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Docket No. 50-317
50-318

Mr. A. E. Lundvall, Jr.
Vice President - Supply
Baltimore Gas & Electric Company
P.O. Box 1475
Baltimore, Maryland 21203

Dear Mr. Lundvall:

The Commission has issued the enclosed Amendment Nos. 83 and 66 to Facility Operating License Nos. DPR-53 and DPR-69 for Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2. These amendments consist of changes to the Technical Specifications in partial response to your application dated February 24, 1983 as supplemented by letter dated March 22, 1983.

These amendments to the Technical Specifications (1) revise Surveillance Requirements for the equipment hatch; (2) revise Surveillance Requirements for safety-related air filter systems; (3) revise Surveillance Requirements and provide for a single period of inoperability for the hydrogen analyzers; and (4) delete the Limiting Safety System Settings and an administrative change associated with "Loss of Load" function of the Reactor Protection System.

A copy of the Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

Original signed by

David H. Jaffe, Project Manager
Operating Reactors Branch #3
Division of Licensing

Enclosures:
1. Amendment No. 83 to DPR-53
2. Amendment No. 66 to DPR-69
3. Safety Evaluation
4. Notice of Issuance

cc: See next page

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5/2/83

per DAN MULLER

5/5/83

OFFICE	ORB#3:DL	ORB#3:DL	AD:RPMSI	AD:RS:DSI	ORB#3:DL	AD:OR:DL	OELD
SURNAME	PMKreutzer	DJaffe/pn	RHouston	RHartfield	RAClark	GCLainas	
DATE	4/29/83	5/2/83	5/2/83	5/3/83	5/2/83	5/3/83	5/3/83

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

DISTRIBUTION:
Docket File
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PMKreutzer

Docket No. 50-317/50-318

Docketing and Service Section
Office of the Secretary of the Commission

SUBJECT: BALTIMORE GAS & ELECTRIC COMPANY, Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2

Two signed originals of the Federal Register Notice identified below are enclosed for your transmittal to the Office of the Federal Register for publication. Additional conformed copies (12) of the Notice are enclosed for your use.

☐ Notice of Receipt of Application for Construction Permit(s) and Operating License(s).

☐ Notice of Receipt of Partial Application for Construction Permit(s) and Facility License(s): Time for Submission of Views on Antitrust Matters.

☐ Notice of Availability of Applicant's Environmental Report.

☐ Notice of Proposed Issuance of Amendment to Facility Operating License.

☐ Notice of Receipt of Application for Facility License(s); Notice of Availability of Applicant's Environmental Report; and Notice of Consideration of Issuance of Facility License(s) and Notice of Opportunity for Hearing.

☐ Notice of Availability of NRC Draft/Final Environmental Statement.

☐ Notice of Limited Work Authorization.

☐ Notice of Availability of Safety Evaluation Report.

☐ Notice of Issuance of Construction Permit(s).

☐ Notice of Issuance of Facility Operating License(s) or Amendment(s).

☒ Other: Amendment NOs. 83 and 66.
Referenced documents have been provided PDR.

Division of Licensing
Office of Nuclear Reactor Regulation

Enclosure:
As Stated

OFFICE →	ORB#3:DL					
SURNAME →	PMKreutzer/pn					
DATE →	5/ 6 /83					

NRC FORM 102 7—79

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Windsor, CT 06095

Ms. Mary Harrison, President
Calvert County Board of County Commissioners
Prince Frederick, MD 20768

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Region III Office
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

BALTIMORE GAS AND ELECTRIC COMPANY

DOCKET NO. 50-317

CALVERT CLIFFS NUCLEAR POWER PLANT UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 83
License No. DPR-53

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

   A. The application for amendment by Baltimore Gas & Electric Company (the licensee) dated February 24, 1983 as supplemented by letter dated March 22, 1983, 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. 83, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

for Robert A. Clark, Chief
Operating Reactors Branch #3
Division of Licensing

Attachment:
Changes to the
Technical Specifications

Date of Issuance: May 5, 1983

ATTACHMENT TO LICENSE AMENDMENT NO. 83

FACILITY OPERATING LICENSE NO. DPR-53

DOCKET NO. 50-317

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages as indicated. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change. The corresponding overleaf pages are also provided to maintain document completeness.

Pages

2-9
B 2-7
3/4 3-2
3/4 3-6
3/4 3-7
3/4 6-1
3/4 6-14
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REACTOR PROTECTIVE INSTRUMENTATION TRIP SETPOINT LIMITS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
4. Pressurizer Pressure - High	≤ 2400 psia	≤ 2400 psia
5. Containment Pressure - High	≤ 4 psig	≤ 4 psig
6. Steam Generator Pressure - Low (2)	≥ 635 psia	≥ 635 psia
7. Steam Generator Water Level - Low	≥ 10 inches below top of feed ring.	≥ 10 inches below top of feed ring.
8. Axial flux offset (3)	Trip setpoint adjusted to not exceed the limit lines of Figure 2.2-1.	Trip setpoint adjusted to not exceed the limit lines of Figure 2.2-1.
9. Thermal Margin/Low Pressure (1)		
a. Four Reactor Coolant Pumps Operating	Trip setpoint adjusted to not exceed the limit lines of Figures 2.2-2 and 2.2-3.	Trip setpoint adjusted to be not less than the larger of (1) the value calculated from Figures 2.2-2 and 2.2-3 and (2) 1875 psig.
b. Steam Generator Pressure Difference - High (1)	≤ 135 psid	≤ 135 psid
10. Loss of Load	N.A.	N.A.
11. Rate of Change of Power - High (4)	≤ 2.6 decades per minute	≤ 2.6 decades per minute

TABLE NOTATION

(1) Trip may be bypassed below 10^{-4}% of RATED THERMAL POWER; bypass shall be automatically removed when THERMAL POWER is ≥ 10^{-4}% of RATED THERMAL POWER.

TABLE NOTATIONS (Cont'd)

(2) Trip may be manually bypassed below 710 psia; bypass shall be automatically removed at or above 710 psia.

(3) Trip may be bypassed below 15% of RATED THERMAL POWER; bypass shall be automatically removed when THERMAL POWER is $\geq$ 15% of RATED THERMAL POWER.

(4) Trip may be bypassed below 10^{-4}% and above 12% of RATED THERMAL POWER.

The Thermal Margin/Low Pressure trip setpoints include allowances for equipment response time, measurement uncertainties, processing error and a further allowance of 40 psia to compensate for the time delay associated with providing effective termination of the occurrence that exhibits the most rapid decrease in margin to the safety limit.

Asymmetric Steam Generator Transient Protection Trip Function (ASGTPTF)

The ASGTPTF utilizes steam generator pressure inputs to the TM/LP calculator, which causes a reactor trip when the difference in pressure between the two steam generators exceeds the trip setpoint. The ASGTPTF is designed to provide a reactor trip for those Anticipated Operational Occurrences associated with secondary system malfunctions which result in asymmetric primary loop coolant temperatures. The most limiting event is the loss of load to one steam generator caused by a single Main Steam Isolation Valve closure.

The equipment trip setpoint and allowable values are calculated to account for instrument uncertainties, and will ensure a trip at or before reaching the analysis setpoint.

Loss of Load

A Loss of Load trip causes a direct reactor trip when operating above 15% of RATED THERMAL POWER. This trip provides turbine protection, reduces the severity of the ensuing transient and helps avoid the lifting of the main steam line safety valves during the ensuing transient, thus extending the service life of these valves. No credit was taken in the accident analyses for operation of this trip. Its functional capability is required to enhance overall plant equipment service life and reliability.

