RECOVERY OPERATIONS PLAN

SURVEILLANCE REQUIREMENTS

SURVEILLANCE REQUIREMENTS

SECTION 4.0

SURVEILLANCE REQUIREMENTS

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4.0.1 Surveillance Requirements of the RECOVERY OPERATIONS PLAN shall be applicable during the FACILITY MODE or other conditions specified for individual Limiting Conditions for Operation unless otherwise stated in an individual Surveillance Requirement. The Surveillance Requirements shall be performed to demonstrate compliance with the OPERABILITY requirements of the Limiting Conditions for Operations and in accordance with the RECOVERY OPERATIONS PLAN; however, the RECOVERY OPERATIONS PLAN shall not be considered a part of these technical specifications. Changes to the RECOVERY OPERATIONS PLAN shall be approved by the NRC prior to implementation.

4.0.2 Each Surveillance Requirement of the RECOVERY OPERATIONS PLAN shall be performed within the specified time interval with:

a. A maximum allowable extension not to exceed 25% of the surveillance interval, and

b. A total maximum combined interval time for any 4 consecutive tests not to exceed 3.25 times the specified surveillance interval.

4.0.3 Performance of a Surveillance Requirement within the specified time interval shall constitute compliance with OPERABILITY requirements for a Limiting Condition for Operation and associated ACTION statements unless otherwise required by the specification.

4.1 WATER INJECTION COOLING AND REACTIVITY CONTROL SYSTEMS

4.1.1 BORATION CONTROL

BORATED COOLING WATER INJECTION

4.1.1.1 The systems capable of injecting borated cooling water into the Reactor Coolant System shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each accessible (per occupational exposure considerations) valve in each flowpath that is not locked, sealed, or otherwise secured in position, is in its correct position.

b. At least once per 7 days by:

   1. Verifying the boron concentration in the BWST is between 4350 and 6000 ppm.

   2. Verifying the contained borated water volume in the BWST is at least 390,000 gallons:

c. At least once per 24 hours by verifying the BWST temperature is at least 50 degrees Farenheit when the outside temperature is less than 50 degrees Farenheit.

d. At least once per 6 months by verifying the pumps associated with the Reactor Building Sump Recirculation System produce sufficient head and flow to meet makeup requirements.

BORON CONCENTRATION

4.1.1.2 The boron concentration of all filled portions of the Reactor Coolant System and the Refueling Canal shall be determined to be within the specified limits by:

a. Determining the boron concentration of the coolant in the filled portions to be between 4350 and 6000 ppm by:

   1. A mass balance calculation at least once per 24 hours.

   2. A chemical analysis at least once per 7 days.

b. Verifying the temperature of the coolant in the filled portions of the Reactor Coolant System to be greater than 50°F at least once per 12 hours.

4.1.1.3 The boron concentration of the water in the filled portions of the Fuel Transfer Canal (deep end) shall be determined to be within the specified limits by:

a. Determining the boron concentration of the water in the filled portions of the Fuel Transfer Canal (deep end) to be between 4350 and 6000 ppm by a chemical analysis at least once per 7 days.

4.1.1.4 The boron concentration of the water in the filled portions of spent fuel pool "A" shall be determined to be within the specified limits by:

a. Determining the boron concentration of the water in the filled portions of spent fuel pool "A" to be between 4350 and 6000 ppm by a chemical analysis at least once per 7 days.

4.1.3 CONTROL ASSEMBLIES

4.1.3.1 Deleted

4.3 INSTRUMENTATION

4.3.1 NEUTRON MONITORING INSTRUMENTATION

4.3.1.1 Each intermediate and source range neutron monitoring instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations at the frequency shown in Table 4.3-1.

4.3.2 ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

Deleted

4.3.3 MONITORING INSTRUMENTATION

RADIATION MONITORING INSTRUMENTATION

4.3.3.1 Each radiation monitoring instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION AND CHANNEL FUNCTIONAL TEST operations at the frequencies shown in Table 4.3-3.

TABLE 4.3-1

NEUTRON MONITORING INSTRUMENTATION

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	READ OUT LOCATIONS
1. Intermediate Range, Neutron Flux and Rate	D/M(4)	R(1)	M	2	0	1	Cab 217(2&3) Control Room
2. Source Range, Neutron Flux and Rate	D/M(4)	R(1)	M	2	0	2	Cab 217(2&3) Control Room

NOTES

(1) - Neutron detectors and all channel components located inside containment may be excluded from CHANNEL CALIBRATION.

(2) - Only one readout required at Cabinet 217.

(3) - Intermediate and source range rate is not required at cabinet 217.

(4) - Monthly channel check applies only to cabinet 217.

