UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

BALTIMORE GAS AND ELECTRIC COMPANY

DOCKET NO. 50-317

CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 139
License No. DPR-53

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Baltimore Gas and Electric Company (the licensee) dated June 9, 1988, as supplemented on October 25, November 17 and December 28, 1988, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-53 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 139 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective 30 days after the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Robert A. Capra

Robert A. Capra, Director
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 10, 1990

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 139 FACILITY OPERATING LICENSE NO. DPR-53

DOCKET NO. 50-317

Revise Appendix A as follows:

Remove Pages	Insert Pages
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*Overleaf pages provided for continuity purposes only.

**Reissued pages from Amendment No. 128.

SURVEILLANCE REQUIREMENTS (Continued)

b. At least once per refueling interval, during shutdown, by:

1. Verifying that each automatic valve in the flow path actuates to its correct position on Safety Injection Actuation test signal.

2. Verifying that each spray pump starts automatically on a Containment Spray Actuation test signal.

c. At least once per 5 years by performing an air or smoke flow test through each spray header and verifying each spray nozzle is unobstructed.

CONTAINMENT SYSTEMS

CONTAINMENT COOLING SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.2.2 Two independent groups of containment air recirculation and cooling units shall be OPERABLE with two units to each group.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

a. With one group of required containment air recirculation and cooling units inoperable and both containment spray systems OPERABLE, restore the inoperable group of air recirculation and cooling units to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within 12 hours.

b. With three required containment air recirculation and cooling units inoperable and both containment spray systems OPERABLE, restore at least one required air recirculation and cooling unit to OPERABLE status within 8 hours or be in at least HOT SHUTDOWN within 12 hours. Restore both above required groups of containment air recirculation and cooling units to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within 12 hours.

c. With one group of required containment air recirculation and cooling units inoperable and one containment spray system inoperable, restore the inoperable containment spray system to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN within 12 hours. Restore the inoperable group of containment air recirculation and cooling units to OPERABLE status within 7 days of initial loss or be in at least HOT SHUTDOWN within 12 hours.

SURVEILLANCE REQUIREMENTS

4.6.2.2 Each containment air recirculation and cooling unit shall be demonstrated OPERABLE:

a. At least once per 31 days on a STAGGERED TEST BASIS by:

1. Starting each unit from the control room.

2. Verifying that each unit operates for at least 15 minutes.

3. Verifying a cooling water flow rate of $\geq$ 2000 gpm to each cooling unit when the full flow service water outlet valves are fully open.

b. At least once per 18 months by verifying that each unit starts automatically on a Containment Spray Actuation test signal.

CONTAINMENT SYSTEMS

3/4.6.3 IODINE REMOVAL SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.3.1 Three independent containment iodine filter trains shall be **OPERABLE**.

APPLICABILITY: **MODES** 1, 2, 3 and 4.

ACTION:

With one iodine filter train inoperable, restore the inoperable train to **OPERABLE** status within 7 days or be in at least **HOT STANDBY** within the next 6 hours and in **COLD SHUTDOWN** within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.3.1 Each iodine filter train shall be demonstrated **OPERABLE**

a. At least once per 31 days on a **STAGGERED TEST BASIS** by initiating, from the control room, flow through the **HEPA** filter and charcoal adsorber train and verifying that the train operates for at least 15 minutes.

b. At least once per refueling interval 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 charcoal adsorbers remove $\geq$ 99% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the filter train at a flow rate of 20,000 cfm $\pm$ 10%.

2. Verifying that the **HEPA** filter banks remove $\geq$ 99% of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the filter train at a flow rate of 20,000 cfm $\pm$ 10%.

SURVEILLANCE REQUIREMENTS (Continued)

3. Verifying within 31 days after removal that a laboratory analysis of a carbon sample from either at least one test canister or at least two carbon samples removed from one of the charcoal adsorbers demonstrates a removal efficiency of ≥ 95% for radioactive elemental iodine when the sample is tested in accordance with ANSI N510-1975 (130°C, 95% R.H.). The carbon samples not obtained from test canisters shall be prepared by emptying a representative sample from an adsorber test tray section, mixing the adsorbent thoroughly, and obtaining samples at least two inches in diameter and with a length equal to the thickness of the bed. Successive samples will be removed from different test tray sections.

