards analysis. Generally, the staff will accept an alternative fire protection configuration if:

- The alternative ensures that one train of equipment necessary to achieve hot shutdown from either the control room or emergency control station(s) is free of fire damage.

- The alternative ensures that fire damage to at least one train of equipment necessary to achieve cold shutdown is limited so that it can be repaired within a reasonable time (minor repairs using components stored on the site).

- Fire-retardant coatings are not used as fire barriers.
- Modifications required to meet Section III.G would not enhance fire protection safety levels above that provided by either existing or proposed alternatives.
- Modifications required to meet Section III.G would be detrimental to overall facility safety.

2.0 REACTOR BUILDING, elevation (-)17 FEET: TORUS COMPARTMENT (FIRE ZONE 1.30A), CONTROL ROD DRIVE QUADRANT (FIRE ZONE 1.6/1.8), AND RESIDUAL HEAT REMOVAL TRAIN A PUMP ROOM (FIRE ZONE 1.1)

2.1 Exemptions Requested

Exemptions were requested from Section III.G.2.a to the extent that it requires separation of redundant trains of residual heat removal (RHR) and core spray systems located in Fire Zones 1.1, 1.6/1.8, and 1.30A, respectively, by 3-hour fire rated barriers.

2.2 Discussion

2.2.1 Elevation (-)17 Feet

The licensee has identified the following conditions which do not meet Section III.G.2.a: redundant trains of the RHR, and core spray are not separated from each other by 3-hour rated fire barriers at the boundary between Fire Zones 1.6/1.8 and 1.30A, as well as at the boundary of Fire Zones 1.30A and 1.1.

Each of the subject fire zones is located in the reactor building. The reactor building is divided by concrete floor slabs into six elevations (-)17 feet, 6 inches; 23 feet; 51 feet; 74 feet, 3 inches; 91 feet, 3 inches; and 117 feet. This exemption request involves fire zones located on or adjacent to elevation (-)17 feet.

The reactor building Torus Compartment elevation, (-)17 feet, is an annulus with approximately circular wall about 150 feet in diameter enclosed in a square section of the Reactor Building about 160 feet on a side. The corner, or quadrant, rooms of the square cut off by the Torus Compartment, contain some safe shutdown components. They are directly connected to the Torus Compartment and Fire Zones 1.9 and 1.10 on elevation 23 feet which contain redundant safe shutdown components. The Torus Compartment is designated Fire Zone 1.30A and comprises the majority of this elevation. It is bounded by the corner rooms designated Fire Zone 1.1 on the southeast, Fire Zone 1.2 on the northwest, Fire Zone 1.6/1.8 on the northeast, and Fire Zone 1.5/1.7 on the southwest quadrants of this elevation. Fire Zone 1.30A is separated from the four quadrants by 36-inch-thich concrete walls. Penetrations in each wall consist of an unprotected doorway and a small number of nonrated mechanical and electrical penetrations.

Elevation (-)17 feet is connected to elevation 23 feet by open stairways located in each of the corner rooms. The stairways located in Fire Zones 1.1 and 1.6/1.8 (-17 feet) communicate with Fire Zone 1.9 (23 feet) and those in Fire Zone 1.2 and 1.5/1.7 (-17 feet) communicate with Fire Zone 1.10 (23 feet).

The combustible contents of Fire Zone 1.1 consist of cable insulation and lube oil. The combustible loading is approximately 15,300 Btu per square foot, which produces an equivalent fire severity of approximately 12 minutes on the ASTM E-119 time-temperature curve. Fire protection in this zone consists of smoke detectors and a manual hose station.

The combustible contents of Fire Zone 1.2 consist of cable insulation and lube oil. The combustible loading is approximately 14,900 Btu per square foot, which produces an equivalent fire severity of approximately 11 minutes on the ASTM E-119 time-temperature curve. Fire protection in this zone consists of smoke detectors, portable fire extinguishers and a manual hose station.

The combustible contents of Fire Zone 1.5/1.7 consist of cable insulation and lube oil. The combustible loading is approximately 23,700 Btu per square foot, which produces an equivalent fire severity of approximately 18 minutes on the ASTM E-119 time-temperature curve. The fire protection in this zone consists of smoke detectors, portable fire extinguishers and a manual hose station.

