



Docket No. 50-346

License No. NPF-3

Serial No. 1025

February 10, 1984

RICHARD P. CROUSE
Vice President
Nuclear
(419) 259-5221

Director of Nuclear Reactor Regulation
Attention: Mr. John F. Stolz
Operating Reactor Branch No. 4
Division of Operating Reactors
United States Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Stolz:

This is in response to your letter dated September 6, 1983 (Log No. 1360), concerning the instrumentation to detect Inadequate Core Cooling (ICC). Toledo Edison provided the schedule for the response on August 9, 1983 (Serial No. 993). Toledo Edison's response for Items 2, 3, 6, 7, 8 and 11 in the Enclosure 2 of your letter was submitted on December 8, 1983 (Serial No. 1003). We have committed that Items 1, 4, 5, 9, 10 and 12 in the same enclosure will be submitted to you by February 10, 1984. Enclosed is Toledo Edison's response to these items, except Item No. 1, as we are waiting for additional data to be supplied by a vendor. It is expected that the response for Item No. 1 will be submitted to you by March 9, 1984.

Very truly yours,

RPC:FYC

dh c/7

Attachment

cc:
DB-1 NRC Resident Inspector

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QUESTION: 4. The explanation for the displays of the core exit temperatures is not clear. The criteria for the backup display are more stringent than those for the primary display, however, the description for both displays refers to the same figures which illustrate control panel layout. Do the primary and backup systems use the same readout display?

RESPONSE: The core map display for core exit thermocouples as described in our March 23, 1983 submittal (Serial No. 924) referred to our backup display. Please refer to our response to Question 9 in this submittal for a description of the operation and location of our backup display.

Our primary display is a video display available for viewing on the control room CRTs via the plant computer. This display shows a core map with temperature readings for all of the existing 52 incore thermocouples.

QUESTION: 5. The backup system requires qualification of all the equipment from the sensor to the display. The qualification environment should be based on the design basis accident. Power should be from a 1E power source. The licensees response to Item 5 of II.F.2 Attachment 1 indicates that significant portions of the system are not planned for upgrade. These portions of the system should be upgraded to environmental qualified equipment.

RESPONSE: The core exit thermocouples and the cables from these thermocouples to the containment vessel penetrations are not Class 1E. These temperature signals meet the Class 1E requirements from the containment vessel penetrations up to and including the buffers which interface with the station and Technical Support Center computers. Class 1E essential instrument power sources supply power to these Class 1E portions of the system.

The incore thermocouple system is being reviewed as part of our Emergency Response capability review program. A schedule for any changes to this system will be provided to you in the Regulatory Guide 1.97 Rev. 2 portion of our reply concerning schedules for completion of basic requirements of Supp. 1 to NUREG 0737 - Requirements for Emergency Response Capability, due April 15, 1984, as committed to in our letter Serial No. 933 to Mr. Darrell G. Eisenhut.

QUESTION: 9. Figures 1 and 2 show TI4627 and TI4628 as incore temperatures. Is this equivalent to the backup display of core exit temperature and if so where is the channel selector switch located? What type of indicator is used, e.g., digital/LED?

RESPONSE: The core map for the backup display is located at the hand selector switch. It shows the spatial location of the eight thermocouples for that particular channel (see details C&D). The hand switch is used to select one of these temperatures for display on the temperature indicator for that channel (TI4627 for Channel 1, TI4628 for Channel 2). The core maps/hand selector switches and associated temperature indicators for the backup display are located on the Post Accident Indicating Panels (see Figures 1 & 2). Temperature indicators TI4627 and TI4628 are analog indicators with a range of 0-2300°F.

QUESTION: 10. Clarify the schedule for additional upgrading of existing instrumentation.

RESPONSE: Please refer to our response to Question 5 in this submittal for information concerning the upgrading of existing instrumentation in the core exit thermocouple temperature indication system.

QUESTION: 12. Justify the design adequacy of the various components of the reactor coolant pump monitoring system for potential operating environment. Are there potential circumstances of core uncover where the reactor coolant pumps may be restarted to achieve core cooling under low coolant inventory conditions? If so, can the pump monitor be expected to function and provide information on the progress of coolant recovery?