4. Verifying a filter train flow rate of 20,000 cfm ± 10% during system operation when tested in accordance with ANSI N510-1975.

c. After every 720 hours of charcoal adsorber operation by either:

1. Verifying within 31 days after removal that a laboratory analysis of a carbon sample obtained from a test canister demonstrates a removal efficiency of ≥ 95% for radioactive elemental iodine when the sample is tested in accordance with ANSI N510-1975 (130°C, 95% R.H.); or

2. Verifying within 31 days after removal that a laboratory analysis of at least two carbon samples demonstrate a removal efficiency of ≥ 95% for radioactive elemental iodine when the samples are tested in accordance with ANSI N510-1975 (130°C, 95% R.H.) and the samples are prepared by emptying a representative sample from an adsorber test tray section, mixing the adsorbent thoroughly, and obtaining samples at least two inches in diameter and with a length equal to the thickness of the bed. Successive samples will be removed from different test tray sections.

SURVEILLANCE REQUIREMENTS (Continued)

Subsequent to reinstalling the adsorber tray used for obtaining the carbon sample, the filter train shall be demonstrated **OPERABLE** by also verifying that the charcoal adsorbers remove ≥ 99% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the filter train at a flow rate of 20,000 cfm ± 10%.

d. At least once per refueling interval by:

1. Verifying that the pressure drop across the combined **HEPA** filters and charcoal adsorber banks is < 6 inches Water Gauge while operating the filter train at a flow rate of 20,000 cfm ± 10%.

2. Verifying that the filter train starts on a Containment Isolation test signal.

SURVEILLANCE REQUIREMENTS (Continued)

e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove ≥ 99% of the DOP when they are tested in place in accordance with ANSI N510-1975 while operating the filter train at a flow rate of 20,000 cfm ± 10%.

f. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorbers remove ≥ 99% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the filter train at a flow rate of 20,000 cfm ± 10%.

g. After maintenance affecting the air flow distribution by testing in-place and verifying that the air flow distribtuion is uniform within ± 20% of the average flow per unit when tested in accordance with the provisions of Section 9 of "Industrial Ventilation" and Section 8 of ANSI N510-1975.

CONTAINMENT SYSTEMS

3/4.6.4 CONTAINMENT ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.6.4.1 The containment isolation valves specified in Table 3.6-1 shall be **OPERABLE** with isolation times as shown in Table 3.6-1.

APPLICABILITY: **MODES** 1, 2, 3, and 4.

ACTION:

With one or more of the isolation valve(s) specified in Table 3.6-1 inoperable, either:

a. Restore the inoperable valve(s) to **OPERABLE** status within 4 hours, or

b. Isolate each affected penetration within 4 hours by use of at least one deactivated automatic valve secured in the isolation position, or

c. Isolate the affected penetration within 4 hours by use of at least one closed manual valve or blind flange; or

d. Be in at least **HOT STANDBY** within the next 6 hours and in **COLD SHUTDOWN** within the following 30 hours.

e. The provisions of Specification 3.0.4 are not applicable provided that the affected penetration is isolated.

SURVEILLANCE REQUIREMENTS

4.6.4.1.1 The isolation valves specified in Table 3.6-1 shall be demonstrated **OPERABLE** prior to returning the valve to service after maintenance, repair, or replacement work is performed on the valve or its associated actuator, control, or power circuit by performance of a cycling test and verification of isolation time.

SURVEILLANCE REQUIREMENTS (Continued)

4.6.4.1.2 Each isolation valve specified in Table 3.6-1 shall be demonstrated **OPERABLE** during the **COLD SHUTDOWN** or **REFUELING MODE** at least once per refueling interval by:

a. Verifying that on each containment isolation Channel A or Channel B test signal, each required isolation valve actuates to its isolation position.

b. Verifying that on each Containment Radiation-High Test Channel A or Channel B test signal, both required containment purge valves actuate to their isolation position.

c. Verifying that on each Safety Injection Actuation Channel A or Channel B test signal, each required isolation valve actuates to its isolation position.

4.6.4.1.3 The isolation time of each power operated or automatic valve of Table 3.6-1 shall be determined to be within its limit when tested pursuant to Technical Specification 4.0.5.

CONTAINMENT SYSTEMS

ELECTRIC HYDROGEN RECOMBINERS - W

LIMITING CONDITION FOR OPERATION

3.6.5.2 Two independent containment hydrogen recombiner systems shall be **OPERABLE**.

APPLICABILITY: **MODES** 1 and 2.

ACTION:

With on 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 $\geq$ 700°F within 90 minutes and is maintained for at least 2 hours.

b. At least once per refueling interval 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 recombiners (i.e., loose wiring or structural connections, deposits of foreign materials, etc.)

3. Verifying during a recombiner system functional test that the heater sheath temperature increase to $\geq$ 1200°F within 5 hours and is maintained for at least 4 hours.

4. Verifying the integrity of the heater electrical circuits by performing a continuity and resistance to ground test following the above required functional test. The resistance to ground for any heater phase shall be $\geq$ 10,000 ohms.

