

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-341/92004(DRP)

Docket No. 50-341

Operating License No. NPF-43

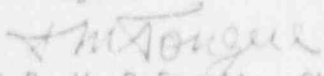
Licensee: Detroit Edison Company
2000 Second Avenue
Detroit, MI 48226

Facility Name: Fermi 2

Inspection At: Fermi Site, Newport, MI

Inspection Conducted: February 7 through March 27, 1992

Inspectors: S. Stasek
K. Riemer
A. Vege1

Approved By:  R. W. DeFayette, Chief
Reactor Projects Section 2B

14 APRIL 1992
Date

Inspection Summary

Inspection from February 7 to March 27, 1992 Report No. 50-341/92004(DRP))

Areas Inspected: Action on previous inspection findings; operational safety; maintenance; surveillance; event follow-up; and LER follow-up.

Results: Overall level of licensee performance continued to improve this inspection period. Operator response to the March 16 plant transient and associated manual scram was good (paragraph 6). Major plant evolutions such as the unit return-to-power were conducted in a conservative, safety-conscious manner. Adherence to administrative controls was good with no inspector-identified problems noted. Mobile crane usage and movement onsite were well controlled with active involvement by all levels of management evident. Maintenance activities observed were conducted in accordance with plant procedures and regulatory requirements. The surveillance program continued to be well managed; all surveillance activities reviewed were conducted per applicable requirements. All in-plant activities observed were performed in accordance with the facility's radiological controls. One situation was identified where local radiological survey postings on entranceways to steam jet air ejector rooms were not reflective of conditions in the rooms (paragraph 3.c). No violations, open items or unresolved items were identified during the inspection.

DETAILS

1. Persons Contacted

a. Detroit Edison Company

C. Cassise, General Supervisor, Mechanical Maintenance
S. Catola, Vice President, Nuclear Engineering and Services
*J. Contoni, Supervisor, Plant Systems
*L. Craine, Supervisor, Radiation Health
R. Eberhardt, Superintendent, Radiation Protection
#*P. Fessler, Director, Nuclear Training
D. Gipson, Assistant Vice President, Nuclear Operations
#*L. Goodman, Director, Quality Assurance
J. Hughes, General Supervisor, Electrical Maintenance
*J. Joy, Senior Engineer, Compliance
J. Korte, Director, Nuclear Security
A. Kowalczyk, Superintendent, Maintenance and Modifications
#*R. McKeon, Plant Manager, Nuclear Production
W. Miller, Superintendent, Technical Engineering
R. Newkirk, General Director, Regulatory Affairs
E. Nickolite, General Supervisor, Maintenance/I&C
G. Ohlemacher, Licensing
#*W. Orser, Senior Vice President, Nuclear Operations
#*J. Plona, Superintendent, Operations
T. Riley, Supervisor, Compliance
R. Russell, Outage Manager
*L. Schuerman, General Supervisor, Plant Engineering
#*A. Settles, Director, Licensing
G. Shukla, Licensing
#*R. Stafford, General Director, Nuclear Assurance
#*D. Stone, Supervisor, Production Quality Assurance
T. Syrjanen, NQA
#*R. Szkotnicki, Director, Plant Safety
#*J. Tibai, Supervisor, Compliance
#*J. Walker, General Director, Nuclear Engineering
*H. Whitcomb, Assistant Supervisor, Maintenance

b. U.S. Nuclear Regulatory Commission

#*S. Stasek, Senior Resident Inspector
#*K. Riemer, Resident Inspector
R. DeFayette, Chief, Projects Section 2B
W. Shafer, Chief, Projects Branch 2
T. Colburn, Licensing Project Manager, NRR
E. Greenman, Director, DRP
A. Vogel, Resident Inspector, Perry NPS

#Denotes those attending the monthly management meeting
on March 10, 1992.

*Denotes those attending the exit meeting on March 27, 1992.

