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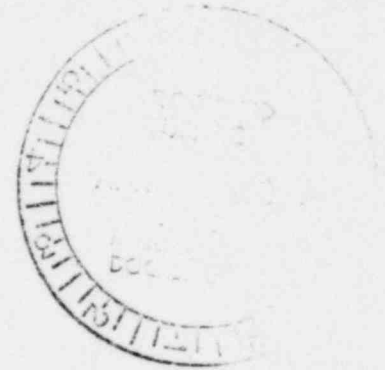
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PDR 8005150260
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Department of Energy
Oak Ridge Operations APR 21 PM 2 43
P.O. Box E
Oak Ridge, Tennessee 37830

U.S. DEPARTMENT OF ENERGY
OFFICE OF REGULATORY
SAFETY AND ENVIRONMENTAL CONTROL

April 17, 1980



U. S. Regulatory Commission
ATTN: Mr. Charles E. MacDonald, Chief
Transportation Certification Branch
Washington, D.C. 20555

Gentlemen:

MODIFICATION OF CERTIFICATE OF COMPLIANCE (USA 5939 BF) (YOUR LTR DTD 2/1/80)

Enclosed are ten copies of the letter dated April 3, 1980, from C. C. Hopkins to J. A. Lenhard with the above subject with enclosures.

The ORO Safety and Environmental Control Division has reviewed the enclosed letter, and we fully concur with ORNL's tests and evaluation confirming that the capsules fully meet leakage tests provisions of Regulatory Guide 7.4. Since the capsules will be checked for surface contamination to assure nonleakage prior to shipment, we recommend that NRC approve the use of the GE-1500 cask as requested.

We request a priority review of this request so that shipments can commence.

Your early attention to this matter will be appreciated.

Sincerely,

William H. Travis
William H. Travis, Director
Safety & Environmental Control Division

MS-332:WAP
FSS: 0116

Enclosures:
As stated (10)

cc w/encl:
T. H. Hardin, AD-46
R. Garrison, HQ-ECT, EV-131, E-201, GTN
D. M. Ross, HQ-OES, EV-125, E-201, GTN

16097

OAK RIDGE NATIONAL LABORATORY

UNION CARBIDE CORPORATION



POST OFFICE BOX E
OAK RIDGE, TENNESSEE 37830

April 3, 1980

Department of Energy, Oak Ridge Operations
Attention: Mr. J. A. Lenhard, Assistant Manager
for Energy Research and Development
Post Office Box E
Oak Ridge, Tennessee 37830

Gentlemen:

Modification of Certificate of Compliance (USA 5939 BF)

Reference: W. E. Terry (ORNL) letter dated November 14, 1979,
to L. G. Blalock (DOE) and Charles E. MacDonald
letter dated February 1, 1980, to L. G. Blalock

ORNL has received an order for the fabrication of isotopic power sources utilizing $^{90}\text{SrF}_2$ as the fuel form. This is the only form now produced by Rockwell Hanford Operations (RHO) in the Waste Encapsulation Storage Facility (WESF). We propose to obtain standard WESF capsules, each containing approximately 100,000 Ci of $^{90}\text{SrF}_2$, from RHO with shipment to be made in a rented GE-1500 cask. This transfer should take place as soon as possible in order to meet the fueling date of the generators for the customer.

Shipments of $^{137}\text{CsCl}$ in the standard WESF capsule have been made from RHO to ORNL in an NRBK cask. We believe it may become necessary to make $^{137}\text{CsCl}$ shipments in a GE-1500 cask in the future since the NRBK cask is used for other radioactive shipments.

The existing U. S. Nuclear Regulatory Commission Certificate of Compliance (USA 5939 BF) for the GE-1500 cask allows a shipment of radioactive material as metal or oxide in quantities having maximum thermal power generation rate of 3170 W. We request that you obtain an amendment to the Certificate of Compliance to permit the shipment of $^{90}\text{SrF}_2$ and $^{137}\text{CsCl}$ contained in the WESF capsules in the GE-1500 cask within the present limitation on the thermal power generation rate. We request that DOE-Richland Operations Office and Union Carbide-Nuclear Division, Oak Ridge National Laboratory, be listed as authorized shippers.

