

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-341/84-16(DRS)

Docket No. 50-341

License No. CPPR-87

Licensee: Detroit Edison Company
2000 Second Avenue
Detroit, MI 48224

Facility Name: Enrico Fermi Nuclear Power Plant, Unit 2

Inspection At: Enrico Fermi 2 Site, Monroe, MI

Inspection Conducted: May 14-18, June 5, and July 10-11, 1984

Inspectors: *C. Ramsey*
C. Ramsey

8/31/84
Date

F. Maura
F. Maura

8/31/84
Date

C. Ramsey for
T. Coppola

8/31/84
Date

C. Ramsey for
H. Thomas

8/31/84
Date

C. Ramsey for
R. Eberly

8/31/84
Date

Approved By: *W. Guldemond*
W. Guldemond, Chief
Operational Programs Section

8/3/84
Date

Inspection Summary

Inspection on May 14-18, June 5, and July 10-11, 1984 (Report No. 50-341/84-16 (DRS))

Areas Inspected: Routine, announced inspection of the applicant's fire protection program implementation and safe shutdown capability in the event of a fire during plant operation. The inspection focused on three principal areas of the plant: (1) Control room, (2) Relay room, and (3) D.C. Motor Control Center (MCC) panel room. The inspection involved 248 inspector-hours by five NRC inspectors including 16 inspector-hours onsite during offshifts and 32 inspector-hours at the June 5 and July 10-11, 1984 meetings held at NRC Headquarters in Bethesda, MD.

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Results: No items of noncompliance were identified; however, two deviations were identified as follows: (1) The control room panels containing controls, instrumentation and associated cables for all required safe shutdown systems did not conform to the design configuration described by the applicant in Section 9.5B of the FSAR and the applicant's submittal EF2-54205 dated July 31, 1981 (deviation) and, (2) the diesel fire pump installation was not in accordance with NFPA 20 in that the diesel fuel oil storage tank was located above ground outside the fire pump house and exposed to freezing temperatures (deviation).

DETAILS

1. Persons Contacted

- *R. Anderson, Systems Engineer
- R. Ballis, Electrical Systems Engineer
- *T. Began, Electrical Engineer
- *J. Clark, Operations Shift Supervisor
- *W. Colbert, Director, Nuclear Engineering Department
- L. Collins, Electrical Systems Engineer
- *W. Fahrner, Manager, EF-2
- W. Jens, Vice President, Nuclear Operations
- M. Kahn, Electrical Systems Engineer
- *R. Lenart, Superintendent, Nuclear Production
- *E. Lusic, Assistant Director, Nuclear Engineering
- *R. Olson, Senior Fire Protection Engineer
- *G. Sharma, Electrical Engineer
- *F. Svetkovich, Nuclear Engineer
- A. Shiel, Mechanical Engineer
- *G. Trahey, Director, Nuclear Quality Assurance
- *R. Vance, Assistant Project Manager, Engineering
- S. Williams, Electrical Field Engineer
- L. Wooden, Systems Engineer

The inspection team also contacted other DECo personnel.

*Denotes persons attending the exit meeting of May 18, 1984 and the meetings at NRC offices in Bethesda, Maryland on June 5 and July 10-11, 1984.

The following NRC personnel also attended the exit meeting of May 18, 1984.

- P. Byron, Senior Resident Inspector, Fermi 2
- W. Guldmond, Chief, Operational Programs Section
- W. Little, Chief, Engineering Branch

2. Documents Reviewed

a. Mechanical Drawings

<u>Number</u>	<u>Title</u>
6M721N-2052 (SK-3016-E11-3)	RHR Service Water System - Division 1 RHR Complex
6M721N-2053 (SK-3016-E11-3)	RHR Service Water System - Division 2 RHR Complex
6M721-2053 (SK-3016-E41-1)	High Pressure Coolant Injection System (HPCI)

6M721-2043 High Pressure Coolant Injection System (HPCI)
(SK-3016-E41-1)

6M721-2044 Reactor Core Isolation Cooling System (RCIC)
(SK-3016-E51-1)

6M721-2083 Residual Heat Removal (RHR) - Division 2
(SK-3016-E11-1)