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

2. Action on Previous Inspection Findings (92701)

- a. (Closed) Violation (341/88012-08(DRP)): Inadequate control of control room administrative processes. Operator adherence to administrative controls has continued to improve during the last several inspection periods with no substantive problems noted. This item, therefore, is closed.
- b. (Closed) Violation (341/89007-02(DRP)): Inadequate corrective actions to the utilization of an improper head correction factor on a high pressure coolant injection (HPCI) flow transmitter. The licensee, in its response to the violation, committed to include a discussion of the event in applicable training courses and to revise procedures covering the processing of engineering documents. The inspector verified, through a review of training department records, that the sequence of events leading up to the violation was discussed with the technical staff and managers. The inspector also verified that FIP-PR1-01, "Procedures, Manuals, and Orders," was revised to require that when a document having an impact on in-plant procedures is reviewed, a determination is made by the evaluator as to whether the affected procedure needs to be suspended or a temporary change notice issued. This matter is considered closed.
- c. (Closed) Open Item (341/89201-07(DRP)): This item number is from an NRC headquarters inspection that was documented in an attachment to inspection report No. 50-341/92002(DRP). Improvements to the fidelity of the simulator. In a letter dated December 20, 1991, the licensee certified the existing simulator rather than the upgraded model. This was done due to delays in completing the upgrade project and associated testing. Currently, validation testing of the upgraded model is being performed. In the subject letter, the licensee stated that certification of the upgraded model would be completed by December 1992. Because the licensee has submitted certification for the existing simulation model, this item is considered closed.
- d. (Closed) Open Item (341/90007-01(DRP)): Failure of the reactor core isolation cooling (RCIC) minimum flow valve during surveillance testing. The licensee subsequently determined the failure of the minimum flow valve was an isolated incident. The cause of the failure was a disc-to-stem separation of the root valve for pressure sensor E51-F079. The pressure sensor was, thereafter, replaced and the valve tested satisfactorily. During an earlier test on the RCIC system the subject minimum flow valve was also observed to have been cycling. Corrective actions to the earlier problem involved initiation of a work request (No. 006D900202) specifying certain electrical checks be made on the motor operator. These included continuity checks and

meggering. Those checks were found to be acceptable and the valve returned to service. The licensee also performed a history check to determine if any previous failures had occurred on the subject valve or in similar applications. The determination was made that no generic concerns existed. This item is considered closed.

- e. (Open) Open Item (341/90007-04(DRP)): Use of RCIC for reactor pressure control. The open item dealt with the inability of operators to utilize reactor core isolation cooling (RCIC) in the full flow test mode following a reactor scram. The inspector reviewed documents associated with the issue and reviewed the licensee's proposed corrective actions. The last of the corrective actions, the installation of a larger motor operator under PDC 11655, is scheduled for completion during the upcoming refuel outage (RF03). Pending completion of the final corrective actions, this item remains open.
- f. (Closed) Open Item (341/90011-01(DRP)): Improvements to reactor building airlock. Currently, engineering design package (EDP) 10964 to upgrade the airlock is being implemented. This item is considered closed.
- g. (Closed) Violation (341/91015-01A(DRP)): Lack of established instructions governing access into energized cabinets. Licensee corrective actions included inclusion of notification requirements for entry into energized cabinets into the General Employee Training (GET) program which provides guidance on the notification requirements when access into electrical cabinets is required. In addition, the plant manager issued a memorandum to all site personnel regarding the requirement to notify operations personnel before opening an energized cabinet. The inspector concluded that licensee actions appeared adequate to prevent recurrence. This item is closed.
- h. (Closed) Violation (341/91015-01B(DRP)): Failure to initiate a deviation event report (DER) upon discovery of an inadequate repair to the division II hydrogen/oxygen monitoring low flow switch. To prevent recurrence, training was provided to the technical staff, managers, and maintenance personnel on the lessons learned from this event. Effectiveness of the training will continue to be evaluated as part of the routine inspection program. This item is closed.
- i. (Closed) Violation (341/91015-02(DRP)): Failure to enter into a Technical Specification limiting condition for operation (LCO). The LCO was not entered because the licensee believed that repair of the subject hydrogen/oxygen monitor wiring was completed correctly, when in fact the repairs were inadequate. The inadequate repair was attributed to pre-job planning communications and work instruction deficiencies. Licensee corrective actions included a temporary modification which removed the subject flow switch from the monitor's logic circuitry and

additional required training for maintenance personnel, technical staff and managers. The training placed emphasis on more thorough pre-job planning and field walkdowns of work packages and the need to involve qualified personnel to assure that work packages are correctly implemented. Based on review of licensee documentation in response to this violation, the inspector concluded that licensee corrective actions appeared adequate to prevent recurrence. This item is closed.

