# U. S. NUCLEAR REGULATORY COMMISSION

### REGION III

Report No. 50-346/93012(DRP)

Docket No. 50-346

Operating 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 28, 1993, through June 30, 1993

Inspectors: S. Stasek

R. K. Walton J. M. Shine

Approved By:

R. D. Lanksburg, Chief Reactor Projects Section 3B - 2/15/93 Date

Inspection Summary

Inspection on May 28, 1993, through June 30, 1993 (Report No. 50-346/93012(DRP))

<u>Areas Inspected:</u> A routine safety inspection by resident inspectors of action on previous inspection findings, licensee event reports, operational safety, engineered safety features (ESF) system walkdown, surveillances, and maintenance.

<u>Results:</u> An executive summary follows:

<u>Plant Operations:</u> Overall, performance of the operating crews was good this inspection period. A control room "black board" was achieved on several occasions. Adherence to administrative controls was good with no problems noted. Plant housekeeping was excellent.

Radiological Controls: ence to radiation protection program requirements was good this period with problems noted.

<u>Maintenance/Surveillance:</u> Maintenance and surveillance activities observed and/or reviewed this inspection period were conducted in accordance with plant procedures and regulatory requirements. Engineering/Technical Support: Weaknesses were noted in an engineering analysis prepared in support of a plant modification in that check valve packing loading was not considered (paragraph 4.b). As a result, ongoing compensatory measures were required to ensure continued operability of the auxiliary feedwater system. An unresolved item was opened related to an associated reportability concern raised late in the inspection period.

<u>Safety Assessment/Quality Verification:</u> The potential condition adverse to quality reporting (PCAQR) system was well implemented overall during this inspection period. On one occasion, however, adequate followup actions were not implemented in a timely manner (paragraph 4.d). The identification of missing bolts from a diesel generator electrical panel was not corrected upon initial identification, but rather, was only corrected after being independently identified a second time by the plant manager and senior resident inspector.

### DETAILS

Persons Contacted 1.

#### Toledo Edison Company

# D. C. Shelton, Executive Vice President #\*L. F. Storz, Vice President, Nuclear \*G. A. Gibbs, Director, Quality Assurance #\*J. K. Wood, Plant Manager J. W. Rogers, Manager, Maintenance # T. J. Myers, Director, Technical Services V. J. Sodd, Manager, Independent Safety Engineering # R. W. Schrauder, Manager, Nuclear Licensing G. Honma, Supervisor, Licensing D. R. Wuokko, Supervisor, Regulatory Affairs \*M. A. Turkal, Licensing Engineer \*R. C. Zyduck, Manager, Nuclear Engineering \*T. W. Anderson, Supervisor, Maintenance Services D. W. Schreiner, Supervisor, Performance Engineering # D. L. Eshelman, Superintendent, Shift Operations \*E. C. Caba, Manager, Performance Engineering \*D. P. Ricci, Supervisor, Operations \*C. L. Detray, Security Compliance \*B. W. Cope, Supervisor, Emergency Preparedness \*L. A. Bonker, Supervisor, Radiation Protection \*J. L. Tabbert, Engineer, Independent Safety Engineering \*D. R. Timms, Manager, Systems Engineering \*A. J. VanDenabeele, Supervisor, Engineering Programs \*P. W. Jacobsen, Manager, Design Engineering (Acting) NRC #J. B. Martin, Regional Administrator, RIII #H. J. Miller, Deputy Regional Administrator, RIII #T. O. Martin, Director, Division of Reactor Safetv, RIII

#W. L. Forney, Deputy Director, Division of Reactor Projects, RIII

#R. D. Lanksbury, Chief, Reactor Projects 3B, RIII #J. B. Hopkins, Licensing Project Manager, NRR

#S. Stasek, Senior Resident Inspector

#J. A. Hopkins, Project Engineer, RIII

#E. R. Duncan, Reactor Engineer, RIII

\*Denotes licensee personnel attending the June 30, 1993, exit meeting. #Denotes those personnel attending the June 3, 1993, management meeting.