Rate of Change of Power-High

The Rate of Change of Power-High trip is provided to protect the core during startup operations and its use serves as a backup to the administratively enforced startup rate limit. Its trip setpoint does not correspond to a Safety Limit and no credit was taken in the accident analyses for operation of this trip. Its functional capability at the specified trip setting is required to enhance the overall reliability of the Reactor Protection System.

3/4.3 INSTRUMENTATION

3/4.3.1 REACTOR PROTECTIVE INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.1.1 As a minimum, the reactor protective instrumentation channels and bypasses of Table 3.3-1 shall be OPERABLE with RESPONSE TIMES as shown in Table 3.3-2.

APPLICABILITY: As shown in Table 3.3-1.

ACTION:

As shown in Table 3.3-1.

SURVEILLANCE REQUIREMENTS

4.3.1.1.1 Each reactor protective instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations during the MODES and at the frequencies shown in Table 4.3-1.

4.3.1.1.2 The logic for the bypasses shall be demonstrated OPERABLE prior to each reactor startup unless performed during the preceding 92 days. The total bypass function shall be demonstrated OPERABLE at least once per 18 months during CHANNEL CALIBRATION testing of each channel affected by bypass operation.

4.3.1.1.3 The REACTOR TRIP SYSTEM RESPONSE TIME of each reactor trip function shall be demonstrated to be within its limit at least once per 18 months. Each test shall include at least one channel per function such that all channels are tested at least once every N times 18 months where N is the total number of redundant channels in a specific reactor trip function as shown in the "Total No. of Channels" column of Table 3.3-1.

TABLE 3.3-1

REACTOR PROTECTIVE INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
1. Manual Reactor Trip	2	1	2	1, 2 and *	1
2. Power Level - High	4	2	3(f)	1, 2	2#
3. Reactor Coolant Flow - Low	4/SG	2(a)/SG	3/SG	1, 2 (e)	2#
4. Pressurizer Pressure - High	4	2	3	1, 2	2#
5. Containment Pressure - High	4	2	3	1, 2	2#
6. Steam Generator Pressure - Low	4/SG	2(b)/SG	3/SG	1, 2	2#
7. Steam Generator Water Level - Low	4/SG	2/SG	3/SG	1, 2	2#
8. Axial Flux Offset	4	2(c)	3	1	2#
9.a. Thermal Margin/Low Pressure	4	2(a)	3	1, 2 (e)	2#
b. Steam Generator Pressure Difference - High	4	2(a)	3	1, 2 (e)	2#
10. Loss of Load	4	2(c)	3	1	2#

TABLE 3.3-1 (Continued)

ACTION STATEMENTS

b. Within one hour, all functional units receiving an input from the inoperable channel are also placed in the same condition (either bypassed or tripped, as applicable) as that required by a. above for the inoperable channel.

c. The Minimum Channels OPERABLE requirement is met; however, one additional channel may be bypassed for up to 48 hours while performing tests and maintenance on that channel provided the other inoperable channel is placed in the tripped condition.

ACTION 3 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable, within 1 hour and at least once per 12 hours thereafter.

ACTION 4 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, be in HOT STANDBY within 6 hours; however, one channel may be bypassed for up to 1 hour for surveillance testing per Specification 4.3.1.1.

TABLE 3.3-2

REACTOR PROTECTIVE INSTRUMENTATION RESPONSE TIMES

FUNCTIONAL UNIT	RESPONSE TIME
1. Manual Reactor Trip	Not Applicable
2. Power Level - High	$\leq$ 0.40 seconds*# and $\leq$ 12.0 seconds ##
3. Reactor Coolant Flow - Low	$\leq$ 0.50 seconds
4. Pressurizer Pressure - High	$\leq$ 0.90 seconds
5. Containment Pressure - High	$\leq$ 0.90 seconds
6. Steam Generator Pressure - Low	$\leq$ 0.90 seconds
7. Steam Generator Water Level - Low	$\leq$ 0.90 seconds
8. Axial Flux Offset	$\leq$ 0.40 seconds*# and $\leq$ 12.0 seconds ##
9.a. Thermal Margin/Low Pressure	$\leq$ 0.90 seconds*# and $\leq$ 12.0 seconds ##
b. Steam Generator Pressure Difference - High	$\leq$ 0.90 seconds
10. Loss of Load	Not Applicable
11. Wide Range Logarithmic Neutron Flux Monitor	Not Applicable

*Neutron detectors are exempt from response time testing. Response time of the neutron flux signal portion of the channel shall be measured from detector output or input of first electronic component in channel.

#Response time does not include contribution of RTDs.

##RTD response time only. This value is equivalent to the time interval required for the RTDs output to achieve 63.2% of its total change when subjected to a step change in RTD temperature.

TABLE 4.3-1

REACTOR PROTECTIVE INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
1. Manual Reactor Trip	N.A.	N.A.	S/U(1)	N.A.
2. Power Level - High				
a. Nuclear Power	S	D(2),M(3),Q(5)	M	1, 2
b. ΔT Power	S	D(4),R	M	1
3. Reactor Coolant Flow - Low	S	R	M	1, 2
4. Pressurizer Pressure - High	S	R	M	1, 2
5. Containment Pressure - High	S	R	M	1, 2
6. Steam Generator Pressure - Low	S	R	M	1, 2
7. Steam Generator Water Level - Low	S	R	M	1, 2
8. Axial Flux Offset	S	R	M	1
9.a. Thermal Margin/Low Pressure	S	R	M	1, 2
b. Steam Generator Pressure Difference - High	S	R	M	1, 2
10. Loss of Load	N.A.	N.A.	S/U(1)	N.A.

TABLE 4.3-1 (Continued)

REACTOR PROTECTIVE INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
11. Wide Range Logarithmic Neutron Flux Monitor	S	R(5)	S/U(1)	1, 2, 3, 4, 5 and *
12. Reactor Protection System Logic Matrices	N.A.	N.A.	M and S/U(1)	1, 2
13. Reactor Protection System Logic Matrix Relays	N.A.	N.A.	M and S/U (1)	1, 2
14. Reactor Trip Breakers	N.A.	N.A.	M	1, 2 and *

3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 PRIMARY CONTAINMENT

CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OEPRATION

3.6.1.1 Primary CONTAINMENT INTEGRITY shall be maintained.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

Without primary CONTAINMENT INTEGRITY, restore CONTAINMENT INTEGRITY within one hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.1 Primary CONTAINMENT INTEGRITY shall be demonstrated:

a. At least once per 31 days by verifying that all penetrations* not capable of being closed by OPERABLE containment automatic isolation valves and required to be closed during accident conditions are closed by valves, blind flanges, or deactivated automatic valves secured in their positions, except as provided in Table 3.6-1 of Specification 3.6.4.1.

b. By verifying that each containment air lock is OPERABLE per Specification 3.6.1.3.

c. By verifying that the equipment hatch is closed and sealed, prior to entering Mode 4 following a shutdown where the equipment hatch was opened, by conducting a Type B test per Appendix J to 10 CFR Part 50.

---

*Except valves, blind flanges, and deactivated automatic valves which are located inside the containment and are locked, sealed, or otherwise secured in the closed position. These penetrations shall be verified closed during each COLD SHUTDOWN except that such verification need not be performed more often than once per 92 days.