- j. (Closed) Open Item (341/91022-01(DRP)): Initiation of a potential design change to evaluate installation of test jacks on and within panels. Engineering design package (EDP) 13755 was subsequently initiated. The population of connection points to be included involved nine electrical panels with approximately 150 total connection points. Currently, the EDP is scheduled for implementation during the next refuel outage (RF03). This item is considered closed.

3. Operational Safety Verification (71707)

The inspectors observed control room operations, reviewed applicable logs and conducted discussions with control room operators throughout the inspection period. The inspectors verified the operability of selected safety-related systems, reviewed tagout records, and verified proper return to service of affected components. The inspectors observed a number of control room shift turnovers. The turnovers were conducted in a professional manner and included log reviews, panel walkdowns, discussions of maintenance and surveillance activities in progress or planned, and associated LCO time restraints, as applicable.

The inspectors conducted tours of the reactor, auxiliary and turbine buildings. During these tours, observations were made regarding plant equipment conditions, fire hazards, fire protection, adherence to procedures, radiological controls and conditions, housekeeping, tagging of equipment, ongoing maintenance and surveillance activities, containment integrity, and availability of safety-related equipment. Walkdowns of the accessible portions of the following systems were conducted to verify operability by comparing system lineups with plant drawings, as-built configuration or present valve lineup lists; observing equipment conditions that could degrade performance; and verifying that instrumentation was properly valved, functioning and calibrated.

- . 130/260 Volt Batteries Divisions I and II
- . Standby Liquid Control System
- . Standby Feedwater System
- . Emergency Diesel Generator No. 13
- . Emergency Diesel Generator No. 14
- . Thermal Recombiners - Divisions I and II
- . Control Rod Drive Hydraulic Control Units - South Bank

Additionally, the inspectors observed implementation of portions of the licensee's security program during the inspection period including: badging of personnel; access control; security walkdowns; security response (compensatory actions); visitor control; security staff attentiveness; and operation of security equipment.

Significant observations and reviews included the following:

- a. During the inspection period, the licensee utilized a mobile, 140 ton crane to support maintenance activities on a circulating water pump. The job included bringing the crane onsite (via an outside contractor) and moving it within the owner controlled area to support the work activity. The general supervisor of electrical maintenance met with the contract operator two days prior to the job to verify his training, review past crane incidents in the industry (including the December 1991 Fermi 2 event), and to provide specific procedures for crane movement. The contractor had previously worked a similar job onsite and was familiar with the circulating water pump house. The General Supervisor, Electrical Maintenance also briefed the Plant Manager and Senior Vice President before the job commenced. The contract operator was met at the site boundary and was escorted to the job site by Fermi 2 personnel. The inspector reviewed the licensee's preparations for the crane movement, walked down the crane route and job site area, and observed the crane movement. No concerns were noted during the review.
- b. During the inspection period, the inspector performed a site walkdown to inspect the control of mobile equipment and heavy loads. Specific attention was paid to trucks, cranes, and heavy equipment that could potentially impact fire protection equipment and electrical supplies. The inspector had no substantive concerns as a result of his walkdown.
- c. During a walkdown of the turbine building, the inspector noted that the radiological survey sheets posted on two of the four steam jet air ejector (SJAE) room doors were not consistent with existing plant conditions. Specifically, SJAEs 2 and 3 were in service, while the posted surveys showed SJAEs 1 and 3 in operation. The surveys are normally performed quarterly, however, conditions had changed since the survey was last performed. The inspector was concerned that with non up-to-date surveys posted at the entrance to the SJAE rooms, the potential existed for personnel to receive more exposure than expected. The inspector contacted Radiation Protection (RP) personnel and learned that before RP technicians would issue a radkey to the rooms, the operations department would be contacted to verify current plant conditions. The RP technician would then discuss this information with the person checking out the key, utilizing the RP files to obtain the most recently performed survey that matched existing plant conditions. The inspector subsequently learned the most recently performed survey that matched conditions in SJAE room

number 2 was performed in November 1990; for SJAE room number 1 the most recently performed survey was conducted in December, 1989. The inspector questioned the appropriateness of using old surveys for current access to a high radiation area, especially since the surveys in use were performed during the previous fuel cycle. Prior to the end of the inspection period, the licensee revised its quarterly survey process to require that area surveys be performed when plant conditions change.

