

04008413

VOID SHEET

TO: License Fee Management Branch
FROM: REGION I
SUBJECT: VOIDED APPLICATION

Control Number: 114691

Applicant: TELEDYNE ISOTOPES, INC.

Date Voided: 1/2/92

Reason for Void: LICENSE SUB-1235 (040-08413) TERMINATED
UNDER CONTROL 115351, THEREFORE, RENEWAL
NOT NECESSARY.
BEFORE REVIEW.

9405250259 920115
PDR ADDCK 04008413
C PDR

M.A. Perkins 1/15/92
Signature Date

Attachment:
Official Record Copy of
Voided Action

FOR LFMB USE ONLY

Final Review of VOID Completed:

Refund Authorized and processed

No Refund Due

Fee Exempt or Fee Not Required

Comments: 114691
Jan 5
2c

Log completed
Processed by:

100159



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406

JUN 19 1991

Docket No. 040-08413

License No. SUB-1235

Control No. 114691

Teledyne Isotopes, Incorporated
ATTN: Steven A. Black
Radiation Safety Officer
50 Van Buren Avenue
Westwood, New Jersey 07675

Dear Mr. Black:

SUBJECT: LICENSE RENEWAL APPLICATION

This is to acknowledge receipt of your application for renewal of material(s) license identified above. Your application is deemed timely filed, and accordingly, the license will not expire until final action has been taken by this office.

Any correspondence regarding the renewal application should reference the control number specified above.

Sincerely,

Original Signed By:
Sheryl Villar

Sheryl Villar, Chief
Licensing Assistant Section
Division of Radiation Safety
and Safeguards

ryb
6/18/91 (50)
6/19/91

040-08413



50 VAN BUREN AVENUE
WESTWOOD, NEW JERSEY 07675
(201) 664-7070

April 10, 1991

US Nuclear Regulatory Commission, Region I
Nuclear Materials Safety Section B
475 Allendale Road
King of Prussia, PA 19406

re: U.S. NRC License No. SUB-1235

Dear Sir/Madam:

Enclosed please find two copies of our renewal application for the above referenced license, two copies of our Radiation Safety Code & Quality Assurance Manual (revised November 1990 & April 1991), and a check in the amount of \$600.00 to cover the cost of this licensing action.

Please renew this license without reference to any documents which are not included with this submission.

If you have any questions or require additional information, please do not hesitate to contact me.

Sincerely,

TELEDYNE ISOTOPE

Steven A. Black, Manager
Radiological Services Department

SAB:jk
Enc.

License Fee Information
on application

114691

OFFICIAL RECORD COPY

ML 10

MAY 17 1991

APPLICATION FOR MATERIAL LICENSE

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

APPLICATIONS FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

U.S. NUCLEAR REGULATORY COMMISSION
DIVISION OF INDUSTRIAL AND MEDICAL NUCLEAR SAFETY, NM55
WASHINGTON, DC 20555

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS. IF YOU ARE LOCATED IN:

CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, MAINE, MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, PENNSYLVANIA, RHODE ISLAND, OR VERMONT, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION I
NUCLEAR MATERIALS SAFETY SECTION B
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406

ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI, NORTH CAROLINA, PUERTO RICO, SOUTH CAROLINA, TENNESSEE, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION II
NUCLEAR MATERIALS SAFETY SECTION
101 MARIETTA STREET, SUITE 2900
ATLANTA, GA 30323

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION III
MATERIALS LICENSING SECTION
799 ROOSEVELT ROAD
GLEN ELLYN, IL 60137

ARKANSAS, COLORADO, IDAHO, KANSAS, LOUISIANA, MONTANA, NEBRASKA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, SOUTH DAKOTA, TEXAS, UTAH, OR WYOMING, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
MATERIAL RADIATION PROTECTION SECTION
611 RYAN PLAZA DRIVE, SUITE 1000
ARLINGTON, TX 76011

ALASKA, ARIZONA, CALIFORNIA, HAWAII, NEVADA, OREGON, WASHINGTON, AND U.S. TERRITORIES AND POSSESSIONS IN THE PACIFIC, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION V
NUCLEAR MATERIALS SAFETY SECTION
1450 MARIA LANE, SUITE 210
WALNUT CREEK, CA 94596

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTION.

