

CONTAINMENT SYSTEMS

3/4.6.5 COMBUSTIBLE GAS CONTROL

HYDROGEN MONITORS

LIMITING CONDITION FOR OPERATION

3.6.5.1 Two independent containment hydrogen monitors shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTION:

With one hydrogen monitor inoperable, restore the inoperable monitor to OPERABLE status within 30 days or be in at least HOT STANDBY within the next 6 hours.

SURVEILLANCE REQUIREMENTS

4.6.5.1 Each hydrogen monitor shall be demonstrated OPERABLE by the performance of an ANALOG CHANNEL OPERATIONAL TEST at least once per 31 days, and at least once per 92 days on a STAGGERED TEST BASIS by performing a CHANNEL CALIBRATION using sample gas containing ~~19.8~~ volume percent hydrogen, balance nitrogen.

19.8 ± 0.1

CONTAINMENT SYSTEMS

ELECTRIC HYDROGEN RECOMBINERS

LIMITING CONDITION FOR OPERATION

3.6.5.2 Two independent post accident hydrogen recombiner systems shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTION:

With one hydrogen recombiner system inoperable, restore the inoperable system to OPERABLE status within 30 days or be in at least HOT STANDBY within the next 6 hours.

SURVEILLANCE REQUIREMENTS

4.6.5.2 Each hydrogen recombiner system shall be demonstrated OPERABLE:

- a. At least once per 6 months by verifying, during a recombiner system functional test, that the minimum heater sheath temperature increases to greater than or equal to 700°F within 90 minutes. Upon reaching 700°F, increase the power setting to maximum power for 2 minutes and verify that the power meter reads greater than or equal to 60 Kw.
- b. At least once per 18 months by:
 1. Performing a CHANNEL CALIBRATION of all recombiner instrumentation and control circuits,
 2. Verifying through a visual examination that there is no evidence of abnormal conditions within the recombiner enclosure (i.e., loose wiring or structural connections, deposits of foreign materials, etc.), and
 3. Verifying the integrity of all heater electrical circuits by performing a resistance to ground test following the above required functional test. The resistance to ground for any heater phase shall be greater than or equal to 10,000 ohms.

TABLE 4.3-9 (Continued)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>SOURCE CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>ANALOG CHANNEL OPERATIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
3. MAIN PLANT VENT EXHAUST SYSTEM					
a. Noble Gas Activity Monitor - RM-A3	D	M	R(3)	Q(2)	*
b. Iodine Sampler	W	N.A.	N.A.	N.A.	*
c. Particulate Sampler	W	N.A.	N.A.	N.A.	*
d. Flow Rate Measuring Device	D	N.A.	R	Q	*
e. Sampler Flow Rate Monitor	D	N.A.	R	Q	*
4. REACTOR BUILDING PURGE SYSTEM					
a. Noble Gas Activity Monitor - RM-A4	D	P,M	R(3)	Q(1)	*
b. Iodine Sampler	W	N.A.	N.A.	N.A.	*
c. Particulate Sampler	W	N.A.	N.A.	N.A.	*
d. Flow Rate Measuring Device	D	N.A.	R	Q	*
e. Sampler Flow Rate Monitor	D	N.A.	R	Q	*

INSTRUMENTATION

TABLE 4.3-9 (Continued)

TABLE NOTATION

- * At all times.
- ** During waste gas holdup system operation (treatment for primary system offgases).

- (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) The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:
 1. ~~Fifteen hundred~~ ^{1500 ± 30} ppm hydrogen, balance nitrogen, for the outlet hydrogen monitor and
 2. ~~Four~~ ^{4 ± 0.1} volume percent hydrogen, balance nitrogen for the inlet hydrogen monitor.
- (5) The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:
 1. ~~Seventy five~~ ^{75 ± 1.5} ppm oxygen, balance nitrogen, for the outlet oxygen monitor and
 2. ~~Three and one half~~ ^{3.5 ± 0.1} volume percent oxygen, balance nitrogen for the inlet oxygen monitor.