

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-315/82-08(DETP); 50-316/82-08(DETP)

Docket Nos. 50-315; 50-316

Licenses No. DPR-58; DPR-74

Licensee: Indiana and Michigan Electric Company
Post Office Box 18
Bowling Green Station
New York, NY 10004

Facility Name: D. C. Cook Nuclear Plant, Units 1 and 2

Inspection At: D. C. Cook Site, Bridgman, MI

Inspection Conducted: April 12 through 16, May 14, and June 10, 1982

Inspectors: *John A. Grobe*
J. A. Grobe, Lead

9-16-82
Date

John C. Stone
for
J. C. Stone

9-16-82
Date

John C. Haughney
for
C. J. Haughney

9-16-82
Date

John L. Chan
for
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9-16-82
Date

John R. Eberly
for
R. Eberly

9-16-82
Date

Accompanied By: J. M. Ulie

Approved By: *C. G. Williams*
for
C. G. Williams, Chief
Plant Systems Section

9/17/82
Date

Inspection Summary:

Inspection on April 12 through 16, May 14, and June 10, 1982 (Reports No. 50-315/82-08(DETP); 50-316/82-08(DETP))

Areas Inspected: Special, announced inspection to review the licensee's compliance with the requirements in 10 CFR 50.48 and Appendix R to 10 CFR 50 including Fire Protection of Safe Shutdown Capability, Alternate Emergency Shutdown and Cooldown, Emergency Lighting, Oil Collection System for Reactor Coolant Pumps, and Fire Protection and Prevention Program. The inspection involved 200 inspector-hours onsite by five NRC inspectors.

Results: Of the five areas inspected, thirteen findings were identified (Inadequate fire protection of safe shutdown capability - Paragraph 2; Inaccurate statements concerning Section III.G of Appendix R to 10 CFR 50 - Paragraph 2; Late submittal responding to 10 CFR 50.48 - Paragraph 2; Lack of safety evaluation of unreviewed safety question - Paragraph 3; Inadequate procedure for alternate safe shutdown - Paragraph 3; Inadequate emergency lighting design and installation - Paragraph 4; Inadequate emergency lighting preventative maintenance - Paragraph 4; Inaccurate statements concerning Section III.J of Appendix R to 10 CFR 50 - Paragraph 4; Inadequate oil collection system capacity - Paragraph 5; Incomplete oil collection system seismic qualification - Paragraph 5; Inaccurate statements concerning Section III.O of Appendix R to 10 CFR 50 - Paragraph 5; Incomplete implementation of combustible materials controls - Paragraph 6; and Inaccurate statements concerning fire barrier HVAC penetration dampers in the Diesel Generator Rooms - Paragraph 6).

DETAILS

1. Persons Contacted

- *W. Smith, Plant Manager
- *+E. Townley, Assistant Plant Manager
- *+B. Svensson, Assistant Plant Manager
- *+K. Baker, Operations Superintendent
- *+E. Smarrella, Technical Superintendent
- D. Dudding, Maintenance Superintendent
- *+J. Stietzel, Quality Assurance Supervisor
- *+P. Jacques, Fire Protection Coordinator
- H. Chadwell, Assistant Operations Superintendent
- *P. Craig, Training Instructor/Senior Reactor Operator
- L. Smith, Shift Supervisor
- V. Wood, Auxiliary Equipment Operator
- *E. Abshagan, Outage Planning Coordinator
- *F. Wenman, Maintenance Production Supervisor
- R. Hunsicker, Maintenance Supervisor
- R. Piehl, Maintenance Quality Control Implementation Coordinator
- W. Robinson, Maintenance Engineer
- P. Carteaux, Maintenance Engineer
- D. Duncan, Control and Instrumentation Supervisor
- P. Helms, Instrument Maintenance Supervisor
- +R. Kroeger, American Electric Power Quality Assurance Manager

*Those persons who attended the exit interview of April 16, 1982

+Those persons who attended the exit interview on May 14, 1982

2. Fire Protection of Safe Shutdown Capability

The inspectors examined the licensee's fire protection capabilities for protecting equipment, cabling, and associated circuits necessary to achieve and maintain hot shutdown and cold shutdown. These fire protection features were reviewed using the requirements in 10 CFR 50.48 and Section III.G. of Appendix R to 10 CFR 50. The equipment necessary to achieve and maintain hot shutdown and cold shutdown was described in a letter from the licensee dated June 1, 1977. A detailed inspection was conducted on a sample of the equipment (including cabling and associated circuits) listed in that letter.

a. Areas of Inspection

(1) Drawings

<u>Number</u>	<u>Revision Date</u>	<u>Title</u>
OP-1-5104E-0	8/13/80	Unit 1 Alternate Emergency Shutdown and Cooldown System-Flow Diagram
OP-2-5104E-0	8/13/80	Unit 2 Alternate Emergency Shutdown and Cooldown System-Flow Diagram

OP-1-98273-2	3/5/82	Unit 1 Chemical and Volume Control System Reactor Coolant Charging Elementary Diagram
OP-12-5106A-4	3/1/81	Flow Diagram - Feedwater

(2) Systems

The inspectors examined the fire protection features for selected components and cabling in the following systems and areas during tours of the Turbine and Auxiliary Buildings.

- Auxiliary Feedwater System (AFWS)
- Component Cooling Water System (CCWS)
- Essential Service Water System (ESWS)
- Non-Essential Service Water System (NESWS)
- Plant Air System (PAS)
- Control Air System (CAS)
- Boric Acid Transfer System (BATS)
- Control Rooms
- Hot Shutdown Panels
- Cable Vaults

b. Findings

- (1) Finding (50-315/82-08-01; 50-316/82-08-01): Fire Protection of Safe Shutdown Capability.

10 CFR 50, Appendix R, Section III.G.1.a. requires that fire protection features shall be provided which are capable of limiting fire damage so that one train of equipment, cabling and associated circuits necessary to achieve and maintain hot shutdown conditions from either the control room or emergency control station is free of fire damage. Sections III.G.2 and III.G.3 specify four alternatives for assuring that one redundant train of equipment, cabling and associated circuits necessary to achieve and maintain hot shutdown remains free of fire damage:

- (a) Separation of redundant trains of equipment, cabling and associated circuits by a three hour rated fire barrier,
- (b) Separation of redundant trains of equipment, cabling and associated circuits by a one hour rated fire barrier with fire detection and automatic fire suppression systems installed in the area,
- (c) Separation of redundant trains of equipment, cabling and associated circuits by a horizontal distance of 20 feet with no intervening combustibles and fire detection and automatic fire suppression systems installed in the area, or

- (d) Installation of alternative or dedicated shutdown capability independent of the equipment, cabling and associated circuits under consideration, and installation of fire detection and fixed fire suppression systems in the area under consideration.