6M721-2084 Residual Heat Removal (RHR) - Division 1
(SK-3016-E11-2)

6M721-1089 Nuclear Boiler System
(SK-3016-B21-1)

6M721-2090 Nuclear Boiler System
(SK-3016-B21-2)

6I721-2196-1 Remote Shutdown Systems

b. Electrical Drawings

6I-721-2002-4 Rev. N - Auxiliary Building Relay Room Layout

6I-721-2095-29 Rev. D - Steam Leak Detection

6I-721-2095-30 Rev. G - Nuclear Boiler Process Instruments A & B Circuits

6I-721-2125-2 Rev. E - Elementary Diagram Power Distribution Feedwater
System

6I-721-2125-3 Rev. F - Elementary Diagram Feedwater Control System
Reactor Level

6I-721-2155-21 Rev. E - Reactor Protection System

6I-721-N-2201-33 Rev. M - RHR Service Water Pump A

6I-721-2225-4 Rev. H - HPCI - System Logic Circuitry Part II

6I-721-2225-5 Rev. H - HPCI - Instrument Loop Diagram-Turbine

6I-721-2225-12 Rev. H - HPCI - Instrument Loop A & B Testability
Modification

6I-721-N-2572-17 Rev. J - Bus EA-Load Shedding Scheme

6I-721-N-2572-21 Rev. L - 4160 ESS Diesel Bus 13 EC

6I-721-N-2578-10 Rev. L - Relay & Metering for EDG #13

6I-721-2671-12 Rev. A - Primary Containment Monitoring System

6I-721-2671-14 Rev. A - Primary Containment Monitoring System
6I-721-N-2711-18 Rev. R - Diesel Generator II Control Part 1
6I-721-2795-1 Rev. J - Remote Shutdown System Intertie of Analog
Instruments to Existing Signal Loops, Division 1
6I-721-2795-2 Rev. C - Remote Shutdown System Intertie of Analog
Instruments to Existing Signal Loops, Division 1
6SD-721-2500-1 Rev. I - 4160 V & 480 V
6SD-721-2500-4 Rev. H - 4160 V System Service Bus 65E, 65F, 65G
6SD-721-2510-1 Rev. M - 480 V Buses 72B, 72C, 72E, 72F
6SD-721-2530-10 Rev. L - 260/130 volts ESS Dual Pattern 2PA
Distribution, Division 1
6SD-721-2530-11 Rev. L - 260/130 volts ESS Dual Battery 2PB
Distribution, Division 2
6E-721-2800-17 Rev. A - Appendix R Tray Cond. ID. SW. BSMT. RB
6E-721-2800-18 Rev. A - Appendix R Tray Cond. ID. SW. BSMT. RB
6E-721-2801-15 Rev. A - Appendix R Tray Cond. ID. SE. first RB
6E-721-2801-16 Rev. A - Appendix R Tray Cond. ID. SE. first RB
6E-721-2801-17 Rev. A - Appendix R Tray Cond. ID. first RB
6E-721-2802-11 Rev. B - Appendix R Tray Cond. ID. NE second RB
6E-721-2801-12 Rev. A - Appendix R Tray Cond. ID. SE second RB
6E-721-2802-21E Rev. A - Cable Tray HGR Tabu Aux. B second floor 61
6E-721-2803-9 Rev. D - Appendix R Trays Cond. ID SE Third R.B.
6E-721-2808-12A Rev. C - Trays and Cond. Fire Barriers

c. Procedures

20.000.19, Rev. 2 Shutdown from Outside Control Room
20.501.02, Rev. 0 Control Center Complex Fires
29.000.01, Rev. 0 Level/Pressure Control
29.000.02, Rev. 0 Cooldown

- 29.000.03, Rev. 0 Contingency for RPV Flooding
- 29.000.05, Rev. 0 Contingency for Level Restoration
- 29.000.06, Rev. 0 Contingency for RPV Pressure Reduction

d. Other Documents

Applicable Portions of the FSAR

Fermi SSER 2 of September 1982

Fermi Unit 2 FSAR Appendix 9B "Fire Protection Analysis and Review of Appendix A to BTP APCS 9.5-1".