The combustible contents of Fire Zone 1.6/1.8 consist of cable insulation and lube oil. The combustible loading is approximately 12,700 Btu per square foot, which produces an equivalent fire severity of approximately 10 minutes on the ASTM E-119 time-temperature curve. Fire protection in this zone consists of a portable fire extinguisher and a manual hose station.

The combustible contents of Fire Zone 1.9 consist of cable insulation. The combustible loading is approximately 39,200 Btu per square foot, which produces an equivalent fire severity of approximately 30 minutes on the ASTM E-119 time-temperature curve. Fire protection in this zone consists of smoke detectors, portable extinghishers and manual hose station.

The combustible contents of Fire Zone 1.10 consist primarily of cable insulation. The combustible loading is approximately 36,700 Btu per square foot, which produces an equivalent fire severity of approximately 28 minutes on the ASTM E-119 time-temperature curve. Fire protection in this zone consists of smoke detectors, portable fire extinguishers and manual hose stations.

The combustible contents of Fire Zone 1.30A consist of approximately 375 pounds of cable insulation (IEEE 383 Qualified Cable) in one cable tray approximately 125 feet long. No fire protection systems or equipment are installed in this fire zone, however, smoke detectors in three of the four quadrant rooms and manual fire fighting equipment (portable extinguishers and manual hose stations equipped with combination spray/straight stream nozzles) provide adequate protection.

2.2.2 Fire Zone 1.30A

Fire Zone 1.30A contains cable associated with the following safe shutdown systems:

- Reactor core isolation cooling (RCIC)
- High Pressure coolant injection (HPCI)
- Torus water level
- Torus water temperature.

Fire Zone 1.30A contains both Train A and Train B Torus Instrumentation Cables (Torus Water Level and Torus Water Temperature) which are safe shutdown components. The alternative Torus Instrumentation Cables are also located in Fire Zone 1.30A, however, they are protected throughout this fire zone by a one-hour fire rated wrap. (The Torus Instrumentation Cables were the subject of Exemption Request No. 5 which was granted partly on the basis of separation distance with over 100 feet between Train A and Train B cables and the alternative instrumentation cables, each being located about 120° apart around the Torus.)

Fire Zone 1.30A communicates by way of open doorways to Fire Zone 1.1 and 1.6/1.8 (which contain Train A components), and to 1.2 (which contains Train B components) and 1.5/1.7. Fire Zones 1.1 and 1.6/1.8 in turn communicate by means of open stairs with Fire Zone 1.9 (which contains Train A components) on elevation 23 feet, and Fire Zone 1.2 and 1.5/1.7 similarly communicates with Fire Zone 1.10 (which contains Train B components) also on elevation 23 feet. The minimum horizontal distance between Train A and Train B safe shutdown components considering the path through Fire Zone 1.30A is over 100 feet and involves open doorways between Fire Zone 1.30A and Fire Zone 1.1, 1.6/1.8, 1.2 and 1.5/1.7. Protection of the path directly between Fire Zone 1.9 and 1.10 on elevation 23 feet has already been considered by the granting of Exemption Request Nos. 7 and 8 which provide for an automatic water curtain separating these two fire zones.

2.2.3 Fire Zones 1.2, 1.5/1.7, and 1.10

Fire Zone 1.2 contains cables and equipment associated with Train B of the RHR and core spray systems.

Fire Zone 1.10 contains cables and equipment associated with Train B of the RHR, ADS, core spray, and emergency diesel generator fuel oil transfer pump, as well as the HPCI and RCIC systems.

Fire Zones 1.2, 1.5/1.7, and 1.10 are separated from each other and from Fire Zone 1.30 A as described above. In addition, Fire Zones 1.10 and 1.9 are separated from each other by a sprinkler water curtain on elevation 23 feet. The separation distance between the Train B components or cables in Fire Zones 1.2 and 1.10 and the closest Train A-designated zone going through Fire Zone 1.30A to 1.1, 1.6/1.8 and 1.9 is at least 100 feet horizontally.

2.2.4 Fire Zones 1.1, 1.6/1.8, and 1.9

Fire Zone 1.1 contains cables and equipment associated with Train A of the RHR and core spray systems. The closest redundant Train B components are located in Fire Zone 1.2, approximately 150 feet from Fire Zone 1.1, which contains counterpart train A components.