The licensee stated that D. C. Cook Nuclear Plant, Units 1 and 2, were in compliance with Section III.G of Appendix R to 10 CFR 50 in a letter to the NRC dated March 27, 1981 (AEP:NRC:00428A).

The redundant trains of equipment, cabling or associated circuits for the following systems necessary to achieve and maintain hot shutdown conditions were not provided with the fire protection features required in 10 CFR 50, Appendix R, Sections III.G.2 or III.G.3:

(a) Component Cooling Water System

1. The Unit 1 CCWS redundant pumps were separated by approximately 13 feet. The Unit 2 CCWS redundant pumps were also separated by approximately 13 feet. The Unit 1 and Unit 2 redundant pumps were in the same area separated by approximately 11 feet. An ionization fire detection system was installed in the pump area. Fire barriers were not installed separating any of these pumps, and a fixed fire suppression system was not installed in the area.
2. The Unit 1 CCWS redundant heat exchangers were separated by approximately 12 feet. Redundant valves servicing the Unit 1 CCWS heat exchangers were also separated by approximately 12 feet: ESWS inlet valves (1-WMO 731 and 1-WMO 735), ESWS outlet valves (1-WMO 733 and 1-WMO 737) and CCWS outlet valves (1-CMO 410 and 1-CMO 420). Ionization fire detection and preaction sprinkler fire suppression systems were installed in the area. No fire barriers were installed separating the redundant components.
3. The Unit 2 CCWS redundant heat exchangers were separated by approximately 12 feet. Redundant valves servicing the Unit 2 CCWS heat exchangers were also separated by approximately 12 feet: ESWS inlet valves (2-WMO 732 and 2-WMO 736), ESWS outlet valves (2-WMO 738 and 2-WMO 734) and CCWS outlet valves (2-CMO 410 and 2-CMO 420). Ionization fire detection and preaction sprinkler fire suppression systems were installed in the area. Fire barriers were not installed separating the redundant components.

(b) Essential Service Water System

1. The Unit 1 redundant ESWS pumps were separated by more than 20 feet. The Unit 2 redundant ESWS pumps were also separated by greater than 20 feet. Fire detection and automatic fire suppressions systems were not installed in these areas.
2. The Unit 1 redundant ventilation system fan motor heater control switches and breakers for the redundant ESWS pump rooms were separated by approximately 18 inches. The Unit 2 redundant ventilation system fan motor heater control switches and breakers for the redundant ESWS pump rooms were also separated by approximately 18 inches. These Unit 1 and Unit 2 controls were separated from each other by approximately 4 feet. Fire barriers were not installed separating any of these control switches or breakers. Fire detection and automatic fire suppression systems were not installed in the area.

(c) Non-Essential Service Water System

1. The Unit 1 redundant NESWS pumps were separated by approximately 50 feet. The Unit 1 redundant NESWS pump discharge valves (1-WMO 901 and 1-WMO 902) were also separated by approximately 50 feet. Fire barriers were not installed separating these redundant components. Fire detection and automatic fire suppression systems were not installed in the area.
2. The Unit 2 redundant NESWS pumps were separated by approximately 30 feet. The Unit 2 redundant NESWS pump discharge valves (2-WMO 901 and 2-WMO 902) were also separated by approximately 30 feet. Conduits servicing the redundant NESW pump discharge valves (Conduit 4126-2 for Valve 2-WMO 901 and Conduit 4140-2 for Valve 2-WMO 902) were separated by approximately one foot. Fire barriers were not installed separating these redundant components. Fire detection and automatic fire suppression systems were not installed in the area.

(d) Plant and Control Air Systems

1. The Unit 1 PAS and CAS compressors were separated by approximately 11 feet. A wet pipe sprinkler system was installed in the area. Fire barriers were not installed to separate the redundant components. A fire detection system was not installed in the area.

2. The Unit 2 PAS and CAS compressors were separated by approximately 11 feet. A wet pipe sprinkler system was installed in the area. Fire barriers were not installed to separate the redundant components. A fire detection system was not installed in the area.

(e) Control Rooms

The Unit 1 and 2 Control Rooms were provided with alternative shutdown capability (Hot Shutdown Panels). These panels were separated from their respective Control Rooms by a three-hour rated fire barrier. Functional fire detection and fixed fire suppression systems were not installed in the Control Rooms.

(f) Cable Vaults

The Unit 1 and 2 Cable Vaults are separated from each other by a three hour fire barrier. The Unit 1 and 2 Cable Vaults contain redundant cabling for all safe shutdown equipment including instrumentation and control to both the respective Control Rooms and Hot Shutdown Panels. The separation requirements of Section III.G.2 were not satisfied in these areas, and alternative or dedicated shutdown capability was not provided in accordance with Section III.G.3. Fire detection and automatic fire suppression systems were installed in these areas.

These findings are contrary to 10 CFR 50.48(b) which requires that Donald C. Cook Nuclear Plant, Units 1 and 2, shall satisfy the requirements of 10 CFR 50, Appendix R, Section III.G., "Fire Protection of Safety Shutdown Capability."

- (2) Finding (50-315/82-08-02; 50-316/82-08-02): Statements Concerning Fire Protection of Safe Shutdown Capability.

As part of the NRC staff review of fire protection at the D. C. Cook Nuclear Plant, Units 1 and 2, 10 CFR 50.48(c)(5) required that by March 19, 1981, the licensee shall submit plans and schedules for meeting the completion schedules in 10 CFR 50.48(c)(2), (c)(3), and (c)(4) for modifications necessary to satisfy the applicable provisions of Appendix R to 10 CFR 50. The licensee's response, dated March 27, 1981, stated, in part: "...the provisions of Appendix R to 10 CFR 50 which are applicable to the D. C. Cook Nuclear Plant ...are set forth in Section III.G...." The licensee further stated in this response, "No further actions need to be taken with regard to Section III.G. of Appendix R for the D. C. Cook Plant."

The D. C. Cook Nuclear Plant, Units 1 and 2, did not satisfy the requirements in 10 CFR 50, Appendix R, Section III.G.1.a; fire protection features were not provided for structures systems and components important to safe shutdown which would be capable of limiting fire damage so that one train of systems

necessary to achieve and maintain hot shutdown conditions from either the control room or emergency control stations was free of fire damage.