- d. During the inspection period, the reactor was returned to power following the March 16 scram (reference paragraph 6). The inspector observed selected portions of the plant startup, approach to criticality, plant heatup and power ascension and verified that appropriate and current procedures were used. During the plant heatup, the plant received a half-scram signal when the operator ranged down instead of up on intermediate range monitor (IRM) "B" neutron instrumentation. The error was corrected and the scram signal was reset. The plant heatup continued without any further problems. During power ascension to 100% reactor power, the licensee was forced to hold power at approximately 60% when problems were encountered with the north reactor feed pump (RFP) motor operated discharge isolation valve. The valve had become stuck in the closed position subsequent to the scram and normal methods were unsuccessful in opening the valve. The licensee was able to open the valve by use of heat applied to the base of the valve in conjunction with the use of hydraulic jacks. The valve was then stroke tested and verified operable prior to resuming power ascension. Plant management indicated that teardown of both north and south RFP motor operated discharge valves during the next outage would be done to determine the root cause of the binding. The inspector noted no safety concerns during his observation of plant startup activities.
- e. During the inspection period, the inspector was contacted by a local area resident with a concern about the evacuation route for persons residing in the Stony Point area. The Stony Point area is a peninsula of land on Lake Erie within Fermi's emergency planning zone (EPZ). Several years ago Detroit Edison had constructed a private road linking Stony Point to the main evacuation route. There is currently a question as to who will maintain the road. Although Detroit Edison originally built the road, responsibility for maintaining it was then transferred to Frenchtown Township. The issue was discussed with the Fermi Radiological Emergency Response Program (RERP) supervisor who verified through the Frenchtown Township supervisor that the township is currently the legal owner of the road and retains responsibility for maintaining it. However, the inspector was informed that the topic of turning over the easement for the road (and maintenance responsibility) has recently been discussed at township meetings, though no formal action has taken place yet. The inspector was informed by the RERP manager that Detroit Edison lawyers are looking into the property easement and maintenance responsibility issue. The

inspector was also informed that the RERP manager and a member of his staff toured the road and report it to be in good condition.

The inspector also notified a Region III specialist of the issue who indicated that the matter would be evaluated further. The inspector will monitor the issue and it will be addressed in inspection report No. 50-341/92006.

No violations or deviations were identified in this area.

4. Maintenance (62703)

Station maintenance activities on the 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 the 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 and reviewed:

- . 000Z914597 Repair CRD HCU Valve C11-F111A.
- . 000Z911514 Removal of Temporary Modification 91-001 from RCIC Turbine.
- . 000Z920796 Repair of South Off-Gas Ring Water Pump Flow Controller.
- . 012D901002 Repair of Tear in Fan Inlet/Outlet Boot.

Following completion of maintenance on the aforementioned equipment, the inspectors verified that these systems had been returned to service properly. The inspector will conduct a review of the finished work package for 012D901002 during the next inspection period.

No violations or deviations were identified in this area.

5. Surveillances (61726)

The inspectors observed/reviewed the following Technical Specification required surveillance testing.

- . 24.307.014 Emergency Diesel Generator 11 Start and Load Test - Slow Start
- . 24.307.016 Emergency Diesel Generator 13 Start and Load Test

The following items were considered during the inspection: the testing was performed in accordance with approved procedures; that test instrumentation was calibrated; that test results conformed with Technical Specifications and procedure requirements and were reviewed by personnel other than the individual directing the test; and that any deficiencies identified during the testing were reviewed and resolved by appropriate management personnel.

The inspectors also performed a record review of the completed surveillance tests listed below. The review verified that each test was accomplished within the required time interval, procedural steps were properly initialled, the procedure acceptance criteria were met, independent verifications were accomplished by individuals other than those performing the test, and that the test was signed in and out of the control room surveillance log book.

