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ELECTRIC ENGINEERING
DEPARTMENT

November 23, 1982

Mr. Ronald C. Haynes
Office of Inspection and Enforcement
Region I, U. S. NRC
631 Park Avenue
King of Prussia, PA 19406

Dear Mr. Haynes:

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

Ref: G. R. Fuhrman's Letter dated October 11, 1982
to Mr. Ronald C. Haynes - U. S. NRC

This report is being submitted to comply with the requirements of Appendix B. ETS Section 5.6.2.b. and a follow-up to my letter referenced above.

Oyster samples were collected on October 27, 1982 from the Camp Conoy location and analyzed for complete gamma spectrum. The results of the analyses showed the presence of Ag-110m at 363 ± 8 pCi/Kg(wet). The oyster samples collected the same day from Kenwood Beach (the "background" location) showed Ag-110m at 10 ± 3 pCi/Kg(wet).

The October samples from Camp Conoy show a decrease in Ag-110m of about 23% (twenty-three per cent) compared to the August samples from the same location. This decrease in Ag-110m activity is probably due, in part, to degeneration.

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During the period of interest in 1982 the radioactive releases for all isotopes have been within the permissible limits specified in the Environmental Technical Specifications for the Calvert Cliffs Units 1 and 2. The natural tendency of oysters to highly bioconcentrate environmental silver is the cause of this event as was the cause of other similar events reported to the NRC during 1977-1982.

On April 17, 1982, the Calvert Cliffs Unit 1 was shut down for a general inspection of the Unit, refueling, and retubing of the condenser. Following completion of this planned maintenance work, this Unit was brought on-line on July 5, 1982. For similar maintenance work, Unit 2 came off-line on October 16, 1982. This Unit is expected to be back on-line on February 14, 1983.

For the period of interest the monthly per cent capacity factors for both Units were as follows:

	<u>Unit 1</u>	<u>Unit 2</u>
July	72.0	80.14
August	75.45	64.77
September	69.27	86.86
October	72.51	41.19 (Unit came off-line on October 16, 1982.)

During this period of operation of Units 1 and 2, the circulating water pump data logs show that, on the average, at least five pumps (each rated at 200,000 GPM) per Unit were in operation. The radwaste from the combined waste processing system for Units 1 and 2 is released into the circulating water prior to the discharge into the Bay. The radwaste may be released at a maximum rate of 120 GPM. At this release rate the radwaste concentration is decreased at least by a factor of about 8×10^3 , prior to discharge into the Bay.

The Plant effluent release data and other related factors were evaluated. Based on the results of this evaluation, and other assumptions per Reg. Guide 1.109, calculations were made to estimate the expected level of Ag-110m in oysters in the vicinity of the discharge area of the Bay. These calculations show the expected level of Ag-110m in oysters substantially higher than the measured level of 363 pCi/Kg(wet), indicating that the assumptions used in the calculations are very conservative and thus yield an overestimate of activity level in the environmental media of interest.

If one makes the assumption that the activity level of Ag-110m observed in shellfish samples during this sampling period were to last during the balance of 1982 (ignoring any decrease in activity due to natural radioactive decay and depuration) then the doses to the GI-Tract and the Whole Body

of a maximum exposed individual (with the consumption rate of 5 Kilogram/year and the dose conversion factors as recommended in Reg. Guide 1.109) are estimated at less than 0.1 mrem/yr and less than 0.1×10^{-3} mrem/yr, respectively during 1982. These doses are small fractions of the permissible limit of 25 mrem/year to members of the general public as set forth in 40 CFR Part 190 "Environmental Radiation Protection Standards for Nuclear Power Operations," and are therefore considered to be of insignificant consequence to the health and safety of the public.

As stated in my letter of October 11, 1982, we will continue sampling of oysters and have them analyzed for complete gamma spectrum to maintain a close watch on environmental radioactivity levels in the shellfish.

Very truly yours,



Gary R. Fuhrman, Director
Environmental Studies & Monitoring

GRF/eml

cc: Director
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Dr. Steven M. Long
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Mr. R. E. Architzel
NRC Resident Inspector
Calvert Cliffs