1. THIS IS AN APPLICATION FOR (Check appropriate item)

- A. NEW LICENSE
- B. AMENDMENT TO LICENSE NUMBER _____
- C. RENEWAL OF LICENSE NUMBER SUB-1235

2. NAME AND MAILING ADDRESS OF APPLICANT (Include Zip Code)

Teledyne Isotopes
50 Van Buren Avenue
Westwood, NJ 07675

3. ADDRESS(ES) WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

50 Van Buren Avenue
Westwood, NJ 07675

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Steven A. Black

TELEPHONE NUMBER

201-664-7070

SUBMIT ITEMS 5 THROUGH 11 ON 8 1/2 x 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL
a. Element and mass number, b. chemical and/or physical form, and c. maximum amount which will be possessed at any one time.

6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED

7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS

9. FACILITIES AND EQUIPMENT

10. RADIATION SAFETY PROGRAM

11. WASTE MANAGEMENT

12. LICENSEE FEES (See 10 CFR 170 and Section 170.31)
FEE CATEGORY 2C AMOUNT ENCLOSED \$600.00

13. CERTIFICATION (Must be completed by applicant): THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 4, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, AND 40 AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

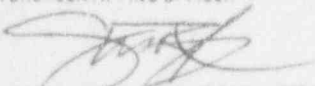
WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948, 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

SIGNATURE—CERTIFYING OFFICER

TYPED/PRINTED NAME

TITLE

DATE



Steven A. Black

Radiation Safety Officer

4/27/91

FOR NRC USE ONLY

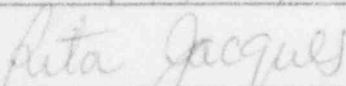
TYPE OF FEE	FEE LOG	FEE CATEGORY	COMMENTS
Ren	June 5	2C	
AMOUNT RECEIVED	CHECK NUMBER		
\$600	47174		

AMOUNT RECEIVED

CHECK NUMBER

APPROVED BY

DATE



6/6/91

**RADIATION SAFETY CODE
AND
QUALITY CONTROL MANUAL**

APRIL 1991

SECTION III

SECTION III - SPECIAL PROCEDURES APPLICABLE TO ACTIVITIES UNDER SPECIFIC LICENSES

Teledyne Isotopes carries out activities involving radioactive material under 13 different licenses from state, national, and foreign government authorities. In addition to continuing licenses, other activities are carried out under temporary permits or reciprocal recognition of existing licenses with a variety of special requirements. Because the Radiation Safety Code and Quality Control Manual may be required to support the application for or operation under a given license, it is designed in such a way that only the general provisions of the code and the provisions particularly applicable to a given license are included in copies presented to a given agency.

This copy includes the sections relevant to the licensed activities checked below.

- III-1.0 USAEC Byproduct Material License (No. 29-00055-06)
C Specific License of Broad Scope
- III-2.0 USNRC Materials License (No. 29-00055-14)
(Radioactive Waste Disposal)
- III-3.0 USNRC Special Nuclear Materials License (No. SNM-107)
- III-4.0 USNRC Materials License (No. 29-00055-15)
(Metal Decontamination)
- ✓ III-5.0 USNRC Depleted Uranium Source Material License (No. SUB-1235)
- III-6.0 USNRC Byproduct Material License (No. 29-00055-02)
(Teletrace)
- III-7.0 Colombia, South America License for Importation or Use of Radionuclides
(No. 320) (Licencia Para Importacion o Manejo de Radionuclides No. 320)
(Teletrace)
- III-8.0 State of New Jersey, Dept. of Environmental Protection, Radioactive
Material License (No. 10123)
- III-9.0 US Dept. of H.E.W. Clinical Laboratory License (No. 29-1012)
(Radio-Bioassay)
- III-10.0 Radiation Surveys
- III-11.0 Atomic Energy Control Board of Canada Radioisotope License
- III-12.0 Refinery Process Research Amendment Application Process for NRC
License #29-00055-06
- III-13.0 State of Illinois Radioactive Material License (No. IL-00514-01)

III-5.0 SPECIAL PROCEDURES FOR DEPLETED URANIUM SOURCE MATERIAL
LICENSE No. SUB-1235

Section	Page
III-5.1 Introduction & Description	III-5-1
III-5.2 Specifications	III-5-1
III-5.3 Exposure Limits	III-5-2
III-5.4 Contamination Control	III-5-2
III-5.5 Labeling	III-5-2
III-5.6 Radioactive Waste Handling	III-5-2
III-5.7 Instrumentation	III-5-2
III-5.8 Evaluation of Radiation Hazard	III-5-2
Figures & Drawings	III-5-4

RSC/QCM 4 80

Date

Approved

Rev'd:

Revs'd: 4/91



III-5.0 SPECIAL PROCEDURES FOR DEPLETED URANIUM SOURCE MATERIAL
LICENSE No. SUB-1235

III-5.1 *Introduction and Description*

This section of the Radiation Safety Code and Quality Control Manual covers specific procedures applicable to our U.S. NRC License No. SUB-1235.

