

**Table 2. Minimum Reactor Safety System Scrams**

Channel	Maximum Set Point	Effective Mode	
		Steady State	Pulse
Fuel Temperature	600°C	2	2
Percent Power, High Flux	1.1 MW	2	0
Console Manual Scram Button	Closure switch	1	1
High Voltage Loss to Safety Channel	20% Loss	2	1
Pulse Time	15 seconds	0	1
Emergency Stop (1 in each exposure room, 1 on console)	Closure switch	3	3
Pool Water Level	14 feet from the top of the core	1	1
Watchdogs ( <del>DAC to CSC</del> )(UIT and CCS)	On digital console	1	1

Bases

The fuel temperature and power level scrams provide protection to ensure that the reactor can be shut down before the fuel temperature safety limit is exceeded. The manual scram allows the operator to shut down the system at any time if an unsafe or abnormal condition occurs. In the event of failure of the power supply for the safety channels, operation of the reactor without adequate instrumentation is prevented. The preset pulse timer ensures that the reactor power level will return to a low level after pulsing. The emergency stop allows personnel trapped in a potentially hazardous exposure room, or the reactor operator, to scram the reactor through the facility interlock system. The pool water level ensures that a loss of biological shielding would result in a reactor scram. The watchdog scram ensures reliable communication between the **User Interface Terminal (UIT) and the Console Computer System (CCS).** ~~Data Acquisition Computer (DAC) and the Control System Computer (CSC).~~

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#### 4.2.2. REACTOR SAFETY SYSTEMS

##### Applicability

These specifications apply to the surveillance requirements for measurement, test, and calibration of the reactor safety systems.

##### Objective

The objective is to verify the performance and operability of the systems and components that are directly related to reactor safety.

##### Specifications

- a. A channel test of the percent power, high flux scram function of the high-flux safety channels shall be made each day that reactor operations are planned.
- b. A channel test of each of each of the reactor safety system channels for the intended mode of operation shall be performed weekly, whenever operations are planned.
- c. Channel calibration, including verification of the high voltage loss to safety channel scrams, shall be made of the NP, NPP, ~~NM1000~~, NLW, NMP or any other console instrumentation designated to provide direct power level information to the operator, annually not to exceed 15 months.
- d. A thermal power calibration shall be completed annually not to exceed 15 months.
- e. The emergency stop scram shall be tested annually, not to exceed 15 months.
- f. The low pool water scram shall be tested weekly not to exceed 10 days whenever operations are planned.
- g. The console manual scram button shall be tested weekly not to exceed 10 days whenever operations are planned.

##### Bases

TRIGA system components have proven operational reliability. Daily tests ensure reliable scram functions and ensure the detection of channel drift or other possible deterioration of operating characteristics. The channel checks ensure that the safety system channel scrams are operable on a daily basis or prior to an extended run. The power level channel calibration will ensure that the reactor is operated within the authorized power levels.

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