TABLE 4.3-2

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

Deleted

TABLE 4.3-3

RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MINIMUM CHANNELS OPERABLE	APPLICABILITY	ACTION
1. CONTAINMENT						
a. Deleted						
b. Reactor Building Equipment Doors (AMS-3)	D	SA	W	1	Note 10	Note 7
c. Deleted						
d. CACE Vent Monitor	D	SA	W	1	Note 8	Note 9
2. FUEL HANDLING BUILDING EXHAUST MONITORS (HPR-221A or HPR-221B)						
a. Gaseous Activity	D	R	M	1	Note 5	Note 6
b. Particulate Activity	D	R	M	1	Note 5	Note 6
3. SDS MONITORS						
a. Process Monitor (IX04)	D	R	M	1	Note 1	Note 4
b.Area Monitor (IX03)	D	SA	M	1	Note 1	Note 2
4. Deleted						

(See following pages for notes)

TABLE 4.3-3 (Cont'd)

RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MINIMUM CHANNELS OPERABLE	APPLICABILITY	ACTION
5. FUEL TRANSFER CANAL						
a. Criticality Monitor	D	R	M	1	Note 11	Note 12
6. FUEL POOL "A"						
a. Criticality Monitor	D	R	M	1	Note 11	Note 12
7. FUEL HANDLING BUILDING TRUCK BAY						
a. Criticality Monitor	D	R	M	1	Note 11	Note 12
8. WASTE HANDLING AND PACKAGING FACILITY						
a. Exhaust Monitor	D	SA	W	1	Note 1	Note 13
9. REACTOR BUILDING						
a. End Fitting Storage Area Criticality Monitor	D	R	M	1	Note 14	Note 15

(See following pages for Notes)

TABLE 4.3-3 (Cont'd)

RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

NOTES:

1. During operation of the monitored system.

2. If monitor becomes inoperable, repair or replace by equivalent equipment within 24 hours. If not completed within 24 hours terminate operation of the monitored system and restore the inoperable monitor(s) to operable status.

3. Deleted

4. If ion exchange effluent monitor is inoperable, sample on 4 hour frequency for gross beta. If inoperable longer than 24 hours then terminate operation of ion exchange system and restore the inoperable monitor to operable status.

5. Modes 1 and 2 with radioactive waste in the fuel handling building.

6. With the required instrumentation inoperable, suspend all operations involving movement of radioactive waste in the fuel handling building; restore the inoperable equipment to OPERABLE status within 48 hours.

7. With the AMS-3 inoperable, close at least one of the Reactor Building Equipment Doors and restore the inoperable equipment to operable status prior to the reopening of both Equipment Doors.

8. Mode 1, during operation of the monitored system.

9. Two filter trains and associated monitors are normally available. If one monitor becomes inoperable, discontinue operation through the effected filter train and transfer operations to the operable filter train. If both monitors become inoperable, repair or replace by equivalent equipment within twelve (12) hours or conduct air sampling using alternate methods on a four (4) hour frequency. If repair or replacement is not completed within seven (7) days, terminate operation of the system until at least one monitor is returned to operable status.

10. With both reactor building equipment hatch airlock doors open simultaneously.

TABLE 4.3-3 (Cont'd)

RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

NOTES: (Cont'd)

11. During either of the following operations.

    a. Handling of canisters containing core material.*
    b. Handling of any heavy load over canisters containing core materials.

12. With less than one channel operable, terminate the following operations:

    a. handling of canisters containing core material.*
    b. Handling of any heavy load over canisters containing core materials.

13. With the required monitor inoperable, secure the ventilation system and suspend all operations involving movement of radioactive materials or generation of airborne contamination until the inoperable monitor is restored to operable status.

14. During periods when personnel are in the containment and end fittings are being transferred to or stored in their designated location outside the Reactor Vessel.

15. With less than one channel operable, terminate the following operations:

    a. Handling of end fitting storage containers outside the Reactor Vessel.**
    b. Handling of any heavy load over the end fitting storage container area.

* This shall not prohibit placing a canister in transit in a safe storage location.

**This shall not prohibit placing an end fitting storage container in transit in a safe storage location.

METEOROLOGICAL INSTRUMENTATION

4.3.3.4 Each of the meteorological monitoring instrumentation channels shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3-5.

ESSENTIAL PARAMETERS MONITORING INSTRUMENTATION

4.3.3.5 Each of the Essential Parameters Monitoring Instrumentation channels shall be demonstrated OPERABLE by performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3-7.

CHLORINE DETECTION SYSTEMS

4.3.3.7 Each chlorine detection system shall be demonstrated OPERABLE by performance of a CHANNEL CHECK at least once per 24 hours, and a CHANNEL FUNCTIONAL TEST at least once per 31 days. At least once per 18 months, the following inspections and maintenance shall be performed:

a. Check constant head bottle level and refill as necessary,

b. Clean the sensing cells,

c. Check flow meter operation and clean or replace filters and air lines as necessary.

d. Check air pump for proper operation, and

e. Verify that the detector responds to HCL.