Licensed material is used in the manufacturing and distribution of depleted uranium calibrators for Thermo Luminescent Dosimeters (TLD's). Distribution to domestic customers is licensed under the general license provisions of 10CFR 40.22. Distribution to foreign customers is licensed under general export license provisions of 10CFR 110.22.

The Model RGD-C Calibrator contains two metallic depleted uranium plates mounted inside a solid walnut case. The case is composed of two wooden blocks which are lined with lead and fastened together with screws. This effectively reduces the possibility of mechanical injury to the plastic film covering the uranium plates and greatly reduces operator exposure to the uranium beta and gamma radiation.

TLD's are calibrated by placing them in the hinged tray and inserting the tray into the calibrator. The tray and block assemblies are manufactured so that direct impingement of the tray and uranium is avoided.

Krylon® plastic spray is used to coat the uranium plates to retard oxidation.

The source material is purchased to the length, width and thickness that is required for assembly. The screw holes for attaching the plates to the inside surface of the calibrators are drilled by the supplier. No cutting, drilling, chemical or physical processes are performed on the source material. The only handling of the uranium plates required is that necessary to spray them with Krylon® and attach them to the inner surface of the calibrator.

III-5.2 *Specifications*

5.2.1 Model No. RGD-C

5.2.2 Figure 1 shows dimensions (4-3/4" x 8-1/4" x 0.12") of the uranium plate.

5.2.3 Figure 2 shows dimensions of the top of the wooden case.

5.2.4 Figure 3 shows dimensions of the bottom of the wooden case.

5.2.5 Figure 4 shows dimensions of the handle of the wooden case.

5.2.6 Figure 5 shows dimensions of the hinged plate (slide mechanism).

5.2.7 Lead shielding is 4-3/4" x 8-1/4" x 1/8" thick.

5.2.8 Weights:	Depleted uranium plates:	2.5 lbs. each.
	Total depleted uranium:	5 lbs. per calibrator
	Total calibrator weight:	13 lbs. 6 oz.

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[Signature]

III-5.3 Exposure Limits

Prior to shipment, each calibrator is surveyed with a calibrated survey instrument. The maximum acceptable exposure is taken to be 0.5 mR/hr with probe centerline 12 inches from the calibrator surface, and 2 mR/hr with probe in contact with the walnut calibrator enclosure.

III-5.4 Contamination Control

There is no direct access to the uranium plates except by dismantling the unit. However, radiation degradation of the film coating is estimated to occur after an exposure of about 10^5 rad. The maximum dose rate expected to the film coating is about 0.56 rad per hour which results in a predicted lifetime of 20 years. Although uranium tends to oxidize slowly, we recommend annual contamination checks of the slide assembly. If any activity greater than 0.001 microcuries is found, the unit should be disassembled and re-coated with Krylon® in a proper facility.

III-5.5 Labeling

Each completed uranium calibrator has "Caution - Radioactive Material" labels attached to the top and bottom of the unit. The letters on the labels must be a minimum of 1/4" in height, and the radiation symbol must be at least 5/8" in diameter.

III-5.6 Radioactive Waste Handling

As the source material is purchased in the size required and pre-drilled, there is no radioactive waste generated during the manufacturing or distribution of the calibrators.

III-5.7 Instrumentation

A list of the Health Physics survey instruments can be found in Section II of our Radiation Safety Code and Quality Control Manual (Form IWL-HP-18).

III-5.8 Evaluation of Radiation Hazard

The removable alpha surface contamination of an exposed depleted uranium plate is less than 200 dpm/100 cm² using an Eberline Instruments MS-2 gas proportional counter calibrated to Pu-239. The exposure rate at contact to an exposed depleted uranium plate (mixed alpha, beta, gamma) is approximately 110 mR/hr using an uncapped Victoreen V-440 ionization chamber calibrated to Cs-137; and 3.0 mR/hr at 12 inches.

Using the same equipment, the exposure rate at the outside of a completed unit is less than 2 mR/hr at contact and 0.5 mR/hr at 12 inches. The maximum accessible radiation level from a completed unit is approximately 15 mR/hr at the open slit where the badge holder is inserted. The opening is normally closed, or covered, by the insert which holds the dosimeters in place for irradiation. When closed the exposure rate is reduced to less than 1.5 mR/hr.

The total estimated process time is approximately 8 man-hours every two to three years, though the actual contact time with the plates themselves is considerably less than this hourly total.