- (3) Finding (50-315/82-08-03; 50-316/82-08-03): Timeliness of Submittals:

10 CFR 50.48(c)(5) requires that by thirty days after the effective date of the rule, the licensee shall submit plans and schedules for meeting the completion schedules in 10 CFR 50.48(c)(2), (c)(3), and (c)(4) for modifications necessary to satisfy the applicable provisions of Appendix R to 10 CFR 50. This submittal was due on March 19, 1981.

The licensee did not submit the response to this requirement until March 27, 1981.

c. Discussion

- Open Item (50-315/82-08-04; 50-316/82-08-04): Drawing Errors.

During the course of this inspection, the inspectors identified errors on Drawing Nos. OP-1-5104E-0 and OP-2-5104E-0, the Unit 1 and Unit 2 Alternate Emergency Shutdown and Cooldown System Flow Diagrams. These drawings were not revised after the Auxiliary Feedwater System was modified adding an additional motor driven pump to each units system. These were the only drawing errors noted during this inspection and the licensee stated that the errors would be corrected. Because these appeared to be isolated errors, and did not appear to be indicative of a programmatic breakdown in the document control program, this finding was not elevated to an item of noncompliance.

3. Alternate Emergency Shutdown and Cooldown

The inspectors examined the licensee's procedures that would be used to achieve and maintain hot shutdown and to conduct a cooldown in the event that control of safe shutdown equipment from the control room and hot shutdown panel had been lost due to a fire. Procedures for both units were reviewed for general content and feasibility. A detailed walk-through of approximately 40 percent of the procedural steps for Unit 1 was performed by the inspectors accompanied by a licensed Senior Reactor Operator. The procedures were reviewed using the commitments and requirements in Appendix B to 10 CFR 50, 10 CFR 50.59, and the Fire Protection Safety Evaluation Report issued July 31, 1979, with supporting licensee submittals.

a. Areas of Inspection

(1) Procedures

<u>Number</u>	<u>Revision Date</u>	<u>Title</u>
1-OHP 4023.001.001	6/5/79	Unit 1 - Alternate Emergency Shutdown and Cooldown Procedure Due to the Loss of Normal and Preferred Alternate Methods, (with Temporary Procedure Sheets Nos. 1 and 2)
2-OHP 4023.001.001	6/5/79	Unit 2 - Alternate Emergency Shutdown and Cooldown Procedure Due to the Loss of Normal and Preferred Alternate Methods (with Temporary Procedure Sheets Nos. 1 through 6)
2-OHP 4023.032.001	4/20/82	Unit 2 - Diesel Generator Local Control
PMI-1040	7/28/81	Plant Nuclear Safety Review Committee
PMI-2010	10/11/78	Plant Manager and Department Head Instructions, Procedures and Associated Indexes (with Temporary Procedure Sheets Nos. 1 through 17)

(2) Plant Tours

During the walk-through of these procedures, the inspectors examined emergency valve stations, local shutdown indicating panels, circuit breakers that would require modification and other equipment in the following areas:

Turbine Building
Auxiliary Building
Switchyard

b. Findings

- (1) Finding (50-315/82-08-05; 50-316/82-08-05): Safety Evaluation of Unreviewed Safety Question.

The licensee did not have a written safety evaluation which provided the bases for the determination that the facility modifications required by the procedures and changes to these procedures do not involve an unreviewed safety question for the Alternate Emergency Shutdown and Cooldown Procedure Due to the Loss of Normal and Preferred Alternate Methods (For Unit 1, Procedure No. **1-OHP4023.001.001, Revision 4,

issued June 5, 1979 with Temporary Procedure Sheets No. 1 and No. 2 both issued February 10, 1981; and for Unit 2, Procedure No. **2-OHP 4023.001.001, Revision No. 1, issued June 5, 1979 with Temporary Procedure Sheets Nos. 1 and 2, dated September 18, 1979; Nos. 3 and 4 dated February 10, 1981; No. 5 dated May 5, 1981; and No. 5 dated October 13, 1981).

This finding is contrary to 10 CFR 50.59(b) which requires that the licensee shall maintain records of changes in the facility and of changes in procedures to the extent that such changes constitute changes in the facility or in procedures as described in the safety analysis report. These records shall include a written safety evaluation which provides the basis for the determination that the change does not involve an unreviewed safety question.

- (2) Finding (50-315/82-08-06(A); 50-316/82-08-06(A)): Alternate Safe Shutdown Procedure Adequacy.

Adequate written procedures were not established, implemented, and maintained covering alternate shutdown capability for Unit 1 and Unit 2 in the event of loss of control of safe shutdown equipment from the Control Room and Hot Shutdown Panel due to a fire. The Alternate Emergency Shutdown and Cooldown Procedure Due to Loss of Normal and Preferred Alternate Methods contained errors which could preclude the operators from satisfactorily performing the emergency procedure.

For Unit 1, Procedure No. **1-OHP 4023.001.001, Revision No. 4, issued June 5, 1979 with Temporary Procedure Sheets No. 1 and No. 2 both dated February 10, 1981, contained the following errors:

- (a) Procedure text at page 10 of 22, step 5.4.3 incorrectly identified the Unit 2 Motor Driven Auxiliary Feedwater Pump (MDAFP) when it should have identified the the Unit 1 West MDAFP. Additionally, Attachment 3, page 15 of 37, contained the same error of identification and required the modification of the circuit breaker for the Unit 2 MDAFP vice the Unit 1 West MDAFP. With normal valve alignment, the Unit 2 MDAFP cannot provide feedwater to the Unit 1 steam generators.
- (b) Procedure text at page 14 of 22, step 5.8.2 incorrectly identified circuit breaker T11A8 as the breaker for the West Centrifugal Charging Pump Lube Oil Pump. The breaker actually supplies power to the West Centrifugal Charging Pump.
- (c) Procedure text at page 15 of 22, step. 5.8.23-1 directed the operator to "Close QRV-251 and QRV-200." These

valves are the charging flow control valve and the reactor coolant pump seal back pressure regulating valve, respectively. They are pneumatic flow control valves which are not to be directly operated, but rather to be supplied with control air from an emergency valve station that would have been tied into QRV-251 and QRV-200 for emergency local operation in preceding steps. Neither the procedure nor any operating signs at the emergency valve station informed the operator of the amount of air pressure to be supplied from the emergency valve station regulators such that QRV-251 and QRV-200 would receive the proper pneumatic closing signal. When asked by the inspector, the licensed senior reactor operator accompanying the inspector during the procedure walk-through could not state the proper value of air pressure to be supplied.

