SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATIVE TO APPENDIX R EXEMPTIONS REQUESTED FOR

PILGRIM NUCLEAR POWER STATION

DOCKET NO. 50-293

1.0 INTRODUCTION

By letter dated November 16, 1983, Boston Edison Company (BECo, the Licensee) requested four exemptions from Section III.G of Appendix R. By letter dated December 27, 1984, the Licensee submitted additional information in support of two of the requests. The four exemption requests are the subject of this evaluation. NRR and Region I fire protection engineers visited the site on April 1, 1986 to review the fire protection modifications committed to be made by the Licensee for compliance with Appendix R and the fire areas where the exemptions from Appendix R had been requested. Additional information furnished by the Licensee and/or gathered during the site visit was used for this evaluation.

Insert

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).

- o Fire-retardant coatings are not used as fire barriers.
- o Modifications required to meet Section III.G would not enhance fire protection safety levels above that provided by either existing or proposed alternatives.
- o 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), automatic depressurization system (ADS), core spray and emergency diesel generator fuel oil transfer pump cables 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, core spray, ADS, and emergency diesel generator fuel oil transfer pump cables 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; 2 feet, 9 inches; 23 feet; 51 feet; 74 feet, 3 inches; 91 feet, 3 inches; and 117 feet). It is divided into fire areas and several fire zones. The fire areas are separated from each other by fire rated barriers with protected openings. The fire zones are separated from each other by fire rated barriers penetrated by unprotected openings. This exemption request involves fire zones located on or adjacent to elevation (-)17 feet.

The reactor building elevation (-)17 feet is divided into five fire zones. Fire Zone 1.30A comprises the majority of this elevation. It is bounded by Fire Zone 1.1 in the southeast, Fire Zone 1.2 in the northwest, Fire Zone 1.6/1.8 in the northeast, and Fire Zone 1.5/1.7 in the southwest quadrants of this elevation. It is separated

from the four zones (quadrants) by 36-inch-thick 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 Fire Zones 1.6/1.8, 1.1, 1.2, and 1.5/1.7. Fire Zones 1.6/1.8 and 1.1 are open to Fire Zone 1.9 on elevation 23 feet. Fire Zones 1.2 and 1.5/1.7 are open to Fire Zone 1.10 on elevation 23 feet.

The combustible contents of Fire Zone 1.1 consist of cable insulation and lube oil. The combustible loading is approximately 12,200 Btu per square foot, which produces an equivalent fire severity of 9 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 12,200 Btu per square foot, which produces an equivalent fire severity of 9 minutes on the ASTM E-119 time-temperature curve. Fire protection in this zone consists of 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 14,400 Btu per square foot, which produces an equivalent fire severity of 11 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 4,800 Btu per square foot, which produces an equivalent fire severity of approximately 4 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 portable extinguishers and manual hose stations.

The combustible contents of Fire Zone 1.10 consist primarily of cable insulation. The combustible loading is approximately 30,400 Btu per square foot, which produces an equivalent fire severity of 23 minutes on the ASTM E-119 time-temperature curve. Fire protection in this zone

consists of portable fire extinguishers and manual hose stations.

The combustible contents of Fire Zone 1.30A consist of 24 pounds of cable insulation in one cable tray, which is approximately 125 feet long and approximately 8,200 pounds of fire-retardant painted wood staging (scaffolding) encircling the torus. The combustible loading is approximately 5,900 Btu per square foot, which produces an equivalent fire severity of approximately 4 minutes on the ASTM E-119 time-temperature curve. No fire protection systems or equipment are installed in this fire zone. However, there is one hose reel and one portable extinguisher in each adjacent quadrant that will reach and cover this fire zone.

2.2.2 Fire Zone 1.30A

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

- RHR train B
- Core spray train B
- Emergency diesel generator trains A and B fuel oil transfer pumps
- Reactor core isolation cooling (RCIC)
- High pressure coolant injection (HPCI)
- Torus water temperature.

The Licensee has committed to reroute power cables out of Fire Zone 1.30A that feed MCC B18 components required for train B of the RHR and core spray systems. The cables will be routed out of the reactor building through the west wall, around the exterior, and in through the east wall. The Licensee has also committed to reroute cables associated with torus water temperature and both trains of fuel oil transfer pumps out of this fire zone as described in the Licensee's letters dated June 25, 1982 and May 17, 1983.

