



UNITED STATES  
 NUCLEAR REGULATORY COMMISSION  
 REGION II  
 101 MARIETTA STREET, N.W.  
 ATLANTA, GEORGIA 30323

Report No.: 50-400/86-72

Licensee: Carolina Power and Light Company  
 P. O. Box 1551  
 Raleigh, NC 27602

Docket No.: 50-400

License No.: CPPR-158

Facility Name: Harris 1

Inspection Conducted: September 8-12, 1986

Inspector: J. D. Williams for 10/8/86  
 G. R. Wiseman V Date Signed

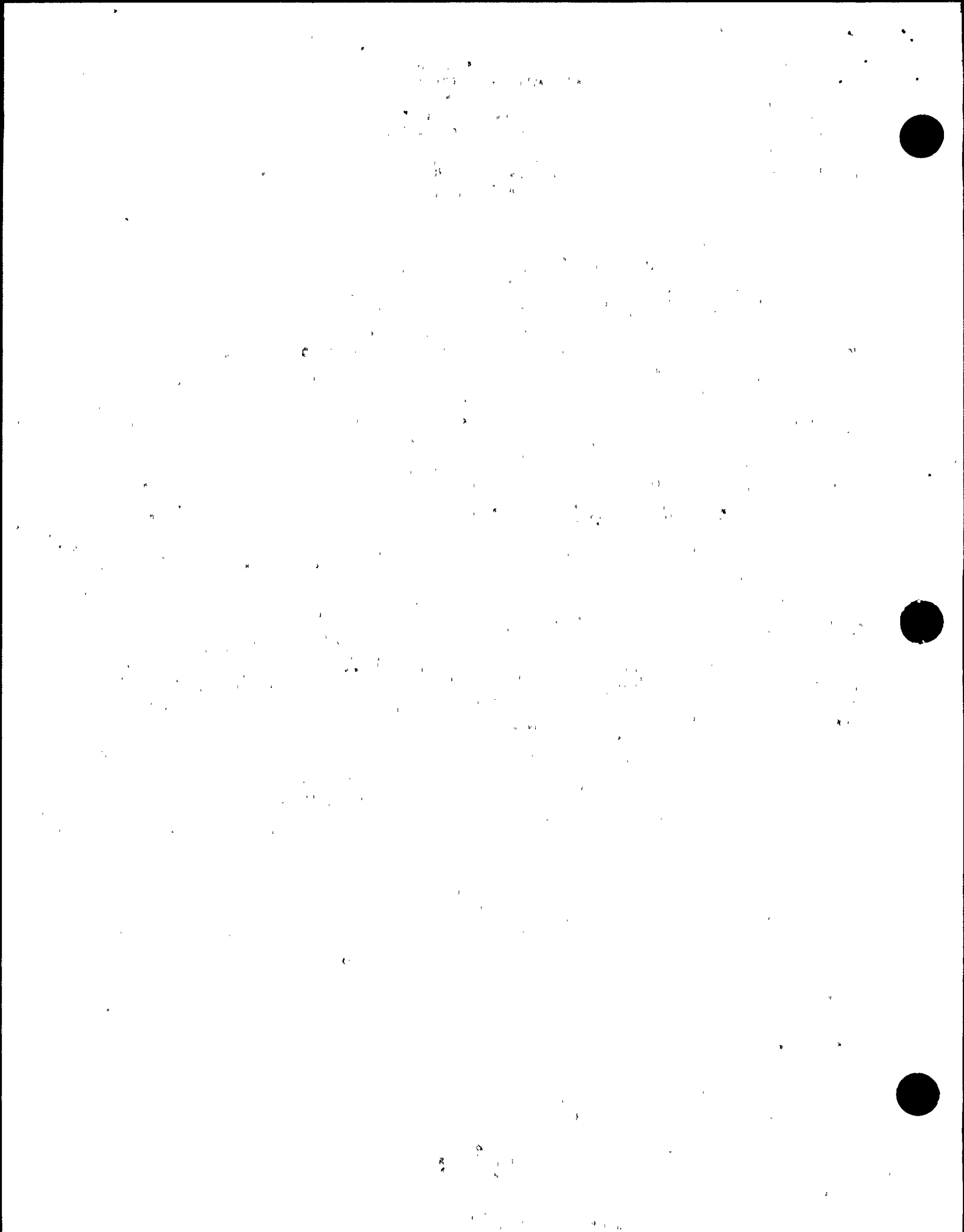
Approved by: T. E. Conlon for 10-8-86  
 T. E. Conlon, Section Chief Date Signed  
 Plant Systems Section  
 Division of Reactor Safety