3. Licensee Action on Previous Inspection Findings

- a. (Closed) Open Item (50-341/83-12-01): The division I and division II remote shutdown panels appeared to be of inadequate design to accomplish safe shutdown outside the control room in the event of a control room fire. The division I remote shutdown panel is not isolated from the control room. Portions of the division II remote shutdown from this panel require re-entry into the control room at some point to initiate RHR torus cooling. This item is re-written as unresolved item 50-341/84-16-03.
- b. (Closed) Open Item (50-341/83-12-03): The relay room stairwell (Zone 3, elevation 613'-6" to 643'-6") in the auxiliary building was not provided with fire protection features as stated in the Fermi 2 FSAR. This is an open stairwell containing division I and division II safe shutdown cables and other combustibles. The combined combustible loading is in excess of 258,100 BTUs per square foot.

During the inspection, the NRR/CHEB fire protection reviewer for Fermi 2 indicated that the applicant's exemption request for this area and their proposal to wrap one division of safe shutdown cables in a 3-hour fire barrier provided acceptable equivalent protection to that required by Section IIIG of Appendix R to 10 CFR Part 50. This item is closed based on NRR's review and approval of the applicant's formal exemption request.

- c. (Closed) Open Item (50-341/83-12-08): The applicant failed to provide the inspectors with procedures for safe shutdown in the event of a fire in the control room, relay room or other plant areas affecting safe shutdown trains. No evidence was provided that operators were being trained in the actions to be taken under such circumstances. This item is rewritten as Unresolved Item No. 50-341/84-16-03.

4. Compliance with Section IIIG of Appendix R to 10 CFR Part 50 and Safe Shutdown Capability

The NRC position stated in NRC Question, Item 021.1 of the Fermi-2 FSAR concerning Page 9B.3-5, Section 9B.3.3 of Amendment No. 55 to the Fermi-2 FSAR required the applicant to conduct a more detailed fire hazard analysis for each plant fire area, and determine the effects of a postulated fire involving permanent and/or transient combustibles (exposure fire) on systems, associated circuits and equipment required for safe shutdown. The applicant was requested to identify all redundant mechanical and electrical systems necessary for safe shutdown that were separated by distance only (no fire barriers). The fire hazard analysis was to demonstrate, assuming failure of the primary fire suppression system that a fire in installed and/or transient combustibles will not damage redundant trains of systems and equipment required for safe shutdown.

The NRC position stated in NRC Question, Item 021.3 of the Fermi-2 FSAR concerning Page 9B.4-1, Section 9B.4 of the Fermi-2 FSAR required the applicant to identify all interactions between redundant safe shutdown trains in areas where the redundant trains are within 20 feet of each other and the consequences of electrically initiated or exposure fires with regard to the plant's safe shutdown capability. The applicant's response to Item 021.22 of the FSAR states that the applicant is in compliance with the guidance of Appendix R as discussed in a meeting with the NRC staff on May 27, 1981.

The following fire areas/zones were inspected and found to meet the requirements for safe shutdown (Sections III G and III L) of 10 CFR 50, Appendix R, FSAR commitments, and the SER unless otherwise noted. The listed areas are based on the fire area description given by the applicant in the Fire Hazards Analysis. These may not agree with the NRC definition of fire area; however, to avoid confusion, they will be used as a guide for this report. Only areas containing equipment required for post-fire safe shutdown were inspected.

a. Reactor Building (Fire zones 1-9).

b. RHR Complex for Division 1 and 2.

c. Auxiliary Building.

- (1) Relay Room (Fire Zone 3). The cabinets containing redundant safe shutdown circuits are in all cases separated by a horizontal distance greater than 20 feet; however, cables in trays or conduit for Division I and Division II safe shutdown circuits are within 20 feet of each other at or below ceiling level. The applicant is in the process of wrapping safe shutdown cables in this zone that are within 20 feet; however, a large number of cables (Balance of Plant which are not required for safe shutdown) constituting significant intervening combustibles are installed in the ceiling throughout this zone and above the relay cabinets containing redundant safe shutdown circuits. A fire in this zone could disable all systems capable of injecting coolant into the reactor vessel.