Fire Zone 1.6/1.8 contains no safe shutdown cables or equipment, except Train A RHR pressure switches and valves and cables associated with these valves. It is open to Fire Zone 1.9 on elevation 23 feet, which contains cables associated with Train A of the RHR and core spray systems. The licensee has relocated cables associated with Train B of the core spray and emergency diesel generator fuel oil transfer pumps out of Fire Zone 1.9 and has incorporated the operator action relative to these systems into the alternative shutdown procedure.

2.3 Evaluation

The fire protection in Fire Zones 1.30A, 1.6/1.8, and 1.1 does not comply with the technical requirements of Section III.G.2.a of Appendix R because redundant trains of RHR and core spray are not separated by fire barriers having 3-hour ratings.

The concern was that the lack of 3-hour fire rated barriers between the redundant trains may result in a loss of redundant safe shutdown capability. However, the equivalent fire severity in any of these fire zones is less than 30 minutes. Therefore, a fire of significant magnitude or severity is not expected to occur. Also, the burning rate of combustibles is expected to be limited because most combustibles are enclosed (oil and lubricants in pumps) or treated (IEEE 383 qualified and/or fire retardant-coated cables) to reduce combustibility.

If a fire should occur in Fire Zone 1.30A, it is expected that it would be detected by fire detectors in Fire Zones 1.5/1.7, 1.2 or 1.1. The detectors annunciate in the control room to alert the control room operators. They, in turn, would alert the fire brigade to respond to the reactor building and extinguish the fire.

If the fire was not detected promptly, it is expected that it would not result in a loss of safe shutdown capability. The separation distance is 100 feet or more between redundant safe shutdown systems in Fire Zones 1.1, 1.6/1.8 and 1.9, and 1.2 and 1.10. The combustible loading in Fire Zone 1.30A is limited so that any potential fire is not expected to generate fire gas temperatures high enough to damage cables or equipment. The licensee confirmed by telephone conference call on August 4, 1987 that there are not intervening combustibles between redundant safe shutdown systems in Fire Zones 1.2 and 1.1 or 1.6/1.8. In addition, the openings between elevations (-)17 feet and 23 feet would further reduce fire gas temperatures because of the mixing with cooler air. If a fire occurred in one of the quadrants at elevation (-)17 feet, similar results are expected.

With these installed fire protection features, reasonable assurance exists that a fire originating in the above-described section of Fire Zones 1.30A, 1.2, 1.1, 1.6/1.8 or 1.5/1.7 would not prevent the plant from safely shutting down.

2.4 Conclusion

Based on the above evaluation, the staff concludes that the existing fire protection features provide an acceptable level of protection for redundant trains of the RHR and core spray systems on elevations (-)17 and 23 feet. Therefore, the exemptions should be granted.

3.0 REACTOR BUILDING, TORUS COMPARTMENT, ELEVATION (-)17 FEET (FIRE ZONE 1.30A)

3.1 Exemption Requested

An exemption was requested from Section III.G.2.a to the extent that it requires structural steel forming a part of or supporting the fire barrier between redundant trains of safe shutdown components in Fire Zone 1.30A and Fire Zones 1.9 and 1.10 to be protected to provide fire resistance equivalent to that required of the barrier.

3.2 Discussion

The concrete floor slab which separates Fire Zone 1.30A from Fire Zones 1.9 and 1.10 above is supported by unprotected structural steel beams.

The combustible materials in Fire Zone 1.30A are primarily located 18 feet below the structural steel in the form of fire-retardant painted wood staging which will be removed by the time of startup. The other significant combustible material consists of cable insulation located approximately one-foot below the steel in a 12-inch-wide cable tray.

3.3 Evaluation

The fire protection in Fire Zone 1.30A does not comply with the technical requirements of Section III.G.2a of Appendix R because structural steel forming a part of or supporting the fire barrier between redundant safe shutdown systems in Fire Zone 1.30A and Fire Zones 1.9 and 1.10 is not protected to provide fire resistance equivalent to that required of the barrier supported.

