

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-341/86003(DRP)

Docket No. 50-341

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: January 1 through February 28, 1986

Inspectors: P. M. Byron  
M. E. Parker

*Ch. V. DeJong*  
S. G. DuPont

3/12/86  
Date

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

3/12/86  
Date

Inspection Summary

Inspection on January 1 through February 28, 1986 (Report No. 50-341/86003(DRP))

Areas Inspected: Routine, unannounced inspection by resident inspectors of licensee action on previous inspector identified items, licensee action on 10 CFR 50.55(e) items, headquarters requests, regional requests, allegations, operational safety, surveillance, report review, followup of events, enforcement conference, and management meetings. The inspection involved a total of 389 hours onsite by three NRC inspectors, including 46 inspector-hours onsite during off-shifts.

Results: One violation was identified (Paragraph 7.b., failure to follow procedure), and one open item was identified (Paragraph 7.a, overpressurization from CRD minimum flow line).

8603180147 860312  
PDR ADOCK 05000341  
G PDR

## DETAILS

### 1. Persons Contacted

- \*F. Agosti, Vice President, Nuclear Operations
- S. Booker, Assistant Maintenance Engineer
- L. Bregni, Compliance Engineer
- \*J. Conen, Licensing Engineer
- J. DuBay, Director, Computer Service & Information Systems
- R. Eberhardt, Rad-Chem Engineer
- P. Fessler, Maintenance Engineer
- \*E. Griffing, Assistant Manager, Regulation & Compliance
- W. Jens, Vice President, Nuclear Operations
- \*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, Superintendent, Operations
- J. Plona, Technical Engineer
- E. Preston, Operations Engineer
- W. Ripley, Assistant Operations Engineer - Administrative
- C. P. Sexauer, Nuclear Production Administrator
- G. Trahey, Director, Nuclear Quality Assurance
- \*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 Inspector Identified Items (92701)

- a. (Closed) Open Item (341/85013-04(DRP)): Procedure 11.000.131, "Fermi 2 Procedures," Revision 1, dated November 17, 1984, was not reviewed by OSRO and was considered inadequate by the inspectors. The licensee issued Revision 2, dated June 25, 1985, of the procedure to correct the inadequacies of Revision 1. The inspectors reviewed Revision 2 and consider the document addresses their concerns. This item is closed.
- b. (Closed) Open Item (341/85037-03(DRP)): Air hoists, portable stands and ladders to provide interim accessibility to safety-related valves are not being properly controlled. The superintendents of Operations and Maintenance and Modifications issued a memo to all plant maintenance and operations personnel dated December 2, 1985, which delineated policy as to the control of this equipment. This memo resulted in a checklist which the afternoon shift operator must fill out every Sunday. The inspectors reviewed completed check lists and consider the licensee's action to be satisfactory.

- c. (Closed) Unresolved Item (341/85042-01(DRP)): The licensee failed to notify the resident inspectors within five days of a SAFETEAM concern which involved potential wrongdoing. The inspectors discussed their concerns with the licensee. The licensee is reviewing its definition of wrongdoing and submitting all concerns for inspector review. The inspectors consider the licensee's action to be acceptable and this item is closed.

3. Licensee Action on 10 CFR 50.55(e) Items (92700)

(Closed) 50.55(e) 341/83015-EE (DECo Item 101): Debris in Piping Systems. During preoperational testing of the Residual Heat Removal (RHR) system, construction debris was found within safety-related piping. The following inspector-identified open and unresolved items and violations addressed 341/83015-EE.

- Open Item 341/83022-05: Closed in Inspection Report 50-341/84001, Paragraph 2.
- Open Item 341/84011-07: Addressed in Inspection Report 50-341/84037, Paragraph 2; closed in Inspection Report 50-341/84046, Paragraph 2.
- Unresolved Item 341/83022-04: Closed in Inspection Report 50-341/84001, Paragraph 2.
- Unresolved Item 341/84029-04: Closed in Inspection Report 50-341/84046, Paragraph 2.
- Violations 341/83025-04 and 341/83028-04: Closed in Inspection Report 50-341/84011, Paragraph 2.

