NOTICE

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

HW - 56392

DE93 010221

REPORT

Mar 26 1963

June 16, 1950

RECEIVED 100 ARE
JUL 16 1958
RETURN TO

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 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.

MASTER

(CLASSIFICATION)

DECLASSIFIED

DECLASSIFIED

HW-56392

DISTRIBUTION

1-2. AEC-HOO - HH Schipper-AT Gifford	24. LW Lang
3. FW Albaugh	25. EE Leitz
4. T Prudich - RE McGrath	26. CG Lewis
5. JT Baker	27. WK MacCreedy
6. RS Bell	28. AR Maguire - RG Clough
7. WA Blanton - WA Houghton	29. JEM Miller
8. RW Bown	30. JT Music
9. JH Brown	31. WS Nechodom
10. RO Brugge - DE Goins	32. WE Niemuth
11. WL Bunch - EH Lockwood	33. EW O'Rourke - EJ Filip - ET Hubbard
12. RD Carter	34. AM Platt
13. VR Cooper	35. CA Priode - WG Albert
14. DH Curtiss	36. RW Reid
15. RL Dickeman	37. PH Reinker
16. JM Fouts	38. DE Simpson
17. GC Fullmer	39. HG Spencer - RR Bloomstrand
18. OH Greager	40. JT Stringer
19. AB Greninger	41. P Thompson
20. CN Gross - SL Nelson	42. RE Tomlinson
21. PC Jerman	43. FW Van Wormer
22. RE Hall - WK Kratzer	44. EC Wood
23. RT Jessen - DS Lewis	45. 300 Files
	46. Record Center

Classification Cancelled (Change to)
DECLASSIFIED

By Authority of CG-PR-2

DS Lewis 10-12-92

by Eick 2.8.93
J H Wells 2.8.93

~~STRICTLY CONFIDENTIAL~~
~~This document contains restricted data as defined in the Atomic Energy Act of 1954. Its transmission or the disclosure of its contents is prohibited to unauthorized persons.~~

COPY 1 OF 1

This document consists of
3 pages, ~~including cover sheet~~

This document classified
by HC Fullmer

June 16, 1958

PT-IP-132-AC, SUPPLEMENT A PRODUCTION OF HIGH Pu-240 PLUTONIUM AT C REACTOR

PURPOSE

The purpose of this supplement is to authorize adjustment of the fuel loading to maintain a balanced longitudinal flux distribution in the region loaded for this Production Test.

DECLASSIFIED

DECLASSIFIED

HW-54250
Page 2

BASIS AND JUSTIFICATION

A flux traverse obtained from a natural uranium loading discharged from tube 1780 C (located within the PT-IP-132-AC loading) showed a severe flux peak downstream of the reactor centerline. The peaking in this column is accentuated by the adjacent HCR(#11); otherwise, it is probably typical of most of the PT-132 region in which there are fewer natural uranium spacers upstream of the centered enrichment charge than downstream. Because downstream flux peaking increases fuel element rupture potential, it is desirable to reduce this peaking, shift it upstream, and to maintain this improved de-peaked flux distribution thereafter. Upstream displacement of E metal and possibly natural uranium appears to be the most acceptable means of accomplishing these aims.

PROCEDURE

Longitudinal flux traverses will be obtained at intervals throughout the remaining residence time of the production test; the frequency and type of these traverses will be determined by mutual agreement between Operational Physics and the Manager, C Processing Operation. Operational Physics will determine E metal or natural uranium charge displacements to improve the flux distribution, subject to approval by the Manager, C Processing Operation.

It is expected that displacement of most of the already loaded E metal in the PT-132 load upstream 15 inches will achieve most of the initially needed flux distribution improvement. As the Pu concentration in the D metal increases and less E metal is required it may be desirable to locate natural uranium columns upstream of their present position or to further displace the remaining E Columns. This supplement authorizes displacement of any or all E Columns in the PT-IP-132-AC region upstream by not more than four eight-inch dummy lengths, and displacement of any or all natural uranium columns in the PT region upstream by not more than two eight-inch dummy lengths. Fuel element corrosion limits are not expected to be significantly affected by these displacements; in fact the actual corrosion rate should be reduced by the improvement of the flux distribution.²

COSTS

Outage Time

~~Sufficient outage time to accomplish the desired fuel displacement is authorized.~~ It is expected that not more than one or two shifts will be required for the initial E metal displacement and that subsequent adjustments can be made by adjusting the downstream dummy pattern of newly charged fuel columns.

PROCESS STANDARDS

No Process Standards relaxations are required for the provisions of this supplement.

DE Simpson:mwe

D. E. Simpson
Operational Physics Operation
Research and Engineering
IRRADIATION PROCESSING DEPARTMENT

- References: 1. HW-54250 - "PT-IP-132-AC, Production of High Pu-240 Plutonium at C Reactor", S. R. Stamp, 2-12-58.
2. Personal communication, N. R. Miller.

DECLASSIFIED

DECLASSIFIED

LW-56392

Page 3

APPROVALS

H.C. Fullmer
Manager, Operational Physics
Research and Engineering
IRRADIATION PROCESSING DEPARTMENT

J.F. Mann
Manager, Process and Reactor Development
Research and Engineering
IRRADIATION PROCESSING DEPARTMENT

S.C. Wood
Manager, Process Technology
Research and Engineering
IRRADIATION PROCESSING DEPARTMENT

A.T. Dink...
Manager, Research and Engineering
IRRADIATION PROCESSING DEPARTMENT

C.B. Lewis
Manager, C. Processing Operation
B and C Reactor Operation
IRRADIATION PROCESSING DEPARTMENT

A.R. Maguire
Manager, B and C Reactor Operation
IRRADIATION PROCESSING DEPARTMENT

Date issued: July 16, 1958

DECLASSIFIED

END

DATE
FILMED

5 / 21 / 93