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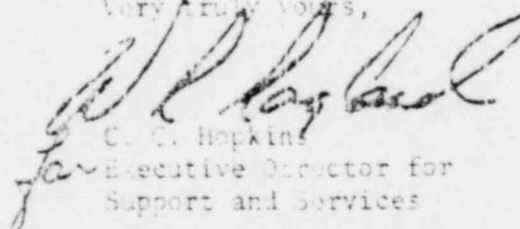
April 3, 1980

The WESF capsules used for $^{90}\text{SrF}_2$ and $^{137}\text{CsCl}$ (attached drawings) are identical in closure design and outside diameters of both the inner and outer containers; the $^{137}\text{CsCl}$ capsule is 0.075 inches longer than the $^{90}\text{SrF}_2$ capsule. The $^{137}\text{CsCl}$ capsule is fabricated of Type 316L stainless steel. The $^{90}\text{SrF}_2$ capsule is fabricated of "Hastelloy C-276" high-temperature alloy, and the walls of the inner and outer containers are thicker (0.025 inches and 0.011 inches) than the corresponding $^{137}\text{CsCl}$ capsule walls. Cesium chloride has a lower melting point (646°C) than SrF_2 (1450°C) and also exhibits a larger thermal expansion. For these reasons the $^{137}\text{CsCl}$ capsule design was selected for testing to demonstrate leak tightness (Regulatory Guide 7.4). By analysis, if the $^{137}\text{CsCl}$ design passes all applicable tests the $^{90}\text{SrF}_2$ would also be qualified.

A capsule containing inert cesium chloride was fabricated at RHO under conditions which simulated as closely as possible those used in fabrication of the $^{137}\text{CsCl}$ capsules. The capsule was shipped to ORNL and subjected to the series of special form tests prescribed in Safety Series No. 6, Regulations for the Safe Transport of Radioactive Materials, 1973 Revised Edition, IAEA, Vienna, 1973 and in 49CFR 173.398 (a). These tests included a 30-ft. drop test, an impact test, and a high-temperature (800°C) test. Before and after each test the capsule was leak tested using both an ethylene glycol-vacuum test described in Leak Testing of Radioactive Sources, ORNL-4529, and a helium leak test was made at a sensitivity of $< 1 \times 10^{-8}$ STD cc/sec. No leaks were detected in any of the tests and the capsule sustained no visible structural damage. Records of these tests are on file at ORNL. The $^{90}\text{SrF}_2$ and $^{137}\text{CsCl}$ capsules loaded at RHO are helium leak tested after fabrication (leak test sensitivity $< 1 \times 10^{-8}$ ST) cc/sec), and they are checked for surface contamination immediately prior to shipment as additional demonstration that no leaks are present.

We conclude that since the prototype capsule of the $^{137}\text{CsCl}$ design passed all applicable special form tests the $^{90}\text{SrF}_2$ design would also. We would appreciate your obtaining the modified Certification of Compliance.

