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.

(CLASSIFICATION) **DECLASSIFIED**

HANFORD TECHNICAL RECORD
GENERAL ELECTRIC

HANFORD ATOMIC PRODUCTS OPERATION - RICHLAND, WASHINGTON

DOCUMENT NO.

HW-64618

SERIES AND COPY NO.

DATE

April 5, 1960

☒ **RESTRICTED DATA**

THIS DOCUMENT CONTAINS RESTRICTED DATA AS DEFINED BY THE ATOMIC ENERGY ACT OF 1954. ITS TRANSMITTAL OR DISCLOSURE OF ITS CONTENTS TO AN UNAUTHORIZED PERSON IS PROHIBITED.

TITLE

FINISHED FUEL AND TARGET DIMENSIONS

☐ **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.

AUTHOR

L. T. HAGIE

CIRCULATING COPY
ISSUING FILE
RECEIVED 300 AREA

APR 12 1960

RETURN TO

TECHNICAL INFORMATION FILES

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 APPROPRIATE POSITORY WITHIN AN AREA GUARDED AND WHILE IT IS YOUR POSSESSION, YOU HAVE OBTAINED A SIGNED RECEIPT FROM CLASSIFICATION FILES, IT IS YOUR RESPONSIBILITY TO KEEP IT AND ITS CONTENTS WITHIN THE LIMITS OF THE PROJECT AND FROM ANY UNAUTHORIZED PERSON. ITS TRANSMITTAL TO ANY OTHER PLACE AT YOUR PLACE OF RESIDENCE IS PROHIBITED. IT IS NOT TO BE DUPLICATED. IF COPIES ARE REQUIRED, OBTAIN THEM FROM THE RELATED ISSUING FILE. ALL PERSONS RECEIVING THIS DOCUMENT ARE REQUESTED TO SIGN IN THE SPACE PROVIDED BELOW.

ROUTE TO:

PAYROLL NO.

LOCATION

FILES ROUTE
DATE

SIGNATURE AND DATE

R.E. Hall

18842

1703 D

APR

Dr. A. Clinton

21318

632

APR 21 1960

R.L. Martin

17037

17037

APR 21 1960

RECORD
COPY

MASTER

Indefinite Retention

Disposal Date

54-3000-340 (3-57)

ABC-GE RICHLAND, WASH

Authority

(CLASSIFICATION)

DECLASSIFIED

DECLASSIFIED

HW-64618

DISTRIBUTION

1. TW Ambrose
- 2-4. WA Blanton
5. RW Bown
6. JH Brown
7. RL Dickeman
8. GC Fulmer
9. SM Graves
10. FW Grubb
11. LT Hagie
12. RE Hall
- 13-14. R Nilson
- 15-16. CA Priode
17. RW Reid
18. HG Spencer
19. JT Stringer
20. Record File
21. 300 Files

Classification Cancelled and Changed To

DECLASSIFIED

By Authority of DS LewisCG-PR-2, 1-24-94By J E Sawley 2-2-94Verified By J Maly 2-12-94

This Document Classified By

T W Ambrose

This Document consists of

4 pages, No. 12 of
21 copies. [REDACTED]

April 5, 1960

T. W. Ambrose, Supervisor
Reactor Fuels Group
Irradiation Processing Department

FINISHED FUEL AND TARGET DIMENSIONS

During the past several years, dimensional changes have occurred in fuel and target pieces which may be obsoleted in the near future as a result of increased use of the I & E geometry. The major dimensional changes occurring in the target program within recent years have been summarized in this report, with the assistance of the FPD Process Engineering Group. In some cases, the exact dimensional tolerances used in previous target programs are not known, but they are probably little different from those shown. The data presented represents the best information presently available.

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

DECLASSIFIED

HW-64618

April 5, 1960

The nomenclature assigned to each model is new, since previous target material was identified only as "4-inch" or "6-inch" material.

