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ELECTRIC ENGINEERING
DEPARTMENT

July 31, 1984

The Regional Administrator
U.S. NRC Region 1
631 Park Avenue
King of Prussia, PA 19406

Dear Sir:

SUBJECT: Calvert Cliffs Nuclear Power Plant
Units Nos. 1 and 2
License Nos. DPR-53 and 69
Nonroutine Radiological Environmental
Operating Report

This report is submitted in compliance with the requirements of the Environmental Technical Specification(ETS), Appendix B, Section 5.6.2.b., with a review of the observed levels of Ag-110m in oyster samples collected during June 1984. In addition, we are providing an estimate of the potential dose commitment, based on the mean value of Ag-110m in oyster samples for the first half of this year.

Oyster samples were collected during June 1984 from the Camp Canoy sampling location, and analyzed for gamma-emitting radionuclides as required. The result of the analysis showed the presence of Ag-110m with a concentration of (85 ± 5) pCi/Kg(wet). The oyster sample collected during the same period from Kenwood Beach sampling location (the background location) showed a Ag-110m concentration of less than 7.4 pCi/Kg(wet).

For the second quarter of 1984, the monthly percent capacity factors for both units were as follows:

<u>Period</u>	<u>Unit 1</u>	<u>Unit 2</u>
April 1984	99.3	56.1
May 1984	16.4	0
June 1984	95.6	0

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The Calvert Cliffs Unit 2 was shut down on April 21, 1984, for its planned fifth refueling and maintenance work. Following completion of this work, Unit 2 was brought back on line on July 18, 1984.

The release of the radioactive effluents during the period of interest was well within the allowable release limit specified in the Environmental Technical Specification, Appendix B, Section 2.3, Specification A.7, which is 2.5 Ci per unit (excluding tritium and noble gases) during any calendar quarter. The actual Ag-110m released in the liquid effluents during the second quarter of 1984 by both units was 3.88×10^{-2} Ci, representing 1.5% of the specified limit.

The processed radwaste, from the combined waste processing system for Unit 1 and 2, was released into the circulating water prior to discharge from 10 GPM to a maximum of 120 GPM. In practice, the releases are made at a predetermined rate depending upon the measured concentration of the radionuclides in the radwaste, the Environmental Technical Specification limits as well as the established ALARA objectives. Using the circulating-water pump data for the period of interest, it is estimated that, at the maximum release rate, the radwaste concentration is decreased at least by a factor of 10^4 prior to discharge into the Bay.

The maximum concentration of Ag-110m in the effluent, prior to discharge into the Bay, and before the collection of the June oyster sample, was 3×10^{-8} μ Ci/ml which represents 0.1% of the limit specified in the 10 CFR Part 20, Appendix B, Table II (3×10^{-5} μ Ci/ml) for unrestricted areas.

Oysters have a natural tendency to highly bioconcentrate environmental silver. As a result of this bioaccumulation, oyster meat shows radioactive silver as observed in the sample collected during June 1984. These levels are reportable on the basis of the Calvert Cliffs ETS exceedance criterion which is "ten times the background," where the background is the minimum detectable concentration in the control sample.

Based on the Ag-110m concentration observed in the oyster sample collected at Camp Conoy in June 1984, the potential total dose commitment to the GI-tract and to the whole body of a maximum exposed individual (with the consumption rate of 5 Kg/year, and the dose conversion factors as recommended in the Regulatory Guide 1.109, Revision 1, 1977) is estimated at less than 2.6×10^{-2} mrem/year and less than 3.7×10^{-5} mrem/year, respectively.

During March 1984, the observed level of Ag-110m in the oyster sample collected from the oyster bars, at Camp Conoy was (77 ± 5) pCi/Kg(wet). For the first half of 1984, a mean value of (81 ± 4) pCi/Kg(wet) can be considered in dose computation. Based on this mean value, the potential dose commitment to the GI-tract and to the whole body of a maximum exposed individual (with a consumption rate of 5 Kg/year and the dose conversion factors as recommended in the Regulatory Guide 1.109, Revision 1, 1977) is estimated at less than 2.4×10^{-2} mrem/year, and less than 3.6×10^{-5} mrem/year, respectively.

These dose rates are small fractions (0.1% and $1.5 \times 10^{-4}\%$ respectively) of the permissible limit of 25 mrem/year to members of general public as set forth in 40 CFR Part 190 "Environmental Radiation Protection Standards for Nuclear Power Operation," and are therefore considered to be of insignificant consequence to the health and safety of the public.

Very truly yours



Gary R. Fuhrman, Director
Environmental Programs

MG/mcm

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