TABLE 4.3-5

METEOROLOGICAL MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	MINIMUM OPERABLE	CHANNEL CHECK	CHANNEL CALIBRATION
1. WIND SPEED			
a. Nominal Elev. 100 ft.	1	D	SA
2. WIND DIRECTION			
a. Nominal Elev. 100 ft.	1	D	SA
3. AIR TEMPERATURE - DELTA T			
a. Nominal Elev. 33. ft.	1	D	SA
b. Nominal Elev. 150 ft.	1	D	SA

TABLE 4.3-7

ESSENTIAL PARAMETERS MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	CHANNEL[1] CALIBRATION	READOUT LOCATION(S)	MINIMUM OPERABLE CHANNELS
1. Transferred to Specification 4.6.1.4.a				
2. Transferred to Table 4.3-8				
3. Incore Thermocouples/RCS Temperature Detectors	D	R	Control Room or Cable Room	2[2]
4. Reactor Building Water Level	NA	SA	Control Bldg. Area West or Hot Instrument Shop	1
5. Borated Water Storage Tank Level	D	R	Control Room	1
6. Steam Generator Level	NA	NA	NA	1/Generator
7. Transferred to Table 4.3-8				
8. Transferred to Table 4.3-8				

NOTES:

1. Nuclear detectors and all channel components located inside containment may be excluded from CHANNEL CALIBRATION.

2. Any combination of incore thermocouples, or RC-TI-106 Points A, B, or C That results in a minimum of two operable temperature detectors, satisfy this requirement.

TABLE 4.3-8

WATER LEVEL MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	CHANNEL[1] CALIBRATION	READOUT LOCATION(S)	MINIMUM OPERABLE CHANNELS
1. Reactor Vessel Water level	D/W(1)	SA	Control Room[1]	2[1]
2. Spent Fuel Storage Pool "A" Water Level	D/W(1)	SA	Control Room[1] or Fuel Handling Bldg.	2[1]
3. Fuel Transfer Canal (deep end) Water Level	D/W(1)	SA	Control Room[1] or Reactor Bldg.	2(1)

NOTE:

1. One channel may consist of a visual indication such as a level stand pipe. Seven day surveillance applies to visual indication only. Visual indication readout may be in the Reactor Building, or Fuel Handling Building, or by remote television.

4.3.3.8 FIRE DETECTION

4.3.3.8.1 Each of the required fire detection instruments shall be demonstrated OPERABLE at least once per 6 months by performance of a CHANNEL FUNCTIONAL TEST.

4.3.3.8.2 The NFPA Code 71 supervised circuits supervision associated with the detector alarms of each of the required fire detection instruments shall be demonstrated OPERABLE at least once per 6 months.

4.3.3.8.3 The nonsupervised circuits between the local panels in Surveillance Requirements 4.3.3.8.2 and the control room shall be demonstrated OPERABLE at least once per 31 days.

4.3.3.8.4 In lieu of Specification 4.3.3.8.2, fire detection instrument for the Southeast Storage Facility shall have circuitry per site-approved procedures. | 40

TABLE 4.3-11

FIRE DETECTION INSTRUMENTS

INSTRUMENT LOCATION	REQUIRED INSTRUMENTS OPERABLE			ALTERNATE INSTRUMENT		
	HEAT	FLAME	SMOKE	HEAT	FLAME	SMOKE
1. Auxiliary Building	NA	NA	2	NA	NA	2
2. Control Building						
351' Elevation	NA	NA	1	NA	NA	3
331' Elevation (Control Room)	NA	NA	1	NA	NA	1
305', 293', 280' Elevations	NA	NA	1	NA	NA	7
3. Control Building Area	NA	NA	1	NA	NA	3
4. Diesel Generator Building						
A Diesel	NA	1	1	NA	NA	1
B Diesel	NA	1	1	NA	NA	1
5. Fuel Handling Building	NA	NA	3	NA	NA	1
6. Reactor Building	NA	NA	1	NA	NA	1
RC-P-1A/2A	NA	NA	1	NA	NA	2
RC-P-1B/2B	NA	NA	1	NA	NA	2
7. River Water Pump House	NA	1	1	NA	NA	2
8. Service Building	NA	NA	3	NA	NA	3
9. Deleted						
10. Southeast Areas Storage Facility	NA	NA	2	NA	NA	2

4.4 REACTOR COOLANT SYSTEM

4.4.1 REACTOR COOLANT LOOPS

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Deleted.

4.4.2 REACTOR VESSEL WATER LEVEL MONITORING

The Reactor Vessel Water Level Monitoring Instrumentation shall be demonstrated OPERABLE as required by Table 4.3-8.

4.4.9 PRESSURE/TEMPERATURE LIMITS

4.4.9.1 REACTOR COOLANT SYSTEM

4.4.9.1.1 The pH of the reactor coolant shall be determined to be greater than or equal to 7.5 and less than 8.4 at least once per 7 days.

4.4.9.1.2 The chloride concentration in the reactor coolant shall be determined to be less than or equal to 5 ppm at least once per 7 days.

4.5 COMMUNICATIONS

Verify that communications channels are OPERABLE between the Control Room or the Command Center and personnel in the Reactor Building once each day prior to the initiation of any activities involving CORE ALTERATIONS. Also verify that the additional SOL or SOL limited to fuel handling has OPERABLE communication channels once each day prior to the initiation of any activities involving core alterations.

4.6 CONTAINMENT SYSTEMS

4.6.1 PRIMARY CONTAINMENT

CONTAINMENT INTEGRITY

4.6.1.1 If required per procedures approved pursuant to Specification 6.8.2, primary CONTAINMENT INTEGRITY shall be demonstrated:

a. At least once per 31 days by verifying per NRC approved procedures that:

   1. All penetrations not required to be open per approved procedures are closed by valves, blind flanges, or deactivated automatic valves secured in their positions.

b. By verifying at least once per 31 days that the Containment Equipment Hatch is closed and sealed.

c. By verifying that each Containment Air Lock is OPERABLE per Specification 3.6.1.3.