- (d) Attachment 1, page 1 of 8, contained a procedure to modify the control for breaker K, a 345KV Generator Breaker. Procedure steps 5.1 and 5.5 misidentified a knife switch as "CSI." The knife switch in the breaker control cabinet was labeled "CSI."
- (e) Attachment 1, page 2 of 8, contained a procedure to modify control for breaker K-1, a 345 KV Generator Breaker. Procedure steps 5.1 and 5.5 misidentified a knife switch as "CSI." The knife switch in the breaker control cabinet was labeled "CSI."
- (f) Attachment 1, page 7 of 8, contained a procedure for modifying the control for 4KV emergency bus breaker 1EP. Step 5.3 directed that 20 amp fuses be pulled in the operating cabinet. The cabinet, one of several associated with this breaker, had no label to identify it as the operating cabinet. In addition, the unidentified cabinet contained a fuse block labeled as 30 amp instead of 20 amp. The fuses themselves were not visible unless the fuse block were pulled.
- (g) Attachment 3, page 5 of 37, contained a procedure to modify control for the breaker which supplied power to an Essential Service Water Pump Room Exhaust Fan. The procedure step 5.1 directed the operator to "Remove control fuses." This step was inappropriate and should have been deleted since the first step required to actually modify this breaker's control would have been to open the breaker compartment door. An identical error, with an extraneous, inappropriate step 5.1 directing the removal of control fuses, occurred on pages 6, 7, and 8 of 37 of Attachment 3 for other pump room exhaust fans.

- (h) Attachment 3, page 19 of 37, contained a procedure to modify breaker 1-AB-D for a control air compressor. A part of step 5.2 of this procedure directs the operator to jumper terminal points 22 to 1 in breaker compartment R3D. There is no terminal point labeled "22" in breaker compartment R3D.
- (i) Breaker modification procedures for several 4KV and 600V breakers were included as Attachments 1A and 2 of the procedure. Modifications to each of the breakers involved lifting leads and installing jumpers on terminal block "AJ." During the walk-through of the procedure, the label for terminal block "AJ" was observed to be missing in the control cubicle for the following breakers.

1A5	Reserve Feed to 4KV Bus 1A
T11A9	Feed from 4KV Bus 1A to 4KV Bus T11A
T11A10	Feed from 4KV Bus 1A to 600V Transformer 11A
1B5	Reserve Feed to 4KV Bus T11B
T11B1	Feed from 4KV Bus 1B to 4KV Bus T11B
T11B2	Feed from 1EP to 4KV Bus T11B
1C4	Reserve Feed to 4KV Bus 1C
T11C2	Feed from 1EP to 4KV Bus T11C
1D3	Reserve Feed to 4KV Bus 1D
T11D12	Feed from 4KV Bus 1D to 4KV Bus T11D
11AC	600 V Bus 11A and 11C Tie Breaker

For Unit 2, Procedure No. **2 - OHP 4023.001.001, Revision No. 1, issued June 5, 1979 included a Temporary Procedure Sheet No. 5 dated May 5, 1981, which changed Attachment 3, procedure M.5.4. Procedure M.5.4 modified the control for the Unit 1 MDAFP breaker. Temporary Procedure Sheet No. 5 merely changed the title of the affected component from Unit 1 MDAFP to the West MDAFP, but did not change the breaker designation, motor control center designation, or the specific modification steps in the procedure for such items as terminal points to be jumpered and cable tag numbers for cables whose leads were to be lifted. Thus, the procedure would have required the modification of the breaker for the Unit 1 MDAFP instead of the Unit 2 West MDAFP. With normal valve alignment, the Unit 1 MDAFP cannot provide feedwater to the Unit 2 steam generators.

These findings are contrary to Technical Specification 6.8.1.f for Unit 1 and Unit 2 which requires that written procedures shall be established, implemented and maintained covering the fire protection program implementation.

c. Discussion

- (1) Open Item (50-315/82-08-07; 50-316/82-08-07): Alternate Safe Shutdown Procedure Organization.

During the review of the procedures, the inspectors noted several aspects of the procedures which, in the inspectors' judgement, could impede the effective and timely performance of the procedures. The effective performance of these procedures would be important in the event of a severe cable vault fire which could, in some cases, lead to station backout conditions. The timely performance of the procedures would be important if the consequences of this fire were experienced under conditions of large reactor decay heat. The inspectors' comments, which are described below, were discussed with the licensee during the exit interview.

The organization of the procedures was awkward in that they did not clearly delineate the major subsets of plant conditions that would confront the shift supervisor and would determine which portions of the procedure would require implementation. For example, the procedures did not clearly establish methods to maintain stable plant conditions in hot shutdown. Rather, hot shutdown and cooldown requirements were combined. The procedures did not delineate and prioritize those steps needed to maintain stable hot shutdown conditions and establish a reliable decay heat sink. They did not segregate those key procedural steps needed to establish proper control and indication of such key parameters as pressurizer level, reactor coolant system pressure, steam generator levels and pressures.

Furthermore, the procedures did not prioritize those steps needed to establish and maintain control of the electric plant. The procedures did not have provisions for local emergency starting and operation of the diesel generator sets. The procedures did not clearly distinguish between conditions of off-site power availability or unavailability and direct the operators accordingly. The procedures did not prioritize the modifications and alignment of those breakers necessary to reliably energize the busses needed to maintain stable hot shutdown conditions.

Neither the procedures nor any other document adequately addressed the supplemental manpower that would be needed to implement this procedure. A large number of breakers could require modification of control circuitry, and a large

number of motor operated and pneumatically operated valves could require control modifications to permit local operation and to prevent spurious automatic operation. Some local valve operations required entry into high radiation areas or into containment, conditions which would serve to prolong the time needed to implement the procedure.

In summary, the poor organization of the procedure, the lack of prioritization of key steps, and the lack of clear indications of the manpower needed to implement key steps cast doubt in the inspectors' minds as to the feasibility of the procedures. It was recommended that the licensee review and revise the procedures in the light of the above comments, and the licensee agreed to do so (letter dated May 4, 1982 from R. S. Hunter to H. R. Denton - AEP:NRC:0692). This item will remain open pending completion of the revised procedures and review of those revisions by the inspectors.

- (2) Open Item (50-315/82-08-08; 50-316/82-08-08): Emergency Procedure Review Process.