This zone is equipped with automatic fire detectors and an automatic halon fire suppression system; however, due to the significant quantity of intervening combustibles in congested ceiling areas throughout the zone, the NRR/CHEB fire protection reviewer for the plant indicated that the applicant's exemption request for intervening combustibles would be denied.

The NRC position stated in NRC Question, Item 021.1 of the Fermi-2 FSAR requires that, assuming failure of the primary fire suppression system, where it cannot be demonstrated that a fire will not damage redundant safe shutdown trains, an alternative means of assuring safe shutdown must be provided. Pending the applicant's installation of alternative safe shutdown capability for this zone, this is considered an unresolved item (50-341/84-16-01).

- (2) Division I switchgear room (Fire zone 4).
- (3) Division II switchgear room (Fire zone 12).
- (4) Control room (Fire zone 9). The control room contains the controls, instrumentation and associated circuits for all the required safe shutdown systems. Control room panels P601 and P602 are adjacent to each other and contain RCIC and HPCI controls and instrumentation, respectively.

Control room panels P809 and P810 are adjacent to each other and contain the controls and instrumentation for the emergency diesels and emergency AC distribution system for Division I and Division II, respectively.

Control room panels 808 and 817 are adjacent to each other and contain the controls and instrumentation for the HVAC equipment required to support safe shutdown utilizing Division I or Division II, respectively.

Each of the adjacent panels are separated by a 3/16 inch steel plate and are mounted on a control pad 4 inches above floor level. Each set of panels is separated from the other set of panels by several feet.

None of the panels were originally designed to provide the required fire resistance to prevent damage to redundant safe shutdown trains in the event of a control room fire. Thus, the panel designs containing safe shutdown control and instrumentation circuits do not meet the requirements of Section III G.2 of Appendix R to 10 CFR 50.

The NRC staff acknowledged this deviation from Appendix R criteria in Supplement No. 2 of the Fermi-2 SSER dated September 1982 and based its acceptance of the installation on fire tests conducted by the applicant and the applicant's commitment to modify the panel designs. The applicant's submittals to the NRC dated

July 31, 1981, November 24, 1981 and January 4, 1982 contained the applicant's fire test results and information describing design modifications to the panels.

The inspection identified that the applicant failed to modify the panel designs and failed to accurately describe the details of the as-built panel configuration in that:

- (a) The panels were not completely enclosed and free of penetrations.
- (b) The panels were not provided with separate forced ventilation systems. Instead, the applicant determined that natural ventilation of the panels was sufficient.
- (c) All plastic components such as face plates, annunciator boards and control switches were not removed from the front of the panels and replaced with glass or other noncombustible materials.
- (d) The panels contained louvered openings and open spaces at floor level between the floor penetration seal and the four inch concrete pad which the panels are mounted on. Unsealed penetration openings existed around a ground buss bar penetrating the 3/16 steel plate between each set of panels.
- (e) Louvered access doors covered with marine board installed on the front of the panels are interchangeable with other control room panels that are not required for safe shutdown. During the inspection, one of these access doors was found installed on a control room panel not required for safe shutdown. A louvered access door that was not covered with marine board was installed in safe shutdown panel P-602.
- (f) Unidentified Division I and Division II cables were installed on the west control room wall near the rear of panel P-602 and in the ceiling above panels P-601 and P-602.
- (g) A false ceiling was installed above panels P-601 and P-602 which was not previously described to the NRC and was not included in the applicant's prototype fire testing of the panels.

The applicant had no plans for completing the design modifications discussed above and had no plans for evaluating the deviations between the as-built panel configuration and the prototype configuration that were tested. This is considered a deviation from previous commitments to the NRC. (50-341/84-16-02)

- (5) Steam Tunnel, Cable Spreading Room (Zone 7).

- (6) DC MCC Room (Zone 11). This zone contains the Division I DC motor control centers for the RCIC system and the Division II motor control centers for the HPCI system. The divisional MCC's are separated by a horizontal distance of approximately 10 feet. A partial height, partial width (approximately 7 feet by 7 feet) partition is centered between the divisional MCC's and serves to shield the divisional MCC's from direct flame impingement from fire and water impingement due to manual fire-fighting hose streams. This partition is not a rated fire barrier and will not contain the spread of fire, smoke and hot gases so that fire damage would be limited to one divisional MCC.