CONTAINMENT ISOLATION

4.6.1.2 Primary CONTAINMENT ISOLATION shall be verified quarterly. Penetrations which are closed by bolted or welded blind flanges are not required to be surveilled.

CONTAINMENT AIR LOCKS (MODE 1)

4.6.1.3 Each Containment Air Lock shall be demonstrated OPERABLE:

a. After each opening, except when the Air Lock is being used for multiple entries, then at least once per 72 hours, by verifying less than or equal to 0.01 L_a seal leakage when the volume between the door seals is stabilized to a pressure of 6.5 psig.

b. At least once per three months by performing a mechanical operability check of each Air Lock, including a visual inspection of the components and lubrication if necessary.

4.6.1.3.1 When both Equipment Hatch Personnel Airlock doors are opened simultaneously, verify the following conditions:

a. The capability exists to expeditiously close at least one Airlock door.

b. The Airlock doors and containment purge are configured to restrict the outflow of air in accordance with procedures approved pursuant to Tech Spec 6.8.2.

c. The Airlock doors are cycled to ensure mechanical operability within seven days prior to opening both doors.

INTERNAL PRESSURE

4.6.1.4.a The primary Containment internal pressure shall be determined to be within the limits at least once per 24 hours, except during periods when the Containment Building is open to the atmosphere. The instrumentation surveillance requirements are as follows:

1.	Minimum Operable Channels	2
2.	Channel Check	D
3.	Channel Calibration	R
4.	Readout Location	Control Room

4.6.1.4.b During periods when the Containment Building is open to the atmosphere, methods to ensure airflow into the Containment Building shall be implemented in accordance with approved procedures (pursuant to Specification 6.8.2*).

AIR TEMPERATURE

4.6.1.5 The primary Containment average air temperature shall be the arithmetical average of the temperatures at the following locations and shall be determined at least once per 24 hours.

Location

a. RB nominal Elev. 350' (1 temperature indication) b. RB nominal Elev. 330' (1 temperature indication) c. RB nominal Elev. 305' (1 temperature indication)

CONTAINMENT AIRLOCKS (MODES 2 AND 3)

4.6.1.6 Each Containment Airlock shall be demonstrated OPERABLE:

a. After each opening, if not performed within the last 72 hours, by verifying less than or equal to 0.01 L_a seal leakage when the volume between the door seals is stabilized to a pressure of 6.5 psig.

b. At least once per three months by performing a mechanical operability check of each Airlock, including a visual inspection of the components and lubrication if necessary.

4.6.1.6.1 When both Equipment Hatch Personnel Airlock doors are opened simultaneously, verify the following conditions:

a. The capability exists to expeditiously close at least one Airlock door.

b. The Airlock doors and containment purge are configured to restrict the outflow of air in accordance with site-approved procedures.

c. The Airlock doors are cycled to ensure mechanical operability within seven days prior to opening both doors.

* - Specification 6.8.2 applies during Mode 1, only.

4.6.3 CONTAINMENT VENTILATION

CONTAINMENT PURGE EXHAUST SYSTEM

4.6.3.1 The Containment Purge Exhaust system shall be demonstrated OPERABLE:

a. Prior to system operation if not performed within the previous 31 days and thereafter at least once per 31 days during operation by verifying that the Purge Exhaust System in the normal operating mode meets the following conditions:

   1. Filter Pressure Drop: the d/p across the combined HEPA filters shall not exceed 6 inches water gauge while the system is operating.

b. Prior to system operation if not performed within the previous 18 months and thereafter at least once per 18 months by verifying that the ventilation system meets the following conditions:

   1. Visually inspect each filter train and associated components in accordance with Section 5 of ANSI N510-1980, as required by Regulatory Position C.5.a of Regulatory Guide 1.52, Revision 2, March 1978. The inspection should be performed prior to the DOP test of this section.

   2. Flow Test: Exhaust flow rate shall be within 18,000 cfm to 27,000 cfm operating band for each filter train with one filter train and one exhaust fan operating. Testing shall be in accordance with ANSI N510-1980, Section 8.3.1, paragraphs 3 and 4.

   3. DOP Test: Each filter train shall be tested in accordance with Section 10 of ANSI N510-1980, as required by Regulatory Position C.5.c of Regulatory Guide 1.52, Revision 2, March 1978.

NOTE: Installed system flow instrumentation is adequate for the test described in Section 4.6.3.1.b.3 above.

c. After structural maintenance of the HEPA filter or charcoal adsorber housings, or following fire or chemical release in any ventilation zone communicating with the system by verifying that the ventilation system meets the following conditions:

   1. Filter Pressure Drop: Reverify the filter pressure drop surveillance prescribed in Section 4.6.3.1.a.1 for the affected filter train(s).