- . 24.000.02, Att 1 Shiftly, Daily, and Weekly Required Surveillances.
- . 24.106.001 Operable Control Rod Check.
- . 24.138.006 Jet Pump Operability Test.
- . 24.205.008 RHR Cooling Tower Fan Operability and RHRSW and EESW Valve Line-Up Verification.
- . 24.324.001 Combustion Turbine Generator 11 Unit 1 Monthly Operability Check.
- . 24.404.002 Division I SGTS Filter and Secondary Containment Isolation Damper Operability Test.
- . 24.630 Remote Shutdown Instrument Channel Checks.
- . 54.000.006 APRM Calibration.
- . 54.000.007 Core Performance Parameter Check.
- . 64.713.018, Att 4 Radiological Effluents Situational Surveillances.
- . 64.713.019, Att 12 Radiological Effluents Routine Surveillances.

No violations or deviations were identified in this area.

6. Follow-up of Reactor Scram (93702)

During the inspection period, the reactor experienced a scram which required prompt notification of the NRC pursuant to 10 CFR 50.72. The inspector pursued the event onsite with the licensee and with NRC officials. The inspector verified that the notification was correct and timely, that the licensee was taking prompt and appropriate actions, that activities were conducted within regulatory requirements and that corrective actions would prevent future recurrence.

On March 16, 1992, the plant experienced a reactor scram while performing surveillance test 44.030.254, "ECCS - Reactor Vessel Water Level (levels 1, 2, and 8), Division II, Channel D Functional Test." An electrical short introduced onto the low pressure coolant injection (LPCI) loop-select logic (LSL) caused an inadvertent LSL actuation which then caused the "B" reactor recirculation (RR) pump discharge valve to close. The "B" RR pump tripped and the resulting feedwater power-to-flow mismatch caused a loss of heater drains. The loss of the heater drains then caused a runback of the "A" RR pump which caused the reactor to operate in the potential instability region of the power-to-flow. The reactor operator then manually scrammed the plant per procedure by placing the mode switch in the "shutdown" position. The plant did not experience any power instabilities. All ECCS systems functioned as designed and no major equipment problems were experienced during the event. Licensee investigation into the root cause of the event determined the problem to be an apparent design weakness with the digital multi-meter used to perform the surveillance. The meter, a Fluke Model 77, Series II, has high resistance when its function switch is set for voltage measurements (VDC). However, if the function selector switch is positioned slightly clockwise of the VDC setting, the resistance drops to near zero. This was the case when the meter was connected to the LSL system for voltage measurements and created the short circuit which initiated the event. The licensee's immediate corrective action for this event was to discontinue the use of the Fluke Model 77, Series II. Licensee Event Report (LER) 92-002 was subsequently initiated to document the event.

No violations or deviations were identified in this area.

7. Follow Up of Licensee Event Reports (92700)

Through direct observations, discussions with licensee personnel, and review of records, the following event report was reviewed to determine that reporting requirements were fulfilled, immediate corrective action was accomplished, and corrective action to prevent recurrence had been accomplished in accordance with technical specifications.

(Closed) LER 91-014-00, Division I Fuel Pool Ventilation Exhaust Radiation Monitor Blow fuse Causing Engineered Safety Feature (ESF) Actuation Signals. The inspector verified that the sequence of events leading up to the actuation, as well as the associated LER, was incorporated into the training department's I&C lesson plan. The inspector also verified that the appropriate surveillance procedures were thereafter revised to install and remove appropriate jumpers to prevent inadvertent isolations during test performance. This item is considered closed.

No violations or deviations were identified in this area.

8. Management Meeting

On March 16, 1992, the licensee and NRC management (denoted in paragraph 1) met onsite for a periodic management meeting. Topics discussed included: organizational changes, plant performance trends and plant status; the December 1991 transformer outage; recently implemented production quality assurance (PQA) initiatives; fitness-for-duty (FFD) and recent problems identified in FFD implementation; status of power uprate activities; status of low level radioactive waste; status of simulator upgrade; Fermi shutdown risk programmatic initiatives; update of RFD3 preparations; and the LER response team program initiative.

9. Exit Interview

The inspectors met with licensee representatives (denoted in paragraph 1) on March 27, 1992, 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 or processes as proprietary. The licensee acknowledged the findings of the inspection.