U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-346/92008(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 Nuclear Power Station

Inspection At: Oak Harbor, Ohio

Inspection Conducted: May 19, 1992, through June 22, 1992

Inspectors: W. Levis
R. K. Walton

Approved By: _____ 6-26-92
I. N. Jackiw, Chief Date
Reactor Projects Section 3A

Inspection Summary

Inspection on May 19, 1992, through June 22, 1992
(Report No. 50-346/92008(DRP))
Areas Inspected: A routine safety inspection by resident inspectors of licensee actions on previous inspection findings, licensee event reports followup, plant operations, followup of events, actions with respect to Information Notice 92-30, radiological controls, maintenance/surveillance, emergency preparedness, security, engineering and technical support, and safety assessment/quality verification was performed.

Plant Operations: Power was reduced to approximately 50 percent on May 23, 1992, to clean condenser water boxes and plug leaking condenser tubes. Power was increased to 100 percent on May 25, 1992, and remained at full power throughout the remainder of the period. The plant experienced a transient on June 15, 1992, when an Integrated Control System (ICS) component failed. Operator response to the transient was good (paragraph 4).

Radiological Controls: Emergency Core Cooling System (ECCS) room No. 2 is being repainted in continuing effort to improve housekeeping in the auxiliary building (paragraph 4).

Maintenance/Surveillance: A review of six maintenance activities and eight surveillance activities showed no discrepancies (paragraph 6).

Engineering/Technical Support: Engineering support of failed ICS component was good. The Data Acquisition and Analysis System (DAAS) allowed the engineering staff to find what was an intermittent failure. The No. 2 emergency diesel generator experienced a failure to start due to a failed pressure switch (paragraph 9).

Safety Assessment/Quality Verification: The licensee is planning to make personnel changes in the maintenance and planning department. The licensee's response to Information Notice 92-30, (Falsification of Plant Records), showed appropriate sensitivity to the issue. A review of security records showed that equipment operators took required log readings, but the tours lacked thoroughness (paragraph 10).

DETAILS

1. Persons Contacted

a. Toledo Edison Company

D. Shelton, Vice President, Nuclear
*G. Gibbs, Director, Quality Assurance
*L. Storz, Plant Manager
J. M. Heffley, Manager, Maintenance
M. Bezilla, Superintendent, Plant Operations
*E. Salowitz, Director, Planning and Support
S. Jain, Director, DB Engineering
*R. Zyduck, Manager, Nuclear Engineering
G. Grime, Manager, Industrial Security
*D. Timms, Manager, Systems Engineering
*J. Polyak, Manager, Radiological Control
R. Coad, Supervisor, Radiological Protection
*J. Lash, Manager, Independent Safety Engineering
*G. Honma, Supervisor, Compliance
B. DeMaison, Manager, Emergency Preparedness
J. Wood, Operations Administration
R. W. Schrauder, Manager, Nuclear Licensing
T. J. Myers, Director, Technical Services
N. Peterson, Engineer, Licensing
*E. Caba, Manager, Performance Engineering
G. Skeel, Gen. Supervisor, Nuclear Sec. Operations
J. W. Rogers, Superintendent, I&C Maintenance
L. W. Worley, Manager, Quality Assurance
C. S. Bramson, Manager, Nuclear Plant Serv.
A. V. Antrassian, Engineer-Licensing
J. Basa, Emergency Planner
*J. Dillich, Superintendent, Operations
*N. Bonner, Manager, Design
*K. Filar, Engineer, Licensing
*S. A. Byrne, Superintendent, Electrical Maint.

b. USNRC

*W. Levis, Senior Resident Inspector
*R. K. Walton, Resident Inspector

*Denotes those personnel attending the June 23, 1992, exit meeting.

2. Licensee Action on Previous Inspection Findings (71707)

(Closed) Unresolved Item (346/89016-04) Makeup pump failed to start due to loose control power fuses. The inspectors reviewed the circumstances and supporting documentation concerning the starting failure of No. 2 Makeup pump on June 9, 1989. The inspectors concluded that there was no firm evidence that the pump was inoperable from May 30, 1989 to

June 9, 1989, since there were other alarm inputs which could have caused the computer alarm Q419 to be in alarm, yet not have caused the pump to be inoperable. The inspectors also could not find any evidence of maintenance performed in the May 30, 1989 time that could have caused the fuse holder to become loosened. The inspectors' review showed that inadequate response to a computer alarm by the operations staff contributed to this situation. As described in the licensee's response to Violation 346/92002-02, the licensee's operations staff has heightened their awareness of the importance of computer alarms and is taking steps to reduce the nonessential alarms that presently occupy the screen. The inspectors have noted through direct observation, that the licensee's efforts in this area have improved response to computer alarms. This item is closed.

