

NOTICE OF VIOLATION

Detroit Edison Company
Fermi 2

Docket No. 50-341
License No. NPF-43

As a result of the inspection conducted on October 16 through December 4, 1989, and in accordance with 10 CFR Part 2, Appendix C - General Statement of Policy and Procedure for NRC Enforcement Actions (1988), the following violation was identified:

1. 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action" states in part, "Measures shall be established to assure that conditions adverse to quality ... are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition."

Contrary to the above, a quality surveillance conducted on January 12 - 20, 1989 identified numerous examples of a condition adverse to quality relating to inadequate control of a QA1 material storage area. Root cause was not determined and actions were not taken to preclude repetition. Consequently, other similar deficiencies in existence at the time of the surveillance were not identified. Additionally, inadequate control of materials in the storage area continued until the time of inspector review on October 10, 1989.

This is a Severity Level IV violation (Supplement I).

2. 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," states in part "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings..."

FMD CT1, which in part establishes requirements for Technical Specification and 10 CFR 50, Appendix J surveillance activities, in Step 4.5.4.17 requires independent verification of the return of systems important to safety to normal configuration following calibration or test.

Contrary to the above, independent verification of system as-left lineups was not properly performed following completion of surveillance procedures NPP-43.401.510, "Local Leakage Rate Test, Purge and Vent Valves" conducted on June 13, 1989, NPP-43.401.206, "Local Leakage Rate Testing for Airlock X-2" conducted on June 3, 1989, and NPP-43.404.01 "Standby Gas Treatment Filter Performance Test-Division I" conducted on August 16, 1989.

This is a Severity Level IV violation (Supplement I).

3. Technical Specification 3.6.5.2 requires secondary containment ventilation system automatic isolation dampers (T41-F008, T41-F009, T41-F010, T41-F011) to be operable when irradiated fuel is being handled in the secondary containment and during CORE ALTERATIONS.

Technical Specification 4.6.5.2.c. requires secondary containment ventilation system automatic isolation damper operability by isolation within 5 seconds pursuant to Technical Specification 4.0.5.

Technical Specification 4.0.5 requires inservice inspection and testing of ASME Code Class 1, 2 & 3 components in accordance with Section XI.

Relief request VR-23 of the licensee's submittal on ASME Section XI testing requires the stroking closed of air operated isolation dampers quarterly.

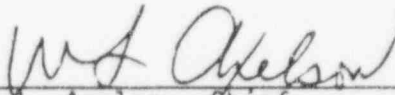
Contrary to the above, by October 17, 1989 plant operators failed to perform isolation testing for dampers T41-F009 and T41-F011 within the quarterly time frame with CORE ALTERATIONS in progress.

This is a Severity Level IV violation (Supplement I).

Pursuant to the provisions of 10 CFR 2.201, you are required to submit to this office within thirty days of the date of this Notice a written statement or explanation in reply, including for each violation: (1) the corrective actions that have been taken and the results achieved; (2) the corrective actions that will be taken to avoid further violations; and (3) the date when full compliance will be achieved. Consideration may be given to extending your response time for good cause shown.

JAN 32 1990

Dated _____



W. L. Axelson, Chief
Reactor Projects Branch 2

DETAILS

1. Persons Contacted

a. Detroit Edison Company

- *P. Anthony, Licensing
- R. Bailey, General Supervisor, Mechanical Maintenance
- *S. Catola, Vice President, Nuclear Engineering and Services
- *D. Gipson, Plant Manager
- *L. Goodman, Director of Licensing
- R. McKeon, Superintendent, Operations
- *W. Orser, Vice President, Nuclear Operations
- J. Plona, Operations Engineer
- E. Preston, Director Nuclear Training
- B. Sheffel, Nuclear Production, Technical Engineering ISI
- *A. Settles, Superintendent, Technical Engineering
- *R. Stafford, Director, Quality Assurance
- F. Svetkovich, Assistant to the Plant Manager
- B. R. Sylvia, Senior Vice President, Nuclear Operations
- W. Tucker, Assistant to the Vice President
- *J. Walker, General Supervisor, PE

b. U. S. Nuclear Regulatory Commission

- W. Rogers, Senior Resident Inspector
- *S. Stasek, Resident Inspector
- A. Dunlop, Reactor Inspector
- K. Walton, Resident Inspector, Davis-Besse
- *D. Schrum, Project Inspector

*Denotes those attending the exit meeting on December 19, 1989.

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

2. Action on Previous Inspection Findings (92701)

- a. (Closed) Open Item (341/88003-01)): Feedwater system total dynamic system response not verified. The licensee investigated the cause of the instability in the system's response. Two main problems were identified: oil leakage in the hydraulic system for both reactor feed pump turbines (RFPTs), and an instability in the response of the RFPT speed control system's amplifier.

