

TOLEDO EDISON COMPANY
DAVIS-BESSE NUCLEAR POWER STATION UNIT ONE
REPORTABLE OCCURRENCE NP-09-80-01

DATE OF EVENT: January 16, 1980

FACILITY: Davis-Besse Unit 1

IDENTIFICATION OF OCCURRENCE: Discharge temperature for station liquid effluents exceeded 20°F limit above lake temperature

Conditions Prior to Occurrence: The unit was in Mode 1, with Power (MWT) = 166, and Load (Gross MWE) = 0.

Description of Occurrence: On January 6, 1980 during normal plant startup, the 20°F temperature differential limit between station liquid effluent discharge and lake temperature was exceeded.

Environmental Technical Specification (ETS) 2.1.1 specifies that the maximum discharge temperature for station liquid effluents shall not exceed 20°F above ambient lake water temperature. When the limit is exceeded, dilution water is to be supplied by the dilution pump to keep the discharge temperature differential within the limit.

The 20°F temperature differential limit was observed to have been exceeded at the following times: 0700 hours and 1900 hours on January 6, 1980; 0000 hours, 0900 hours, and 1900 hours on January 7, 1980; and 0600 hours on January 8, 1980. On January 16, 1980 at 1600 hours, the unit was operating at 100% power and the 20°F temperature differential limit was exceeded again. During each of the occurrences the temperature differential limit was exceeded by approximately 1°F to 5°F.

The dilution pump was operating during each of the occurrences but failed to maintain the liquid effluent temperature within the 20°F limit.

Designation of Apparent Cause of Occurrence: The apparent cause of the occurrence was procedural deficiency. On January 6, 7, and 8, 1980, the plant was operating with the cooling tower in bypass mode causing the cooling tower basin temperature to be elevated above normal operating temperature during startup, thus producing a high station liquid effluent temperature. The combination of high station liquid effluent temperature and low lake temperature caused the temperature differential limit to be exceeded. The dilution pump was operating per SP 1104.09, Circulating Water System and Cooling Tower Operation, but was unable to provide the adequate cooling effect and prevent exceeding the 20°F temperature differential limit.

On January 16, 1980 the unit was operating at 100% power with all circulating water pumps operating. High station liquid effluent temperature was caused by the combination of unseasonably warm weather and reduced cooling tower efficiency due to both control flume isolation valves being inoperable. The combination of high station liquid effluent temperature and low lake temperature caused the temperature differential limit to be exceeded. Again the dilution pump was operating per SP 1104.09 but was unable to prevent exceeding the 20°F temperature differential limit.

SP 1104.09, Circulating Water System and Cooling Tower Operation Procedure, was deficient of adequate guidelines to maintain station liquid effluent temperature within the 20°F limit beyond just verifying the dilution pump being on.

Analysis of Occurrence: There was no danger to the health and safety of the public or to station personnel. It is believed that the slight increase in temperature above the discharge limit did not cause environmental damage.

Corrective Action: On January 6, 7, and 8, 1980, the station liquid effluent temperature returned to within the 20°F limit when the circulating water flow was transferred from the normal startup bypass mode of operation and directed through the cooling tower.

On January 16, 1980, the service water discharge was diverted from the forebay to the collection box which reduced station liquid effluent temperature to within the 20°F limit.

SP 1104.09, Circulating Water System and Cooling Tower Operation Procedure, will be modified to provide additional guidelines to the operators to assist in maintaining station liquid effluent temperature within limits.

Failure Data: A prior occurrence of the temperature limit being exceeded was reported in Licensee Event Report NP-09-78-03.