

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-341/84-33 (DRP)

Docket No. 50-341

License No. CPPR-87

Licensee: The 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: July 30-August 3, 1984

Inspectors: C. H. Scheibelhut

C. H. Scheibelhut
Date 8-10-84

V. J. Elsbergas

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Approved By: R. C. Knop, Chief
Project Section 1C

R. C. Knop
Date 8-21-84

Inspection Summary

Inspection on July 30-August 3, 1984 [Report No. 50-84-33 (DRP)]

Areas Inspected: Routine safety inspection by regional personnel of licensee action on 10 CFR 50.55 (e) items and evaluation of licensee action with regard to IE Bulletins and Circulars. This inspection involved a total of 48 inspector-hours onsite by two NRC regional inspectors, including 0 inspector-hours onsite during off-shifts.

Results: In the three areas inspected, no items of noncompliance or deviations were identified.

Details

1. Persons Contacted

The Detroit Edison Company

W. F. Colbert, Director, Nuclear Engineering
E. P. Griffing, Assistant Manager, Nuclear Operations
W. Miller, QA Supervisor, Operational Assurance
L. P. Bregni, Engineer, Licensing
T. J. O'Keefe, Supervisor, Safety and Performance Analysis

The inspectors also interviewed other licensee and contractor personnel during the course of the inspection.

2. Licensee Actions on 10 CFR 50.55 (e) Items

(Open) 50.55 (e) item (341/82-12-EE) (Licensee No. 61) "Undersized Battery Cables." During a licensee review of the DC System at degraded voltage conditions, it was discovered that some cables were undersized. The undersized cables fell into two major categories: 1. Power Cables to Motor Operated Valves, and 2. Control Circuits to Remotely Located Switchgear. The undersized cables may not have provided sufficient voltage to ensure operations of the affected switchgear and motor operated valves.

The licensee wrote Nonconformance Report (NCR) No. 82-043 dated 3-15-82 to document the problem and provide the necessary corrective actions. The corrective action consisted of design changes to provide proper cable sizes for the motor operated valves (64 were required) and design changes to add interposed relays in the trip/close circuits of the affected switchgear (7 were required). These changes have been completed and properly documented.

However, the NCR was closed with the blanks "Describe Cause of Nonconformance" and "Describe Action Required to Prevent Recurrence" marked "N.A." This item remains open until the licensee justifies the use of "N.A." in the blanks, or determines the cause of the nonconformance and formulates action to prevent recurrence.

No items of noncompliance or deviations were noted.

3. Evaluation of Licensee Action with Regard to IE Bulletins

- a. (Open) IE Bulletin 81-03 (341/81-03-BB) "Flow Blockage of Cooling Water to Safety System Components by Corbicula SP. (Asiatic Clam) and Mytilus SP. (Mussel)." Flow blockages of heat exchanger equipment and piping have been discovered in operating nuclear plants. The blockages were caused by Corbicula SP., a fresh water clam or Mytilus SP., a salt water mussel. In one case, the blockages forced the shutdown of the plant.

The licensee determined that Corbicula SP. is present in Lake Erie, the source of cooling water for the plant, in the proximate area of the plant. In an examination of two safety-related systems that had been opened for maintenance and construction activities, no evidence of Corbicula SP. infestation was found. An implementation plan has been drafted to prevent and detect future contamination of cooling systems by the clams. A review of the draft plan shows that it is responsive to the requirements of the Bulletin and a follow-up to the Bulletin from the director of DEPR, IE. Monitoring locations include Lake Erie, the cooling tower basins, the ultimate heat sink basins, safety-related heat exchange equipment, balance-of-plant heat exchange equipment, and the fire system. Monitoring frequencies are determined by the Corbicula biology, climatic conditions, and Fermi 2 design/operation. Corrective actions include mechanical removal, dredging, flushing, and chemical treatment. This item remains open pending review of the approved plan.

- b. (Closed) IE Bulletin 83-03 (341-83-03-BB) "Check Valve Failures in Raw Water Cooling Systems of Diesel Generators." Numerous check valve failures have been reported in safety-related systems of operating power reactors. Failures of check valves in the raw cooling water system for diesel generators have led to a common mode failure of the diesel generators at one plant. Of utmost concern is the fact that functional tests performed on these valves require only forward flow through the valves. These tests may not detect internal failures unless the disassembled parts move to block flow during the test.

In response to this bulletin, the licensee modified the start and load test procedures for the emergency diesel generators to include tests of the cooling water check valves for forward flow and prevention of back flow. This verifies that the valve internals are intact and the valves are operating properly. A review of Plant Operating Manual (POM) procedures 24.307.14 Rev. 3 dated June 12, 1984, 24.307.15 Rev. 3 dated June 12, 1984, 24.307.16 Rev. 3 dated June 26, 1984, and 24.307.17 Rev. 3 dated June 24, 1984, "Emergency Diesel Generator - Start and Load Test", showed that the desired check valve testing is accomplished.

A review of the licensee's Inservice Inspection (ISI) pump and valve program indicates that it was prepared with this bulletin in mind. A positive means of verifying check valve operability has been provided using a forward flow and back flow test or disassembly and inspection when no other means of positive testing exists. This item is closed.

- c. (Open) IE Bulletin 74-12 (341/74-12-BB) "Incorrect Coils in Westinghouse Type SG Relays at Trojan." During preoperational testing at the Trojan nuclear power plant it was found that some of the Westinghouse Type SG relays labeled for operation at 125 V dc, had 48 V dc coils. The bulletin instructed the licensees to check

if a similar problem exists in their plants and describe the corrective action to be taken if required.

