



TECHNICAL SPECIFICATION

UNIVERSITY OF MISSOURI
RESEARCH REACTOR FACILITY

Number 3.3

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SUBJECT: Reactor Safety System (continued)

Pool Coolant Flow	2	1	0	425 ⁽⁴⁾ gpm (Min) for each 50% capacity heat exchanger leg 850 ⁽⁴⁾ gpm (Min) for one 100% capacity heat exchanger
Differential Pressure Across Reflector	1	0	0	2.52 psi (Min) 8.00 psi (Max)
Differential Pressure Across Reflector	0	1	0	0.63 psi (Min) 2.00 psi (Max)
Differential Pressure Across Core	1	0	0	3200 ⁽⁵⁾ gpm (Min)
Differential Pressure Across Core	0	1	1 ⁽²⁾	1600 ⁽⁵⁾ gpm (Min)
Pressurizer High Pressure	1	1	1 ⁽²⁾	95 psia (Max)
Pressurizer Low Level	1	1	1 ⁽²⁾	16 inches below centerline (Min)
Pool Level	0	0	1	23 feet (Min)
Primary Coolant Isolation Valves 507A/B Off Open Position	1	1	1 ⁽²⁾	Either valve Off Open Position
Pool Coolant Isolation Valve 509 Off Open Position	1	1	0	Valve 509 Off Open Position
Power Level Interlock	1	1	1	Scram as a result of incorrect selection of operating mode
Facility Evacuation	1	1	1	Scram as a result of actuating facility evacuation system
Reactor Isolation	1	1	1	Scram as a result of actuating reactor isolation system



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Manual Scram 1 1 1 Push Button at Control Console

- (1) Flow orifice or heat exchanger ΔP (psi) in each operating heat exchanger leg corresponding to the flow value in the table.
- (2) Not required below 50 KW operation if natural convection flange and pressure vessel cover are removed or in operation with the reactor subcritical by a margin of at least $0.015 \Delta K$.
- (3) Trip pressure is that which corresponds to the pressurizer pressure indicated in the table with normal primary coolant flow.
- (4) Flow orifice ΔP (psi) corresponding to the flow value in the table.
- (5) Core ΔP (psi) corresponding to the core flow value in the table.

Bases

- a. The specifications on high power, primary coolant flow, primary coolant pressure, and reactor inlet temperature provide for the safety system settings outlined in specifications 2.2.a, 2.2.b, and 2.2.c. In Mode I and II operation the core differential temperature is approximately 17°F



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SUBJECT: Reactor Coolant System

Applicability

This specification shall apply to the reactor coolant systems.

Objective

It is the objective of this specification to assure proper coolant for safe operation.

Specification

- a. The reactor coolant system shall consist of not less than a reactor pressure vessel, two primary system pumps, primary pressurizer, two primary heat exchangers, two pool system pumps, **one 100% capacity or two 50% capacity pool system heat exchanger(s)**, and one pool system hold-up tank plus all associated piping and valves.
- b. The reactor coolant system shall have one secondary coolant system capable of continuous discharge of heat generated at the operating power of the reactor.
- c. The pumps and heat exchangers in the primary system shall constitute two parallel systems separately instrumented to permit safe operation at five megawatts on either system or ten megawatts with both systems operating simultaneously.