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Revs'd:

4/91



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RSC/QCM 4.80

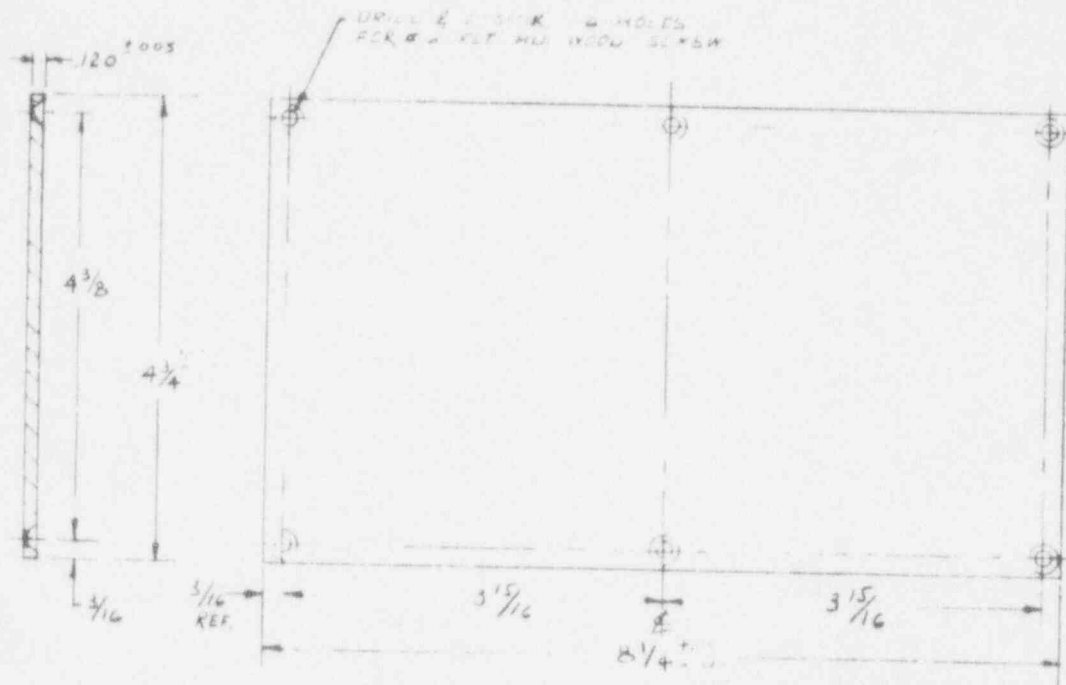
Date

Approved

Rev'd:

Revs'd: 4/91





UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCE ON		DRAWN: <i>P. J. ...</i>		TELEDYNE ISOTOPE	
FAC. SEC. ANGLES		CHECKED: _____		URANIUM PLATE	
+ .004 - .002 + .015		DATE: _____		SIZE: B	
MATERIAL: DEPLETED URANIUM		DATE: _____		CODE IDENT. NO.: 24661	
PART NO.:		DATE: _____		DWS. NO.: SK-7410	
NEXT ASBY: _____		DATE: _____		SCALE: 1" = 1"	
USED ON: _____		DATE: _____		DWS. NO.: _____	
APPLICATION: _____		DATE: _____		DWS. NO.: _____	