3/4.6.6 PENETRATION ROOM EXHAUST AIR FILTRATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.6.1 Two independent containment penetration room exhaust air filter trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

With one containment penetration room exhaust air filter train inoperable, restore the inoperable train to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.6.1 Each containment penetration room exhaust air filter train shall be demonstrated OPERABLE:

a. At least once per 31 days on STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filter and charcoal adsorber train and verifying that the train operates for at least 15 minutes.

b. 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 charcoal adsorbers remove $\geq$ 99% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the filter train at a flow rate of 2000 cfm $\pm$ 10%.

3/4.7.2 STEAM GENERATOR PRESSURE/TEMPERATURE LIMITATION

LIMITING CONDITION FOR OPERATION

3.7.2.1 The temperatures of both the primary and secondary coolants in the steam generators shall be > 80°F when the pressure of either coolant in the steam generator is > 200 psig.

APPLICABILITY: At all times.

ACTION:

With the requirements of the above specification not satisfied:

a. Reduce the steam generator pressure of the applicable side to ≤ 200 psig within 30 minutes, and

b. Perform an engineering evaluation to determine the effect of the overpressurization on the structural integrity of the steam generator. Determine that the steam generator remains acceptable for continued operation prior to increasing its temperatures above 200°F.

SURVEILLANCE REQUIREMENTS

4.7.2.1 The pressure in each side of the steam generators shall be determined to be < 200 psig at least once per hour when the temperature of either the primary or secondary coolant < 80°F.

PLANT SYSTEMS

3/4.7.3 COMPONENT COOLING WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.3.1 At least two component cooling water loops shall be **OPERABLE**. At least one component cooling water heat exchanger shall be operating and the remaining component cooling water heat exchanger may be in standby.

APPLICABILITY: **MODES** 1, 2, 3, and 4.

ACTION:

With only one component cooling water loop **OPERABLE**, restore at least two loops to **OPERABLE** status within 72 hours or be in at least **HOT STANDBY** within the next 6 hours and in **COLD SHUTDOWN** within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.3.1 At least two component cooling water loops shall be demonstrated **OPERABLE**:

a. At least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.

b. At least once per refueling interval during shutdown, by verifying that each automatic valve servicing safety related equipment actuates to its correct position on a Safety Injection Actuation test signal.

PLANT SYSTEMS

3/4.7.4 SERVICE WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.4.1 At least two independent service water loops shall be **OPERABLE**.

APPLICABILITY: **MODES** 1, 2, 3 and 4.

ACTION:

With only one service water loop **OPERABLE**, restore at least two loops to **OPERABLE** status within 72 hours or be in at least **HOT STANDBY** within the next 6 hours and in **COLD SHUTDOWN** within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.4.1 At least two service water loops shall be demonstrated **OPERABLE**

a. At least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.

b. At least once per refueling interval during shutdown, by verifying that each automatic valve servicing safety related equipment actuates to its correct position on Safety Injection Actuation and Containment Spray Actuation test signals.

PLANT SYSTEMS

3/4.7.5 SALTWATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.5.1 At least two independent saltwater loops shall be **OPERABLE**.

APPLICABILITY: **MODES** 1, 2, 3 and 4.

ACTION:

With only one saltwater loop **OPERABLE**, restore at least two loops to **OPERABLE** status within 72 hours or be in at least **HOT STANDBY** within the next 6 hours and in **COLD SHUTDOWN** within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.5.1 At least two saltwater loops shall be **OPERABLE**.

a. At least once per 31 days be verifying that each valve (manual power operated or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.

b. At least once per refueling interval during shutdown, by verifying that each automatic valve servicing safety related equipment actuates to its correct position on a Safety Injection Actuation test signal.

VOLUME

5.4.2 The total water and steam volume of the reactor coolant system is 10,614 ± 460 cubic feet at a nominal T_{avg} of 532°F.

5.5 METEOROLOGICAL TOWER LOCATION

5.5.1 The meteorological tower shall be located as shown on Figure 5.1-1.

5.6 FUEL STORAGE

CRITICALITY - SPENT FUEL

5.6.1 The spent fuel storage racks are designed and shall be maintained with a minimum 10 3/32" x 10 3/32" center-to-center distance between fuel assemblies placed in the storage racks to ensure a k_{eff} of ≤ 0.95 with the storage pool filled with unborated water. The k_{eff} of ≤ 0.95 includes the conservative allowances for uncertainties described in Section 9.7.2 of the FSAR. The maximum fuel enrichment to be stored in the fuel pool will be 5.0 weight percent.

