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Vogtle Project

February 7, 1986

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Director of Nuclear Reactor Regulation
Attention: Mr. B. J. Youngblood, Chief
Licensing Branch #4
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

REf: Letter Number GN-701, dated September 30, 1985

NRC DOCKET NUMBERS 50-424 AND 50-425
CONSTRUCTION PERMIT NUMBERS CPPR-108 AND CPPR-109
VOGTLE ELECTRIC GENERATING PLANT-UNITS 1 AND 2
FIRE PROTECTION PROGRAM

Dear Mr. Denton:

The NRC staff is presently reviewing the GPC request to not install an automatic sprinkler system inside containment and has requested additional information related to the concentration of combustibles inside containment. The requested information and additional justification for the deviation requested in our letter to the NRC dated September 30, 1985, is provided in the enclosure to this letter. Figures 1-6 of the enclosure provide the physical layout of the redundant safe-shutdown equipment inside containment.

The above referenced letter also indicated that the safe shutdown analysis for Plant Vogtle would be completed by March 1986. Due to the extent of the analysis required, it is expected that the analysis will not be completed and ready for NRC review until May 1986.

If your staff requires any additional information, please do not hesitate to contact me.

Sincerely,

J. A. Bailey

J. A. Bailey
Project Licensing Manager

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B002
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ATTACHMENT

DESCRIPTION OF DEVIATION

VEGP is committed to conformance with Branch Technical Position (BTP) CMEB 9.5-1. Paragraph C.7.a of CMEB 9.5-1 as presented in FSAR Appendix 9B, recommends the installation of automatic fixed sprinkler systems for fire protection in containment. Contrary to this commitment, VEGP does not intend to install automatic fixed sprinkler systems for fire protection in containment.

JUSTIFICATION

VEGP has provided fire suppression and/or manual fire fighting capability for all significant fire hazards in containment. Any credible fire which could occur would not impair the ability to achieve and maintain safe (cold) shutdown. This provision of fire protection and this ability to accomplish safe shutdown is not dependent on the existence of automatic fixed sprinkler systems.

The installation of automatic fixed sprinkler systems in the VEGP containment would not significantly increase the level of protection beyond that provided by the following protection measures and other design features which will exist:

1. The reactor coolant pumps are provided with an oil collection system that directs leaking lubricant away from hot surfaces into a remote collection tank. This system is designed, engineered, and installed so as to withstand a safe shutdown earthquake. These collection tanks are provided with flame arrestors in the tank vents. In addition, infrared flame detectors are strategically located in the vicinity of the reactor coolant pumps. This fire detection provides early warning of a fire should one occur. This fire detection system alarms locally and in the control room.

2. Local standpipe hose stations are strategically located in containment to allow manual fire fighting should a fire occur. Each hose station is also provided with a portable fire extinguisher.

3. Charcoal filter units in containment are provided with an integral water fire suppression system.

4. Electrical cable trays in containment containing safety-related cables and the trays containing the pressurizer heater cables, are provided with line-type heat detectors which provide early warning of an incipient fire condition by alarming locally and in the control room.

5. All electrical cables used in containment are IEEE 383 qualified (demonstrate minimal flame spread) thereby limiting the capability of a fire to spread along the cables should a fire occur.

6. The effects of a fire are contained locally because the height and volume of the containment structure allow excellent heat dissipation and because of the low combustible loading.

7. The number of equivalent* standard 24-inch-wide cable trays (both safety-related and non-safety-related) stacked one above the other is less than six. There is only one set of cable trays stacked five high. Typically, a "stack" of cable trays consists of only one electrical separation division (i.e., A, B, C, D, or N). Cable trays of the redundant safety-related trains never cross.

8. Separation of safe shutdown trains (equipment and cables) is as presented in the following table. In general, the west and north portions of the containment annulus area outside the secondary shield wall and the north steam generator/reactor coolant pump area inside the secondary shield contains safe shutdown Train B equipment and cables. Similarly, the east and south portions of the containment annulus area outside the secondary shield wall and the south steam generator/reactor coolant pump area inside the secondary shield contains safe shutdown Train A equipment and cables. While the secondary shield walls are not rated fire barriers, their thickness and penetration design for radiation shielding considerations provide a significant impediment to fire propagation past the barrier. In addition, the limited fire hazards inside containment as previously discussed, are not situated so as to significantly challenge the ability of the secondary shield walls to preclude fire propagation. As noted in the attached tables, some changes to the existing design are required to accomplish the design objective.

