

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-346/88021(DRP)

Docket No. 50-346

License No. NPF-3

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

Facility Name: Davis-Besse 1

Inspection At: Oak Harbor, Ohio

Inspection Conducted: July 1, 1988 through August 15, 1988

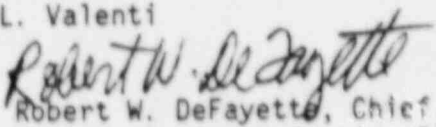
Inspectors: P. M. Byron

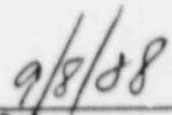
D. C. Kosloff

L. Bell

P. Prescott

L. Valenti

Approved By: 
Robert W. DeFayette, Chief
Reactor Projects Section 3A


Date

Inspection Summary

Inspection on July 1, 1988 through August 15, 1988 (Report No. 50-346/88021(DRP))

Areas Inspected: Routine, unannounced inspection by resident inspectors of licensee action on previous inspection findings; operational safety; maintenance; surveillance; licensee event reports; licensee events; independent safety engineering, engineering and quality assurance.

Results: No violations or deviations were identified.

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DETAILS

1. Persons Contacted

a. Toledo Edison Company (TED)

D. Shelton, Vice President, Nuclear
*L. Storz, Plant Manager
*N. Bonner, Assistant Plant Manager, Maintenance
R. Flood, Assistant Plant Manager, Operations
E. Salowitz, General Superintendent Outage and Program Management
*L. Ramsett, Quality Assurance Director
*S. Jain, Independent Safety Engineering Director
G. Grime, Industrial Security Director
J. Scott-Wasilk, Nuclear Health & Safety Director
P. Hildebrandt, Engineering General Director
J. Wood, Systems Engineering Director
W. Johnson, Primary Systems Manager
*D. Timms, Electrical/Control Systems Manager
V. Watson, Design Engineering Director
*J. Kasper, Operations Superintendent
*G. Honma, Compliance Supervisor
R. Schrauder, Nuclear Licensing Manager
D. Erickson, Radiological Control Superintendent
T. Haberland, Electrical Superintendent
*L. Farnsworth, Instrumentation and Control Superintendent
*C. Daft, Technical Planning Superintendent
J. Moyers, Quality Verification Manager
S. Zunk, Nuclear Group Ombudsman
D. Harris, Manager Quality Systems
*J. Sturdavant, Licensing Principal
C. Bramson, Document Systems Manager
G. Skeel, Nuclear Security Operations Manager
L. Wade, Quality Control Supervisor
L. Worley, Configuration Process Manager
*J. Syrowski, Nuclear Training Director (Acting)
E. Caba, Station Performance Supervisor
D. Haiman, Engineering Programs Director

b. U.S. NRC

*P. Byron, Senior Resident Inspector
*D. Kosloff, Resident Inspector
L. Bell, Reactor Inspector
P. Prescott, Reactor Inspector
L. Valenti, EG&G

*Denotes those personnel attending the August 16, 1988, exit meeting.

2. Licensee Action on Previous Inspection Findings (92701)

- a. (Closed) Open Item (346/86032-03(DRP)): Internal inspection of Auxiliary Feedwater System motor operated valves AF 599 and AF 608. During MOVATS testing of these valves in 1986, the licensee found higher than expected thrust measurements when closing the valves. At that time the torque switch setting was adjusted and the valve was retested to assure operability. The licensee also decided to open and inspect the valves during the 1988 refueling outage. The purpose of the inspection was to determine if degradation of valve internals had caused the high thrust measurements. The inspectors reviewed licensee letter Serial No. 1-813, of August 8, 1988, "NRC Open Item 86-32-03: Inspection of Material Condition of Auxiliary Feedwater (AFW) Valves AF 599 and AF 608." The letter states that the licensee will not open and inspect the valves but they will replace the valves with valves of a different design during the next refueling outage. The licensee stated that this decision had been made because evaluation of the MOVATS test data indicates that the high thrust measurements were due to the design of the valve, not material degradation. This item is closed.
- b. (Closed) Open Item (346/88010-03(DRP)): Weakness in work control related to the rotating machinery balancing program. The inspectors reviewed maintenance procedure MP 1702.24.00 (DB-MM-09150), "Auxiliary Feed Pump Turbine Maintenance," as modified by temporary approval change TA-88-2030, and maintenance work order 3-88-2391-01. The inspectors noted that the licensee revised the procedure to include required Auxiliary Feedwater Pump Turbine (AFPT) rotor balancing criteria and maximum depth criteria for metal removal from the AFPT wheel rim. The licensee had also included additional quality control (QC) hold points for dye penetrant testing on critical welds and areas where metal had been removed to achieve the balancing criteria. The inspectors also noted that the licensee had revised MWO 3-88-2391-01 to include specific references to MP No. 1702.24.00 for the work to be performed. The inspectors then observed the licensee performing the final rotor AFPT wheel balancing activity. Representatives from the turbine and IRD balancing equipment vendors, as well as various licensee engineering, maintenance, and QC departments were also present to assure that the balancing activities were being performed in a controlled manner utilizing all of the required procedures and documentation. This item is closed.