CRITICALITY - NEW FUEL

5.6.2 The new fuel storage racks are designed and shall be maintained with a nominal 18 inch center-to-center distance between new fuel assemblies such that k_{eff} will not exceed 0.95 when fuel having a maximum enrichment of 5.0 weight percent U-235 is in place and various densities of unborated water are assumed including aqueous foam moderation and full flood conditions. The k_{eff} of ≤ 0.95 includes the conservative allowance for uncertainties described in Section 9.7.2 of the FSAR.

DRAINAGE

5.6.3 The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 63 feet.

CAPACITY

5.6.4 The fuel storage pool is designed and shall be maintained with a combined storage capacity, for both Units 1 and 2, limited to no more than 1830 fuel assemblies.

5.7 COMPONENT CYCLIC OR TRANSIENT LIMITS

5.7.1 The components identified in Table 5.7-1 are designed and shall be maintained within the cyclic or transient limits of Table 5.7-1.

TABLE 5.7-1

COMPONENT CYCLIC OR TRANSIENT LIMITS

Component	Cyclic or Transient Limit	Design Cycle or Transient
Reactor Coolant System	500 heatup and cooldown cycles	70°F to 532°F to 70°F
	400 reactor trip cycles	100% to 0% RATED THERMAL POWER
	10 Primary Hydrostatic Tests	3125 psia and 60°F > NDTT
	320 Primary Leak Tests	2500 psia and 60°F > NDTT
Steam Generator	10 Secondary Hydrostatic Tests	1250 psia Secondary Side and temperature $\geq$ 100°F
	320 Secondary Leak Tests	1000 psia Secondary Side With Primary - Secondary Δp of 820 psi and shell side temperature between 100°F and 200°F

UNITED STATES
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BALTIMORE GAS AND ELECTRIC COMPANY

DOCKET NO. 50-318

CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 122
License No. DPR-69

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Baltimore Gas and Electric Company (the licensee) dated June 9, 1988, as supplemented on October 25, November 17 and December 28, 1988, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.2 of Facility Operating License No. DPR-69 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 122 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective 30 days after the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Robert A. Capra

Robert A. Capra, Director
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 10, 1990

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 122 FACILITY OPERATING LICENSE NO. DPR-69

DOCKET NO. 50-318

Revise Appendix A as follows:

Remove Pages	Insert Pages
3/4 4-33**	3/4 4-33**
3/4 4-34**	3/4 4-34
3/4 5-1**	3/4 5-1**
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3/4 5-5**	3/4 5-5**
3/4 5-5A**	3/4 5-5a**
3/4 6-11**	3/4 6-11**
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5-5	5-5
5-6*	5-6*

* Overleaf pages provided for continuity purposes only.

** Reissued pages from Amendment No. 110.

REACTOR COOLANT SYSTEM

REACTOR COOLANT SYSTEM VENTS

LIMITING CONDITION FOR OPERATION

3.4.13 One reactor coolant system vent path consisting of two solenoid valves in series shall be OPERABLE and closed at each of the following locations:

a. Reactor vessel head

b. Pressurizer vapor space

APPLICABILITY: MODES 1 and 2

ACTION:

a. With the reactor vessel head vent path inoperable, maintain the inoperable vent path closed with power removed from the actuator of the solenoid valves in the inoperable vent path, and:

1. If the pressurizer vapor space vent path is also inoperable, restore both inoperable vent paths to OPERABLE status within 72 hours or be in at least HOT STANDBY within 6 hours, or

2. If the pressurizer vapor space vent path is OPERABLE, restore the inoperable reactor vessel head vent path to OPERABLE status within 30 days or be in at least HOT STANDBY within 6 hours.

b. With only the pressurizer vapor space vent path inoperable, maintain the inoperable vent path closed with power removed from the valve actuator of the solenoid valves in the inoperable vent path, and:

1. Verify at least one PORV and its associated flow path is OPERABLE within 72 hours and restore the inoperable pressurizer vapor space vent path to OPERABLE status prior to entering MODE 2 following the next HOT SHUTDOWN of sufficient duration, or

2. Restore the inoperable pressurizer vapor space vent path to OPERABLE status within 30 days, or be in at least HOT STANDBY within 6 hours.

c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.4.13.1 Each reactor coolant system vent path shall be demonstrated OPERABLE by testing each valve in the vent path per Specification 4.0.5.

SURVEILLANCE REQUIREMENTS (Continued)

4.4.13.2 Each reactor coolant system vent path shall be demonstrated **OPERABLE** at least once per refueling interval by:

a. Verifying all manual isolation valves in each vent path are locked in the open position.

b. Verifying flow through the reactor coolant system vent paths with the vent valves open.

