

April 3, 1995

Mr. Robert E. Denton
Vice President - Nuclear Energy
Baltimore Gas and Electric Company
Calvert Cliffs Nuclear Power Plant
1650 Calvert Cliffs Parkway
Lusby, MD 20657-4702

SUBJECT: ISSUANCE OF SCHEDULAR EXEMPTION FROM THE REQUIREMENTS OF 10 CFR PART 50, APPENDIX J, FOR CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NO. 2, REGARDING DELAY OF NEXT REQUIRED TYPE A LEAKAGE RATE TEST (TAC NO. M91630)

Dear Mr. Denton:

By letter dated February 24, 1995, Baltimore Gas and Electric Corporation (BG&E) requested a one-time schedular exemption to delay performance of a Type A test, as required by 10 CFR Part 50, Appendix J, for a period of approximately 24 months and to extend the second 10-year service period to 12 years.

The NRC staff has reviewed the information provided in support of your schedular exemption request. On the basis of the submitted information and as discussed in the enclosed Exemption, the NRC staff has concluded that there is a high degree of confidence that the containment will not degrade to an unacceptable extent while this Exemption is in effect.

We find that granting the Exemption from the requirements of 10 CFR Part 50, Appendix J, Section III.D.1.(a), is authorized by law, will not present an undue risk to public health and safety, is consistent with the common defense and security, and meets the special circumstances described in 10 CFR 50.12(a)(2)(ii). Accordingly, your request for a schedular exemption to delay performance of the Type A test until the 1997 refueling outage, which extends the second 10-year service period to 12 years, is granted. It should be noted that this exemption has been granted on the condition that you will perform visual containment inspections.

A copy of the Exemption is enclosed. The Exemption has been forwarded to the Office of the Federal Register for publication.

Sincerely,
Original signed by

Ledyard B. Marsh, Director
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

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PDR

Docket No. 50-318

Enclosure: Exemption

cc w/encl: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

April 3, 1995

Mr. Robert E. Denton
Vice President - Nuclear Energy
Baltimore Gas and Electric Company
Calvert Cliffs Nuclear Power Plant
1650 Calvert Cliffs Parkway
Lusby, MD 20657-4702

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Sincerely,

A handwritten signature in cursive script, appearing to read "Ledyard B. Marsh".

Ledyard B. Marsh, Director
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-318

Enclosure: Exemption

cc w/encl: See next page

Robert E. Denton
Baltimore Gas & Electric Company

Calvert Cliffs Nuclear Power Plant
Unit Nos. 1 and 2

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)	
BALTIMORE GAS AND ELECTRIC COMPANY)	Docket No. 50-318
)	
(Calvert Cliffs Nuclear Power Plant)	
Unit No. 2))	

EXEMPTION

I.

Baltimore Gas and Electric Company (BG&E or the licensee) is the holder of Facility Operating License No. DPR-69, which authorizes operation of Calvert Cliffs Nuclear Power Plant Unit No. 2 (the facility/CC-2), at a steady-state reactor power level not in excess of 2700 megawatts thermal. The facility is a pressurized water reactor located at the licensee's site in Calvert County, Maryland. The license provides among other things, that it is subject to all rules, regulations, and Orders of the U.S. Nuclear Regulatory Commission (the Commission or NRC) now or hereafter in effect.

II.

Section III.D.1.(a) of Appendix J to 10 CFR Part 50 requires the performance of three Type A containment integrated leakage rate tests (ILRTs), at approximately equal intervals during each 10-year service period of the primary containment. The third test of each set shall be conducted when the plant is shutdown for the 10-year inservice inspection of the primary containment.

III.

By letter dated February 24, 1995, BG&E requested temporary relief for CC-2 from the requirement to perform a set of three Type A tests at approximately equal intervals during each 10-year service period of the primary containment. The requested exemption would permit a one-time interval extension of the second Type A test by approximately 24 months (from the 1995 refueling outage, currently scheduled to begin in March 1995, to the spring 1997 refueling outage) and would permit the third Type A test to be performed during the spring 1999 refueling outage, coincident with the end of the current American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) inservice inspection interval. This would extend the CC-2 second 10-year service period to 12 years.

The licensee's request cites the special circumstances of 10 CFR 50.12, paragraph (a)(2)(ii), as the basis for the exemption. The existing Type B and C testing programs are not being modified by this request and will continue to effectively detect containment leakage caused by the degradation of active containment isolation components as well as containment penetrations. The licensee has analyzed the results of the previous Type A tests performed at CC-2. Four Type A tests have been conducted from 1979 to date. The initial Type A test failed; however, prompt corrective actions were taken and the subsequent tests were successful as detailed in Section IV of this Exemption. It is also noted that the licensee, as a condition of the proposed exemption, will perform the visual containment inspection although it is only required by Appendix J to be conducted in conjunction with Type A tests. The NRC staff considers that these inspections, though limited in scope, provide an

important added level of confidence in the continued integrity of the containment boundary. Therefore, application of the regulation in this particular circumstance is not necessary to achieve the underlying purpose of the rule.

IV.

