

U.S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report No. 50-346/81-12

Docket No. 50-346

License No. NPF-3

Licensee: Toledo Edison Company  
Edison Plaza  
300 Madison Avenue  
Toledo, OH 43652

Facility Name: Davis-Besse Nuclear Power Station, Unit 1

Inspection At: Davis-Besse Site, Oak Harbor, OH

Inspection Conduct 1: June 1-5, 8-12, 15-19, 22-26, 29 and 30, 1981

*L. McGregor for:*  
Inspectors: L. A. Reyes

8/18/81

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8/18/81

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Projects Section 2B

8/18/81

Inspection Summary

Inspection on June 1-5, 8-12, 15-19, 22-26, 29, and 30, 1981 (Report No. 50-346/81-12)

Areas Inspected: Routine, Unannounced inspection of Operational Safety Verification, Monthly Maintenance Observation, Monthly Surveillance Observation, Followup on Licensee Event Reports, NRR Generic Letter of September 21, 1979, Plant Scram on June 24, 1981 and Partial Loss of Non-Nuclear Instrumentation on June 30, 1981. The inspection involved a total of 245 inspector-hours by two NRC inspectors including 74 inspector-hours onsite during off-shifts.

Results: Of the seven areas inspected, no items of noncompliance or deviations were identified in six areas, one apparent item of noncompliance was identified in another area (failure to seal holes through fire walls).

## DETAILS

### 1. Persons Contacted

\*T. Murray, Station Superintendent  
B. Beyer, Assistant Station Superintendent  
P. Carr, Maintenance Engineer  
S. Quennoz, Technical Engineer  
\*D. Huffman, Administrative Coordinator  
D. Miller, Operations Engineer  
D. Briden, Chemist and Health Physicist  
J. Hickey, Training Supervisor  
L. Simon, Operations Supervisor  
C. Daft, Operations QA Manager  
\*R. P. Crouse, Vice President, Nuclear  
\*C. J. Greer, QC Supervisor

\*Denotes those attending the exit interview on June 18, 1981.

The inspectors also interviewed other licensee employees, including members of the technical, operations, maintenance, I&C, training and health physics staff.

### 2. Operational Safety Verification

The inspector observed control room operations, reviewed applicable logs and conducted discussions with control room operators during the month of June. The inspector verified the operability of selected emergency systems, reviewed tagout records and verified proper return to service of affected components. Tours of containment, auxiliary 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 inspector by observation and direct interview verified that the physical security plan was being implemented in accordance with the station security plan.

The inspector observed plant housekeeping/cleanliness conditions and verified implementation of radiation protection controls. During the month of June, the inspector walked down the accessible portions of the Component Cooling Water system to verify operability. The inspector 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.

While conducting a walkdown of the Component Cooling Water (CCW) System, the inspectors found three supports missing in the CCW supply lines to the hydrogen analyzers. The licensee performed a temporary

modification to provide the missing supports. The architect engineer is conducting an engineering evaluation to determine the operability of the hydrogen analyzers. The resident inspectors will follow up on the resolution of this item. (50-346/81-12-01)

No additional items of noncompliance or deviations were identified.

3. Monthly Maintenance Observation

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

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

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

The following maintenance activities were observed/reviewed:

Repairs to the Auxiliary Feedwater Governor coupling for train No. 2.  
Replacement of the Miscellaneous Waste Evaporator distillate pump.

Following completion of maintenance on the Auxiliary Feedwater System, the inspector verified that these systems had been returned to service properly.

No items of noncompliance or deviations were identified.

4. Monthly Surveillance Observation

The inspector observed technical specifications required surveillance testing on the Service Water System Pump test (St 5075.01), and SFRCS monthly Functional test (St 5071.04) and verified that testing was performed in accordance with adequate procedures, that test instrumentation was calibrated, that limiting conditions for operation were met, that removal and restoration of the affected components were accomplished, 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 properly reviewed and resolved by appropriate management personnel.

The inspector also witnessed portions of the following test activities: Containment Airlock Seal leakage test (St 5061.05) and Miscellaneous Instruments Shift Checks for Mode 3 (St 5099.01).

No items of noncompliance or deviations were identified.

5. Licensee Event Reports Followup

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

LER 78-53	Surveillance Requirements of TS 3.3.3.6 not completely met.
LER 78-64	Containment post accident radiation monitor inoperable.
LER 78-77	Component Cooling Water Pump 1-1 bearing failure.
LER 80-89	Iodine 131 activity in the reactor coolant system greater than 1 uCi/GRAM.
LER 80-94	Auxiliary Feedwater Pump No. 2 Outboard bearing failure.
LER 81-16	Iodine 131 activity in the reactor coolant system greater than 1 uCi/GRAM.
LER 81-22	Inspection of all fire walls by General Physics Corporation.
LER 81-23	Decay Heat Cooler No. 1 Outlet Valve failed to close. The licensee has initiated facility change request 81-128 to change the valve actuator design to prevent reoccurrence. The inspectors will follow up the implementation of this change (50-346/81-12-02).
LER 81-25	Operation in Mode 4 (hot shutdown) with only one makeup pump operable.
LER 81-27	Flow indicator for HPI train No. 2 failed.
LER 81-28	Liquid release with radiation monitors inoperable.
LER 81-30	Axial power imbalance limits exceeded.
LER 81-31	Iodine 131 activity in the reactor coolant system greater than 1 uCi/GRAM.

No items of noncompliance or deviations were identified.