The licensee was advised of the staff's concern and by letter dated November 14, 1986 (BECo 86-176) they committed to install covers on the cable trays involved so as to prevent direct flame impingement from a potential cable tray fire on the structural steel. By letter dated April 21, 1987 (BECo 87-062), the licensee modified their proposal. They stated that as a result of further engineering evaluation installation of tray covers was not practical. They further stated that engineering reanalysis demonstrated that tray covers are not required to protect the structural steel and, therefore, would not be installed. The licensee did not submit any engineering evaluation to support their finding. During the June 17, 1987 meeting, the staff requested this

information from the licensee in order to conclude the review. The licensee submitted the evaluation calculations by letter dated August 4, 1987 (BECo 87-132). (Dates on the cover sheet for the calculations and reevaluation of the structural steel indicating "Prepared By, Checked By and Approved By" are all 7/22/87.)

The licensee analyzed the unprotected steel for potential failure due to exposure to burning cable trays in the Torus Compartment. The analysis demonstrated an adequate margin of safety for the structural steel and indicated that additional protection for the steel, either in the form of fire proofing applied directly to the steel or tray covers installed on the cable trays in the area, is not required.

The analysis considered all of the fuel (cable insulation and jacket material) in the Torus Compartment burning and the effect of the heat released on the unprotected structural steel. The licensee calculated the average fuel loading per square foot of area in the locality of the exposed cable tray in the Torus Compartment at about 2100 Btu/sq ft with an equivalent fire severity of less than 2-minutes.

All of the structural steel in the Torus Compartment was evaluated and six types of beams were found to be required to maintain the integrity of the Torus Compartment ceiling as fire area boundary. Existing fire test results have already shown these six beam types can survive a "Standard" fire for 14 to 21 minutes before failure. Therefore, a fire lasting less than 2-minutes will not lead to failure even if all of the heat released by the burning cables is assumed to heat only the steel.

The cable tray is assumed to cross under the structural steel at 90° angle and about 12-inches below the beam. The combustible insulation and jacket material in the cable tray is assumed to burn completely and release 100% of its potential heat of combustion. This heat of combustion is assumed to consist equally of radiant heat and convective heat in the fire plume. The final assumption is that 100% of the convective heat in the fire plume is absorbed in the steel section directly above the cable tray with no losses into the air, surrounding concrete or axially by conduction into the remainder of the structural steel beam. Each of these assumptions is, individually, conservative. The temperatures calculated (using those assumptions) for the six beam types (or sizes) ranged from 685°F for the heaviest beam to 970°F for the lightest, well below the critical failure temperature of 1100°F for this type of steel.

The staff agrees with the licensee's conclusion that these two methods of analysis show that the structural steel in the Torus Compartment will not fail due to heating from a fire involving the cable trays in the compartment. Further, we agree that the licensee should not be required to install covers on the cable trays located in the Torus Compartment.

3.4 Conclusion

Based on the above evaluation, the staff concludes that the existing and proposed fire protection features provides an acceptable level of protection for redundant trains of cables and equipment located in Fire Zones 1.30A, 1.9 and 1.10. Therefore, the exemption should be granted.

4.0 REACTOR BUILDING, STEAM TUNNEL ELEVATION 23 FEET (FIRE ZONE 1.32)

4.1 Exemption Requested

An exemption was requested from Section III.G.2.a to the extent that it requires structural steel forming a part of or supporting the fire barrier between Fire Zone 1.32 and Fire Zones 1.11 and 1.12 to be protected to provide fire resistance equivalent to that required of the barrier.

4.2 Discussion

The licensee has identified the following condition which does not meet Section III.G.2.a: The structural steel beam supporting the floor slab separating Fire Zone 1.32 from Fire Zones 1.11 and 1.12 is not protected to provide fire resistance equivalent to that required of the barrier.

Fire Zone 1.32 is located on elevation 23 feet. It adjoins the containment to the north, Fire Zone 1.9 to the east, and Fire Zone 1.10 to the west. It is located below Fire Zones 1.11 and 1.12 on elevation 51 feet of the reactor and turbine buildings.

Fire Zone 1.32 is separated from Fire Zones 1.11 and 1.12 by a concrete floor slab supported by one structural steel beam. Fire Zones 1.11 and 1.12 contain redundant safe shutdown systems.

The steam tunnel (Fire Zone 1.32) contains the RCIC and HPCI systems. The licensee has stated that the loss of these systems does not prevent safe shutdown.

Fire Zones 1.11 and 1.12 contain safety-related core spray and RHR valves and safety-related cable trays and panels.

The combustible contents of Fire Zone 1.32 consist of a few exposed electrical cables (approximately 5800 Btu per square foot which produces an equivalent fire severity of approximately four minutes). The majority of the cables in this fire zone are routed in conduits. There are no other combustible materials in the fire zone. Fire protection consists of a portable fire extinguisher and a manual hose station in an adjacent area.

