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Subject: Implementation Letter Report for NUREG-0737, Item II.F.2, Inadequate Core Cooling Instrumentation

Gentlemen:

In response to the Nuclear Regulatory Commission (NRC) "Order for Modification of License" dated December 10, 1982 (Log Number 1157), Toledo Edison (TE) provided information regarding installation of instrumentation to detect and monitor inadequate core cooling (ICC) conditions at the Davis-Besse Nuclear Power Station by letters dated March 23, 1983 (Serial Number 924) and April 15, 1983 (Serial Number 935). Additional information was provided by TE letters dated December 8, 1983 (Serial Number 1003), February 10, 1984 (Serial Number 1025) and March 9, 1984 (Serial Number 1031) in response to a NRC request for additional information dated September 6, 1983 (Log Number 1360).

The NRC issued its Safety Evaluation related to ICC instrumentation and the Reactor Vessel Head Vent (NUREG-0737, Items II.F.2 and II.B.1) on February 14, 1990 (Log Number 3169). Final approval of the ICC instrumentation was withheld pending NRC approval of the implementation letter report as cited in Enclosure 3 of NRC letter Log Number 1360. Toledo Edison herewith, in Attachment 1, provides the implementation letter report for NUREG-0737, Item II.F.2. As stated therein, TE requests NRC final approval of the ICC installation at Davis-Besse.

In addition, as addressed in the Safety Evaluation transmitted by NRC letter Log Number 3169, the Reactor Vessel Head-To-Hot Leg Vent Line (Continuous Vent Line), which satisfies the Reactor Vessel Level Indication issue of NUREG-0737, Item II.F.2, also complies with the NUREG-0737, Item II.B.1 issue related to the Reactor Vessel Head Vent. Therefore, Toledo Edison considers this item to be closed also.

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If you have any questions, please contact Mr. R. W. Schrauder, Manager - Nuclear Licensing, at (419) 249-2366.

Very truly yours,

RMC/ssg

Attachment

cc: P. M. Byron, DB-1 NRC Senior Resident Inspector
A. B. Davis, Regional Administrator, NRC Region III
T. V. Wambach, DB-1 NRC Senior Project Manager

Implementation Report for NUREG-0737,
Item II.F.2, Inadequate Core Cooling Instrumentation

In accordance with NRC letter Log Number 1360 dated September 6, 1983, the following provides information concerning completion of implementation of NUREG-0737, Item II.F.2. The disposition is provided following the NRC implementation report item identification.

Item 1) Notification that the system installation, functional testing, and calibration is complete and test results are available for inspection.

TE Disposition

a) Subcooling Margin Monitoring System
The Subcooling Margin Monitoring System (T-Sat Meters) was installed via Facility Change Request (FCR) 79-439. Installation, functional testing, calibration, and post installation testing results documentation is available for inspection.

b) Core Exit Thermocouples
The Core Exit Thermocouple (CET) System meeting the requirements of NUREG-0737 was installed under FCR 80-115. This FCR modified the existing CET System to provide Class 1E installation from the containment penetrations to the Control Room. Subsequent separation and isolation necessary to make the total installation Class 1E and environmentally qualified (to meet Regulatory Guide 1.97 commitments made in TE letters Serial Number 1460, dated December 31, 1987, and Serial Number 1542, dated June 9, 1988), including the CETs and the cables from the CETs to the containment penetrations, were provided via FCR 84-049. Installation, functional testing and calibration are complete and post installation testing results documentation is available for inspection.

c) Hot Leg Level Monitoring System
Hot Leg Level Monitoring System (HLLMS) was installed by FCR 80-269. The Loop 1 hot leg level is calculated by and is available for display on the plant computer. Due to initial unavailability of analog input points in the plant computer, the Loop 2 hot leg level calculation was implemented on the Data Acquisition and Display System (DADS). The hot leg level input for Loop 2 is presently being implemented on the plant computer. Both Loop 1 and Loop 2 hot leg level displays are available in the control room via DADS. Installation, functional testing, calibration and post installation testing results documentation for the implemented portion of HLLMS is available for inspection.

d) Reactor Coolant Pump Monitoring System
The Reactor Coolant Pump Monitoring System (RCPMS) software implementation (for calculation of void fraction at the suction of the Reactor Coolant Pumps) is complete. Documentation of installation is available for inspection.