Additional comments were documented in Inspection Reports 50-341/84011, Paragraph 7, and 50-341/85003, Paragraph 2. The inspector reviewed the following licensee reports:

- EF2-70383 dated February 7, 1985. The report identifies supplemental corrective actions taken after additional debris was discovered by the licensee in the scram discharge header during leak rate testing.
- EF2-69279 dated August 27, 1984. The report identified the program corrections to incorporate cleanliness controls into work packages for all work inside safety-related piping systems.
- EF2-68541 dated May 11, 1984. The interim report identified the proposed actions to prevent further recurrence, actions taken and results of inspection and flushing of safety-related systems to identify any additional debris located inside piping and actions taken to ensure cleanliness during the interim.
- EF2-66490 dated December 22, 1983. The report dispositioned any concerns for damage to the RHR pump "B" due to debris in the suction piping. The report included the evaluation and corrective actions recommended by the vendor, Byron Jackson, and actions taken by the licensee to meet these recommendations.

- EF2-65288 dated October 20, 1983. The report identified the deficiencies discovered by the licensee's evaluation of the debris discovered within the suction piping to the RHR pump "B" during preoperational testing.

The inspector reviewed the above licensee reports and supporting documentation including work requests, inspection documentation, and engineering evaluations. The inspector also witnessed inspection activities on the Residual Heat Removal and Core Spray systems. In addition, the inspector reviewed the data collected during the hot functional feedwater system and the High Pressure Injection System testing at rated pressures. Based upon these reviews and the program improvements implemented by the licensee, the inspector has closed 341/83015-EE and has no further concerns.

4. Followup on Headquarters Requests (92704)

The Director of BWR Licensing Directorate No. 3 and the Licensing Project Manager (LPM) were at Fermi on February 10 and 11, 1986, for a series of meetings with the licensee and inspectors. The purpose of the visit was to familiarize the Director with the site as well as current issues. The licensee conducted a plant tour for the Director and the LPM and were accompanied by the inspectors.

5. Followup on Regional Requests (92705B)

a. Independent Overview Committee

The licensee formed an independent overview committee (IOC) in response to the 10 CFR 50.54(f) letter dated December 24, 1985. The first task assigned to the IOC was to review management and management structures and make recommendations for improvements.

The committee interviewed various members of upper plant management, selected contractors, and the Senior Resident Inspector. The entire committee interviewed the Senior Resident Inspector on January 9, 1986. Additional details are contained in the licensee's January 29, 1986, response to the 10 CFR 50.54(f) letter (McCarthy to Keppler).

b. Management Analysis Corporation

The licensee contracted with Management Analysis Corporation (MAC) to initiate training sessions on improving communications with the NRC. MAC interviewed licensee personnel and Region III personnel to determine perceptions. The inspectors were interviewed by the entire team on January 10, 1986. MAC has subsequently made two presentations on improving communications with the NRC (January 30-31, 1986, and February 20-21, 1986).

6. Allegations (99204B)

Region III received an allegation relating to the installation of equipment. Region III contracted a consulting firm to perform an inspection in this area to determine if the allegation was valid. The inspection commenced on January 21, 1986, and was completed February 5, 1986. Details of this inspection will be documented in a subsequent report.

7. Operational Safety Verification (71707)

The inspectors observed control room operations, reviewed applicable logs and conducted discussions with control room operators during the months of January and February. 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 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. During the inspection, the inspectors walked down the accessible portions of the Standby Gas Treatment and Core Spray systems to verify operability by comparing system lineup with plant drawings, as-built configuration or present valve lineup lists; observing equipment conditions that could degrade performance; and verified that instrumentation was properly valved, functioning, and calibrated.