Section III.D.1.(a) of Appendix J to 10 CFR Part 50 states that a set of three Type A leakage rate tests shall be performed at approximately equal intervals during each 10-year service period.

The licensee proposes an exemption to this section which would provide a one-time interval extension for the second Type A test by approximately 24 months. This would permit the test to be performed during the spring 1997 refueling outage, as noted above, and would extend the second 10-year service period to 12 years. The Commission has determined, for the reasons discussed below, that pursuant to 10 CFR 50.12(a)(1) this exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. The Commission further determines that special circumstances, as provided in 10 CFR 50.12(a)(2)(ii), are present justifying the exemption; namely, that application of the regulation in the particular circumstances is not necessary to achieve the underlying purpose of the rule. The underlying purpose of the requirement to perform Type A containment leak rate tests at intervals during the 10-year service period, is to ensure that any potential leakage pathways through the containment boundary are identified within a time span that prevents significant degradation from continuing or becoming unknown. The NRC staff has reviewed the basis and supporting information provided by the licensee in the exemption request.

As previously noted, the initial Type A test failed. This failure was due to three sources: (1) the containment recirculation sump isolation valve, MOV-4145; (2) the temporary level indicators on the steam generators; and (3) the packing gland of a main steam line inboard vent valve. The first leakage source was identified as a problem with the limit switch setting on MOV-4145 that prevented full closure. Resetting the switches and closing the valve electrically corrected the source of leakage. This valve is now tested periodically to ensure the limit switch settings allow full closure, and the valve has not demonstrated excessive leakage in any subsequent Type A test. The temporary level indicators, are components which are only in place while the plant is shutdown. Upon identification of the leakage path, the temporary configuration was isolated and has not resulted in any further leakage. The third component condition which led to an excessive leakage rate during this test was attributed to a packing failure in the main steam inboard vent valves. This condition was corrected by backseating the vent valves to eliminate leakage. In a subsequent refueling outage, the vent valves were removed and the connection was sealed with blind flanges. Following the licensee's prompt identification and corrective actions, three additional Type A tests have been successful and have demonstrated a good containment performance. Thus, the Type A test results only confirm the results of the Type B and C test results. The NRC staff has noted that the licensee has a good record of ensuring a leak-tight containment. Since the first failure, all Type A tests have passed with significant margin and the licensee has noted that the results of the Type A testing have been confirmatory of the Type B and C tests which will continue to be performed.

The NRC staff has also made use of the information in a draft staff report, NUREG-1493, which provides the technical justification for the present Appendix J rulemaking effort which also includes a 10-year test interval for Type A tests. The integrated leakage rate test, or Type A test, measures overall containment leakage. However, operating experience with all types of containments used in this country demonstrates that essentially all containment leakage can be detected by local leakage rate tests (Type B and C). According to results given in NUREG-1493, out of 180 ILRT reports covering 110 individual reactors and approximately 770 years of operating history, only 5 ILRT failures were found which local leakage rate testing could not detect. This is 3 percent of all failures. This study agrees well with previous NRC staff studies which show that Type B and C testing can detect a very large percentage of containment leaks. The CC-2 experience has also been consistent with these results as previously noted.

The Nuclear Management and Resources Council (NUMARC), now the Nuclear Energy Institute (NEI), collected and provided the NRC staff with summaries of data to assist in the Appendix J rulemaking effort. NUMARC collected results of 144 ILRTs from 33 units; 23 ILRTs exceeded $1.0L_a$. Of these, only nine were not due to Type B or C leakage penalties. The NEI data also added another perspective. The NEI data show that in about one-third of the cases exceeding allowable leakage, the as-found leakage was less than $2L_a$; in one case the leakage was found to be approximately $2L_a$; in one case the as-found leakage was less than $3L_a$; one case approached $10L_a$; and in one case the leakage was found to be approximately $21L_a$. For about half of the failed ILRTs the as-found leakage was not quantified. These data show that, for those ILRTs for

which the leakage was quantified, the leakage values are small in comparison to the leakage value at which the risk to the public starts to increase over the value of risk corresponding to L_a (approximately $200L_a$, as discussed in NUREG-1493). Therefore, based on these considerations, it is unlikely that an extension of one cycle for the performance of the Appendix J, Type A test at CC-2 would result in significant degradation of the overall containment integrity. As a result, the application of the regulation in these particular circumstances is not necessary to achieve the underlying purpose of the rule.

Based on generic and plant specific data, the NRC staff finds the basis for the licensee's proposed exemption to allow a one-time exemption to permit a schedular extension for CC-2 of one cycle (24 months) for the performance of the Appendix J, Type A test, and to permit the third Type A test to be performed during the spring 1999 refueling which extends the second 10-year service period to 12 years to be acceptable. As a condition for granting this exemption, the licensee will perform visual containment inspections.

Pursuant to 10 CFR 51.32, the Commission has determined that granting this Exemption will not have a significant impact on the environment (60 FR 14979).

This Exemption is effective upon issuance and shall expire at the completion of the 1997 refueling outage.

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by

Steven A. Varga, Director
 Division of Reactor Projects - I/II
 Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland,
 this 3rd day of April 1995

*Previously concurred

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