Additionally, two unwrapped trays of Division I cables and one tray of Division II cables are installed in the ceiling area above and in the proximity of the divisional MCC's and the partial height partial width partition. These unwrapped cable trays contain cables for the Division I battery chargers and RCIC control cables (Tray numbers IP-063 and IP-06; conduits 1C-10 and 1C-122). One Division I cable tray is installed in the ceiling above the Division II MCC. Another Division I cable tray and a Division II cable tray are installed in the ceiling above and in the proximity (within 20 feet) of the Division I MCC and the partial height partial width partition. The applicant's proposal to wrap the Division II cable tray which interfaces with the Division I MCC does not satisfy the criteria for maintaining one redundant division free of fire damage in this zone. A fire in this zone could cause the loss of both divisional MCC's, which would render the RCIC and HPCI systems inoperable. The simultaneous loss of these systems could result in a loss of makeup water to the reactor vessel during post-fire conditions.

According to the NRC's position stated in NRC Question, Item 021.1 of the Fermi-2 FSAR, assuming a failure of the primary fire suppression system, where it cannot be demonstrated that a fire in installed and transient combustibles will not damage redundant trains of systems required for safe shutdown, an alternative means of assurance of safe shutdown must be provided. Pending the applicant's resolution, which assures that one redundant safe shutdown train remains free of fire damage, given a fire in this zone, this lack of separation is considered an unresolved item. (50-341/84-16-04)

5. Alternative Safe Shutdown Capability and Safe Shutdown Procedures

Page E-11 of Supplement No. 2 to the SSER dated September 1982 acknowledges the fact that the alternative shutdown systems provided are not independent of the control room. Acceptance of this condition was based on the proviso that the applicant develop safe shutdown procedures "in the event the power distribution systems were disrupted by a control room fire and control functions required for safe shutdown were lost at the control room and remote shutdown panels."

The inspection team found that the emergency procedures developed by the applicant for this condition were not acceptable.

The SER states that because of the uncertainties concerning the one panel fire, the applicant was asked to develop emergency procedures to establish safe shutdown conditions in the event a control room fire disabled the control room and the remote shutdown panels (the latter not being electrically independent of the control room). The applicant committed to develop and implement such procedures by letter dated January 4, 1982. The emergency procedures presented by the licensee for review, to satisfy the SER requirement, were procedures 20.501.02 and 20.000.19.

Procedure 20.501.02 was written and approved in 1982 and describes the actions necessary to alert personnel, evacuate the control room, and start combatting the fire. It directs the operator to use procedure 20.000.19 if shutdown is required. Procedure 20.000.19 was written in 1983 and is still undergoing change. It describes the shutdown procedures required when using either of the remote shutdown panels. The main body of the procedure (i.e. the numbered steps), were not written specifically for fire, and do not assume any damage to control function in the control room. If used alone, the numbered steps of the procedure would suffice in the specific case of fires in the control room which did not damage adjacent control panels for redundant safe shutdown equipment (i.e. single panel fire). Throughout the procedure, however, there are notes referring the operator to Enclosures 3 and 4 of the procedure in the event that the controls at the remote shutdown panels fail to initiate the desired action (i.e. start the RCIC pump). Enclosure 3 gives the location of various equipment breakers required for safe shutdown and Enclosure 4 gives both generic and specific information regarding the operation of the breakers under conditions previously stated (i.e. inability to control from either control room or remote shutdown panel). As stated previously in Paragraph 3.c.(4), this ability is required because the remote shutdown panels are not electrically independent of the control room.

The procedures described by Enclosure 4 contain functions which are considered repairs since they require "de-termination" or cutting of wires within the breaker enclosures. The procedures as presently written do not include all the breakers required for safe shutdown since the licensee did not postulate a fire that would totally destroy the capability in both redundant cabinets. For the latter event several additional repairs would be required in order to be able to achieve and maintain hot shutdown conditions. During discussions with the licensee it was determined that the reactor core would be uncovered within a half hour in the event of a concurrent loss of:

- a. Both shutdown systems (RCIC and HPCI due to a two panel fire), and
- b. Off-site power.

