1100 Wayne Avenue, Suite 1100
Silver Spring, Maryland 20910
301/587-8202

Resolution Test Chart Labels:

- 1.0
- 1.1
- 1.25
- 1.4
- 1.6
- 1.8
- 2.0
- 2.2
- 2.5
- 2.8
- 3.2
- 3.6
- 4.0

MANUFACTURED TO AIIM STANDARDS
BY APPLIED IMAGE, INC.

1 of 1

HW-7791

DECLASSIFIED

HW-7791

Technology-Fanford

COPY-1

RECORD CENT COPY

AEC RESEARCH AND DEVELOPMENT REPORT

RECEIVED

MAY 21 1956

300 AREA

This document consists of
4 pages # 11 of
22 copies, Serial #

See also: HW-7792

1 class. photostat # 11-1122
dated 10/1/47

DECLASSIFIED

INVESTIGATION OF CONTAMINATION BEARING ALGAE

IN THE COLUMBIA RIVER

Classification Canceled (Change to)

DECLASSIFIED

By Authority of HAP Supervisor

Classification Declassification

By Date

By: H. J. Pans

Date: 10/13/47

Classification Canceled (Change to)

By Authority of HAP Supervisor

Classification Declassification

By Date

DECLASSIFIED

Medical Department (H.I. Section)

General Electric Company

Hanford Works

By Authority of

DECLASSIFIED

MASTER

DECLASSIFIED

EW- 7791

Technology-Hanford

-2-

DISTRIBUTION OF DOCUMENT EW-7791

Internal Distribution

- #1. H.M. Parker - C.C. Gamertsfelder
- #2. E.C. Berry - E.E. Herde
- #3. J.W. Healy - W. Singlewich
- #4. H.J. Paas - W.C. Berlin
- #5. A.B. Greninger
- #6. W.D. Norwood
- #7. Atomic Energy Commission
- #8. Chicago Patent Group
- #9. 700 file
- #10. Pink file
- #11. Yellow file

External Distribution

#12, 13, 14	- Atomic Energy Commission, Washington
#15, 16	- General Electric Company
#17	- Patent Advisor
#18, 19, 20, 21, 22	- Research Division, Oak Ridge

DECLASSIFIED

-2-

DECLASSIFIED

HW-7791

INVESTIGATION OF CONTAMINATION BEARING ALGAE IN THE COLUMBIA RIVER

I. INTRODUCTION

Recent discussions in the group have given rise to the problem of determining whether the beta contamination found in the Columbia River is carried by the algae which are found in the retention basin. The algae accumulate in the basin and apparently remain there longer than the retained water, and thus may be contaminated to a greater extent than the water itself.

II. PROCEDURE

Two 500 cc samples were obtained at the Hanford Station each day for a period of thirty-three days. The samples were taken directly to 222-U for analysis, thus eliminating the use of large decay corrections in the final data summation. One sample was filtered to remove the algae and any other water insoluble materials. Subsequent analysis of the filtrate by evaporation and counting and the filter paper by direct counting of the residue followed. The second sample was analyzed as received at the laboratory. The three analyses consisted of counting the beta radiation on standard mica window counters. The data obtained was then analyzed statistically to determine the degree of relationship and significance between the filtrate, filter paper, and the unfiltered sample.

III. RESULTS

The average result obtained on the unfiltered water was 1.7×10^{-4} $\mu\text{c/liter}$, whereas the average on the filtrate was 1.5×10^{-4} $\mu\text{c/liter}$. Individual results obtained on the filtrate were in very good agreement with the unfiltered. A correlation coefficient of 0.6723 was obtained between the filtered and unfiltered. For 33 observations, a correlation coefficient of 0.6723 gave a "t" test of 5.05.

The filter paper showed less than 2.0×10^{-5} $\mu\text{c/liter}$ in all but four cases. Three of these were less than 4×10^{-5} $\mu\text{c/liter}$, whereas one extreme sample contained 7.5×10^{-4} $\mu\text{c/liter}$.

IV. CONCLUSION:

The high significance of the "t" test on the correlation between the filtered and unfiltered sample indicates that the removal of the algae does not affect the magnitude of contamination in the river water. This is further substantiated by the absence of contamination in the residue found on the filter paper except in isolated cases. It may then be concluded that the algae does not carry the contamination found in the river as measured by our analysis although individual high results may be due to a small particle of insoluble material.

In this experiment, it cannot be definitely established that particles of algae were collected on the filter; however, it would seem likely to assume that if any amount of algae were being discharged from the 100-D and 100-F basins, it would appear in the samples collected at Hanford.

HJP:svc

H. J. Paus
H. J. Paus

DECLASSIFIED

DECLASSIFIED

COMPARISON OF CONTAMINATION AS FOUND IN
COLUMBIA RIVER

Classification: Confidential for changed
OFFICIAL USE ONLY
By AUTHORITY OF Non Technical

Document Review Board 6-7-56

Dr. T. Peddiequist 6-11-56

○ $\mu\text{c}/\text{L}$ IN FILTRATE
● $\mu\text{c}/\text{L}$ IN UNFILTRATED SAMPLE

5×10^{-4}

4×10^{-4}

3×10^{-4}

2×10^{-4}

1×10^{-4}

5×10^{-5}

6-3-47

6-13-47

6-23-47

7-3-47

7-13-47

7-23-47

7-30-47

DECLASSIFIED

DATE

FILMED

9/9/94

END