RESPONSE: There are three (3) signals provided to the plant computer for the reactor coolant pump monitoring program.

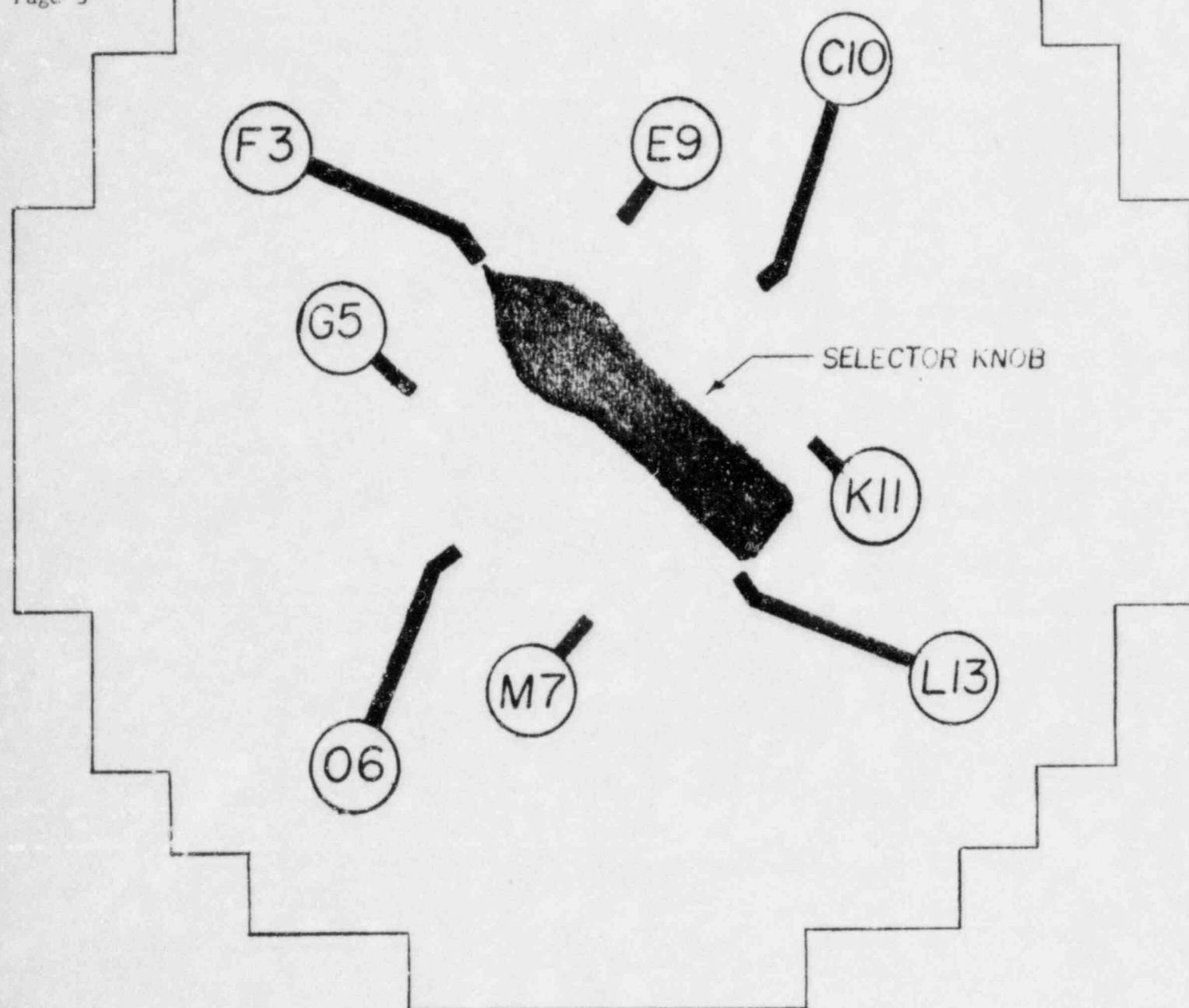
1. RCS wide range temperature (safety grade)
2. RCS wide range pressure (safety grade)
3. RCP electrical power

The RCS pressure and temperature signals originate from the transmitters inside containment with signal conditioning modules in the cabinet room. This is all safety grade equipment and qualified for post accident environmental conditions. The RCP electrical power signal and its instrument modules are all located outside the containment. They will not be subjected to an adverse post accident environment.