SUMMARY

Scope: This routine, announced inspection was conducted on site in the areas of fire protection and followup on previously identified inspection items.

Results: No violations or deviations were identified.

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## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*W. Caraway, Harris Project Engineering Support (HPES), Fire Protection
- \*L. I. Coflin, Manager, HPES
- \*J. M. Collins, Manager, Operations
- K. Fitzgerald, HPES, Civil
- \*S. Hardy, HPES, Fire Protection
- \*K. Hute, Principal QA Engineer
- \*D. L. Markle, Fire Protection, Harris Project Operations Support
- \*C. L. McKenzie, Acting Director, QA/QC Operations
- \*G. A. Meyer, Manager, Milestone Completion
- D. Mijanovich, Startup Engineer
- \*M. R. Oates, Principal Engineer, Nuclear Licensing
- \*J. F. Pinto, HPES, Mechanical
- \*W. E. Seyler, Construction Manager
- \*J. H. Smith, Operations Support Supervisor
- \*R. Stewart, HPES, Mechanical
- \*M. Stokes, Fire Protection, Harris Project Operations Support
- \*D. L. Tibbitts, Project Specialist, Regulatory Compliance
- \*M. G. Wallace, Specialist, Regulatory Compliance
- D. L. Williams, Senior Engineer, Construction

Other licensee employees contacted included construction craftsmen, engineers, technicians, operators, mechanics, security force members, and office personnel.

#### Other Organization

G. Hughes, Daniels Construction

NRC Resident Inspector

\*G. Maxwell

\*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on September 12, 1986, with those persons indicated in paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings. No dissenting comments were received from the licensee.

The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspector during this inspection.

3. Licensee Action on Previous Enforcement Matters

This subject was not addressed in the inspection.

4. Unresolved Items

Unresolved items were not identified during the inspection.

5. Permanent Plant Fire Protection Features (Module 64704)

As a result of the inspection items identified during previous NRC fire protection/safe shutdown inspections, this inspection was conducted to assess the licensee's status with respect to completing the permanent plant fire protection features installations prior to licensing.

a. Status of Completion and Walkdown of Raceway Fire Barriers

In order to assess the current completion status for one-hour or three-hour fire barriers, the following sample of electrical pull boxes, conduits, and cable trays were reviewed by the inspector:

(1) Pull Box Fire Barrier Enclosures

<u>Box No.</u>	<u>Fire Rating</u>	<u>Location</u>	<u>Completion Status %</u>
B1671	1 hr.	RAB e1 286'	100%
B5268	1 hr.	RAB e1 286'	100%

(2) Cable Tray Fire Barrier Enclosures

<u>Cable Tray No.</u>	<u>Fire Rating</u>	<u>Location</u>	<u>Completion Status %</u>
C1300	1 hr.	RAB e1 261'	90%
C1812	1 hr.	RAB e1 261'	90%
P1305	1 hr.	RAB e1 261'	90%
P1816	1 hr.	RAB e1 261'	90%
X1303	1 hr.	RAB e1 261'	100%
X1806	1 hr.	RAB e1 261'	90%