*The definition of an equivalent standard 24-inch-wide cable tray is per BTP CMEB 9.5-1 section C.5.e.

VEGP UNIT 1 CONTAINMENT FIRE EVENT SAFE SHUTDOWN EVALUATION
(Notes at end of table)

COMPONENT DESCRIPTION(1)(2)	DEVICE TAG NUMBER TRAIN 'A'	TRAIN 'B'	MINIMUM HORIZONTAL SEPARATION DISTANCE	COMMENTS
RCS hot leg/core exit temperature	TE-0413A TE-0443A	* *	40 ft.	
RCS cold leg temperature	---- ----	TE-0423B TE-0433B	N/A	See Note 3
Pressurizer level	LT-0459	LT-0460	65 ft.	See Note 4
RCS Pressure (wide range)	PT-0405	PT-0403	24 ft.	See Note 4
Neutron flux	RE-13135A	RE-13135B	88 ft.	
Steam generator level (wide range)	LT-0501 LT-0504	LT-0502 LT-0503	22 ft.	See Note 5
CVCS normal charging path	HV-8146	----	N/A	See Note 6
CVCS letdown isolation	LV-0459	LV-0460	N/A	See Note 8
Steam generator blowdown isolation	---- ---- ---- ----	HV-15216A HV-15216B HV-15216C HV-15216D	N/A	See Note 6

*Core exit thermocouples TE-10002, 10003, 10006, 10008 thru 10012, 10014, 10016 thru 10019, 10021 thru 10026, 10028, 10034, 10036, 10037, 10046 and 10050.

VEGP UNIT 1 CONTAINMENT FIRE EVENT SAFE SHUTDOWN EVALUATION
(Notes at end of table)

COMPONENT DESCRIPTION(1)(2)	DEVICE TAG NUMBER TRAIN 'A'	DEVICE TAG NUMBER TRAIN 'B'	MINIMUM HORIZONTAL SEPARATION DISTANCE	COMMENTS
Safety injection accumulator vent valves	HV-8875A	HV-8875E	N/A	See Note 7
	HV-8875B	HV-8875F		
	HV-8875C	HV-8875G		
	HV-8875D	HV-8875H		
	HV-0943A	HV-0943B		
RHR suction from the RCS	HV-8701A	HV-8702A	60 ft.	
	HV-8701B	HV-8702B		

NOTES:

1. Only components having circuits inside containment and which must remain operational to achieve safe (cold) shutdown in the event of a containment fire are listed. Spurious actuation concerns (such as the pressurizer PORV's) are not alleviated by separation. Using protected instrumentation, the plant operators have sufficient information to evaluate the effect on safe shutdown capability resulting from spurious actuations as well as other fire induced failures. Plant procedures will define the operator responses to mitigate an undesired occurrence.

2. Safe shutdown can be achieved using only two steam generators. Because of their association with the motor driven auxiliary feedwater pumps, steam generators 1 and 4 (RCS loops 1 and 4) are considered Train A and steam generators 2 and 3 (RCS loops 2 and 3) are considered Train B. Safe shutdown devices associated with these steam generators and RCS loops have equivalent train associations.

3. All RCS cold leg temperature instrumentation is associated with separation Train B. Indirect indication of RCS cold leg temperature for loops 1 and 4 (see note 2) is available to the plant operators via steamline (steam generator) pressure indication. These steam line pressure transmitters are located outside the containment building.

4. Three hour rated raceway fire proofing and radiant energy shield required to obtain the horizontal separation distance.

5. The safety channel designation for steam generator level transmitters LT-0503 and LT-0504 is being changed to make them consistent with the train associations defined in note 2. Cable routings will maintain a minimum horizontal separation distance of at least 20 feet, either by location or by use of three hour rated protective coatings.

6. Redundant means to accomplish the function is not dependent on a device or electrical cables located inside containment.

7. Due to the proximity of the safety injection accumulator tank vent valves, it may not be possible to depressurize all accumulators following a fire inside the containment building. However, undesired accumulator injection into the RCS can also be precluded by closing the accumulator injection valve which is capable of being closed from the control room or by local manual operator actions. The combustible loadings in the vicinity of a safety injection accumulator tank are low and it is not expected that a single fire could cause damage to the cables at the redundant vent valves and the tank injection valves and also cause mechanical damage so as to preclude local manual operation of the injection valve.

