U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-346/94017(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: December 7, 1994, through January 21, 1995

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Approved By: _____ 2/13/95
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Reactor Projects Section 3B

Inspection Summary

Inspection on December 7, 1994, through January 21, 1995
(Report No. 50-346/94017(DRP))

Areas Inspected: A routine safety inspection by resident and regional inspectors of plant operations, surveillances, maintenance, onsite engineering, plant support, previously identified inspection findings, and licensee event reports.

Results: An executive summary follows:

No violations or deviations were identified during this inspection period. Two inspection followup items were identified.

Plant Operations: Overall, operating crew performance was very good. Adherence to administrative procedures was also very good. Inspectors continued to observe a conservative, safety conscious approach to unit operations. Shift supervisors and assistant shift supervisors began working 12 hour shifts in lieu of the previously established 8 hour shifts (Section 1.3). The effectiveness of this initiative will be evaluated during upcoming inspections. Auxiliary building groundwater intrusion through the cable tray system is a concern and will be reviewed further during the next

inspection period (Section 1.4). Fuel reconstitution of two bundles was successfully completed in the Spent Fuel Pool (Section 1.5).

Maintenance: Maintenance and surveillance activities observed during the inspection period appeared to be conducted in accordance with applicable plant requirements. Temporary Instruction (TI) 2515/126, Evaluation of On-line Maintenance, was completed this period, evaluating the licensee's program as good overall (Section 3.1). Equipment lubrication program review was ongoing at the end of the inspection period (Section 3.2).

Engineering: Engineering support for the day-to-day operation of the unit was good. The licensee's Inservice Inspection (ISI) program was determined to be acceptable (Section 4.1).

Plant Support: Personnel adherence to radiation protection and security programs was good during this inspection period. The new radiation protection manager met training and experience guidelines per Regulatory Guide 1.8, Section 5.1. A pre-job meeting attended by the inspectors was effective in addressing the associated radiological concerns specific to the covered activity (Section 5.1).

DETAILS

1.0 Plant Operations (71707) (71714) (92901)

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 (LCO) associated with affected components. Tours of the Auxiliary, and Turbine buildings were conducted to observe equipment material condition and plant housekeeping. Walkdowns of 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 Generator No. 1
- Emergency Diesel Generator No. 2
- High Pressure Injection-Trains 1 & 2
- Hydrogen Dilution System - Train 2

The inspectors reviewed Potential Condition Adverse to Quality (PCAQ) reports during the inspection period and verified that known deficiencies were identified and tracked via the PCAQ reporting system.

No substantive concerns were noted during this review. No violations or deviations were identified in this area.

1.1 Operations Summary

The unit operated nominally at full power throughout the inspection period.

1.2 Control Room Activities

Control room activities were well controlled and conducted in a conservative manner. Procedural adherence was good overall. Shift turnovers adequately communicated plant status and equipment conditions between the off-going and on-coming shifts. Operations management provided effective supervisory oversight through direct observation and evaluation of control room activities and operator performance.

1.3 Change in Operations Shift Schedule

During the inspection period, the licensee initiated a trial work schedule where Shift Supervisors and Assistant Shift Supervisors began working 12 hour shifts. No increase in overtime use was intended by the change. All operators were to continue with a nominal 40-hour work week (i.e., 36 to 44 hours worked in any given week). The Reactor Operators

and Zone (non-licensed) Operators remained on 8-hour shifts. In addition, Shift Managers continued with a separate 12-hour work schedule.

Operations management indicated that improved crew consistency in performance and enhanced communication between shifts (by elimination of one shift turnover per day), would result from the change in work schedule. Pending completion of an NRC evaluation of the effectiveness of the new work schedule, this matter is considered an inspection followup item (346/94017-01(DRP)).