Upon completion of the modifications, no train A or B safe shutdown components or cables will be physically present in this fire zone. However, this fire zone is not separated by complete 3-hour fire rated boundaries from Fire Zones 1.2 and 1.10, which contain train B components required for safe shutdown. This fire zone is also open to Fire Zone 1.6/1.8 via an open stairway. Fire Zone 1.6/1.8 does not contain any safe shutdown components, but it is open to Fire Zone 1.9 by an open stairwell which contains train A

components required for safe shutdown. Therefore, Fire Zone 1.30A provides a path between train A components located in Fire Zone 1.9 and train B components located in Fire Zones 1.2 and 1.10. The minimum distance between train A and B components along this path is at least 100 feet horizontally (between the openings in the fire barriers separating Fire Zone 1.30A from Fire Zones 1.2 and 1.6/1.8) and 40 feet vertically between elevations (-)17 and 23 feet.

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 1.5/1.7 contains cables and equipment associated with the RCIC system only.

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 1.30A 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 these zones and the closest train A-designated zone 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.

Fire Zone 1.6/1.8 contains no safe shutdown cables or equipment. However, it is open to Fire Zone 1.9 on elevation 23 feet, which contains cables associated with trains A and B of the RHR, ADS, core spray, and emergency diesel generator fuel oil transfer pumps. The Licensee has committed to relocate cables associated with train B of the above-named systems out of Fire Zone 1.9. The closest train B components are in Fire Zone 1.2, which is located approximately 100 feet horizontally across Fire Zone 1.30A from Fire Zone 1.6/1.8, which contains train A.

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, ADS, core spray, and emergency diesel generator fuel oil transfer pump cables 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 the combustibles is expected to be limited because most combustibles (oil and lubricants in pumps) are enclosed or treated (fire retardant-painted wood and fire retardant-coated cable) to reduce combustibility.

If a fire should occur in Fire Zone 1.30A, it is expected that it would not be detected by fire detectors in Fire Zones 1.5/1.7 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, for the following reasons: The separation distance is 100 feet or more between redundant safe shutdown systems in Fire Zones 1.2 and 1.1 or 1.6/1.8 and the combustible loading in Fire Zone 1.30A is limited, which would not allow fire gas temperatures to exceed the limit at which damage to cables or equipment is expected to occur. In addition, the openings between elevations (-)17 feet and 23 feet would further prevent fire gas temperatures criticality 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 the installed fire protection features in conjunction with the committed modifications, reasonable assurance exists that a fire originating in the above-described sections 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 combined with the proposed modifications provide an acceptable level of protection for redundant trains of the RHR, ADS, core spray, and emergency diesel generator fuel oil transfer pumps on elevation (-)17 feet. Therefore, the exemptions should be granted.

3.0 REACTOR BUILDING, TOURS 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. The other significant combustible material, including cable insulation, is located 2 feet below the steel in a 12-inch-wide cable tray.

The Licensee has committed to modifications described in Section 2.2. Upon completion of these modifications, Fire Zone 1.30A will contain only RCIC and HPCI components, which provide alternate shutdown capability for the RHR and ADS components contained in Fire Zones 1.9 and 1.10 located above Fire Zone 1.30A.

The Licensee has performed an analysis of the effect of instantaneous complete combustion of the entire combustible load of this fire zone on the structural steel. The analysis assumed that all of the heat from the fire was immediately absorbed by only the steel, and that the steel would fail if it reached a temperature of 650°F. The Licensee's analysis indicated that based on the total combustible loading, the steel would not experience more than an average temperature of 326°F, which is well below the 650°F assumed to fail the structural steel.

3.3 Evaluation

The fire protection in Fire Zone 1.30A 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 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's analysis indicates that the structural steel would not fail, even if it instantaneously absorbed the entire heat of combustion of the combustible materials in Fire Zone 1.30A. However, the Licensee's analysis does not take into account the effect on the steel of a fire plume impinging directly on a structural steel member. Because the cable tray is located approximately 2 feet below the structural steel, a fire in the tray might create air temperatures as high as 650°F at the lower flange of the steel. Therefore, there is not reasonable assurance that a fire in this zone would not jeopardize the structural steel creating a situation which will impair the safe shutdown capability.

