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SUBJECT: Interim deficiency rept re inadequate net positive suction head for ERCW vertical pumps.ERCW counted upon to aid in mitigating consequences of LOCA in preventing radioactive release in excess of 10CFR100 limitations.

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NOV 1 0 1993

BLRD-50-438/93-11
BLRD-50-439/93-11

10 CFR 50.55(e)

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Gentlemen:

In the Matter of the Application of)	Docket Nos. 50-438
Tennessee Valley Authority)	50-439

BELLEFONTE NUCLEAR PLANT (BLN) - INADEQUATE NET POSITIVE SUCTION HEAD (NPSH) FOR EMERGENCY RAW COOLING WATER (ERCW) VERTICAL PUMPS - BLRD-50-438/93-11 AND BLRD-50-439/93-11 - INTERIM REPORT

The subject deficiency was reported to the NRC Operations Center on October 12, 1993 in accordance with 10 CFR 50.55(e)(3) as Problem Event Report (PER) BLPER930067. Enclosure 1 provides an interim report for the subject deficiency. Enclosure 2 provides TVA's commitment to provide an additional report for the subject deficiency on or before one year before fuel load.

Should there be any questions regarding this information, please telephone Greg Pierce, BLN Site Licensing Manager, at (205) 574-8058.

JE Swindell
for H. Fred McCluskey

JE27 1/1

Enclosures

NOV 1 0 1993

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ENCLOSURE 1

BELLEFONTE NUCLEAR PLANT (BLN) - UNITS 1 AND 2
INADEQUATE NPSH FOR THE ERCW VERTICAL PUMPS
PROBLEM EVALUATION REPORT (PER) BLPER930067
BLRD-50-438/93-11 AND BLRD-50-439/93-11

INTERIM REPORT

Description of Deficiency

Problem Evaluation Report (PER) No. BLPER930067 was issued at BLN following the performance of calculation number ME-1KE-00258 R/0. The calculation reveals that the available NPSH to the vertical ERCW pumps with water level at the assumed minimum value during design basis conditions to be less than the NPSH necessary at the maximum credible flow rate associated with the design basis conditions.

The ERCW vertical pumps are demonstrated by the above referenced calculation to fail the required NPSH by ~ 0.55 feet. The calculation was performed for Unit 1; however, the conditions described in the PER are also applicable to the Unit 2 ERCW pumps. Failure to meet NPSH required is a common mode failure and would affect the entire ERCW system.

The NPSH required is determined by using the water level that is assumed to occur in conjunction with a dam break (Guntersville Dam) and the maximum credible flow rate that is demonstrated to occur during the design basis event (LOCA). These conditions are postulated to occur simultaneously per RG 1.27, R/2. Also, the NPSH requirement was determined using the vendor supplied estimated NPSH curve for no (0%) head drop.

Safety Implications

BLN is currently in a long-term layup mode and construction is not scheduled to resume at the facility for several years and ERCW system operability is not currently established or required; however, lack of required NPSH could render the pumps incapable of performing their design safety function for an operable system.

Loss of required NPSH to the ERCW pumps during a design basis event could render the ERCW system incapable of performing its safety function. The ERCW system is required in order to provide a heat rejection vehicle to achieve a plant safe shutdown and for the plant engineered safety features systems and auxiliaries during and following a design basis accident. The ERCW is counted upon to aid in mitigating the consequences of a LOCA in preventing a radioactive release in excess of 10 CFR 100 limitations. As such, should the ERCW pumps fail due to inadequate NPSH, the ERCW system would not comply with General Design Criteria 44, "Cooling Water" in providing a redundant source of cooling water to transfer the heat loads during an accident, to an ultimate heat sink, in order to satisfy the plant safety analysis, or to safely shutdown the plant.

Interim Status

As described in PER BLPER930067, the pump curve is estimated and may not be an accurate representation of the required NPSH. No NPSH required curve exists for this pump model. Pump NPSH testing was not required as part of the pump performance test requirements of the procurement documentation. As part of the corrective action for the PER, one of the eight pumps will be tested for NPSH to determine the actual NPSH curve.

The water level in the Intake Bay is assumed to be at 568'- 4". This water level is assumed to be that which occurs following a failure of the Guntersville Dam. This water level was used in the purchase specification for the pumps (Contract No. 77K35-820122, Design Spec No. BNP-DS-1925-2913-00). As part of the corrective action for the PER, the water level of the Intake Bay will be validated and the appropriate source design basis input documents will be verified.

An additional report will be submitted one year before fuel load with the results of actions and evaluations performed as part of the corrective actions for PER BLPER930067 and SCAR BLP930112SCA.

ENCLOSURE 2

BELLEFONTE NUCLEAR PLANT (BLN) - UNITS 1 AND 2
BLRD-50-438/93-11 AND BLRD-50-439/93-11

COMMITMENTS

An additional report will be submitted one year before fuel load with the results of actions taken and evaluations performed as part of the corrective actions for PER BLPER930067 and SCAR BLP930112SCA.