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TABLE 3.2.6

POST-ACCIDENT INSTRUMENTATION

<u>Minimum Number of Operable Instrument Channels</u>	<u>Parameter</u>	<u>Type of Indication</u>	<u>Instrument Range</u>
2	Drywell Atmospheric Temperature (Note 1)	Recorder #TR-16-19-45 (TE-16-19-30A) Meter #TI-16-19-30B	0-350°F 0-350°F
2	Containment Pressure (Note 1)	Meter #PI-16-19-12A Meter #PI-16-19-12B	(-15) -(+260) psig (-15) -(+260) psig
2	Torus Pressure (Note 1)	Meter #PI-16-19-36A Meter #PI-16-19-36B	(-15) -(+65) psig (-15) -(+65) psig
2	Torus Water Level (Note 3)	Meter #LI-16-19-12A Meter #LI-16-19-12B	0-25 ft. 0-25 ft.
2	Torus Water Temperature (Note 1)	Meter #16-19-33A Meter #16-19-33C	0-250°F 0-250°F
2	Reactor Pressure (Note 1)	Meter #PI-2-3-56A Meter #PI-2-3-56B	0-1500 psig 0-1500 psig
2	Reactor Vessel Water Level (Note 1)	Meter #2-3-91A Meter #2-3-91B	(-200)-0-(+200) "H ₂ O (-200)-0-(+200) "H ₂ O
2	Torus Air Temperature (Note 1)	Recorder #TR-16-19-45 (TE-16-19-34) Meter #TI-16-19-41	0-350°F 50-300°F
2/valve	Safety/Relief Valve Position From Pressure Switches (Note 4)	Lights (SRV 2-71-1, 2, 3 (A thru D))	Closed - Open

TABLE 3.2.6 NOTES

Note 1 - From and after the date that a parameter is reduced to one indication, operation is permissible for 30 days. If a parameter is not indicated in the Control Room, continued operation is permissible during the next seven days. If indication cannot be restored within the next six hours, an orderly shutdown shall be initiated and the reactor shall be in a hot shutdown condition in six hours and a cold shutdown condition in the following 18 hours.

Note 2 - Deleted.

Note 3 - From and after the date that this parameter is reduced to one indication in the Control Room, continued reactor operation is permissible during the next 30 days. If both channels are inoperable and indication cannot be restored in six hours, an orderly shutdown shall be initiated and the reactor shall be in a hot shutdown condition in six hours and a cold shutdown condition in the following 18 hours.

Note 4 - From and after the date that safety/relief valve position from pressure switches is unavailable, reactor operation may continue provided safety/relief valve position can be determined from Recorder #2-166 (steam temperature in SRVs, 0-600°F) and Meter 16-19-33A or C (torus water temperature, 0-250°F). If both parameters are not available, the reactor shall be in a hot shutdown condition in six hours and a cold shutdown condition in the following 18 hours.

Note 5 - From and after the date that safety valve position from the acoustic monitor is unavailable, reactor operation may continue provided safety valve position can be determined from Recorder #2-166 (thermocouple, 0-600°F) and Meter #16-19-12A or B (containment pressure (-15) -(+260) psig). If both indications are not available, the reactor shall be in a hot shutdown condition in six hours and in a cold shutdown condition in the following 18 hours.

Note 6 - Within 30 days following the loss of one indication, or seven days following the loss of both indications, restore the inoperable channel(s) to an operable status or a special report to the Commission pursuant to Specification 6.7 must be prepared and submitted within the subsequent 14 days, outlining the action taken, the cause of the inoperability, and the plans and schedule for restoring the system to operable status.

Note 7 - From and after the date that this parameter is unavailable by Control Room indication, and cannot be restored within 24 hours, continued reactor operation is permissible for the next 30 days provided that local sampling capacity is available. If the Control Room indication cannot be restored within 30 days, the reactor shall be in hot shutdown within six hours and in cold shutdown within the subsequent 24 hours.

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TABLE 4.2.6

CALIBRATION REQUIREMENTS
POST-ACCIDENT INSTRUMENTATION

<u>Parameter</u>	<u>Calibration</u>	<u>Instrument Check</u>
Drywell Atmosphere Temperature	Every 6 Months	Once Each Day
Containment Pressure	Once/Operating Cycle	Once Each Day
Torus Pressure	Once/Operating Cycle	Once Each Day
Torus Water Level	Once/Operating Cycle	Once Each Day
Torus Water Temperature	Every 6 Months	Once Each Day
Reactor Pressure	Once/Operating Cycle	Once Each Day
Reactor Vessel Water Level	Once/Operating Cycle	Once Each Day
Torus Air Temperature	Every 6 Months	Once Each Day
Safety/Relief Valve Position	Every Refueling Outage (Note 9) (a Functional Test to be performed quarterly)	Once Each Day
Safety Valve Position	Every Refueling Outage (Note 9) (a Functional Test to be performed quarterly)	Once Each Day

