

INSTRUMENTATION

BASES

3/4.3.3.9 RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

The radioactive gaseous effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in gaseous effluents during actual or potential releases of gaseous effluents. The alarm/trip setpoints for these instruments shall be calculated and adjusted in accordance with the methodology and parameters in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of Specification 3.11.2.1.a based on average annual X/Q. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63, and 64 of Appendix A to 10 CFR 50.

3/4.3.3.10 RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

The radioactive liquid effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in liquid effluents during actual or potential releases of liquid effluents. The alarm/trip setpoints for these instruments shall be calculated and adjusted in accordance with the methodology and parameters in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63, and 64 of Appendix A to 10 CFR 50.

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ADMINISTRATIVE CONTROLS

SEMIANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT (Continued)

The radioactive Effluent Release Report to be submitted 60 days after January 1 of each year shall also include an assessment of radiation doses to the likely most exposed **MEMBER OF THE PUBLIC** from reactor releases and other nearby uranium fuel cycle sources, including doses from primary effluent pathways and direct radiation, for the previous calendar year to show conformance with 40 CFR Part 190, Environmental Radiation Protection Standards for Nuclear Power Operation. Acceptable methods for calculating the dose contribution from liquid and gaseous effluents are given in Regulatory Guide 1.109, Rev. 1, October 1977, and NUREG-0133, "Preparation of Radiological Effluent Technical Specifications for Nuclear Power Plants".

The Radioactive Effluent Release Reports shall include the following information for each class of solid waste (as defined by 10 CFR Part 61) shipped offsite during the report period:

- a. Container volume,
- b. Total curie quantity (specify whether determined by measurement or estimate),
- c. Principal radionuclides (specify whether determined by measurement or estimate),
- d. Source of waste and processing employed (e.g., dewatered spent resin, compacted dry waste, evaporator bottoms),
- e. Solidification agent or absorbent (e.g., cement).

The Radioactive Effluent Release Reports shall include a list and description of unplanned releases from the site to **UNRESTRICTED AREAS** of radioactive materials in gaseous and liquid effluents made during the reporting period.

The Radioactive Effluent Release Reports shall include any changes made during the reporting period to the **PROCESS CONTROL PROGRAM (PCP)**, and to the **OFFSITE DOSE CALCULATION MANUAL (ODCM)**, as well as a listing of new locations for dose calculations identified by the annual land use census pursuant to Specification 3.12.2.

SPECIAL REPORTS

6.9.2 Special reports shall be submitted to the Regional Administrator of the NRC Regional Office within the time period specified for each report. These reports shall be submitted covering the activities identified below pursuant to the requirements of the applicable reference specification:

TABLE 3.3-10
POST-ACCIDENT MONITORING INSTRUMENTATION

<u>INSTRUMENT</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>ACTION</u>
1. Containment Pressure	2	31
2. Wide Range Logarithmic Neutron Flux Monitor	2	31
3. Reactor Coolant Outlet Temperature	2	31
4. Pressurizer Pressure	2	31
5. Pressurizer Level	2	31
6. Steam Generator Pressure	2/steam generator	31
7. Steam Generator Level (Wide Range)	2/steam generator	31
8. Auxiliary Feedwater Flow Rate	2/steam generator	31
9. RCS Subcooled Margin Monitor	1	31
10. PORV/Safety Valve Acoustic Flow Monitoring	1/valve	31
11. PORV Solenoid Power Indication	1/valve	31
12. Feedwater Flow	2	31
13. Containment Water Level (Wide Range)	2	32, 33
14. Reactor Vessel Water Level	2*	34, 35

* A channel has eight sensors in a probe. A channel is operable if four or more sensors, one or more in the upper three and three or more in the lower five, are operable.

TABLE 3.3-10 (Continued)

ACTION STATEMENTS

- ACTION 31 - With the number of OPERABLE post-accident monitoring channels less than required by Table 3.3-10, either restore the inoperable channel to OPERABLE status within 30 days or be in **HOT SHUTDOWN** within the next 12 hours.
- ACTION 32 - With the number of OPERABLE post-accident monitoring channels one less than the minimum channel operable requirement in Table 3.3-10, operation may proceed provided the inoperable channel is restored to OPERABLE status at the next outage of sufficient duration.
- ACTION 33 - With the number of OPERABLE post-accident monitoring channels two less than required by Table 3.3-10, either restore one inoperable channel to OPERABLE status within 30 days or be in **HOT SHUTDOWN** within the next 12 hours.
- ACTION 34 - With the number of OPERABLE Post-Accident Monitoring Channels one less than the minimum Channel OPERABLE requirement in Table 3.3-10, either restore the system to OPERABLE status within 7 days if repairs are feasible without shutting down or prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 30 days following the event, outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.
- ACTION 35 - With the number of OPERABLE Channels two less than required by Table 3.3-10, either restore the inoperable channel(s) to OPERABLE status within 48 hours if repairs are feasible without shutting down or:
1. Initiate an alternate method of monitoring for core and reactor coolant system voiding;
 2. Prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 30 days following the event, outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status; and
 3. Restore the system to OPERABLE status at the next scheduled refueling.

