

January 19, 2001

Mr. Charles H. Cruse  
Vice President - Nuclear Energy  
Calvert Cliffs Nuclear Power Plant, Inc.  
Calvert Cliffs Nuclear Power Plant  
1650 Calvert Cliffs Parkway  
Lusby, MD 20657-4702

SUBJECT: SAFETY EVALUATION OF SAFETY AND RELIEF VALVE INSERVICE  
TESTING RELIEF REQUEST FOR CALVERT CLIFFS NUCLEAR POWER  
PLANT, UNIT NOS 1 AND 2 (TAC NOS. MA9987 AND MA9988)

Dear Mr. Cruse:

The NRC staff has reviewed information provided by the licensee in a letter dated September 11, 2000, related to a request for relief from the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) inservice testing (IST) requirements for the Calvert Cliffs 1 and 2 pressure relief valves. The enclosed safety evaluation provides the results of the review. The staff finds that the licensee's proposed alternative to certain ASME Code testing requirements for Code Class 1, 2, and 3 safety and relief valves is authorized pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(a)(3)(i) on the basis that it provides an acceptable level of quality and safety. The alternative is approved for the remainder of the third 10-year IST interval. This completes the staff's effort for TAC Nos. MA9987 and MA9988.

Sincerely,

*/RA/*

Marsha Gamberoni, Chief, Section 1  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-317 and 50-318

Enclosure: As stated

cc w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AN INSERVICE TESTING REQUEST FOR RELIEF FOR THE  
CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2  
DOCKET NOS. 50-317 AND 50-318

## 1.0 INTRODUCTION

Title 10 of the *Code of Federal Regulations*, (10 CFR) Section 50.55a, requires that inservice testing (IST) of certain American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) Class 1, 2, and 3 pumps and valves be performed in accordance with Section XI of the ASME Code and applicable addenda, except where relief has been requested and granted or proposed alternatives have been authorized by the Commission pursuant to 10 CFR 50.55a(f)(6)(i), (a)(3)(i), or (a)(3)(ii). In order to obtain authorization or relief, the licensee must demonstrate that: (1) a conformance is impractical for its facility; (2) the proposed alternative provides an acceptable level of quality and safety; or (3) compliance would result in a hardship or unusual difficulty without a compensating increase in the level of quality and safety.

## 2.0 BACKGROUND

By letter dated September 11, 2000, Calvert Cliffs Nuclear Power Plant, Inc. (the licensee), submitted a request for relief from certain ASME Code IST requirements pertaining to testing of ASME Class 1, 2, and 3 safety and relief valves. The plant IST program requires that the testing meet the requirements of Part 10 of American National Standards Institute/ASME Operations and Maintenance (OM) Standard, OM-1987 Edition through the OMa-1988 Addenda which references the requirements of OM Part 1-1987 Edition (herein referred to as Part 1). Specifically, this request seeks relief from performing testing on safety and relief valves in a manner that includes a 10-minute hold time between consecutive set pressure tests as required by Part 1 paragraphs 8.1.1.8, 8.1.2.8, and 8.1.3.7. For the pressurizer safety valves (PSVs) and main steam safety valves (MSSVs), which are tested under other than ambient conditions, the licensee proposes to relax the hold time from 10 minutes to 5 minutes. For all other safety and relief valves tested under ambient conditions using a test medium at ambient conditions, the licensee proposes to eliminate the 10-minute hold time.

## 3.0 BASIS FOR RELIEF

As justification for the proposed testing of the plant MSSVs and PSVs, the licensee states that the testing of these valves is conducted under steady-state thermal conditions. The licensee states the MSSVs are tested in place with an assist device during Modes 1, 2, or 3. The licensee states that the testing with an assist device occurs in less than 1 second which

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minimizes the steam flow through the valves and minimizes valve temperature changes. Further, the licensee states that the test method for the MSSVs exposes test personnel to a high humidity and high temperature environment, and the proposed 5-minute hold time would reduce the risk of personnel exposure to these test conditions. The licensee also states that the PSVs are typically removed from service during a unit refueling outage and are shipped to a test laboratory for testing, but could also be tested in place. The licensee states that when testing the PSVs using either method, there are personnel safety and radiation exposure concerns. The licensee states that the proposed testing with a 5-minute hold time is consistent with the 1997 ASME OM Code, and has negligible affect on valve setpoint.