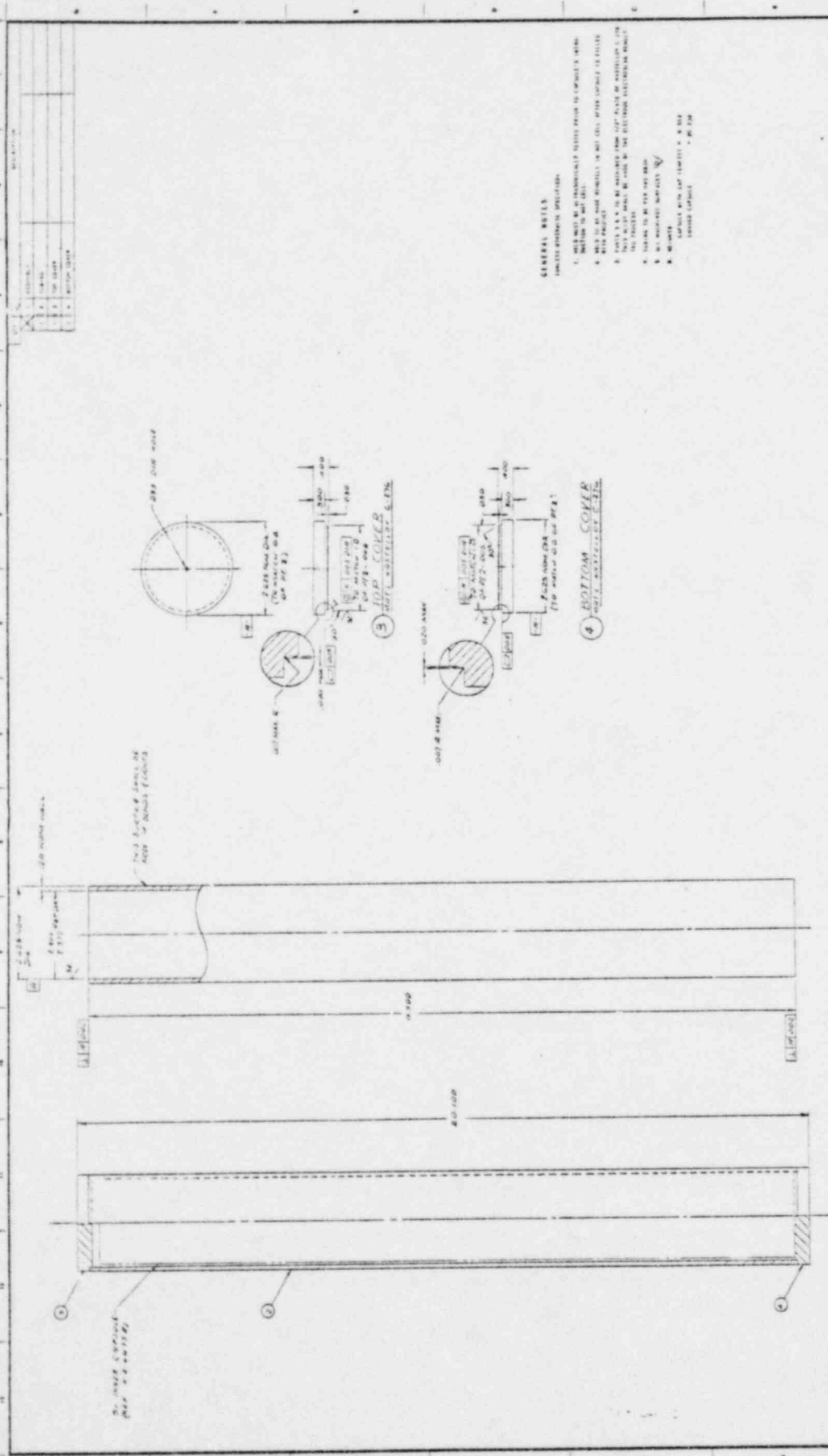
Very truly yours,


C. C. Hopkins
for Executive Director for
Support and Services

CCH:JER:gfm

Enclosures

cc: L. Brecke	W. F. Ragland
J. A. Cox	M. E. Ramsey
R. F. Hibbs	J. E. Ratledge
E. Lamb	R. W. Schaich
C. L. Ottinger	J. H. Swanks
J. Peterson	W. E. Terry
H. Postma	File - RC



1	ASSEMBLY
2	FLANGE
3	FLANGE
4	CORE

GENERAL NOTES
 (INCLUDES DIMENSION SPECIFICATIONS)

