

BFN-22

10.22 AUXILIARY DECAY HEAT REMOVAL SYSTEM (ADHR)

10.22.1 Power Generation Objective

The Auxiliary Decay Heat Removal System provides a non-safety related means to remove decay heat and residual heat from the spent fuel pool and reactor cavity of either BFN Units 1, 2, or 3. The ADHR allows servicing of the Residual Heat Removal System (RHRS) components earlier in an outage, thus, potentially reducing the outage duration.

10.22.2 Power Generation Design Basis

The ADHR is designed with sufficient capacity to limit temperature in the spent fuel pool (SFP). The ADHR is supplemented by operation of the Fuel Pool Cooling and Cleanup System (FPCS), and assistance from RHRS for a period immediately after the gates between the SFP and the reactor cavity are opened. The ADHR can be utilized to pre-cool the SFP prior to opening gates between SFP and the reactor cavity.

10.22.3 Description

One ADHR System is provided to serve either Unit 1, Unit 2, or Unit 3. The ADHR System consists of two (2) cooling water loops. The primary cooling loop circulates SFP water entirely inside the Reactor Building and rejects heat from the SFP to a secondary loop by means of a heat exchanger. The secondary loop transfers heat to the atmosphere outside the Reactor Building by means of evaporative cooling towers.

The primary loop suction piping from a point near the SFP to a point near pumps, and the discharge piping from a point near the heat exchangers to SFP, is removable. This piping can be installed temporarily for operation of the ADHR and can be removed and stored.

The secondary cooling loop is operated at a higher pressure than the primary loop to prevent cross contamination of the secondary loop by a leak from the primary loop. Differential pressure switches (primary to secondary loop) detect conditions which could have the potential for cross contamination.

10.22.4 Safety Evaluation

The ADHR is not required to support safe shutdown of the plant. Thus, the ADHR does not perform a safety function, with the exception of meeting the requirements for secondary containment penetrations.

10.22.5 Inspections and Testing

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The ADHR requires no special inspection or testing.