To correct the oil problem, the licensee repaired numerous leaks in the RFPT control oil system and refurbished or replaced the EG3-P pilot actuators. In addition, to ensure sufficient oil will be available, the system was modified by installing control oil accumulators (EDP-8490). The licensee installed modified cards in the RFPT speed control system's amplifiers (EDP-9566)

that allowed for a greater adjustment without control valve feedback. This modification eliminated the droop feedback from the control valve LVOT to the amplifier.

The licensee successfully tested the system response in the following test procedures:

- DEMO.03B.723, Supplement 2	Feedwater Control System Tuneup-Optimization
- STUT.03B.023, Supplement 1	Feedwater System Level Setpoint Changes
- STUT.06B.023	Feedwater System-Level Setpoint Changes

The dynamic response of the system met the respective acceptance criteria in all cases but one. The Level 2 criteria for STUT.03B.023, Supplement 1, requiring less than 15 percent peak overshoot (percent of step disturbance) was not met (maximum overshoot 23 percent). This exception was accepted as-is per General Electric (GE) Letter No. 7823. GE Stated the basis for the overshoot criteria is to avoid equipment duty problems due to oscillations and prevent secondary transients. Because the feedwater controllers are so well tuned that flow stabilizes almost immediately after a perturbation, there are no equipment duty problems. Secondary transients were also not a problem.

The inspector reviewed the associated work requests, modification packages, and test results and concluded that the feedwater system has been adequately tested to verify total dynamic system response. This item is closed.

- b. (Open) Open Item (341/89008-16(DRP)): Safety/relief valves (SRVs) failing their set pressure surveillance test. During the 1989 refueling outage, the licensee was to replace all 15 pilot assemblies and 5 of the main valve bodies. Of the 15 pilot assemblies, 8 were to have new PH13-8MO pilot discs and 7 will have stellite discs. This conforms to the BWROG recommendation of 50 percent of the valves installed with the PH-13-8MO discs.
- c. (Open) Open Item (341/87020-01(DRP)): Implementation of Exo-Sensor action plan. Based on the Whittaker Corporation letter dated June 12, 1989, the licensee established a sensor shelf life of 3 years. The letter stated that storage in accordance with ANSI 45.2.2-1978, Level B Criteria, will provide a 1 year shelf life, although this can be extended to 3 years if storage temperature is limited to a maximum of 84 degrees Fahrenheit. The inspector was unable to determine if the licensee plans to extend the shelf life due to the maximum storage temperature or by use of the formula that reduces qualified life by 1 day for each 2.5 days of additional storage over 1 year. The additional 2 year shelf life would reduce qualified life by approximately 1 year.

- Whittaker Corporation provided a Failure Analysis Report (FAR 8819) that extended the qualified life of the sensor to 5 years, although the licensee intends to replace sensors every 3 years. The 3 year shelf life appears acceptable based on the formula included in the Whittaker Corporation letter, however, the licensee has not yet revised the PM program for replacement of sensor or its surveillance schedule. This item will remain open until all corrective actions of PDC 7081, Rev. A are completed.
- d. (Open) Violation (341/89026-01(DRS)): Raychem and Wire Qualification. Closure of this violation is conditional upon changeout from wire caps to raychem splices in 11 valve operators by January 1, 1990.
- e. (Closed) Violation (341/87016-01(DRS)): Inadequate operator training program. In a letter dated September 29, 1989 from H. J. Miller, Director Division of Reactor Safety, Region III NRC to B. R. Sylvia, Senior Vice-President DECo this violation was considered not warranted following completion of an Office of Investigations investigation.
- f. (Closed) Violation (341/87016-03(DRS)): Erroneous information associated with the operator training program. In a letter dated September 29, 1989 from H. J. Miller, Director Division of Reactor Safety Region III NRC to B. R. Sylvia, Senior Vice-President DECo this violation was considered not warranted following completion of an Office of Investigations investigation.
- g. (Closed) Violation (341/87016-04(DRS)): Failure of operators to complete a portion of the operator training program. In a letter dated September 29, 1989 from H. J. Miller, Director Division of Reactor Safety Region III NRC to B. R. Sylvia, Senior Vice-President DECo this violation was considered not warranted following completion of an Office of Investigations investigation.
- h. (Closed) Unresolved Item (341/89002-01(DRP)): Secondary containment control. The inspector noted no instance where secondary containment had been violated. Installation of the building heating system condensate vent line through secondary containment was not large enough to render secondary containment inoperable. However, it was apparent that the administrative controls associated with secondary containment integrity were weak. As a result the licensee retested the drawdown capability of the standby gas treatment system and determined the overall reactor building leakage coefficient. From this coefficient the maximum penetration size through secondary containment was derived and that number was provided to the operating authority. The secondary containment operating procedure was revised to identify the secondary containment penetrations and that work requests/tagout requests were to be reviewed against this list of penetrations to assure secondary containment was maintained. Prior to establishment of secondary containment control during

the inspection period the inspectors reviewed the implementation of these additional controls and found some deficiencies (see Paragraph 3.e.) which were resolved.