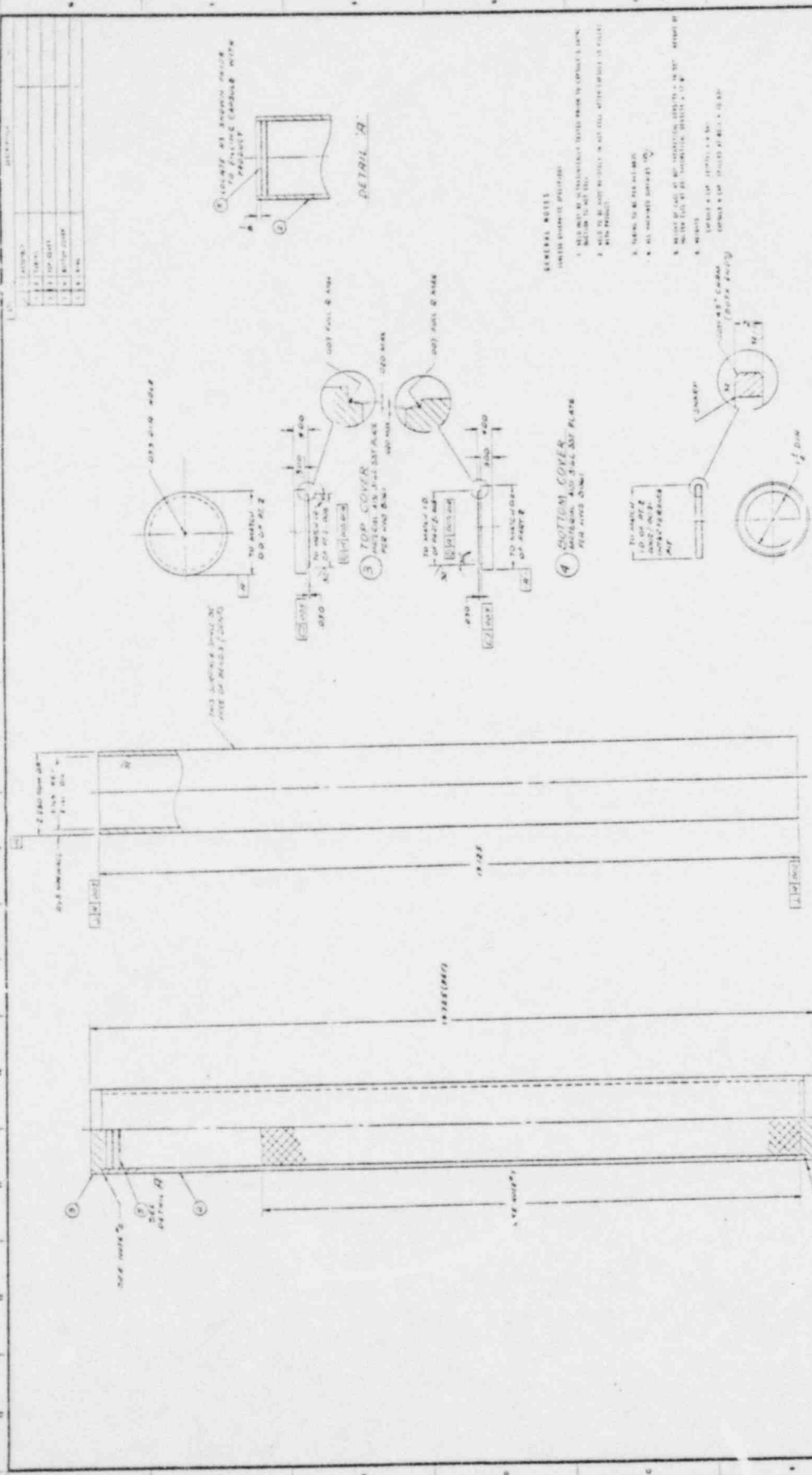
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1	ASSEMBLY
2	FLANGE
3	FLANGE
4	CORE

