



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NOS. 100 AND 82

TO FACILITY OPERATING LICENSE NOS. DPR-53 AND DPR-69

BALTIMORE GAS AND ELECTRIC COMPANY

CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2

DOCKET NOS. 50-317 AND 50-318

1.0 INTRODUCTION

To comply with Section V of Appendix I of 10 CFR Part 50, the Baltimore Gas & Electric Company (BG&E) has filed with the Commission plans and proposed technical specifications (TS) developed for the purpose of keeping releases of radioactive materials to unrestricted areas during normal operations, including expected operational occurrences, as low as is reasonably achievable. BG&E filed this information with the Commission by letter dated October 11, 1984 which requested changes to the Technical Specifications appended to Facility Operating License Nos. DPR-53 and DPR-69 for the Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2. The proposed TS update those portions of the TS addressing radioactive waste management and make them consistent with the current staff positions as expressed in NUREG-0472. These revised TS would reasonably assure compliance, in radioactive waste management, with the provisions of 10 CFR Part 50.36a, as supplemented by Appendix I to 10 CFR Part 50, with 10 CFR 20.105(c), 106(g), and 405(c); with 10 CFR Part 50, Appendix A, General Design Criteria 60, 63, and 64; and with 10 CFR Part 50, Appendix B.

At the request of the licensee, the Technical Specifications associated with the radiological environmental monitoring program will be issued at this time. The existing program requirements in the Appendix B Technical Specifications will be deleted since they are no longer needed. The remaining radiological effluent technical specifications will be issued by July 1, 1985.

2.0 BACKGROUND AND DISCUSSION

2.1 Regulations

10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities", 10 CFR 50.36a, "Technical specifications on effluents from nuclear power reactors", provides that each license authorizing operation of a nuclear power reactor will include technical specifications that (1) require compliance with applicable provisions of 10 CFR 20.106, "Radioactivity in effluents to unrestricted areas"; (2) require that

operating procedures developed for the control of effluents be established and followed; (3) require that equipment installed in the radioactive waste system be maintained and used; and (4) require the periodic submission of reports to the NRC specifying the quantity of each of the principal radionuclides released to unrestricted areas in liquid and gaseous effluents, any quantities of radioactive materials released that are significantly above design objectives, and such other information as may be required by the Commission to estimate maximum potential radiation dose to the public resulting from the effluent releases.

10 CFR Part 20, "Standards for Protection Against Radiation," 10 CFR 20.105(c), 20.106(g), and 20.405(c), require that nuclear power plants and other licensees comply with 40 CFR Part 190, "Environmental Radiation Protection Standards for Nuclear Power Operations" and submit reports to the NRC when the 40 CFR Part 190 limits have been or may be exceeded.

10 CFR Part 50, Appendix A - General Design Criteria for Nuclear Power Plants, contains Criterion 60, Control of releases for radioactive materials to the environment; Criterion 63, Monitoring fuel and waste storage; and Criterion 64, Monitoring radioactivity releases. Criterion 60 requires that the nuclear power unit design include means to control suitably the release of radioactive materials in gaseous and liquid effluents and to handle radioactive solid wastes produced during normal reactor operation, including anticipated operational occurrences. Criterion 63 requires that appropriate systems be provided in radioactive waste systems and associated handling areas to detect conditions that may result in excessive radiation levels and to initiate appropriate safety actions. Criterion 64 requires that means be provided for monitoring effluent discharge paths and the plant environs for radioactivity that may be released from normal operations, including anticipated operational occurrences and postulated accidents.

10 CFR Part 50, Appendix B, establishes quality assurance requirements for nuclear power plants.

10 CFR Part 50, Appendix I, Section IV, provides guides on technical specifications for limiting conditions for operation for light-water-cooled nuclear power reactors licensed under 10 CFR Part 50.

## 2.2 Standard Radiological Effluent Technical Specifications

NUREG-0472 provides radiological effluent technical specifications for pressurized water reactors that the staff finds to be an acceptable standard for licensing actions. Further clarification of these acceptable methods is provided in NUREG-0133, "Preparation of Radiological Effluent Technical Specifications for Nuclear Power Plants." NUREG-0133 describes methods found acceptable to the staff of the NRC for the calculation of certain key values required in the preparation of proposed radiological effluent technical specifications for light-water-cooled nuclear power plants. NUREG-0133 also provides guidance to

licensees in preparing requests for changes to existing radiological effluent technical specifications for operating reactors. It also describes current staff positions on the methodology for estimating radiation exposure due to the release of radioactive materials in effluents and on the administrative control of radioactive waste treatment systems.

The above NUREG documents address all of the radiological effluent technical specifications needed to assure compliance with the guidance and requirements provided by the regulations previously cited. However, alternative approaches to the preparation of radiological effluent technical specifications and alternative radiological effluent technical specifications may be acceptable if the staff determines that the alternatives are in compliance with the regulations and with the intent of the regulatory guidance.