In response to the bulletin, the licensee informed the NRC that their investigation showed that the Westinghouse Type SG relays will not be used at the Fermi 2 plant. Furthermore, the licensee stated that to guard against similar problems in relays made by other manufacturers, a procedure was developed that calls for verification of relay types and their coils. Based on this response, the item was closed in Inspection Report 50-341/83-05 (DPRP). Recently, however, while investigating another problem, the licensee found two relay panels containing Westinghouse Type SG relays. This fact was reported to the NRC. The licensee stated again, that a procedure has been included in the testing program to verify the relay type and correctness of the coils.

The inspector's review of the checkout and initial operation test procedure CAIO.000.045, "Multi-Contact Auxiliary Relay," Rev. 6, and of a related procedure Maintenance Instruction MI-E0018, "Multi-Contact Auxiliary Relay," Rev. 2, that will replace procedure CAIO.000.045 for the commercial operation, shows that the voltages at which a relay picks up and drops out are monitored to prove that correct coils are used. Although the method used would likely allow one to positively determine that a coil rated for higher voltage than specified is provided, no such positive identification can be made for coils of lower voltage than specified. This matter has been discussed with the licensee's cognizant personnel. The item remains open pending satisfactory resolution of this concern.

- d. (Open) IE Bulletin 84-02 (341/84-02-BB) "Failures of General Electric Type HFA Relays in Use in Class IE Safety Systems." The bulletin informed licensees of failures of General Electric (GE) Type HFA relays with nylon or Lexan coil spools, and instructed them to replace either the complete relay or the coil spool per recommendations by the manufacturer. Furthermore, for plants that continue to use the nylon or Lexan-type HFA relays in non safety-related systems, the bulletin requires providing appropriate administrative controls dealing with maintenance, storage, and handling of spare parts to assure that the problematic HFA relays or their coils are not inadvertently used as replacement parts in safety-related applications.

In response to the bulletin concern, the licensee identified a total of 358 GE Type HFA relays in safety-related systems. These relays were replaced with new Century Series relays as discussed in the subject bulletin. Recently, however, it was determined that an old-style HFA relay had been reinstalled in a safety-related system. As stated by the licensee, steps were taken to have this relay replaced with a Century Series relay. The licensee has also committed to revise the Restricted Material/Equipment/Services List 1102-62 to indicate that HFA relays with nylon or Lexan coils are unacceptable.

The licensee continues to use the subject HFA relays in nonsafety-related systems and has spare relays stocked. The inspector's review of administrative procedures dealing with the maintenance, and handling and storing of spare parts, shows that it can be reasonably assured that no relays qualified for nonsafety application would be used in safety-related systems. As of this time, however, it could not be positively determined how the 358 relays that were replaced were disposed of. The item remains open until this concern is satisfactorily resolved and until it is confirmed that the faulty relay that has been reinstalled has been replaced and the List 1102-62 has been revised as discussed above.

No items of noncompliance or deviations were noted.

4. Evaluation of Licensee Action with Regard to IE Circulars

- a. (Closed) IE Circular 80-08 (341/80-08-CC) "BWR Technical Specification Inconsistency - RPS Response Time." The circular informed licensees that inconsistencies were found in the values of the Reactor Trip System (RTS) logic response time (from sensor contact opening to and including scram solenoid relay contact opening) as stated in the Technical Specifications, and as used for the safety analysis. The RTS response times as presently included in the Technical Specifications for Fermi 2, include the relay logic response time and the sensor response time. As documented in the licensee's files, the response time allocated for the relay logic is the value stated in the Technical Specifications, and is the same as used for the safety analysis (50 milliseconds). The item is closed.
- b. (Closed) IE Circular 80-10 (341/80-10-CC) "Failure to Maintain Environmental Qualification of Equipment." Degradation of environmentally qualified equipment due to improper maintenance or use has occurred at several nuclear power plants. The circular directs all licensees to enforce adequate administrative controls to provide necessary maintenance procedures to prevent such occurrences. Appropriate training of personnel involved is also required.

As documented in the licensee's files, the Nuclear Production Department has implemented administrative controls which ensure that components and parts with environmental qualification requirements are identified prior to initiating maintenance activities. These controls are the Stock Code Index System and PN-21 Work Order. In addition, the PN-21 Work Package invokes the controls to monitor, review, and document all aspects of maintenance activities. It also provides verification that the maintenance activities are performed in accordance with the applicable procedures. Since environmental qualification requirements have been incorporated in these procedures, these controls assure that environmental qualification requirements are met. To ensure that maintenance procedures and administrative controls which implement environmental qualification requirements during maintenance are thoroughly understood, this

subject is included in formal training provided to all groups associated with plant operations, including maintenance. The item is closed.

- c. (Closed) IE Circular 81-13 (341/81-13-CC) "Torque Switch Electrical Bypass Circuit for Safeguard Service Valve Motors." The circular informed licensees of cases where an electrical bypass circuit around the valve-open torque switch on a Limitorque valve operator was not installed as designed. The intent of this bypass feature is to ensure that full motor torque is applied to the valve until it is near full open or closed position, whichever is applicable.

In response to the concern of the subject circular, the licensee stated that the Master Valve List (MVL) specifies the "Mode" of operation for each motor-operated valve (MOV). MOVs with operational modes 5, 6, and 7 require a torque switch bypass. The mode of operation is also identified on the design drawings. The preoperational test program includes verification of circuit wiring by a process in which a blue line print of the design drawing is traced over with a yellow marker in the field as the circuit is verified (as built). Controls contained in the FN-21 Work Package ensure that the bypass circuits are not inadvertently removed during maintenance. The item is closed.

No items of noncompliance or deviations were noted.

5. Exit Interview

The inspectors met with the licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on August 3, 1984. The inspectors summarized the scope and findings of the inspection. The licensee acknowledged the inspectors' findings.