



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 68 TO FACILITY OPERATING LICENSE NO. NPF-3

TOLEDO EDISON COMPANY

AND

CLEVELAND ELECTRIC ILLUMINATING COMPANY

DOCKET NO. 50-346

1.0 Introduction

By letters dated May 2, 1983, and November 21, 1983, the Toledo Edison Company (TECo or the licensee) proposed Technical Specification (TS) amendments regarding flow instrumentation and surveillance testing requirements for the Davis-Besse Nuclear Power Station Auxiliary Feedwater (AFW) system. These amendments have been proposed to resolve two issues related to the NRC review of the AFW system for compliance with the requirements of Item II.E.1.2 (AFW System Automatic Initiation and Flow Indication) of NUREG-0737, "Clarification of TMI Action Plan Requirements." The two unresolved issues were identified in the NRC staff's Safety Evaluation (SE) issued January 10, 1983. The licensee provided responses by letter dated March 11, 1983, and in telephone discussions on August 15, 1983, in addition to the applications for TS modifications.

2.0 Background and Discussion

The NRC staff's evaluation of the Davis-Besse AFW system for conformance to the requirements of Item II.E.1.2 of NUREG-0737 concluded that, except for two exceptions, the system design is in compliance. These exceptions relate to 1) AFW flow indication and 2) surveillance testing of automatic initiation logic and manual initiation curcuietry. The staff also had not completed review of the control room status indication when an AFW train is taken out of service while in operational modes 1, 2, or 3.

With regard to the first unresolved issue, the AFW system design at Davis-Besse provides only one safety grade AFW system flow instrumentation channel per steam generator. This does not comply with the requirements of NUREG-0737 which states that two safety grade AFW system flow indicators are to be provided for each steam generator at B&W designed facilities. Further, the flow instrumentation design must satisfy the single failure requirements of IEEE 279-1971. The licensee stated during discussions on August 15, 1983, that the plant has sonic flow detectors in place that are commercial grade. These are in addition to the safety grade AFW system flow indication based on differential pressure measurement across a flow element. These two systems provide redundant direct indication of AFW flow and are backed

by indirect indications of flow. The indirect indications are provided by six safety grade level transmitters per steam generator, safety grade position indication for all valves in the AFW flow path, indication of AFW pump speed and discharge pressure, safety grade steam generator pressure indication, and reactor coolant system cold leg temperature indication. These indicators provide the control room operator with additional information concerning the status of the AFW system. In view of the existence of redundant flow indication and the diverse means to access the status of the AFW system, we find that the intent of the TMI Action Plan requirement has been met for redundant safety grade AFW system flow indication, and therefore, the AFW flow indication provided is acceptable.

By letter dated November 21, 1983, the licensee proposed a modification to the plant Technical Specifications that would require both the safety grade and commercial grade AFW flow indication channels to be operable when in operational modes 1, 2, or 3. This would be accomplished by modifying Table 3.3-10, "Post-Accident Monitoring Instrumentation," to specify the minimum channels operable for item 25 as two per steam generator. We find that the proposed change is in conformance with the TMI Action Plan requirements of Item II.E.1.2 as discussed herein and is, therefore, acceptable.

With regard to the second unresolved issue, the January 10, 1983 SE states that the Davis-Besse Unit 1 Technical Specifications should be revised to include monthly testing of the AFW system automatic actuation logic and the manual initiation circuits, consistent with the Babcock and Wilcox Standard Technical Specifications. The licensee's letter of March 11, 1983, discussed the appropriate Technical Specifications related to the AFW system for the Davis-Besse plant. The licensee committed to propose revised plant Technical Specifications to include monthly testing of the output relay contacts in the valve control circuit. As a result, all components in the automatic and manual portions of the AFW system initiation circuits will be tested functionally monthly, except for the manual actuation switches which are tested every 18 months. The proposed revision to the plant Technical Specifications was submitted by letter dated May 2, 1983. Therein it was proposed to change the frequency of channel functional testing for manual actuation specified in Table 4.3-11 from a refueling interval to monthly (except the manual actuation switches). Also, a footnote was added to clarify that the manual actuation switches would be tested at least once per 18 months while all other circuitry associated with manual actuation would receive a channel functional test at least once every 31 days, i.e., monthly. In that the frequency for testing the manual actuation switches would be at each refueling interval as currently indicated in the Technical Specifications or as proposed, we find that the current Technical Specifications are acceptable and clearly reflect the frequency of these tests. Therefore, revision of the Technical Specifications as proposed is not required.

The licensee also noted that the test procedures would be revised to include testing the output relay contacts in the valve control circuits consistent with the current Technical Specification requirements for the channel functional tests of the instrument channels which provide automatic initiation. Therefore, no change to the Technical Specifications was proposed with regard to the previously identified staff concern since this testing is covered by the current Technical Specifications. We concur with the licensee's conclusions and find that test procedure revisions resolve the concern which was identified in our initial evaluation of this matter.

When the SE for NUREG-0737, Item II.E.1.2, was issued January 10, 1983, the NRC staff had not completed its review of the control room status indication provided when an AFW train is taken out of service. The staff was concerned that either train of the Davis-Besse AFW system may be taken out of service for maintenance by manually closing normally locked open valves (MS729 or MS730) in the steam supply line to the AFW system pump turbine. Taking a pump out of service while in modes 1, 2, or 3 places the plant in a limiting condition of operation whereby the inoperable train must be restored within 72 hours or the plant must attain a hot shutdown condition within the following 12 hours. Section 4.13, Indication of Bypasses, of IEEE Standard 279-1971 requires that when some part of the system has been bypassed or deliberately rendered inoperable for any purpose, this condition should be continuously indicated in the control room. Regulatory Guide 1.47, "Bypassed and Inoperable Status Indication for Nuclear Power Plant Safety Systems," provides further guidance on indication of bypasses. When either of these valves is closed, procedures require that a notation be made in the locked valve log and on a status board that indicates AFW train status. In addition, a blue light is manually lit on a status panel to indicate that one train of AFW is out of service. The staff finds that this meets the intent of Regulatory Guide 1.47 and is, therefore, acceptable.

With the implementation of the proposed modifications of the plant Technical Specifications for AFW flow indication, as noted above, we find that the Davis-Besse Nuclear Power Station, Unit No. 1, has complied with the requirements of NUREG-0737, Item II.E.1.2, and the design is, therefore, acceptable.

3.0 Environmental Consideration

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR 51.5(d)(4), that an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

4.0 Conclusion

We have concluded, based on the considerations discussed above, that:
(1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and
(2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: May 30, 1984

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