

2.4.22 Radiation Monitoring System

1.0 Description

The radiation monitoring system (RMS) provides surveillance of ionizing radiation comprising all provisions dealing with the occurrence of ionizing radiation within the plant and measures related to the health control of personnel who could be exposed to radiation.

The radiation monitoring system provides the following safety-related function:

- Provides safety-related signals to the SCDS.

The radiation monitoring system provides the following non-safety related function:

- Provides non-safety-related signals to the SCDS.

2.0 Arrangement

2.1 RMS equipment is located as listed in Table 2.4.22-1—Radiation Monitoring System Equipment.

3.0 Mechanical Design Features

3.1 Components identified as Seismic Category I in Table 2.4.22-1 can withstand seismic design basis loads without a loss of safety function.

4.0 I&C Design Features, Displays and Controls

4.1 The RMS provides the output signals listed in Table 2.4.22-2.

4.2 Deleted.

5.0 Electrical Power Design Features

5.1 The components identified as Class 1E in Table 2.4.22-1 are powered from the Class 1E division as listed in Table 2.4.22-1 in a normal or alternate feed condition.

6.0 Environmental Qualifications

6.1 Components in Table 2.4.22-1, that are designated as harsh environment, will perform their function in the environments that exist during and following design basis events.

7.0 Equipment and System Performance

7.1 Deleted.

8.0 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.4.22-3 lists the RMS ITAAC.

**Table 2.4.22-1—Radiation Monitoring System Equipment
(2 Sheets)**

Description	Tag Number	Location	Seismic Category	IEEE Class 1E	Harsh Environment
Containment High Range Dose Rate Monitor	30JYK15CR101	Reactor Building	I	1 ^N 2 ^A	Yes
Containment High Range Dose Rate Monitor	30JYK15CR102	Reactor Building	I	2 ^N 1 ^A	Yes
Containment High Range Dose Rate Monitor	30JYK15CR103	Reactor Building	I	3 ^N 4 ^A	Yes
Containment High Range Dose Rate Monitor	30JYK28CR101	Reactor Building	I	4 ^N 3 ^A	Yes
Main Steam Line Radiation Monitors Division 1	30LBA10CR811 30LBA10CR821 30LBA10CR831 30LBA10CR841	Main Steam Valve Room	I	1 ^N 2 ^A	Yes
Main Steam Line Radiation Monitors Division 2	30LBA20CR811 30LBA20CR821 30LBA20CR831 30LBA20CR841	Main Steam Valve Room	I	2 ^N 1 ^A	Yes
Main Steam Line Radiation Monitors Division 3	30LBA30CR811 30LBA30CR821 30LBA30CR831 30LBA30CR841	Main Steam Valve Room	I	3 ^N 4 ^A	Yes
Main Steam Line Radiation Monitors Division 4	30LBA40CR811 30LBA40CR821 30LBA40CR831 30LBA40CR841	Main Steam Valve Room	I	4 ^N 3 ^A	Yes
Radiation Monitoring Cabinet Division 1	30CLE20	Safeguard Building 1	I	1 ^N 2 ^A	No
Radiation Monitoring Cabinet Division 2	30CLF20	Safeguard Building 2	I	2 ^N 1 ^A	No
Radiation Monitoring Cabinet Division 3	30CLG20	Safeguard Building 3	I	3 ^N 4 ^A	No

**Table 2.4.22-1—Radiation Monitoring System Equipment
(2 Sheets)**

Description	Tag Number	Location	Seismic Category	IEEE Class 1E	Harsh Environment
Radiation Monitoring Cabinet Division 4	30CLH20	Safeguard Building 4	I	4 ^N 3 ^A	No

- 1) Equipment tag numbers are provided for information only and are not part of the certified design.
- 2) ^N denotes the division the component is normally powered from. ^A denotes the division the component is powered from when alternate feed is implemented.

Table 2.4.22-2—Radiation Monitoring System

Item No.	Output Signal	Recipient	No. of Divisions
1	Containment High Range Dose Rate Monitor Signal	SCDS	4
2	Main Steam Line Radiation Monitor Signal	SCDS	4

**Table 2.4.22-3—Radiation Monitoring System ITAAC
(2 Sheets)**

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
2.1	RMS equipment is located as listed in Table 2.4.22-1.	An inspection will be performed of the location of RMS equipment listed in Table 2.4.22-1.	The equipment listed in Table 2.4.22-1 is located as listed in Table 2.4.22-1.
3.1	Components identified as Seismic Category I in Table 2.4.22-1 can withstand seismic design basis loads without a loss of safety function.	<p>a. Type tests, analyses, or a combination of type tests and analyses will be performed on the components identified as Seismic Category I in Table 2.4.22-1 using analytical assumptions, or under conditions, which bound the Seismic Category I design requirements.</p> <p>b. Inspections will be performed of the Seismic Category I components identified in Table 2.4.22-1 to verify that the components, including anchorage, are installed as specified on the construction drawings..</p>	<p>a. Seismic qualification reports (SQDP, EQDP, or analyses) exist and conclude that the Seismic Category I components identified in Table 2.4.22-1 can withstand seismic design basis loads without a loss of safety function.</p> <p>b. Inspection reports exist and conclude that the Seismic Category I components identified in Table 2.4.22-1, including anchorage, are installed as specified on the construction drawings..</p>
4.1	The RMS provides the output signals listed in Table 2.4.22-2.	Tests will be performed to verify the existence of output signals.	The RMS provides output signals to the recipients listed in Table 2.4.22-2.
4.2	Deleted.	Deleted.	Deleted.
5.1	The components identified as Class 1E in Table 2.4.22-1 are powered from the Class 1E division as listed in Table 2.4.22-1 in a normal or alternate feed condition.	<p>a. Testing will be performed for components identified as Class 1E in Table 2.4.22-1 by providing a test signal in each normally aligned division.</p> <p>b. Testing will be performed for components identified as Class 1E in Table 2.4.22-1 by providing a test signal in each division with the alternate feed aligned to the divisional pair.</p>	<p>a. The test signal provided in the normally aligned division is present at the respective Class 1E components identified in Table 2.4.22-1.</p> <p>b. The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E components identified in Table 2.4.22-1.</p>

**Table 2.4.22-3—Radiation Monitoring System ITAAC
(2 Sheets)**

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
6.1	Components in Table 2.4.22-1, that are designated as harsh environment, will perform their function in the environments that exist during and following design basis events.	<p>a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components listed as harsh environment in Table 2.4.22-1 to perform their function for the environmental conditions that could occur during and following design basis events.</p> <p>b. Components listed as harsh environment in Table 2.4.22-1 will be inspected to verify installation in accordance with the construction drawings including the associated wiring, cables and terminations. Deviations to the construction drawings will be reconciled to the EQDP.</p>	<p>a. Environmental Qualification Data Packages (EQDP) exist and conclude that the components listed as harsh environment in Table 2.4.22-1 can perform their function during and following design basis events including the time required to perform the listed function.</p> <p>b. Inspection reports exist and conclude that the components listed in Table 2.4.22-1 as harsh environment has been installed per the construction drawings and any deviations have been reconciled to the EQDP.</p>
7.1	Deleted.	Deleted.	Deleted.

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