## (3) Conduit Fire Barrier Enclosures

<u>Conduit No.</u>	<u>Fire Rating</u>	<u>Location</u>	<u>Completion Status %</u>
10310A	1 hr.	CB e1 286'	64%
10333A	1 hr.	RAB e1 236'	100%
		RAB e1 261'	100%
		RAB e1 236'	100%
12761A	1 hr.	RAB e1 236'	100%
12761E	1 hr.	RAB e1 236'	100%
12762A	1 hr.	RAB e1 236'	100%
12774A	1 hr.	RAB e1 236'	90%
15002B	1 hr.	RAB e1 261'	100%
15405S	1 hr.	RAB e1 261'	100%
15418S	1 hr.	RAB e1 261'	100%
15485N	3 hr.	RAB e1 236'	100%
16001E	3 hr.	Tank Building No. 1 e1 236'	100%
16106E	1 hr.	CB e1 286'	90%
16178T	3 hr.	RAB e1 261'	100%
16242B	1 hr.	CB e1 286'	95%
16247A	1 hr.	CB e1 286'	85%
16247B	1 hr.	RAB e1 261'	85%
16254B	1 hr.	CB e1 286'	99%
16254C	1 hr.	CB e1 286'	100%
16260C	3 hr.	RAB e1 286'	99%
16263P	1 hr.	CB e1 286'	85%
16277Y	3 hr.	RAB e1 286'	99%
17153Y	1 hr.	RAB e1 261'	100%

## (4) Emergency Service Water Valve Enclosure

<u>Conduit No.</u>	<u>Fire Rating</u>	<u>Location</u>	<u>Completion Status %</u>
Valve 1SW-270	3 hr.	RAB e1 216' to 236'	0%

The licensee indicated that progress and completion of the fire barrier wrap enclosures is being tracked closely. The following summarizes the fire areas where there exists incomplete fire barrier wrap enclosures:

- |    |             |    |            |
|----|-------------|----|------------|
| 1. | 1-A-BAL (A) | 5. | 1-A-SWGR-B |
| 2. | 1-A-EPA     | 6. | 1-A-CSRA   |
| 3. | 1-A-BAL (B) | 7. | 1-A-CSRB   |
| 4. | 1-A-EPB     |    |            |

b. Status of Completion and Walkdown of Fire Area Barrier Boundaries

The inspector assessed the current completion status of the fire area fire barriers by performing a walkdown of selected fire areas. The following summarizes the incomplete fire protection features associated with the inspected fire area fire barriers:

- (1) Reactor auxiliary building elevation 190' (Fire Area 1-A-Ba1)
  - Two-hour fire barrier enclosure around north stairwell penetration seals not complete.
- (2) Reactor auxiliary building elevation 236' (Fire Area 1-A-Ba1)
  - Three-hour fire barrier wall located along column line 43 from columns B-L is not complete. The fire door and penetration seals are not fully installed.
- (3) Reactor auxiliary building elevation 261' (Fire Area 1-A-Ba1)
  - Three-hour fire barrier wall located along column line 43 from column B-L is not complete. The fire door and penetration seals are not fully installed.
- (4) Reactor auxiliary building elevation 261' (Fire Area 1-A-Ba1)
  - The one-hour partial height fire wall along column line GZ/42 to 43 separating MCCs 1A35-SA and 1A35-SB is not complete.
- (5) Emergency Service Water Intake Structure (Fire Areas 12-I-ESWPA and 12-I-ESWPB)
  - Fire barrier penetration seals are not complete.

