H. B. Robinson Steam Electric Plant, Unit No. 2
Marked-up Basis Pages

c. Notification of the pending test, either of a sample tendon or the containment structural test, along with detailed acceptance criteria shall be forwarded to the Nuclear Regulatory Commission two months prior to the actual test. Within six months of conducting the test, a report and evaluation shall be submitted to the NRC.

Basis

The containment is designed for an accident pressure of 42 psig.[1] While the reactor is operating, the internal environment of the containment will be air at approximately atmospheric pressure and a maximum temperature of 120°F. Post-accident conditions are documented in the Updated Final Safety Analysis Report.

Prior to initial operation, the containment was strength tested at 48.3 psig and then was leak-tested. The acceptance criterion for this preoperational leakage rate test was established as 0.08 weight percent of the contained air per 24 hours at the design pressure of 42 psig. This acceptable leakage rate was equivalent to a 0.1 weight percent of the contained steam-air atmosphere per 24 hours at 42 psig and 263°F. The acceptance criteria for Integrated Leakage Rate Tests (ILRTs) is now defined in Technical Specifications Section 6.12. These leakage rates are consistent with the construction of the containment,[2] which is equipped with ~~a penetration pressurization system which pressurizes~~ penetrations, double gasketed seals, and some isolation valve spaces. The channels over all of the containment liner welds were independently leak-tested during construction.

The original safety analysis has been performed on the basis of a leakage rate of 0.10% per 24 hours at 42 psig and 263°F. With this leakage rate and with minimum containment engineered safety features operating, the public exposure would not exceed 10 CFR 100 guideline values in the event of the design basis accident.[3]

test connections that allow testing in accordance with Containment Leakage Rate Testing Program to be performed on

Secondly, the penetration pressurization system is capable of continuously or periodically monitoring leakage from potential leak paths, such as penetrations, double gasketed seals, and spaces between certain containment isolation valves. Total leakage from the system is measured by summing the recorded flows in each of the four penetration headers. The penetration pressurization system is a qualified system for continuous or intermittent pressurization of individual or groups of containment penetrations as allowed in 10 CFR 50, Appendix J, Items III.B.1.(b), III.B.3.(b), and III.C.1.

A flow sensing device is located in each of the headers supplying make-up air to the four pressurized zones. A leakage rate alarm is provided in each of the four indicating channels to alert the operator in the control room. The flow measurement accuracy is within ±1%. A flow of 0.04% of the containment volume per day at 42 psig is approximately 0.58 ft^3/minute (2.34 scfm). The flowmeters are capable of indicating leakage well within these limits.

Containment isolation valves are designed to incorporate positive barriers to prevent or minimize leakage through the valves under design basis accident conditions. ~~Several~~ isolation valves are ~~pressurized by the penetration pressurization system to prevent leakage.~~ The remaining valves either receive Isolation Seal Water System water or are installed in systems that are part of a closed system within the containment or operate at system pressures greater than the design pressure of 42 psig in the post-accident condition. These design features provide positive means to prevent containment leakage through the containment isolation valves.

The limiting leakage rates from the recirculation heat removal system are judgment values based primarily on assuring that the components could operate without mechanical failure for a period on the order of 200 days after a design basis accident. The test pressure, 350 psig, achieved either by normal system operation or hydrostatically testing, gives an adequate margin over the highest pressure within the system after a design basis accident.

Containment

tested in accordance with the Containment Leakage Rate Testing Program.

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Re-typed Basis Pages

c. Notification of the pending test, either of a sample tendon or the containment structural test, along with detailed acceptance criteria shall be forwarded to the Nuclear Regulatory Commission two months prior to the actual test. Within six months of conducting the test, a report and evaluation shall be submitted to the NRC.

Basis

The containment is designed for an accident pressure of 42 psig.[1] While the reactor is operating, the internal environment of the containment will be air at approximately atmospheric pressure and a maximum temperature of 120°F. Post-accident conditions are documented in the Updated Final Safety Analysis Report.

Prior to initial operation, the containment was strength tested at 48.3 psig and then was leak-tested. The acceptance criterion for this preoperational leakage rate test was established as 0.08 weight percent of the contained air per 24 hours at the design pressure of 42 psig. This acceptable leakage rate was equivalent to a 0.1 weight percent of the contained steam-air atmosphere per 24 hours at 42 psig and 263°F. The acceptance criteria for Integrated Leakage Rate Tests (ILRTs) is now defined in Technical Specifications Section 6.12. These leakage rates are consistent with the construction of the containment,[2] which is equipped with test connections that allow testing in accordance with the Containment Leakage Rate Testing Program to be performed on penetrations, double gasketed seals, and some isolation valve spaces. The channels over all of the containment liner welds were independently leak-tested during construction.

The original safety analysis has been performed on the basis of a leakage rate of 0.10% per 24 hours at 42 psig and 263°F. With this leakage rate and with minimum containment engineered safety features operating, the public exposure would not exceed 10 CFR 100 guideline values in the event of the design basis accident.[3]

Secondly, the penetration pressurization system is capable of continuously or periodically monitoring leakage from potential leak paths, such as penetrations, double gasketed seals, and spaces between certain containment isolation valves. Total leakage from the system is measured by summing the recorded flows in each of the four penetration headers. The penetration pressurization system is a qualified system for continuous or intermittent pressurization of individual or groups of containment penetrations as allowed in 10 CFR 50, Appendix J, Items III.B.1.(b), III.B.3.(b), and III.C.1.

Containment isolation valves are designed to incorporate positive barriers to prevent or minimize leakage through the valves under design basis accident conditions. Containment isolation valves are tested in accordance with the Containment Leakage Rate Testing Program. The remaining valves either receive Isolation Seal Water System water or are installed in systems that are part of a closed system within the containment or operate at system pressures greater than the design pressure of 42 psig in the post-accident condition. These design features provide positive means to prevent containment leakage through the containment isolation valves.

The limiting leakage rates from the recirculation heat removal system are judgment values based primarily on assuring that the components could operate without mechanical failure for a period on the order of 200 days after a design basis accident. The test pressure, 350 psig, achieved either by normal system operation or hydrostatically testing, gives an adequate margin over the highest pressure within the system after a design basis accident.