~~SECRET~~

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INVENTORY 1953

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ISSUED TO: R. G. Lawler

ISSUED BY: Dana Dandl

DATE: 10/22/47

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Classification Cancelled

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ADD signature Date

Single rereview of CCRP-declassified documents was authorized by DOE Office of Declassification memo of August 22 ...

This document has been approved for release to the public by:

David R Hamm 9/13/95

Technical Information Officer Date
ORNL Site

White Oak Dam Overflow

Elevation of Upper Gate 744 - 750'

One division on Bristol recorder chart = .1025

A Bristol reading of 76.2 corresponds to the top of Coffer Dam at Elevation 750.

In computing the discharge through the upper gate at Elevation less than 750 Francis formula is used $Q = 3.33 \times L H^{3/2}$

9.75 Bristol units = 1 ft.
1 BGV. = 1.23"

At a gate elevation of 745 a constant discharge of 150 C.F.S. may be used as a reasonable estimate regardless of lake level.

The effective length of the piling will decrease with increasing head of H_2O over the crest:

At elevation 750 = 75'.
" " 751 = 61'

Above elevation 750 the effective length is decreased 1.4 ft. (10%) per .1 foot rise to 751.

Above 751 the water flows over an

R.G.L

additional 9' weir just above the gate.

COMPOSITE SAMPLES

W. O. DAM

70 ML OF DAM WATER COLLECTED DAILY
30 DAYS OF COLLECTION
2100 ML PER MONTH
ANALYSIS OF H_2O IN JANUARY
1 ML = 176 G/M

W.O. DAM — 0.00472 ML HNO_3 TO EACH ML OF 2100 ML SAMPLE; 0.00236 ML HCL TO EACH ML OF 2100 ML SAMPLE } ADDED BY MR. NEELE

70 ML OF DAM WATER IS COLLECTED EVERY DAY FOR 30 DAYS

2100 ML TOTAL VOLUME OF ORIGINAL SAMPLE

(1) ML OF THIS 2100 ML SAMPLE COUNTS 176 C/M

1000 ML COUNTS 176,000 C/M [AMOUNT IN VOLUME EVAPORATE.

(1) 1000 ML OF SAMPLE WAS EVAPORATED (176,000 C/M)

(2) PROCEDURE FOLLOWED

(3) 100 ML FINAL VOLUME (149,400 C/M) 84.6% RECOVERY

(4) SOLIDS LEFT COUNTED 100 C/M

SETTLING BASIN — 0.00954 ML HNO_3 TO EACH ML OF 1050 ML SAMPLE; 0.00477 ML HCL TO EACH ML OF 1050 ML SAMPLE

35 ML OF S.B. WATER IS COLLECTED EVERY DAY FOR 30 DAYS

1050 ML TOTAL VOLUME COLLECTED OF ORIGINAL SAMPLE

(1) ML OF THIS SAMPLE (1050 ML) COUNTED (2831) C/M

(500) ML COUNTS 1,415,500 C/M [AMOUNT EVAPORATED]

(1) 500 ML OF SAMPLE WAS EVAPORATED 1,415,500 C/M

2. PROCEDURE FOLLOWED

3) 100 ML FINAL VOLUME (1,610,500 C/M)

4. SOLIDS — COMPLETELY DIGESTED

$Bi(NO_3)$

15
22
37

1350
1800
400
1400

24.25 grams $Bi(NO_3)_3 \cdot 5H_2O$

DISSOLVE (65 ml con HNO_3) to 104.5 ml

(.1) g ml

480

measure 65.3 ml HNO_3

~ 40 ml Heat decant to

molecular wt $Bi(NO_3)_3 \cdot 5H_2O$ 485.1 grams

atomic wt Bi = 209

$\frac{1}{20}$ 209 = 10.45

$\frac{24.25 \text{ grams}}{10.45 \text{ grams Bi}} =$

$\frac{10}{16} = 65.3$

300