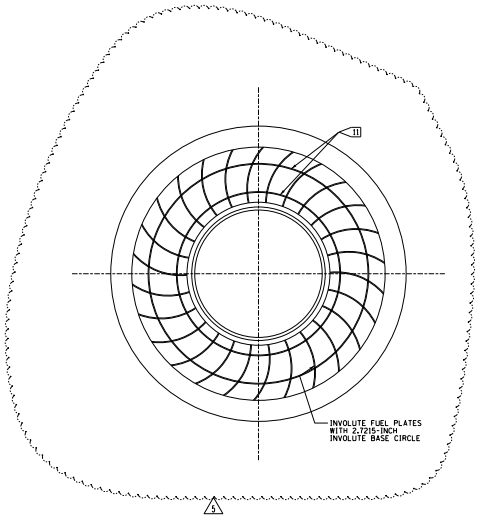
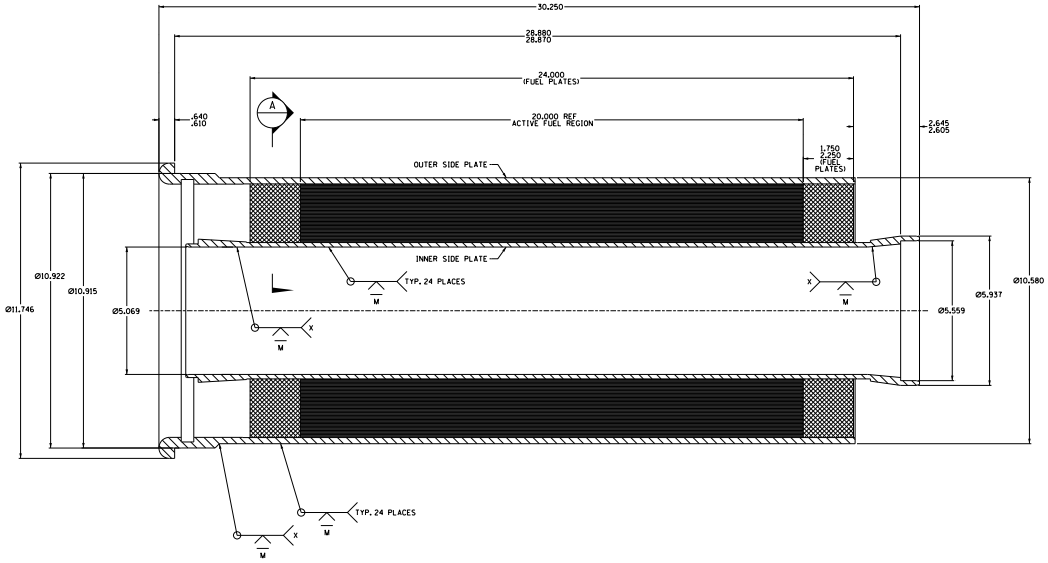
M-11524-OH-106

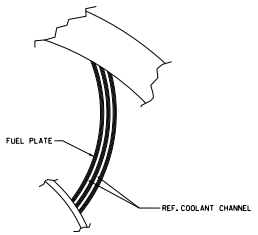
GENERAL NOTES:

1. FUEL ELEMENT NOMINAL WEIGHT IS 103.5 LB.
2. FUEL ELEMENT U-235 CONTENT IS 257.0G. MIN./262.1G. MAX.
3. FUEL ELEMENT B-10 CONTENT IS 2.530BG. MIN./3.078G. MAX.
4. ALL DIMENSIONS ARE ±.005 UNLESS OTHERWISE NOTED.
5. MATERIAL OF CONSTRUCTION:
   INNER AND OUTER SIDE PLATES - AL 6061
   FUEL PLATE -
   CORE: U-Al$_x$ (ENRICHMENT 92-94%) + AL POWDER + B_4C POWDER (CERMET)
   CLADDING: AL 6061
   COMBS: AL 6061 (5)
6. MINIMUM FINISHED MACHINED SIDE PLATE THICKNESS IS:
   INNER SIDE PLATE - 0.048 INCHES
   OUTER SIDE PLATE - 0.105 INCHES
7. COOLANT CHANNEL THICKNESS (DISTANCE BETWEEN FUEL PLATES) IS 0.050 ± 0.010 INCHES.
8. BOTH THE FUEL PLATES ATTACHMENT WELDS AND ADAPTOR WELDS ARE FULL PENETRATION JOINTS COMPLETED BY AUTOMATED GAS METAL ARC WELDING PROCESS. WELDS ARE SUBSEQUENTLY MACHINED ALONG WITH ELEMENT TO OBTAIN FEATURES NOTED ON THIS DRAWING.
9. ADAPTOR WELDS ARE INSPECTED BEFORE FINAL MACHINING BY RADIOGRAPHY. BOTH FUEL PLATE ATTACHMENT WELDS AND ADAPTOR WELDS ARE VISUALLY INSPECTED AFTER FINAL MACHINING.
10. THE MINIMUM AVERAGE CLADDING THICKNESS IS 0.010 INCHES.
11. FUEL ELEMENT COMBS INSTALLED AT THE DISCRETION OF HFIR SYSTEM ENGINEERING. COMBS ARE APPROX .063" WIDE X .250" TALL WITH .200 EMBEDMENT.