The OIIVT and OIIE dimensions represent the fuel and target element sizes FPD will be required to prepare for the current irradiation program. At present, these dimensions represent design limits and may change slightly during the dry canning and pressing operation. They can, however, be used for most planning purposes. Actual physical dimensions of the product will be issued after production has started.

L. T. Hagie, Engineer
Reactor Fuels Group
Irradiation Processing Department

LTH:gbm

Attachments: Tables I and II

DECLASSIFIED

HW-64618

April 5, 1960

TABLE I
SUMMARY OF AS-RECEIVED COMPONENT DIMENSIONS

<u>Target Material</u>	<u>Tentative Tolerance</u>	<u>OIT</u>	<u>OIIT</u>	<u>OIIIT</u>	<u>OIVT</u>
Rough Extruder Rod OD	± .010	1.500	1.500	1.500	1.400
Rough Extruder Rod ID	± .020	-	Solid	Solid	.380
Rough Extruder Rod Length	-	4-inch blanks	6-inch blanks	4-inch blanks	6-12 Feet
<u>Cans</u>					
Outside Dimension	± .002	1.440	1.440	1.440	1.452
Inside Dimensions	± .003	1.370	1.348	1.360	1.372
Maximum Base Thickness (including Truline)	± .005	-	-	.255	.255
Minimum Base Thickness	± .005	.175 ±.010	.175 ±.010	.110	.110
Can Wall	± .003	.035	.045	.040	.040
<u>Cap</u>					
Maximum Cap Thickness (Including Truline)	± .005	-	-	.255	.255
Minimum Cap Thickness	± .005	~.185	~.185	.255	.255
Spire OD	± .002	-	-	.400	.397
Spire ID	± .003	-	-	.310	.307
Spire Wall	± .005	-	-	.045	.045

April 5, 1960

DECLASSIFIED

TABLE II
SUMMARY OF FINISHED FUEL AND TARGET DIMENSIONS

*Nomenclature in accordance with HW-64617 Unclassified, 4-5-60

Dimension	Description	Tentative Tolerance	Model*				
			OIT 4 Inch Solid	OIIT 6 Inch Solid	OIIIT 4" I&E for PT-255	OIVT (New)	OIIE 6 Inch Enriched
	Former Designations						
A	Overall Finished						
	Fuel Length	± .040	4.193	6.110	4.320	4.300	6.640
A'	"Effective Fuel						
	Element Length"	± .040	4.193	6.110	4.320	4.200	6.540
B	Core Length	± .010	3.800	5.700	3.800	3.800	6.000
C	Finished F.E.						
	O.D.	± .005	1.425	1.433	1.431	1.445	1.445
D	Core ID	± .002	-	-	.407	.404	.416
E	Core OD	± .001					
		-.002	1.361	1.341	1.358	1.365	1.351
F	Finished F.E.						
	I.D.	± .003	-	-	.317	.314	.310
	Estimated Eccentricity between ID and OD	-	-	-	<±.005	<±.005	<±.005
	Wafer Cap Thickness	± .020	.185	.185	-	-	-
	Truline Cap Min. Thickness	± .010	-	-	.120	.100	.120
	Truline Cap Max. Thickness	± .010	-	-	.250	.235	.250
	Min. Base Thickness	± .010	-	.175	.125	.100	.125
	Truline Base Min. Thickness	± .010	-	-	.250	.235	.250
	Truline Base Max. Thickness	± .010	-	-	.250	.235	.250
	Estimated Can Wall Thickness	± .003	.035	.045	.035	.035	.030
	Esimated Spire Wall Thickness	± .005	-	-	.045	.045	.030
	Cladding Mat.		C-64	C-64	C-64	C-64	X-8001
	Core Alloying Material	Nominal %	38½%	38½%	38½%	38½%	.947 ±.006
	Isotopic Enrich. of core alloying Material	±.35%	3.1%	3.1%	3.1%	3.1%	

DATE

FILMED

7 / 1 / 94

END