

3.0 SURVEILLANCE REQUIREMENTS

3.2 Equipment and Sampling Tests

Applicability

Applies to plant equipment and conditions related to safety.

Objective

To specify the minimum frequency and type of surveillance to be applied to critical plant equipment and conditions.

Specifications

Equipment and sampling tests shall be conducted as specified in Tables 3-4 and 3-5. The specified intervals may be adjusted to accommodate normal test schedules except that the interval shall not exceed 1.25 times the specified interval.

Basis

The equipment testing and system sampling frequencies specified in Tables 3-4 and 3-5 are considered adequate, based upon experience, to maintain the status of the equipment and systems so as to assure safe operation. Thus, those systems where changes might occur relatively rapidly are sampled frequently and those static systems not subject to changes are sampled less frequently.

The control room air filtering system consists of high efficiency particulate air (HEPA) filters and the charcoal adsorbers. HEPA filters are installed before the charcoal adsorbers to prevent clogging of the iodine adsorbers. The charcoal adsorbers are installed to reduce the potential intake of iodine to the control room. The in-place test results will confirm system integrity and performance. The laboratory carbon sample test results should indicate methyl iodide removal efficiency of at least 90 percent for expected accident conditions. Pressure drop across the combined HEPA filters and charcoal adsorbers of less than 6 inches of water will indicate that the filters and adsorbers are not clogged by excessive amounts of foreign matter.

The spent fuel pool area filtering unit is designed to filter the building atmosphere to the auxiliary building vent during refueling operations. The charcoal adsorbers are installed to reduce the potential release of radioiodine to the environment. In-place testing is performed to confirm the integrity of the filtering unit. The charcoal adsorbers are periodically sampled to insure capability for the removal of radioactive iodine.

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3.2 Equipment and Sampling Tests (Continued)

The Safety Injection (SI) pump room air filtering unit consists of charcoal adsorbers which are installed in normally bypassed ducts. This unit is designed to reduce the potential release of radioiodine in SI pump rooms during the recirculation period following a DBA. The in-place and laboratory testing of charcoal adsorbers will assure unit integrity and performance.

Operation of the filtering units for 15 minutes every month will demonstrate operability.

If significant painting, fire or chemical release occurs such that the HEPA filters or charcoal adsorbers could become contaminated from the fumes, chemicals or foreign materials, testing will be performed to confirm system performance.

Demonstration of the automatic and/or manual initiation capability will assure the system's availability.

References

USAR, Section 9.10

TABLE 3-5

MINIMUM FREQUENCIES FOR EQUIPMENT TESTS

	Test	Frequency	USAR Section Reference
1.	Control Element Assemblies	Drop times of all full-length CEA's	Each refueling operation 7.5.3
2.	Control Element Assemblies	Partial movement of all CEA's (Minimum of 6 in)	Every two weeks 7
3.	Pressurizer Safety Valves	Set point	Once each refueling outage 7
4.	Main Steam Safety Valves	Set point	Each refueling outage 4
5.	Refueling System Interlocks	Functioning	Prior to refueling outage 9.5.6
6.	Raw Water System Valve Actuation	Functioning	Each refueling outage 9.8
7.	Fire Protection Pumps & Power Supply	Functioning	Monthly 9.11
8.	Reactor Coolant System Leakage	Evaluate	Daily* 4
9.	Diesel Fuel Supply	Fuel Inventory	Daily 8.4
10a.	Charcoal and HEPA Filters for Control Room	1. <u>In-Place Testing**</u> Charcoal adsorbers and HEPA filter banks shall be leak tested and shall show >99% Freon (R-11 or R-112) and DOP removal, respectively.	Each refueling shutdown not to exceed 18 months or after every 720 hours of system operation or after each complete or partial replacement of 9.10

* Whenever the system is at or above operating temperature and pressure.