No violations or deviations were identified in this area.

3. Operational Safety Verification (71707)

The inspectors observed control room operations, reviewed applicable logs and conducted discussions with control room operators during the months of July and August. During the entire inspection period, the reactor was

shutdown with all fuel off loaded to the spent fuel pool and most Technical Specification Limiting Conditions for Operation (LCO) were not applicable. However, the licensee maintained major safety systems in a condition that could satisfy LCO's during refueling (Mode 6) and cold shutdown (Mode 5). The inspectors verified the operability of selected emergency systems, reviewed tagout records and verified proper return to service of affected components.

Tours of the auxiliary, reactor, turbine, water treatment and service water buildings 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 and cleanliness conditions and verified implementation of radiation protection controls. During the months of July and August, the inspectors walked down the accessible portions of the Service Water, Emergency Diesel Generator, Essential 120 Volt AC, Essential 4160 Volt AC, Essential 480 Volt AC, Essential 125 Volt DC, and Component Cooling Water Systems to verify operability.

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.

No violations or deviations were identified in this area.

4. Monthly Maintenance Observation (62703)

Station maintenance activities of safety related systems and components listed below were observed or 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 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 was assigned to safety related equipment maintenance which may affect system performance.

The following maintenance activities were observed or reviewed:

- Reassembly of overspeed trip mechanism for the #2 Auxiliary Feedwater Pump Turbine.
- Low voltage circuit checks of modifications (FCR 87-1107) to the Steam and Feedwater Line Rupture Control System.
- Low voltage circuit checks of modifications (FCR 86-0330) to the Auxiliary Feedwater (AFW) System.
- Motor load test of containment isolation valve DR 2012A, containment vessel normal sump drain valve.
- Low voltage circuit checks of containment isolation valve DR 2012A.
- Instrument lead termination for control logic for AFW system modifications (FCR 86-0330).
- Modification of motor operated valves AF 3870, AF 3872 and MS 611.
- Calibration of Station Vent Stack Radioactivity Monitor RE 4598 BB.

No violations or deviations were identified in this area.

5. Monthly Surveillance Observation (E1726)

The inspectors observed technical specifications required surveillance testing on the DC electrical system, DB-ME-3000, "Station Battery and Charger Weekly Surveillance," 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 inspectors also witnessed or reviewed portions of the following test activities:

- DB-ME-03001, Station Batteries Quarterly Surveillance
- DB-ME-03002, Station Battery Service and Performance Discharge Test
- DB-MI-03503, Seismic Monitoring Channel Calibration. On July 21, 1988, while reviewing a maintenance work order (MWO), a previously licensed SRO found that this surveillance test had been recorded as complete and scheduled for its next regular performance in 1989. However, the surveillance had not actually been completed and was

required to be completed by August 9, 1988. The licensee documented this occurrence on PCAQR 88-0563. Procedure DP-PN-00007, "Control of Work," requires that an SRO review all MWO's that affect plant equipment. This review is in addition to the shift supervisor's review prior to work authorization. The identified problem related to this surveillance test demonstrated the value of this preliminary SRO review.

- DB-SC-03071, Emergency Diesel Generator 2 Monthly Test
- DB-SC-10073, Safety Features Actuation System Block Switch Verification Test
- DB-PF-10036, Makeup System Enhanced Feed and Bleed Modification Flush
- DB-PF-10076, Makeup Feed and Bleed Hydrostatic Tests
- DB-PF-10084, Control Rod Drive Direction Error Test
- DB-PF-10086, F7 Substation Annunciator Test

No violations or deviations were identified in this area.

6. Licensee Event Reports Followup (92700)

The following LER's were reviewed during the inspection period but could not be closed.

(Open) LER 88-014: Roving fire watch exceeding hourly patrol time limit. This event is being evaluated by Region III fire protection specialists in conjunction with other fire protection issues.

(Open) LER 88-015: Loose part discovered in the reactor vessel. This event is being evaluated by Region III specialists in conjunction with the licensee's ongoing investigations and corrective actions.