1.4 MCC Water Intrusion

During a tour of the Auxiliary Building on January 9, 1995, the inspector noted that Motor Control Center (MCC) E21A was configured with a hose connected to a cable tray feeding the MCC at a point just above the MCC and was routed downwards to a floor drain. Subsequently, it was determined that the hose was installed to drain condensate from the MCC and/or cable tray feeder and had been installed since about 1983. The condensate was apparently the result of ground water intrusion to the tray. The inspector was concerned that longterm degradation of the associated electrical equipment and cabling could have occurred over such an extended period of time. In addition, it was not known whether other plant areas were prone to such water intrusion. This matter is considered an inspection follow-up item (346/94017-02(DRP)).

1.5 Fuel Assembly Reconstitution Activities

Fuel reconstitution activities were performed during this inspection period. Babcock & Wilcox (B&W), the fuel supplier, provided personnel and equipment to perform inspection/reconstitution of fuel assemblies 6KZ and 5UR in the Spent Fuel Pool. These activities were conducted using B&W procedures that had been approved for site use under the auspices of Davis-Besse personnel.

Overall, the evolution was successfully accomplished. Adequate adherence to the applicable procedures was noted. Good Foreign Material Exclusion (FME) controls were established around the SFP area. Personnel adherence to the FME controls was also good. Contamination was adequately contained within the pool area. No "hot particle" issues arose during the reconstitution efforts nor during subsequent cleanup and area restoration activities.

However, one fuel pin was erroneously removed from assembly 5UR and placed in the eddy current test rig when B&W personnel misinterpreted the underwater camera to fuel assembly configuration. This error resulted in the fuel assembly being 90 degrees from what the crew thought the configuration was. Consequential safety significance was minimal in that procedures allowed up to all fuel pins to be removed from the assembly simultaneously. In this case, a fuel pin was removed from the assembly unneedfully. A standdown ensued, the error was

critiqued, and appropriate procedural and implementation upgrades were made, including the inclusion of independent verification steps.

2.0 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 (LCO) 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:

- DB-SP-03337, Quarterly Pump and Valve Test For Containment Spray Train 1.
- DB-SP-03295, Containment Air Cooling Unit 2 Monthly Test.

No substantive concerns were noted during this review. No violations or deviations were identified in this area.

3.0 Maintenance (63702)

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: Limiting Conditions for Operation (LCO) 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 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 safety-related equipment maintenance which may affect system performance.

The following maintenance activities were observed and/or reviewed:

- MWO 3-95-0753-01 Preventive Maintenance on Containment Isolation Valve Motor MV5065.

- MWO 3-94-1196-01 Preventive Maintenance on Hydrogen Dilution Blower.
- MWO 3-95-0752-01 Preventive Maintenance on CV624B.
- MWO 3-94-2180-12 Containment Hydrogen Analyzer Channel 1 Recorder Preventive Maintenance.

No substantive concerns were noted during this review. No violations or deviations were identified in this area.

3.1 Temporary Instruction (TI) 2515/126, Evaluation of On-line Maintenance

The licensee's program for conducting on-line scheduled maintenance was reviewed using the inspection guidance of TI 2515/126. The licensee established a strong program utilizing a rolling 13-week scheduling process. This process included detailed reviews and planning up to and through the actual work performance. The process weighed the benefits of the proposed maintenance against the increased risk of taking the equipment out of service. The licensee had initiated a procedure change to incorporate a formal Individual Plant Examination (IPE) review into the scheduling process with the change in the approval circuit at the time of the inspection. A notable part of the process was the assigning of a team leader to oversee the scheduled work. This team leader (usually the plant engineer for the involved system) was responsible for developing the work plan and securing commitments from other parties involved in the work. Plant management then reviewed each work plan prior to its implementation.

IPE training was progressing. All planners had received training and were reasonably knowledgeable on the IPE results. However, operators interviewed by the inspector had not received the same degree of training and were not as knowledgeable of the IPE results.

Online maintenance was being adequately controlled. A review of past work revealed examples of work being cancelled or rescheduled due to risk evaluations.

The inspector had no substantive concerns about the licensee's process to control online maintenance. This TI is closed.