3/4.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

SAFETY INJECTION TANKS

LIMITING CONDITION FOR OPERATION

3.5.1 Each reactor coolant system safety injection tank shall be OPERABLE with:

a. The isolation valve open,

b. A contained borated water volume of between 1113 and 1179 cubic feet of borated water (equivalent to tank levels of between 187 and 199 inches, respectively),

c. A boron concentration of between 2300 and 2700 ppm, and

d. A nitrogen cover-pressure of between 200 and 250 psig.

APPLICABILITY: MODES 1, 2 and 3.*

ACTION:

a. With one safety injection tank inoperable, except as a result of a closed isolation valve, restore the inoperable tank to OPERABLE status within one hour or be in HOT SHUTDOWN within the next 12 hours.

b. With one safety injection tank inoperable due to the isolation valve being closed, either immediately open the isolation valve or be in HOT STANDBY within one hour and be in HOT SHUTDOWN within the next 12 hours.

SURVEILLANCE REQUIREMENTS

4.5.1 Each safety injection tank shall be demonstrated OPERABLE:

a. At least once per 12 hours by:

1. Verifying the contained borated water volume and nitrogen cover-pressure in the tanks, and

2. Verifying that each safety injection tank isolation valve is open.

*With pressurizer pressure $\geq$ 1750 psia.

SURVEILLANCE REQUIREMENTS (Continued)

b. At least once per 31 days by verifying the boron concentration of the safety injection tank solution.

c. At least once per 31 days when the RCS pressure is above 2000 psig, by verifying that power to the isolation valve operator is removed by maintaining the feeder breaker open under administrative control.

d. Within 4 hours prior to increasing the RCS pressure above 1750 psia by verifying, via local indication at the valve, that the tank isolation valve is open.

e. At least once per refueling interval by verifying that each safety injection tank isolation valve opens automatically under each of the following conditions:

1. When the RCS pressure exceeds 300 psia, and

2. Upon receipt of a safety injection test signal.

f. Within one hour prior to each increase in solution volume of $\geq$ 1% of normal tank volume by verifying the boron concentration at the operating high pressure safety injection pump discharge is between 2300 and 2700 ppm.

SURVEILLANCE REQUIREMENTS (Continued)

e. At least once per refueling interval by:

1. Verifying automatic isolation and interlock action of the shutdown cooling system from the Reactor Coolant System when the Reactor Coolant System pressure is above 300 psia.

2. A visual inspection of the containment sump and verifying that the subsystem suction inlets are not restricted by debris and that the sump components (trash racks, screens, etc.) show no evidence of structural distress or corrosion.

3. Verifying that a minimum total of 100 cubic feet of solid granular trisodium phosphate dodecahydrate (TSP) is contained within the TSP storage baskets.

4. Verifying that when a representative sample of 4.0 $\pm$ 0.1 grams of TSP from a TSP storage basket is submerged, without agitation, in 3.5 $\pm$ 0.1 liters of 77 $\pm$ 10° F borated water from the RWT, the pH of the mixed solution is raised to $\geq$ 6 within 4 hours.

f. At least once per refueling interval, during shutdown, by:

1. Verifying that each automatic valve in the flow path actuates to its correct position on a Safety Injection Actuation test signal.

2. Verifying that each of the following pumps start automatically upon receipt of a Safety Injection Actuation Test Signal:

a. High-Pressure Safety Injection pump.

b. Low-Pressure Safety Injection pump.

SURVEILLANCE REQUIREMENTS (Continued)

g. By performing a flow balance test during shutdown following completion of HPSI system modifications that alter system flow characteristics and verifying the following flow rates for a single HPSI pump system*:

1. The sum of the three lowest flow legs shall be greater than 470** gpm.

h. By verifying that the HPSI pumps develop a total head of 2900 ft on recirculation flow to the refueling water tank when tested pursuant to Specification 4.0.5.

* A HPSI pump system is a HPSI pump and one of two safety injection headers.
**These limits contain allowances for instrument error, drift or fluctuation.

SURVEILLANCE REQUIREMENTS (Continued)

b. At least once per refueling interval, during shutdown, by:

1. Verifying that each automatic valve in the flow path actuates to its correct position on Safety Injection Actuation test signal.

2. Verifying that each spray pump starts automatically on a Containment Spray Actuation test signal.

c. At least once per 5 years by performing an air or smoke flow test through each spray header and verifying each spray nozzle is unobstructed.

