7590-01

UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of BALTIMORE GAS AND ELECTRIC COMPANY (Calvert Cliffs Nuclear Power Plant, Units 1 and 2)	)	Docket Nos. 50-317 and 50-318

EXEMPTION

I.

The Baltimore Gas and Electric Company (BG&E/licensee) is the holder of Facility Operating License Nos. DPR-53 and DPR-69, which authorize operation of the Calvert Cliffs Nuclear Power Plant, Units 1 and 2 (the facilities). The licenses provide, among other things, that the facilities are subject to all rules, regulations and orders of the Nuclear Regulatory Commission (the Commission) now or hereafter in effect.

The facilities are pressurized water reactors located at the licensee's site in Calvert County, Maryland.

II.

On November 19, 1980, the Commission published a revised Section 50.48 and a new Appendix R to 10 CFR Part 50 regarding fire protection features of nuclear power plants (45 FR 76602). The revised Section 50.48 and Appendix R became effective on February 17, 1981. Section III of Appendix R contains 15 subsections, lettered A through O, each of which specifies requirements for a particular aspect of the fire protection features at a nuclear power plant. One of these subsections, III.J, is the subject of the licensee's exemption request.

Section III.J of Appendix R to 10 CFR Part 50, requires that emergency lighting units with at least an 8-hour battery power supply shall be provided in all areas needed for operation of safe shutdown equipment and in access and egress routes thereto.

By letter dated June 29, 1990, the licensee requested an exemption from the requirements of Section III.J of Appendix R to 10 CFR Part 50. Specifically, the requested exemption pertains to the use of portable handlights of the rechargeable type with an 8-hour rating as an alternative to permanently installed 8-hour emergency lighting. The requested exemption is only for locations within the Unit 1 and Unit 2 containments.

The Commission may grant exemptions from the requirements of the regulations which, pursuant to 10 CFR 50.12(a), are: (1) authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security; and (2) present special circumstances. Section 50.12(a)(2)(ii) of 10 CFR Part 50 indicates that special circumstances exist when application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule.

III.

The proposed exemption is needed as the result of the licensee's investigation of the deficiencies identified in its Licensee Event Report (LER) 50-317/89-09. Several deficiencies were noted in the existing post-fire alternative shutdown procedure (AOP-9), resulting in additional areas being

identified, inside the containments of both units, which require emergency lighting to allow operators to access necessary equipment for safely shutting down the units subsequent to a fire in accordance with the revised AOP-9. Specifically, it is necessary to operate auxiliary spray valves, loop charging isolation valves, safety injection tank isolation valves, and shutdown cooling return isolation valves. The actions occur at various times during post-fire shutdown activities with the first containment entry occurring at approximately 4 hours after the initiation of the event. In order to comply with the Section III.J requirement, emergency lighting would need to be installed to illuminate both the valves and the access paths to them.

The licensee has proposed providing portable handlights for use in containment but which would be staged outside of the containments. Specifically, the portable handlights will be of the rechargeable type with an 8-hour duration. The portable handlights will be kept in recharging units and subjected to a constant charge. Access to the portable handlights will be physically and administratively limited to operations personnel for emergency use. The portable handlights will be tested on the same frequency as the other emergency lights at these facilities.

The licensee has identified several advantages of the portable handlights in relation to permanently installed emergency lighting within the containments. The fixed emergency lighting, per Section III.J of Appendix R, must have an 8-hour duration. Assuming that a loss of offsite power occurs at the onset of the event, the 8-hour duration would not be adequate for all the

containment entries needed and portable handlights would be needed in any event. The portable handlights to be used have a rated duration of 8 hours. During the loss of off-site power, only the charger would be deenergized; the portable handlights will have a full 8-hour charge when initially used. It has been estimated that for all containment entries during the worst-case situation, the total time in containment would be approximately 4 hours. Therefore, the handlights would provide an ample duration of illumination.

The type of portable handlight to be used is similar to those used by fire departments. It will provide greater illumination levels where the operator is actually walking and working since fixed emergency lighting is subject to shadows caused by both obstructions (which are nearly impossible to avoid in containment) and the operator himself. These shadows are avoided by the use of the portable handlights. The wide base design of the portable light is stable when placed on most surfaces and the beam is adjustable. Since containment entries will be performed by two people, both of whom will be provided with the portable lights, improved illumination will be available.

The environment inside containment can be challenging to fixed battery powered emergency lights due to the high heat and humidity conditions. The potential for their failure will increase the longer they are exposed to these conditions. This potential decrease in reliability would increase the need for periodic testing which is not practical while the reactor is at power. Inspections of the fixed lighting units only during outages would not be sufficient to assure their operability. The portable handlights can be physically checked for operability prior to use, as well as on a normal test frequency. Therefore, the portable handlights will provide a greater level of reliability.

In consideration of the as low as reasonably achieveable (ALARA) criteria for worker exposure, the installation of the emergency lights and associated conduit inside containment would result in considerable exposure to the workers. However, testing of the lights would result in the greatest exposure. If the emergency lights are installed inside the containment, the quarterly inspections would either require at-power entries or a policy of not testing the lights except during unit outages. In a location outside the containment, portable handlights would be tested at the same frequency as the other plant emergency lights with a minimal exposure rate to workers. Also, contaminated waste will be generated during the installation of any fixed emergency lighting, during replacement, and as the result of required inspection tours.

Based on the above evaluation, the staff concludes that application of the regulation in these particular circumstances is not necessary to achieve the underling purpose of Appendix R to 10 CFR Part 50. The licensee's alternative use of portable handlights in lieu of installed emergency lighting provides equivalent levels of illumination, a more reliable light source, and will be adequate for the performance of post-fire safe shutdown actions required inside of the containments.

Therefore, an exemption to the requirements of Section III.J of Appendix R in relation to the installation of emergency lighting should be granted.

IV.

Accordingly, the Commission has determined, pursuant to 10 CFR 50.12(a), that (1) the exemption as described in Section III 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, and (2) in this case, special circumstances are present in that application of the regulation is not necessary to achieve the underlying purpose of Appendix R to 10 CFR Part 50.

Accordingly, the Commission hereby grants the exemption from the requirements of Section III.J of Appendix R to 10 CFR Part 50 regarding emergency lighting being provided in all areas needed for operation of safe shutdown equipment and in access and egress routes thereto. This exemption is only applicable to locations within the Unit 1 and Unit 2 containments.

Pursuant to 10 CFR 51.32, the Commission had determined that the granting of this exemption would have no significant effect on the quality of the human environment (55FR33390, August 15, 1990).

A copy of the licensee's request for exemption dated June 29, 1990, is available for public inspection at the Commission's Public Document Room, in the Gelman Building, Lower Level, 2120 L Street, NW, Washington, D.C., and at the Calvert County Public Library, Prince Frederick, Maryland. Copies may be obtained upon written request addressed to the U. S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention, Director, Division of Reactor Projects - I/II.

This Exemption is effective upon issuance.

Dated at Rockville, Maryland, this 22nd day of August 1990.

FOR THE NUCLEAR REGULATORY COMMISSION

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