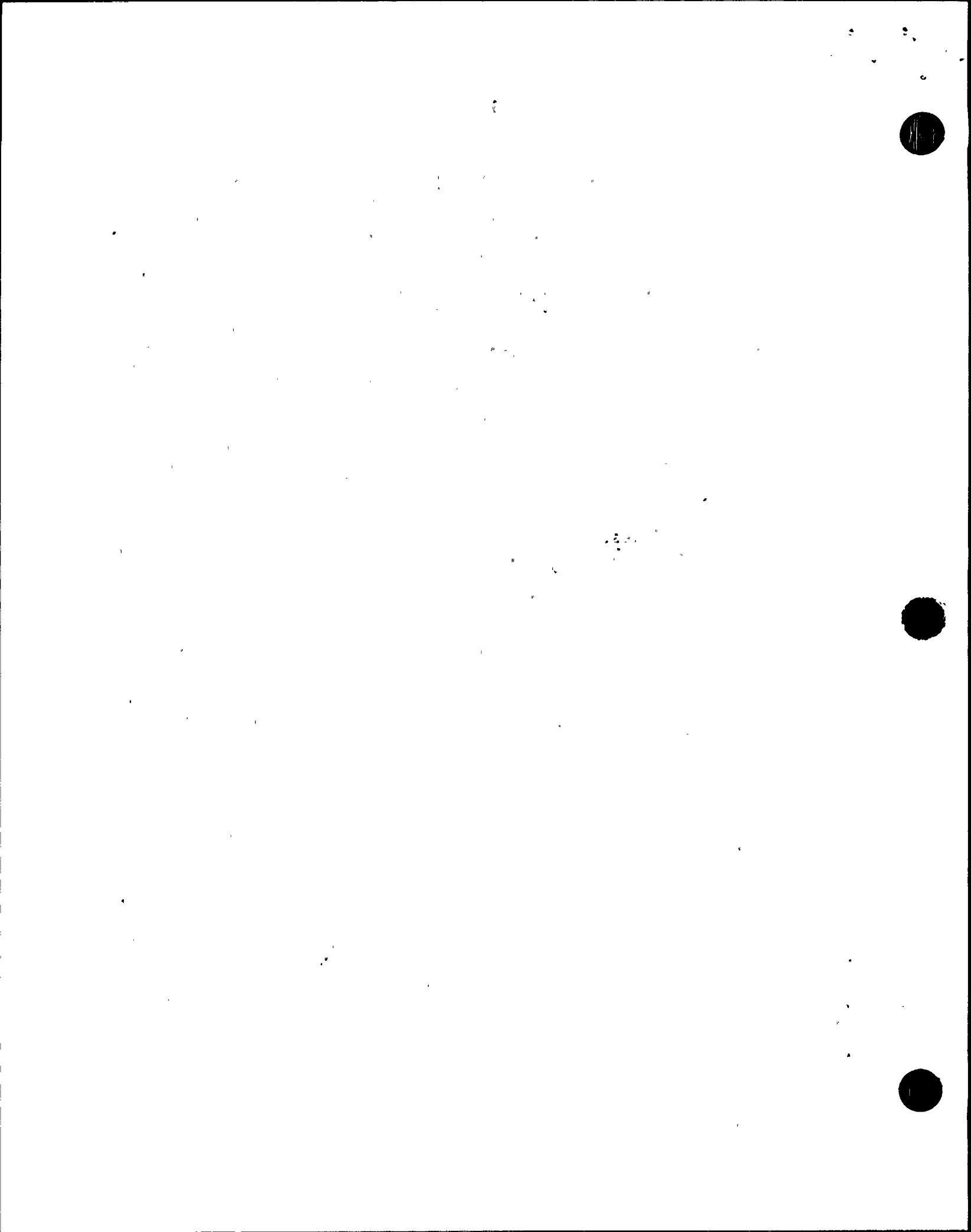
The licensee indicated that as of September 12, 1986, the following listed penetration seals remained to be installed:

<u>Location</u>	<u>No. of Fire Seals Not Completed</u>
Reactor Auxiliary Building	99
Diesel Generator Building	9
Diesel Fuel Oil Storage Structure	1
Emergency Service Water Structure	2

## 6. Inspector Followup Items (IFI)

The licensee's actions associated with the following IFIs were reviewed:

- a. (Open) IFI (400/85-40-01), Fire Protection Systems and Features Are Required to be Operational: The licensee has issued Plant General Order, dated May 5, 1986, which implemented the fire protection administrative control procedures of POM Volume 3, Part 8, FPP-001 through FPP-012 for plant areas turned over to the operations organization. Additional administrative controls in the form of permanently mounted signs have been posted at the Emergency Water Screening Structure fire pump suction bay stop gates. These require operations to take the fire pump out-of-service at only the time when the stop gates are closed. This action will preclude the fire pumps suction from being isolated from the reservoir water supply. Based on these actions by the licensee, the issues concerning fire protection administrative procedures are considered closed. However, major construction activities involving fire barrier wraps, fire doors and barriers, penetration seals, and fire detection and suppression systems remain outstanding.
- b. (Closed) IFI (400/86-27-02), Completion of Preoperational Testing of the Fire Pumps: The licensee completed preoperational testing of the motor driven jockey pump, motor-driven fire pump and the diesel-driven fire pump by procedure 1-6175-P-01 on August 7, 1986. The inspector's review of the test results indicated that the fire pumps performed within acceptance criteria. Based on this review, this item is considered closed.
- c. (Closed) IFI (400/86-26-04), Review of Licensee's Analysis for Unprotected Cable Tray/Conduit Supports: The inspector reviewed the licensee's structural evaluation of unprotected supports for cable tray and conduits in a fire event contained in the civil engineering calculation book No. LV-53 and memorandum MS-863274(E). These calculations provide an analysis of a typical span of cable tray and conduit supports when subjected to a fire severity of ASTM-E119 three-hour duration over 20 feet zone of influence. On the basis of this analysis, it was demonstrated that the supports, although weakened due to fire exposure, would retain sufficient strength to support the dead load weight of the tray or conduit and its associated fire barrier wrap. Because a conservative estimate of fire magnitude and duration was postulated in this analysis, the inspector concluded that the integrity of the fire barrier or supports will not be affected by fire to a magnitude as to cause failure, therefore, this item is closed.
- d. (Closed) IFI (400/86-26-06), Review of Emergency Lighting, for a Fire Event: Section III.J requires emergency lighting units with at least eight-hour battery power supply to be provided in all areas needed for operation of safe shutdown equipment and in access and egress routes thereto.





Except for the control room and auxiliary control panel room, battery powered emergency lighting units have been provided in plant areas needed for operation of hot shutdown equipment and components and in the access and egress routes to these areas. In the control room and auxiliary control panel room, the plant DC emergency lighting system will be used during a fire emergency. The licensee has included the cabling for the DC emergency lighting system in their cable separations analysis to verify that the lighting cables are separated such that a single fire will not cause loss of all lighting capability in these areas served by the DC emergency lighting system. This lighting methodology was approved by the NRC in Section 9.5.1.4 of the Shearon Harris SER (NUREG-1038), dated November 1983.

The battery powered emergency lighting units are Dual Lite AS Series I and are rated by the manufacturer to provide eight hours of illumination. The design and arrangement of the installed lighting units were reviewed by the inspector and found to comply with the guidelines of BTP 9.5.1, Section 4.e.

Preoperational testing of the battery powered lighting units (Procedure No. 1-5215-P-02, Revision 1), includes an eight-hour battery endurance/capacity test and verification of operability of the lighting unit's charging capability. In conjunction with the preoperational tests, the licensee is conducting a system walkdown under Field Change Request FCR FP-1015 to ensure the emergency lights are properly aimed and that no obstructions exist. Based upon the licensee's actions described above, this item is closed.

- e. (Closed) IFI (400/86-42-03), Pre-Fire Plans Fail to Properly Identify an Adequate Fire Brigade Strategy with Respect to Smoke Control: The plant prefire plans have been revised to include smoke control strategies for use by the fire brigade, however, the plans have not yet been issued for use. The inspector reviewed the plans for Fire Zones 1-A-3-COMI, 1-C-1-BAL, 1-A-1-ED, and 1-A-SWGRB. Based upon this review, it appears that these plans, as written, adequately address smoke control. The licensee is tracking issuance of these plans by FACTS No. 86H0592 therefore, this item is closed.
- f. (Closed) IFI (400/86-42-04), Present Fire Brigade Radio Communication System Does Not Provide Adequate Two-Way Communications to Support Fire Fighting Operations: During the week of August 31, to September 1, 1986, the licensee's operations fire protection organization performed a fire brigade radio communications survey which identified several plant areas where brigade radio communications to the control room were limited. An engineering evaluation of these areas is being performed to determine which alternative communication system is available for these areas during a fire event.

The licensee is tracking the resolution of the communication concerns by FACTS No. 86H0840. If required, the licensee will revise the plant prefire plans to reflect the appropriate fire brigade communications changes. These actions will resolve this item, therefore, this item is considered closed.