CONTAINMENT SYSTEMS

CONTAINMENT COOLING SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.2.2 Two independent groups of containment air recirculation and cooling units shall be OPERABLE with two units to each group.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

a. With one group of required containment air recirculation and cooling units inoperable and both containment spray systems OPERABLE, restore the inoperable group of air recirculation and cooling units to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within 12 hours.

b. With three required containment air recirculation and cooling units inoperable and both containment spray systems OPERABLE, restore at least one required air recirculation and cooling unit to OPERABLE status within 8 hours or be in at least HOT SHUTDOWN within 12 hours. Restore both above required groups of containment air recirculation and cooling units to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within 12 hours.

c. With one group of required containment air recirculation and cool- units inoperable and one containment spray system inoperable, restore the inoperable containment spray system to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN within 12 hours. Restore the inoperable group of containment air recirculation and cooling units to OPERABLE status within 7 days of initial loss or be in at least HOT SHUTDOWN within 12 hours.

SURVEILLANCE REQUIREMENTS

4.6.2.2 Each containment air recirculation and cooling unit shall be demonstrated OPERABLE:

a. At least once per 31 days on a STAGGERED TEST BASIS by:

1. Starting each unit from the control room.

2. Verifying that each unit operates for at least 15 minutes.

3. Verifying a cooling water flow rate of $\geq$ 2000 gpm to each cooling unit when the full flow service water outlet valves are fully open.

b. At least once per 18 months by verifying that each unit starts automatically on a Containment Spray Actuation test signal.

CONTAINMENT SYSTEMS

3/4.6.3 IODINE REMOVAL SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.3.1 Three independent containment iodine filter trains shall be **OPERABLE**.

APPLICABILITY: **MODES** 1, 2, 3 and 4.

ACTION:

With one iodine filter train inoperable, restore the inoperable train to **OPERABLE** status within 7 days or be in at least **HOT STANDBY** within the next 6 hours and in **COLD SHUTDOWN** within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.3.1 Each iodine filter train shall be demonstrated **OPERABLE**:

a. At least once per 31 days on a **STAGGERED TEST BASIS** by initiating, from the control room, flow through the **HEPA** filter and charcoal adsorber train and verifying that the train operates for at least 15 minutes.

b. At least once per refueling interval 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 charcoal adsorbers remove ≥ 99% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the filter train at a flow rate of 20,000 cfm ± 10%.

2. Verifying that the **HEPA** filter banks remove ≥ 99% of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the filter train at a flow rate of 20,000 cfm ± 10%.

SURVEILLANCE REQUIREMENTS (Continued)

3. Verifying within 31 days after removal that a laboratory analysis of a carbon sample from either at least one test canister or at least two carbon samples removed from one of the charcoal adsorbers demonstrates a removal efficiency of $\geq$ 95% for radioactive elemental iodine when the sample is tested in accordance with ANSI N510-1975 (130°C, 95% R.H.). The carbon samples not obtained from test canisters shall be prepared by emptying a representative sample from an adsorber test tray section, mixing the adsorbent thoroughly, and obtaining samples at least two inches in diameter and with a length equal to the thickness of the bed. Successive samples will be removed from different test tray sections.

4. Verifying a filter train flow rate of 20,000 cfm $\pm$ 10% during system operation when tested in accordance with ANSI N510-1975.

c. After every 720 hours of charcoal adsorber operation by either:

1. Verifying within 31 days after removal that a laboratory analysis of a carbon sample obtained from a test canister demonstrates a removal efficiency of $\geq$ 95% for radioactive elemental iodine when the sample is tested in accordance with ANSI N510-1975 (130°C, 95% R.H.); or

2. Verifying within 31 days after removal that a laboratory analysis of at least two carbon samples demonstrate a removal efficiency of $\geq$ 95% for radioactive elemental iodine when the samples are tested in accordance with ANSI N510-1975 (130°C, 95% R.H.) and the samples are prepared by emptying a representative sample from an adsorber test tray section, mixing the adsorbent thoroughly, and obtaining samples at least two inches in diameter and with a length equal to the thickness of the bed. Successive samples will be removed from different test tray sections.

SURVEILLANCE REQUIREMENTS (Continued)

Subsequent to reinstalling the adsorber tray used for obtaining the carbon sample, the filter train shall be demonstrated **OPERABLE** by also verifying that the charcoal adsorbers remove ≥ 99% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the filter train at a flow rate of 20,000 cfm ± 10%.

d. At least once per refueling interval by:

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is < 6 inches Water Gauge while operating the filter train at a flow rate of 20,000 cfm ± 10%.

2. Verifying that the filter train starts on a Containment Isolation test signal.

SURVEILLANCE REQUIREMENTS (Continued)

e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove ≥ 99% of the DOP when they are tested in place in accordance with ANSI N510-1975 while operating the filter train at a flow rate of 20,000 cfm ± 10%.

f. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorbers remove ≥ 99% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the filter train at a flow rate of 20,000 cfm ± 10%.

g. After maintenance affecting the air flow distribution by testing in-place and verifying that the air flow distribution is uniform within ± 20% of the average flow per unit when tested in accordance with the provisions of Section 9 of "Industrial Ventilation" and Section 8 of ANSI N510-1975.