- i. (Closed) Violation (341/89008-02(DRP)): Inadequate corrective actions associated with the installation of an unapproved alternator in the diesel fire pump. The inspector verified that procedure FIP-PM1-02, Engineering Evaluation Disposition (EED), had been revised to require a log be kept on all EED forms; Procedure 35.501.004, Fire Pump Diesel - General Inspection, had been revised to require an appropriate test following installation of the alternator; and Procedure 34.501.002 had been revised to require QC verification that alternator replacement was like-for-like. This matter is considered closed.
- j. (Closed) Violation (341/88006-03(DRP)): Inadequate review of a replacement diesel fire pump alternator. The corrective actions taken as stated above in Paragraph 2.i. are sufficient to address this matter.
- k. (Closed) Open Item (341/88012-11(DRP)): Scram evaluation program. The licensee has upgraded its ability to evaluate the plant response to a scram by the addition of a post-scram evaluator aids notebook. The notebook contains among other things charts of optimally performing HPCI and RCIC systems, alarms associated with previous loss of offsite power sources and critical drawings.
- l. (Closed) Open Item (341/89018-08(DRP)): Analysis of high feedwater temperature on feedwater components. The licensee provided the inspector with data showing the feedwater nozzles qualified to the highest expected temperature and the soft seats of the check valves were also qualified. These two components appear to be the most limiting. The inspector did not review components beyond the primary containment barrier. This matter is closed.
- m. (Closed) Open Item (341/89019-01(DRP)): Flood door controls. The licensee provided the inspector with documentation that operations personnel had been more fully trained on internal flooding aspects. Also, flood doors have been labeled as flood doors.
- n. (Closed) Unresolved Item (341/89025-02(DRP)): Inadequate control of the maintenance shop QA1 storage cage. The inspector reviewed PQA surveillance 89-0046 which was conducted on January 12 - 20, 1989 and found similar conditions to those identified during the inspector's walkdown on October 10, 1989. Although the specific deficiencies identified in the surveillance had been corrected, additional examples in existence at the time (as indicated by the inspector's walkdown and the dates documented in the inventory log) were not identified and corrected. Also, determination of root cause was not made and no actions were initiated at the time to prevent recurrence. Consequently, control of materials in the

storage cage continued to be inadequate with subsequent deficiencies occurring for approximately nine months until the time of the inspector's walkdown and even thereafter. In an unplanned followup PQA surveillance (No. 89-3239) conducted October 16 - 17, 1989, further deficiencies were again observed. This matter is considered a violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action", in that a condition adverse to quality was not completely identified, root cause was not determined, and corrective actions were not initiated to prevent recurrence in a timely manner (341/89030-01(DRP)).

- o. (Closed) Unresolved Item (341/89021-02(DRP)): Weaknesses in conducting standby gas treatment filter performance testing. The inspector's review indicated the performance of independent verification activities by members of Technical Engineering was inadequate. Although engineers in that group were required to perform independent verifications, no formal training addressing the requirements associated with independent verification activities was provided. Consequently, Tech Group engineers performing verification activities such as as-left system lineups, were not independent of those activities in all cases. Further, when completed Tech Group Surveillances were reviewed by the operating authority for system return-to-service requirements, no further verifications were deemed necessary because independent verifications were documented as complete in the procedures. Two examples of this situation, in addition to the one associated with the SGTS filter performance test (discussed in Inspection Report 341/89030) were found where Tech Group did not perform proper independent verification as required by procedure. Rather, a non-independent second check was performed. These occurred during performance of surveillances NPP-43.401.206, "Local Leakage Rate Testing for Airlock X-2" on June 3, 1989 and NPP-43.401.510, "Local Leakage Rate Test, Purge and Vent Valves" on June 13, 1989. This failure to perform required independent verification activities is considered a violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings" (341/89030-02(DRP)).
- p. (Closed) Unresolved Item (341/88035-04(DRP)): HPCI discharge valve design change. This matter was upgraded to a violation in Inspection Report 341/89017.
- q. (Closed) Unresolved Item (341/88012-12(DRP)): Residual heat removal minimum flow valve safety evaluation. This matter was upgraded to a violation in Inspection Report 341/89017.
- r. (Open) Unresolved Item (341/88003-02(DRP)): Residual heat removal service water (RHRSW) discharge valve testing requirements. On October 25, 1989 the inspector met with the cognizant NRR inservice test (IST) reviewer to discuss whether this valve should be included in the IST program. The resolution from the meeting was that the valve should be included in the IST program. In November there were two telephone conference calls with the licensee on this valve. At the conclusion the licensee

agreed to include the RHRSW discharge valve in the IST program. At the end of the inspection period the inspector noted that relief valve E1150-F056A/B was not in the IST program; the licensee was researching the cause of this.