TABLE 4.2 NOTES

1. Initially once per month; thereafter, a longer interval as determined by test results on this type of instrumentation.
2. During each refueling outage, simulated automatic actuation which opens all pilot valves shall be performed such that each trip system logic can be verified independent of its redundant counterpart.
3. Trip system logic calibration shall include only time delay relays and timers necessary for proper functioning of the trip system.
4. This instrumentation is expected from functional test definition. The functional test will consist of injecting a simulated electrical signal into the measurement channel.
5. Deleted.
6. Functional tests, calibrations, and instrument checks are not required when these instruments are not required to be operable or are tripped. Functional tests shall be performed before each startup with a required frequency not to exceed once per week. Calibration shall be performed prior to or during each startup or controlled shutdown with a required frequency not to exceed once per week. Instrument checks shall be performed at least once per day during those periods when instruments are required to be operable.
7. This instrumentation is excepted from the functional test definitions and shall be calibrated using simulated electrical signals once every three months.
8. Functional tests and calibrations are not required when systems are not required to be operable.
9. The thermocouples associated with safety/relief valves and safety valve position, that may be used for back-up position indication, shall be verified to be operable every operating cycle.
10. Separate functional tests are not required for this instrumentation. The calibration and integrated ECCS tests which are performed once per operating cycle will adequately demonstrate proper equipment operation.
11. Trip system logic functional tests will include verification of operation of all automatic initiation inhibit switches by monitoring relay contact movement. Verification that the manual inhibit switches prevent opening all relief valves will be accomplished in conjunction with Section 4.5.F.1.

BASES: 3.2 (Cont'd)

A downscale indication on an APRM or IRM is an indication the instrument has failed or the instrument is not sensitive enough. In either case, the instrument will not respond to changes in control rod motion and thus control rod motion is prevented.

To prevent excessive clad temperatures for the small pipe break, the HPCI or Automatic Depressurization System must function since, for these breaks, reactor pressure does not decrease rapidly enough to allow either core spray or LPCI to operate in time. For a break or other event occurring outside the drywell, the Automatic Depressurization System is initiated on low-low reactor water level only after a time delay. The arrangement of the tripping contacts is such as to provide this function when necessary and minimize spurious operation. The trip settings given in the Specification are adequate to ensure the above criteria are met. The Specification preserves the effectiveness of the system during periods of maintenance, testing, or calibration, and also minimizes the risk of inadvertent operation; i.e., only one instrument channel out of service.

The ADS is provided with inhibit switches to manually prevent automatic initiation during events where actuation would be undesirable, such as certain ATWS events. The system is also provided with an Appendix R inhibit switch to prevent inadvertent actuation of ADS during a fire which requires evacuation of the Control Room.

Four radiation monitors are provided which initiate isolation of the reactor building and operation of the standby gas treatment system. The monitors are located in the reactor building ventilation duct and on the refueling floor. Any one upscale trip or two downscale trips of either set of monitors will cause the desired action. Trip settings for the monitors on the refueling floor are based upon initiating normal ventilation isolation and standby gas treatment system operation so that none of the activity released during the refueling accident leave the Reactor Building via the normal ventilation stack but that all activity is processed by the standby gas treatment system. Trip settings for the monitors in the ventilation duct are based upon initiation of the normal ventilation isolation and standby gas treatment system operation at a radiation level equivalent to the maximum site boundary dose rate of 500 mrem/year as given in Specification 3.8.E.1.a. The monitoring system in the plant stack represents a backup to this system to limit gross radioactivity releases to the environs.

The purpose of isolating the mechanical vacuum pump line is to limit release of radioactivity from the main condenser. During an accident, fission products would be transported from the reactor through the main steam line to the main condenser. The fission product radioactivity would be sensed by the main steam line radiation monitors which initiate isolation.

Post-accident instrumentation parameters for Containment Pressure, Torus Water Level, Containment Hydrogen/Oxygen Monitor, and Containment High-Range Radiation Monitor, are redundant, environmentally and seismically qualified instruments provided to enhance the operators' ability to follow the course of an event. The purpose of each of these instruments is to provide detection and measurement capability during and following an accident as required by NUREG-0737 by ensuring continuous on-scale indication of the following: containment pressure in the (-15) to (+260) psig range; torus water level in the 0 to 25 foot range (i.e., the bottom to 5 feet above the normal water level of the torus pool); containment hydrogen/oxygen concentrations (0 to 30% hydrogen and 0 to 25% oxygen); and containment radiation in the 1 R/hr to 10⁷ R/hr gamma.