

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-346/89027(DRS)

Docket No. 50-346

License No. NPF-3

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

Facility Name: Davis-Besse Nuclear Power Station

Inspection At: Davis-Besse site, Oak Harbor, Ohio 43449

Inspection Conducted: January 8-12, 1990

Inspectors: *Marc P. Huber*
Marc P. Huber

2/13/90
Date

James F. Smith
James F. Smith

2-13-90
Date

Approved By: *D. H. Danielson*
D. H. Danielson, Chief
Materials and Processes Section

2/13/90
Date

Inspection Summary

Inspection on January 8-12, 1990 (Report No. 50-346/89027(DRS))

Areas Inspected: Routine announced safety inspection of Inservice Testing (IST) of pumps and valves. The areas covered included implementation of IST (73756) including a review of administrative procedures, performance of testing and recording of trends.

Results: No violations or deviations were identified. Based on the results of the inspection, the NRC inspectors noted the following:

- ° In the areas inspected, the licensee had a generally competent and well-trained staff.
- ° IST procedures meet the requirements of the IST program.
- ° Observations of IST revealed a weakness in failure to perform work directly from the procedure when performing routine work.
- ° The licensee demonstrated a strength in independently developing a device to assist in IST of air operated valves.

DETAILS

1. Persons Contacted

Toledo Edison (TE)

- *L. Storz, Plant Manager
- *W. Johnson, Manager, Plant Maintenance
- *M. Schimmel, Superintendent, Mechanical Maintenance
- *F. Caba, Manager, Performance Engineering
- *R. G. Collings, Supervisor, Quality Verification
- *M. Derivan, Senior Nuclear Technologist, Independent Safety Engineering
- *G. A. Bradley, Associate Licensing Representative
- *R. W. Gaston, Licensing Engineer
- *P. W. Smith, Licensing Engineer
- M. Khairai, IST Coordinator
- J. Hayes, Performance Engineer

Nuclear Regulatory Commission (NRC)

- *P. Byron, Senior Resident Inspector

*Denotes those who attended exit meeting on January 12, 1990.

Other personnel were contacted as a matter of routine during the course of the inspection.

2. Pump and Valve Inservice Testing (IST) Program (73756)

The licensee's IST program was based on the requirements of Section XI of the ASME Code, 1977 Edition through Summer of 1978 Addenda. The licensee's program was reviewed by NRC and a Safety Evaluation Report (SER) was issued. The SER found the licensee's IST program to be acceptable for implementation provided the anomalies identified in the SER were addressed.

a. Administrative Controls of IST

The NRC inspectors confirmed that administrative controls were provided to satisfy the requirements of the IST program and that specific IST duties had been assigned to personnel. The inspectors reviewed selected portions of administrative documents for general content and for conformance with commitments of the IST program. The documents listed below were included in this review.

- ° Inservice Inspection Plans, EN-DP-01100, Revision 0, dated December 19, 1988.
- ° Pump Test Program, Drawing 12501-M-651, Section 1 and Valve Test Program, Drawing 12501-M-652, Section 2. Both sections are written to comply with the requirements of ASME Boiler and Pressure Vessel Code, Section XI, 1977 Edition and Addenda through the Summer 1978 Addenda. Originally planned for use through November 21, 1987, the extension of the approval to use this addendum was granted

through the current outage based on Davis-Besse's extensive outage (18 months) which began in 1985.

- Miscellaneous Valves Quarterly Test, DB-SP-03136, Revision 00, dated August 2, 1988.
- ASME Section XI Inservice Testing of Pumps and Valves, DB-PF-00201, Revision 00, dated March 17, 1989.
- Surveillance and Periodic Test Program, DB-DP-0013, Revision 2, dated October 25, 1989.
- Miscellaneous Valves Quarterly Test, DB-PF-03811 (ST 5099.08), Revision 00, dated August 28, 1988.
- AFP 2 Quarterly Test, DB-SP-03160, Revision 01, dated November 15, 1988.
- Inservice Inspection Program, NG-NE-0314, Revision 0, dated October 10, 1988.
- Inservice Inspection Program Plans, EN-DP-01100, Revision 0, dated December 18, 1988.
- Decay Heat Pump #1 Quarterly Pump and Valve Test, DB-SP-03136, Revision 00, dated May 5, 1988.

No violations or deviations were identified.

b. Pump Program Implementation

The licensee's pump IST program implementation was inspected to verify compliance with Appendix B of 10 CFR 50; 10 CFR 50.55(a)(g); and Subsection IWP of Section XI of the ASME Code. The inspection included a review of administrative controls, selected surveillance procedures, test results and documentation.

Completed surveillance procedures reviewed by the NRC inspector included:

- DB-SP-03151, "Auxiliary Feedwater Pump 1 Quarterly Test," performed April 28, 1989, July 11, 1989, and November 22, 1988.
- DB-SP-03383, (ST 5011.04) "Boron Injection Flow Path BA Pump Test," performed on October 18, 1988, February 3, 1989, and June 23, 1989.
- DB-SP-03218, "HPI Pump 1 Quarterly Pump and Valve Test" performed on May 5, 1989, July 24, 1989, and October 20, 1989.

