



TOLEDO EDISON COMPANY  
DAVIS-BESSE NUCLEAR POWER STATION UNIT ONE  
SUPPLEMENTAL INFORMATION FOR LER NP-32-82-01

DATE OF EVENT: January 13, 1982

FACILITY: Davis-Besse Unit 1

IDENTIFICATION OF OCCURRENCE: Borated Water Storage Tank (BWST) Temperature Elevated

Conditions Prior to Occurrence: The unit was in Mode 1 with Power (MWT) = 2770 and Load (Gross MWE) = 920.

Description of Occurrence: On January 13, 1982 at 1100 hours, it was determined that the BWST water temperature was higher than the initial conditions assumed in the Davis-Besse Unit 1 Final Safety Analysis Report (FSAR). In Section 6.2.1.3.2, "Containment Pressure Transient Analysis Break Spectrum" of the FSAR, an initial condition of 90°F BWST temperature was assumed in the analysis to determine maximum containment pressure over various loss of coolant accident break sizes. Since the BWST temperature was indicating approximately 115°F from an extended operation of a heat exchanger used to maintain minimum temperature, it was possible that operation was less conservative than the accident analyses in the FSAR. This required a prompt notification with written followup per Technical Specification 6.9.1.8.i.

Designation of Apparent Cause of Occurrence: The cause of this occurrence was a lack of administrative restrictions on maximum BWST temperature. Station procedures only provided minimum temperature restrictions and did not specify the maximum temperature initial condition listed in Section 6.2.1.3.2 of the FSAR.

Analysis of Occurrence: There was no danger to the health and safety of the public or station personnel. A safety analysis was performed under Facility Change Request 82-006 which determined the consequences of increasing the BWST temperature from 90°F to 120°F while operating at 90% of design power is less limiting than the normal design conditions utilized.

On February 7, 1982, an Emergency Core Cooling System (ECCS) study on operation at 100% power with a 120°F BWST was completed which determined:

- (1) In light of the low core local operating peaks that were present when the plant was in this configuration, the present large break LOCA analyses would bound the resultant fuel peak cladding temperatures.
- (2) For small break LOCA evaluations, the higher BWST temperature would result in a decreased vessel inventory. However, the resultant peak cladding temperatures would still have substantial margin to the 2200°F peak cladding temperature criteria of 10CFR50.46.

- 1 | (3) Mass and energy releases to the containment could increase by 1.7% due to the higher BWST water temperature, but the resultant increase in peak building pressure would be less than 0.6 psi.

Corrective Action: In order to ensure operation in a conservative manner, an estimate of the reduction of the required heat removal capacity for both containment and core loss of coolant accident considerations resulted in a determination that a power reduction to approximately 94% of full power would compensate for the temporarily increased injection water temperature. To add additional margin, it was decided to reduce power to approximately 90% of full power which was completed at approximately 1830 hours on January 13, 1982.

1 | Procedure modifications to ST 5099.02, "Miscellaneous Instrument Daily Check" and SP 1104.66, "BWST Operating Procedure" were completed to provide a high temperature restriction to the BWST in addition to the low temperature restrictions which exist in Technical Specifications 3.1.2.8 and 3.5.4.

At approximately 0230 hours on January 14, 1982, BWST temperature decreased below 90°F. The reactor was restored to full power at approximately 0500 hours on January 14, 1982.

During the review of this incident, it was determined the BWST temperature had been elevated above 90°F when the unit was at full power several times prior to this event. These incidents were also caused by a lack of maximum temperature restrictions and are being studied to increase the scope of the available data.

Toledo Edison is analyzing these events to determine if any equipment modifications could assist in maintaining the BWST within temperature limits.

Failure Data: There have been no previously reported similar occurrences since the high temperature restriction was not recognized.