

3.5 Initial Test Program

Design Description

The ABWR Initial Test Program (ITP) is a program that will be conducted following completion of construction and construction-related inspections and tests and extends to commercial operation. The test program will be composed of preoperational and startup test phases. The general objective of the ITP is to confirm that performance of the as-built facility is in compliance with the design characteristics used for safety evaluations.

The preoperational test phase of the ITP will consist of those test activities conducted prior to fuel loading. Preoperational testing will be conducted to demonstrate proper performance of structures, systems, components, and design features in the assembled plant. Tests will include, as appropriate, logic and interlocks test, control and instrumentation functional tests, equipment functional tests, system operational test, and system vibration and expansion measurements.

The startup test phase of the ITP will begin with fuel loading and extends to commercial operation. The primary objective of the startup phase testing will be to confirm integrated plant performance with the nuclear fuel in the reactor pressure vessel and the plant at various power levels. Startup phase testing will be conducted at five test conditions during power ascension: open vessel, heatup, low power, mid-power, and high power. The following tests will be conducted during power operation testing:

- (1) Core performance analysis.
- (2) Steady-state testing.
- (3) Control system tuning and demonstration.
- (4) Minor and major transients.

Testing during all phases of the ITP will be conducted using step by step written procedures to control the conduct of each test. Such test procedures will delineate established test methods and applicable acceptance criteria. The test procedures will be developed from preoperational and startup test specifications. Approved test procedures will be made available to the NRC approximately 60 days prior to their intended use for preoperational tests and 60 days prior to scheduled fuel loading for startup phase tests. The preoperational and startup test specifications will also be made available to the NRC. Administratively, the ITP will be controlled in accordance with a startup administrative manual. This manual will contain the administrative requirements that govern the conduct of test program, review, evaluation and approval of test results, and test records retention.

Inspections, Tests, Analyses and Acceptance Criteria

This section represents a commitment that combined operating license applicants referencing the certified design will implement an ITP that meets the objectives presented above. Inspections, tests, analyses and acceptance criteria (ITAAC) aimed at verification of ITP implementation are neither necessary nor required.