7. Onsite Followup of Events (62702), (82201), (82206) and (93702)

During the inspection period, the licensee experienced several events, one required prompt notification of the NRC pursuant to 10 CFR 50.72. The inspectors pursued the events onsite with licensee personnel. 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:

- July 1, 1988: At 10:30 a.m. EDT, while performing a video inspection of the reactor vessel, the licensee discovered debris in the reactor vessel. Two of the items discovered were later determined to be fragments of the thermal sleeve for the high pressure injection nozzle attached to the Reactor Coolant System "cold leg" piping. This nozzle is located downstream from valve HP 59. More debris were found in followup inspections. The licensee documented this event with Potential Condition Adverse to Quality Report (PCAQR) 88-0496 and LER 88-015. NRC Inspection Report 346/8809 will include details of inspection activities performed related to this event. NRC Inspection Report 346/8815 included a violation related, in part, to this event.

- July 3, 1988: At 12:35 p.m. EDT, while performing a monthly Emergency Diesel Generator (EDG) surveillance test on #2 EDG, licensee personnel shut down the EDG when lubrication oil was observed spraying from the front of the engine. The operator immediately stopped the engine but not before approximately 300 gallons of lubrication oil had been pumped out, rendering the EDG inoperable. Investigation by the licensee revealed that an improperly installed Swagelok tubing fitting caused the stainless steel oil tubing to fracture. Additional inspection revealed a second Swagelok fitting which had been marginally installed. The licensee replaced both fittings and the associate tubing. On July 13, 1988, the licensee discovered an improperly installed Swagelok fitting on EDG No. 1 at the same location as the failed oil line on EDG No. 2 (PCAQR88-0518). Subsequent inspection revealed that on EDG No. 2 there was no damage to the associate tubing in the area of the fitting.

The lubrication oil lines were added during this outage as a modification (FCR 81-0062) to the EDG lubrication oil system. The licensee documented this event with PCAQR 88-0497. The inspectors are reviewing the post modification test to determine if extended testing would have revealed the adverse effects of the improperly installed Swagelok fitting. This is an Unresolved Item (346/88021-01(DRP)).

- July 19, 1988: At 1:03 p.m. EDT, the #2 EDG started automatically due to a loss of offsite power to the B electrical bus. The licensee determined that the event was caused by vibration-induced spurious actuation of protective relays in control room panel C5750. The vibration was caused by modifications being made to panel C5750. The control room operators were aware of the work being done to the panel and the possibility that the protective relays might be activated. It was expected that if the relays actuated, the electrical supply to the B bus would have been automatically transferred to the No. 1 Startup Transformer and offsite power to the B bus would not have been lost. However, the lockout (86) Relays failed to seal, which resulted in the B-Bus not transferring to No. 1 Start-up Transformer, causing No. 2 EDG to start automatically and supply power to the B bus. The licensee issued PCAQR 88-0555 to

document the event. The inspectors questioned the licensee about the reportability of the event as an automatic actuation of Engineer Safety Features equipment. Section 6, "Engineered Safety Features" of the Updated Safety Analysis Report (USAR) does not list the EDG as ESF equipment, thus making the event not reportable. The inspectors considered the EDG to be ESF equipment and have asked NRR to determine the categorization of the EDG.

This is an Open Item (346/88021-02(DRP)) pending NRR response.

- July 25, 1988: Licensee maintenance personnel installed jumpers in preparation for a calibration to be performed in accordance with procedure IC 2005.15, "Process Radiation Monitor HRH Calibration." Installation of the jumpers rendered Station Vent Stack Radioactivity Monitor RE 4598 BA inoperable. The shift supervisor was not informed, at that time, that RE 4598 BA was inoperable and did not become aware that RE 4598 BA was inoperable until 1:12 p.m. EDT on August 8, 1988. At 9:00 a.m. on August 2, 1988, during the period that RE 4598 BA was inoperable, RE 4598 AA failed. At this time both channels of radioactive gaseous effluent monitoring instrumentation were inoperable and remained so until 3:27 p.m. EDT on August 8, 1988, when RE 4598 AA was restored to operability. It appears that the plant was in violation of technical specification limiting condition for operation 3.3.3.10 whenever radioactive gas releases were made between August 2 and August 8, 1988. The licensee documented this event with PCAQR's 88-0618 and 88-0621. This is an Unresolved Item (346/88021-03(DRP)) pending the inspectors' review of the licensee's evaluation and corrective action.
- August 14, 1988: At 4:05 p.m. EDT, while performing a surveillance test, licensee personnel shut down the # 1 Emergency Diesel Generator (EDG) due to anomalies in local electrical instrument indications. EDG instrumentation in the control room had normal indications and the EDG appeared to be operating normally. The average room temperature at the time was about 117° degrees F and the temperature at several locations in the #1 EDG room exceeded 120° degrees F. The EDG operator was concerned that the instrument anomalies might have been due to the high room temperature. Section 9.4.2.1.2.3. of the USAR states that "The ventilation systems are sized to provide adequate outside air cooling to maintain each operating diesel generator's room at 120° degrees F assuming 95° degree F outside air." During the test, outside air temperature varied between 90° degrees F and 96.6° degrees F. The licensee determined that the indication anomalies were due to vibration and dirty switch contacts and were not caused by the high room temperatures. The licensee documented the event with Potential Condition Adverse to Quality Report 88-0639. The licensee is reviewing equipment and instrument records to determine what the maximum operating temperatures are for equipment in the EDG rooms.