TABLE 4.3-10

POST-ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>
1. Containment Pressure	M	R
2. Wide Range Logarithmic Neutron Flux Monitor	M	N.A.
3. Reactor Coolant Outlet Temperature	M	R
4. Pressurizer Pressure	M	R
5. Pressurizer Level	M	R
6. Steam Generator Pressure	M	R
7. Steam Generator Level (Wide Range)	M	R
8. Auxiliary Feedwater Flow Rate	M	R
9. RCS Subcooled Margin Monitor	M	R
10. PORV/Safety Valve Acoustic Monitor	N.A.	R
11. PORV Solenoid Power Indication	N.A.	N.A.
12. Feedwater Flow	M	R
13. Containment Water Level (Wide Range)	M	R
14. Reactor Vessel Water Level	M	N.A.

INSTRUMENTATION

BASES

3/4.3.3.6 POST-ACCIDENT INSTRUMENTATION

The OPERABILITY of the post-accident instrumentation ensures that sufficient information is available on selected plant parameters to monitor and assess these variables following an accident. This capability is consistent with the recommendations of Regulatory Guide 1.97, "Instrumentation for Light-Water-Cooled Nuclear Plants to Assess Plant Conditions During and Following an Accident," December 1975, and NUREG-0578, "TMI-2 Lessons Learned Task Force Status Report and Short-Term Recommendations."

The subcooled Margin Monitor (SMM), the Heated Junction Thermocouple (HJTC), and the Core Exit Thermocouples (CET) comprise the Inadequate Core Cooling (ICC) instrumentation required by Item II.F.2 NUREG-0737, the Post TMI-2 Action Plan. The function of the ICC instrumentation is to enhance the ability of the plant operator to diagnose the approach to, and recovery from, ICC. Additionally, they aid in tracking reactor coolant inventory. These instruments are included in the Technical Specifications at the request of NRC Generic Letter 83-37. These instruments are not required by the accident analysis, nor to bring the plant to HOT STANDBY or COLD SHUTDOWN.

In the event more than four sensors in a Reactor Vessel Level channel are inoperable, repairs may only be possible during an extended COLD SHUTDOWN. This is because the sensors are accessible only after the plant has been cooled down and drained, and the missile shield has been moved. If only one channel is inoperable, it should be restored to OPERABLE status in accordance with the schedule outlined in a Special Report. If both channels are inoperable, the system shall be restored to OPERABLE status in the next refueling outage.

3/4.3.3.7 FIRE DETECTION INSTRUMENTATION

OPERABILITY of the fire detection instrumentation ensures that adequate warning capability is available for the prompt detection of fires. This capability is required in order to detect and locate fires in their early stages. Prompt detection of fires will reduce the potential for damage to safety related equipment and is an integral element in the overall facility fire protection program.

In the event that a portion of the fire detection instrumentation is inoperable, the establishment of frequent fire patrols in the affected areas is required to provide detection capability until the inoperable instrumentation is restored to operability.

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3/4.3.3.10 RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

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ADMINISTRATIVE CONTROLS

SEMIANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT (Continued)

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SPECIAL REPORTS

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ADMINISTRATIVE CONTROLS

- a. ECCS Actuation, Specifications 3.5.2 and 3.5.3
- b. Inoperable Seismic Monitoring Instrumentation, Specification 3.3.3.3.
- c. Inoperable Meteorological Instrumentation, Specification 3.3.3.4.
- d. Seismic event analysis, Specification 4.3.3.3.2.
- e. Core Barrel Movement, Specification 3.4.11.
- f. Fire Detection Instrumentation, Specification 3.3.3.7.
- g. Fire Suppression Systems, Specifications 3.7.11.1, 3.7.11.2, 3.7.11.3, 3.7.11.4, and 3.7.11.5.
- h. Penetration Fire Barriers, Specification 3.7.12.
- i. Steam Generator Tube Inspection Results, Specification 4.4.5.5.a and c.
- j. Specific Activity of Primary Coolant, Specification 3.4.8.
- k. Containment Structural Integrity, Specification 4.6.1.6.
- l. Radioactive Effluents - Calculated Dose and Total Dose, Specifications 3.11.1.2, 3.11.2.2, 3.11.2.3, and 3.11.4.
- m. Radioactive Effluents - Liquid Radwaste, Gaseous Radwaste and Ventilation Exhaust Treatment Systems Discharges, Specifications 3.11.1.3 and 3.11.2.4.
- n. Radiological Environmental Monitoring Program, Specification 3.12.1.
- o. Radiation Monitoring Instrumentation, Specification 3.3.3.1 (Table 3.3-6).
- p. Overpressure Protection Systems, Specification 3.4.9.3.
- q. Hydrogen Analyzers, Specification 3.6.5.1.
- r. Post-Accident Instrumentation, Specification 3.3.3.6