As justification for the proposed testing of the other Class 2 and 3 safety and relief valves, the licensee states that the testing of the valves is conducted under steady-state ambient thermal conditions using a test medium at ambient conditions. The licensee states that the valves and the test medium for these valves are in thermal equilibrium with no thermal source introduced during the tests which would result in a thermal imbalance that might affect the accuracy of the tests. The licensee also states that numerous Class 2 and 3 valves are bench tested in a radiologically controlled hot shop. Personnel are exposed to background radiation and radiation associated with the specific valves being tested. As a result, personnel radiation exposure is reduced by reducing the length of time that test personnel must spend in close proximity to the valves during testing.

The licensee also states that for all plant safety and relief valves, the proposed reduction or elimination of the hold time between successive tests would result in a significant cumulative reduction in limited manpower resources.

#### 4.0 EVALUATION

The staff finds that the proposed 5-minute hold time between consecutive set pressure tests for the PSVs and MSSVs and no hold time between set pressure tests of the other ASME Class 2 and 3 system safety and relief valves provides an adequate method of accurately and repeatedly determining set pressures. The staff finds that for the PSVs and MSSVs, the proposed 5-minute hold time provides the necessary steady-state thermal conditions for testing. The staff also finds that the other ASME Code Class 2 and 3 safety and relief valves are in thermal equilibrium under the ambient test temperature conditions such that thermal stabilization is achieved with no hold time specified. It is noted that the licensee has a significant amount of experience in testing the plant safety and relief valves, and general industry experience demonstrates that the proposed methods provide accurate and repeatable results. Finally, the staff notes that the 1997 ASME OM Code specifies a 5-minute hold time which is a relaxation of the 10-minute hold time specified in previous editions of the OM Code. Therefore, the staff finds the licensee's proposed method of set pressure testing the PSVs and MSSVs with a 5-minute hold time and set pressure testing the other Class 2 and 3 system safety and relief valves with no hold time to be acceptable.

## 5.0 CONCLUSION

The staff concludes that the licensee's proposed alternative to the above discussed ASME Code testing requirements for Code Class 1, 2, and 3 safety and relief valves is authorized pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternative testing provides an acceptable level of quality and safety. The alternative is approved for the remainder of the third 10-year IST interval.

Principal Contributor: G. Hammer

Date: January 19, 2001

Calvert Cliffs Nuclear Power Plant  
Unit Nos. 1 and 2

President  
Calvert County Board of  
Commissioners  
175 Main Street  
Prince Frederick, MD 20678

James P. Bennett, Esquire  
Counsel  
Constellation Energy Group  
P.O. Box 1475  
Baltimore, MD 21203

Jay E. Silberg, Esquire  
Shaw, Pittman, Potts, and Trowbridge  
2300 N Street, NW  
Washington, DC 20037

Mr. Bruce S. Montgomery, Director  
NRM  
Calvert Cliffs Nuclear Power Plant  
1650 Calvert Cliffs Parkway  
Lusby, MD 20657-4702

Resident Inspector  
U.S. Nuclear Regulatory  
Commission  
P.O. Box 287  
St. Leonard, MD 20685

Mr. Richard I. McLean, Manager  
Nuclear Programs  
Power Plant Research Program  
Maryland Dept. of Natural Resources  
Tawes State Office Building, B3  
Annapolis, MD 21401

Regional Administrator, Region I  
U.S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

Mr. Joseph H. Walter, Chief Engineer  
Public Service Commission of  
Maryland  
Engineering Division  
6 St. Paul Centre  
Baltimore, MD 21202-6806

Kristen A. Burger, Esquire  
Maryland People's Counsel  
6 St. Paul Centre  
Suite 2102  
Baltimore, MD 21202-1631

Patricia T. Birnie, Esquire  
Co-Director  
Maryland Safe Energy Coalition  
P.O. Box 33111  
Baltimore, MD 21218

Mr. Loren F. Donatell  
NRC Technical Training Center  
5700 Brainerd Road  
Chattanooga, TN 37411-4017