3.4 Conclusion

Based on the above evaluation, the staff concludes that the existing fire protection features do not provide an acceptable level of protection for redundant trains of cables and equipment located in Fire Zones 1.9 and 1.10. Therefore, the exemption should not 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 combustible contents of Fire Zone 1.32 consist of a few exposed electrical cables. 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 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 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 high 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 supported.

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 featuring 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 Zones 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 1.32

   Lack of fireproofing 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.

Based on the evaluation, the staff finds that the level of the fire safety in the area listed below has not been shown to be in compliance with the technical requirements of Section III.G of Appendix R and, therefore, the Licensee's request for exemption should not be granted:

1. Fire Zone 1.30A

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

6.0 PRINCIPAL CONTRIBUTORS

This Safety Evaluation Report was prepared by John Stang based on a Technical Evaluation Report prepared by Franklin Research Center (FRC) under a contract with the U.S. Nuclear Regulatory Commission (NRC). ~~Mr. J. Klevan contributed to the technical preparation of this~~ report ~~under a subcontract with Rolf Jensen & Associates~~, Inc.

~~August 20, 1986~~

Dated

MASTER
HAUE LIST

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BOSTON ELECTRIC COMPANY
(Pilgrim I Nuclear Power Station)

Docket No. 50-293
(2.206 Request)

CERTIFIED INDEX

Date Docketed Office of the Secretary		Date of Document	Title or Description of Document
H	1	11/9/71	Task Force Review, Bypass Effects in GE Pressure Suppression Containment
H	2	12/1/71	Task Force Review, Bypass Effects in GE Pressure Suppression Containment
✓	3	9/20/72	AEC internal report by Stephen H. Hanauer, raising seven concerns centering on the viability of the pressure-suppression containment concept
H	4	9/25/72	Memo from Joseph M. Hendrie to John F. O'Leary, Re: acceptance of pressure-suppression containment concept
	5	1/15/73	Memo from S. H. Hanauer to E. J. Bloch, Re: Bypass Paths on BWR Pressure Suppression Containment
H	6	1975	Manual of Protective Action Guides and Protective Actions for Nuclear Accidents, EPA-520/1-75-001, EPA
✓	7	2/75	Letter from NRC to all utilities owning BWR facilities with Mark I design containments
✓	8	4/75	Letter from NRC to all utilities owning BWR facilities with Mark I design containments

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Date Docketed Office of the Secretary		Date of Document	Title of Document
H →	1	1976	ANSI Standard 18 7-1976, Section 5.2.6, Equipment Control
H	2	1977	Study published by Massachusetts Public Interest Research Group entitled "Nuclear Evacuation Planning: Blueprint for Chaos"
✓	3	6/20/78	Memo from Dr. Hanauer to Dr. Hendrie, quoting from NUREG-0474
H ✓	4	7/78	NUREG-0474, "A Technical Update on Pressure Suppression Type Containments in Use in U.S. Light Water Reactor Nuclear Power Plants"
H-	5	12/78	Union of Concerned Scientists, "An Analysis of Chairman Hendrie's Response to Senator Hart's Letter of June 15, 1978"
H	6	1980	IE Bulletin 80-10, "Contamination of Nonradioactive System and Resulting Potential for Unmonitored/Uncontrolled Release to the Environment"
✓	7	7/80	NUREG-0661, "Mark I Containment Long — Term Program Safety Evaluation Report"
H →	8	8/19/80	45 Fed. Reg. 55402
H →	9	11/80	NUREG-0654/FEMA-REP-1, Rev. 1, — "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"
H-	10	1981	SALP Report
	11	7/20/81	Response of Boston Edison Co. to Commonwealth of Massachusetts' First Set of Interrogatories on Emergency Planning
	12	1982	Cover letter from Richard C. Young, Director, Office of Inspection and Enforcement, NRC to BECo, with NRC 50-293/EA 81-63, Order Modifying License Effective Immediately