- s. (Closed) Open Item (314/88020-03)): Preoperational test exception remaining open for the oil coalescer of the radioactive waste system. The licensee does not intend to use the asphalt radwaste system which required use of the oil coalescer, but currently uses a contractor service. The FSAR and the applicable process control procedures have been revised to reflect the present operating conditions.

No other violations or deviations were identified.

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 October 16 to December 4, 1989. 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 following 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.

- Standby Gas Treatment System - Divisions I and II
- Emergency Diesel Generator No. 11
- Emergency Diesel Generator No. 12
- Residual Heat Removal Service Water System - Division I

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. In early November 1989 additional information on the zebra clam situation was acquired. Specifically, the licensee reported that clams were prevalent in the five general service water (GSW) pumps inspected, clams were found in a relief valve and a control valve on the discharge side of the GSW pumps, and a small number of clams were found in the GSW side of a reactor building closed cooling water heat exchanger. The last inspections of the fire suppression system were performed in June and July 1989 and only some faucet snails were observed. Additional plans are being made to inspect a fire pump after startup from the present outage. In late November the GSW system was shock treated with clam-trol after receiving permission from the state. Further efforts are underway with the state of Michigan to permanently expand the discharge permit for the use of clam-trol.
- b. During the inspection period the inspector reviewed the overtime records for licensed and non-licensed operators. The inspector found the records consistent with the requirements of Technical Specifications except for personnel working the night of the change to standard time (October 29). Subsequently, the hour worked in excess of the 48 hour timeframe was approved by the appropriate level of management. Also, one typographical error was noted for an assistant shift supervisor for the shift worked one day in November.
- c. During the inspection period the licensee noted a high failure rate of certain types of snubbers. The licensee reviewed these failures and determined that no piping components were overstressed as a result of normal operation with the snubbers inoperable. As of the end of the inspection period the suction line of a RHR division was under review as to stresses that could have been present in a design bases condition with snubber E11-3154-G13 locked up. Target completion date for the stress analysis is January 30, 1990. Completion of this analysis is considered an open item (341/89030-03(DRP)).
- d. During the inspection period, the inspector performed periodic walkdowns in the drywell (opened as part of the current refuel outage). During these walkdowns, the inspector assessed overall equipment conditions, radiological controls, housekeeping and tool control, and implementation of security requirements. Ongoing maintenance activities were also observed. As a result of a drywell tour conducted on November 25, 1989 the inspector noted a number of apparent deficiencies associated with safety relief valves.
- 1) A terminal box on the SRV M actuator solenoid was missing all but one cover screw and cover and gasket were rotated away from the box. Terminal boxes on other SRVs were missing assorted screws.
 - 2) Associated end plugs were missing on a number of terminal boxes.

- 3) The exhaust port of the SRV F actuator was covered with a yellow shipping plug and masking tape.
- 4) SRV M exhaust port was sealed with approximately 6-8 inches of duct tape.

Once identified to licensee personnel, actions were initiated to correct the deficiencies. This will remain an unresolved item pending completion of inspector review (341/89030-04(DRP)).

- e. On October 16, 1989, the inspector performed a review of current work requests and associated system abnormal lineup sheets (ALS) to determine the licensee's level of control over secondary containment integrity. At the time of review, secondary containment integrity had been administratively established in preparation for core reload (although not actually required until reload was physically initiated). From the review, the inspector ascertained that no measures had been implemented to control tagging boundaries associated with work on systems penetrating secondary containment. When this concern was communicated to the operating authority, actions were immediately initiated to review and establish the necessary boundaries around the affected secondary containment penetrations. Commencement of core reload was only begun following completion of licensee actions in this area. Subsequently, a night order was issued to all shifts specifying the new control criteria and procedure NPP-23.428, "Secondary Containment Airlocks and Penetrations" which addresses all secondary containment penetrations was directed for use during preparation of all ALSs from that point.
- f. During a routine inspection of the turbine building, the inspector found approximately an inch of an oil/water mixture in the sump of the turbine oil storage area. The sump is approximately four feet below the level of the personal grating and incorporates two used oil tanks with a combined capacity of 30,000 gallons, one 15,000 gallon new oil tank and one 2,000 gallon waste oil tank. The surface area of the sump is approximately 1,200 square feet. The turbine sump drains were covered by this oil/water mixture and no oil or water was seen to be draining from or discharging to the sump. Beside each turbine sump drain is stenciled, "Plant Drain Only. No Solvents - No Oil."

During normal operation, the oil/water separator tank collects dirty oil from the turbine oil storage area sump, the RFPT oil room sump and the east floor drain sump. The oil/water separator tank discharges to the waste oil tank via the separator waste oil pump.