There are potential circumstances of core uncover where the RCPs may be started to achieve core cooling. The RCP power monitoring system is expected to be operable barring a concurrent seismic event where the RCP electrical power instrument may fail for not being seismically qualified.

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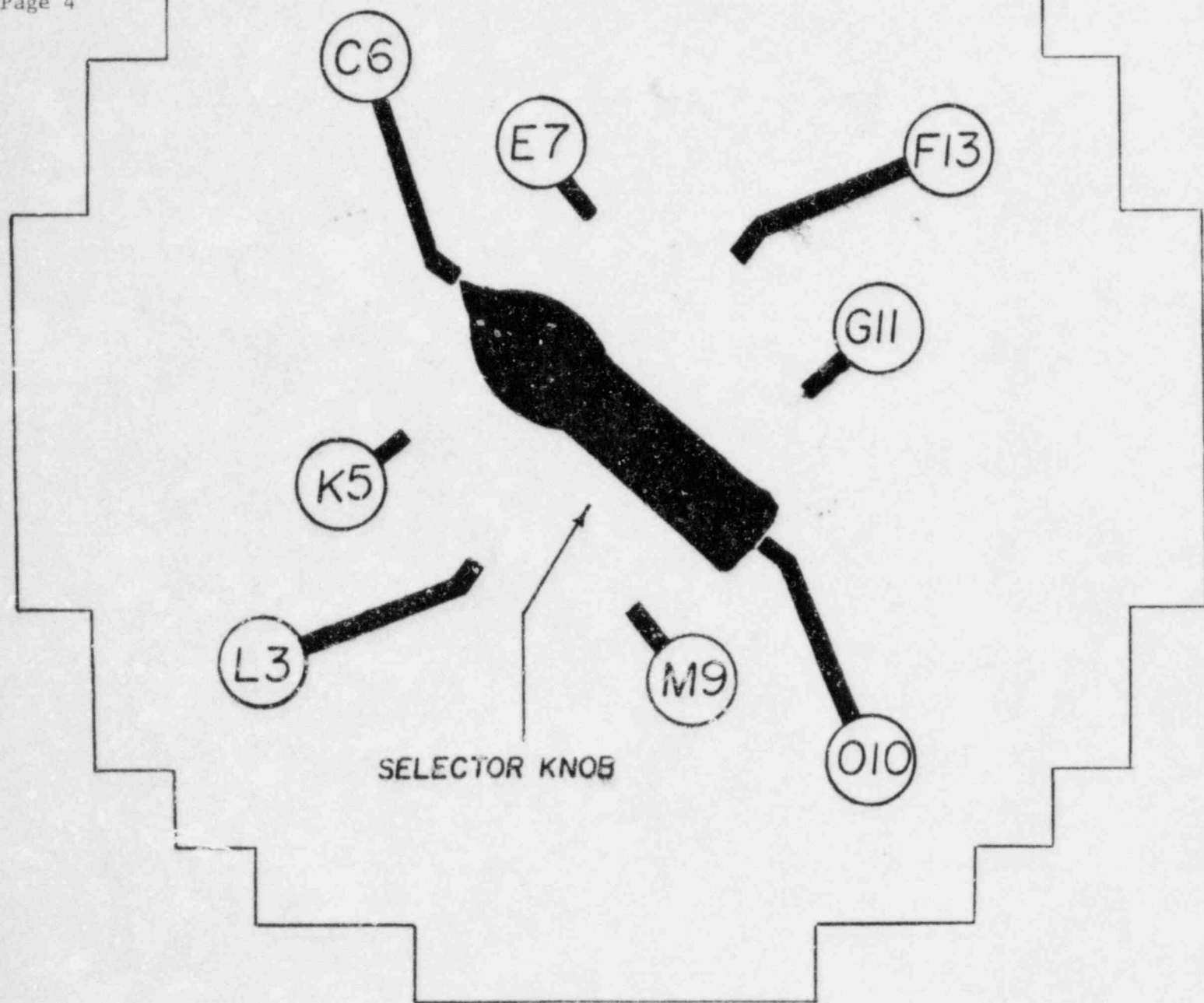
INCORE TEMPERATURE



