

11.5 TURBINE BYPASS SYSTEM

11.5.1 Power Generation Objective

The objective of the Turbine Bypass System is to provide a bypass around the turbine directly to the condenser for steam flow which cannot be processed through the turbine.

11.5.2 Power Generation Design Basis

The Turbine Bypass System shall provide adequate bypass capacity to limit primary system pressure increases resulting from sudden load changes.

11.5.3 System Description

The Turbine Bypass System consists of nine bypass valves individually piped to the condenser through a pressure breakdown device (called a trumpet). The steam is delivered to the condenser at 250 psig.

The bypass system is capable of accepting up to approximately 25 percent of rated main steam flow. The Turbine Bypass System is designed to pass 3,499,764 pounds per hour of main steam at 1191.2 Btu/lb to the condenser. The bypassed steam at a discharge pressure of about 250 psig is delivered to the condenser. The bypass valves are controlled by the initial pressure regulator to minimize pressure spikes and to compensate for sudden load changes.

This system also provides a means for utilizing the condenser as a heat sink during startup and shutdown.

Heating and loading of the turbine are accomplished by first establishing a flow of steam to the condenser through the bypass system, then gradually transferring this flow to the turbine.

During normal shutdown, steam is released to the main condensers through the bypass system to give the desired rate of cooldown of the reactor.

11.5.4 Inspection and Testing

Test and inspection of the system components and equipment will be conducted to assure functional performance as required for continued safe operation.