(Closed) Violation (346/92002-01): Failure to perform Surveillance Requirement (SR) 4.6.1.3.A. Inspection of this item was performed during closeout of LER 91-009 as documented in Inspection Report 92005. This item is closed.

3. Licensee Event Reports Followup (92701)

Through direct observation, discussions with licensee personnel, and review of records, the following licensee event reports (LERs) were reviewed to determine that reportability requirements were fulfilled and that immediate corrective actions to prevent recurrence were accomplished in accordance with Technical Specifications (TS).

(CLOSED) LER 92001, Entry Into TS 3.0.3. Due to Inoperable Containment Hydrogen Analyzers. This event was described in Inspection Report 346/92002. The inspectors will track the licensees corrective actions through Violation 346/92002-02(DRP). This item is closed.

(OPEN) LER 92002, Revision 1, Reactor Trip from 40 percent Power Due to Main Turbine Trip. This revision and LER will be reviewed by the inspectors in a future inspection report.

(CLOSED) LER 92004 and Revision 1, Voluntary Report of HELB Analysis Error. This item was discussed in Inspection Report 346/92005(DRP) and will be followed as an unresolved item (346/92005-02).

No other violations or deviations were identified.

4. Plant Operations (71707, 93702)

a. Operational Safety Verification

Inspections were routinely performed to ensure that the licensee conducts activities at the facility safely and in conformance with regulatory requirements. The inspections focused on the implementation and overall effectiveness of the licensee's control of operating activities, and on the performance of licensed and non-licensed operators and shift managers. The inspections

included direct observation of activities, tours of the facility, interviews and discussions with licensee personnel, independent verification of safety system status and limiting conditions of operation (LCO), and reviews of facility procedures, records, and reports.

On June 15, 1992, the licensee prepared to replace a fuseholder in the Reactor Protective System (RPS) by opening a reactor trip breaker and placing the control rods in manual. This minimized control rod movements while the plant remained at full power. At 9:52 a.m., control room operators received annunciator alarms indicating that feedwater flow was increasing quickly. The operators alertly noted the unexpected increase in feedwater flow and took both feedwater flow demands to manual and lowered the feedwater flow rate. Reactor power increased to approximately 102.8 percent (auctioneered highest nuclear instrumented level) until power was reduced by reducing feedwater flow. The high flux RPS trip setpoint is set at 104.8 percent which is below the Technical Specification high flux trip setpoint of 104.94 percent.

The cause of the increased feedwater flow, which caused power to increase, was due to a failed calibrating-integral-memory-module in the megawatt-generating circuit portion of the ICS. This module, which is normally bypassed when the ICS is in automatic mode, was activated when the control rods were placed in manual. The circuit functioned properly for about one hour before failing high. By failing high, the circuit generated an artificial demand signal which caused an increase in feedwater flow and would also have caused rods to have been withdrawn except that the control rods were selected to manual and could not have moved from the ICS demanded signal. The failed module was replaced and the ICS was returned to full automatic operations on June 16, 1992. The licensee has not had memory module failures in the past.

During troubleshooting of the affected module, the systems engineer noted that the calibration procedure did not fully check the functions of the module. Specifically, voltage and time parameters were calibrated, but the memory module was never checked to verify that it could remember its previous value. Additionally, calibration of the memory circuit without the calibrating integral did not yield consistent results. The licensee is evaluating a change to the calibration sheets to more efficiently test this and similar ICS circuits in the future.

The inspectors note that the operators detection, assessment, and corrective actions to this unexpected ICS event were good. Systems engineering responded quickly to the operators concerns and with the use of the DAAS was able to identify the probable cause of failure shortly after the event occurred. The inspectors believe that without the DAAS, the cause of this component failure would have been difficult to find and could not have been repaired in a timely manner. Data collected from this event is being

analyzed by Performance Engineering and will be utilized as an input to the simulator in an attempt to recreate the event.

b. Off-Shift Inspection of Control Rooms

The inspectors performed routine inspections of the control room during offshift periods. The inspections were conducted to assess overall crew performance and, specifically, control room operator attentiveness during night shifts. The inspectors determined that both licensed and non-licensed operators were alert and attentive to their duties, and that the administrative controls relating to the conduct of operations were being adhered to.

c. Plant Material Conditions/Housekeeping

The inspectors performed routine plant tours to assess material conditions within the plant, ongoing quality activities and plant-wide housekeeping. Housekeeping was generally good. During tours of the auxiliary building, the inspectors noted that housekeeping has improved. There has been a continuing effort by radiological controls personnel to reduce contaminated areas. Maintenance personnel generally leave their areas in a neat and orderly fashion.