#### Followup of Previous Inspection Findings (92701) 2.

(Closed) Inspection Followup Item (346/91018-01(DRP)): On November 5, 1991, the licensee inadvertently drained about 350 gallons of purified reactor coolant to the protected area yard from the hydrogen supply line to the makeup tank. The cause of this event was the use of solenoid

operated valves which allowed leakage past their shut seats, coupled with poor communications between the control room and operators in the field. In response, the licensee completed plant modification 91-0053, which reoriented valve MU54, added manual valve MU20, and mechanically disabled drain valve G222, to ensure that purified coolant could not be drained through the hydrogen supply piping to the yard. Operators received training on the communications weakness which culminated in this event and the periodic requirement to drain fluid from G222 was deleted from the monthly activity log. The inspectors reviewed the modification package and changes to procedures and drawings associated with this modification with no concerns noted. This item is closed.

No violations or deviations were identified in this area.

#### 3. Followup of Licensee Event Reports (92700)

Through direct observations, discussions with licensee personnel, and review of records, the following licensee event reports (LERs) 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.

- a. <u>(Closed) LER 91-006, Revision 1.</u> Analysis of Post Large Break Loss-of-Coolant Accident (LOCA) Boron Concentration was Potentially Non-Conservative. The licensee initiated a revision to this LER to present the results of a subsequent analysis. In January 1992, the Babcock & Wilc x (B&W) Owners Group formally submitted the analysis for B&W disigned plants to the NRC for review. Upon completion of NRC review, the licensee intended to change its updated safety analysis report to reflect the results of its analysis. This LER revision is closed.
- b. <u>(Open) LER 93-003</u>, Reactor Trip Loss of Integrated Control System (ICS)  $T_{AVE}$  Input. On May 20, 1993, the plant tripped from about 102 percent power. The cause of the trip was a loss of continuity between a fuse and fuseholder which provides a  $T_{AVE}$ input to the ICS. Control room operators, in response to the transient, placed ICS in manual and lowered the Steam Generator/Reactor Demand signal which decreased feed flow, but did not reduce reactor power due to the faulted  $T_{AVE}$  input. The imbalance resulted in an increase in reactor coolant system (RCS) pressure to the reactor trip setpoint.

At the end of the inspection period, the licensee was in the process of identifying similar fuse holder applications and determining what effect on the plant comparable type failures could cause. In addition, the LER description alluded to some weaknesses in operator response prior to the trip. Therefore, the LER will remain open pending inspector review of the fuse holder application evaluation and followup of operator actions.

No violations or deviations were identified in this area.

### 4. Operational Safety Verification (40500) (71707)

The inspectors observed control room operations, reviewed applicable logs, and conducted discussions with control room operators during the inspection period. The inspectors verified the operability of selected emergency systems, reviewed tagout records, and verified tracking of limiting conditions for operation associated with affected components. Tours of the auxiliary and turbine 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 certain pieces of equipment in need of maintenance. Walkdowns of the accessible portions of the following systems were conducted to verify operability by comparing system lineups with plant drawings, as-built configuration, or present valve lineup lists; observing equipment conditions that could degrade performance; and verifying that instrumentation was properly valved, functioning, and calibrated.

- Emergency Diesel Generators 1-1 and 1-2
- Station Fire Protection System
- Decay Heat Removal System 1-1
- High Pressure Injection System 1-1
- Station Emergency DC Lighting

The inspectors, by observation and direct interview, verified that the physical security plan was being implemented in a accordance with the station security plan, including badging of personnel, access control, security walkdowns, security response (compensatory actions), visitor control, security staff attentiveness, and operation of security equipment.

Additionally, the inspectors observed plant housekeeping, general plant cleanliness conditions, and verified implementation of radiation protection controls.

Specific observations and reviews included the following:

a. During the inspection period, the inspectors noted a control room "black board" on several occasions. Specifically, all annunciated circuits were maintained within their normal operating bands resulting in a condition in which no annunciator alarms were present. The "black board" also indicated that sufficient resources had been applied to maintain associated monitoring circuits in good condition with annunciators determined not to be of use to the operators disabled. Additionally, the inspectors noted that the number of computer alarms on the control room monitor had decreased from about two pages in length, before the recent refueling outage, to less than one-half page. The reduction was a direct result of an initiative to reassess the need for certain inputs and their usefulness to the operators.

b.