CONTAINMENT SYSTEMS

3/4.6.4 CONTAINMENT ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.6.4.1 The containment isolation valves specified in Table 3.6-1 shall be **OPERABLE** with isolation times as shown in Table 3.6-1.

APPLICABILITY: **MODES** 1, 2, 3, and 4.

ACTION:

With one or more of the isolation valve(s) specified in Table 3.6-1 inoperable, either:

a. Restore the inoperable valve(s) to **OPERABLE** status within 4 hours, or

b. Isolate each affected penetration within 4 hours by use of at least one deactivated automatic valve secured in the isolation position, or

c. Isolate the affected penetration within 4 hours by use of at least one closed manual valve or blind flange; or

d. Be in at least **HOT STANDBY** within the next 6 hours and in **COLD SHUTDOWN** within the following 30 hours.

e. The provisions of Specification 3.0.4 are not applicable provided that the affected penetration is isolated.

SURVEILLANCE REQUIREMENTS

4.6.4.1.1 The isolation valves specified in Table 3.6-1 shall be demonstrated **OPERABLE** prior to returning the valve to service after maintenance, repair, or replacement work is performed on the valve or its associated actuator, control, or power circuit by performance of a cycling test and verification of isolation time.

SURVEILLANCE REQUIREMENTS (Continued)

4.6.4.1.2 Each isolation valve specified in Table 3.6-1 shall be demonstrated **OPERABLE** during the **COLD SHUTDOWN** or **REFUELING MODE** at least once per refueling interval by:

a. Verifying that on each containment isolation Channel A or Channel B test signal, each required isolation valve actuates to its isolation position.

b. Verifying that on each Containment Radiation-High Test Channel A or Channel B test signal, both required containment purge valves actuate to their isolation position.

c. Verifying that on each Safety Injection Actuation Channel A or Channel B test signal, each required isolation valve actuates to its isolation position.

4.6.4.1.3 The isolation time of each power operated or automatic valve of Table 3.6-1 shall be determined to be within its limit when tested pursuant to Technical Specification 4.0.5.

CONTAINMENT SYSTEMS

ELECTRIC HYDROGEN RECOMBINERS - W

LIMITING CONDITION FOR OPERATION

3.6.5.2 Two independent containment hydrogen recombiner systems shall be **OPERABLE**.

APPLICABILITY: **MODES** 1 and 2.

ACTION:

With on 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 $\geq$ 700°F within 90 minutes and is maintained for at least 2 hours.

b. At least once per refueling interval 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 recombiners (i.e., loose wiring or structural connections, deposits of foreign materials, etc.)

3. Verifying during a recombiner system functional test that the heater sheath temperature increase to $\geq$ 1200°F within 5 hours and is maintained for at least 4 hours.

4. Verifying the integrity of the heater electrical circuits by performing a continuity and resistance to ground test following the above required functional test. The resistance to ground for any heater phase shall be $\geq$ 10,000 ohms.

3/4.6.6 PENETRATION ROOM EXHAUST AIR FILTRATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.6.1 Two independent containment penetration room exhaust air filter trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

With one containment penetration room exhaust air filter train inoperable, restore the inoperable train to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.6.1 Each containment penetration room exhaust air filter train shall be demonstrated OPERABLE:

a. At least once per 31 days on STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filter and charcoal adsorber train and verifying that the train operates for at least 15 minutes.

b. 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 charcoal adsorbers remove $\geq$ 99% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the filter train at a flow rate of 2000 cfm $\pm$ 10%.

3/4.7.2 STEAM GENERATOR PRESSURE/TEMPERATURE LIMITATION

LIMITING CONDITION FOR OPERATION

3.7.2.1 The temperatures of both the primary and secondary coolants in the steam generators shall be > 90°F when the pressure of either coolant in the steam generator is > 200 psig.

APPLICABILITY: At all times.

ACTION:

With the requirements of the above specification not satisfied:

a. Reduce the steam generator pressure of the applicable side to ≤ 200 psig within 30 minutes, and

b. Perform an engineering evaluation to determine the effect of the overpressurization on the structural integrity of the steam generator. Determine that the steam generator remains acceptable for continued operation prior to increasing its temperatures above 200°F.

SURVEILLANCE REQUIREMENTS

4.7.2.1 The pressure in each side of the steam generators shall be determined to be < 200 psig at least once per hour when the temperature of either the primary or secondary coolant < 90°F.