e) Reactor Vessel Head-To-Hot Leg Vent Line
The Continuous Reactor Vessel Head-to-Hot Leg Vent Line (Continuous Vent Line or CVL) was implemented via FCR 84-002. Documentation of installation, functional testing and calibration results is available for inspection. Performance testing at the Babcock and Wilcox (B&W) Multi-Loop Integrated System Test (MIST) facility (MIST Test Number 370199) was provided by TE in letter Serial Number 1543, dated August 23, 1988, and was evaluated and documented by NRC, in its Safety Evaluation for NUREG-0737, Item II.F.2, dated February 14, 1990 (Log Number 3169), as acceptable.

Item 2) Summary of licensee conclusions based on test results, e.g.:
a) the system performs in accordance with design expectations and within design error tolerances; or

b) descriptions of deviations from design performance specifications and basis for concluding that the deviations are acceptable.

TE Disposition

a) The Subcooling Margin Monitoring System performs in accordance with design expectations.

b) The Core Exit Thermocouple System performs in accordance with design expectations.

c) The Hot Leg Level Monitoring System performs in accordance with design expectations.

d) The Reactor Coolant Pump Monitoring System software is in accordance with design and provides information per expectations.

e) Performance testing at the MIST facility, as cited above, has provided reasonable assurance that the Continuous Reactor Vessel Head-to-Hot Leg Vent Line will perform in accordance with design expectations.

Item 3) Description of any deviations of the as-built system from previous design descriptions with any appropriate explanation.

TE Disposition

a) No deviations of the as-built Subcooling Margin Monitoring System from the previous design descriptions have been identified.

b) No deviations of the as-built Core Exit Thermocouple System from the previous design descriptions have been identified.

c) No deviations of the Hot Leg Level Monitoring System from the previous design descriptions, other than as described above (Item 1c) and which are being corrected, have been identified.

d) No deviations of the Reactor Coolant Pump Monitoring System from the previous design descriptions have been identified.

e) No deviations of the Continuous Reactor Vessel Head-To-Hot Leg Vent Line from the previous design descriptions have been identified.

Item 4) Request for modification of Technical Specifications to include all ICC instrumentation for accident monitoring.

TE Disposition

Technical Specification modifications have not been requested to include ICC instrumentation for accident monitoring. Technical Specification modifications may be proposed as part of the Technical Specification Improvement Program following its conclusion.

Item 5) Request for NRC approval of the plant-specific installation.

TE Disposition

Toledo Edison herewith requests NRC approval of the ICC instrumentation installation at Davis-Besse.

Item 6) Confirm that the EOPs (Emergency Operating Procedures) used for operator training will conform to the technical content of NRC approved EOP guidelines (generic or plant-specific).

TE Disposition

Symptom-based Emergency Operating Procedures (EOPs) were implemented at Davis-Besse in December 1984. The B&W Owner's Group developed Abnormal Transient Operating Guides (ATOG) for each plant and Davis-Besse's EOPs were based upon the Davis-Besse plant specific ATOG. Davis-Besse performed a verification and validation program when EOPs were implemented in accordance with the Procedure Generation Package (PGP). In March 1987, Davis-Besse submitted an upgraded PGP to NRC and received a Safety Evaluation Report (SER) (Log Number 2915) concerning the PGP on May 3, 1989. Revisions to Davis-Besse's EOPs are performed in accordance with the upgraded verification and validation program described in the PGP.

A NRC inspection of the Davis-Besse's EOPs (Inspection Report Number 50-346/89-06, Log Number 1-2085, dated May 3, 1989) concluded that, within the scope of the inspection, the EOPs were found adequate for continued operation of the facility. Although this was a limited inspection, no serious problems with ICC instrumentation were identified. One comment on guidance for monitoring instrumentation for Inadequate Core Cooling (ICC) was incorporated into the EOPs by revision dated April 22, 1990.

The B&W Owner's Group has performed an EOP review to determine and identify any differences between the generic guidance, Technical Basis Document (TBD), and each B&W plant's EOPs. This report was issued in March 1990. The report concludes that the ICC section of the Davis-Besse EOPs meets the intent of the guideline. The B&W Owner's Group plans to notify the NRC of the completion of the EOP Review Project as part of the Safety and Performance Improvement Program (SPIP) for B&W plants.