

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-341/85048(DRP)

Docket No. 50-341

Operating License No. NPF-43

Licensee: Detroit Edison Company  
2000 Second Avenue  
Detroit, MI 48226

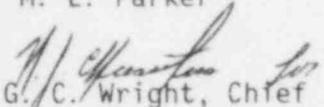
Facility Name: Fermi 2

Inspection At: Fermi Site, Newport, MI

Inspection Conducted: December 1-31, 1985

Inspectors: P. M. Byron

M. E. Parker

Approved By:  G. C. Wright, Chief  
Reactor Projects Section 2C

1-24-86  
Date

Inspection Summary

Inspection on December 1-31, 1985 (Report No. 50-341/85048 (DRP))

Areas Inspected: Routine, unannounced inspection by resident inspectors of followup on regional requests, operational safety, maintenance, surveillance, followup of events, report review, independent inspection, meetings with public officials, and management meeting. The inspection involved a total of 192 hours onsite by two NRC inspectors, including 47 inspector-hours onsite during off-shifts.

Results: No violations or deviations were identified. One unresolved item (Paragraph 3.a.) and one open item (Paragraph 3.b.) were identified.

## DETAILS

### 1. Persons Contacted

- \*F. Agosti, Manager, Nuclear Operations
- S. Booker, Assistant Maintenance Engineer
- L. Bregni, Compliance Engineer
- J. Conen, Licensing Engineer
- R. Eberhardt, Rad-Chem Engineer
- P. Fessler, Maintenance Engineer
- \*E. Griffing, Assistant Manager, Regulation & Compliance
- \*W. Jens, Vice-president, Nuclear Operations
- W. Hastings, Director, Nuclear Security
- \*J. Leman, Superintendent, Maintenance and Modification Engineer
- L. Lessor, Consultant to the Assistant Manager, Nuclear Production
- \*R. Lenart, Assistant Manager, Nuclear Production
- R. Mays, Outage Management Engineer
- W. Miller, Supervisor, Operational Assurance
- S. Noetzel, Assistant Manager, Nuclear Engineering
- J. Nyquist, Supervisor, Independent Safety Engineering Group
- T. O'Keefe, Supervisor, Mechanical Civil Engineering
- \*G. Overbeck, Assistant Plant Superintendent, Startup
- J. Plona, Technical Engineer
- E. Preston, Operations Engineer
- W. Ripley, Assistant Operations Engineer - Administrative
- C. P. Sexauer, Nuclear Production Administrator
- \*R. Wooley, Acting Supervisor, Licensing

\*Denotes those who attended the exit meetings.

The inspectors also interviewed others of the licensee's staff during this inspection.

### 2. Followup on Regional Requests (92705b)

#### Engineering Reviews

Licensee design verification procedures originally required that system engineers sign off all changes attesting that all applicable reviews had been performed. The recent SAFETEAM concern alleged that the applicable reviews had not been performed. Region III requested that the inspectors interview several system engineers to determine if they understood what their signatures meant and whether they had documentary proof that the applicable reviews had been performed. The inspectors interviewed three lead system engineers collectively. The results of the interview revealed that all three believed they knew what their signatures meant. Also, none had documentary evidence that the applicable reviews had been completed. The licensee engineers stated that in most cases they assumed the reviews had been completed, in some cases they discussed the changes with the

applicable individual and in other cases they believed the applicable reviews had been performed because they knew the process. The inspectors concluded that the system engineers had signed that applicable reviews had been performed without any documentary evidence. This issue is being followed by RIII specialists and will be documented in a subsequent inspection report.

### 3. Operational Safety Verification (71707)

The inspectors observed control room operations, reviewed applicable logs and conducted discussions with control room operators during the period from December 1-31, 1985. The inspectors verified the operability of selected emergency systems, reviewed tagout records and verified proper return to service of affected components. Tours of the reactor building, RHR complex, and turbine building were conducted to observe plant equipment conditions, including potential fire hazards, fluid leaks, and excessive vibrations and to verify that maintenance requests had been initiated for equipment in need of maintenance.

The inspectors, by observation and direct interview, verified that the physical security plan was being implemented in accordance with the station security plan.

The inspectors observed plant housekeeping/cleanliness conditions and verified implementation of radiation protection controls. The inspectors also witnessed portions of the radioactive waste system controls associated with radwaste shipments and barreling.

These reviews and observations were conducted to verify that facility operations were in conformance with the requirements established under technical specifications, 10 CFR, and administrative procedures.

- a. On December 5, 1985, the inspectors were notified that pipe hanger loads in the reactor-auxiliary building overstressed approximately forty-five embedded plates. This was discovered during a design verification of design calculations on hangers to concrete structures. A Deviation/Event Report (DER) was written to perform analysis and calculations on the overloaded embedments. On December 6, 1985, the licensee subsequently determined the event was reportable as a four-hour report per 10 CFR 50.72b.(2)(i). On December 7th the licensee declared the involved systems inoperable. The systems in question are Containment Atmosphere, Reactor Building Closed Cooling Water, Residual Heat Removal, Emergency Equipment Service Water, Emergency Equipment Cooling Water, Core Spray, and miscellaneous turbine systems.