CONTAINMENT LEAKAGE

LIMITING CONDITION FOR OPERATION

3.6.1.2 Containment leakage rates shall be limited to:

a. An overall integrated leakage rate of:

1. $\leq L_a$ (346,000 SCCM), 0.20 percent by weight of the containment air per 24 hours at P_a, 50 psig, or

2. $\leq L_t$ (61,600 SCCM), 0.058 percent by weight of the containment air per 24 hours at a reduced pressure of P_t, 25 psig.

b. A combined leakage rate of $\leq$ 0.60 L_a (207,600 SCCM), for all penetrations and valves subject to Type B and C tests when pressurized to P_a.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With either (a) the measured overall integrated containment leakage rate exceeding 0.75 L_a (259,500 SCCM) or 0.75 L_t (46,200 SCCM), as applicable, or (b) with the measured combined leakage rate for all penetrations and valves subject to Types B and C tests exceeding 0.60 L_a, restore the leakage rate(s) to within the limit(s) prior to increasing the Reactor Coolant System temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.1.2 The containment leakage rates shall be demonstrated at the following test schedule and shall be determined in conformance with the criteria specified in Appendix J of 10 CFR 50 using the methods and provisions of ANSI N45.4 - 1972:

a. Three Type A tests (Overall Integrated Containment Leakage Rate) shall be conducted at 40 $\pm$ 10 month intervals during shutdown at either P_a (50 psig) or at P_t (25 psig) during each 10-year service period. The third test of each set shall be conducted during the shutdown for the 10-year plant inservice inspection.

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 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 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 $\geq$ 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 $\geq$ 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%.

d. At least once per 18 months 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 $\pm$ 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 $\geq$ 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%.

f. After each complete or partial replacement of a charcoal adsorber bank by 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%.

g. After maintenance affecting the air flow distribution by testing in-place and verifying that the air flow distribtuion is uniform within $\pm$ 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.

TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

PENETRATION NO.	ISOLATION CHANNEL	ISOLATION VALVE IDENTIFICATION NO.	FUNCTION	ISOLATION TIME (SECONDS)
61	NA	76Y-1	Refueling Pool Outlet	NA
	NA	293M-1		NA
	NA	293M-1		NA
	NA	293M-1		NA
62	SIAS A	MOV-6579	Containment Heating Outlet	$\leq$13
64	NA	238-1	Containment Heating Inlet	NA

(1) Manual or remote manual valve which is closed during plant operation.

(2) May be opened below 300°F to establish shutdown cooling flow.

(3) Containment purge isolation valves will be shut in MODES 1, 2, 3 and 4 per TS 3/4 6.1.7.

* May be open on an intermittent basis under administrative control.

** Containment purge isolation valves isolation times will only apply for MODES 5 and 6 during which time these valves may be opened. Isolation time is NA for MODES 1, 2, 3 and 4 per TS 3/4 6.1.7 during which time these valves must remain closed.

CONTAINMENT SYSTEMS

3/4.6.5 COMBUSTIBLE GAS CONTROL

HYDROGEN ANALYZERS

LIMITING CONDITION FOR OPERATION

3.6.5.1 Two independent containment hydrogen analyzers shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTION:

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

SURVEILLANCE REQUIREMENTS

4.6.5.1 Each hydrogen analyzer shall be demonstrated OPERABLE at least once per 92 days on a STAGGERED TEST BASIS by performing a CHANNEL CALIBRATION using sample gases in accordance with manufacturers' recommendations.

*During the period from May 15 to July 15, 1983, one hydrogen analyzer may be made inoperable, at any given time, for the purpose of replacing system solenoid valves with environmentally qualified valves. During this time, Specification 3.0.4 is not applicable to this requirement.

SURVEILLANCE REQUIREMENTS (Continued)

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 2000 cfm ± 10%.

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 ≥ 90% for radioactive methyl iodide 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 system flow rate of 2000 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 ≥ 90% for radioactive methyl iodide 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 ≥ 90% for radioactive methyl iodide when the samples are tested in accordance with ANSI N510-1975 (130°C, 95% R.H.) and the samples are prepared

SURVEILLANCE REQUIREMENTS (Continued)

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.

Subsequent to reinstalling the adsorber tray used for obtaining the carbon sample, the filter train shall be demonstrated OPERABLE by 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 ventilation system at a flow rate of 2000 cfm $\pm$ 10%.

d. At least once per 18 months 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 2000 cfm $\pm$ 10%.

2. Verifying that the filter train starts on a Containment Isolation Test Signal.

3/4.7.6 CONTROL ROOM EMERGENCY VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.6.1 The control room emergency ventilation system shall be OPERABLE with:

a. Two filter trains,

b. Two air conditioning units,*

c. Two isolation valves in each control room outside air intake duct,

d. Two isolation valves in the common exhaust to atmosphere duct, and

e. One isolation valve in the toilet area exhaust duct.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With one 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.

b. With one air conditioning unit inoperable, restore the inoperable unit 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.

c. With one isolation valve per control room outside air intake duct inoperable, operation may continue provided the other isolation valve in the same duct is maintained closed; otherwise, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

d. With one common exhaust to atmosphere duct isolation valve inoperable, restore the inoperable valve 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.

e. With the toilet area exhaust duct isolation valve inoperable, restore the inoperable valve to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

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* For the duration of the October 1982 Unit 2 refueling outage with Unit 2 in MODES 5 or 6 and one air conditioning unit inoperable, restore the inoperable unit to operable status within 21 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.6.1 The control room emergency ventilation system shall be demonstrated OPERABLE:

a. At least once per 12 hours by verifying that the control room air temperature is $\leq$ 120°F.

b. At least once per 31 days by initiating flow through each HEPA filter and charcoal adsorber train and verifying that each train operates for at least 15 minutes.

c. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housing, 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 ventilation system at a flow rate of 2000 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 ventilation system at a flow rate of 2000 cfm $\pm$ 10%.

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 $\geq$ 90% for radioactive methyl iodide 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.

SURVEILLANCE REQUIREMENTS (Continued)

4. Verifying a system flow rate of 2000 cfm ± 10% during system operation when tested in accordance with ANSI N510-1975.

d. 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 ≥ 90% for radioactive methyl iodide 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 ≥ 90% for radioactive methyl iodide 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.

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 ventilation system at a flow of 2000 cfm ± 10%.

SURVEILLANCE REQUIREMENTS (Continued)

e. At least once per 18 months by:

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is < 4 inches Water Gauge while operating the ventilation system at a flow rate of 2000 cfm ± 10%.

2. Verifying that on a control room high radiation test signal, the system automatically switches into a recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks and that the isolation valves close.

f. 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 system at a flow rate of 2000 cfm ± 10%.

g. 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 system at a flow rate of 2000 cfm ± 10%.

3/4.7.7 ECCS PUMP-ROOM EXHAUST AIR FILTRATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.7.1 The ECCS pump room exhaust ventilation system shall be OPERABLE with one HEPA filter and charcoal adsorber train and two exhaust fans.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With one ECCS pump room exhaust fan inoperable, restore the inoperable fan 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.

b. With the ECCS exhaust filter train inoperable, restore the filter train to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.7.1 The ECCS pump room exhaust ventilation system shall be demonstrated OPERABLE:

a. At least once per 31 days by initiating, from the control room, flow through the HEPA filter and charcoal adsorber train and verifying that each exhaust fan 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:

SURVEILLANCE REQUIREMENTS (Continued)

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 3000 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 3000 cfm ± 10%.

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 ≥ 90% for radioactive methyl iodide 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 system flow rate of 3000 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 ≥ 90% for radioactive methyl iodide when the sample is tested in accordance with ANSI N510-1975 (130°C, 95% R. H.); or

SURVEILLANCE REQUIREMENTS (Continued)

2. Verifying within 31 days after removal that a laboratory analysis of at least two carbon samples demonstrate a removal efficiency of $\geq$ 90% for radioactive methyl iodide 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.

   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 $\geq$ 99% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the ventilation system at a flow rate of 3000 cfm $\pm$ 10%.

d. At least once per 18 months by verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is < 4 inches Water Gauge while operating the filter train at a flow rate of 3000 cfm $\pm$ 10%.

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 3000 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 3000 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.