During this inspection period, the inspectors have noted that all Emergency Core Cooling System (ECCS) systems have been declared inoperable per Technical Specifications (TS) due to engineering design concerns. However, the licensee has maintained these systems in an operable condition.

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 February 4, 1986, the licensee overpressurized a section of the High Pressure Core Injection (HPCI) test return line. This affected section of piping is rated for 730 psig but was subjected to a pressure of up to 1400 psig from the Control Rod Drive (CRD) minimum flow line. This condition was observed when a packing leak was

identified on an isolation valve in the HPCI test return line to the Condensate Storage Tank (CST). This line was originally taken out of service to install isolation valves to the spectacle flanges in the test return line. When returning the line to service the operators followed the original abnormal lineup sheet to return the system to service. The intent was not to line the system up for operation but to clear the abnormal lineup sheet. Personnel on shift were aware that new valves had been added, but were not aware that this line could be overpressurized from the CRD minimum flow line. This is considered an open item (341/86003-01(DRP)) pending evaluation of the overpressurization by both the licensee and the inspectors.

- b. On January 31, 1986, while in cold shutdown, the plant experienced a slight tremor as a result of an earthquake centered 30 miles NE of Cleveland, Ohio. The licensee noted that the Active Seismic Monitor did not activate the control room annunciator. The operators immediately responded to the relay room and concern was generated as to whether or not the Active Monitor was operable. As a result of this concern, the licensee declared an Unusual Event. At the same time, operators were dispatched to inspect the plant for structural damages and leaks. No damage or leaks were observed and the unusual event was subsequently terminated. On February 1, 1986, the licensee confirmed that the Active Seismic Monitor was operational at the time of the event and declared the monitor operable.

The inspectors consider that the licensee took prompt and appropriate action as a result of the concern over the seismic monitor.

On February 3, 1986, during a routine tour of the control room the inspector noted that the "seismic system event/trouble" annunciator panel light was "on" in the control room. In questioning control room personnel, the inspector determined that they were unaware as to why the annunciator light was "on" or how long it had been on. Further questioning revealed that the annunciator had been on at least from the shift turnover.

After this annunciator situation was brought to the operators' attention, an operator was dispatched to the relay room to determine if there was a problem with the seismic monitor. He determined that it had not been reset, probably following a surveillance test done the previous day. He verified the operability of the monitor and reset it which cleared the annunciator in the control room. Because there is no "reflash" capability on the annunciators, if an after-shock tremor had occurred during the time the light was "on," the control room annunciator would not have activated to alert the operators. This condition subsequently was determined to have existed and to have gone undetected for at least two shifts.

This failure to detect and to recognize an off-normal condition during the shift turnovers is a violation of Technical Specification Section 6.8.1.a for failing to follow plant operating procedures (341/86003-02).

8. 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 activities:

- Residual Heat Removal - Pump "B" Surveillance Testing
- Emergency Diesel Generator (EDG) Demonstration Runs

During the inspection period, the inspectors have been following up on several problems identified during the course of the EDG demonstration runs.

- a. On January 25, 1986, the roving fire watch noticed a fire on emergency diesel generator No. 13. The EDG was approximately one hour into a test run. The fire was extinguished by the operator with dry chemical extinguisher within a few minutes. The fire located in the exhaust line lagging, was attributed to the lagging being soaked with oil during previous disassembly and oil flushing operations. The fire brigade was dispatched to the RHR complex but was not required. EDG No. 13 was subsequently restarted on January 26, 1986, but was unloaded and shut down due to leaks in jacket coolant inlet piping. The leaks were attributed to leaking o-rings caused by fire damage. The coolant leak was repaired and the EDG was returned to service for testing on January 27, 1986. In addition, the operators manually tripped EDG No. 12 on January 26, 1986, due to rapidly increasing abnormal noise and smoke coming from the manifold. The cause was determined to be a loose injector on cylinder No. 9. The injector was secured and the EDG was returned to service for testing on January 27, 1986.
- b. On January 26, 1986, the licensee discovered, adjacent to cylinder No. 10, a 1 1/2 inch piece of support bar to an oil drain ring in EDG No. 12. The licensee pulled pistons one through 12 on the upper crank line to determine if one of the installed pistons was the source. Inspections of the upper crankline pistons identified that all drain rings were intact. The licensee has been unable to determine the source of the drain ring.
- c. On February 2, 1986, approximately 40 hours into the bearing seasoning run, the engine was shut down due to excessive foaming of the oil. The licensee had just replaced the Shell R40 Caprinus oil with Shell U40 Caprinus oil which is an upgraded oil additive