DETAIL "C"
FULL SIZE

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INCORE TEMPERATURE



DETAIL "D"

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FIGURE 1

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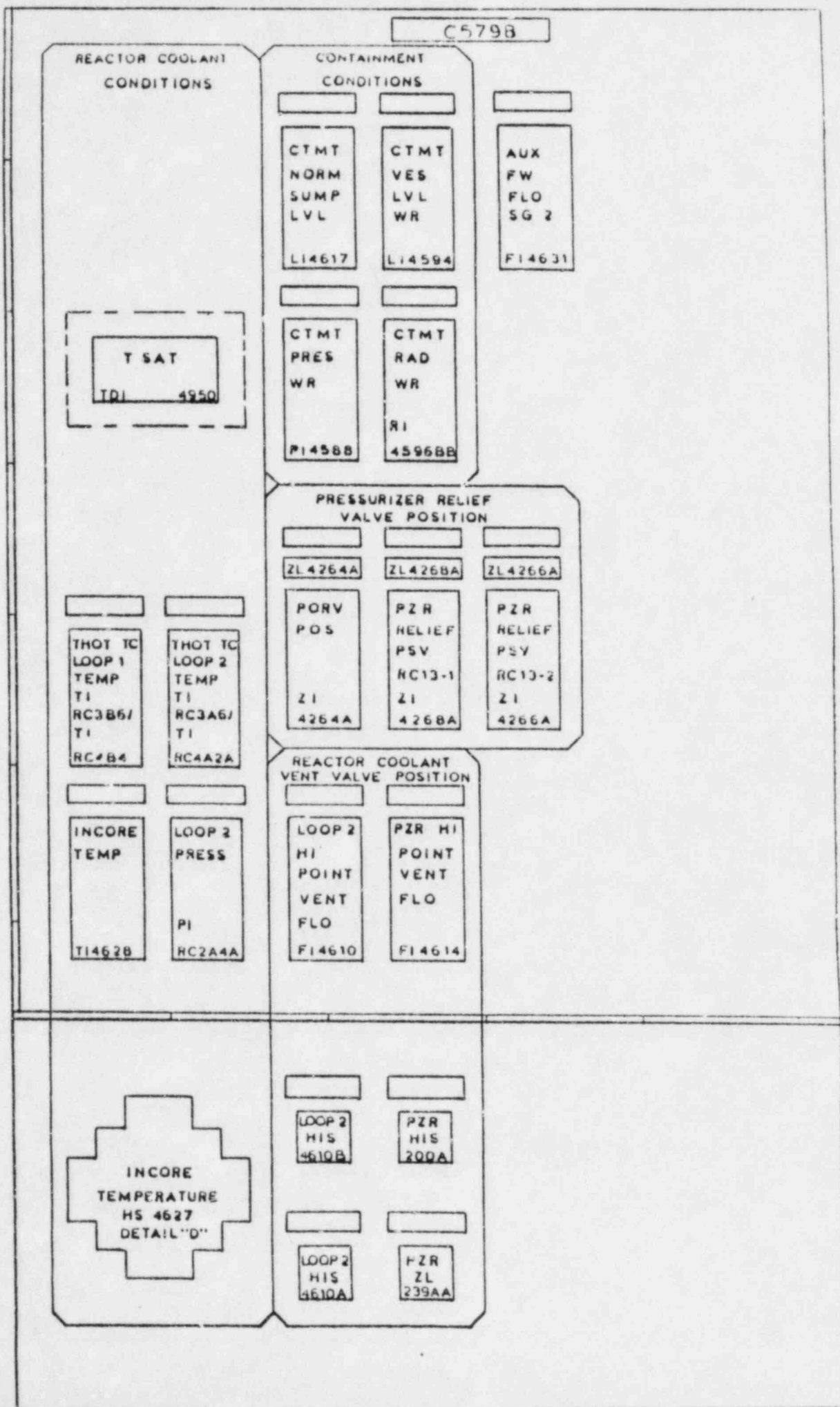


FIGURE 2

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