SURVEILLANCE REQUIREMENTS (Continued)

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 ventilation system at a flow rate of 32,000 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 ventilation system at a flow rate of 32,000 cfm $\pm$ 10%.

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 $\geq$ 90% for radioactive methyl iodide 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 system flow rate of 32,000 cfm $\pm$ 10% during system operation when tested in accordance with ANSI N510-1975.

SURVEILLANCE REQUIREMENTS (Continued)

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

1. Verifying within 31 days after removal that a laboratory analysis of carbon sample obtained from a test canister demonstrates a removal efficiency of $\geq$ 90% for radioactive methyl iodide 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 $\geq$ 90% for radioactive methyl iodide 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.

   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 $\geq$ 99% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the ventilation system at a flow rate of 32,000 cfm $\pm$ 10%.

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

BALTIMORE GAS AND ELECTRIC COMPANY

DOCKET NO. 50-318

CALVERT CLIFFS NUCLEAR POWER PLANT UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 66
License No. DPR-69

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

   A. The application for amendment by Baltimore Gas & Electric Company (the licensee) dated February 24, 1983 as supplemented by letter dated March 22, 1983, 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. 66, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

for Robert A. Clark, Chief
Operating Reactors Branch #3
Division of Licensing

Attachment:
Changes to the
Technical Specifications

Date of Issuance: May 5, 1983

ATTACHMENT TO LICENSE AMENDMENT NO. 66

FACILITY OPERATING LICENSE NO. DPR-69

DOCKET NO. 50-318

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages as indicated. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change. The corresponding overleaf pages are also provided to maintain document completeness.

Pages

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B 2-7
3/4 3-2
3/4 3-6
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TABLE 2.2-1 (Cont'd)

REACTOR PROTECTIVE INSTRUMENTATION TRIP SETPOINT LIMITS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
4. Pressurizer Pressure - High	$\leq$ 2400 psia	$\leq$ 2400 psia
5. Containment Pressure - High	$\leq$ 4 psig	$\leq$ 4 psig
6. Steam Generator Pressure - Low (2)	$\geq$ 685 psia	$\geq$ 685 psia
7. Steam Generator Water Level - Low	$\geq$ 10 inches below top of feed ring.	$\geq$ 10 inches below top of feed ring.
8. Axial flux offset (3)	Trip setpoint adjusted to not exceed the limit lines of Figure 2.2-1.	Trip setpoint adjusted to not exceed the limit lines of Figure 2.2-1.
9. Thermal Margin/Low Pressure (1)		
a. Four Reactor Coolant Pumps Operating	Trip setpoint adjusted to not exceed the limit lines of Figures 2.2-2 and 2.2-3.	Trip setpoint adjusted to be not less than the larger of (1) the value calculated from Figures 2.2-2 and 2.2-3 and (2) 1875 psig.
b. Steam Generator Pressure Difference - High (1)	$\leq$ 135 psid	$\leq$ 135 psid
10. Loss of Load	N.A.	N.A.
11. Rate of Change of Power - High (4)	$\leq$ 2.6 decades per minute	$\leq$ 2.6 decades per minute

TABLE NOTATION

(1) Trip may be bypassed below 10^{-4}% of RATED THERMAL POWER; bypass shall be automatically removed when THERMAL POWER is $\geq$ 10^{-4}% of RATED THERMAL POWER.

TABLE 2.2-1 (Cont'd)

TABLE NOTATIONS (Cont'd)

(2) Trip may be manually bypassed below 785 psia; bypass shall be automatically removed at or above 785 psia.

(3) Trip may be bypassed below 15% of RATED THERMAL POWER; bypass shall be automatically removed when THERMAL POWER is $\geq$ 15% of RATED THERMAL POWER.

(4) Trip may be bypassed below 10^{-4}% and above 12% of RATED THERMAL POWER.

The Thermal Margin/Low Pressure trip setpoints include allowances for equipment response time, measurement uncertainties, processing error and a further allowance of 40 psia to compensate for the time delay associated with providing effective termination of the occurrence that exhibits the most rapid decrease in margin to the safety limit.

Asymmetric Steam Generator Transient Protection Trip Function (ASGTPTF)

The ASGTPTF utilizes steam generator pressure inputs to the TM/LP calculator, which causes a reactor trip when the difference in pressure between the two steam generators exceeds the trip setpoint. The ASGTPTF is designed to provide a reactor trip for those Anticipated Operational Occurrences associated with secondary system malfunctions which result in asymmetric primary loop coolant temperatures. The most limiting event is the loss of load to one steam generator caused by a single Main Steam Isolation Valve closure.

The equipment trip setpoint and allowable values are calculated to account for instrument uncertainties, and will ensure a trip at or before reaching the analysis setpoint.

Loss of Load

A Loss of Load trip causes a direct reactor trip when operating above 15% of RATED THERMAL POWER. This trip provides turbine protection, reduces the severity of the ensuing transient and helps avoid the lifting of the main steam line safety valves during the ensuing transient, thus extending the service life of these valves. No credit was taken in the accident analyses for operation of this trip. Its functional capability is required to enhance overall plant equipment service life and reliability.

Rate of Change of Power-High

The Rate of Change of Power-High trip is provided to protect the core during startup operations and its use serves as a backup to the administratively enforced startup rate limit. Its trip setpoint does not correspond to a Safety Limit and no credit was taken in the accident analyses for operation of this trip. Its functional capability at the specified trip setting is required to enhance the overall reliability of the Reactor Protection System.

3/4.3 INSTRUMENTATION

3/4.3.1 REACTOR PROTECTIVE INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.1.1 As a minimum, the reactor protective instrumentation channels and bypasses of Table 3.3-1 shall be OPERABLE with RESPONSE TIMES as shown in Table 3.3-2.

APPLICABILITY: As shown in Table 3.3-1.

ACTION:

As shown in Table 3.3-1.

SURVEILLANCE REQUIREMENTS

4.3.1.1.1 Each reactor protective instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations during the MODES and at the frequencies shown in Table 4.3-1.

4.3.1.1.2 The logic for the bypasses shall be demonstrated OPERABLE prior to each reactor startup unless performed during the preceding 92 days. The total bypass function shall be demonstrated OPERABLE at least once per 18 months during CHANNEL CALIBRATION testing of each channel affected by bypass operation.

4.3.1.1.3 The REACTOR TRIP SYSTEM RESPONSE TIME of each reactor trip function shall be demonstrated to be within its limit at least once per 18 months. Each test shall include at least one channel per function such that all channels are tested at least once every N times 18 months where N is the total number of redundant channels in a specific reactor trip function as shown in the "Total No. of Channels" column of Table 3.3-1.

TABLE 3.3-1

REACTOR PROTECTIVE INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
1. Manual Reactor Trip	2	1	2	1, 2 and *	1
2. Power Level - High	4	2	3(f)	1, 2	2#
3. Reactor Coolant Flow - Low	4/SG	2(a)/SG	3/SG	1, 2 (e)	2#
4. Pressurizer Pressure - High	4	2	3	1, 2	2#
5. Containment Pressure - High	4	2	3	1, 2	2#
6. Steam Generator Pressure - Low	4/SG	2(b)/SG	3/SG	1, 2	2#
7. Steam Generator Water Level - Low	4/SG	2/SG	3/SG	1, 2	2#
8. Axial Flux Offset	4	2(c)	3	1	2#
9.a. Thermal Margin/Low Pressure	4	2(a)	3	1, 2 (e)	2#
b. Steam Generator Pressure Difference - High	4	2(a)	3	1, 2 (e)	2#
10. Loss of Load	4	2(c)	3	1	2#

TABLE 3.3-1 (Continued)

ACTION STATEMENTS

b. Within one hour, all functional units receiving an input from the inoperable channel are also placed in the same condition (either bypassed or tripped, as applicable) as that required by a. above for the inoperable channel.

c. The Minimum Channels OPERABLE requirement is met; however, one additional channel may be bypassed for up to 48 hours while performing tests and maintenance on that channel provided the other inoperable channel is placed in the tripped condition.