Thus, it does not appear feasible to perform the repairs, required to prevent core uncovering, within the allotted time. This is considered an unresolved item (50-341/84-16-03).

6. Associated Circuits/Cable/Conduit Inspection

The associated circuit concerns evaluated were:

- . Common bus associated circuits - The common bus concern is found in circuits, either non-safety related or safety-related, where there is a common power source with shutdown equipment and the power source is not electrically protected from the circuit of concern.
- . Common enclosure associated circuits - The common enclosure concern is found when redundant circuits are routed together in a raceway or enclosure and they are not electrically protected or fire can destroy both circuits due to inadequate fire protection means.
- . Spurious signal associated circuits - The spurious signal concern consists of two parts:
 - (a) False motor, control and instrument readings such as occurred at the 1975 Brown's Ferry fire. These indications could be caused by a fire initiated ground, shorts, or open circuits.
 - (b) Spurious operation of safety related components that would adversely affect shutdown capability (e.g., RHR isolation valves).

The inspection results were as follows:

(a) Common bus associated circuits

Circuits were examined for fuse, circuit breaker, or relay coordination. Among those examined were:

- . 4160 V Bus 64 B Feeder Breaker to Bus 72B
- . 4160 V Tie Breaker from Bus 64B to Bus 11 EA
- . RHR Pump A - 4160 V Power - Division 1
- . RHR Pump C - 4160 V Power - Division 1
- . RHR Pump B - 4160 V Power - Division 2
- . RHR Pump D - 4160 V Power - Division 2
- . RHR Service Water - 4160 V Power Pump A
- . HPCI Feedwater Isolation Valves E41-MOF006 & E41-MOF007
- . RCIC Feedwater Isolation Valves E51-MOF012 & E51-MOF013
- . RCIC Suction Valves E51-MOF029 & E51-MOF031

- . RHR Suction Valves E11-MOF004A - Division 1
- E11-MOF004C - Division 1
- E11-MOF004B - Division 2
- E11-MOF004D - Division 2

The coordination was found to be satisfactory; the common bus concern is acceptably resolved.

Relay testing is to be done at least once per 18 months to demonstrate the operability of the overcurrent protective devices. A representative sampling (10%) of each type of fuse is to be tested on the 18-month cycle.

Circuit breakers are to be inspected and undergo preventive maintenance once per 60 months.

(b) Common enclosure associated circuits

All circuits selected for the audit were found to be electrically protected. The applicant has a computer program dated April 30, 1984, which documents the separation of cables for HPCI, RCIC, and the Automatic Depressurization System (ADS). The applicant also has an ongoing computer program which is used to verify that non-safety related cables do not cross over from one redundant division to another.

(c) Spurious signal associated circuits

The spurious signal evaluation was found to be unsatisfactory because of the following problems:

- (1) A total control room fire has not been analyzed per Appendix R, Section III.G.2 and III.G.3 requirements. It was not demonstrated that one division of shutdown control and instrument cables would be free of fire damage. A particular concern is the loss of both HPCI and RCIC because of spurious signals.

Remote shutdown panel H21P-100 provides the capability to control the RCIC system and the RHR system from switchgear room No. 1. Instrumentation is available on this panel to enable the plant operators to monitor the safe shutdown systems; however, the applicant did not provide electrical isolation from the control room for the motor controls and the instrumentation which are installed on this panel.

Remote shutdown panel H21P-101 provides controls and instrumentation to enable the plant operators to go to hot shutdown by activating the HPCI system. Instrumentation on this panel, with the exception of reactor vessel pressure and torus water temperature, are not electrically isolated from the control room. The transfer switch and the HPCI initiation push button are not isolated from the control room. The only control on the panel which is electrically isolated from the control room is the HPCI manual/automatic

controller. A fire in the control room which damages control room panels H-11P601 and H-11P602 will also cause the partial loss of both remote shutdown panels. Consequently, both RCIC and HPCI could be lost.

This is an open item (50-341/84-16-05) pending re-evaluation by the NRC, and applicant completion of any corrective actions required.