COMB DETAIL
SCALE: NOT TO SCALE







SECTION A-A

NOT FOR FABRICATION

LICENSING RESTRICTIONS APPLY

REVISION CERTIFIED FOR CONSTRUCTION
JAN 7, 2022

NO.	REVISIONS	DESIGNER	REVIEWER	Q.A.S.	APPROVED	OPS. MGR
		TASK LDR	SAFETY	C.C. MGR	MANT. MGR	DATE
5	5 SEE DCN 13941	TAJ/SEH	WBK	DLS	WBK	BEF
		DLP	WBK	MAC	GLC	1-7-22
4	4 SEE DCN 13590	CED/TJ	CPK	N/A	N/A	N/A
		DLP	WBK	KDN	N/A	8-26-20
0	0 SEE DCN 13433					

DESIGNER	DATE	SAFETY ANALYST	DATE	APPROVED	DATE
T.W. Evans/TAJ	2-28-20	N/A	-	N/A	-
TASK LEADER	DATE	Q.A. SPECIALIST	DATE	MANT. MGR	DATE
D. L. Pinkston	2-28-20	N/A	-	N/A	-
DESIGN REVIEWER	DATE	CFG. CONTROL MGR	DATE	OPERATIONS MGR	DATE
C. P. Kilgore	2-28-20	K. B. Napier	3-2-2020	N/A	-

GENERAL SPECIFICATIONS
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
REMOVE BURRS/BREAK EDGES
FRACTIONS ± N/A
.xx DECIMALS ± N/A
.xxx DECIMALS ± N/A
ANGLES ± N/A
FILLETS N/A MAX.
MACHINE FINISH N/A MAX.
SCALE: NONE

CAUTION NUCLEAR EQUIPMENT:
ANY PROCESS OR MATERIAL (INCLUDING PACKAGING AND SHIPPING MATERIALS) THAT HAS THE POSSIBILITY OF CAUSING A PROBLEM CONFIRMED ANY OF THE HANDLED ELEMENTS, SPECIMENS, OR CONTAINERS, INCLUDING METALLIC ELEMENTS OR COMPOUNDS, ORGANIC MATERIALS, OR CONTAMINATION OF ANY KIND, SHALL BE CLEARANCE FROM THE SURFACES OF ANY HFIR COMPONENT AFTER IRRADIATION. ITEMS THAT MAY BE USED INCIDENT OF ANY FORM SHALL BE SPECIFICALLY PREC-LEARED FOR USE IN THE HFIR. CONTACT THE HFIR OPERATIONS TEAM MATERIALS AND IN ALL PRODUCTION, INSPECTION, AND FABRICATING OPERATIONS.

No representation or warranty, expressed or implied, is made as to the accuracy, completeness or usefulness of the information or assistance contained in these drawings, or that the use or disclosure of any information, apparatus, method, or process disclosed in these drawings will not infringe on any rights of others. No liability is assumed with respect to the use of, or for damages resulting from the use of any information, apparatus, method, or process disclosed in these drawings. These drawings are the property of UT-Battelle and are not to be used for other purposes and are to be returned upon request of the forwarding contractor.

HFIR INNER FUEL ELEMENT ASSEMBLY	E-42118
HFIR FUEL UNIRRADIATED OUTER ELEMENT CERTIFICATION DRAWING	M-11524-OH-107
SHIPPING CONTAINER FOR UNIRRADIATED INNER HFIR ELEMENT ASSEMBLY	M-20978-EL-003
REFERENCE DRAWINGS	NUMBER

OAK RIDGE National Laboratory | HIGH FLUX ISOTOPE REACTOR
Managed by UT-Battelle for the US Department of Energy
RESEARCH REACTORS DIVISION

FACILITY H.F.I.R. BLDG. NO. 7900

HFIR FUEL
UNIRRADIATED INNER ELEMENT
CERTIFICATION DRAWING

M-11524-OH-106 E REV. 5
AS DESIGNED

MICROSTATION DRAWING