ACTION 3 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable, within 1 hour and at least once per 12 hours thereafter.

ACTION 4 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, be in HOT STANDBY within 6 hours; however, one channel may be bypassed for up to 1 hour for surveillance testing per Specification 4.3.1.1.

TABLE 3.3-2

REACTOR PROTECTIVE INSTRUMENTATION RESPONSE TIMES

FUNCTIONAL UNIT	RESPONSE TIME
1. Manual Reactor Trip	Not Applicable
2. Power Level - High	$\leq$ 0.40 seconds*# and $\leq$ 12.0 seconds ##
3. Reactor Coolant Flow - Low	$\leq$ 0.50 seconds
4. Pressurizer Pressure - High	$\leq$ 0.90 seconds
5. Containment Pressure - High	$\leq$ 0.90 seconds
6. Steam Generator Pressure - Low	$\leq$ 0.90 seconds
7. Steam Generator Water Level - Low	$\leq$ 0.90 seconds
8. Axial Flux Offset	$\leq$ 0.40 seconds*# and $\leq$ 12.0 seconds ##
9.a. Thermal Margin/Low Pressure	$\leq$ 0.90 seconds*# and $\leq$ 12.0 seconds ##
b. Steam Generator Pressure Difference - High	$\leq$ 0.90 seconds
10. Loss of Load	Not Applicable
11. Wide Range Logarithmic Neutron Flux Monitor	Not Applicable

*Neutron detectors are exempt from response time testing. Response time of the neutron flux signal portion of the channel shall be measured from detector output or input of first electronic component in channel.

#Response time does not include contribution of RTDs.

##RTD response time only. This value is equivalent to the time interval required for the RTDs output to achieve 63.2% of its total change when subjected to a step change in RTD temperature.

TABLE 4.3-1

REACTOR PROTECTIVE INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
1. Manual Reactor Trip	N.A.	N.A.	S/U(1)	N.A.
2. Power Level - High				
a. Nuclear Power	S	D(2),M(3),Q(5)	M	1, 2
b. ΔT Power	S	D(4),R	M	1
3. Reactor Coolant Flow - Low	S	R	M	1, 2
4. Pressurizer Pressure - High	S	R	M	1, 2
5. Containment Pressure - High	S	R	M	1, 2
6. Steam Generator Pressure - Low	S	R	M	1, 2
7. Steam Generator Water Level - Low	S	R	M	1, 2
8. Axial Flux Offset	S	R	M	1
9.a. Thermal Margin/Low Pressure	S	R	M	1, 2
b. Steam Generator Pressure Difference - High	S	R	M	1, 2
10. Loss of Load	N.A.	N.A.	S/U(1)	N.A.

TABLE 4.3-1 (Continued)

REACTOR PROTECTIVE INSTRUMENTATION SURVEILLANCE REQUIREMENTS.

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
11. Wide Range Logarithmic Neutron Flux Monitor	S	R(5)	S/U(1)	1, 2, 3, 4, 5 and *
12. Reactor Protection System Logic Matrices	N.A.	N.A.	M and S/U(1)	1, 2
13. Reactor Protection System Logic Matrix Relays	N.A.	N.A.	M and S/U (1)	1, 2
14. Reactor Trip Breakers	N.A.	N.A.	M	1, 2 and *

3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 PRIMARY CONTAINMENT

CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OEPRATION

3.6.1.1 Primary CONTAINMENT INTEGRITY shall be maintained.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

Without primary CONTAINMENT INTEGRITY, restore CONTAINMENT INTEGRITY within one hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.1 Primary CONTAINMENT INTEGRITY shall be demonstrated:

a. At least once per 31 days by verifying that all penetrations* not capable of being closed by OPERABLE containment automatic isolation valves and required to be closed during accident conditions are closed by valves, blind flanges, or deactivated automatic valves secured in their positions, except as provided in Table 3.6-1 of Specification 3.6.4.1.

b. By verifying that each containment air lock is OPERABLE per Specification 3.6.1.3.

c. By verifying that the equipment hatch is closed and sealed, prior to entering Mode 4 following a shutdown where the equipment hatch was opened, by conducting a Type B test per Appendix J to 10 CFR Part 50.

*Except valves, blind flanges, and deactivated automatic valves which are located inside the containment and are locked, sealed, or otherwise secured in the closed position. These penetrations shall be verified closed during each COLD SHUTDOWN except that such verification need not be performed more often than once per 92 days.

CONTAINMENT LEAKAGE

LIMITING CONDITION FOR OPERATION

3.6.1.2 Containment leakage rates shall be limited to:

a. An overall integrated leakage rate of:

1. $\leq L_a$ (346,000 SCCM), 0.20 percent by weight of the containment air per 24 hours at P_a, 50 psig, or

2. $\leq L_t$ (44,600 SCCM), 0.042 percent by weight of the containment air per 24 hours at a reduced pressure of P_t, 25 psig.

b. A combined leakage rate of $\leq 0.60\ L_a$ (207,600 SCCM) for all penetrations and valves subject to Type B and C tests when pressurized to P_a.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With either (a) the measured overall integrated containment leakage rate exceeding $0.75\ L_a$ (259,500 SCCM), or $0.75\ L_t$ (33,400 SCCM), as applicable, or (b) with the measured combined leakage rate for all penetrations and valves subject to Types B and C tests exceeding $0.60\ L_a$, restore the leakage rate(s) to within the limit(s) prior to increasing the Reactor Coolant System temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.1.2 The containment leakage rates shall be demonstrated at the following test schedule and shall be determined in conformance with the criteria specified in Appendix J of 10 CFR 50 using the methods and provisions of ANSI N45.4 - 1972:

a. Three Type A tests (Overall Integrated Containment Leakage Rate) shall be conducted at 40 ± 10 month intervals during shutdown at either P_a (50 psig) or at P_t (25 psig) during each 10-year service period. The third test of each set shall be conducted during the shutdown for the 10-year plant inservice inspection.

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 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 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 $\geq$ 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 $\geq$ 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%.

d. At least once per 18 months 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 $\pm$ 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 $\geq$ 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%.

f. After each complete or partial replacement of a charcoal adsorber bank by 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%.

g. After maintenance affecting the air flow distribution by testing in-place and verifying that the air flow distribution is uniform within $\pm$ 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.

TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

PENETRATION NO.	ISOLATION CHANNEL	ISOLATION VALVE IDENTIFICATION NO.	FUNCTION	ISOLATION TIME (SECONDS)
61	NA	76Y-1	Refueling Pool Outlet	NA
	NA	293M-1		NA
	NA	293M-1		NA
	NA	293M-1		NA
62	SIAS A	MOV-6579	Containment Heating Outlet	$\leq$13
64	NA	238-1	Containment Heating Inlet	NA

(1) Manual or remote manual valve which is closed during plant operation.

(2) May be opened below 300°F to establish shutdown cooling flow.

(3) Containment purge isolation valves will be shut in MODES 1, 2, 3 and 4 per TS 3/4 6.1.7.

* May be open on an intermittent basis under administrative control.

** Containment purge isolation valves isolation times will only apply for MODES 5 and 6 during which time these valves may be opened. Isolation time is NA for MODES 1, 2, 3 and 4 per TS 3/4 6.1.7 during which time these valves must remain closed.