The surveillance procedures were reviewed for adequacy, completeness and verification of test results.

Operability determinations are made based on the acceptance criteria specified in the procedures. Additionally, the NRC inspector verified that the acceptance criteria for the test parameters were all within their allowable ranges. The surveillance data reviewed were within acceptable limits and no problems were noted.

c. Turbine Driven Auxiliary Feed Pump (TDAFP) Surveillance Test

The NRC inspectors observed surveillance test No. DB-SP-03160 (AFP 2 Quarterly Test, Revision 01) conducted during the inspection. This test was routine inservice testing of the #2 turbine driven auxiliary feedwater pump. Personnel performing the test were proficient and knowledgeable. However, during the test, the NRC inspectors observed that the maintenance mechanics who were collecting vibration data did not have a procedure to refer to at the job site. Locations for measuring vibrations were clearly marked on the pump and turbine, and the mechanics were familiar with the procedure for taking the vibration measurements. However, the surveillance procedure used to evaluate the pump condition referenced the vibration procedure (No. DB-MM-05003 (MC 7005.01) Vibration Monitoring) in two different areas. The first was where it was stated that the vibration procedure was to be used to collect the vibration data. The second reference was to the data sheets that were to be filled out as a part of the vibration data collection procedure. This reference was to obtain the reading that corresponded to that required by ASME Code, Section XI to determine the acceptability of pump operation. The operators performing the test obtained the required vibration data to determine if it was acceptable.

When collection of the vibration data was complete, the data was transferred to the data sheets of the vibration procedure, and then attached to the surveillance procedure. The data could not be transferred directly from the vibration procedure to the surveillance procedure because the vibration procedure was not used where the test was being performed.

The lack of the use of a procedure was discussed with licensee management. It was noted that inadequate procedures were previously identified as a problem at Davis-Besse in Report No. 89016(DRP). The licensee acknowledged the problem and observed that it probably occurred because plant personnel were familiar with the work because of the repetitive nature of some tasks. To avoid a repetition of the problem, the licensee directed that all first line management responsible for work in the plant be informed that they were to make it clear to their personnel that procedures were to be used at or near the work place.

The failure to use the vibration procedure while performing the test is considered a violation; however, the violation is not being cited because the criteria specified in 10 CFR Part 2, Appendix C, Section V.A (Enforcement Policy) were satisfied. (The licensee initiated appropriate corrective action before the inspection ended.) Corrective actions were also being implemented in response to previously-identified procedure problems but no other incident of a failure to use a procedure was noted. This was considered a weakness, however,

and the NRC Resident inspector will devote additional attention to the use of procedures. For administrative purposes, this non-cited violation is identified by number 346/89027-1.

d. Improvement in Implementation of Inservice Testing

The licensee has supported development work in the area of a diagnostic testing system for air operated valves. Although extensive work has been done in the area of motor operated valves, development of similar diagnostic equipment in air operated valves has been largely ignored by the industry. The device was built by a commercial organization to the specifications of the licensee. It is compactly presented in two manageable portable units, one of which is the computer.

The Air Operated Valve Diagnostic Testing System provides data which can be monitored immediately or which can be stored for retrieval at a later date. This is useful in future testing to provide data for comparison for expectations, requirements and trends.

The licensee stated that the system is able to monitor the functional performance of not only the valves, but also actuators, positioners, I/P or E/P converters, filter regulators, booster relays, limit switches, solenoid valves, air supplies, controllers and other devices as desired. A laboratory set-up was demonstrated during the inspection and the effects of leaks, low pressure, and several other problems were demonstrated. One device of particular interest was the position indicator. This was a laser-operated device which was small, and apparently rugged enough for industrial use. For the limited testing provided at the time, it appeared to be highly responsive, showed no overshoot on rapid changes of position, and was highly portable. It seems a likely candidate for use on any valve in which position indication closer than that provided by position indicating lights might be required.

The independent pursuit of methods to improve the implementation of IST is considered to be a strength.

3. Instrumented Inspection Technique (IIT) Applications

In view of recent developments in the application of IIT, the licensee was asked to discuss any future uses of the technique.

The licensee noted that the technique had been used previously and that on these occasions TE personnel had been trained under the guidance of HAFA International, Incorporated. As a result, TE personnel have been certified Level 2 in the process and are capable of performing the work without the guidance of HAFA. They have purchased the equipment and have the ability to respond to testing needs in this area. They do not currently plan any work involving HAFA.

During the current outage, the licensee may use the equipment to supplement the results of conventional tests, but these tests will not be modified in any way to accommodate the use of IIT. The planned tests and test results will stand independently and meet all requirements. Any use of IIT will be to provide information beyond that required by the Code. The licensee

is confident that IIT will provide substantial benefits in the future, but is temporarily foregoing these benefits until questions pertinent to its use are resolved.

4. Exit Interview

The NRC Inspectors met with licensee representatives (denoted in Paragraph 1) on January 12, 1990, to discuss the scope and findings of the inspection. The licensee acknowledged the statements made by the inspectors with respect to items discussed in the report. The inspectors discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspectors during the inspection and the licensee did not identify any such documents or processes as proprietary.