**Tests shall be performed in accordance with applicable section(s) of ANSI N510-1980.

TABLE 3-5
(Continued)

Test	Frequency	USAR Section Reference
10a. (Continued)		the charcoal adsorber/HEPA filter banks, or after any major structural maintenance on the system housing and following significant painting, fire or chemical releases in a ventilation zone communicating with the system.
2. <u>Laboratory Testing*</u>		
a. Replacement charcoal shall meet the requirements of Table 5-1 of ANSI N509-1980 for a 30°C and 95% RH methyl iodide test.		Each replacement of charcoal adsorbers.
b. Activated charcoal adsorbers shall be replaced or tested. The test results shall show >90% methyl iodide removal when tested in accordance with Method A of ASTM-D3803-79. Verification shall be obtained within 31 days after removal that a laboratory analysis of a representative carbon sample meets the above criteria.		Each refueling shutdown not to exceed 18 months or after every 720 hours of system operation or following significant painting, fire or chemical release in any ventilation zone communicating with the system.
3. <u>Overall System Operation</u>		
a. Each circuit shall be operated.		15 minutes every month.

*Tests shall be performed in accordance with applicable section(s) of ANSI N510-1980.

TABLE 3-5
(Continued)

	Test	Frequency	USAR Section Reference
10a.	(Continued)		
	b. The pressure drop across the combined HEPA filters & charcoal adsorber banks shall be demonstrated to be less than 6 inches of water at system design flow rate.	At least once per plant operating cycle.	
	c. Fan shall be shown to operate within $\pm 10\%$ design flow.	At least once per plant operating cycle.	
	4. Automatic and manual initiation of the system shall be demonstrated.	At least once per plant operating cycle.	
3-20b 10b.	Charcoal Adsorbers for Spent Fuel Storage Pool Area		
	1. <u>In-Place Testing*</u> Charcoal adsorbers shall be leak tested and shall show $\geq 99\%$ Freon (R-11 or R-112) removal.	Each refueling shutdown not to exceed 18 months or after every 720 hours of system operation, or after each complete or partial replacement of the charcoal adsorber bank, or after any major structural maintenance on the system housing and following significant painting, fire or chemical release in a ventilation zone communicating with the system.	6.2 9.10
	2. <u>Laboratory Testing</u>		
	a. Replacement charcoal shall meet the requirements of Table 5-1 of ANSI N509-1980 for a 30°C and 95% RH elemental iodine test.	Each replacement of charcoal adsorbers.	

*Tests shall be performed in accordance with applicable section(s) of ANSI N510-1980.

TABLE 3-5
(Continued)

	Test	Frequency	USAR Section Reference
10b.	(Continued)		
	b. The carbon sample test-results shall show $\geq 90\%$ elemental iodine removal when tested in accordance with Method D of ASTM-D3803-79 and with a face velocity of 72 fpm $\pm 10\%$. Verification shall be obtained within 31 days after removal that a laboratory analysis of a representative carbon sample meets the above criteria.	Each refueling shutdown not to exceed 18 months or after every 720 hours of system operation, or following significant painting, fire or chemical release in any ventilation zone communicating with the system.	
	3. <u>Overall System Operation</u>		
	a. Operation of each circuit shall be demonstrated.	15 minutes every month.	
	b. Volume flow rate through charcoal filter shall be shown to be between 9000 and 12,000 cfm.	At least once per plant operating cycle.	
	4. Manual initiation of the system shall be demonstrated.	At least once per plant operating cycle.	
10c.	Charcoal Adsorbers for S.I. Pump Room		
	1. <u>In-Place Testing*</u> Charcoal adsorbers shall be leak tested and shall show $\geq 99\%$ Freon (R-11 or R-112) removal.	Each refueling shutdown not to exceed 18 months or after every 720 hours of system operation or after each complete or partial replacement of the charcoal adsorber bank, or after any major structural	9.10 6.2

*Tests shall be performed in accordance with applicable section(s) of ANSI N510-1980.