In order to allow maintenance on the oil/water separator tank to occur, the tank was drained to the waste oil tank on midnight Friday, November 3, 1989. The waste oil tank overflowed into the turbine oil area sump either as a result of draining the

oil/water separator or from normal letdown into the waste tank. On November 6, a radwaste general supervisor noted the condition and understood that the sump could not be drained using the normal method. On November 8, the fire protection supervisor was questioned by the inspector as to what precautions were taken to minimize the risk of fire and what attempts were being made to clean up the oil. The following day, the fire protection supervisor reported that the shift supervisor's office was informed of the condition and that no hotwork permits were to be issued for this area. This supervisor also stated that all drains in the sump were labeled to prevent foreign liquid wastes from entering into the system. The inspectors observed that the final stages of sump cleanup were underway that same day.

No violations or deviations were identified in this area.

4. Monthly Maintenance Observation (62703)

Station maintenance activities on 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 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:

- WR 009C890823 T23 Containment Spool Piece for Connection to SGTS
- WR 001C890903 Removal and Test SRVs and Pilots (for SRVs L, M)
- WR 010C890724 Modification of ATWS Initiation Circuits
(EDP 9942)
- WR 002C890825 Closure of Drywell Hatches

Following completion of installation of the Standby Gas Treatment System (SGTS) spool piece, the inspector verified that the system had been 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 witnessed the following test activities:

-	24.207.07	EECW/EESW Actuation Functional Test - Div II
-	24.307.04	EDG No. 14 - ECCS Start With Loss of Offsite Power Test
-	24.307.30	EDG No. 11 - 24 Hour Run Followed by Loss of Offsite Power Test
-	27.106.05	Control Rod Drive Timing Test and Adjustment
-	43.401.515	RCIC Pressure Isolation Valve Leakage Test
-	46.138.01	Reactor Recirc Pump Motor Upper and Lower Oil Level Switches Functional
-	54.000.03	Control Rod Scram Insert Time Test

No violations or deviations were identified in this area.

6. LER Followup (92700)

- a. (Closed) LER 86040 & Rev. 1, Malfunction of Reactor Pressure Regulator Transfer Feature Results in Automatic Reactor Scram
- b. (Closed) LER 87046, Inadequate Environmental Qualification of Certain Electrical Equipment. The inspection performed in Inspection Report 341/89026 was comprehensive enough to review the corrective actions associated with this LER.
- c. (Closed) LER 88013 & Rev. 1, Inadvertent Isolation of Shutdown Cooling. This event provided emphasis on the need for modular power unit load lists which have since been developed.
- d. (Open) LER 88034, Unplanned Reactor Water Cleanup (RWCU) Isolation. To determine the cause of the relay failure that resulted in the RWCU isolation the relay was analyzed by two laboratories who came to two different conclusions. The relay was sent to a third lab but the lab equipment was not sensitive enough to establish a cause. Therefore, the licensee is preparing the relay for transport to a laboratory that has the equipment of requisite sensitivity.

- e. (Closed) LER 89015 and Rev. 1, Loss of Power to Division I Reactor Protection System Due to Overvoltage on the Motor Generator. Root cause was determined to be a drifting voltage-adjustment potentiometer. The potentiometer was subsequently replaced with a resistor.
- f. (Closed) LER (341/87-041-01)): Inoperability of the SGTS accident monitor (AXM). This item was previously tracked under open item (341/87031-01) which was closed in Inspection Report No. 50-341/87050. In that report it was stated a request was made for a Technical Specification change which required both channels on the SGTS system be operable; this change was made in Amendment No. 28 of the Technical Specification.

No violations or deviations were identified in this area.

7. Followup of Events (93702)

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:

- October 19, 1989 Technical Specification surveillance not performed in required timeframe.
- October 24, 1989 Small electrical fire in the drywell.
- October 31, 1989 Notification to the state of Michigan of an unplanned discharge of 200 gallons of raw sewage water from the sewage settling tank.
- November 15, 1989 Unplanned engineered safety feature actuation of Level 1 and 2 reactor vessel water level while performing valve lineup of reactor vessel water level instrument rack.
- November 19, 1989 Automatic initiation of division II control air compressor during performance of division II loss of offsite power surveillance testing.
- November 21, 1989 Notification to the FAA of lights out on the north cooling tower

- a. Regarding the October 19, 1989 event, Surveillance Procedure NPP-24.404.002 "Division I SUTS Filter and Secondary Containment Isolation Damper Operability Test" Section 5.2 was not completed within its Technical Specification required periodicity. The surveillance was required to verify operability of secondary containment automatic isolation dampers as a part of ensuring secondary containment integrity. Secondary containment is required during core alterations. The surveillance was required to be completed (overdue plus 25 percent) on October 17 with core alterations already underway.