The inspectors examined the procedure review process and found that the review and approval of procedures does not include a walk-through to determine procedure feasibility and adequacy. This is a concern primarily with emergency procedures in that these procedures are not routinely used and evaluated as compared to surveillance testing procedures and normal operating procedures. This lack of procedure walk-through during the review and approval process resulted in major deficiencies going undetected in the alternate emergency shutdown and cooldown procedures. This item will remain open pending licensee management examination of the procedure review process, and action taken to improve the adequacy of procedure reviews.

4. Emergency Lighting

The inspectors examined the licensee's emergency lighting system. This system was reviewed using the commitments and requirements in 10 CFR 50.48, Section III.J. of Appendix R to 10 CFR 50, Amendment No. 31 to License No. DPR-58 and Amendment No. 12 to License No. DPR-74 including the Fire Protection Safety Evaluation Report issued July 31, 1979, and supporting licensee submittals.

a. Areas of Inspection

(1) Procedures

<u>Number</u>	<u>Revision Date</u>	<u>Title</u>
MHI-5030, Attachment 9	4/3/79	Preventive Maintenance Requirements-Emergency Lighting Units
PMI-2010	10/11/78	Plant Manager and Depart- ment Head Instructions, Procedures and Associated Indexes
AEPSC General Procedure 2.1	5/15/81	Quality Assurance Program for the D. C. Cook Nuclear Plant
AEPSC Specification No. EC 41172-A-1		Emergency Lighting System Specification

(2) Drawings

<u>Number</u>	<u>Revision Date</u>	<u>Title</u>
1-2311-12	3/8/79	Lighting Plan, Auxiliary Building Elevation 609'
2-2311-8	5/13/80	Lighting Plan, Auxiliary Building Elevation 609', 612', 621'-6"

(3) Reports

<u>Title</u>	<u>Number</u>	<u>Date</u>
AEP System Fire Report	-	12/15/80
Condition Report	2-12-80-339	12/14/80
Plant Modification	12-PM-147	1/20/81

(4) Plant Tour

The inspectors examined emergency lighting units during tours of the following plant areas:

(a) Unit 1 Areas

- Quadrant 2 Piping Tunnel, El 596' 3 1/2" (Fire Zone 12)
- 4KV Switchgear Room, El 609' 0" (Fire Zone 40)
- Engineered Safety Systems & Motor-Control Center Room, El 609' 0" (Fire Zone 41)
- Control Rod Drive Motor Control Center Room,

- El 609' 0" (Fire Zone 42)
- East Main Steam Enclosure, El 612' 0" (Fire Zone 33)
- Quadrant 2 Cable Tunnel, El 612' 0" (Fire Zone 39)

(b) Unit 2 Areas

- Quadrant 2 Piping Tunnel, El 596' 3 1/2" (Fire Zone 22)
- East Main Steam Enclosure, El 612' 0" (Fire Zone 34)
- Quadrant 2 Cable Tunnel, El 612' 0" (Fire Zone 39)

(c) Areas Common to Both Units

- Auxiliary Building, El 587' 0' (East End) (Fire Zone 5)
- Auxiliary Building, El 587' 0" (West End) (Fire Zone 6)
- Auxiliary Feed Pump Rooms, El 591' 0" (Fire Zone 17)
- Auxiliary Building, El 609' 0" (West End) (Fire Zone 44)

Note: The fire zones are those designated in the
"D. C. Cook Fire Hazards Analysis for Units No.
1 and No. 2" dated March 31, 1977.

b. Findings

- (1) Finding (50-315/82-08-09; 50-316/82-08-09): Emergency Lighting Design and Installation.

10 CFR 50, Appendix R, Section III.J. requires that emergency lighting units with at least an eight hour battery power supply shall be provided in all areas needed for operation of safe shutdown equipment and in access and egress routes to those areas.

The licensee stated that D. C. Cook, Units 1 and 2, were in compliance with Section III.J. of Appendix R to 10 CFR 50 in a letter to the NRC dated March 27, 1981 (AEP:NRC:0428A).

Amendment No. 31 to License No. DPR-58 and Amendment No. 12 to License No. DPR-74 requires that eight hour duration battery operated lighting be installed in the Cable Tunnels and at Manual Valve Control Stations before January 20, 1980 (completion of the first Unit No. 2 refueling outage after July 31, 1979).

On April 16, 1982, the inspectors identified the following conditions during a tour of areas of the facility required for safe shutdown:

- (a) Three areas of the plant did not have installed emergency lighting:

1. Unit 1, Quadrant 2 Cable Tunnel, El 612'0". Access through this area is required to reach Local Shutdown Indication Panels and Manual Valve Control Stations. Drawing No. 1-2311-12 did not designate emergency lighting for this area.
2. Unit 2, Quadrant 2 Cable Tunnel, El 612'0". Access through this area is required to reach Local Shutdown Indication Panels and Manual Valve Control Stations. Drawing No. 2-2311-8 did not designate emergency lighting for this area.
3. Auxiliary Building, El 609'0", West End. A Manual Valve Control Station is located in this area outside the Unit 2 Volume Control Tank enclosure. Drawing No. 2-2311-8 designated emergency lighting for this area.

- (b) The batteries used in the emergency lighting units were not rated by the manufacturer to supply emergency lighting for the required 8 hours.

The lighting units are Dual-Lite Model ALA-100-2-A4 (Special) with two 25 watt sealed beam lamps. The batteries are Keystone No. 100 which are 6-volt lead-acid type and have an 80 ampere-hour rating. Discussions with the manufacturer indicate that the 80 ampere-hour rating was based on a 20-hour discharge rate. The manufacturer stated that this battery would power the two 25 watt lamps for 5.9 hours.

These findings are contrary to 10 CFR 50.48(b) which requires that D. C. Cook Nuclear Plant, Units 1 and 2, shall satisfy the requirements of 10 CFR 50, Appendix R, Section III.J, "Emergency Lighting," and contrary to Amendment No. 31 to License No. DPR-58 and Amendment No. 12 to License No. DPR-74.

- (2) Finding (50-315/82-08-10; 50-316/82-08-10): Emergency Lighting Preventative Maintenance.

Plant Manager Instruction (PMI) 2010, Plant Manager and Department Head Instruction, Procedures and Associated Indexes, states, in part, "Acceptance criteria shall include the specific requirements that must be obtained before a Procedure can be considered as having been properly completed.

The preventative maintenance procedure for battery powered emergency lighting did not include appropriate acceptance criteria as recommended by the lighting manufacturer.