3/4.6.5 COMBUSTIBLE GAS CONTROL

HYDROGEN ANALYZERS

LIMITING CONDITION FOR OPERATION

3.6.5.1 Two independent containment hydrogen analyzers shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTION:

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

SURVEILLANCE REQUIREMENTS

4.6.5.1 Each hydrogen analyzer shall be demonstrated OPERABLE at least once per 92 days on a STAGGERED TEST BASIS by performing a CHANNEL CALIBRATION using sample gases in accordance with manufacturers' recommendations.

*During the period from May 15 to July 15, 1983, one hydrogen analyzer may be made inoperable, at any given time, for the purpose of replacing system solenoid valves with environmentally qualified valves. During this time, Specification 3.0.4 is not applicable to this requirement.

SURVEILLANCE REQUIREMENTS (Continued)

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 2000 cfm ± 10%.

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 ≥ 90% for radioactive methyl iodide 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 system flow rate of 2000 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 ≥ 90% for radioactive methyl iodide 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 ≥ 90% for radioactive methyl iodide when the samples are tested in accordance with ANSI N510-1975 (130°C, 95% R.H.) and the samples are prepared

SURVEILLANCE REQUIREMENTS (Continued)

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.

Subsequent to reinstalling the adsorber tray used for obtaining the carbon sample, the filter train shall be demonstrated OPERABLE by 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 ventilation system at a flow rate of 2000 cfm $\pm$ 10%.

d. At least once per 18 months 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 2000 cfm $\pm$ 10%.

2. Verifying that the filter train starts on a Containment Isolation Test Signal.

3/4.7.6 CONTROL ROOM EMERGENCY VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.6.1 The control room emergency ventilation system shall be OPERABLE with:

a. Two filter trains,

b. Two air conditioning units,

c. Two isolation valves in each control room outside air intake duct,

d. Two isolation valves in the common exhaust to atmosphere duct, and

e. One isolation valve in the toilet area exhaust duct.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With one 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.

b. With one air conditioning unit inoperable, restore the inoperable unit 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.

c. With one isolation valve per control room outside air intake duct inoperable, operation may continue provided the other isolation valve in the same duct is maintained closed; otherwise, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

d. With one common exhaust to atmosphere duct isolation valve inoperable, restore the inoperable valve 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.

e. With the toilet area exhaust duct isolation valve inoperable, restore the inoperable valve to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.6.1 The control room emergency ventilation system shall be demonstrated OPERABLE:

a. At least once per 12 hours by verifying that the control room air temperature is $\leq$ 120°F.

b. At least once per 31 days by initiating flow through each HEPA filter and charcoal adsorber train and verifying that each train operates for at least 15 minutes.

c. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housing, 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 ventilation system at a flow rate of 2000 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 ventilation system at a flow rate of 2000 cfm $\pm$ 10%.

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 $\geq$ 90% for radioactive methyl iodide 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.

SURVEILLANCE REQUIREMENTS (Continued)

4. Verifying a system flow rate of 2000 cfm ± 10% during system operation when tested in accordance with ANSI N510-1975.

d. 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 ≥ 90% for radioactive methyl iodide 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 ≥ 90% for radioactive methyl iodide 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.

   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 ventilation system at a flow of 2000 cfm ± 10%.

SURVEILLANCE REQUIREMENTS (Continued)

e. At least once per 18 months by:

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is < 4 inches Water Gauge while operating the ventilation system at a flow rate of 2000 cfm ± 10%.

2. Verifying that on a control room high radiation test signal, the system automatically switches into a recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks and that the isolation valves close.

f. 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 system at a flow rate of 2000 cfm ± 10%.

g. 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 system at a flow rate of 2000 cfm ± 10%.

3/4.7.7 ECCS PUMP ROOM EXHAUST AIR FILTRATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.7.1 The ECCS pump room exhaust ventilation system shall be OPERABLE with one HEPA filter and charcoal adsorber train and two exhaust fans.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With one ECCS pump room exhaust fan inoperable, restore the inoperable fan 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.

b. With the ECCS exhaust filter train inoperable, restore the filter train to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.7.1 The ECCS pump room exhaust ventilation system shall be demonstrated OPERABLE:

a. At least once per 31 days by initiating, from the control room, flow through the HEPA filter and charcoal adsorber train and verifying that each exhaust fan 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:

SURVEILLANCE REQUIREMENTS (Continued)

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 3000 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 3000 cfm ± 10%.

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 ≥ 90% for radioactive methyl iodide 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 system flow rate of 3000 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 ≥ 90% for radioactive methyl iodide when the sample is tested in accordance with ANSI N510-1975 (130°C, 95% R. H.); or

SURVEILLANCE REQUIREMENTS (Continued)

2. Verifying within 31 days after removal that a laboratory analysis of at least two carbon samples demonstrate a removal efficiency of $\geq$ 90% for radioactive methyl iodide 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.

   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 $\geq$ 99% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the ventilation system at a flow rate of 3000 cfm $\pm$ 10%.

d. At least once per 18 months by verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is $<$ 4 inches Water Gauge while operating the filter train at a flow rate of 3000 cfm $\pm$ 10%.

SURVEILLANCE REQUIREMENTS (Continued)

e. After each complete or partial replacement of a HEPA filter bank by 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 3000 cfm $\pm$ 10%.

f. After each complete or partial replacement of a charcoal adsorber bank by 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 3000 cfm $\pm$ 10%.

g. After maintenance affecting the air flow distribution by testing in-place and verifying that the air flow distribution is uniform within $\pm$ 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.

SURVEILLANCE REQUIREMENTS (Continued)

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 ventilation system at a flow rate of 32,000 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 ventilation system at a flow rate of 32,000 cfm $\pm$ 10%.

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 $\geq$ 90% for radioactive methyl iodide 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 system flow rate of 32,000 cfm $\pm$ 10% during system operation when tested in accordance with ANSI N510-1975.

SURVEILLANCE REQUIREMENTS (Continued)

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

1. Verifying within 31 days after removal that a laboratory analysis of carbon sample obtained from a test canister demonstrates a removal efficiency of $\geq$ 90% for radioactive methyl iodide 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 $\geq$ 90% for radioactive methyl iodide 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.

   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 $\geq$ 99% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the ventilation system at a flow rate of 32,000 cfm $\pm$ 10%.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NOS. 83 AND 66 TO

FACILITY OPERATING LICENSES NOS. DPR-53 AND DPR-69

BALTIMORE GAS AND ELECTRIC COMPANY

CALVERT CLIFFS NUCLEAR POWER PLANT UNIT NOS. 1 & 2

DOCKET NOS. 50-317 AND 50-318

Introduction

By application for License Amendments dated February 24, 1983, as supplemented by letter dated March 22, 1983, Baltimore Gas and Electric Company (BG&E) requested changes to the Technical Specifications (TS) for Calvert Cliffs Units 1 and 2. The proposed changes to the TS would (1) revise Surveillance Requirements for the equipment hatch, (2) revise Surveillance Requirements for safety-related air filter systems, (3) revise Surveillance Requirements and provide for a single period of inoperability for the hydrogen analyzers, and (4) delete the Limiting Safety System Settings and an administrative change associated with the "Loss of Load" function of the Reactor Protection System, in partial response to the February 24, 1983 application.

In the course of reviewing the proposed TS, we have found it necessary to make certain changes. These changes were discussed with and approved by BG&E.

Discussion and Evaluation

1. Surveillance Requirements for the Equipment Hatch

Calvert Cliffs TS 4.6.1.1.a.2 requires verification at least once per 31 days that the equipment hatch is closed and sealed. BG&E has proposed that this requirement be deleted and replaced with new TS 4.6.1.1.c. This TS would require verification "...that the equipment hatch is closed and sealed, prior to entering Mode 4 following a shutdown where the equipment hatch was open, by conducting a Type B test per Appendix J to 10 CFR Part 50." In their February 24, 1983 application, BG&E noted that the existing requirement for visual inspection of the hatch is unnecessary in that seal degradation has not been a problem at Calvert Cliffs. In addition, radiation exposure for inspection personnel averages 15-30 millirem per person for each inspection.