Prior to the recent refueling outage, check valves MS734 and MS735 (in main steam supply piping to auxiliary feedwater pump turbines) were known to have experienced "fluttering" which had increased wear on the valves. The licensee developed modification 91-0044 to replace these valves with spring actuated check valves to minimize ongoing valve wear. On January 27, 1993, a supplement to the design report for the modification was issued which would allow installation of the check valve without the spring actuator. As part of the modification process, a safety evaluation per 10 CFR 50.59 was prepared which determined the valve was a "likefor-like" replacement.

The check valves were replaced during the eighth refueling outage with valves that featured an external shaft with a packing arrangement. During post-installation testing, it was determined that application of about 40 to 45 ft-lbs of torque was required before the packing load could be overcome and disc movement occur. The licensee postulated that with the valves initially fully open, the valves might not seat during a high energy line break (HELB) as a result of the packing load. The licensee documented this condition in Potential Condition Adverse to Quality Report (PCAQR 93-0287). On April 29, 1993, the licensee convened a station review board (SRB) to discuss the safety evaluation for the "useas-is" disposition of the check valves. As a result, a standing order was issued to have equipment operators manually close/check closed the valves each shift as well as after each evolution which could open the check valves.

The inspectors reviewed the modification package and the associated safety evaluations, including the original, a draft revision, and one prepared relating to the associated PCAQR, that had been prepared in support of both the modification and the subsequently identified problems. In each case, the safety evaluations were prepared in accordance with 10 CFR 50.59 and licensee procedures.

However, the inspectors considered the engineering analysis prepared in support of the modification to be weak in that the additional effects of packing loads were not addressed prior to installation of the new check valves. Although the licensee determined the modification was not a change to the facility as described in the updated safety analysis report (USAR) nor was it a test or experiment, it was subsequently identified that there were some conditions in which the valves, if fully open, would not seat during a HELB. (Although no plant conditions were identified which would cause the subject check valves to fully open.) Consequently, compensatory measures had to be established to ensure continued system operability. Additionally, a concern was identified near the end of the inspection period as to the position of the check valves when the plant was initially returned to power following the refueling outage, specifically, at the time the plant entered Mode 2 and the potential effect on operability of the auxiliary feedwater (AFW) system at the time. This item is considered an unresolved item (346/93012-01(DRP)) pending a determination as to whether a mode change was made with one or both trains of the AFW system inoperable.

c. On June 15, during a routine plant tour, the inspectors noted that scaffolding was erected in close proximity to or in contact with safety-related components. Specifically, in mechanical penetration room #4, scaffolding was observed in direct contact with hydrogen dilution piping, component cooling water piping to control rod drive (CRD) cooler booster pump 1-1, and a containment hydrogen analyzer sample line. Licensee personnel were notified and the scaffolding was modified to provide additional clearances. No further scaffolding concerns were noted during the inspection period.

d. On June 2, while conducting a routine plant tour with the plant manager, the inspector noted several bolts not installed in the emergency diesel generator 1-1 local control panel rear access panel. The licensee initiated a potential condition adverse to quality report (PCAQR) and replacement bolts were obtained and installed. A subsequent seismic evaluation determined no operability concerns existed. An independent evaluation concluded that the reason and time frame for the bolts' removal were inconclusive.

Subsequently, it was determined that approximately two weeks earlier, another NRC inspector had identified the same condition and had informed licensee personnel at the time. Corrective actions had not been implemented prior to the June 2 rediscovery.

e. On May 28, 1993, it was announced that Donald C. Shelton, Vice President-Nuclear at Davis-Besse, was appointed to a new corporate position, Executive Vice President-Nuclear with responsibility for both Centerior Energy Corporation's nuclear units (Davis-Besse and Perry). Louis F. Storz was promoted from Plant Manager-Davis-Besse to Vice President-Nuclear. The changes became effective on June 7, 1993.

On June 22, 1993, Centerior Energy Corporation announced a downsized onsite management organization. Davis-Besse directors were reduced from five to four with the following changes: John K. Wood was promoted from Operations Manager to Plant Manager-Davis-Besse, Gregory A. Gibbs was reassigned as Director-Engineering, T. J. Myers was reassigned as Director-Nuclear Assurance, and Sushil C. Jain was reassigned Director-Nuclear Services. The changes were planned to become effective July 14, 1993. No violations or deviations were identified in this area.