3.2 Lubrication Manual

A partial review was conducted of the licensee's lubrication program during the inspection period. The governing document for the program was the Lubrication Manual. This manual attempted to incorporate all equipment lubrication requirements into one document, however, the inspector noted examples where individual maintenance procedures also specified certain lubrication requirements, duplicating those in the Lubrication Manual. The licensee, thereafter, was evaluating potential deletion of those requirements from the individual procedures. Inspector review of the lubrication program was not complete at the end of the inspection period and will be continued during the next inspection period.

4.0 Onsite Engineering (37551)

Onsite engineering activities were reviewed during the inspection period. The effectiveness of the licensee's controls for the identification, resolution, and prevention of problems was also examined. The review included areas such as corrective action systems, root cause analysis, safety committees, and self assessment in the area of engineering.

No substantive concerns were noted during this review. No violations or deviations were identified in this area.

4.1 Inservice Inspection (ISI)

Program Review (73051)

Personnel from B&W performed the ISI in accordance with American Society of Mechanical Engineers (ASME) Section XI, 1986 Edition. Where ASME requirements were determined to be impractical, specific relief requests were submitted in writing to the Office of Nuclear Reactor Regulation (NRR). The NRC inspector reviewed the specific relief requests, including the related correspondence between the licensee and the NRC. Organizational staffing for the ISI program was found to be acceptable and the services of an Authorized Nuclear Inservice Inspector (ANII) were procured from Hartford Steam Boiler Inspection and Insurance Company.

The qualifications and certifications of all inspection personnel performing ISI were reviewed to ensure conformance with SNT-TC-1A.

Procedure Review (73052)

All applicable ISI procedures were approved by the ANII and were reviewed by the NRC inspector. The ISI procedures were found to be acceptable and in accordance with ASME Section V, 1986 Edition.

Data Review (73755)

The nondestructive examination data was found to be in accordance with the applicable ISI procedures and ASME Code requirements. The NRC inspector reviewed documents related to nondestructive examination equipment, data, evaluations, and consumable materials used in performance of the examinations.

Eddy Current Examination (ET) (73753)

Eddy current examinations were conducted on a representative sample (14.3%) of the steam generator (SG) tubes. A total of 2151 tubes in SG A and 2194 tubes in SG B were examined using the bobbin coil (the licensee had performed a 100% ET examination the previous outage). The tubes inspected were selected using previously reported degradation, industry data, and random selection. The SG tube examinations were

performed by technicians qualified to Level I under direct supervision of personnel qualified to Level II, and the data was evaluated by personnel qualified to a minimum level of IIA in accordance with the applicable ISI procedures.

The examinations were performed with the Zetec Eddynet Examination System. ET data was acquired using the Zetec MIZ-18A remote data acquisition unit, via the Local Area Network (LAN) and recorded on optical disk. Examinations of SG tubes using motorized rotating pancake coil (MRPC), crosswound/bobbin combination and rotating crosswound coils were also employed. The bobbin coil (Zetec Type A-510-MULC/HF) was used for the Technical Specification/ASME Code examination. The MRPC was used to characterize indications reported by the bobbin coil technique by confirming the presence, clarifying the geometry, and to define flaw type when possible. The crosswound/bobbin examination was used to perform flaw detection in the tube sleeves and the parent tube. The rotating crosswound examination crosswound probe was used to perform flaw detection in the sleeve and parent tube in the area of the rolled joints.

The ET data from each examination technique were analyzed by two independent analyses (primary and secondary). The secondary analysis of the data from the bobbin technique was performed utilizing Zetec's Computer Data Screening (CDS) software. The analysts were trained and tested to the Davis-Besse SG data analysis guidelines and the CDS was qualified by performance demonstration and was utilized for flaw reporting only.