No violations or no deviations were identified.

5. Radiological Controls (71707)

The licensee's radiological controls and practices were routinely observed by the inspectors during plant tours and during the inspection of selected work activities. The inspection included direct observations of health physics (HP) activities relating to radiological surveys and monitoring, maintenance of radiological control signs and barriers, contamination, and radioactive waste controls. The inspection also included a routine review of the licensee's radiological and water chemistry control records and reports.

The inspectors note that fewer temporary drain hoses were found throughout the facility. These hoses are used in the turbine building and the auxiliary building to direct system leakage to drain collecting systems. The licensee plans to establish a method to account for and evaluate the use of such hoses in an attempt to control their use.

The inspectors witnessed the transportation and disposal of the purification inlet demineralizer filter into a high integrity container. The inspectors observed good coordination by radiological controls personnel to minimize personnel exposure.

Health physics controls and practices were satisfactory.

No violations or deviations were identified.

6. Maintenance/Surveillance (61726, 62703)

Selected portions of plant surveillance, test and maintenance activities on systems and components important to safety were observed or reviewed to ascertain that the activities were performed in accordance with approved procedures, regulatory guides, industry codes and standards, and the Technical Specifications. The following items were considered during these inspections: limiting conditions for operation were met while components or systems were removed from service; approvals were obtained prior to initiating work; activities were accomplished using approved procedures and were inspected as applicable; functional testing or calibration was performed prior to returning the components or systems to service; parts and materials used were properly certified; and appropriate fire prevention, radiological, and housekeeping conditions were maintained.

On March 3, 1992, the C reactor trip breaker opened unexpectedly. It was determined that the breaker opened due to a loss of voltage between the RPS and the trip breaker. The licensee determined that the cause of this event was a faulty fuse holder and plans to replace these fuse holders in all the RPS circuits. The inspectors witnessed a fuse holder replacement during performance of DB-MI-03012. With reactor trip breaker A opened, for the surveillance test, the licensee replaced the fuse holder. The RPS channel 2 was not considered inoperable during this maintenance activity since the trip breaker was open. Technical Specifications allow removing one of four RPS channels for maintenance provided the associated RPS channel is tripped.

a. Maintenance

The reviewed maintenance activities included:

- Auxiliary Feedwater Train 1 pump and turbine oil change
- Component Cooling Water Temperature Switch calibration
- Calibration of Turbine Bypass Valves SP13A-1 and SP13B-3 per DB-MI-05278.
- Troubleshoot Reactor Coolant Wide Range Temperature Detector
- Replace Fuseholder in Reactor Protective Channel 2
- Troubleshoot Integrated Control System Circuit Card

b. Surveillance

The reviewed surveillances included:

Procedure No.	Activity
DB-FP-04043	AC Transformer Deluge Test

DB-MI-03012	Reactor Protective System Channel 2 Functional Test of Reactor Trip Module and Trip Breaker A.
DB-MI-03294	Channel Functional Test Steam Feed Rupture Control System, Main Steam/Feedwater Differential Pressure Instruments.
DB-SC-03070	Emergency Diesel Generator (EDG) No. 1 Monthly Test
DB-SC-03071	EDG No. 2 Monthly Test
DB-SP-03159	Auxiliary Feedwater Pump No. 2 Monthly Jog Test
DB-SP-03219	HPI Pump 2 Quarterly Pump & Valve Test
DB-SS-03091	MDFP Quarterly Test

No violations or deviations were identified.

7. Emergency Preparedness (71707)

An inspection of emergency preparedness activities was performed to assess the licensee's implementation of the emergency plan and implementing procedures. The inspection included monthly observation of emergency facilities and equipment, interviews with licensee staff, and a review of selected emergency implementing procedures.

No violations or deviations were identified.

8. Security (71707)

The licensee's security activities were observed by the inspectors during routine facility tours and during the inspectors' site arrivals and departures. Observations included the security personnel's performance associated with access control, security checks, and surveillance activities, and focused on the adequacy of security staffing, the security response (compensatory measures), and the security staff's attentiveness and thoroughness. Security personnel were observed to be alert at their posts. Appropriate compensatory measures were established in a timely manner. Vehicles entering the protected area were thoroughly searched.