RSC/QCM 4.80
 Date 9/26/85 Approved *[Signature]*
 Rev'd: 9/26/85
 Revs'd: _____

III-5-4

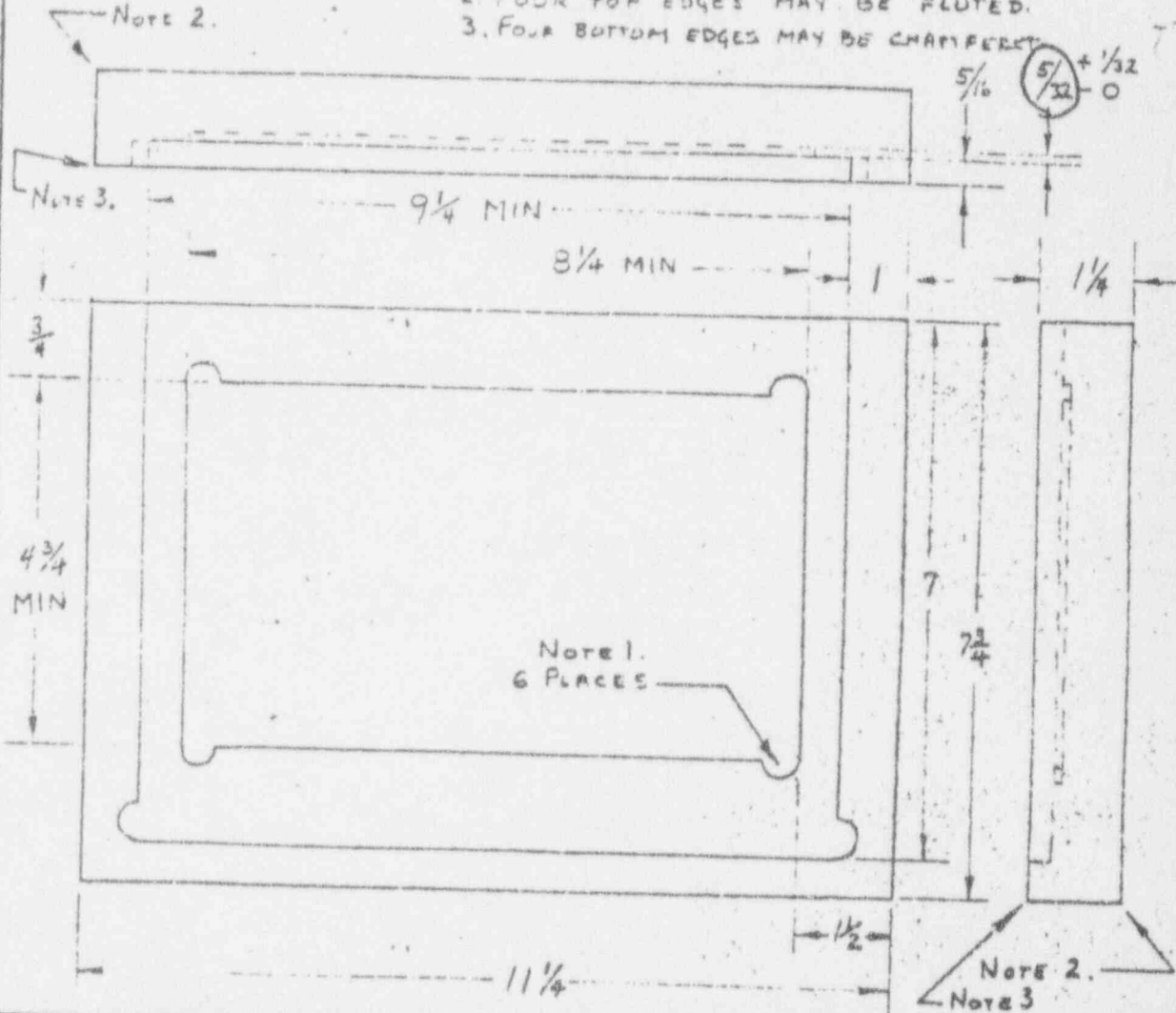
FIGURE 1

170/75

APPLICATION	
NEXT ASSY	USED ON
	RDG-C

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	RELEASE FOR PRODUCTION	12-21-74	KFJ
B	DIMENSIONAL REVISIONS	12-9-75	WJ

- NOTES:
1. ROUTER OVERRUN PERMITTED IN DIRECTION SHOWN ONLY.
 2. FOUR TOP EDGES MAY BE FLUTED.
 3. FOUR BOTTOM EDGES MAY BE CHAMFERED.



UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCE ON
FRAC 1/32 DEC. ANGLES
± .005 ° 30'

MATERIAL:
HARDWOOD

FINISH:
STAIN (OPTIONAL)
POLYURETHANE, SATIN

DRAWN	DATE
R. R. RUDD	12/21/74
CHECKED	DATE
ENGR	DATE
APPR	DATE
	12/31/74

TELEDYNE ISOTOPES
WESTWOOD, NEW JERSEY 07675

Wood Box, Top

SIZE	CODE IDENT NO.	DWG NO.	REV
A	24661	SK-7401	B

SCALE 1/2 | SHEET 1 of 1

RSC/QCM 4.80
Date 9/26/85 Approved [Signature]