TABLE 3-5
(Continued)

Test	Frequency	USAR Section Reference
10c. (Continued)	maintenance on the system housing and following significant painting, fire or chemical release in any ventilation zone communicating with the system.	
2. <u>Laboratory Testing</u>		
a. Replacement charcoal shall meet the requirements of Table 5-1 of ANSI N509-1980 for a 30°C and 95% RH elemental iodine test.	Each replacement of charcoal adsorbers.	
b. The carbon sample test results shall show no less than 97% elemental iodine removal when tested in accordance with Method D of ASTM-D3803-79 and with a face velocity of 72 fpm ±10%. Verification shall be obtained within 31 days after removal that a laboratory analysis of a representative carbon sample meets the above criteria.	Each refueling shutdown not to exceed 18 months or after every 720 hours of system operation or following significant painting, fire or chemical release in any ventilation zone communicating with the system.	
3. <u>Overall System Operation</u>		
a. Operation of each circuit shall be demonstrated.	15 minutes every month.	
b. Volume flow rate shall be shown to be 4300 cfm ±20%.	At least once per plant operating cycle.	

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TABLE 3-5
(Continued)

	Test	Frequency	USAR Section Reference
	4. Automatic and/or manual initiation of the system shall be demonstrated.	At least once per plant operating cycle.	
11.	Containment Cooling and Iodine Removal Fuseable Linked Dampers	1. Demonstrate damper action. 2. Test a spare fuseable link.	1 year, 2 years, 5 years, and every 5 years thereafter 9.10
12.	Fuel Elements	Visually inspect fuel elements removed from the reactor.	During each refueling outage 3
13.	Diesel Generator Under-Voltage Relays	Calibrate	During each refueling outage 8.4.3
14.	Motor Operated Safety Injection Loop Valve Motor Starters (HCV-311, 314, 317, 320, 327, 329, 331, 333, 312, 315, 318, 321)	Verify the contactor pickup value at $\leq 85\%$ of 460 V.	During each refueling outage
15.	Pressurizer Heaters	Verify control circuits operation for post-accident heater use.	During each refueling outage

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Safety Injection and Containment Cooling Systems Tests

(Continued)

(3) Pumps

- a. The safety injection pumps, shutdown cooling pumps, and containment spray pumps shall be started at intervals not to exceed three months. Alternate manual starting between control room console and the local panel shall be practiced during refueling outages.
- b. Acceptable levels of performance shall be that the pumps start, reach their rated heads at minimum recirculation flow, and operate for at least fifteen minutes.

(4) Valves

- a. The SIRW storage tank outlet valves and containment sump isolation valves shall be stroked during the pump test.
- b. The SI tank check valves shall be checked for operability during each refueling shutdown.

(5) Containment Recirculating Air Cooling and Filtering System

- a. Emergency mode damper, automatic valve, fan, fuseable link, automatic damper, and raw water backup valve operation will be checked for operability during each refueling outage.
- b. Each fan and remotely operated damper required to function during accident conditions will be exercised at intervals not to exceed three months.
- c. Each air filtering circuit will be operated at least 15 minutes every month.
- d. A visual examination of the HEPA and charcoal filters will be made during each refueling outage, prior to each in-place DOP test or charcoal adsorber leak test and following partial or full replacement of HEPA filters or charcoal adsorbers, in accordance with Section 5 of ANSI N510-1980 to insure that leak paths do not exist.
- e. Measurement of pressure drop across the combined HEPA and charcoal adsorber banks shall be performed at least once per plant operating cycle to verify a pressure drop of less than 6 inches of water at system design flow.