Maintenance procedure MHI-5030, Attachment 9, is used to perform the preventative maintenance on emergency lighting

units. This procedure is scheduled to be performed quarterly. The procedure required that the following areas be examined:

- (1) The electrolyte level in the batteries is checked and replenished as necessary,
- (2) The battery terminals and cable connections are checked for corrosion and cleaned as necessary, and
- (3) The lamps are checked utilizing a momentary depression of the test switch to verify that they will illuminate and the lamps are replaced as necessary.

Two other indicators were available to determine the operability of the emergency lighting units:

- (1) Specific Gravity Indicators - three colored discs are provided in the battery case that indicate the level of charge on the battery, and
- (2) Charging Lamp - a front panel mounted lamp is provided that will glow dimly during trickle charge conditions and brightly during high charge conditions.

The manufacturer recommends that the high charge lamp should be dimly glowing before pressing the test switch. The test switch should then be held for at least 30 seconds and released. The high charge lamp should then glow brightly for a few minutes while restoring the battery charge. In addition, the manufacturer recommends subjecting the batteries to a deep discharge conditioning cycle every year. The licensee did not implement these recommendations, but utilized only a momentary test of the lamps to determine unit operability.

During plant tours on April 13, 14 and 15, 1982, the inspectors examined emergency lighting units throughout the facility. Many of these lights were found in a degraded condition when examined utilizing the manufacturer's recommended practices.

This degradation was evidenced by the following observations:

- (1) Charging lamps were continuously on and glowing brightly indicating either a charging system malfunction or a dead battery,
- (2) Specific gravity discs were showing various states of battery charge, and
- (3) Many lights were not properly aimed.

At the request of the inspectors, a full discharge test was performed on three lighting units to determine the operability of the units in their installed condition:

- (1) Light No. 1, taken from the Unit 2 Auxiliary Building, El. 587'0", had no specific gravity indicators visible at the start of the test. The light went completely out after 6 minutes.
- (2) Light No. 2, taken from the Unit 1 East Steam Enclosure, El. 624'0", had two of the three specific gravity indicators down at the start of the test. The light went completely out after 6 hours, 27 minutes.
- (3) Light No. 3, taken from the Unit 1 East Steam Enclosure, El. 612'0", had one of the three specific gravity indicators down at the start of the test. The light went completely out after 8 hours.

The licensee testing program did not identify the deficient lights.

The licensee had prior indication that the emergency lights were not being properly maintained. A fire occurred on December 14, 1980, in the main electrical generator for Unit 2. The fire report noted that some battery powered emergency lights failed within 10 minutes of the blackout. This report and the accompanying Condition Report No. 2-12-80-339 resulted in a Plant Modification No. 12-PM-147 requesting the installation of additional emergency lights in selected areas and the development of a good preventative maintenance program to assure operability of the emergency lights in the event of an emergency. No action was taken by the licensee to upgrade the preventative maintenance program for the emergency lighting system.

These findings are contrary to 10 CFR 50, Appendix B, Criterion V, which requires that activities affecting quality shall be prescribed by documented procedures appropriate to the circumstances and that those procedures shall include appropriate quantitative or qualitative acceptance criteria for determining that the activities have been satisfactorily accomplished.

- (3) Finding (50-315/82-08-11; 50-316/82-08-11): Statements Concerning Emergency Lighting.

As part of the NRC staff review of fire protection at the D. C. Cook Nuclear Plant, Units 1 and 2, 10 CFR 50.48(c)(5) required that, by March 19, 1981, the licensee shall submit plans and schedules for meeting the completion schedules in 10 CFR 50.48(c)(2), (c)(3), and (c)(4) for modifications necessary to satisfy the applicable provisions of Appendix R to 10 CFR 50. The licensee's response, dated March 27, 1981, stated, in part: "...the provisions of Appendix R to 10 CFR 50 which are applicable to the D. C. Cook Nuclear Plant...are set forth in Section...III.J..." The licensee further stated in this response, "Emergency lighting units

with an 8 hour battery pack are provided in all areas of the plant needed for operation of safe shutdown equipment and in access and egress routes thereto.... No further actions are necessary with regard to Section III.J. of Appendix R for the D. C. Cook Plant."

The emergency lighting units at the D. C. Cook Nuclear Plant, Units 1 and 2, had less than an 8 hour battery pack and three areas of the plant needed for operation of safe shutdown equipment or for access and egress to safe shutdown equipment were not equipped with emergency lighting.

5. Oil Collection System For Reactor Coolant Pumps

The inspectors examined the licensee's oil collection systems for the reactor coolant pumps. These systems were reviewed using the commitments and requirements in 10 CFR 50.48, Section III.0 of Appendix R to 10 CFR 50, and Amendment No. 31 to License No. DPR-58 and Amendment No. 12 to License No. DPR-74 including the Fire Protection Safety Evaluation Report issued July 31, 1979 and supporting licensee submittals.

a. Areas of Inspection

(1) Procedures

<u>Number</u>	<u>Revision Date</u>	<u>Reports</u>
PMI-5040	4/21/81	Design Changes
PMI-2030	6/30/81	Control of Information Resources (Document Control)
MHI-5030	4/30/82	Preventative Maintenance - Temporary Procedure Sheet No. 6

(2) Reports

Westinghouse Reactor Coolant Pump Manual - Model W-11001-B1
Request for Change Package RFC-DC-12-2225.

(3) Drawings

<u>Number</u>	<u>Revision Date</u>	<u>Title</u>
1543E03	7/18/79	RCP Motor Drip Pan and Flange Cover Details
1543E04	7/18/79	RCP Motor Drip Pan Details
1543E05	7/18/79	RCP Motor Drip Pan Details
1543E06	7/18/79	RCP Motor Support Ring and Splash Guard Assembly

<u>Number</u>	<u>Revision Date</u>	<u>Title</u>
1543E07	7/18/79	RCP Motor Oil Lift Enclosure Details
1543E08	7/18/79	RCP Motor Oil Lift Support Bracket Modification Details
1543E09	7/18/79	RCP Motor Catch Basin Details
1543E10	7/18/79	RCP Motor Drip Pans General Assembly
1543E11	7/18/79	RCP Motor Catch Basin Assembly
1543E12	7/18/79	RCP Motor Oil Lift Enclosure Assembly
1543E13	7/18/79	RCP Motor Catch Basin General Assembly
1543E14	7/18/79	RCP Motor Oil Lift Support Brack Modifications
1543E15	7/18/79	RCP Motor Oil Cooler Enclosure Details
1543E16	7/18/79	RCP Motor Oil Lift Enclosure General Assembly
1543E17	7/18/79	RCP Motor Oil Cooler Enclosure Details
1543E18	7/18/79	RCP Motor Oil Cooler Enclosure General Assembly
1543E60	7/18/79	Donald C. Cook Units 1 and 2 RCP Motor Oil Spillage and Control System
RFC-DC-12-2225 Figure 1	-	Containment RCP Oil Disposal System

(4) Plant Tours

The inspectors examined the installed oil collection system on the spare reactor coolant pump motor stored in the Auxiliary Building, Elevation 650'. Both Unit 1 and Unit 2 were operating during this inspection resulting in the reactor coolant pumps being inaccessible.

b. Findings

- (1) Finding (50-315/82-08-12(A); 50-316/82-08-12(A)): Oil Collection System Capacity.