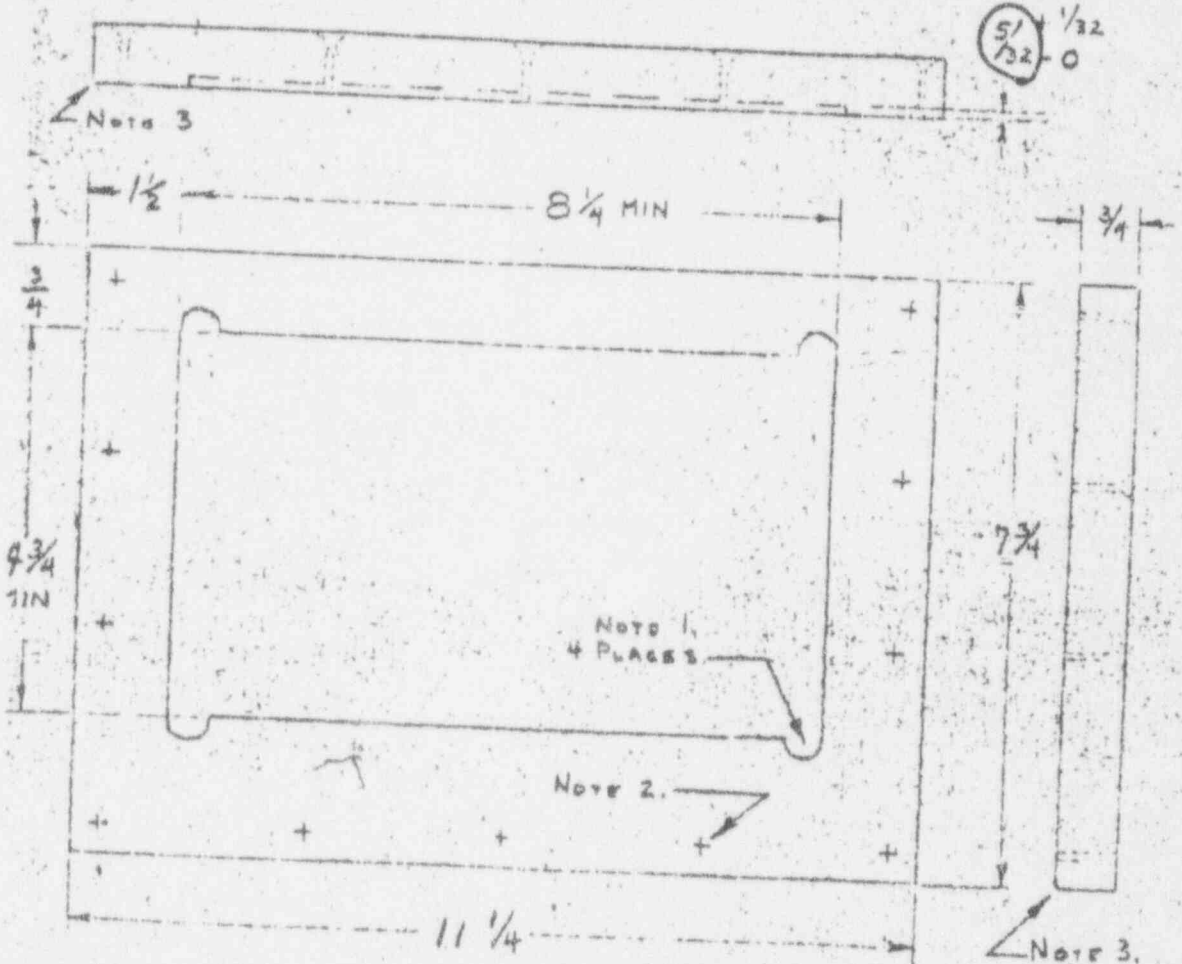
Rev'd: [Signature]
Revs'd: [Signature]

III-5-5

FIGURE 2

APPLICATION		REVISIONS			
NEXT ASSY	USED ON	LTR	DESCRIPTION	DATE	APPROVE
	RDC-C	A	RELEASE FOR PRODUCTION	12-21-74	[Signature]
		B	DIMENSIONAL REVISIONS	12-3-74	[Signature]

- NOTES:
1. ROUTER OVERLAP PERMITTED AS SHOWN.
 2. SUFFICIENT QUANTITY OF #8 X 1/4 FLAT #10 HEAD SCREWS LOCATED 3/8 FROM EDGE.
 3. FOUR TOP EDGES MAY BE CHAMFERED.