8. For a fire in the vicinity of valves LV-0460 and LV-0459 (inside the secondary shield wall) letdown isolation can be achieved by closure of HV-8149A, HV-8149B and HV-8149C (outside the secondary shield wall). All valves fail closed upon loss of air or electrical power which is the desired safe shutdown position.

SAFE SHUTDOWN

CUMPONENTS	TRAIN
TE413A	A
TE443A	A
CORE EXIT THERMOCOUPLES	B

NOTES:
1. SOLID HEAVY LINE DEPICTS EXPOSED RACEWAY ROUTING
2. DASHED HEAVY LINE DEPICTS EMBEDDED CONDUIT

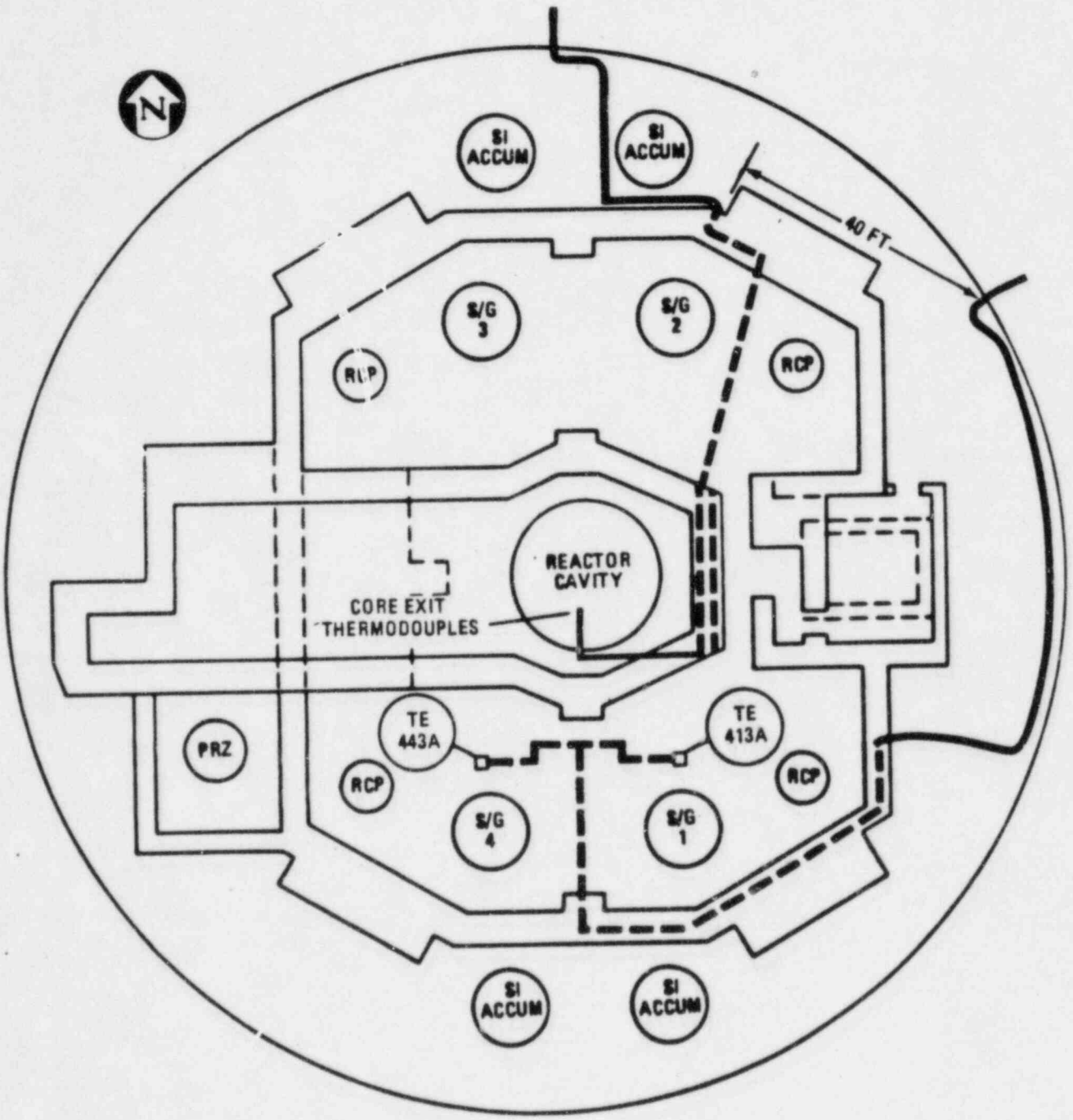

Figure 1 REACTOR COOLANT HOT LEG TEMPERATURE INDICATION

SAFE SHUTDOWN COMPONENTS	TRAIN
LT459	A
LT460	B

NOTES:
1. SOLID HEAVY LINE DEPICTS EXPOSED RACEWAY ROUTING
2. DASHED HEAVY LINE DEPICTS EMBEDDED CONDUIT

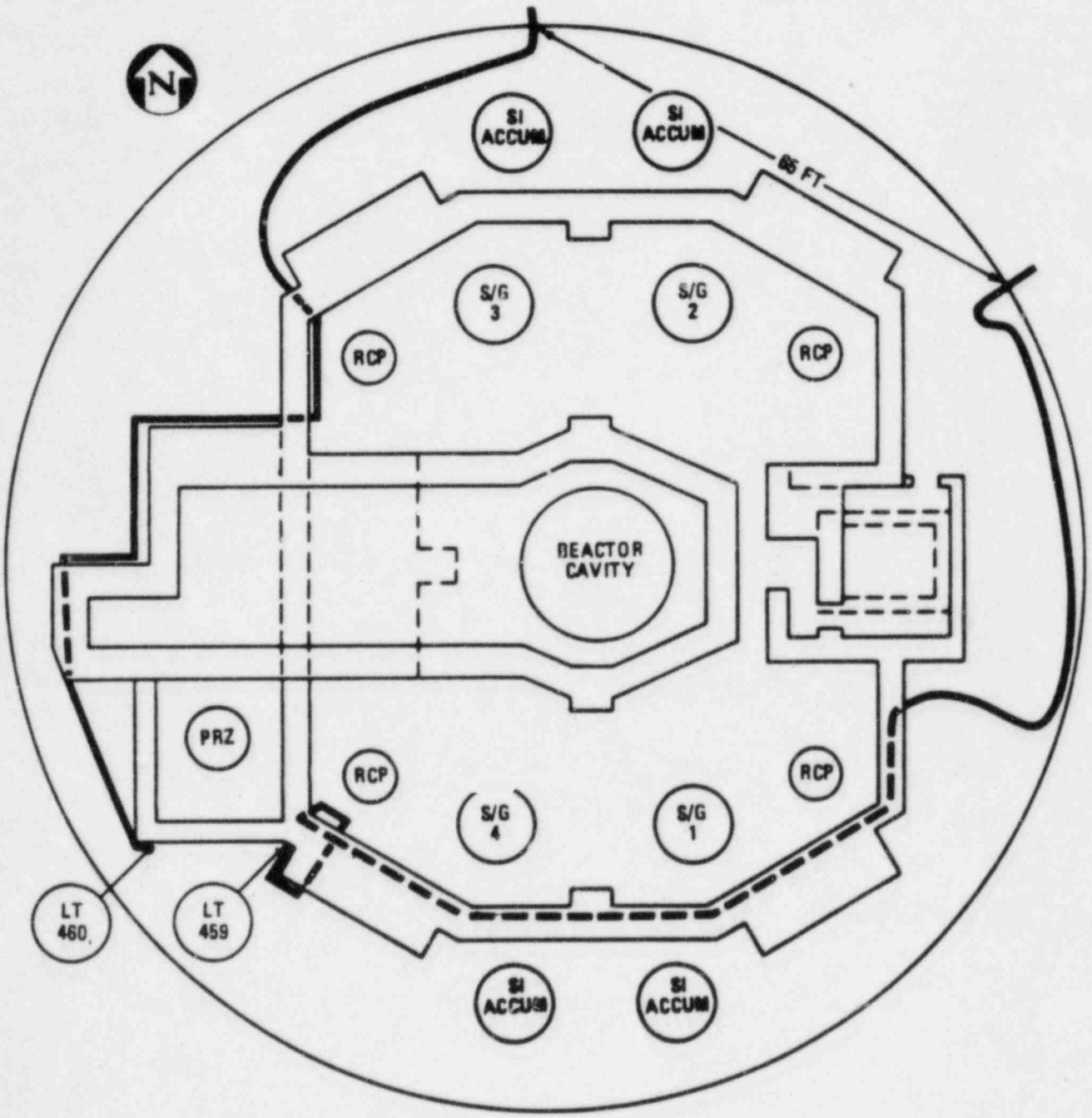