1	ASSEMBLY
2	FLANGE
3	FLANGE
4	CORE

(2) THINNING
 SEE NOTE 4

(1) ASSEMBLY



GENERAL NOTES

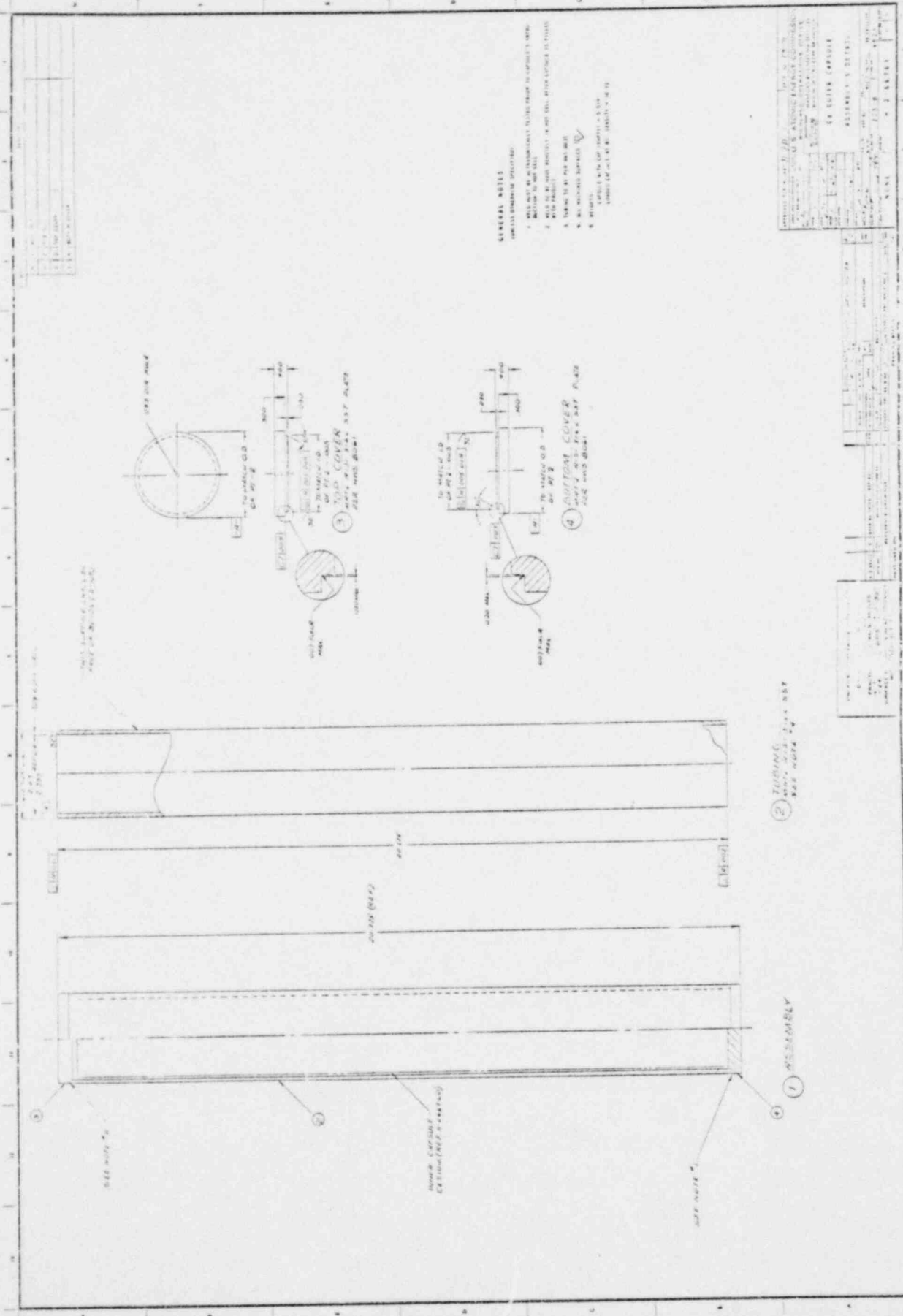
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REVISIONS

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APPROVED

 TITLE: _____
 DATE: _____



GENERAL NOTES

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5. TURNING TO BE PERFORMED BY THE TURNER.
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DATE	10/10/50
BY	J. J. ...
CHECKED BY	...
APPROVED BY	...
DESIGNED BY	...
DRAWN BY	...
MANUFACTURED BY	...
TESTED BY	...
INSPECTED BY	...
REVISIONS	...

NO.	DESCRIPTION	DATE
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