The once through steam generators (OTSG) appear to be performing well. SG-A required only one tube repair by plugging; 199 tubes were preventively sleeved. Two tubes in SG-B were plugged. SG-A has a total of 375 tubes plugged and 199 sleeve repairs (the OTSG's have 15,457 original tubes per generator). SG-B has a total of 65 tubes plugged and 212 sleeve repairs. The licensee has been proactive in inspection and mitigation of degradation measures.

The NRC inspector reviewed the ET inspection program, the ET procedures, data analysis guidelines, and personnel and equipment certifications. The ET inspection data reports and ET graphics of recorded indications were also reviewed for compliance to ASME Code and procedure requirements.

No substantive concerns were noted during this review. No violations or deviations were identified in this area.

5.0 Plant Support (71750) (83750) (84750) (86750)

Selected activities associated with radiological controls, radiological effluents, waste treatment, environmental monitoring, physical security, emergency preparedness and fire protection were reviewed to ensure conformance with facility procedures and regulatory requirements.

No substantive concerns were noted during this review. No violations or deviations were identified in this area.

5.1 Radiological Controls

Management Changes

The licensee made management changes in the Radiological Protection (RP) Department during this inspection period. The former head of the Chemistry Department was transferred to become the head of the RP Department. This individual was also assigned the responsibilities of Radiation Protection Manager (RPM) for the station. The inspectors reviewed the qualifications of the new manager to verify that the individual met the requirements found in Regulatory Guide 1.8, "Personnel Selection and Training," September 1975. Based on interviews with station management and reviews of personnel records the inspectors determined that the new RPM appeared to have sufficient training and experience in the health physics field to meet the requirements of Regulatory Guide 1.8.

Radiation Monitor Setpoint Calculations

The inspectors reviewed the licensee's calculations for several process radiation monitor setpoints. Most setpoints were found to be conservatively calculated and no errors were found in the calculations reviewed.

The inspectors discussed an open quality assurance finding regarding radiation monitor setpoint bases with licensee staff. No documentation existed at the time of the inspection that described the basis for each radiation monitor's setpoint. A quality assurance audit in 1992 noted this as a finding for the RP department to resolve. Based on discussions with licensee staff and management, the department was planning to close the item in February 1995. The inspector noted that without such documentation only a limited number of staff could perform the setpoint calculations. This issue will be reviewed during a future inspection following completion of the basis documentation.

Pre-job Briefing Reviews

The inspectors attended a pre-job meeting which discussed upcoming fuel reconstitution and recaging activities (reference Section 1.5 of this report). Key radiation protection technicians and RP supervisors involved with the job were in attendance. The meeting included discussions addressing mock-up training, RP job coverage steps, work precautions, and contingency plans if the job deviated from original plans. The inspectors noted a good display of teamwork between all personnel involved and that the meeting was effective in addressing radiological concerns specific to the activity.

6.0 Followup of Previous Inspection Findings (92901) (92902) (92903) (92904)

(Closed) Violation (346/94011-01(DRP)): Inadequate Foreign Material Exclusion (FME) controls for the reactor cavity/refuel canal area. In response, the specific FME boundary was more clearly defined, the material accountability log was reconciled, and an individual was assigned to maintain the log. Subsequently, revisions were initiated to procedures DB-MN-00005, Foreign Material Exclusion Control and DB-OP-06904, Shutdown Operations, to better delineate FME programmatic requirements for the reactor cavity area, to better specify responsible individuals to implement those requirements, and to more clearly sequence when and how the FME control requirements are to be implemented. This item is closed.

(Closed) Deviation (346/92009-03(DRSS)): Failure to install a safety evaluation report prescribed detector on the effluent monitoring system in the Low Level Radioactive Waste Storage Facility. The licensee had installed and calibrated the detector in 1993, but formalized procedures governing the monitor and personnel training had not been accomplished at that time. The licensee has since developed a procedure for the detector, and training has been provided to personnel involved with the maintenance and calibration of the monitor. This Deviation is closed.