   2. DOP Test: Each affected filter train shall be retested in accordance with Section 4.6.3.1.b.3.

   3. Visual inspection in accordance with ANSI N510-1980 Section 5.

d. After each complete or partial replacement of a HEPA filter bank by verifying that the venilation system meets the following condition:

   1. DOP Test: Each affected filter train shall be retested in accordance with Section 4.6.3.1.b.3.

4.7 PLANT SYSTEMS

4.7.4 NUCLEAR SERVICE RIVER WATER SYSTEM

4.7.4.1 Deleted

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4.7.6 FLOOD PROTECTION

4.7.6.1 The water level at the Unit 1 intake structure shall be determined to be within the limit by:

a. Measurement at least once per 24 hours when the water level is below elevation 301 feet Mean Sea Level USGS datum.

b. Measurement at least once per 2 hours when the water level is equal to or above elevation 301 feet Mean Sea Level datum.

4.7.6.2 The dike surrounding the island and the dike erosion protection shall be:

a. Inspected at least once per 6 months and within 31 days after every flood which exceeds 485,000 cfs at the Harrisburg gauge. This inspection shall include:

   1. Dike slope and notation of any location where slope is steeper than 2:1.

   2. Depressions and notation of their size and location.

   3. Stone degradation and notation of any areas where splitting, spalling or weathering of stone appears excessive.

   4. Vegetation and notation of location, quantity, and type.

   5. Operability of inside and outside gates of the Southeast Drainage Culvert.

4.7.6.3 A Special Report shall be prepared and submitted to the Commission within 30 days if evidence of degradation is noted during an inspection. This report shall describe the extent and nature of the degradation and the plans and schedule for restoring the dike and errosion protection to a status equivalent to the original design provisions.

4.7.7 CONTROL ROOM EMERGENCY AIR CLEANUP SYSTEM

4.7.7.1 The Control Room Emergency Air Cleanup System shall be demonstrated OPERABLE:

a. At least once per 12 hours by verifying that the control room air temperature is less than or equal to 80°F. | 31

b. At least once per 31 days by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 15 minutes; and the pressure drop across the combined HEPA filters and charcoal adsorbers banks is less than six (6) inches water gauge while operating.

c. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire or chemical release in any ventilation zone communicating with the system by:

   1. Verifying that the cleanup system satisfies the in-place testing acceptance criteria and uses the test procedures of Regulatory Positions C.5.a, C.5.c* and C.5.d* of Regulatory Guide 1.52, Revision 2, March 1978, and the system flow rate is 14,350 cfm ± 10%.

   2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Guide 1.52, Revision 2, March 1978, when performing Methyl Iodide, 30°C, 95% RH testing per Table 5-1 of ANSI N509-1980 meets an acceptable criteria of 5% penetration maximum.

   3. Verifying a system flow rate of 14,350 cfm ± 10% during system operation when tested in accordance with ANSI N510-1980, Section 8.3.1 Paragraphs 3 and 4.

*The prerequisites of Section 10.3 and 12.3 of ANSI-N510-1980 do not apply.

CONTROL ROOM EMERGENCY AIR CLEANUP SYSTEM (Cont'd)

d. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, when performing Methyl Iodide, 30°C, 95% RH testing per Table 5-1 of ANSI N509-1980 meets an acceptance criteria of 5% penetration maximum.

e. At least once per 18 months by:

1. Verifying that the pressure drop across the combined HEPA filter and charcoal adsorber banks is less than 6 inches water gauge while operating the system at a flow rate of 14,350 cfm ± 10%.

2. Verifying that on a control room air inlet radiation test signal or chlorine detection test signal, the system automatically switches into a recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks.

3. Verifying that the system maintains the control room at a positive pressure of greater than or equal to 1/10 inch water gauge relative to the outside atmosphere during system operation.

f. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove greater than or equal to 99.95% of the DOP when they are tested in place in accordance with ANSI N510-1980* Section 10 while operating the system at a flow rate of 14,350 cfm ± 10%.

g. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorbers remove greater than or equal to 99.95% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1980,* Section 12, while operating the system at a flow rate of 14,350 cfm ± 10%.

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*The prerequisites of Section 10.3 and 12.3 of ANSI-510-1980 do not apply.

4.7.9 SEALED SOURCES

4.7.9.1 Test Requirements - Each sealed source shall be tested for leakage and/or contamination by:

a. The licensee, or

b. Other persons specifically authorized by the Commission or an Agreement State.

The test method shall have a detection sensitivity of at least 0.005 microcuries per test sample.

4.7.9.2 Test Frequencies - Each category of sealed sources shall be tested at the frequency described below.

a. Source in use (excluding startup sources and fission detectors previously subjected to core flux, at least once per six months for all sealed sources containing radioactive material:

   1. With a half-life greater than 30 days (excluding Hydrogen 3) and

   2. In any form other than gas.

b. Stored sources not in use - Each sealed source and fission detector shall be tested prior to use or transfer to another licensee unless tested within the previous six months. Sealed sources and fission detectors transferred without a certificate indicating the last test date shall be tested prior to being placed into use.

c. Startup sources and fission detectors - Each sealed startup source and fission detector shall be tested within 31 days prior to being subjected to core flux or installed in the core and following repair or maintenance to the source.

