NOTICE

CERTAIN DATA CONTAINED IN THIS DOCUMENT MAY BE DIFFICULT TO READ IN MICROFICHE PRODUCTS.

DECLASSIFIED

HW--47043

DE93 010217

[redacted]
(CLASSIFICATION)

GENERAL ELECTRIC

HANFORD ATOMIC PRODUCTS OPERATION — RICHLAND, WASHINGTON

DATE
November 29, 1956

COPY NO. AND SERIES
38

CIRCULATING COPY
RECEIVED 1200 AREA
FILE DESIGNATION
DEC 3 1956
RETURN TO
TECHNICAL INFORMATION FILES

COPY 1 OF 1, SERIES A

[X] [redacted] THIS DOCUMENT CONTAINS RESTRICTED DATA AS DEFINED IN THE ATOMIC ENERGY ACT OF 1954. ITS TRANSMITTAL OR DISCLOSURE OF ITS CONTENTS IN ANY MANNER TO AN UNAUTHORIZED PERSON IS PROHIBITED.

[ ] OTHER OFFICIAL CLASSIFIED INFORMATION

THIS MATERIAL CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE OF THE UNITED STATES WITHIN THE MEANING OF THE ESPIONAGE LAWS, TITLE 18, U. S. C., SECS. 793 AND 794, THE TRANSMISSION OR REVELATION OF WHICH IN ANY MANNER TO AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW.

TITLE

FILE FOR PHASES AFTER PROJECT CG-55B

AUTHOR

J. F. Music

THIS DOCUMENT MUST NOT BE LEFT UNATTENDED OR WHERE AN UNAUTHORIZED PERSON MAY HAVE ACCESS TO IT. WHEN NOT IN USE, IT MUST BE STORED IN AN APPROVED LOCKED REPOSITORY WITHIN AN APPROVED GUARDED AREA. WHILE IT IS IN YOUR POSSESSION AND UNTIL YOU HAVE OBTAINED A SIGNED RECEIPT FROM CLASSIFIED FILES, IT IS YOUR RESPONSIBILITY TO KEEP IT AND ITS CONTENTS WITHIN THE LIMITS OF THIS PROJECT AND FROM ANY UNAUTHORIZED PERSON. ITS TRANSMITTAL TO, AND STORAGE AT YOUR PLACE OF RESIDENCE IS PROHIBITED. IT IS NOT TO BE DUPLICATED. IF ADDITIONAL COPIES ARE REQUIRED, OBTAIN THEM FROM THE RELATED ISSUING FILE. ALL PERSONS READING THIS DOCUMENT ARE REQUESTED TO SIGN IN THE SPACE PROVIDED BELOW.

ROUTE TO:	PAYROLL NO.	LOCATION	SIGNATURE	DATE
Send a File Copy				
RECORD CENTER FILE				
RECORD CENTER FILE				

Record Routing This Docu.
Is Required From J. F. Music
Of The 200 - R&D.

C-3195-D (11-54)

[redacted]
(CLASSIFICATION)

MASTER

DECLASSIFIED

DISTRIBUTION RESTRICTED TO U.S. ONLY

DECLASSIFIED

[redacted]

HW-47043

WARNING - PRELIMINARY REPORT
This report contains information of a preliminary nature and is prepared primarily for use of Hanford Works Technical Section personnel. This report is subject to revision on further checking or collection of additional data.

[redacted]

Classification Cancelled (Change to)
DECLASSIFIED
By Authority of CG-PR-2
RM Iten 10-12-93
By PM Erickson 2-8-93
JH Wells 2-8-93

1. WG Albert
2. JK Anderson
3. RR Bloomstrand
4. RO Brugge
5. RG Clough
6. DH Curtiss
7. RL Dickeman
8. EJ Filip
9. GC Fullmer
10. RH Gay
11. SM Graves
12. OH Greager
13. AB Greninger
14. CN Gross
15. AK Hardin
16. TW Hauff
17. KW Hess - SS Jones
18. ET Hubbard
19. RT Jessen
20. LW Lang
21. EE Leitz
22. DS Lewis
23. AR Maguire
24. JS McMahon
25. NR Miller
26. DL Moore
27. JF Music
28. SL Nelson
29. EW O'Rorke
30. CA Priode
31. T Prudich
32. RW Reid
33. HG Spencer
34. P Thompson
35. RL Turner
36. FW VanWormer
37. 300 Files
38. Record File Copy

This document consists of 3 pages. No. 26 of 38 copies. Series A

November 29, 1956 COPY 1 OF 1 [redacted]

A. R. Maguire
E. W. O'Rorke
R. T. Jessen
C. N. Gross

PILE POWER RAISES AFTER PROJECT CG-558

Re: HW-46757, "A Study of Expected Reactor Powers after Project CG-558 as Determined by Slug Rupture Considerations", J. K. Anderson.

We are transmitting the reference document to you for your consideration in planning your post CG-558 operation.

[redacted]

DECLASSIFIED

DECLASSIFIED

[redacted]

A. R. Maguire
E. W. O'Rorke
R. T. Jessen
C. N. Gross

The document presents powers to which the piles are predicted to be limited by slug ruptures and outlines two plans for raising power after 558. These plans are coordinated in the sense that results from one area are used to make operating plans for other areas. You may wish to choose one or the other of these alternatives or some modification of either. It should also be recognized that as Post CG-558 operational experience is acquired new information will probably dictate some variation of the accepted plan.

Two factual points should be noted:

(1) Changes in start-up dates from those we used may modify the justification for certain of the plans outlined in the document. The results of certain startup schedule changes in the project after the B Pile startup have been expressed in the document. However, should other changes be foreseen, these plans should be re-evaluated.

(2) When we use a tube power, for example, of 850 KW, the uncertainties are such that this figure could as well be 830 KW or 870 KW. The powers expressed as expected slug rupture limits are not meant to be exact, but only to show the neighborhood in which such limits are expected to exist.

Two additional points should be made in considering the "fast-rise" plan as compared to the more conservative plan. These are:

(1) The "fast-rise" plan depends heavily upon B Pile experience at 950 KW to pilot other piles to 950 KW. Prior to CG-558 shutdown B Pile had a lower rupture rate than we could explain when compared to other piles. If such performance should be maintained after CG-558, B Pile experience would not be strictly applicable to other piles and would present the basis for a more optimistic decision at other piles than justified. Should experience indicate that B Pile is near a rupture limit at some power it might be well to hold the D, DR, and F reactors at a somewhat lower level for a time.

(2) Semi-immediate operation at 950 KW would be less safe by some indeterminable degree than operation at 850 KW. When major modifications such as CG-558 have been made, a preliminary low power shake down may or may not have removed all of the "bugs" critical to pile safety. A quantitative determination of degree of risk cannot be made because it is not possible:

a) To determine the length of low level operation required for absolute shake-down.

b) To predict the unsafe event that could occur and the probability of occurrence.

c) To predict how the consequences of the event would be altered by the additional 100 KW.

[redacted]

DECLASSIFIED

DECLASSIFIED

[redacted]

However it is true that results of certain types of failures, e.g. loss of water to one or more tubes, would be more severe at higher powers. Although the degree of the additional reactor safety risk attached to the "fast-rise" plan cannot be determined, this risk is real and should be considered in making a choice of the plan to be used.

We will be happy to assist you in evaluating any additional plan or modification of these plans which you might wish to consider.

J. F. Music

Manager - Process Technology Operation
Research and Engineering Operation
IRRADIATION PROCESSING DEPARTMENT

JF Music/bam

[redacted]

DECLASSIFIED

END

DATE
FILMED
5/20/93