The plant was in cold shutdown at the time of discovery for an outage. Under these conditions T.S. requires two subsystems of Residual Heat Removal or Core Spray to be operable or perform the appropriate LCO action. The licensee, upon declaring the systems inoperable, performed the appropriate LCO action to suspend all operations with a potential for draining the reactor vessel and established secondary containment. However, the inspectors have a

concern with the licensee's timeliness in declaring the affected systems inoperable, in meeting reportability requirements, and in taking appropriate action per TS. Approximately three days had elapsed prior to declaring the affected systems inoperable and two days before making the necessary reports. The inspectors believe that this was due to sketchy information available to the operations staff and possible lack of timely communications between Engineering and Operations.

This is an unresolved item (341/85048-01(DRP)) pending further evaluation by the inspectors. The concrete embedment concern is being evaluated by a Region III specialist and will be documented in a future Inspection Report. 50-341/85052.

- b. On December 9, 1985, the inspector noted, during a routine tour of the control room, the Division II RHR recirculation valve was found in the open position. POM Procedure 23.205, "Residual Heat Removal System," requires the valve to be in the closed position. Once identified to the operators, the valve was subsequently closed and the shift supervisor initiated a Deviation/Event Report (DER) to document and determine why the valve was left in the open position.

Initial determination was that the valve was left in this position subsequent to electrical test per a maintenance order. Earlier in the shift, electrical technicians had been performing electrical tests to check light indication on the pump CMC switch. The logic for the valve requires that with the RHR pump be running (breaker closed) and pump flow less than 1600 gpm. The valve is sent a signal to open. The operator did not observe system valves for operation during the test as a result of operating the breaker in the test position. In addition to the operator error, system operating Procedure POM 23.205 erroneously identifies that the valve will close when the pump breakers are open or low flow does not exist (1500 gpm). In fact, if system flow is less than 1600 gpm with the valve open, the valve will not close when the circuit breakers are opened. This is in accordance with the design.

As a result of the above, the licensee has proposed to revise the System Operating Procedure and Training Synopsis and identify this concern in the required reading list. This is an open item (341/85048-02(DRP)) pending upgrading of the procedure and training synopsis.

No violations or deviations were identified in this area.

#### 4. Monthly Maintenance Observation (62703)

Station maintenance activities of safety-related systems and components listed below were observed to ascertain that they were conducted in accordance with approved procedures, regulatory guides and industry codes or standards and in conformance with technical specifications.

The following items were considered during this review: the limiting conditions for operation were met while components or systems were removed from service; approvals were obtained prior to initiating the work; activities were accomplished using approved procedures and were inspected as applicable; functional testing and/or calibrations were performed prior to returning components or systems to service; quality control records were maintained; activities were accomplished by qualified personnel; parts and materials used were properly certified; radiological controls were implemented; and fire prevention controls were implemented.

Work requests were reviewed to determine status of outstanding jobs and to assure that priority is assigned to safety-related equipment maintenance which may affect system performance.

The following maintenance activities were observed:

- Division I and Division II Emergency Diesel Generator Repairs

Following completion of maintenance on the EDG, the inspectors will verify that these systems will be returned to service properly.

No violations or deviations were identified in this area.

5. Monthly Surveillance Observation (61726)

The inspectors observed surveillance testing required by technical specifications and verified that: testing was performed in accordance with adequate procedures, test instrumentation was calibrated, limiting conditions for operation were met, removal and restoration of the affected components were accomplished, test results conformed with technical specifications and procedure requirements and were reviewed by personnel other than the individual directing the test, and any deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

The inspectors also witnessed portions of the following test activity:

- Emergency Diesel Generator No. 12, Division I, Electrical System, Demonstration Test Runs

During the scheduled 100-hour test run on December 12, 1985, Emergency Diesel Generator (EDG) No. 12 automatically tripped on low lube oil pressure. The inspectors observed and followed up on the licensee's actions. The licensee observed erratic behavior on the diesel service water pump just prior to the trip. The trip has been attributed to the tachometer circuit which provides input to the lube oil pump logic. To ensure no engine damage, the licensee inspected the diesel and lube oil filter/strainer assembly, and determined there were no signs of bearing failure. After repairs to the tachometer, the EDG was returned to service for continuation of the demonstration run on December 14, 1985. Region III inspectors and the office of Nuclear Reactor Regulation are continuing to monitor the diesel generator problems.

No violations or deviations were identified in this area.

6. Report Review (90713)

During the inspection period, the inspector reviewed the licensee's Monthly Operating Report for November. The inspector confirmed that the information provided met the requirements of Technical Specification 6.6.A.3 and Regulatory Guide 1.16.

No violations or deviations were identified in this area.

