

10.20 AUXILIARY BOILER SYSTEM

10.20.1 Power Generation Design Basis

The Auxiliary Boiler System shall be designed to supply steam for the following:

- a. Building heating
- b. HPCI and RCIC testing
- c. Steam seal regulator at startup
- d. Condenser hotwell deaeration and heating at startup (Unit 1 and Unit 3)
- e. Steam jet air ejector (SJAE) operation at startup
- f. Radwaste evaporator (in place but not generally used)
- g. Offgas preheater at startup
- h. N₂ evaporator
- i. Sellers jet
- j. Pegging steam for auxiliary deaerator

10.20.2 Description

There are three shop-assembled, water-tube, natural-circulation boilers designed for pressure firing with oil. Each boiler has a rated capacity of 50,000 lb/hr at 250 psig saturated steam (406°F). Flue gases from the boilers are discharged into a common steel stack extending above the Reactor Building roof. The three boilers may be operated individually or simultaneously depending on steam requirements.

The auxiliary boilers provide the only steam source to the powerhouse building heating system. They also provide steam to the turbine seal system and the SJAE when the nuclear steam supply is incapable of furnishing adequate steam to these systems, such as during cold startup, low power reactor operations and main steam isolations. The auxiliary steam system may be used in the startup phase for deaeration of the condensate in the condenser hotwell, should the condensate oxygen level exceed startup limits, (Unit 1 and Unit 3) and for deaeration of the radwaste evaporation system.

Steam supplied to the building heating system is returned as condensate to the Auxiliary Boiler System. Condensate from several other uses of the Auxiliary Boiler System directly contributes to the condensate inventory of the reactor system.

Makeup water for the Auxiliary Boiler System is provided by the Demineralized Water System.

Removable pipe sections and blanking flanges are provided in the steam supply lines to the HPCI and RCIC turbines, and a check valve and a gate valve are provided in the steam lines to the SJAE and the steam seal regulator to assure that

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no radioactive steam or condensate can backfeed to the auxiliary boiler when the lines are not in use. This system provides a common means to test the HPCI and RCIC steam turbines at low pressure. Blanking flanges are provided in the deaeration lines to the Unit 1 and Unit 3 condenser hotwells to assure that the chemicals used to treat the boiler feedwater do not leak into the condenser hotwell. The function to provide deaeration to the condenser hotwell is no longer utilized for Unit 2. The addition of a temporary spool piece is required for the use of the Unit 1 and Unit 3 deaeration line. These operations are not critical in a time sense. The outage of this system does not influence the capability of the plant to shut down in any mode. Instrument and test connections throughout the system facilitate operation and performance testing.