

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

REGION III

Report No. 50-346/77-23

Docket No. 50-346 License No. CPPR-80

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

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

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

Inspection Conducted: June 20-21 and 27-28, 1977

Inspectors: *AW Hayes*
C. C. Williams

7/28/77

J. E. Kohler

D. W. Hayes (June 20-21, 1977, only)

Approved by: *AW Hayes*
D. W. Hayes, Chief
Projects Section

7/28/77

Inspection Summary

Inspection on June 20-21 and 27-28, 1977 (Report No. 50-346/77-23)

Areas Inspected: (1) corrective actions identified on Immediate Action Letter dated May 31, 1977, relative to penetration and blockout sealing in the plant; (2) status of the emergency ventilation system turn-over package; (3) emergency ventilation system (EVS) specification change; (4) EVS instrument change; (5) control room ventilation test; (5) configuration (status of seals) of negative pressure boundary; and (6) installation of the redundant oxygen monitor. This inspection involved a total of 66 inspector-hours onsite by 3 inspectors.

Results: No items of noncompliance, deviations, nor unresolved matters were identified. It was determined that all of the necessary QA/QC procedures and instructions needed to effect the corrective actions identified in the Immediate Action Letter (IAL) have been documented and approved. However, during the first two days of this inspection, June 20-21, 1977, the NRC inspectors determined that a number of the penetrations remained to be completed, inspected, and accepted by the site QA/QC organizations and the inspection was terminated. The inspection was continued on June 27-28, 1977. At this time, it was found that all of the subject penetrations and blockouts relative to the negative pressure boundary were completed or adequately controlled. Each item of the IAL (May 31, 1977) was confirmed to have been successfully implemented.

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20/7/77

DETAILS

Section I

Prepared by C. C. Williams

Persons Contacted

Principal Licensee Employees

- *L. E. Roe, Vice President
- *J. D. Lenardson, Quality Assurance Manager
- *R. E. Blanchong, Construction Supervisor
- *G. E. Eichenauer, Quality Assurance Engineer
- *J. Evans, Station Supervisor
- *J. Buck, Quality Control Engineer
- *E. R. Michaud, Test Manager
- *D. A. Poage, Quality Assurance Engineer

Other Personnel

- *C. L. Houston, Field Construction Manager (Bechtel)
- *W. C. Lowery, Quality Assurance Engineer (Bechtel)
- *J. D. Heaton, Quality Control Engineer (Bechtel)
- *C. D. Miller, Engineer (Bechtel)

*denotes those attending the exit interview (June 21 and 28, 1977).

The inspector also contacted and interviewed other licensee, Bechtel, and contractor employees, including members of the quality, technical, and engineering staff.

Licensee Action on Previous Inspection Findings

Nonconforming Blockout and Penetration Sealing Activity (50-316/77-22)

1. As a result of substantiated allegations relative to nonconforming blockout and penetration sealing activity, the licensee was issued an Immediate Action Letter on May 31, 1976, which documented the necessary corrective actions needed to resolve the identified deficiencies concerning the control of penetration sealing activities and the establishment of a conforming negative pressure boundary configuration.

During this inspection, the inspectors verified that each of the provisions of the subject Immediate Action Letter has been established and successfully implemented. This was accomplished through record review, observation of work, and examination of selected blockouts and penetrations within the negative pressure boundary. During the first two days of this inspection, (June 20-21, 1977) the inspectors determined, and the licensee's representative confirmed, that the required corrective actions for all of the subject penetrations were not complete and further inspection activities were discontinued. Subsequently, on June 27-28, 1977, it was determined that: (1) work on the remaining penetrations required for the Negative Pressure Boundary Test had been completed, (2) all of the stipulated requirements of the IAL had been met, and (3) that a conforming package of documentation had been released to and accepted by TECo plant management.

2. Inspection Activities

- a. The inspectors reviewed in detail the following documents and concluded that the corrective actions stipulated in the IAL had been implemented.
 - (1) Document titled "Closeout of Emergency Ventilation System Inspection Anomalies" (Field Inspection Manual No. G-8-Rev. 1).
 - (2) Document titled "Inspection of Emergency Ventilation System Anomalies."
 - (3) Document titled, "Startup Administrative Procedure No. 10-A", Rev. 1 (construction work permit procedure) Rev. 1, dated June 14, 1977.
 - (4) Document titled "Walkdown and Release of Negative Pressure Boundary," (Field Inspection Manual Procedure No. G-10 - startup administrative procedure i-A and 9-A) dated June 16, 1977, Rev. 1.
 - (a) Document titled "Negative Pressure Boundary Walk Down Check List."
 - (b) Document titled "Negative Pressure Boundary Interim Release Sheet."
 - (5) The inspectors reviewed the Negative Pressure Boundary Release package.