7. Followup of Events (90712)

During the inspection period, the licensee experienced several events, some of which required prompt notification of the NRC pursuant to 10 CFR 50.72. The inspectors pursued the events onsite with the licensee and/or other NRC officials. In each case, the inspectors verified that the notification was correct and timely, if appropriate, that the licensee was taking prompt and appropriate actions, that activities were conducted within regulatory requirements and that corrective actions would prevent future recurrence. The specific events are as follows:

- December 4, 1985 - During an inspection on EDG No. 11, Division I electrical system, several bearings were found to be damaged.
- December 6, 1985 - Overstress of approximately forty-five embedded plates caused by pipe hangers.
- December 19, 1985 - EPA breakers for Division I Reactor Protection System opened resulting in a half scram and multiple isolations and initiations.
- The resident inspectors and Region III security-based inspectors followed up on several security events during the inspection period.

No violations or deviations were identified in this area.

8. Independent Inspection (92706)

a. Engineering Reviews

SAFETEAM concern No. 694 alleged that Nuclear Engineering had not performed seismic reviews on engineering changes. The concernee subsequently alleged that equipment qualification (EQ) reviews had also not been performed (Inspection Report 50-341/85042). Subsequently, the licensee performed seismic and EQ reviews on applicable engineering changes made between September 1984 and September 1985. No hardware changes or modifications were required as a result of the reviews. Region III specialists have reviewed the licensee's review and these will be documented in subsequent inspection reports.

b. SAFETEAM

The Senior Resident Inspector (SRI) met with SAFETEAM supervision on December 11, 1985, at their request. The purpose of the meeting was to brief the SRI on the current status of concerns and to explain why the resident office was not formally notified of the SAFETEAM concern relating to the lack of seismic reviews (Concern No. 694).

The SAFETEAM explained that the resident office was not notified of the issue because the concern had not been substantiated nor did it fall within the SAFETEAM'S definition of wrongdoing. The inspector stated that due to the potential serious consequences of the concern the item should have been brought to the NRC'S attention as required by the SAFETEAM'S procedures. The licensee was unable to provide any other justification for not following their procedure. At the end of the discussion the SAFETEAM concluded that the concern had greater potential significance than originally envisioned. Subsequent to the discussion, the Corporate General Auditor initiated an investigation relating to the circumstances surrounding the concern. The inspectors will review the results of the investigation and document it in a subsequent inspection report.

c. Emergency Diesel Generators

Emergency Diesel Generators (EDG's) Nos. 11 and 12 endured catastrophic bearing failures during January 1985. The failures were attributed to inadequate lubrication. The licensee's corrective action was to prelubricate all slow starts. The licensee shut down EDG. No. 13 while performing a surveillance on November 13, 1985, after hearing a loud noise. Inspection revealed a catastrophic failure of the number 3 connecting rod bearing and resultant damage to the cylinder and crankshaft.

Further inspection revealed damage to additional bearings in EDG No. 13 as well as in EDG No. 14. All upper bearings were replaced in both engines. Two lower bearings, a cylinder and upper crankshaft were also replaced in EDG No. 13. The licensee observed a damaged bearing in EDG No. 11, and after replacing the damaged bearing, discovered two additional damaged bearings after running the engine for approximately one hour. Subsequent inspection of EDG No. 13 revealed more distressed upper bearings after the performance of a demonstration run.

The licensee is currently investigating the cause of failures. A Region III specialist and NRR are following the licensee's activities. The NRC has sent some of the damaged bearings to a laboratory for analysis. More detailed information of the EDG bearing problems will be documented in a subsequent inspection report.

9. Meetings with Public Officials (94600)

Region III management and the inspectors attended the December 10, 1985, Monroe County Commissioners' meeting. The Commissioners were briefed by Region III management on the July 1, 1985, premature criticality and more recent issues at Fermi. The Commissioners asked several questions but would take no questions from the floor as the NRC presentation was on the agenda as an informational briefing for the Commissioners. Region III committed to hold another briefing for the Commissioners prior to startup.

10. Management Meeting (30702B)

Licensee management met with Region III management and staff at Region III on December 16, 1985, at the licensee's request. The licensee presented a preliminary plan for their "Independent Operational Readiness Review of Fermi 2 Power Ascension." The staff commented on the plan. The licensee stated that they would revise the plan and incorporate the staff's comments. Region III management again informed the licensee that Region III would issue a 10 CFR 50.54(f) letter.

11. Unresolved Item

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, violations or deviations. An unresolved item disclosed during the inspection is discussed in Paragraph 3.a.

12. 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. An open item disclosed during the inspection is discussed in Paragraph 3.b.

13. Exit Interview (30703)

The inspectors met with licensee representatives (denoted in Paragraph 1) on December 30, 1985, and informally throughout the inspection period and summarized the scope and findings of the inspection activities. The inspectors also discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspectors during the inspection. The licensee did not identify any such documents/processes as proprietary. The licensee acknowledged the findings of the inspection.