Figure 2 PRESSURIZER LEVEL INDICATION

SAFE SHUTDOWN COMPONENTS	TRAIN
PT403	B
PT405	A

NOTES:
1. SOLID HEAVY LINE DEPICTS EXPOSED RACEWAY ROUTING
2. DASHED HEAVY LINE DEPICTS EMBEDDED CONDUIT

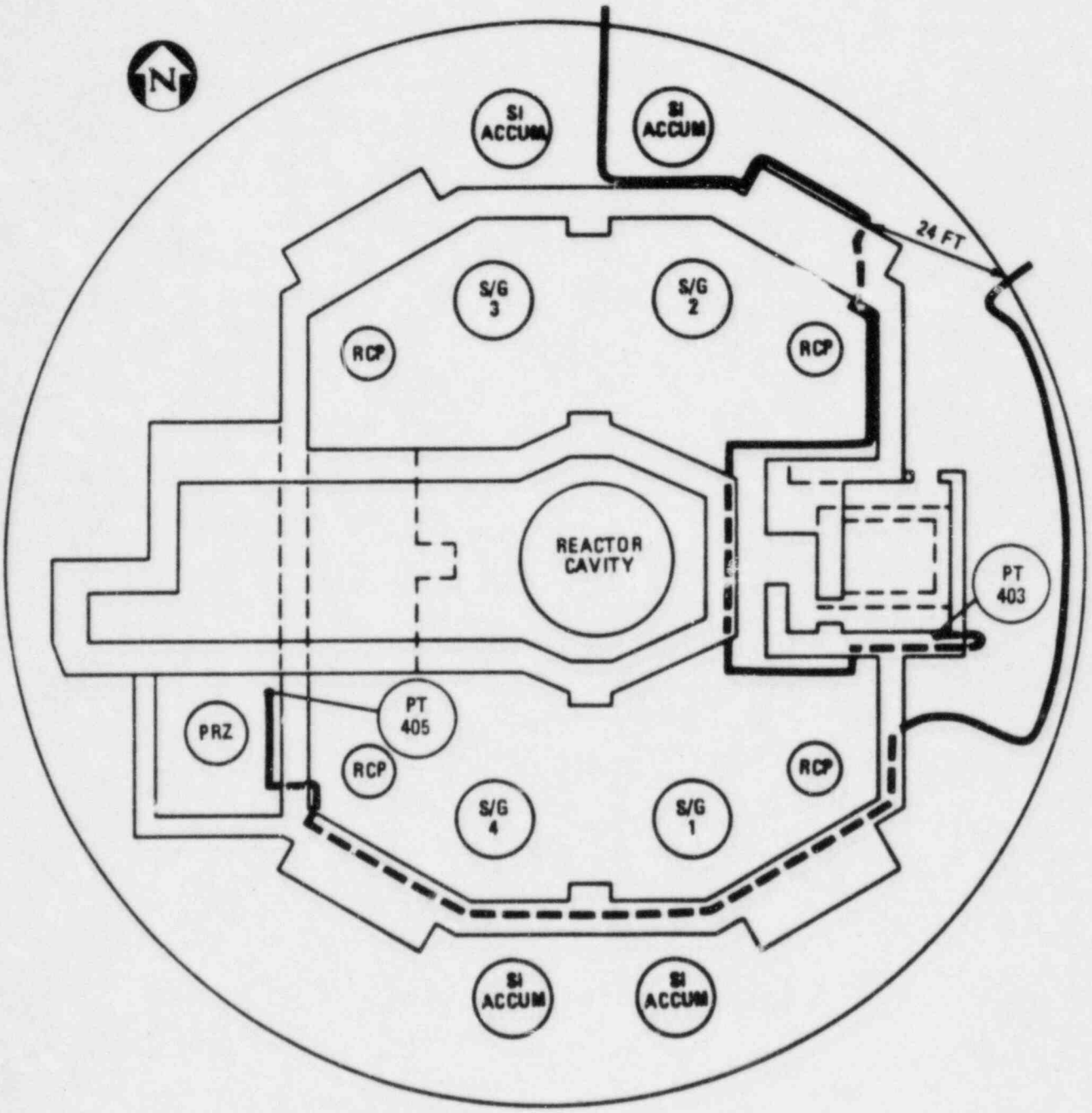

Figure 3 REACTOR COOLANT PRESSURE INDICATION

SAFE SHUTDOWN COMPONENTS	TRAIN
RE13135A	A
RE13135B	B

NOTES:
1. SOLID HEAVY LINE DEPICTS EXPOSED RACEWAY ROUTING