(Continued)

- f. Fans shall be shown to operate at a flow rate of 90,000 cfm $\pm 10\%$ during each refueling outage.
- g. In-place testing of charcoal adsorbers and HEPA filter banks shall be performed following any major system modification or repair to the filter system, excluding partial or full replacement of filter bank. Charcoal adsorbers and HEPA filter banks shall show $\geq 99\%$ halogenated hydrocarbon and DOP removal, respectively.
- h. Replacement charcoal shall meet the requirements of Table 5-1 of ANSI N509-1980 for a 130°C and 95% RH methyl iodide test.
- i. A sample shall be removed for laboratory testing at each refueling outage not to exceed 18 months; or at the next shutdown following 4300 hours of charcoal filtering unit operation; or following significant painting, fire, or chemical release in any ventilation zone communicating with the filtration system. The sample tests shall show $\geq 85\%$ methyl iodide removal when tested in accordance with Method C of ASTM-D3803-79. Verification shall be obtained within 31 days that a laboratory analysis of a representative carbon sample meets the above criteria.

Basis

The safety injection system and the containment cooling system are principal plant safeguards that are not operated during normal reactor operation.

Complete systems tests cannot be performed when the reactor is operating because a safety injection signal causes containment isolation and a containment spray system test requires the system to be temporarily disabled. The method of assuring operability of these systems is, therefore, to combine systems tests to be performed during refueling shutdowns in addition to more frequent component tests which can be performed during reactor operation.

The refueling shutdown tests demonstrate proper automatic operation of the safety injection and containment spray systems. A test signal is applied to initiate automatic action and verification made that the components receive the safety injection actuation signals in the proper sequence. The test demonstrates the operation of the valves, pump circuit breakers, and automatic circuitry. (1)(2)

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SURVEILLANCE REQUIREMENTS

Safety Injection and Containment Cooling Systems Tests

(Continued)

During reactor operation, the instrumentation which is depended on to initiate safety injection and containment spray is generally checked daily and the initiating circuits are tested monthly. In addition, the active components (pumps and valves) are to be tested every three months to check the operation of the starting circuits and to verify that the pumps are in satisfactory running order. The test interval of three months is based on the judgement that more frequent testing would not significantly increase the reliability (i.e., the probability that the component would operate when required), yet more frequent tests would result in increased wear over a long period of time. Verification that the spray piping and nozzles are open will be made initially by a smoke test or other suitably sensitive method, and at least every five years thereafter. Since the material is all stainless steel, normally in a dry condition, with no plugging mechanism available, the retest every five years is considered to be more than adequate.

Other systems that are also important to the emergency cooling function are the SI tanks, the component cooling system, the raw water system and the containment air coolers. The SI tanks are a passive safeguard. In accordance with the specifications, the water volume and pressure in the SI tanks are checked periodically. The other systems mentioned operate when the reactor is in operation and are continuously monitored for satisfactory performance.

The in-containment air filtering system is designed to filter the containment building atmosphere during accident conditions. Both in-containment air filtering systems are designed to automatically start upon accident signals. Should one system fail to start, the redundant system is designed to start automatically. Each of the two systems has 100 percent capacity.⁽³⁾

High efficiency particulate air (HEPA) filters are installed before the charcoal adsorbers to prevent clogging of the iodine adsorbers. The charcoal adsorbers are installed to reduce the potential release of radioiodine to the environment. The laboratory carbon sample test results should indicate a radioactive methyl iodide removal efficiency of at least 85 percent. If the efficiency of the charcoal adsorbers is as specified, the resulting doses will be less than the 10 CFR Part 100 guidelines for the accidents analyzed.

Pressure drop across the combined HEPA filters and charcoal adsorbers of less than 6 inches of water will indicate that the filters and adsorbers are not clogged by excessive amounts of foreign matter.

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3.6 Safety Injection and Containment Cooling Systems Tests
(Continued)

If significant painting, fire or chemical release occurs in a ventilation zone communicating with the system that could lead to the degradation of charcoal adsorbers or HEPA filters, testing will be performed to assure system integrity and performance.

Operation of the system for 15 minutes every month will demonstrate operability of the filters and adsorbers system.

Demonstration of the automatic initiation capability will assure system availability.