Prior to the event, on September 13, a decision was made not to do that section of the surveillance at that time (as originally scheduled) due to ongoing work associated with the Standby Gas Treatment System. It was anticipated that the surveillance requirement would be met following completion of work activities but prior to initiation of core alterations. Subsequently, the situational surveillance listing was periodically updated indicating that NPP-24.404.002 would exceed its critical date on October 17 at 0504 hours. However, once core alterations had begun, operations personnel did not adequately review the listing to ensure surveillances associated with core alterations were maintained current. Consequently, core alterations were begun on October 16 and were in progress at the time the surveillance had to be completed the next day. The surveillance was discovered to be overdue on October 19 at approximately 1500 hours during a review of the computer listing by members of the surveillance group. The surveillance was subsequently completed satisfactorily and the subject dampers (T41-F009 and F011) were determined operable. At the time of discovery core alterations were already suspended due to a limit switch problem. However, during the time the surveillance was overdue, core alterations had proceeded for a total of approximately 45 hours. This is considered a violation of Technical Specification 3.6.5.2 (341/89030-05(DRP)).

- b. Regarding the October 24, 1989 event, cause of the fire was determined to be failure of an extension cord placed as part of a temporary feed for the drywell. The cord was disconnected and removed, and the rest of the drywell was walked down to ensure no other feeds were smoldering. Troubleshooting of the electrical protection devices was also performed to determine, if possible, the reason the associated breaker had not tripped.

Routine tripping of the temporary electrical feeds was a continuing problem through most of the outage. The cause appeared to be periodic overloading of individual circuits. Attempts were sometimes made to plug electrical tools into the temporary lighting circuits with the result being a loss of temporary drywell lighting and work stoppages. Prior to the second refuel outage, the licensee will upgrade the routing and hookup capabilities for the temporary feeds. The Engineering Department will

evaluate the best method to accomplish this and provide the necessary guidelines. This will be tracked as an open item (341/89030-06(DRP)).

No other violations or deviations were identified.

8. Control Center HVAC Review

During the inspection period a contract inspector from Argonne National Laboratory was engaged to perform an inspection of the control center heating and air conditioning system (CCHVAC). The inspection encompassed walkdowns of the system, review of test results on the CCHVAC, review of training material on the CCHVAC and review of certain aspects of the design/calculations associated with the CCHVAC. The results of the inspection are provided as an attachment to this report. The NRC inspector is currently reviewing the results of the contractor inspection report and that review will be documented in a future inspection report.

No violations or deviations were identified in this area.

9. Hydrostatic Testing Observation (73753)

On November 14, 1989 the inspector witnessed the gross hydrostatic leakage 1000 psig test. An appropriate plant configuration was established to perform the test. Once at pressure the inspector performed a walkdown in parallel with the licensee of reactor pressure vessel piping in the drywell. During the walkdown safety relief valve "L" was observed with a 700 ml/min leak along with some other weeping valves.

Subsequently, the weeping valves were repaired. Repair activities associated with the safety relief valve identified that two instead of one mating gasket had been installed. The extra gasket was removed and no further leakage has been identified to date.

No violations or deviations were identified in this area.

10. Startup Test Phase Results Reviews (72301)

The following Startup Test Phase Tests (STUTs) were reviewed to verify that the required test objectives and acceptance criteria were met. In addition, the inspector reviewed the collected testing data and independently evaluated the testing results and conclusions by independent calculations and data interpretation.

Test Condition 1

STUT.01C.010 IRM Performance IRM/APRM Overlap

Test Condition 4

STUT.04B.019 Core Performance-Process Computer Determination
STUT.04C.016 Selected Process Temperatures Recirculation Pump Trip
(Natural Recirculation)
STUT.04C.070 Reactor Water Cleanup System-Hot Standby Mode
STUT.04A.030 Recirculation System-System Performance

Test Condition 5

STUT.050.024 Supplement 1, Turbine Valve Surveillance
STUT.06B.033 Piping System Vibration-Dynamic Response Testing