- (2) The inspection team informed the applicant that if the pending exemption request from the requirements of III.G.2 for the relay room is denied, a documented analysis of the relay room is required to examine for the effects of spurious signals. The relays and interlocks in the cabinets are safety related for all redundant equipment required for post fire safe shutdown. Some of the circuits which could suffer damage are in the RCIC, HPCI, RHR, and emergency diesel generator systems.

This is an open item (50-341/84-16-06) pending NRR's action on the exemption request, and the applicant's corrective action.

- (3) The hi-low pressure interface concern had been analyzed, but no final report had been issued. Based on information which was available during the audit, one hi-low pressure interface has been identified, namely the RHR suction isolation valves from the recirculating pump suction. These were valves E11-50F008, E11-50F009, and E11-50F608.

This is an open item (50-341/84-16-07) pending applicant's completion of its hi-lo pressure interface report and review by the inspector.

- (4) The present control system for the emergency diesel generator service water pumps, RHR service water pumps and fuel oil transfer pumps could be lost due to a fire in the control room. This condition also applies to the emergency diesel generator buss breakers EA3, EB3, EC3, and ED3 due to a fire which occurs in the relay room. The loss of these breakers would inhibit the ability to load the safeshutdown systems on the emergency busses.

This is an open item (50-341/84-16-08) pending re-evaluation by the NRC and the applicant's completion of any required corrective actions.

The current transformer application in the diesel generator control circuits for differential relays was examined. The applicant has provided isolation in the form of current transducers which provides acceptable isolation.

7. Other Fire Protection Features

The applicant committed to conform to the guidelines for fire protection contained in Appendix A to Branch Technical Position (B.T.P.) 9.5-1 in the plant's design. The following areas were inspected and found to meet the guidelines contained in Appendix A to B.T.P. 9.5-1 unless otherwise noted.

- a. Fire Pump Installations - The NRC's position stated in Section E.2 of Appendix 9B of the Fermi-2 FSAR requires details of fire pump installations as a minimum to conform to NFPA 20. The applicant's response to this position is stated as "the fire pump installation conforms to the intent of NFPA 20."

NFPA 20 requires that fuel storage tanks for diesel engines be full at all times and be free of all water and foreign material. The temperature of the pump room, pump house or areas where diesel engines are installed is required to be maintained not less than the minimum recommended by the engine manufacturer. This minimum is generally 70° F.

Contrary to the above, the diesel fire pump fuel oil storage tank is installed above ground outside of the fire pump house and is exposed to freezing temperatures and gelling of the diesel fuel during winter months. The inspectors determined that this installation does not meet the intent of NFPA 20. This is considered a deviation from previous commitments to the NRC. (50-341/84-16-09)

- b. Other Fire Protection Features - The inspectors did not complete their review of other fire protection features such as: (1) fire detection systems, (2) fire door installations, (3) standpipe hose stations, (4) automatic sprinkler and gaseous fire suppression systems, (5) penetration seals in fire barriers, (6) pre-operational test results, (7) installation of fire wrap materials, (8) proposed operating technical specifications and surveillance test procedures, (9) quality assurance, (10) communication systems, (11) administrative controls and fire brigade, (12) fire damper installations, (13) emergency lighting, (14) underground main fire loop installation, (15) fire pump acceptance test results and pump starting sequences, (16) automatic interlocks to HVAC fans and dampers and (17) alarm systems. Completion of review of these aspects of the applicant's fire protection program implementation will be accomplished during subsequent NRC inspections.

8. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance or deviations. An unresolved item disclosed during the inspection is discussed in Paragraphs 4.c.(1), 4.c.(6), and 5 of the report.

9. Open Items

Open items are matters which have been discussed with the licensee, which will be reviewed further by the inspector, and which involve some action on the part of the NRC or licensee or both. Open items disclosed during the inspection are discussed in Paragraph 6.c(1), 6.c(2), 6.c(3), and 6.c(4).

10. Exit Interview

The inspectors met with the applicant's representatives (denoted in paragraph 1) on May 18, June 5, and July 11, 1984, and summarized the scope and findings of the inspection. The applicant acknowledged the statements made by the inspectors and agreed to take corrective actions on all of the items of concern.