No other violations or deviations were identified in this area.

8. Independent Safety Engineering (ISE) (42700)

The licensee recently revised Nuclear Group Procedure, NG-IM-00115, "Preparation and Control Of Nuclear Group Division and Department Procedures," and issued Revision 3 on May 9, 1988. NG-IM-00115 was revised to implement the changes made by Amendment No. 109 to the technical specifications. The procedure requires that individuals performing cross-disciplinary reviews of procedures be qualified reviewers in accordance with procedure NG-VP-00132, "Qualified Reviewer Program," dated May 9, 1988. ISE reviewed a random sample of thirty station procedures or procedure changes approved in May, June, and July, 1988. The ISE identified at least ten instances in which concurrences for the Cross-Disciplinary Review were signed by individuals who were not qualified reviewers. The ISE documented this condition with PCAQR 88-0620. This is an Unresolved Item (346/88021-04(DRP)) pending the inspectors' review of the licensee's corrective action.

No violations or deviations were identified in this area.

9. Quality Assurance (42700)

The licensee was informed by a Region III inspector of allegations relating to the adequacy of quality control procedures and a resultant lack of procedure adherence. The Region III inspector informed the licensee that it appeared, based on his inspection, that there was a generic problem with the adequacy of procedures. The licensee did not consider the problem to be generic.

The resident inspectors spent considerable time discussing this issue with licensee Quality Assurance management. The inspectors suggested to the licensee that an audit be performed on site procedures for adequacy and adherence. It was also suggested that the sample include both old and new procedures for all divisions, which would enable the licensee to determine if a problem actually existed and its extent. The licensee had determined, through its normal audit program, that procedural problems, including a lack of compliance, are increasing. The inspectors discussed with the licensee the value of performing a root cause analysis as a parallel effort. At the end of the discussions, the inspectors believed that the licensee would perform both actions. The inspectors will continue to follow this issue.

No violations or deviations were identified in this area.

10. Engineering (71707)

Technical Specification 4.3.2.3 requires the licensee to perform a monthly channel functional test on the Anticipatory Reactor Trip System (ARTS) instrumentation. This surveillance is performed by sequentially depressing an "input test" and "test" pushbutton for each channel. The test method for the system, as designed, was intended to demonstrate the

operability of one of three actuation logic "and" gates in the channel being tested. The licensee determined that the as-built condition is not as designed and the monthly surveillance tests (DB-M1-3002.01/.02/.03/.04) do not demonstrate that ARTS is operable. This determination was documented in PCAQR 88-0569 on July 26, 1988. ARTS was demonstrated operable by performing a special test, TP 850.83 "ARTS Logic Verification and Pressure Switch Calibration-Refueling," on February 21, 1986.

The licensee is evaluating the problem and the possibility that the SFAS may have a similar condition. This is an Unresolved Item (346/88021-05(DRP)) pending the inspectors' review of the licensee's evaluation and corrective action.

The licensee discovered, during a review of electrical raceways for the auxiliary feedwater (AFW) system, that several raceways were installed in locations significantly different than shown on the raceway drawings. The raceway drawings are used for hazards analyses. The review revealed that the electrical raceways for the main steam isolation valves for both AFW trains pass through the same fire area (DH) which is contrary to the drawings. In addition, the same raceways are located in the main steam line area which is subject to high energy line breaks ((HELB).

The raceway for AFW train 1 is shown on the drawings to be in an area that is not subject to hazards associated with an HELB. Therefore, the cable in the raceway was not analyzed for the effects of an HELB environment. The licensee documented this condition with PCAQR 88-0536.

Region III was informed of this condition. This is an Unresolved Item (346/88021-06(DRS)) pending review by Region III of the licensee's evaluation and corrective actions.

11. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, violations, or deviations. Unresolved item disclosed during the inspection are discussed in Paragraphs 7, 8 and 9.

12. Open Items

Open items are matters which have been discussed with the licensee, which will be reviewed further by the inspectors, and which involve some action on the part of NRC or licensee or both. An open item disclosed during the inspection is discussed in Paragraph 7.

13. Exit Interview (30703)

The inspectors met with licensee representatives (denoted in Paragraph 1) throughout the inspection period and at the conclusion of the inspection and summarized the scope and findings of the inspection activities. The licensee acknowledged the findings. After discussions with the licensee, the inspectors have determined there is no proprietary data contained in this inspection report.