- b. The inspectors examined (observed and compared to design requirements) approximately 150 penetrations. These were found to conform to the requirements.
- c. In addition, all doors and floor drains within the EVS boundary were examined and found to meet the requirements.
- d. Each of the specific deficient penetrations identified by the allegor and those identified by the inspectors during the previous investigation were examined and found to meet the design requirements.
- e. The inspector confirmed that both TECo and Bechtel QA/QC organizations adequately participated in the reinspection and rework activities. Bechtel Engineering was noted to be appropriately involved in this rework activity.
- f. The inspector verified through review of documents, discussion and observation that the licensee's contractor personnel (BISCO) have been adequately instructed regarding their responsibilities relative to the control of process documentation and the installation of seals.
- g. The inspectors determined through review of documentation and examination of the as-built penetrations that the licensee has accounted for all significant previously undocumented repairs and modifications to plant penetrations and blockouts, (i.e., the "Smoke List" was complete).

3. Functional or Program Areas Inspected

No other items were inspected at this time.

4. Exit Interview

The inspectors reported that their review and examination of those corrective actions implemented pursuant to the requirements of RIII Immediate Action Letter dated May 31, 1971, is complete. The results of this inspection demonstrate that each of the noncompliance issues previously reported relative to the BISCO blockout and penetration sealant activity has been resolved.

The licensee acknowledged these remarks.

DETAILS

Section II

Prepared by Joel E. Kohler

Joel E. Kohler 7/28/77

Reviewed by W. S. Little

W. S. Little 7/28/77

1. Persons Contacted

*J. Evans, Station Superintendent
T. Thiesing, Bechtel Gaithersberg
C. Miller, Bechtel GPDE
B. Alton, Toledo Edison Technical Staff Engineer

*denotes those present at exit interview.

2. Emergency Ventilation System Status (EVS) (June 20-21, 1977)

As a result of an immediate action letter issued on May 31, 1977, an inspection was initiated on June 20-21, 1977, to determine whether items identified in the IAL had been cleared. During this inspection it was determined that sealing of EVS boundaries was still in progress in addition to the final QC inspections taking place. As a result of this activity, the inspectors determined that stipulations set forth in the letter had not been met, and that EVS testing for the record could not commence. The inspectors requested the licensee to notify the RIII office when IAL stipulations had been met so that another inspection could be scheduled. Final acceptance of the EVS preoperational test remains outstanding.

3. EVS Technical Specification Change

Preliminary EVS testing performed by the licensee to determine leak tightness of the boundary showed the technical specification 4.6.5.1.d.4 could not be met. This technical specification specified that $-.25$ inches wg differential pressure had to exist in the EVS boundary in no more than twelve seconds after signal start. The inspector was informed that a change to this technical specification had been applied for. The proposed technical specification states that the EVS system must be capable of achieving $-.25$ inches wg differential pressure within four seconds after the EVS fans have reached rated flow of $8000 \text{ cfm} \pm 10\%$, assuming that the EVS line up is made and other associated dampers are closed. In order to achieve the proposed technical specification conditions, the licensee stated that it would be necessary to wire the EVS discharge damper open and pull the circuit

breakers on the EVS recirculation damper to keep them closed. These actions would be necessary to complete the EVS line up at the time the EVS fans reach full rated flow.

The inspector reviewed the EVS system and questioned the licensee in an effort to determine how the above proposed technical specification change related to the actual conditions existing at the time EVS would be initiated. Under actual conditions, the EVS line up would not be made and circuit breakers and dampers would not be deactivated.

The licensee responded that the design basis accident analysis as stated in the SER supplement assumed a time period of 802 seconds following the loss of coolant accident to establish $-.25$ inches water gage. Thus, a twelve second time limit from SFAS initiation for EVS system operation (original technical specification requirement) was much more restrictive than that which was analysed in the SER. The licensee further stated that the EVS fan starting and damper positioning times were accounted for in the 802 second time envelope. These times were analysed in other portions of the preoperational test program. Thus after consideration, the EVS negative pressure test was modified to demonstrate only that the desired negative pressure was achievable within the 802 second time envelope. In order to demonstrate this, $-.25$ inch wg differential pressure had to be achieved within four seconds from the time the EVS fans reach full rated flow, assuming that the EVS line up was made. This necessitated wiring open the EVS discharge damper because it begins positioning itself when EVS fans are started. Also, the circuit breakers for the EVS recirculation damper had to be disabled so that the damper would not oscillate around the setpoint of $-.75$ inches wg.