(Closed) Inspection Followup Item (346/93025-01(DRSS)): Lack of a formal definition of the Radiation Protection Manager's (RPM) responsibilities given that the individual holding the title at the station was not the head of the Radiation Protection (RP) Department. As discussed in Section 5.1 of this report, management changes since the last inspection (IR 50-346/94010(DRSS)) have resulted in a new individual becoming the head of the RP Department who also holds the title of RPM. This item is closed.

(Closed) Inspection Followup Item (346/93025-02(DRSS)): Followup on RP Department morale issues as part of earlier management changes in the RP Department. This item was opened to ascertain if such issues affected performance of the RP department. Based on the licensee's performance during the recent refueling outage, the inspectors could not identify any performance problems which could be linked to the perceived RP Department's low morale. Therefore, this item is closed.

(Open) Unresolved Item (346/94013-04(DRP)): Followup on recent radiological events involving radioactive material discovered outside of the radiologically restricted area. The inspectors discussed the events with station management to determine what actions the licensee was taking to address the events. A task force was assembled which assessed the radioactive material control program to identify weaknesses and suggest improvements. At the time of the inspection the final report from the task force was not complete; therefore this matter will remain open.

7.0 Followup of Licensee Event Reports (92700)

(Closed) LER 93-008-01: Manual Initiation of Emergency Ventilation Due to High Airborne Activity. In response to unexpectedly high airborne activity levels in the Auxiliary Building, and the subsequent automatic trip of the radwaste ventilation system servicing the affected portions of the Auxiliary Building, operators manually started the Emergency Ventilation System (EVS) to reduce airborne activity levels. Although the licensee originally reported this event under the criteria of 10 CFR 50.73(a)(2)(iv) as a manual actuation of an engineered safety system, after further evaluation it was decided that the event was not reportable under that criteria. This was because the EVS system, although designated an ESF, was operated in a non-ESF mode. Subsequently, the LER was reclassified as a voluntary report. The cause of the airborne activity was higher than anticipated gaseous sample radiation levels during sampling of the makeup tank air volume. A high purge rate was inadvertently established at the sample station that was, by design, exhausted to the radwaste ventilation ductwork. Radiation monitors located within the ductwork tripped the ventilation fans and repositioned several dampers. Operator action to manually start the EVS was determined to be appropriate and timely.

8.0. Exit Interview

The inspectors met with licensee representatives (denoted in Section 9.0) throughout the inspection period and at the conclusion of the inspection on January 20, 1995, 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.

9.0 Persons Contacted

Toledo Edison Company

J. P. Stetz, Vice President, Nuclear
*S. C. Jain, Director, Nuclear Services
J. K. Wood, Plant Manager
*T. J. Myers, Director, Nuclear Assurance
J. W. Rogers, Manager, Maintenance
S. Byrne, Manager, Plant Operations
*B. Donnellon, Manager, Plant Engineering
J. E. Moyers, Manager, Quality Assessment
*J. Michaelis, Manager, Material Management
*P. Smith, Supervisor, Compliance
*D. Schreiner, Supervisor, ISE
*M. Beier, Supervisor, QC
*R. Schmidt, Supervisor, Maintenance Services
*W. G. Klippstein, Supervisor, Quality Engineering (Acting)
*R. C. Zyduck, Manager, Nuclear Engineering
*G. Skeel, Manager, Security

W. T. O'Connor, Manager, Regulatory Affairs
R. Scott, Manager, Radiation Protection
*S. Hawley, Manager, Quality Services (Acting)
*B. Lakis, Shift Manager
*G. W. Gillespie, Superintendent, Chemistry
*D. Eshelman, Superintendent, Operations
*R. Coad, Supervisor, Shift Operations
*P. Jacobsen, Manager, Design Engineering (Acting)

*Denotes those licensee personnel attending the January 20, 1995, exit meeting.

10.0 Definitions

Inspection Followup Items

Inspection followup items are matters that 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. Inspection followup items disclosed during the inspection are discussed in Sections 1.3 and 1.4.