Date Docketed Office of the Secretary	Date of Document	Title of Document
H - 1	1982	SALP Report
H - 2	1982	Civil Penalty and Order re: Modifying the Pilgrim License
H. 3	8/82	Comments of Attorney General Francis X. Bellotti Relative to Off-Site Emergency Planning for the Pilgrim Nuclear Power Station, submitted to FEMA
✓ 4	9/29/82	Report issued by Federal Emergency Management Agency, Region I entitled: "Joint State and Local Radiological Emergency Response Capabilities for the Pilgrim Power Station, Plymouth, Massachusetts"
✓ 5	10/27/82	Plant Unique Analysis Report (PUAR) of the Suppression Chamber - Mark I Containment Long Term (TR-5310-1)
→ H 6	1983	Updated study published by Massachusetts Public Interest Research Group entitled "Blueprint for Chaos II: Pilgrim Disaster Plans Still a Disaster"
H 7	1/83	Report on the Pilgrim Nuclear Power Station Siren Test, FEMA
→ 8	1983	MASSPIRG study of two hospital (Jordan Hospital, Plymouth, and Morton Hospital, Taunton)
✓ 9	10/26/83	Plant Unique Analysis Report (PUAR) of the Torus Attached Piping - Mark I Containment Long Term Program (TR-5310-2)
H → 10	1984	SALP Report 50-293/84-34
H → 11	1985	SALP Report
H → 12	1985	NRC Inspection Report 50-293/85-13
H → 13	1985	NRC Inspection Report 50-293/85-22

Date Docketed Office of the Secretary	Date of Document	Title of Document
14 → 1	1985	Notice of Violation (Inspection Report 50-293/85-32, cover letter from Thomas Martin, Director, Division of Radiation Safety and Safeguards, and Appendix A, Notice of Violation)
H → 2	1985	LER No. 85-26
H → 3	1985	Inspection number 85-24 (revealed security level III violation)
4	1/25/85	Quality Assurance Surveillance, 85-1,2-1
✓ 5	1/30/85	NRC staff issued Safety Evaluation Report
6	4/85	Report by Stone & Webster (predicted Pilgrim facility's waste would contain about 1024 curies that year)
H → 7	7/85	NUREG-0956, "Reassessment of the Technical Bases for Estimating Source Terms"
8	7/12/85	Nuclear Operations Manager (NOM) Memorandum, M85-137, Control and Verification of Operating Actions
✓ 9	8/8/85	50 Fed. Reg. 32138, "Policy Statement on Severe Reactor Accidents Regarding Future Designs and Existing Plants"
H 10	10/85	Letter from FBMA to MCDA, outlining FBMA concerns
→ 11	1/86	Letter from FBMA to MCDA, outlining FBMA concerns
? 12	1/86	Steven Sholly and Dr. Gordon Thompson, "The Source Term Debate," Union of Concerned Scientists
✓ 13	2/18/86	SALP Report No. 50-293/85-99
H → 14	2/21/86	IE Information Notice No. 86-13
✓ 15	4/2/86	Special NRC Inspection Report 50-293/86-06

Date Docketed Office of the Secretary		Date of Document	Title of Document
✓	1	4/12/86	Confirmatory Action Letter (CAL) 86-10, issued by Region I Administrator
H ✓	2	5/21/86	Article, Boston Globe, re: NRC Commissioners ordering the Pilgrim facility to remain shut down temporarily because of safety problems
H	3	5/22/86	Statement of James Asselstine before the Subcommittee on Energy Conservation and Power
H	4	5/23/86	Statement of NRC Commissioners at hearing before U.S. House Subcommittee on Energy Conservation and Power, Boston Globe
H	5	5/28/86	Telephone Interview with James Asselstine, Boston Globe
✓	6	6/86	NUREG/CR-4594, "Estimated Safety Significance of Generic Issue 61"
H	7	6/6/86	MCDA response to FEMA's October, 1985 letter
✓	8	6/9/86	Statement of Harold Denton, Director, Nuclear Reactor Regulation, quoted in Inside NRC, Vol. 8, No. 12
H	9	6/18/86	Article, Boston Globe, (example of BECo's failure to insure proper surveillance)
FEMA doesn't have	10	6/18/86	Testimony of Edward A. Thomas, Division Chief, Natural and Technological Hazards, FEMA, before Massachusetts State legislators
	11	6/18/86	Statement of Mr. Lubering, Deputy Director of the Massachusetts Civil Defense Agency, before Massachusetts legislators
H	12	6/21/86	Joseph M. Hendrie, Letter to the editor, New York Times, concerning review issues in the QE containments