Test Condition 6

STUT.06E.023 Feedwater System-Maximum Feedwater Runout Capability
STUT.06B.023 Feedwater System-Level Setpoint Changes
STUT.02B.023 Supplement 1, Feedwater System-Level Setpoint Changes
STUT.03B.023 Supplement 1, Feedwater System-Level Setpoint Changes
STUT.06D.023 Feedwater System-Feed Pump Trip
STUT.06B.028 Shutdown From Outside Control Room-Cold Shutdown
Demonstration
STUT.06C.025 MSIV Functional Test-Full Reactor Isolation
STUT.06D.013 Process Computer-Buckle Comparison
STUT.06C.016 Selected Process Temperatures Recirc Pump Trip Data
STUT.06B.030 Supplement 2, Recirculation System-One Pump Trip
STUT.01C.010 Supplement 2, IRM Performance IRM/APRM Overlap
STUT.HUA.010 Supplement 3, IRM Performance SRM/IRM Overlap
STUT.06C.011 LPRM Calibration-Process Computer Determination
STUT.06B.012 Average Power Range Monitor Calibration-Process
Computer Determination
STUT.06B.019 Core Performance-Process Computer Determination
STUT.06B.071 Residual Heat Removal (RHR) System-Shutdown Cooling
Mode
STUT.000.001 Chemical and Radiochemical
STUT.06B.017 System Expansion-Sensor Readings
STUT.06A.002 Radiation Measurements-Complete Survey
STUT.06A.030 Recirculation System-System Performance
STUT.06D.005 Control Rod Drive System-Planned RX Scram Timing Data
(4 Rods)
STUT.050.024 Supplements 2, 3, 4, 5, and 6, Turbine Valve and
Surveillance
STUT.06A.033 And Supplements 1 and 2, Piping System Vibration-Steady
Stat. Data
STUT.06C.023 Feedwater System-Loss of Feedwater Heaters
STUT.HUD.015 HPCI System-150 PSIG Cold CST Injection
STUT.HUC.015 HPCI System-150 PSIG Hot CST Injection
STUT.06B.025 MSIV Functional Test-10 Percent Slow Closure
STUT.06B-027 Turbine Stop Valve Trip and Generator Load
Rejection-Generator Load Reject
STUT.060.022 Pressure Regulator
STUT.06B.033 Supplement 2, Piping System Vibration-Dynamic Response
Testing

- STUT.06B.029 Recirculation Flow Control System-Step Change
Testing/Ramp Test
STUT.060.035 And Supplemental 1, Recirculation System Flow
Calibration

Warranty Run

- STUT.WRB.012 Average Power Range Monitor Calibration-Process
Computer Determination
STUT.WRB.019 Core Performance Process Computer Determination

- a. STUT.06B.033, Section 8.3 required that main steamline piping dynamic response vibration data be recorded, however, the data recorded for the balance-of-plant (BOP) piping outside the drywell (Attachment 3, pages 1 and 2) was unusable due to noise introduced into the GETARS signal. The recording of this test data was deferred to the next inadvertent turbine trip in place of purposely tripping the unit. The licensee approved 10 CFR 50.59 Safety Evaluation 88-0209 in order to justify the change in the Startup Test Program per NRC requirements.

The licensee had a turbine trip from 100 percent reactor power on February 25, 1989. The GETARS equipment recorded the required BOP vibration data. This data was evaluated by the licensee to be acceptable per Design Calculation (DC) No. 5009. The inspector reviewed DC-5009 and verified the data was acceptable to complete STUT.06B.033 and subsequent licensing condition.

- b. STUT.02B.023, Supplement 1: A problem was identified when transferring between one element and three element control of the Feedwater Speed and Level Control System. Due to electrical noise spikes, the Recirculation System Limiter No. 2 actuated on a false level 4 signal and indicated level spikes up 13.5 inches. While this did not present a problem with the test, the noise induced upon mode switch transfers could present Operations with a loss of operational flexibility.

DER 87-206 was initiated by the licensee to investigate the cause. The problem is that when switching modes there is a momentary drop in the current level to alarm unit C32-K62P causing a recirculation pump runback. As a result of the DER and PDC-7697, the procedure (NPP-23.107) for transferring between one and three element control was revised to correct the problem.

- c. STUT.06B.071: The purpose of the test was to verify the heat capacity of the Residual Heat Removal (RHR) heat exchangers (HX) during the shutdown cooling mode of operation. The heat capacity calculation performed in the test assumes 100 percent flow through the HX. However, the licensee had performed the testing at reduced flows. Therefore, the data had to be extrapolated to 100% using alternate calculations which were verified and concurred in by the General Electric Company.

- d. Several STUTs had Test Exceptions that identified failed or out-of-service components (e.g., computer points, LPRMs). Since these components had no affect on the test results, the Test Exception resolution was to accept "as-is." The inspector was concerned as to how these components were tracked because there was no additional action stated on the Test Exception. The licensee was able to show that these items were tracked and subsequently repaired by station procedures (i.e., DERs, work requests), as such the inspector has no further concerns.

This completes the NRC review of startup test phase results with no outstanding inspector concerns left to be addressed.

No violations or deviations were identified in this area.

11. Refueling Activities (60705 60710)

During the inspection period, the inspector observed/reviewed activities associated with the refuel floor. The inspector witnessed portions of reactor vessel head tensioning, installation of the insulation "bird-cage" as well as preparations for drywell head placement. The inspector observed fuel movements on a number of occasions and reviewed completed surveillances to verify Technical Specification requirements were met prior to the start of core reload. Plant procedures related to core reload and vessel reassembly were reviewed.

- a. On October 23, 1989, while refueling operations were underway, the inspector noted two individuals sitting on the east side horizontal support member of the refuel bridge. The individuals were not lanyarded or captured by any means to prevent possible falling into the reactor cavity or spent fuel pool. When questioned, the individuals indicated they were Westinghouse maintenance personnel assigned to the bridge to help troubleshoot maintenance problems on the bridge. They were not aware of the implications of sitting where they were but removed themselves from the support member and notified the Westinghouse refueling supervisor of the inspector's concern. The Westinghouse supervisor agreed that the individuals should not have been on the support member and cautioned them to not do so further. When the inspector questioned the SRO supervising core reload and who was present on the bridge at the time, the SRO indicated he was not aware of the individuals sitting on the support member but would ensure that the action would not be repeated.