10 CFR 50, Appendix R, Section III.0. requires that oil leakage shall be collected and drained to a vented closed container that can hold the entire lube oil system inventory.

The licensee states that D. C. Cook, Units 1 and 2, were in compliance with Section III.0 of Appendix R to 10 CFR 50 in a letter to the NRC dated March 27, 1981 (AEP:NRC:00428A).

The vented closed container in the D. C. Cook, Units 1 and 2 reactor coolant pump lubricating oil collection systems is not sized to hold the entire lubricating oil systems inventory.

The D. C. Cook, Units 1 and 2, reactor coolant pump lubricating oil collection systems are designed with one collection tank in each unit collecting oil leakage from four reactor coolant pump motors. The lubricating oil system inventory for one reactor coolant pump motor is 265 gallons (upper and lower bearing areas) indicating a minimum required tank capacity of 1060 gallons. The collection tanks installed in D. C. Cook, Units 1 and 2, have a capacity of 275 gallons.

These findings are contrary to 10 CFR 50.48(b) which requires that D. C. Cook Nuclear Plant, Units 1 and 2, shall satisfy the requirements of 10 CFR 50, Appendix R, Section III.0, "Oil Collection System for Reactor Coolant Pump."

- (2) Finding (50-315/82-08-12(B); 50-316/82-08-12(B)): Oil Collection System Seismic Qualification.

10 CFR 50, Appendix R, Section III.0. requires that the reactor coolant pump lubricating oil collection system shall be designed, engineered, and installed so that there is reasonable assurance that the system will withstand the Safe Shutdown Earthquake.

The licensee stated that D. C. Cook, Units 1 and 2, were in compliance with Section III.0. of Appendix R to 10 CFR 50 in a letter to the NRC dated March 27, 1981 (AEP:NRC:042BA).

The design, engineering and installation of the oil collection system included a sight glass on the drain tank. At the time of this inspection, the licensee could not provide any engineering analysis that demonstrated reasonable assurance that the sight glass could withstand the Safe Shutdown Earthquake.

These findings are contrary to 10 CFR 50.48(b) which requires that Donald C. Cook Nuclear Plant, Units 1 and 2, shall satisfy the requirements of 10 CFR 50, Appendix R, Section III.0, "Oil Collection System for Reactor Coolant Pump."

- (3) Finding (50-315/82-08-13; 50-316/82-08-13): Statements Concerning Reactor Coolant Pump Oil Collection System.

As a part of the NRC staff review of fire protection at the D. C. Cook Nuclear Plant, Units 1 and 2, 10 CFR 50.48(c)(5) required that by March 19, 1981, the licensee shall submit plans and schedules for meeting the completion schedules in 10 CFR 50.48(c)(2), (c)(3), and (c)(4) for modifications necessary to satisfy the applicable provisions of Appendix R to 10 CFR 50. The licensee's response, dated March 27, 1981, stated, in part: "...the provisions of Appendix R to 10 CFR 50 which are applicable to the D. C. Cook

Nuclear Plant...are set forth in Section...III.0...." The licensee further stated in this response, "The Reactor Coolant Pump (RCP) oil spillage control and protection system has already been installed.... This system fully meets the requirements of Section III.0. of Appendix R, and no further action is required for D. C. Cook Plant."

The reactor coolant pump oil collection system did not meet the requirements of 10 CFR 50, Appendix R, Section III.0; the collection tank was not large enough to hold the entire lube oil system inventory and there was not reasonable assurance that the collection tank sightglass would withstand the Safe Shutdown Earthquake.

6. Fire Protection and Prevention Program

The inspectors examined selected systems and areas of the facility to determine the adequacy of design and implementation of the fire protection and prevention programs. These programs were reviewed using the commitments and requirements in the facility Technical Specifications, Amendment No. 31 to License No. DPR-58 and Amendment No. 12 to License No. DPR-74 including the Fire Protection Safety Evaluation Report issued July 31, 1979 and supporting licensee submittals.

a. Areas of Inspection

(1) Procedures

<u>Number</u>	<u>Revision Date</u>	<u>Title</u>
PMI-2271	3/20/79	Control of Combustible Materials
PMI-2275	8/29/78	Fire Prevention - Control of Ignition Sources
AEPSC General Procedure 2.1	5/15/81	Quality Assurance Program for the Donald C. Cook Nuclear Plant
12-MHP 5030.001.001	3/19/82	Maintenance Inspection Procedure for Fire Doors
12-MHP 5030.001.002	3/19/82	Maintenance Inspection Procedures for Safety Related Fire Dampers

(2) Reports

<u>Title</u>	<u>Date</u>
Inspection and Test Report - Unit 1 Cable Vault Halon System (Ansul Job. No. 5686)	10/3/74

Inspection and Test Report - 11/16/77
Unit 2 Cable Vault Halon System
National Foam System, Inc. 5/27/82
Technical Service Report No. 7568

b. Findings

- (1) Finding (50-315/82-08-14; 50-316/82-08-14): Statements Concerning Unprotected Ventilation Openings.

As part of the NRC staff review of fire protection at the D. C. Cook Nuclear Plant, Units 1 and 2, the staff requested by letter dated July 11, 1977, that the licensee provide information concerning unprotected openings in areas protected by gas extinguishing systems. The licensee's response dated August 19, 1977 stated, in part: "There are no unprotected openings in the boundaries of any area in Unit 1 protected by a gas agent extinguishing system... all ventilation openings are equipped with self-closing rated fire dampers."