Date Docketed Office of the Secretary		Date of Document	Title of Document
H	1	6/24/86	Article, Boston Globe
	2	6/26/86	Massachusetts Department of Public Utilities report
H	3	6/27/86	Excerpts of Massachusetts Department of Public Utilities Report, Boston Globe
H	4	6/28/86	Statements by FEMA and MCDA officials, Patriot Ledger
H	5	7/9/86	Statement of James Asselstine, Patriot Ledger
✓	6	7/15/86	Petition for Show Cause Concerning Pilgrim I Nuclear Power Station
✓	7	8/27/86	Letter from Murley, Region I, NRC to J. Lydon, BECo re: CAL 86-10
✓	8	12/86	Report issued by the Office of Public Safety of the Commonwealth of Massachusetts entitled "Report to the Governor on Emergency Preparedness for an Accident at the Pilgrim Nuclear Power Station"
✓	9	12/19/86	Letter from James M. Taylor, Director, Office of Inspection and Enforcement to Senator Golden
✓	10	1/87	Report prepared by Impell Corporation for BECo entitled "Evaluation of Offsite Emergency Preparedness in Area Surrounding the Pilgrim Nuclear Power Station"
✓	11	2/20/87	Letter from Thomas Murley, Regional Administrator, NRC Region I to Senator Golden re: Delay of Meeting with Petitioners
✓	12	3/31/87	Memorandum from FEMA to NRC re: FEMA's conduct of a self-initiated review of the overall state of emergency preparedness at Pilgrim Station

Date Docketed Office of the Secretary	Date of Document	Title of Document
✓ 1	4/1/87	Letter from Thomas E. Murley, Regional Administrator, NRC Region I to Senator Golden re: Meeting between NRC and Petitioners
✓ 2	4/29/87	Memorandum from the NRC to FEMA, with attached copy of March 1987 report by the Town of Plymouth Nuclear Committee entitled "Report to the Selectmen on the Plymouth Radiological Emergency Response Plan"
✓ 3	4/30/87	Letter from S. Varga, NRC to R. Bird, BECo re: Request that licensee provide details of modifications and procedural changes
H 4	5/26/87	Article, Boston Globe, re: pressure suppression systems at Chernobyl and Pilgrim
✓ 5	6/4/87	Reports prepared by BECo re: Evacuation Time Estimates and Beach Population Sheltering, Mobility Impaired, and Special Facilities
H 6	6/12/87	Report by BECo re: A Northern Reception Center
✓ 7	6/17/87	Final SALP Report No. 86-99 (initially issued 4/8/87)
H 8	7/29/87	FEMA Analysis of the issues raised in the subject petition entitled "Analysis of Emergency Preparedness Issues at Pilgrim Nuclear Power Station Raised in a Petition to the NRC Dated July 15, 1986" (Attachment A to Director's Decision)
H → 9	7/30/87	Report submitted by BECo entitled "Pilgrim Nuclear Power Station Restart Plan"
H → 10	8/87	NUREG-1251, "Implications of the Accident at Chernobyl for Safety Regulation of Commercial Nuclear Power Plants in the United States"

Date Docketed Office of the Secretary		Date of Document	Title of Document
H	1	8/4/87	Report from FBMA entitled "Self-Initiated Review and Interim Finding for the Pilgrim Nuclear Power Station"
V	2	8/5/87	Report submitted by MASSPIRG entitled "Health Surveillance of the Pilgrim Area" as addendum to the Petition
V	3	8/6/87	Letter from FBMA to the NRC forwarding 8/4/87 FBMA report entitled "Self-Initiated Review and Interim Finding for the Pilgrim Nuclear Power Station, Plymouth, MA"
V	4	8/21/87	Interim Director's Decision 87-14
	5	Undated	Brief description of the Pilgrim Mark I Containment Design
H	6	Undated	Enclosure A to NUREG-0474, "Summary of NRC Staff Actions Related to the Technical Issues Identified in Dr. Hanauer's Memorandum of September 20, 1972
	7	Undated	Pilgrim Station Regulatory Performance History
	8	Undated	NUREG-0713 and 0714 "Occupational Radiation Exposure at Commercial Nuclear Power Reactors"
	9	Undated	Updated survey by the Special Legislative Commission on Low Level Radioactive Waste
	10	Undated	Deficiency Report (DR) No. 1384
H V	11	Undated	51 Fed. Reg. 29728
H	12	Undated	NRC's Standard Review Plan
H	13	Undated	WASH 1400 (Reactor Safety Study)
H	14	Undated	The Reactor Risk Reference Document - Draft (NUREG-1150)
H	15	Undated	NUREG-1250, "Report on the Accident at the Chernobyl Nuclear Power Station"