## 5. Engineered Safety Features Walkdown (71710)

During the inspection period, in addition to the walkdowns conducted in paragraph 3, the inspectors performed a more in-depth walkdown of accessible portions of the auxiliary feedwater system (AFW). The AFW walkdown verified hangers and supports were properly installed, instrument calibration dates were current, system valve and breaker positions were appropriate per design drawings and procedures, and the system material condition and housekeeping were adequately maintained. Additionally, the inspectors reviewed the corrective maintenance backlog and historical surveillance test data. The inspectors concluded that the AFW system appeared to have been adequately maintained in an operable status.

No violations or deviations were identified in this area.

## 6. Surveillance (61726)

The inspectors observed safety-related surveillance testing and verified that the testing was performed in accordance with adequate procedures, that test instrumentation was calibrated, that limiting conditions for operation (LCOs) were met, that removal and restoration of the affected components were accomplished, that test results conformed with Technical Specification 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 following test activities were observed and/or reviewed:

1 S S	DB-SP-03150	Auxiliary	Feedwater	Pump #	1 Mc	onthly	Jog	Test
	DB-SP-03159	Auxiliary	Feedwater	Pump #	2 M.c	onthly	Jog	Test
4	DB-SP-03070	Emergency	Diesel Ger	nerator	#1	Monthl	y Te	est
×	DB-SP-03071	Emergency	Diesel Ger	nerator	#2	Month	y Te	est

No violations or deviations were identified in this area.

#### 7. Maintenance (62703)

Station maintenance activities of safety-related systems and components were observed and/or reviewed during the inspection period to ensure 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 (LCO) 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.

Maintenance work orders (MWOs) were reviewed to determine the status of outstanding jobs and to assure that priority was assigned to safetyrelated equipment maintenance which may affect system performance.

The following maintenance activities were observed and/or reviewed:

- Maintenance on #1 Emergency Diesel Generator
- Troubleshoot and Repair Emergency Lighting Battery Packs
- Replace Spent Fuel Pool Filter (MWO 1-93-0051-00)
- Inspect Service Water Side of #1 Component Cooling Water Heat Exchanger (MWO 3-93-0190-01)
- Clean and Inspect Low Voltage Switchgear Room Ventilation Fan (MWO 3-93-1243-01)

On June 23, 1993, operators removed control room emergency ventilation system (CREVS) train #1 from operation for maintenance. During the maintenance activities on train #1, maintenance workers observed that freon pressure gauges on CREVS train #2 were low, indicating possible problems with that CREVS train. Maintenance on CREVS train #1 was stopped while operability of CREVS train #2 was verified. Two small leaks in the freon system of CREVS train #2 were repaired. As a result, CREVS train #2 was not considered inoperable.

The inspectors noted that good attention-to-detail was exhibited by maintenance workers in detecting and reporting the anomalous indications to operations. Good teamwork was also noted between maintenance and operations to resolve the identified problem as well. The plant manager indicated that a review was to be conducted to determine if further checks of redundant equipment should be made, in addition to those already in place, prior to taking Technical Specification required equipment out-of-service for routine maintenance.

No violations or deviations were identified in this area.

#### 8. Management Meeting (30702)

On June 3, 1993, the licensee and NRC management (denoted in paragraph 1) met in the NRC Region III office for a routine management meeting. The agenda included discussion of two events that involved inadvertent reactor vessel inventory transfers during the recent refueling outage, other aspects of the refueling outage, plant staffing changes, onsite implementation of the new 10 CFR Part 20 requirements, and current activities in support of dry fuel storage.

## 9. Unresolved Items

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An unresolved item is a matter requiring more information in order to ascertain whether it is an acceptable item, a violation, or a deviation. An unresolved item disclosed during the inspection was discussed in paragraph 4.b.

## 10. Exit Interview

The inspectors met with licensee representatives (denoted in paragraph 1) throughout the inspection period and at the conclusion of the inspection on June 30, 1993, and summarized the scope and findings of the inspection activities. The licensee acknowledged the findings. After discussions with the licensee, the inspectors determined there was no proprietary information contained in this inspection report.