OAK RIDGE NATIONAL LABORATORY
Operated By
CARBIDE AND CARBON CHEMICALS COMPANY

UCC

POST OFFICE BOX P
OAK RIDGE, TENNESSEE

ORNL
CENTRAL FILES NUMBER
55-6-165

DATE: June 28, 1955

SUBJECT: Control Rod Absorber Section Specifications
for APPR Critical Experiment

TO: R. J. Beaver

FROM: H. G. Blosser

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CLASSIFICATION CANCELLED *let*
DATE FEB 23 1957
For The Atomic Energy Commission
H. F. Canale
Chief, Declassification Branch

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CONTROL ROD ABSORBER SECTION SPECIFICATIONS

FOR APPR CRITICAL EXPERIMENT

Design Data

Dimensional specifications	Test plates type "Y" and "Z" ORNL Dwg. No. D-2-02-015-42	
Core dimensions (nominal), in.	2 5/16" x 22" x 0.125"	
Natural boron content per plate, gm	75.0 ± 0.5	
B ₄ C content per plate, gm	As required to meet natural boron specifications	
Cu content per plate, gm	≈ 492 (estimated)	
Type of plate	"Y"	"Z"
Number of plates	12	12
Outside dimensions (nominal), in.	2.485" x 23 1/4" x 0.197"	2.485" x 23 1/4" x 0.205"
Clad-core-clad thickness, mils	36-125-36	40-125-40

Material Specifications

Core Material

Copper powder

Particle size and shape to be fixed by ORNL Metallurgy.

Boron carbide powder

Ground and screened to (-325) mesh size

Frame material

Wrought stainless steel type 304L, 304, or 347 commercial
sheet

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MATERIALS LIST					
ITEM NO.	DWG. NO.	QTY.	NAME	SIZE	MATERIAL

MATERIAL
304L, 309, OR 347 STAINLESS STEEL
ALL PLATES SHOULD BE MADE FROM (1) TYPE OF STEEL

- NOTE:
1. PLATES SHOULD BE FLAT WITHIN $\frac{1}{32}$ TIR.
 2. SEE DWG. D-2-02-015-41 FOR ASSEMBLY OF PLATES IN BOXES TYPE 5

SECTION A-A
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03171224J030

PLATE TYPE "Y"
12 PLATES REQ'D

SECTION B-B
DECLASSIFIED
03171224J030

PLATE TYPE "Z"
12 PLATES REQ'D

MARK ALL (24) PLATES AS INDICATED ABOVE

NO.	REVISIONS	DATE	APPR.	APPR.
DRAWING NO. D-2-02-015-42				
DRAWN	DATE	CHECKED	DATE	APPROVED
MAVN	6-2-55			
DESIGNED	DATE	SUBMITTED	DATE	APPROVED
HEALTH PHYSICS	MEDICAL	OPERATIONS	SAFETY	
FIRE PROTECTION	RESEARCH SHOP	MAINTENANCE		

BOX TYPE 5 & ASSEMBLY OF TEST PLATES Y & Z		D-2-02-015-41
ASSEM. OF BOXES TYPE "4" & "5"		D-2-02-015-43
REFERENCE DRAWINGS		DWG. NO.
TEST #1		
TEST PLATES TYPE "Y" & "Z"		
OAK RIDGE NATIONAL LABORATORY OPERATED BY CARBIDE AND CARBON CHEMICALS COMPANY A DIVISION OF UNION CARBIDE AND CARBON CORPORATION OAK RIDGE, TENNESSEE		
SUBMITTED	ACCEPTED	APPROVED
PER <i>W. M. M.</i>	PER <i>W. M. M.</i>	PER <i>W. M. M.</i>
SCALE: FULL		D-42

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Cover Material

Wrought stainless steel type 304L, 304, or 347 commercial sheet

Material Identification

B ₄ C	Established by chemical analysis
Copper powder	Established by chemical analysis
Frame and clad stainless steel	Established by chemical analysis

Inspection

Chemical analysis of the boron content and distribution in two plates. Radiograph of each plate will be made to locate the core for trimming and to serve as a record of the core area and distribution in each plate.

A sample of the steel, copper and B₄C used in the plates will be furnished to the Electronuclear Research Division for possible future use.

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Henry G. Blosser
Henry G. Blosser

HGB:mvj
6-28-55

Attached Dwg. No. D-2-02-015-42

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