AIM

Association for Information and Image Management

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

Centimeter

Inches

MANUFACTURED TO AIM STANDARDS
BY APPLIED IMAGE, INC.

1 of 1

DECLASSIFIED

(CLASSIFICATION)

DOCUMENT NO.
HW-83017

SERIES AND COPY NO.

GENERAL ELECTRIC

HANFORD ATOMIC PRODUCTS OPERATION - RICHLAND, WASHINGTON

DATE
June 25, 1964

XX

THIS DOCUMENT CONTAINS RESTRICTED DATA AS
DEFINED BY THE ATOMIC ENERGY ACT OF 1954.
ITS DISSEMINATION OUTSIDE THE SCOPE OF THE
CONTROLS IN AND TO AN UNAUTHORIZED
PERSON IS PROHIBITED.

TITLE

SPECIFICATION FOR ENRICHED URANIUM BILLETS
FOR A COPRODUCT DEMONSTRATION IN N-REACTOR

☐

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 TRANS-
MISSION OR REVELATION OF WHICH IN ANY MANNER
TO AN UNAUTHORIZED PERSON IS PROHIBITED BY
LAW.

AUTHOR

J. W. Nickolaus

ISSUING FILE

THIS DOCUMENT IS NOT BEING UNCLASSIFIED. IF AN UNAUTHORIZED PERSON MAY HAVE ACCESS
WHEN IN USE, IT SHOULD BE STORED IN AN APPROVED LOCK. IT SHOULD NOT BE REPRODUCED
OR DISSEMINATED OUTSIDE THE SCOPE OF THE CONTROLS IN AND TO AN UNAUTHORIZED PERSON
IS PROHIBITED. IT IS THE RESPONSIBILITY OF THE USER TO KEEP IT IN THE LIMITS OF THE
CLASSIFICATION AND TO REPORT ANY UNAUTHORIZED DISSEMINATION TO THE ISSUING OFFICE.
RESIDUALS ARE NOT TO BE DISSEMINATED. IF ADDITIONAL COPIES ARE REQUIRED,
OBTAIN THEM FROM THE ISSUING FILE. PERSONS READING THIS DOCUMENT SHOULD REQUEST
TO SIGN IN THE SPACE PROVIDED BELOW.

ROUTE TO:

PAYROLL NO.

LOCATION

FILES ROUTE
DATE

SIGNATURE AND DATE

300 Files

REFERENCE COPY
RECEIVED 300 AREA

JUL 2 1964

RETURN TO

TECHNICAL INFORMATION FILES

JUL 31 '64

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States
Government. Neither the United States Government nor any agency thereof, nor any of their
employees, makes any warranty, express or implied, or assumes any legal liability or responsi-
bility for the accuracy, completeness, or usefulness of any information, apparatus, product, or
process disclosed, or represents that its use would not infringe privately owned rights. Refer-
ence herein to any specific commercial product, process, or service by trade name, trademark,
manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recom-
mendation, or favoring by the United States Government or any agency thereof. The views
and opinions of authors expressed herein do not necessarily state or reflect those of the
United States Government or any agency thereof.

MASTER

(CLASSIFICATION)

DECLASSIFIED

DECLASSIFIED

HW-83017

DISTRIBUTION

- 1-3. AEC-RLOO - Attention: Mr. O. W. Rathbun
4. T. W. Evans
5. W. A. Hendrickson
6. H. P. Kraemer
7. W. R. Krehbiel
8. M. Lewis
9. L. M. Loeb
10. T. D. Naylor
11. J. W. Nickolaus
12. R. H. Scanlon
13. 300 Files
14. Record Center

SPECIFICATION FOR ENRICHED URANIUM BILLETS
FOR A COPRODUCT DEMONSTRATION IN N REACTOR

N-REACTOR FUELS OPERATION
N-REACTOR DEPARTMENT

June 25, 1964

Classification Cancelled and Changed To

DECLASSIFIED

By Authority of RM Hen
CG-PR-2, 4-14-94

By DK Hanson, 4-19-94

Verified By Jerry Maley,
4-14-94.

This document contains Restricted Data as
defined in the Atomic Energy Act of 1954.
Transmission or disclosure of its
contents in any manner to an unauthorized
person is prohibited.

This document consists of
4 pages, No. 13 of
14 copies.

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

DECLASSIFIED

I. BASIS

This document provides the specifications for the uranium billets to be used for fabrication of the driver fuel elements for a co-producer demonstration in N-Reactor. The specifications for uranium billets for the standard tube and tube geometry are listed in HW-67575 REV3, "Specifications for Uranium Metal Billets for NPR Fuel Elements," July, 1963, and in HW-76155 REV3, "Chemical Specifications for Uranium Billets for NPR Fuel Elements," dated June 12, 1964. This document specifies the exceptions applicable to the fabrication of the billets for the coproduct demonstration program. All requirements of the reference specifications listed above not specifically excepted by this document shall apply. The numbers in the subheadings listed below correspond to the numbers in HW-67575.

II. REQUIREMENTS

201. Chemical Requirements

- A. Alloy I - As specified in HW-76155 REV3.
- B. Alloy II - Exceptions to HW-76155 REV3.

	Concentration (ppm)	
	<u>Minimum</u>	<u>Maximum</u>
Aluminum	700	900
Iron	325	400
Silicon	---	100

202. Isotopic Requirements

The co-product demonstration billets shall contain $1.95 \pm 0.006\%$ uranium-235.

Each ingot shall be analyzed for isotopic content using the mass spectrographic technique.

203. Density

- A. Alloy I - As specified in HW-67575 REV3.
- B. Alloy II - The minimum density of alloy II metal shall be 18.80 grams/cm.

DECLASSIFIED

204. Dimensions

<u>Billet</u>	<u>O.D. + .010 in.</u>	<u>I.D. + .010 in.</u>	<u>Wall Thickness + .015 in.</u>	<u>Length + 1/64 in.</u>
Size Group I	6.920	2.200	2.360	19 3/4
Size Group II	6.920	2.800	2.060	19 3/4
Size Group III	6.900	2.800	2.050	18 1/4

All other dimension requirements shown under drawing H-3-17540, Sheet 2, shall apply.

300. Process Specifications

The Alloy II ingot shall be single beta heat treated.

302.4. Ingot Dimensions

A. Inside Diameter

Size Group I	-	2.100 + 0.100 - 0.063 in.
Size Group II	-	2.700 + 0.100 - 0.063 in.
Size Group III	-	2.700 + 0.100 - 0.063 in.

303. Heat Treatment

The Alloy II ingot shall be single beta heat treated according to the specification for cycle number three listed in HW-67575 REV3.

304.2. Tooling Dimensions

A. Mandrel O.D.

Size Group I	-	2.000 + 0.003 in.
Size Group II	-	2.600 + 0.003 in.
Size Group III	-	2.600 + 0.003 in.

DECLASSIFIED

HW-83017
June 25, 1964

306. Metallographic Sampling and Analysis

Samples for metallographic examination shall be obtained from four primary extrusions in each of the following categories:

- Size Group I - Samples from four primary extrusions
- Size Group II - Samples from two primary extrusions
- Size Group III - Samples from each primary extrusion

Issued by:

J. H. Kuchel
Manager, N-Fuels Engineering

6/30/64
Date

Approved by:

S. M. Borb
Manager, N-Reactor Fuels

6/30/64
Date

DECLASSIFIED

DATE

FILMED

11 / 1 / 94

END