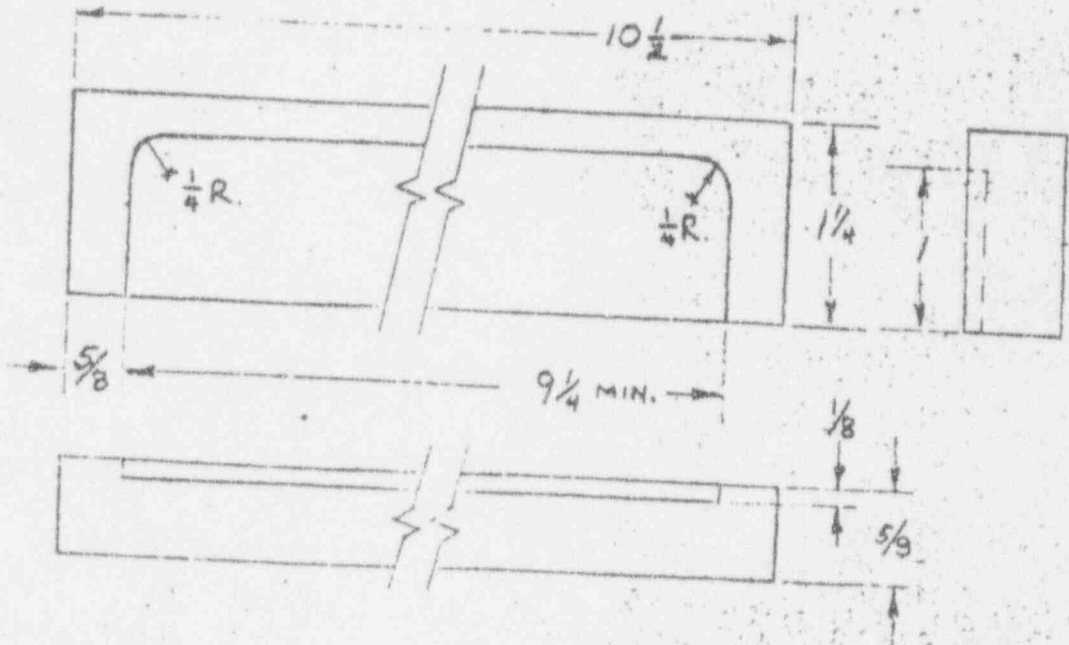


LESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCE ON ± 1/32 DEC. ANGLES ± 005 ± 0° 30'	DRAWN R. BRUND	DATE 12/21/74	TELEDYNE ISOTOPES WESTWOOD, NEW JERSEY 07675		
	CHECKED	DATE			
MATERIAL: HARDWOOD	EDGE:	DATE:	Wood Box, Bottom		
FINISH: STAIN (OPTIONAL) URETHANE, SATIN	DATE: 12/21/74	DATE:	SIZE A	CODE IDENT NO. 24661	DWG NO. SK-7402
			SCALE: 1/2"		REV B
					SHEET 1 of 1

FIGURE 3

RSC/QCM 4.80
 Date: 9/24/85
 Approved: [Signature]

APPLICATION		REVISIONS			
NEXT ASBY	USED ON	LTR	DESCRIPTION	DATE	APPROVED
	RDG-C	A	RELEASE FOR PRODUCTION	12-21-74	[Signature]
		B	REVISED DIMENSIONS	12-9-74	[Signature]