PLANT SYSTEMS

3/4.7.3 COMPONENT COOLING WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.3.1 At least two component cooling water loops shall be **OPERABLE**. At least one component cooling water heat exchanger shall be operating and the remaining component cooling water heat exchanger may be in standby.

APPLICABILITY: **MODES** 1, 2, 3, and 4.

ACTION:

With only one component cooling water loop **OPERABLE**, restore at least two loops to **OPERABLE** status within 72 hours or be in at least **HOT STANDBY** within the next 6 hours and in **COLD SHUTDOWN** within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.3.1 At least two component cooling water loops shall be demonstrated **OPERABLE**:

a. At least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.

b. At least once per refueling interval during shutdown, by verifying that each automatic valve servicing safety related equipment actuates to its correct position on a Safety Injection Actuation test signal.

PLANT SYSTEMS

3/4.7.4 SERVICE WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.4.1 At least two independent service water loops shall be **OPERABLE**.

APPLICABILITY: **MODES** 1, 2, 3 and 4.

ACTION:

With only one service water loop **OPERABLE**, restore at least two loops to **OPERABLE** status within 72 hours or be in at least **HOT STANDBY** within the next 6 hours and in **COLD SHUTDOWN** within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.4.1 At least two service water loops shall be demonstrated **OPERABLE**

a. At least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.

b. At least once per refueling interval during shutdown, by verifying that each automatic valve servicing safety related equipment actuates to its correct position on Safety Injection Actuation and Containment Spray Actuation test signals.

PLANT SYSTEMS

3/4.7.5 SALTWATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.5.1 At least two independent saltwater loops shall be **OPERABLE**.

APPLICABILITY: **MODES** 1, 2, 3 and 4.

ACTION:

With only one saltwater loop **OPERABLE**, restore at least two loops to **OPERABLE** status within 72 hours or be in at least **HOT STANDBY** within the next 6 hours and in **COLD SHUTDOWN** within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.5.1 At least two saltwater loops shall be **OPERABLE**.

a. At least once per 31 days be verifying that each valve (manual power operated or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.

b. At least once per refueling interval during shutdown, by verifying that each automatic valve servicing safety related equipment actuates to its correct position on a Safety Injection Actuation test signal.

VOLUME

5.4.2 The total water and steam volume of the reactor coolant system is 10,614 ± 460 cubic feet at a nominal T_{avg} of 532°F.

5.5 METEOROLOGICAL TOWER LOCATION

5.5.1 The meteorological tower shall be located as shown on Figure 5.1-1.

5.6 FUEL STORAGE

CRITICALITY - SPENT FUEL

5.6.1 The spent fuel storage racks are designed and shall be maintained with a minimum 10 3/32" x 10 3/32" center-to-center distance between fuel assemblies placed in the storage racks to ensure a k_{eff} of ≤ 0.95 with the storage pool filled with unborated water. The k_{eff} of ≤ 0.95 includes the conservative allowances for uncertainties described in Section 9.7.2 of the FSAR. The maximum fuel enrichment to be stored in the fuel pool will be 5.0 weight percent.

CRITICALITY - NEW FUEL

5.6.2 The new fuel storage racks are designed and shall be maintained with a nominal 18 inch center-to-center distance between new fuel assemblies such that k_{eff} will not exceed 0.95 when fuel having a maximum enrichment of 5.0 weight percent U-235 is in place and various densities of unborated water are assumed including aqueous foam moderation and full flood conditions. The k_{eff} of ≤ 0.95 includes the conservative allowance for uncertainties described in Section 9.7.2 of the FSAR.

DRAINAGE

5.6.3 The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 63 feet.

CAPACITY

5.6.4 The fuel storage pool is designed and shall be maintained with a combined storage capacity, for both Units 1 and 2, limited to no more than 1830 fuel assemblies.

5.7 COMPONENT CYCLIC OR TRANSIENT LIMITS

5.7.1 The components identified in Table 5.7-1 are designed and shall be maintained within the cyclic or transient limits of Table 5.7-1.

TABLE 5.7-1

COMPONENT CYCLIC OR TRANSIENT LIMITS

Component	Cyclic or Transient Limit	Design Cycle or Transient
Reactor Coolant System	500 heatup and cooldown cycles	70°F to 532°F to 70°F
	400 reactor trip cycles	100% to 0% RATED THERMAL POWER
	10 Primary Hydrostatic Tests	3125 psia and 60°F > NDTT
	320 Primary Leak Tests	2500 psia and 60°F > NDTT
Steam Generator	10 Secondary Hydrostatic Tests	1250 psia Secondary Side and temperature $\geq$ 100°F
	320 Secondary Leak Tests	1000 psia Secondary Side With Primary - Secondary Δp of 820 psi and shell side temperature between 100°F and 200°F