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TABLE 3.3-12

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

| <u>INSTRUMENT</u>   | <u>MINIMUM CHANNELS OPERABLE</u> | <u>ACTION</u> |
|---|----------------------------------|---------------|
| 1. GROSS RADIOACTIVITY MONITORS PROVIDING ALARM AND AUTOMATIC TERMINATION OF RELEASE    |                                  |               |
| a. Liquid Radwaste Effluent Line - RM-L5 or RM L9                                       | 1                                | 31            |
| change (e) b. Nuclear (Processed Steam Generator) Blowdown Effluent Line RM-L7 or RM-L9 | 1                                | 32-31         |
| c. Steam Generator Blowdown Effluent Line   |                                  |               |
| 1. Unprocessed during Power Operation - RM-L10 or RM-L3                                 | 1                                | 32            |
| 2. Unprocessed during Startup - RM-L3   | 1                                | 32            |
| d. Turbine Building Sump Effluent Line - RM-L8  | 1                                | 33            |
| change (a) e. Condensate Demineralizer Backwash Effluent Line RM-L11                    | 1                                | 34            |
| 2. FLOW RATE MEASUREMENT DEVICES*   |                                  |               |
| a. Liquid Radwaste Effluent Line - Tanks 1 and 2  | 1/tank                           | 34            |
| b. Penstocks Minimum Flow Interlock**   | 1                                | 34            |
| c. Nuclear Blowdown Effluent Line   | 1                                | 34            |
| d. Steam Generator (Unprocessed) Blowdown Effluent Line                                 | 1                                | 34            |
| 3. TANK LEVEL INDICATING DEVICES  |                                  |               |
| a. Condensate Storage Tank  | 1                                | 35            |

\*Flow rate for the monitor RM-L9 is determined by adding flow rates for monitors RM-L5 and RM-L7.  
 \*\*Minimum dilution flow is assured by an interlock terminating liquid waste releases if minimum dilution flow is not available.

## INSTRUMENTATION

TABLE 3.3-12 (Continued)

### TABLE NOTATION

- ACTION 31 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases may continue for up to 14 days provided that prior to initiating a release:
- At least two independent samples are analyzed in accordance with Specification 4.11.1.1.3, and
  - At least two technically qualified members of the Facility Staff independently verify the release rate calculations and discharge line valving;
- Otherwise, suspend release of radioactive effluents via this pathway.
- ACTION 32 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to 30 days provided grab samples are analyzed for gross radioactivity (beta and gamma) at a limit of detection of at least  $10^{-7}$  microcuries/gram:
- At least once per 8 hours when the specific activity of the secondary coolant is greater than 0.01 microcuries/gram DOSE EQUIVALENT I-131.
  - At least once per 24 hours when the specific activity of the secondary coolant is less than or equal to 0.01 microcuries/gram DOSE EQUIVALENT I-131.
- ACTION 33 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to 30 days provided that, at least once per 8 hours, grab samples are collected and analyzed for gross radioactivity (beta and gamma) at a limit of detection of at least  $10^{-7}$  microcuries/gram.
- ACTION 34 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to 30 days provided the flow rate is estimated at least once per 4 hours during actual releases. Pump curves may be used to estimate flow.

INSTRUMENTATION

TABLE 3.3-12 (Continued)

TABLE NOTATION

ACTION 35 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, liquid additions to this tank may continue for up to 30 days provided the tank liquid level is estimated during all liquid additions to the tank to prevent overflow.

change (b)

Action 36- With the number of channels operable less than required by the minimum channels OPERABLE requirement, effluent releases may continue for up to 30 days provided that samples are analyzed in accordance with specifications 4.11.1.1.1 and 4.11.1.5

TABLE 4.3-8

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| <u>INSTRUMENT</u>  | <u>CHANNEL<br/>CHECK</u> | <u>SOURCE<br/>CHECK</u> | <u>CHANNEL<br/>CALIBRATION</u> | <u>ANALOG CHANNEL<br/>OPERATIONAL<br/>TEST</u> |
|--|--------------------------|-------------------------|--------------------------------|--|
| 1. GROSS BETA OR GAMMA RADIOACTIVITY MONITORS<br>PROVIDING ALARM AND AUTOMATIC TERMINATION<br>OF RELEASE |                          |                         |                                |  |
| a. Liquid Radwaste Effluent Line - RM-L5, RM-L9  | D                        | P                       | R(3)                           | Q(1)   |
| b. Nuclear Blowdown Effluent Line - RM-L7  | D                        | P                       | R(3)                           | Q(1)   |
| c. Steam Generator Blowdown Effluent Line -<br>RM-L3, RM-L10   | D                        | M                       | R(3)                           | Q(1)   |
| d. Turbine Building Sump<br>Effluent Line - RM-L8  | D                        | M                       | R(3)                           | Q(1)   |
| change (c) e. Condensate Demineralizer Backwash Line RM-L11  | O                        | M                       | R(3)                           | Q(5)   |
| 2. FLOW RATE MEASUREMENT DEVICES   |                          |                         |                                |  |
| a. Liquid Radwaste Effluent Line   | D(4)                     | N.A.                    | R                              | Q  |
| b. Penstocks Minimum Flow Interlock  | D(4)                     | N.A.                    | R                              | Q  |
| c. Nuclear Blowdown Effluent Line  | D(4)                     | N.A.                    | R                              | Q  |
| d. Steam Generator Blowdown<br>Effluent Line   | D(4)                     | N.A.                    | R                              | Q  |
| 3. TANK LEVEL INDICATING DEVICES   |                          |                         |                                |  |
| a. Condensate Storage Tanks  | D                        | N.A.                    | R                              | Q  |



## INSTRUMENTATION

TABLE 4.3-8 (Continued)

### TABLE NOTATION

- (1) The ANALOG CHANNEL OPERATIONAL TEST shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occurs if any of the following conditions exists:
  1. Instrument indicates measured levels above the alarm/trip setpoint.
  2. Loss of Power (alarm only).
  3. Instrument indicates a downscale failure (alarm only).
  4. Instrument controls not set in operate mode.
- (2) The ANALOG CHANNEL OPERATIONAL TEST shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exists:
  1. Instrument indicates measured levels above the alarm setpoint.
  2. Loss of Power.
  3. Instrument indicates a downscale failure.
  4. Instrument controls not set in operate mode.
- (3) The initial CHANNEL CALIBRATION shall be performed using one or more of the reference standards certified by the National Bureau of Standards or using standards that have been obtained from suppliers that participate in measurement assurance activities with NBS. These standards shall permit calibrating the system over its intended range of energy and measurement range. For subsequent CHANNEL CALIBRATION, sources that have been related to the initial calibration shall be used.
- (4) CHANNEL CHECK shall consist of verifying indication of flow during periods of release. CHANNEL CHECK shall be made at least once per 24 hours on days on which continuous, periodic, or batch releases are made.
- (5) The ANALOG CHANNEL OPERATIONAL TEST shall also demonstrate that automatic isolation of this pathway and <sup>local panel</sup> control room alarm annunciation occurs if any of the following conditions exists:
  1. Instrument indicates measured levels above the alarm/trip setpoint.
  2. Loss of Power (alarm only).
  3. Instrument indicates a downscale failure (alarm only).
  4. Instrument controls not set in operate mode.



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