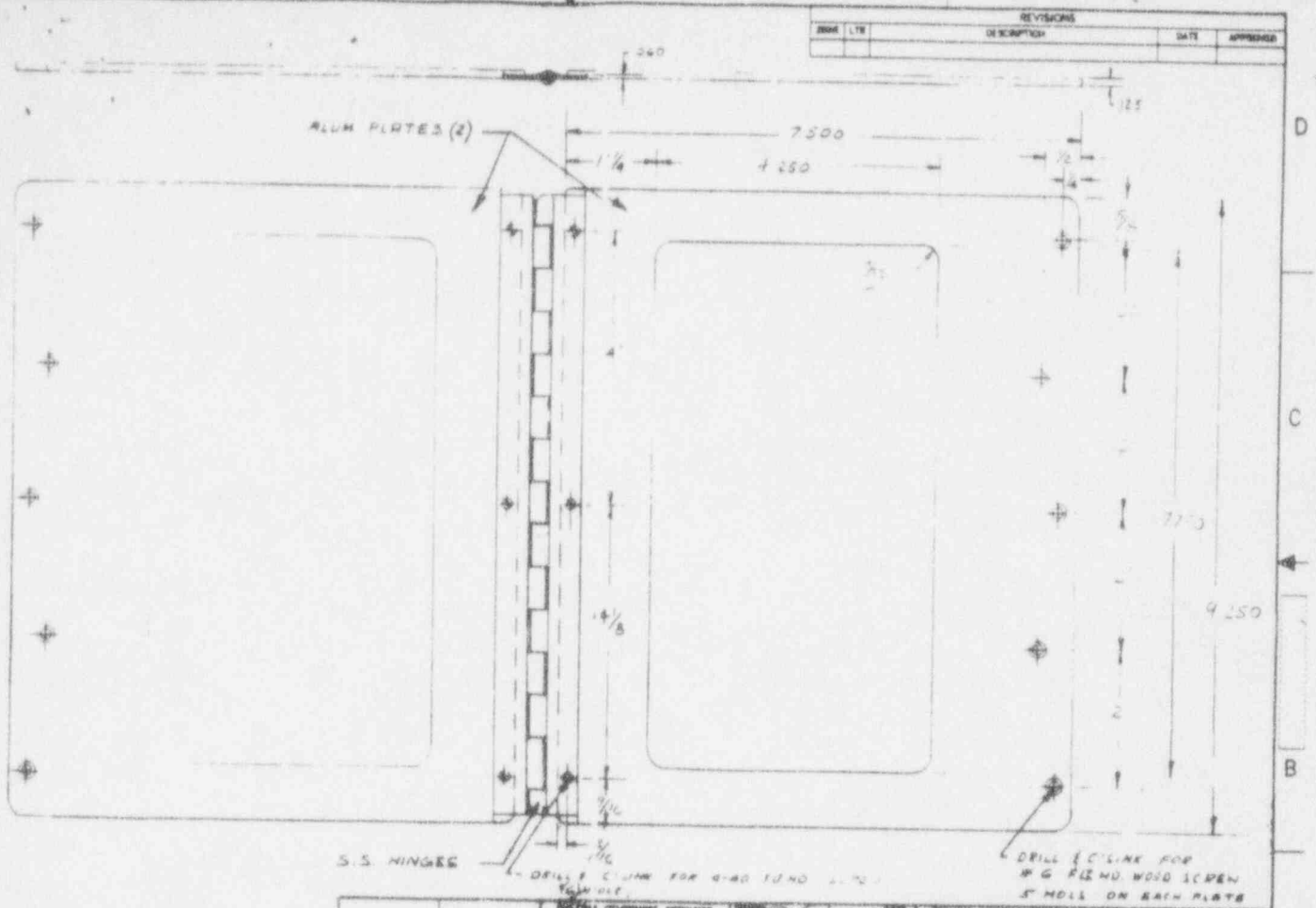


UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCE ON AC. 1/32 DEC. ANGLES ±.005 ±0° 30'	DRAWN R. PRUNO 12/21/74	DATE	 WESTWOOD, NEW JERSEY 07675		
	CHECKED	DATE			
MATERIAL: HARDWOOD	ENGR.	DATE	HANDLE		
FINISH: STAIN (OPTIONAL)	[Signature]	DATE	SIZE A	CODE IDENT NO. 24661	DWG NO. SK-7404
FINISH: SATIN			SCALE 1/1		REV B
					SHEET 1 OF 1

FIGURE 4

RSC/QCM 4.80
Date Approved
Rev'd: 9/26/85 [Signature]
Revs'd: [Signature]

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REVISIONS			
NO.	DATE	DESCRIPTION	APPROVED

DATE	DESCRIPTION	BY

TELEDYNE ISOTOPES
WESTWOOD, NEW JERSEY 07675

HINGED PLATES

REV: C CODE: 24661 DWG NO: SK-7411

SCALE: 1/4" = 1" SHEET: 1

FIGURE 5

RSC/QCM 4.80
Date: 9/26/85 Approved: *[Signature]*

Revs'd: *[Signature]*
Revs'd: *[Signature]*

III-5-8

BETWEEN:

LICENSE FEE MANAGEMENT BRANCH, ARM
AND
REGIONAL LICENSING SECTIONS

(FOR LFMS USE)
INFORMATION FROM LTS

PROGRAM CODE: 11200
STATUS CODE: 2
FEE CATEGORY: 2C
EXP. DATE: 19910531
FEE COMMENTS:

LICENSE FEE TRANSMITTAL

A. REGION I

1. APPLICATION ATTACHED

APPLICANT/LICENSEE: TELEDYNE ISOTOPES, INC.
RECEIVED DATE: 910517
DOCKET NO: 4008413
CONTROL NO.: 114691
LICENSE NO.: SUB-1235
ACTION TYPE: RENEWAL

2. FEE ATTACHED

AMOUNT: 600.00
CHECK NO.: 47774

3. COMMENTS

SIGNED TMH
DATE 12/31/91

B. LICENSE FEE MANAGEMENT BRANCH (CHECK WHEN MILESTONE 03 IS ENTERED 12/1)

1. FEE CATEGORY AND AMOUNT: 2C \$600

2. CORRECT FEE PAID. APPLICATION MAY BE PROCESSED FOR:

AMENDMENT -----
RENEWAL ✓
LICENSE -----

3. OTHER -----

SIGNED Rita Jacques
DATE 6/6/91