Subsequently, the operations superintendent conducted a review into the occurrence and found that the individuals had been sitting on the support for a short period of time prior to observation by the inspector (approximately 10 minutes). To prevent recurrence, all refuel floor personnel were reminded of the requirements associated with control of material while over the reactor cavity, and Procedure NPP 23.710 "Fuel Handling System" was revised to restrict personnel to authorized locations.

The inspector had no further concern in this area.

- b. Following completion of core reload, the inspector reviewed the licensee's core verification videotapes and independently verified all fuel assemblies were properly configured in the core. This was done by comparing each assembly's serial number observed to that required by the master core loading pattern map provided by General Electric. No discrepancies were noted.

No violations or deviations were identified in this area.

12. HEPA Filter and Charcoal Absorber System (84750)

A Region III radiation protection inspector selectively reviewed records of in-place-testing of HEPA and charcoal filters, including laboratory analysis for methyl iodine removal efficiency for charcoal absorbers from February 1988, to date. Tests appeared to be conducted in accordance with Technical Specification requirements, and showed that the surveillance for the ventilation systems had been timely, and with the exception of the control room emergency filters tested on May 6, 1988, met test criteria. These charcoal filters were replaced as a result of the failed test.

13. Regional Request

- a. Brown Boveri Electric (BBE) Circuit Breakers. Information Notice (IN) No. 87-41 discussed certain BBE Circuit Breakers that were manufactured without anti-shock springs installed that could cause inadvertent closure following spring charge. The 10 CFR Part 21 report filed by BBE listed the following dates of manufacture where springs might not have been installed on HK breakers: 1961 through 1973 and June 1975 through June 1977. In a memorandum dated October 27, 1987 regional management requested that the licensee's internal actions to this information notice be reviewed.

A review of documentation indicated 30 Non-Q (non-safety-related) circuit breakers that applied to the IN. The licensee issued minor modification PDC 6794 Rev. 0 and Rev. A to inspect and install springs (if necessary) on the 30 HK circuit breakers. During the same time frame, the licensee discovered many QA1 (safety-related) and Non-Q HK circuit breakers missing the anti-shock spring, but were not manufactured during the suspected period of time. Deviation Event Report (DER 89-1026) was initiated in September 1989 to address the discrepancy in the vendor Part 21 information. The licensee will inspect all 4160V QA1 (40) and Non-Q(52)HK circuit breakers installed at the plant per minor modification PDC 6794 Rev. B and Rev. C.

A Justification for Continued Operation (JCO) was issued by the licensee on this issue on September 29, 1989. The licensee's conclusion was to continue operations through the refueling outage, inspect and install springs in all QA-1 circuit breakers

(40) before the end of the outage, and non QA-1 circuit breakers will be inspected during the next scheduled PM for each breaker. The licensee is in the process of determining if a followup Part 21 report should be issued to address all BBE HK circuit breakers. This matter is considered an open item (341/89030-07(DRP)).

- b. On October 26, 1989 regional supervision requested the answer to eight questions dealing with the technical support capability of the licensee. The inspector contacted the principle engineer for plant systems and interviewed him with regard to the questions. Answers were provided to regional supervision on October 30, 1989.
- c. On October 24, 1989 regional supervision requested that the resident staff share with the licensee the cause of 130 leaking fuel pins after an outage at the Haddam Neck Plant. The cause was inadequate foreign material control while performing in-vessel work. The licensee acknowledged the seriousness of the situation and initiated a DER on the matter.
- d. On November 10, 1989 regional management requested the resident staff inform the licensee of a potential loss of shutdown margin during refueling operations. The situation was described in NRC Information Notice 89-51. The inspector immediately contacted the principal reactor engineer on the matter. Also, on November 13, 1989 the inspector discussed the matter with the plant manager.

No violations or deviations were identified in this area.

14. Meetings

- a. On October 30, 1989, the inspector met with licensee senior management at their request. The licensee explained the methodology to be used by personnel when the as-found plant condition is not consistent with the description in the Updated Safety Analysis Report. The actions stated were general in nature and appeared to be consistent with recent NRC internal guidance on this matter.
- b. On October 25, 1989 the inspector attended a meeting between NRR and the licensee on the control center HVAC (CCHVAC).

15. Unresolved Items

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.d.

16. 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. Three open items disclosed during the inspection is discussed in Paragraphs 3.c, 7.b and 13.a.

17. Exit Interview (30703)

The inspectors met with licensee representatives (denoted in Paragraph 1) on December 19, 1989, 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.