The licensee performed an analysis to determine the quantity of combustible material which would be required to raise the temperature of the steel to 650°F, above which it would fail to support the floor. The analysis indicated that a combustible loading of 21,500 Btu per square foot would be required. The licensee concluded that, since the actual combustible loading in this fire zone is negligible, the steel would not experience a high enough temperature to fail.

4.3 Evaluation

The fire protection in Fire Zone 1.32 does not comply with the technical requirements of Section III.G.2.a of Appendix R because structural steel forming a part of or supporting the fire barrier between Fire Zone 1.32 and Fire Zones 1.11 and 1.12 is not protected to provide fire resistance equivalent to that required of the barrier.

The licensee's analysis indicates that the structural steel would not fail even if it instantaneously absorbed the entire heat of combustion of the combustible materials present in Fire Zone 1.32. Although the licensee's analysis does not take into account the effect of a fire plume impinging directly on a structural member, because of the negligible combustible loading, it is not expected that such an exposure fire would be significant. Therefore, reasonable assurance exists that a fire originating in this fire zone will not prevent the plant from safely shutting down.

4.4 Conclusion

Based on the above evaluation, the staff concludes that the existing fire protection features for the structural steel in Fire Zone 1.32, which support the floor of Fire Zones 1.11 and 1.12, provide an acceptable level of protection for the redundant trains of cables and equipment located in Fire Zone 1.11 and 1.12. Therefore, the exemption should be granted.

5.0 SUMMARY

Based on the evaluation, the staff finds that the level of fire safety in the fire zones listed below is equivalent to that achieved by compliance with the technical requirements of Section III.G of Appendix R and, therefore, the licensee's requests for exemption in these zones should be granted:

1. Fire Zones 1.30A, 1.1 and 1.6/1.8

   Lack of fire barriers separating redundant trains of cables and equipment. Refer to Section 2.0 for details.

2. Fire Zone 1.30A

   Lack of fireproofing of structural steel supporting or forming a part of the barrier between Fire Zone 1.30A and Fire Zones 1.9 and 1.10. Refer to Section 3.0 for details.

3. Fire Zone 1.32

Lack of fire proofing of structural steel supporting or forming a part of the fire barrier between Fire Zone 1.32 and Fire Zones 1.11 and 1.12. Refer to Section 4.0 for details.

6.0 PRINCIPAL CONTRIBUTOR: John Stang

This Safety Evaluation Report was prepared by John Stang and revised by David Notley, and is based on a Technical Evaluation Report prepared by Franklin Research Center (FRC) under a contract with the U.S. Nuclear Regulatory Commission (NRC).

Dated:

ENCLOSURE 2

SALP INPUT FROM THE CHEMICAL ENGINEERING BRANCH
FOR
PILGRIM NUCLEAR POWER STATION

A. Licensing Activities

1. Management Involvement in Assuring Quality
What should have been a straight-forward review by the staff of requests for exemptions from specific requirements of Appendix R was made unnecessarily complicated because the licensee twice changed their proposal regarding unprotected steel in the Torus Compartment. This indicated lack of management involvement to assure proposed modifications or justifications supporting exemption requests are complete and technically and economically sound.
Rating: 3

2. Approach to Resolution of Technical Issues from a Safety Standpoint
Technical issues involved in these exemption requests were adequately addressed and satisfactorily resolved.
Rating: 2

3. Responsive to NRC Initiatives
Response to NRC questions was adequate but not timely, with respect to unprotected steel in the Torus Compartment, the licensee originally proposed no modifications. In response to staff questions they proposed installing covers on the cable trays in the Torus Compartment but later discovered that such installation would be both difficult and expensive. The licensee then stated that reevaluation - including calculations - indicated no need for the cable tray covers. During a meeting on June 17, 1987 the staff asked for the calculations to review. They were finally submitted by letter dated August 4, 1987 and the calculation sheets were dated July 22, 1987.
Rating: 3

4. Staffing (Including Management)
Rating: N/A

5. Reporting and Analysis of Reportable Events
Rating: N/A

6. Training and Qualification Effectiveness
Rating: N/A

7. Overall Rating for Licensing Activity in Functional Area
Rating: 3