No violations or deviations were identified.

9. Engineering and Technical Support (62703, 71707)

An inspection of engineering and technical support activities was performed to assess the adequacy of support functions associated with maintenance/modifications, operations, surveillance and testing activities. The inspection focused on routine engineering involvement in plant operations and response to plant problems. The inspection

included direct observation of engineering support activities and discussions with engineering, operations, and maintenance personnel.

After completion of maintenance on No. 2 EDG on May 19, 1992, the No. 2 EDG was started for a post maintenance test. The No. 2 EDG was successfully started from its idle condition. The second test, a 10 second fast start with air supplied from the DA 45 side, was unsuccessful since the machine failed to reach 900 rpm in the allotted time. A second fast start was attempted and it too failed. The licensee determined that the air start solenoids, which provide pressurized air to the air start motors to start the engine, did not energize. The failure of a pressure actuated switch in the No. 2 EDG jacket water cooling system prevented the machine from completing its starting sequence which inhibited the solenoids from opening. The pressure switch was replaced and the machine was started successfully on May 20, 1992.

The failed pressure switch will be analyzed by the licensee to determine the reason for its failure. The licensee replaces this pressure switch with a calibrated switch every 18-months. A review of the EDG technical manual revealed that there was no time limit required for the calibration of the switch. The switch failure was unknown to the operators since it was not annunciated by circuitry. The licensee is evaluating what corrective actions should be taken to determine the status of the EDG start circuitry. Further details can be found in inspection report 346/92007(DRS).

No violations or deviations were identified.

10. Safety Assessment/Quality Verification (35702)

An inspection of the licensee's quality programs was performed to assess the implementation and effectiveness of programs associated with management control, verification, and oversight activities. The inspectors considered areas indicative of overall management involvement in quality matters, self-improvement programs, response to regulatory and industry initiatives, the frequency of management plant tours and control room observations, and management personnel's participation in technical and planning meetings. The inspectors reviewed Potential Condition Adverse to Quality Reports (PCAQR), Station Review Board (SRB) and Company Nuclear Review Board (CNRB) meeting minutes, event critiques, and related documents; focusing on the licensee's root cause determinations and corrective actions. The inspection also included a review of quality records and selected quality assurance audit and surveillance activities.

The inspectors reviewed the licensee's response to Information Notice 92-30, Falsification of Plant Records. The licensee has stressed the importance of individual integrity to its employees by such methods as a message from the site Vice President to all employees through the site news publication, dissemination of the Information Notice to all managers and supervisors onsite, use of the required reading book for

related industry events for operations personnel, and other planned divisional meetings to discuss the issue. The operations organization also performed an internal review of operators logs, reading sheets, and security records to ensure that operations personnel were performing the required log readings. The licensee examined records for 5 different rooms and 270 specific room entries and concluded that all rooms required to be entered had been entered. The licensee's response to this notice was good and demonstrated appropriate sensitivity to the issue.

The inspectors reviewed records of each of the 6 shifts for 3 different days and 9 different rooms to independently verify that personnel were in the required spaces. In addition, the inspectors reviewed operating logs to determine what readings were required and accompanied an operator on his rounds to verify the appropriate time that it should take to record the data. Based on this review, the inspectors determined that the required readings were taken. Security records showed that for the personnel checked, the required spaces had been entered. However, the inspectors noted that the time spent in these areas was minimal. The duration appeared sufficient to take the required readings, but left in question the general area inspection described in Section 6.7 and 6.8 of DB-OP-00005, Operators Logs and Reading Sheets, Revision 2. These sections of the procedure describe general area checks, equipment checks, and safety observations that should be made during operator rounds. The inspectors discussed these observations with the licensee who acknowledged the comments. The inspectors will follow-up in this area with Inspection Follow-up Item 346/92008-01, quality of equipment operators rounds.

The licensee announced that the maintenance manager will resign in mid-July. His position will be filled by Joe Rodgers who is presently the Superintendent-Instrument and Controls. Mr. Rodgers has been at Davis-Besse since March of 1982, and has held various positions in operations, engineering, and maintenance departments. Mr. Rodgers has had a SRO license from March of 1989.

Seven personnel will be reassigned in the maintenance and planning department to provide for professional development opportunities.

No violations or deviations were identified.

11. Exit Interview (30702)

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.