References

- (1) USAR, Section 6.2
- (2) USAR, Section 6.3
- (3) USAR, Section 6.4

DISCUSSION OF PROPOSED CHANGES
TO TECHNICAL SPECIFICATIONS

The proposed revisions to the Technical Specifications are made in response to an informal request from the Commission and following several telephone conversations between Mr. E. G. Tourigny and Mr. J. Hayes of the Commission and Mr. T. L. Patterson and Mr. S. U. Khan of the District. These changes were requested by the NRC in reference to a proposed amendment to the Technical Specifications on 10 CFR Part 50, Appendix J, presently being reviewed by the Commission. The changes can be summarized as follows:

- (1) The acceptance criteria for replacement charcoal tests has been changed to conform with Table 5-1 of ANSI N509-1980.
- (2) The acceptance criterion for the S.I. pump room carbon sample test results has been raised from 90% to 97%. This change is based upon actual operating data.
- (3) The volume flow rate for the S.I. pump room, based upon operating data for the past four years, has been changed from "between 3000 and 6000 cfm" to "4300 ± 20%".
- (4) The frequency of operation of each filtering circuit has been changed from 10 hours each month to 15 minutes each month. This change is based upon the fact that none of the plant filtering systems are equipped with heating coils, thereby making the 10-hour test unnecessary.
- (5) A specification for in-place testing of containment filtering systems has been added. It should be noted that requirements for in-place testing following a partial or full replacement of HEPA or charcoal adsorber banks have been excluded.
- (6) The District takes exception to one item proposed by the Commission. The existing acceptance criterion for the removal of methyl iodide from the in-containment used charcoal is $\geq 85\%$ as compared to a newly proposed value of $\geq 90\%$. It needs to be emphasized that the health and safety of the public will not be endangered with the existing charcoal adsorber's efficiency as the resulting doses, with a charcoal efficiency of 85%, will be well below the 10 CFR Part 100 guidelines for the accidents analyzed. The District has been operating the in-containment filtering systems with the present value, approved by the Commission, since 1976. It is believed that the 85% value provides operational flexibility (sufficient durations between required filter changeouts) and minimizes the cost impact on the District.
- (7) The Commission has recommended a 31-day verification of laboratory testing of the charcoal adsorbers. The District believes that the proposed requirement for obtaining verification

(either written or verbal) within 31 days that a laboratory analysis of a representative charcoal adsorber sample meets the appropriate criteria is responsive to the concerns raised by the Commission.

- (8) Other changes of an administrative nature (i.e., correction of typographical errors, changes to achieve consistency in the applicable sections, and reference corrections).

This amendment application does not involve significant hazards considerations. This determination is based on the following facts:

- (1) Acceptance criteria (see 1, 2, and 3 above) were made more stringent. This will not increase the probability of an accident previously evaluated, it will not create the possibility of a different accident, and will increase rather than reduce the margin of safety.
- (2) Frequency of operation of filtering circuits (see 4 above) changed from 10 hours per month to 15 minutes per month. This will not increase the probability of an accident previously evaluated; it will not create the possibility of a different accident; and, since the plant filtering systems are not equipped with heating coils (making the 10-hour test unnecessary), this change will not decrease the margin of safety.
- (3) Specifications for in-place testing of containment filtering systems have been added (see 5 above). This will not increase the probability of an accident previously evaluated; it will not create the possibility of a different accident; and, since this increases testing requirements, no reduction in the margin of safety will be realized.
- (4) The 85% acceptance criteria was not changed (see 6 above). No change was made; therefore, no significant hazards consideration is involved.
- (5) A 31-day limit on verification of the results of a laboratory test on charcoal adsorbers has been added. This requirement will not increase the probability of an accident previously evaluated; it will not create the possibility of a different accident; and, since the previous specification had no time limit on verification, this change will increase the margin of safety.
- (6) The administrative changes (see 8 above) such as correction of typographical errors, omissions, and changes to achieve consistency do not involve significant hazards consideration.