4.7.9.3 Reports - A report shall be prepared and submitted to the Commission on an annual basis if sealed source or fission detector leakage tests reveal the presence of $\geq$ 0.005 microcuries of removable contamination.

4.7.10 FIRE SUPPRESSION SYSTEMS

4.7.10.1 FIRE SUPPRESSION WATER SYSTEM

4.7.10.1.1 The FIRE SUPPRESSION WATER SYSTEM shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying that at least 90,000 gallons of water are in the Altitude Tank, equivalent level in Unit 1 circulating water flume and/or equivalent level in the river.

b. At least once per 31 days on a STAGGERED TEST BASIS by starting each pump and operating it for at least 20 minutes on recirculation flow.

c. At least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path is in its correct position.

d. At least once per 12 months by:

   1. Running the full flow of one fire pump through all main header loops as a flush, and

   2. Cycling each testable valve in the flow path through at least one complete cycle of full travel.

e. At least once per 18 months by performing a system functional test which includes simulated automatic actuation of the system (i.e., pumps start at set pressure $\pm$10 psig), and:

   1. Verifying that each pump develops at least 2500 gpm at a total dynamic head no more than 10% below that indicated on manufactures curves.

   2. Cycling each valve in the flow path that is not testable during plant operation through at least one complete cycle of full travel, and

   3. Verifying that each high pressure pump starts (sequentially) to maintain the fire suppression water system pressure greater than or equal to 70 psig.

f. At least once per 3 years by performing a flow test of the system in accordance with Chapter 5, Section 11 of the Fire Protection handbook, 14th Edition, published by the National Fire Protection Association.

FIRE SUPPRESSION WATER SYSTEM (Cont'd)

4.7.10.1.2 Each fire pump diesel engine shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying;

   1. Its associated fuel storage tank contains at least 250 gallons of fuel, and

   2. The diesel starts from ambient conditions and operates for at least 20 minutes.

b. At least once per 92 days by verifying that a sample of diesel fuel from each fuel storage tank, obtained in accordance with ASTM-D270-65, is within the acceptable limits specified in Table 1 of ASTM D975-74 when checked for viscosity, water and sediment.

c. At least once per 18 months, by:

   1. Subjecting each diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for the class of service, and

   2. Verifying each diesel starts from ambient conditions on the auto-start signal and operates for greater than or equal to 20 minutes while loaded with the fire pump.

4.7.10.1.3 Each fire pump diesel starting battery bank and charger shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying that:

   1. The electrolyte level of each battery is above the plates, and

   2. The overall battery voltage is greater than or equal to 24 volts.

b. At least once per 92 days by verifying that the specific gravity is appropriate for continued service of the battery.

c. At least once per 18 months by verifying that:

   1. The batteries, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration, and

   2. The battery-to-battery and terminal connections are clean, tight, free of corrosion and coated with anti-corrosion material.

4.7.10.2 DELUGE/SPRINKLER SYSTEMS

Each of the required deluge and/or sprinkler systems shall be demonstrated OPERABLE:

a. At least once per 12 months by cycling each testable valve in the flow path through at least one complete cycle of full travel.

b. At least once per 18 months:

1. By performing a system functional test which includes tripping detectors and verifying actuation of trip devices on associated deluge valves. Deluge/sprinkler valves shall be inspected internally to verify operability in all instances where header flooding during the test is not practical.

2. Cycling each valve in the flow path that is not testable during plant operation through at least one complete cycle of full travel.

3. By visual inspection of the deluge headers to verify their integrity.

4. By visual inspection of each nozzle to verify no blockage.

c. At least one per 3 years by performing an air or gas flow test through each deluge header and verifying each deluge nozzle is unobstructed.

4.7.10.3 HALON SYSTEM

4.7.10.3.1 The Cable Room and Transformer Room Halon system shall be demonstrated OPERABLE at least once per 6 months by verifying each Halon storage tank weight and pressure.

4.7.10.3.2 The Air Intake Tunnel Halon System shall be demonstrated OPERABLE:

a. At least once per 6 months by verifying pressure in each halon storage tank, and

b. At least once per 18 months by verifying storage tank weight.

4.7.10.4 FIRE HOSE STATIONS

Each fire hose station listed in Table 4.7-1 shall be verified OPERABLE:

a. At least once per 31 days by visual inspection of the station to assure all required equipment is at the station.

b. At least once per 18 months by:

   1. Removing the hose for inspection and re-racking, and

   2. Replacement of all degraded gaskets in couplings.

c. At least once per 3 years by:

   1. Partially opening each hose station valve to verify valve OPERABILITY and no flow blockage.

   2. Conducting a hose hydrostatic test at a pressure at least 50 psig greater than the maximum pressure available at that hose station.

4.7.11 PENETRATION FIRE BARRIERS

The required (accessible per occupational exposure considerations) penetration fire barriers shall be verified to be functional:

a. At least once per 18 months by a visual inspection.

b. Prior to returning a penetration fire barrier to functional status following repairs or maintenance by performance of a visual inspection of the affected penetration fire barrier(s).