The Calvert Cliffs Units 1 and 2 equipment hatches are described in Calvert Cliffs FSAR Section 5.1.2.1. Each Calvert Cliffs containment has a single equipment hatch. The hatch is 19 feet in diameter and is securely bolted to a ring which extends inward from the containment liner such that the domed surface of the hatch is oriented inward to the containment. The hatch is sealed via two machined surfaces on the hatch which mate with resilient seals on the face of the ring. Due to the massive nature of the hatch, and the extensive amount of planning and effort required to remove it, it is highly unlikely that the equipment hatch would be inadvertently opened. Upon opening, however, it is important that the equipment hatch be properly sealed prior to returning the facility to power operation to maintain containment integrity. The proposed TS would require that the equipment hatch be leak-tested in accordance with the requirements of a "Type B" test as specified in Appendix J to 10 CFR Part 50, prior to returning the facility to power operation, following an outage where the equipment hatch is removed. This test would be undertaken by pressurizing the space between the two seals and monitoring the leakage. Existing TS 4.6.1.2.d, and Appendix J to 10 CFR Part 50, require that "Type B" tests be conducted at least every two years. Based upon this information, we concluded that the proposed TS change would provide for detection of equipment hatch leakage while keeping radiation exposure to inspection personnel to levels that are as low as is reasonably achievable.

Since integrity of the equipment hatch seal is assured there will be no significant change in the consequences analyzed for those accidents for which containment integrity is required. Therefore, the proposed change to TS 4.6.1.1 is acceptable.

2. Surveillance Requirements for Safety-Related Air Filters

The second issue addressed herein relates to Surveillance Requirements for safety-related air filter systems. These systems are the topic of TS 3/4.6.3 "Containment Systems - Iodine Removal System"; 3/4.6.6, "Penetration Room Exhaust Air Filtration System"; 3/4.7.6.1, "Control Room Emergency Ventilation System"; 3/4.7.7.1, "ECCS Pump Room Exhaust Air Filtration System"; and 3/4.9.12, "Spent Fuel Pool Ventilation System". The application for license amendment dated February 24, 1983 requested the following changes to the Surveillance Requirements for safety-related air filter systems:

(1) provide a surveillance requirement for the recently installed NUCON Test Tray assemblies,
(2) deletion of the requirement to perform DOP testing of High Efficiency Particulate Air (HEPA) filters upon reinstalling absorber trays, and
(3) changing the word "system" to the words "filter train" in TS 4.6.6.1.

By letter dated April 8, 1983, BG&E submitted additional information concerning these proposed TS changes.

BG&E has installed new filter train test assemblies, manufactured by NUCON, in place of standard adsorber trays in all charcoal filter banks of safety-related air filters at Calvert Cliffs Units 1 and 2. The purpose of the test assemblies is to allow the withdrawal of a charcoal sample for periodic penetration testing with methyl iodine to assure continued capacity for iodine adsorption. The existing TS for safety-related air filters provide for removal of a longitudinal sample from an adsorber bed, or emptying the entire bed, to provide a sample of the charcoal for testing. The NUCON test trays are divided into eight cells one of which is used for obtaining a sample for each charcoal test; subsequent samples are taken from different cells. Thus, the existing TS do not apply to the NUCON test assemblies since neither a longitudinal sample nor an entire bed is removed to obtain the charcoal sample for testing. BG&E has proposed the following TS to be added to the Surveillance Requirements for safety-related filter systems:

> "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."

The preparation of the charcoal sample, "...mixing the adsorbent thoroughly and obtaining samples at least two inches in diameter with a length equal to the thickness of the bed...", is an approved industrial standard methodology (ANSI-N509-1980, Appendix A) that is currently within the guidelines of Regulatory Guide 1.52 incorporated in the Calvert Cliffs TS. The remainder of the proposed TS, the emptying of a representative sample and the use of successive samples from different test tray sections, apply specifically to the NUCON test trays. The NUCON adsorber test tray is divided into eight sections. When a section is emptied for laboratory analysis it will not be refilled with charcoal adsorbant, but be covered with a seal plate to identify its location. When the specified flow rate, due to tray sections being sealed off, cannot be met, the complete charcoal adsorber bank will be replaced including the test tray sections that have been emptied. This procedure meets the recommendations of ANSI-N509-1980 and is an acceptable alternative to Regulatory Guide 1.52 (Rev. 2). Our review of the February 24, 1983 application indicates that the use of the NUCON test trays at Calvert Cliffs is acceptable. The proposed TS will assure proper selection and preparation of a representative charcoal sample for analysis to assure that the charcoal continues to be an effective agent for post-accident iodine removal, as assumed in the safety analysis. Accordingly, we find the revised Surveillance Requirements for the NUCON test trays to be acceptable. In addition, the existing TS for the previous types of test trays which involve emptying the whole tray or a longitudinal section should be deleted in that these trays are no longer used at Calvert Cliffs.

The second issue associated with safety-related filters involves deletion of a requirement, contained in the Surveillance Requirements for testing of the HEPA filters following reinstallation of the charcoal test trays. This requirement had been contained in the TS of a number of facilities as a result of a generic concern that, in the process of removal and reinstallation of charcoal test trays, the HEPA filters might be damaged. We have reviewed

the design of the safety-related air filters at Calvert Cliffs and conclude that the access to the charcoal test trays is not adjacent to the HEPA filters; therefore, removal and reinstallation of the charcoal test trays could not result in damage to the HEPA filters. Moreover, Generic Letter No. 83-13, issued by the NRC on March 2, 1983 concerning air filters system used in engineered safety feature atmospheric clean-up systems, no longer requires testing the HEPA filters due to reinstallation of charcoal test trays only. We conclude that the deletion of the requirement to test the HEPA filters following reinstallation of the charcoal test trays is consistent with the NRC position in this area and will not endanger the safety function of HEPA filters regarding post-accident removal of particulates. The remaining tests for the HEPA filters, conducted at least every 18 months, are adequate to assure proper filter efficiency. Accordingly, the deletion of the requirement for HEPA filter testing following reinstallation of the charcoal test trays is acceptable.

The final issue addressed herein involves the changing of the word "system" to the words "filter train" in TS 4.6.6.1.c.2.a. The phrase "filter train" is used to describe the specific assembly of roughing, HEPA and charcoal filters used in the penetration room exhaust air filtration system which is the subject of TS 4.6.6.1. The use of the phrase "filter train" is more accurate than the word "system" when addressing these types of filters. Therefore, we conclude that the proposed TS change, to substitute the phrase "filter train" for the word "system" in TS 4.6.6.1c.2.a, is an administrative change in that it does not impact the surveillance or safety function of any equipment and is, therefore, acceptable.

3. Revise Surveillance Requirements and Provision for Extended Outage of the Hydrogen Analyzers

The Application for License Amendment dated February 24, 1983, as supplemented by letter dated March 22, 1983 requested changes to TS 3/4.6.5, "Hydrogen Analyzers". The proposed changes would (1) change the surveillance requirements to reflect recent modifications to the system, and (2) provide for a single period of inoperability, from May 15 to July 15, 1983, during which time one hydrogen analyzer may be made inoperable for making modifications. The purpose of these modifications relates to the environmental qualifications of the hydrogen analyzer solenoid valves.

BG&E has completed modifications to the Calvert Cliffs hydrogen analyzers to meet the requirements of TMI Action Item II.F.1.6, "Containment Hydrogen Monitor." One such modification resulted in the calibration sample gases, specified in TS 4.6.5.1 becoming inappropriate for this application. The calibration sample gases are currently required to be (1) zero volume percent hydrogen, the balance nitrogen, and (2) three volume percent hydrogen, the balance nitrogen.