4. EVS Instrumentation Change

The licensee has initiated a facility change relating to the EVS differential pressure instrumentation. Redundant instrumentation which reads out in a scale of zero to five inches water gage is planned to permanently replace the installed instrumentation which reads on a scale of zero to ten inches wg. The inspectors informed the licensee that this facility change would have to be approved before the EVS preoperational test for record, if this modification to the EVS system was used during the formal test.

5. Control Room Ventilation Test

The one eighth inch positive pressure test of the control room remains an open item pending the licensee's reinspection for the presence of temporary closure material.

DETAILS

Section III

Prepared By Joel E. Kohler

7/28/77

Reviewed By W. S. Little

7/28/77

i. Persons Contacted

- *J. Evans, Davis-Besse Station Superintendent
- B. Alton, Technical Staff Engineer
- *W. Lowery, Bechtel QA
- J. Heatons, Bechtel QC
- *J. Buck, Toledo Edison QC

*denotes those present at exit interview meeting

2. Emergency Ventilation System Status June 27-28, 1977

The inspection on June 20-21, 1977, was continued on June 27-28, 1977, to determine whether items identified in the immediate action letter of May 31, 1977, had been cleared. During this inspection, it was determined that the EVS boundary was complete and no deficiencies relative to operations issues existed that would preclude performance of the EVS negative pressure preoperational test for records. This determination was based on: (1) a walkdown of randomly selected portions of the EVS boundary and inspection of the as found sealed penetrations against final Bechtel released wall diagrams; (2) a review of the construction deficiency list which existed at the time the system was turned over to Toledo Edison Operations.

The outstanding construction deficiencies that existed at the time of EVS turnover consisted of wall drawings requiring updating, replacement of penetration sealing material with a material of a higher density for radiation protection purposes, and in one instance, removal of a temporary construction wire and repair of the penetration. The inspector determined that these deficiencies were itemized and controlled by Toledo Edison and would not preclude performance of the EVS test.

3. Floor Drains Within EVS Boundary

The licensee has identified ten floor drains within EVS boundary that require loop seals in order to maintain the required negative pressure during EVS testing. Because the loop seals have not been established during preoperational testing, flapper valves which seal off the drain and open under a pressure of approximately .35 inches of water have been fabricated and installed. However, during preoperational testing, Toledo Edison discovered that the flapper valves were being removed by craft personnel when draining of equipment within the EVS boundary was required. The valves were not being controlled and their installation was required for successful EVS testing.

To temporarily control these valves with the presence of large numbers of craft personnel, the valves were removed and controlled under lock and key. Just prior to EVS testing, the flapper valves were reinstalled and the drain areas were controlled under locked doors with guards posted in the general vicinity.

The inspector determined that the station had no mechanism to control the drains located in EVS regions from unauthorized removal of the flapper valves after the licensee had entered mode 4 of operation, when EVS operability is required. After considering several alternatives, the licensee issued a notice to all station personnel indicating the significance of the placement of the EVS flapper valves. The intent of the notice was to control the valves administratively.

After reviewing the notice, the inspector determined that the measures taken by the licensee would not control the valves from temporary craft personnel during the period of time when large numbers of construction personnel were present. The inspector stated that control of the flapper valves in EVS drains must be resolved before entry into mode 4, and would remain outstanding awaiting licensee action.

As of July 22, 1977, the licensee has taken positive action to control these valves. This item is considered closed.

4. EVS Doors

During walkdown of the EVS boundary, tape was found on the door latches of EVS boundary doors. The tape prohibited the door from latching. The tape was removed. At the management exit the inspector requested the licensee to develop a mechanism to ensure that the doors would be controlled to prohibit their unauthorized opening. The inspector stated that this item would be an outstanding

item to be resolved prior to entry into mode 4. As of July 22, 1977, the licensee has taken positive action to control these doors. This item is considered closed.

5. EVS Drawdown Test

The inspector witnessed the EVS negative pressure drawdown for train 1. The technical specification states that a negative differential pressure of -.25 inches water gage shall be achieved within four seconds after the EVS fan has reached full rated flow. The test witnessed by the inspector had the following results:

After four seconds from the start of EVS fan number one the area within the EVS boundary was -.33 inches negative differential pressure. This meets the Technical Specification requirements.

6. Mode 4 Operation

The licensee was instructed to notify the RIII office when all prerequisites for entry mode 4 were completed, including telephone notification of the following outstanding items:

- a. flapper valves
- b. doors
- c. SRE review of completed EVS test package

7. Redundant Oxygen Monitor

The inspector determined that the licensee has completed installation of a second oxygen monitor in the gaseous waste system.