6. NRR Generic Letter on Inadvertant Safety System Actuation dated September 21, 1979

Background

On September 21, 1979, a letter was sent to all PWR licensees describing an inadvertant reactor scram and safety injection that occurred during a monthly surveillance test of the safeguards system at a PWR facility. The letter requested the licensee to review the events and that engineered safety system surveillance procedures be reviewed to determine whether appropriate cautions are included.

On November 7, 1979, Toledo Edison Company submitted letter Serial Number 552 which documented their review of the sequence of events, a description of similar events that had occurred at Davis-Besse, management policies used to assure that multiple equipment failures in safety related systems are vigorously pursued and analyzed, and surveillance procedure changes to ensure that plant operators and supervisors are aware of the importance of avoiding challenges to the safety related systems.

On December 2, 1980, NRR responded to the licensee submittal. The response was found to be adequate and the matter considered resolved. IE inspectors were requested to review surveillance test procedures to ascertain the adequacy of the precautions required.

Discussion

The inspector reviewed the below listed procedures and determined that proper procedure precautions have been incorporated to ensure that only one channel is tested at a time. The procedures include guidance on testing one safety system when the other system is not in normal conditions. Shift supervisor approval is required with a signoff prior to initiating the work.

ST 5030.02      RPS Monthly Functional Test

ST 5031.14      SFRCS Monthly Test

ST 5031.01      SFAS Monthly Test

During the routine inspection of plant scrams and safety system challenges, the inspector has observed that failures in safety systems are given high priority for repair and problem resolution.

No items of noncompliance or deviations were identified.

7. Plant Scram on June 24, 1981

On June 24, 1981, at approximately 1:24 p.m. (EDT), the plant scrambled from 75% power. The scram was the result of contractor personnel activities which initiated a trip of breaker HXAAE. This 13.8 Kv breaker

was the source of power to uninterruptable bus YAU through breaker E23. YAU bus provides the AC power to the Y-bus of the non-nuclear instrumentation (NNI). Bus YAU was lined-up in its alternate configuration (from YAR and E23) because of equipment problems experienced with inverter YAR static switch.

During the event, the reactor immediately scrammed due to the loss of YAU bus which feeds one bus of the control rod drive system (CRDS). Surveillance testing was being conducted at the same time, which required the other train of CRDS breakers to be open, resulting in loss of all power to the control rod drives.

The loss of YAU resulted in a total loss of the control room annunciator system, the auxiliary feedwater pump train No. 1 flow and speed indication, a trip on makeup pump No. 1, and a loss of both reactor coolant system saturation meters.

The steam feedwater rupture control system was manually initiated when the steam generator level approached 25 inches. The manual actuation was a precautionary measure taken by the operator because of the lack of annunciators and other indications.

During the time that power was lost to YAU, the operators were not sure which bus of the NNI was lost because of a mislabeling of the NNI-Y bus DC power supplies and the loss of indication of the RCS saturation meters. Portions of the computer peripheral equipment and fire protection equipment were also affected by the power outage.

Power was lost for approximately 12 minutes before E23 breaker was powered through alternate source Bus E2. After power was restored, control of the unit was conducted through normal procedures.

During this interval of time, auxiliary feedwater pump No. 2 was not controlling as required. The pump was turned off and the startup feedwater pump was used to supply water to the steam generators.

Because of problems with the mechanism of control rod drive 5-8, the licensee commenced an outage to perform maintenance and surveillance testing. The inspector will followup the licensee's action to correct problems identified during the plant scram. The inspectors will document the actions taken in a subsequent report.

No items of noncompliance or deviations were identified.

#### 8. Partial Loss of Non-Nuclear Instrumentation

On June 30, 1981, while the plant was in cold shutdown, (Mode 5) the licensee opened breaker YAR-15 and experienced a partial loss of Y bus of the non-nuclear instrumentation (NNI). Investigation of the event determined that a wiring error in the Bailey cabinet for NNI Y was the cause of the event. Two inspectors from Region III were dispatched to the site to supplement the resident inspectors in the investigation

of the event. The inspectors will followup the licensee's corrective action and the results will be documented in a subsequent report.

No items of noncompliance or deviations were identified.

9. Followup on Previous Inspection Findings

Noncompliance (50-346/81-12-01): During routine plant tours on March 16 and April 3, 1981, the inspectors found unsealed holes penetrating fire wall with no fire watch established to monitor the areas. The unsealed holes were in the east wall of the Control Room Equipment area and in the north wall of Room 427B, Low Voltage Switch gear. Technical Specification 3.7.10 requires all penetrations of fire barriers to be functional of all times and when a penetration becomes non-functional a fire watch shall be established.

The licensee established fire watches for the areas identified until the holes were plugged. A deviation report was issued and LER 81-022 was submitted by the licensee documenting the event and the corrective measures taken. A contract has been awarded to General Physics Corporation to conduct an inspection of all fire walls at the site to verify that all penetrations are functional. An audit was conducted by the Quality Assurance Department and audit finding report No. 716-4 has been issued.

There have been four previous violations of penetration fire barriers, as reported in LER's 78-117, 79-059, 79-060 and 80-008. This is an item of noncompliance as identified in Appendix A; however, no response to this item is required since the licensee has taken action to correct it and to prevent recurrence. This matter was identified by the inspectors during an earlier inspection period; however, it was inadvertently omitted from the inspection report covering that period, and is, therefore, included in this report for documentation purposes.

10. Exit Interview

The inspector met with licensee representatives (denoted in Paragraph 1) throughout the month and at the conclusion of the inspection and summarized the scope and findings of the inspection activities.