BG&E has proposed that TS 4.6.5.1 be modified to delete the composition of the calibration sample gases and indicate that the sample gas to be used will be "... in accordance with manufacturers' recommendations." The redesigned hydrogen analyzers can detect hydrogen within the containments in concentrations from 0 to 10 percent, by volume, in accordance with the requirements of NUREG-0737. Although the instrumentation is capable of selecting a range of 0 to 20 percent, this scale is not used. BG&E has provided a written "caution" in the operating procedure and at the panel against using the 0 to 20 percent scale. The calibration sample gases used to calibrate the instrumentation in the 0 to 10 percent range are recommended by the equipment manufacturer as follows: (1) gas of 10 percent hydrogen (H_2), and (2) reagent gase of 99.97% pure oxygen (O_2) concentration. The specification of these calibration sample gases has been incorporated in the surveillance procedure for the hdyrogen analyzers, STP-M-380B-0. Since the tank couplings used to connect the calibration sample gases to the hydrogen analyzer are of a unique design not utilized elsewhere at Calvert Cliffs, only calibration gases recommended by the manufacturer can be utlized to calibrate the hydrogen analyzer. We conclude, therefore, that the composition of hydrogen analyzer calibration sample gases can be deleted from TS 4.6.5.1 and the requirement that the gases used be "...in accordance with manufacturers' recommendations" be inserted in TS 4.6.5.1. This TS, as modified, provides a high degree of assurance that the hydrogen analyzer can be reliably calibrated in the range of 0 to 10 percent in that the configuration of the sample gas tank couplings prevents the use of gases other than those recommended by the manufacturer.

The other issue associated with the hydrogen analyzers involves a proposed TS change which would allow a single hydrogen analyzer to be inoperable for two months from May 15, 1983 to July 15, 1983 for the purpose of replacing the solenoid valves with environmentally qualified valves. On July 30, 1982 the NRC issued Amendment Nos. 74 and 55 to the Operating Licenses for Calvert Cliffs Units 1 and 2, respectively. These license amendments provided for a change to TS 3.6.5.1 to allow a single hydrogen analyzer to be inoperable for a period of two months in order to complete the modifications required by TMI Action Item II.F.1.6.

As indicated in our Safety Evaluation Report (SER) issued on July 30, 1982, a single Hydrogen Analyzer is sufficient to perform post-LOCA hydrogen sampling for Calvert Cliffs Units 1 and 2. The use of hydrogen "grab samples" provides a back-up capability for the hydrogen analyzer system. These and other safety issues associated with reactor operation for an extended period with a single Hydrogen Analyzer were previously addressed in our July 30, 1982 SER.

Accordingly, since the issues associated with reactor operation with a single Hydrogen Analyzer have been previously addressed, and since there is reasonable assurance that the modifications can be completed by July 15, 1983, the proposed change to TS 3.6.5.1 is appropriate and acceptable.

4. Deletion of the Limiting Safety System Setting (LSSS) and An Administrative Change Associated with the Loss of Load Function of the Reactor Protection System

By letter dated March 22, 1983, BG&E amended their February 24, 1983 application to request changes to the TS associated with the Loss of Load function of the RPS. The first change to these TS is administrative in nature and involves a change in terminology. At the present time TS Tables 2.2-1, 3.3-1, 3.3-2, and 4.3-1 and associated Bases contain information on a "Loss of Turbine" function of the RPS. BG&E has requested that the term "Loss of Turbine" be replaced by the term "Loss of Load" in the above referenced TS.

The Calvert Cliffs RPSs are equipped with a trip function that senses a main turbine trip and causes a reactor trip via the RPS. This device is described in the Calvert Cliffs FSAR Section 7.2.3.8 and is identified as the "loss of load trip". The TS referenced above describe this trip function as a "Loss of Turbine" trip. Changing the term "Loss of Turbine" to "Loss of Load" as it appears in the TS, would make the TS consistent with the terminology in the FSAR and the equipment "name plates" utilized at Calvert Cliffs. Moreover, since the terminology has no effect on any safety function associated with the RPS, the change has no effect on plant safety. Accordingly, the change to the TS to replace the term "Loss of Turbine" with "Loss of Load" is acceptable.

The March 22, 1983 amendment to the February 24, 1983 application also requested that the LSSS for the Loss of Load RPS trip be deleted from TS Table 2.2-1, "Reactor Protective Instrumentation Trip Setpoint Limits". Title 10, CFR Part 50, Section 50.36(c)(1)(i)(A) provides the following definition for LSSS:

> "Limiting safety system settings for nuclear reactors are settings for automatic protective devices related to those variables having significant safety functions."

The Bases for the LSSS states that, "No credit was taken in the accident analyses for operation of the Loss of Load trip." Moreover, unlike other RPS trip functions, the Loss of Load trip is generated in a non-safety grade system; in this case, the turbine control system. Although the setpoints* for the Loss of Load trip function should be deleted from TS Table 2.2-1, both limiting Conditions for Operation and Surveillance Requirements in the TS will continue to assure that the Loss of Load RPS function will continue to

*The Unit 1 Loss of Load trip function actually lacks a true "setpoint" in that the trip is generated by the "master trip solenoid" and does not involve comparison of a measured process variable against a preset value.

operate in a reliable manner. Accordingly, since the Loss of Load RPS function was not credited in the accident analyses, deletion of the Loss of Load LSSS from Table 2.2-1 will not affect the consequence of any accident considered in the Safety Analyses; therefore, deletion of this TS is acceptable.

Environmental Consideration

We have determined that the amendments do not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendments involve an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of these amendments.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendments do not involve a significant increase in the probability or consequences of an accident previously evaluated, do not create the possibility of an accident of a type different from any evaluated previously, and do not involve a significant reduction in a margin of safety, the amendments do not involve a significant hazards consideration, (2) there is a reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Date: May 5, 1983

Principal Contributor:
D. H. Jaffe

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NOS. 50-317 AND 50-318

BALTIMORE GAS AND ELECTRIC COMPANY

NOTICE OF ISSUANCE OF AMENDMENTS TO FACILITY OPERATING LICENSES

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment Nos. 83 and 66 to Facility Operating Licenses Nos. DPR-53 and DPR-69, issued to Baltimore Gas and Electric Company, which revised Technical Specifications for operation of the Calvert Cliffs Nuclear Power Plant, Units No. 1 and 2. The amendments are effective as of the date of issuance.

These amendments to the Technical Specifications (1) revise Surveillance Requirements for the equipment hatch; (2) revise Surveillance Requirements for safety-related air filter systems; (3) revise Surveillance Requirements and provide for a single period of inoperability for the hydrogen analyzers; and (4) delete the Limiting Safety System Settings and an administrative change associated with "Loss of Load" function of the Reactor Protection System.

The application for the amendments complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendments. Prior public notice of the amendments was not required since the amendments do not involve a significant hazards consideration.

The Commission has determined that the issuance of these amendments will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of the amendments.

For further details with respect to this action, see (1) the application for amendment dated February 24, 1983 as supplemented by letter dated March 22, 1983, (2) Amendment Nos. 83 and 66 to License Nos. DPR-53 and DPR-69, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D.C. and at the Calvert County Library, Prince Frederick, Maryland. A copy of items (2) and (3) may be obtained upon request addressed to the U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Division of Licensing.

Dated at Bethesda, Maryland, this 5th day of May, 1983.

FOR THE NUCLEAR REGULATORY COMMISSION

Charles M. Trammell, Acting Chief
Operating Reactors Branch #3
Division of Licensing