package. The oil was subsequently replaced with Mobil Guard 450 oil. The licensee subsequently performed a satisfactory bearing gap inspection. The engine was returned to service with no oil foaming noted.

- d. On February 7, 1986, during a bearing gap inspection of EDG No. 13, one of the top crankshaft inspection cover capscrews was dropped. The engine had just completed the 20 slow starts for the demonstration run. The cover was located over the Number 13 and 14 main bearings. It was indeterminate as to whether or not the capscrew fell into the engine. The engine interior and exterior were extensively searched with negative results. This included removing the engine top cover and draining the sump. The engine was restored and returned to the test program.
- e. On February 11, 1986, after a shutdown of EDG No. 11, the operator inadvertently racked out the energized EA4 breaker instead of the EA3 breaker. The EA3 breaker is normally racked out after the EDG is shut down to isolate the EDG from the bus. The EA4 breaker was energized at the time and supplying power to Bus No. 11EA. This action de-energized Bus No. 11EA underload and caused a loss of Division I lighting, the radio repeater, and the hi-com circuit.
- f. On February 20, 1986, while performing bearing seasoning on EDG No. 12, the operator inadvertently tripped the diesel. This was a result of the operator leaning against relay panel H1P and cracking the glass in the differential relay. A small piece of glass dropped into the relay, struck the flag, and caused a diesel trip. The diesel was immediately placed in a normal shutdown configuration.
- g. EDG No. 12 has been experiencing oil viscosity problems. The viscosity has been trending downward during the bearing seasoning runs. The decrease in viscosity has been attributed to oil dilution by the fuel oil. The licensee has replaced seals and inspected/tested all lube oil boundaries. The licensee is continuing to monitor and trend oil viscosity and it appears that the oil viscosity is still decreasing during the bearing seasoning runs.

The inspectors have reviewed these events with the licensee and will continue to followup on the licensee's actions.

No violations or deviations were identified in this area.

9. Report Review (90713)

During the inspection period, the inspector reviewed the licensee's Monthly Operating Reports for December and February. 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.

10. 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 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:

- January 27, 1986 - Small fire discovered on EDG No. 13.
- January 31, 1986 - Stress reports and hanger design calculations have not been updated to reflect change documents.
- January 31, 1986 - Unusual event declared on earthquake.
- The resident inspectors and Region III security inspectors followed up on several security events during the inspection period.

No violations or deviations were identified in this area.

11. Enforcement Conference (81020)

An enforcement conference was held on January 17, 1986, at Region III to discuss issues raised during a security inspection in December, 1985. Licensee management and the Senior Resident Inspector attended the enforcement conference. The inspection and subsequent enforcement conference are detailed in Inspection Report 50-341/85047.

12. Management Meetings (30702)

Regional and licensee management and their staffs met on January 24, 1986, at Fermi to discuss testing to demonstrate the Emergency Diesel Generator (EDG) reliability. The licensee presented its testing program and responded to the staff's questions. The licensee was requested to correct its test program. An additional meeting was held to address NRC concerns at Region III on February 14, 1986, which the inspectors attended. A detailed discussion of these meetings and subsequent actions will be documented in a subsequent inspection report.

13. 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 7.

14. Exit Interview (30703)

The inspectors met with licensee representatives (denoted in Paragraph 1) on January 28 and March 3, 1986, 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.