2. DASHED HEAVY LINE DEPICTS EMBEDDED CONDUIT

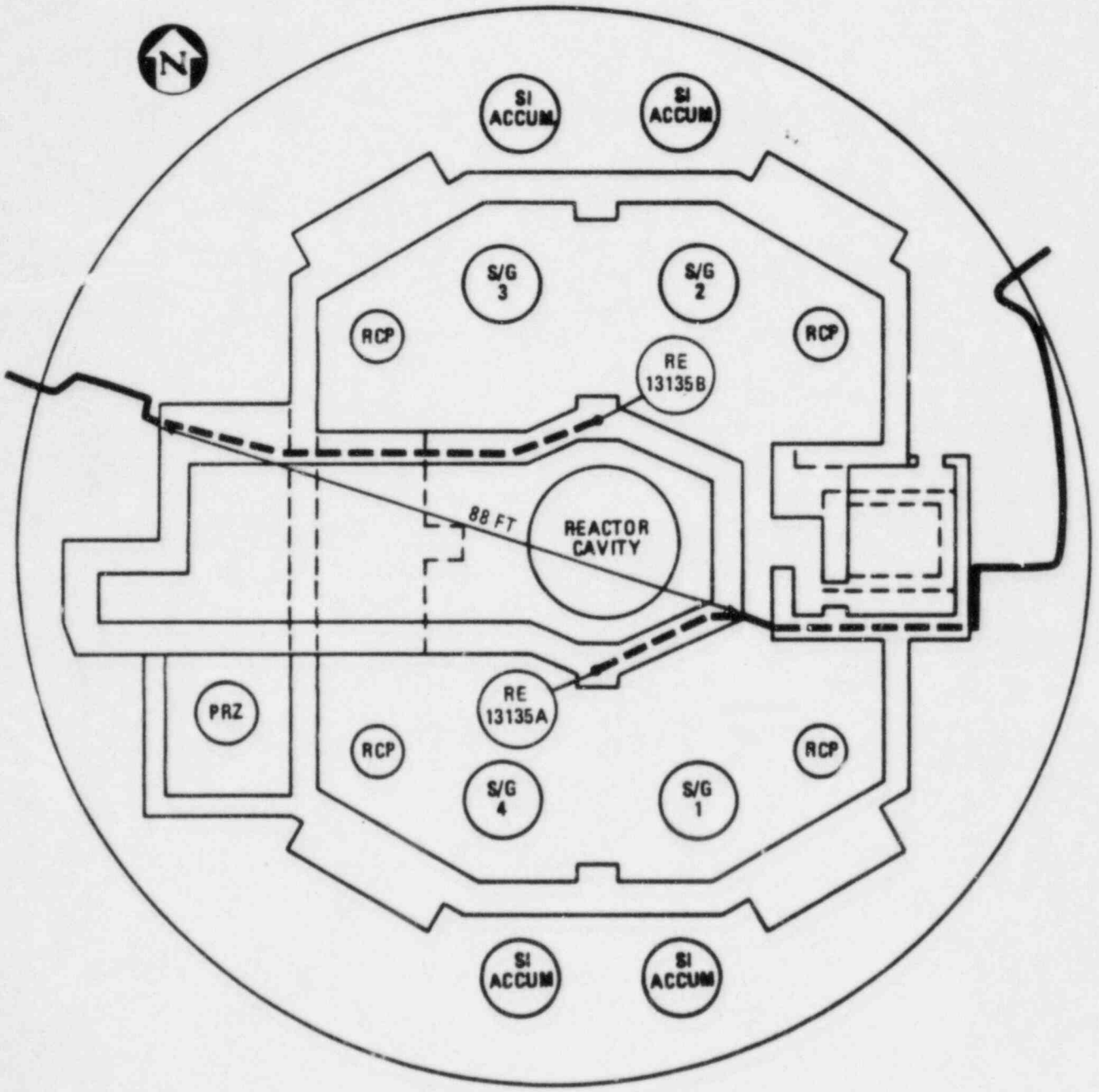

Figure 4 NEUTRON FLUX INDICATION

SAFE SHUTDOWN COMPONENTS	TRAIN
LT501	A
LT502	B
LT503	A
LT504	B

NOTES:

1. SOLID HEAVY LINE DEPICTS EXPOSED RACEWAY ROUTING
2. DASHED HEAVY LINE DEPICTS EMBEDDED CONDUIT
3. THIS FIGURE SHOWS THE CABLE ROUTINGS PRIOR TO IMPLEMENTATION OF THE POWER CHANGES TO LT503 & LT504.