TABLE 4.7-1

FIRE HOSE STATIONS

Auxiliary Building

1. Firehose near stairway at South end of building near Decay Heat Closed Cooling Surge Tank, 328' elevation.
2. Fire hose near entrance to Chemical Addition area, 328' elevation.
3. Fire hose near Miscellaneous Waste Holdup Tank room, 305' elevation.
4. Fire hose near Intermediate Closed Coolers, 305' elevation.
5. Fire hose near Evaporator Condensate Test Tank Room, 280' elevation.
6. Fire hose near Reactor Building Emergency Cooling Booster Pumps, 280' elevation.

Control Building Area

1. Fire hose near 480 Volt Bus 2-34 282'6" elevation.
2. Fire hose near entrance to Service Building 282'6" elevation.

Reactor Building*

1. Deleted.
2. Deleted.
3. Fire hose near West stairway, 305' elevation.
4. Fire hose near Southwest stairway, 305' elevation.
5. Fire hose on East D-ring, 367' elevation.
6. Fire hose on West D-ring, 367' elevation.

Control Building

1. Fire hose near doorway on North wall, 305' elevation.

Fuel Handling Building

1. Fire hose on East wall, 347'6" elevation.

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*Fire hose stations in the Reactor Building shall be OPERABLE prior to initiating operations which generate combustible materials, and prior to initiating operations which involve the use of open flames, welding, burning, grinding, etc.

4.8 ELECTRICAL POWER SYSTEMS

4.8.1 A.C. SOURCES

4.8.1.1 Each of the required independent circuits between the offsite transmission network and the onsite Class 1E distribution system shall be determined OPERABLE at least once per 7 days by verifying correct breaker alignments and indicated power availability.

4.8.1.2 Deleted

4.8.1.3 Deleted

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4.8.2 ONSITE POWER DISTRIBUTION SYSTEMS

4.8.2.1 A.C. DISTRIBUTION

4.8.2.1.1 The specified A.C. busses shall be determined OPERABLE with tie breakers open between redundant busses at least once per 7 days by verifying correct breaker alignment and indicated power availability.

4160 Volt Bus 2-1E, 2-2E, 2-3, and 2-4

480 Volt Bus 2-11E, 2-12E, 2-21E, 2-22E, 2-32, 2-35, 2-36, 2-42, 2-45 and 2-46

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4.8.2.1.2 The specified A.C. busses shall be determined OPERABLE at least once per 7 days by verifying correct breaker alignment and indicated power availability.

120 Volt A.C. Vital Bus 2-1V, 2-2V, 2-3V, and 2-4V

4.8.2.2 D.C. DISTRIBUTION

4.8.2.2.1 Each D.C. bus train shall be determined OPERABLE and energized with tie breakers open at least once per 7 days by verifying correct breaker alignment and indicated power availability.

4.8.2.2.2 Each 250/125-volt battery bank and charger shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying that:

1. The electrolyte level of each pilot cell is between the minimum and maximum level indication marks.

2. The pilot cell specific gravity, corrected to 77°F and full electrolyte level, is greater than or equal to 1.20.

3. The pilot cell voltage is greater than or equal to 2.13 volts.

4. The overall battery voltage is greater than or equal to 250/125 volts.

D.C. DISTRIBUTION (Cont'd)

b. At least once per 92 days by verifying that:

1. The voltage of each connected cell is greater than or equal to 2.13 volts under float charge and has not decreased more than 0.10 volts from the value observed during the original acceptance test.

2. The specific gravity, correct to 77°F and full electrolyte level, of each connected cell is greater than or equal to 1.20 and has not decreased more than 0.01 from the value observed during the previous test.

3. The electrolyte level of each connected cell is between the minimum and maximum level indication marks.

c. At least once per 18 months by verifying that:

1. The cells, cell plates and battery racks show no visual indication of physical damage or deterioration.

2. The cell-to-cell and terminal connections are clean, tight and coated with anti-corrosion material.

4.9 LIQUID RADWASTE STORAGE

SPENT FUEL STORAGE POOL "A" WATER LEVEL MONITORING

4.9.1 The Spent Fuel Storage Pool "A" water level monitoring instrumentation shall be demonstrated OPERABLE as required by Table 4.3-8. | 1

4.9.2 Verify by surveillance that the water level of the Spent Fuel Storage Pool "A" water level is between elevations 326'-10" and 328'-01". | 40

FUEL TRANSFER CANAL WATER LEVEL MONITORING

4.9.3 The Fuel Transfer Canal (deep end) water level monitoring instrumentation shall be demonstrated OPERABLE as required by Table 4.3-8. | 1

4.9.4 Verify by surveillance that the water level of the Fuel Transfer Canal (deep end) water level is between elevations 326'-10" and 328'-01". | 40

4.9.12 FUEL HANDLING BUILDING/AUXILIARY BUILDING AIR CLEANUP SYSTEMS

4.9.12.1 The Fuel Handling Building Air Cleanup Exhaust System shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that the Air Cleanup Exhaust System in the normal operating mode meets the following conditions:

   1. Deleted

   2. Filter Pressure Drop: The d/p across the combined HEPA filters and charcoal adsorbers shall not exceed 6 inches water gauge.