The 1AB and 1CD Emergency Diesel Generator Rooms, which are protected by carbon dioxide gas agent extinguishing systems, have ventilation penetrations in the boundary walls which are not equipped with rated fire dampers.

The licensee responded to this inspection finding with a letter dated July 2, 1982 (AEP:NRC:0670A). In this letter, the licensee stated that fire rated ventilation dampers were intentionally not installed on these penetrations in the Emergency Diesel Generator Rooms. The licensee also stated that the reason for not installing the dampers was that commercially available fire rated dampers were not seismically qualified and installation of non-seismically qualified dampers could result in a common mode failure of the emergency diesel generators in the event of a Safe Shutdown Earthquake. The licensee did not indicate if any action was taken to seismically test commercially available dampers or construct seismically qualified fire dampers for these fire barrier penetrations.

- (2) Finding (50-315/82-08-06(B); 50-316/82-08-06(B)): Combustible Materials Controls Implementation.

Plant Manager Instruction (PMI) 2271, Control of Combustible Materials, requires that rags, wood, paper, cardboard, and other trash be removed from safety related areas at the completion of work and shall not be left to accumulate in safety related areas. PMI - 2271 also requires that compressed gas cylinders shall be removed from safety related areas upon completion of work.

The following examples which demonstrate the lack of implementation of these requirements were observed in safety related areas:

- (1) Five dumpsters filled with combustible, contaminated materials were observed on the 650' level of the Auxiliary Building in the vicinity of Component Cooling Water System surge tanks.
- (2) An accumulation of trash and combustible cleaning tools, such as rags and mops was observed on the 609' level of the Auxiliary Building in the vicinity of the Component Cooling Water System heat exchangers and the laundry area.
- (3) A wooden ladder was observed in the Unit 1 West Essential Service Water System pump room. The ladder was not in use and appeared to be stored in the area.
- (4) Oxyacetylene compressed gas cylinders were observed in the Unit 1 Quadrant 4 Cable Tunnel, the Unit 1 Quadrant 3S Cable Tunnel and the Unit 2 Quadrant 4 Cable Tunnel. These oxyacetylene units were not in use and appeared to be stored in these areas.

These findings are contrary to Technical Specification 6.8.1.f for Units 1 and 2 which requires that written procedures shall be established, implemented and maintained covering the fire protection program implementation.

c. Discussion

- (1) Unresolved Item (50-315/82-08-15; 50-316/82-08-15):
Auxiliary Feed Pump Room Fire Door Qualification.

The fire door assemblies into the Unit 1 and 2 West Motor Driven Auxiliary Feedwater Pump rooms were not rated fire door assemblies and they had not been tested to demonstrate their fire resistance capabilities. In addition, the doors were not designed and installed in accordance with NFPA 80, Standard for Fire Doors and Windows.

Chapter 4 of NFPA 80, Use and Installation of Horizontally Sliding Doors, provides the applicable requirements for the West Motor Driven Auxiliary Feedwater pump room door assemblies. Section 4-1.1 requires that the doors shall lap the openings by at least 4 inches on the sides. Section 4-5.1 requires that only labeled fire door hardware shall be used including tracks, hangers, track brackets, bumpers, binders, pull handles and stay rolls. Section 4-6.1 requires that horizontally sliding fire doors shall be equipped with self-closing or automatic closing devices to insure that they will close or be closed at the time of fire. Section 4-6.2 requires that power operated doors shall be equipped with a releasing device which will automatically disconnect the power operator at the time of fire, allowing a self-closing or automatic device to close the door irrespective of power failure or manual operation.

The horizontally sliding doors on these pump rooms did not satisfy any of these requirements; the doors lapped the openings by approximately one and one half inch on one side and no lap on the other side, the hardware was not labeled or listed for use on fire doors, the doors were not equipped with a self-closing or automatic closing device, and the power operator was not equipped with an automatic releasing device.

This item will remain unresolved until the licensee provides documented evidence attesting to the fire resistance capabilities of the fire door assemblies in the Units 1 and 2 West Motor Driven Auxiliary Feedwater Pump rooms.

- (2) Unresolved Item (50-315/82-08-16; 50-316/82-08-16): Diesel Generator Room Carbon Dioxide Systems Adequacy.

Two concerns were raised during this inspection concerning the adequacy of the carbon dioxide total flooding suppression system in the Emergency Diesel Generator rooms. The first concern is that the unprotected ventilation system openings in the emergency diesel generator room walls will prevent the accumulation of sufficient carbon dioxide to reach the design concentration. The second concern is that the air in the starting air receiver tanks will be released in the event of a fire either through system overpressurization relief or rupture and prevent the accumulation of sufficient carbon dioxide to reach the design concentration.

This item will remain unresolved pending licensee analysis and justification of the installed configuration for the carbon dioxide fire suppression system in the Emergency Diesel Generator rooms.

- (3) Unresolved Item (50-315/82-08-17; 50-316/82-08-17): Safety Related Room Fire Door Modifications.

The inspectors raised two concerns over the qualification of safety related fire door assemblies in the D. C. Cook Plant. The first concern is that the non-listed fire door frames used in the majority of the safety related fire door assemblies will degrade the fire resistance capability of the assembly below its design rating. The second concern is that modifications to fire doors, including handles and metal reinforcement plates welded to the doors, will degrade the fire resistance capability of the assembly below its design rating.

This item will remain unresolved pending analysis and approval of the installed configuration for all safety related fire door assemblies by the original approving organization as fulfilling the design fire resistance capability.

- (4) Open Item (50-315/82-08-18; 50-316/82-08-18): Foam Suppressant Quality.

The inspectors expressed concern that the licensee's manual foam suppressant concentrate was very old (up to ten years) and had never been sampled and analyzed as recommended in NFPA 11, Foam Extinguishing Systems. The licensee committed to take samples from each manufacturing lot of material and return the samples to the manufacturer for analysis. This was accomplished on May 27, 1982 and all foam samples were found acceptable. The licensee also committed to initiate a routine surveillance testing procedure to assure that the foam testing is accomplished in the future.

This item will remain open pending issuance of this procedure and review of the procedure by the inspectors.

7. Unresolved Items

Unresolved Items are matters about which more information is required in order to ascertain whether they are acceptable or Items of Noncompliance. Unresolved Items identified during this inspection are discussed in Paragraph 6.

8. Exit Interviews

The inspectors met with licensee representatives denoted in Paragraph 1 on April 16, 1982 and on May 14, 1982 at the conclusion of those inspections. The inspectors summarized the purpose and scope of the inspection and discussed the findings.