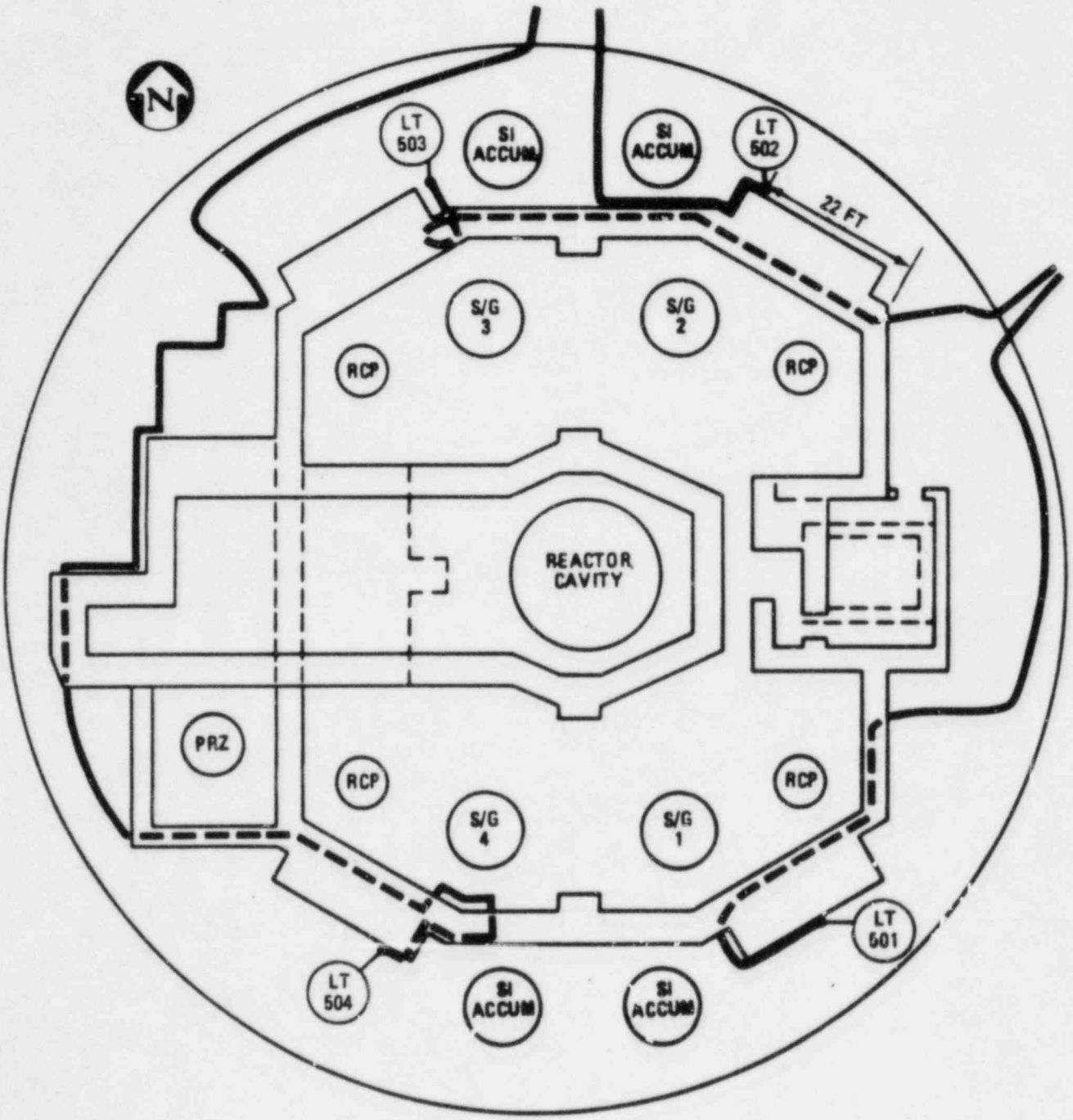

Figure 5 STEAM GENERATOR LEVEL INDICATION

SAFE SHUTDOWN

COMPONENTS	TRAIN
HV8701A	A
HV8701B	A
HV8702A	B
HV8702B	B

NOTES:

1. SOLID HEAVY LINE DEPICTS EXPOSED RACEWAY ROUTING
2. DASHED HEAVY LINE DEPICTS EMBEDDED CONDUIT

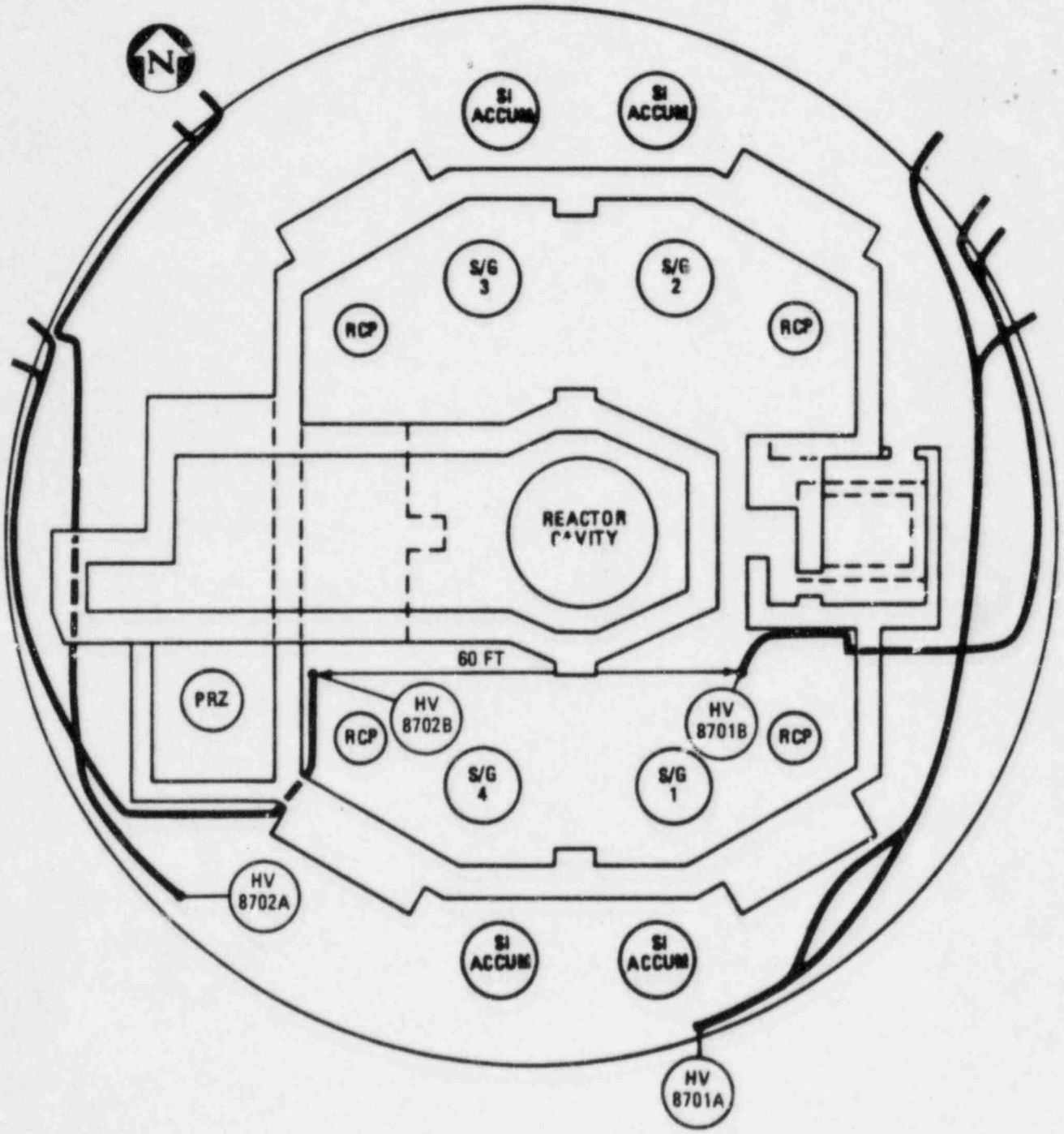

Figure 6 RHR SUCTION VALVES