The standard radiological effluent technical specifications can be grouped under the following categories:

- (1) Instrumentation
- (2) Radioactive effluents
- (3) Radiological environmental monitoring
- (4) Design features
- (5) Administrative controls

Each of the specifications under the first three categories is comprised of two parts: the limiting condition for operation and the surveillance requirements. The limiting condition for operation provides a statement of the limiting condition, the times when it is applicable, and the actions to be taken in the event that the limiting condition is not met.

In general, the specifications established to assure compliance with 10 CFR Part 20 standards provide, in the event the limiting conditions of operation are exceeded, that without delay conditions are restored to within the limiting conditions. Otherwise, the facility is required to effect approved shutdown procedures. In general, the specifications established to assure compliance with 10 CFR Part 50 provide, in the event the limiting conditions of operation are exceeded, that within specified times corrective actions are to be taken, alternative means of operation are to be employed, and certain reports are to be submitted to the NRC describing these conditions and actions.

The specifications concerning design features and administrative controls contain no limiting conditions for operation or surveillance requirements.

Table 1 indicates the standard radiological effluent technical specifications that are needed to assure compliance with the particular provisions of the regulations described in Section 1.0.

### 3.0 EVALUATION

The enclosed report (TER-C5506-87/88) was prepared for the staff by Franklin Research Center (FRC) as part of a technical assistance contract program. The FRC report provides the technical evaluation of the compliance of the licensee's submittal with NRC provided criteria. The staff has reviewed this TER and agrees with the evaluation.

#### 3.1 SUMMARY

The proposed changes to the radiological effluent technical specifications for the Calvert Cliffs Plant, Unit Nos. 1 and 2 have been reviewed, evaluated, and found to be in compliance with the requirements of the NRC regulations and with the intent of NUREG-0133 and NUREG-0472 and thereby fulfill all the requirements of the regulations related to radiological effluent technical specifications.

The proposed changes will not remove or relax any existing requirement needed to provide reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner. The staff, therefore, finds the proposed changes acceptable.

### 4.0 ENVIRONMENTAL CONSIDERATION

These amendments involve changes in the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20 and changes in inspection and surveillance requirements. The staff has determined that the amendments involve no significant increase in the amount and no significant change in the types of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that these amendments involve no significant hazards consideration and there has been no public comment on such finding. Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

### 5.0 CONCLUSION

We have concluded, based on the considerations discussed above, that:  
(1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner; and  
(2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Enclosure:  
Franklin Research Center  
Technical Evaluation Report

Principal Contributors:  
W. Meinke  
D. Jaffe

Date: February 22, 1985

Table 1. Relation Between Provisions of the Regulations and the Standard Radiological Effluent Technical Specifications for Pressurized Water Reactors and Boiling Water Reactors

Standard Radiological Effluent Technical Specifications

Provisions of Title 10 Code of Federal Regulations	Standard Radiological Effluent Technical Specifications					Design Features	Administrative Control
	Instrumentation	Radiation	Gaseous Effluents	Solid Radioactive Waste	Rad. Envir. Monitoring		
<p>§ 50.36a Technical specifications on effluents from nuclear power reactors Remain within limits of § 20.106 Establish and follow procedures to control effluents Maintain and use radioactive waste system equipment Submit reports, semi-annual and other</p> <p>§§ 20.105(c), 20.106(g), 20.405(c) Compliance with 40 CFR 190</p> <p>Part 50 Appendix A - General Design Criteria Criterion 60 - Control of releases of radioactive materials to the environment Criterion 61 - Fuel storage and handling and radioactivity control Criterion 63 - Monitoring fuel and waste storage Criterion 64 - Monitoring radioactivity releases</p> <p>Part 50 Appendix B - Quality Assurance Criteria Part 50 Appendix I - Guides to Meet "As Low As Is Reasonably Achievable (ALARA)"</p> <p>Maintain releases within design objectives Establish surveillance &amp; monitoring program to provide data on: (1) quantities of rad. matts. in effluents (2) radiation &amp; rad. matts. in the environment (3) changes in use of unrestricted areas Exert best efforts to keep releases "ALARA" Submit report if calculated doses exceed the design objective Demonstrate conform. to des. obj. by calc. proced.</p> <p>Part 100</p>	<p>Rad. Liquid Effl. Monitoring</p> <p>Rad. Gas. Effl. Monitoring</p>	<p>Liquid</p> <p>Effluent Concentration Dose Liquid Radwaste Treatment Liquid Holdup Tanks</p>	<p>Gaseous</p> <p>Dose Rate Dose Noble Gases Dose I-131, Trit. and Part. Explosive Gas Mixture</p>	<p>Solid</p> <p>Gaseous Radwaste Treatment Gas Storage Tanks</p>	<p>Rad. Envir. Monitoring</p> <p>Gaseous Radwaste Treatment Ventilation Exhaust Treatment Main Condenser Mark I or II Containment</p> <p>Rad. Env. Monitoring Program Land Use Census Interlab. Comparison Program</p>	<p>Design Features</p> <p>Site Boundaries*</p>	<p>Administrative Control</p> <p>Review and Audits Procedures Reports Record Retention Process Control Program Offsite Dose Calc. Manual Major Changes to Rad. Systems</p>

\*Note: Needed to fully implement other specifications.