   3. Fuel Handling Building Pressure: Demonstrate that the system is capable of achieving a negative pressure within the building equal to or greater (more negative) than 1/8 inch water gauge with respect to atmospheric. It may be necessary to close doors and other building openings to achieve the required value.

| 31

b. At least once per 18 months by verifying that the ventilation system meets the following conditions:

1. Visually inspect each filter train and associated components in accordance with Section 5 of ANSI N510-1980, as required by Regulatory Position C.5.a of Regulatory Guide 1.52, Revision 2, March 1978. The inspection should be performed prior to the flow and DOP tests of this section.

2. Flow Test: Exhaust flow rate shall be within 18,000 cfm to 27,000 cfm operating band for each filter train with one filter train and one exhaust fan operating. Testing shall be in accordance with ANSI N510-1980, Section 8.3.1, Paragraphs 3 and 4.

3. DOP Test: Each filter train shall be tested in accordance with Section 10 of ANSI N510-1980, as required by Regulatory Position C.5.c of Regulatory Guide 1.52, Revision 2, March 1978. Flow through the filter train being tested shall be as prescribed for the flow test in Section 4.9.12.1.B.2 above.

NOTE: Installed system flow instrumentation is adequate for the test described in 4.9.12.1.B.3 above.

4. Fuel Handling Building Pressure: Demonstrate that the system is capable of achieving a negative pressure within the building equal to or greater (more negative) than 1/8 inch water gauge with respect to atmospheric. It may be necessary to close doors and other building openings to achieve the required value. A test instrument, such as an inclined manometer or equivalent, shall be used in the performance of this test.

c. After structural maintenance of the HEPA filter or charcoal adsorber housings, or following fire or chemical release in any ventilation zone communicating with the system by verifying that the ventilation system meets the following conditions:

1. Flow Test: Reverify exhaust flow rate for the affected filter train(s) per Section 4.9.12.1.B.2.

2. Filter Pressure Drop: Reverify the filter pressure drop surveillance prescribed in Section 4.9.12.1.A.2 for the affected filter train(s).

3. DOP Test: Each affected filter train shall be retested in accordance with Section 4.9.12.1.B.3.

d. After each complete or partial replacement of a HEPA filter bank by verifying that the ventilation system meets the following conditions:

1. DOP Test: Each affected filter train shall be retested in accordance with Section 4.9.12.1.B.3.

NOTE: Supply fans may be operated as desired except that the number of operating supply fans shall not exceed the number of operating exhaust fans.

4.9.12.2 The Auxiliary Building Air Cleanup Exhaust System shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that the air cleanup exhaust system in the normal operating mode meets the following conditions:

1. Deleted

2. Filter Pressure Drop: The d/p across the combined HEPA filters and charcoal adsorbers shall not exceed 6 inches water gauge. 31

3. Auxiliary Building pressure: Demonstrate that the system is capable of achieving negative pressure within the building equal to or greater (more negative) than 1/8 inch water gauge with respect to atmospheric. It may be necessary to close doors and other building openings to achieve the required value.

b. At least once per 18 months by verifying that the ventilation system meets the following conditions:

1. Visually inspect each filter train and associated components in accordance with Section 5 of ANSI N510-1980, as required by Regulatory Position C.5.a of Regulatory Guide 1.52, Revision 2, March 1978. The inspection should be performed prior to the flow and DOP tests of this section.

2. Flow Test: Exhaust flow rate shall be within 27,000 cfm to 40,000 cfm operating band for each filter train with one filter train and one exhaust fan operating. Testing shall be in accordance with ANSI N510-1980, Section 8.3.1, Paragraphs 3 and 4.

3. DOP Test: Each filter train shall be tested in accordance with Section 10 of ANSI N510-1980, as required by Regulatory Position C.5.c of Regulatory Guide 1.52, Revision 2, March 1978. Flow through the filter train being tested shall be as prescribed for the flow test in Section 4.9.12.2.b.2 above.

NOTE: Installed system flow instrumentation is adequate for the test described in 4.9.12.2.b.3 above.

4. Auxiliary Building Pressure: Demonstrate that the system is capable of achieving a negative pressure within the building equal to or greater (more negative) than 1/8 inch water gauge with respect to atmospheric. It may be necessary to close doors and other building openings to achieve the required value. A test instrument, such as an inclined manometer or equivalent, shall be used in the performance of this test.

c. After structural maintenance of the HEPA filter or charcoal adsorber housing, or following fire or chemical release in any ventilation zone communicating with the system by verifying that the ventilation system meets the following conditions:

1. Flow Test: Reverify exhaust flow rate for the affected filter train(s) per Section 4.9.12.2.b.2.

2. Filter Pressure Drop: Reverify the filter pressure drop surveillance prescribed in Section 4.9.12.2.a.2 for the affected filter train(s).

3. DOP Test: Each affected filter train shall be retested in accordance with Section 4.9.12.2.b.3.

d. After each complete or partial replacement of a HEPA filter bank by verifying that the ventilation system meets the following conditions:

1. DOP Test: Each affected filter train shall be retested in accordance with Section 4.9.12.2.b.3.

NOTE: Supply fans may be operated as desired except that the number of operating supply fans shall not exceed the number of operating exhaust fans.