



RONAN ENGINEERING COMPANY
MEASUREMENTS DIVISION
100 PRODUCTION DRIVE
LAWRENCE, KENTUCKY 41042
(859) 342-8500 FAX (859) 342-6426

3/22/01

CABINET FOR HEALTH SERVICES
DEPARTMENT FOR PUBLIC HEALTH
RADIATION HEALTH AND TOXIC AGENTS BRANCH
275 EAST MAIN STREET
FRANKFORT, KY. 40621-0001
M.S. 75HS 2E-D

ATTN: VICKI D. JEFFS, SUPERVISOR

SUBJECT: AMENDMENT TO RLL-1 SERIES REGISTRY

REF. REGISTRY: KY-576-D-113-B

ENCLOSED IS THE AMENDMENT TO USE SINGLE SOURCES UP TO 900 uCi
CS-137 OR 200uCi CO-60 IN THE RLL-1 SOURCE HOLDER.

A CHECK FOR THE AMOUNT OF \$ 75.00 IS ALSO ENCLOSED.

RESPECTFULLY;

A handwritten signature in black ink, appearing to read 'Craig A. Caris', written over a horizontal line.

CRAIG A. CARIS
QUALITY MANAGER

DATE: 3/22/01

RONAN ENGINEERING COMPANY
MEASUREMENTS DIVISION
8050 PRODUCTION DRIVE
FLORENCE, KY. 41042-3028

MANUFACTURER / DISTRIBUTOR

PHONE (859) 342-8500

CONTACTS: THOMAS NIINEMETS - GENERAL MANAGER
CRAIG CARIS - QUALITY MANAGER

DEVICE TYPE: SOURCE HOLDER

MODEL: RLL-1 SERIES

OTHER COMPANIES INVOLVED: NOT APPLICABLE

RADIOACTIVE SOURCE MODEL DESIGNATION:

ISOTOPE PRODUCTS LABORATORIES; MODEL PHI SERIES SOURCES
CAPSULE A3224 - CS-137 & CO-60

AEA TECHNOLOGIES (AMERSHAM); MODEL CDC.700 CAPSULE X7
CS-137 ONLY

RADIONUCLIDES: CESIUM-137, COBALT-60

MAXIMUM ACTIVITY: 900 MICROCURIES OF CS-137 OR
200 MICROCURIES OF CO-60
NO SINGLE SOURCE TO EXCEED 90 MICROCURIES
OR
(1) SOURCE NOT TO EXCEED 900 MICROCURIES
OF CS-137
(1) SOURCE NOT TO EXCEED 200 MICROCURIES
CO-60

LEAK TEST FREQUENCY: NOT REQUIRED WHEN: NO SINGLE SOURCE
EXCEEDS 90 MICROCURIES
LEAK TEST IS REQUIRED WHEN: A SINGLE
SOURCE GREATER THAN 90 MICROCURIES IS
USED.

PRINCIPAL USE CODE: (D) GAMMA GAUGES

CUSTOM DEVICE: NO

CUSTOM USER: NOT APPLICABLE

SUMMARY DESCRIPTION: (ADDED SINGLE SOURCE SIZES)

THE MODEL RLL-1 SERIES SOURCE HOLDERS ARE INSTALLED INTO SHIELD ASSEMBLIES APPROPRIATE TO THE SPECIFIC APPLICATION. EACH SOURCE HOLDER MAY CONTAIN A SINGLE SOURCE OR MULTIPLE SOURCES. WHEN MULTIPLE SOURCES ARE USED, EACH SOURCE CONTAINS NO MORE THAN 90 MICROCURIES OF CESIUM-137 OR COBALT-60. WHEN SINGLE SOURCES ARE USED, EACH SOURCE CONTAINS NO MORE THAN 900 MICROCURIES OF CS-137 OR 200 MICROCURIES OF CO-60. THE INDIVIDUAL SOURCES ARE ENCLOSED IN A 1/4 INCH DIAMETER STAINLESS STEEL SOURCE TUBE. THE SOURCE TUBE IS INSIDE A 3/4 INCH DIAMETER STAINLESS STEEL TUBE. STAINLESS STEEL PLUGS ARE WELDED TO THE ENDS OF THE TUBE TO PREVENT SOURCE REMOVAL.

CHANGES TO PAGE 4 (ADDED FIGURE D(i) & D(ii))

LABELING:

AN ETCHED STAINLESS STEEL LABEL AS SHOWN IN ATTACHMENT 1 FIGURES D, D(i) AND D(ii) FOR GENERAL LICENSEES AND FIGURE E FOR SPECIFIC LICENSEES WILL BE ATTACHED TO THE SOURCE HOLDER BY THE USE OF HARDENED STAINLESS STEEL DRIVE SCREWS OR WELDING. DUE TO THE ENVIRONMENTAL CONDITIONS WHERE THE SOURCE HOLDER IS SOMETIMES USED, SILKSCREEN AND OR PAINT WILL NOT SURVIVE. FOR THIS REASON, RONAN IS REQUESTING AN EXEMPTION FROM THE CONVENTIONAL COLOR REQUIREMENTS OF 10 CFR 20.1901.

CHANGES TO PAGE 5 (ADDED FIGURE D)

RADIATION PROFILES: SEE ATTACHMENT 2 FIGURES A, B, C AND D

CHANGES TO PAGE 6 (ADDED LEAK TEST REQUIREMENT FOR SINGLE SOURCES GREATER THAN 90 MICROCURIES)

LEAK TESTING: DEVICES WITH MULTIPLE SOURCES LESS THAN 100 MICROCURIES EACH.

THE RLL-1 SOURCE HOLDER USES SOURCE CAPSULES THAT CONTAIN LESS THAN 100 MICROCURIES OF CS-137 OR CO-60. EACH SOURCE HAS BEEN INDEPENDENTLY TESTED AND CERTIFIED BY THE MANUFACTURER AS A SPECIAL FORM DEVICE.

DUE TO THE LOW ACTIVITY LEVEL OF THE INDIVIDUAL SOURCES, RONAN ENGINEERING IS REQUESTING THAT THE END USER NOT BE REQUIRED TO LEAK TEST THE DEVICE WITH MULTIPLE SOURCES.

LEAK TESTING: DEVICES WITH A SINGLE SOURCE LARGER THAN 90 MICROCURIES

A THREE YEAR WIPE TEST INTERVAL IS REQUESTED FOR THE RLL-1 DEVICE WITH SINGLE SOURCE CAPSULES. THIS REQUEST IS BASED ON THE DESIGN SAFETY FEATURES OF THE RLL-1 AND PROVEN RELIABILITY OF THE SPECIAL FORM SOURCES.

ATTACHMENT 1

REVISED FIGURE A UPDATED MOUNTING TABS AND RADIATION DIRECTION ARROW.

ADDED FIGURE A(i) LABELING INSTRUCTION FOR SINGLE AND MULTIPLE SOURCE CONFIGURATIONS.

REVISED FIGURE B TO SHOW CONFIGURATION WITH A SINGLE SOURCE CAPSULE.

REVISED FIGURE D CHANGED TITLE BLOCK TO SPECIFY; USE WITH MULTIPLE SOURCES LESS THAN 100uCi EACH.

ADDED FIGURE D(i) GENERAL LICENSE LABEL FOR RLL-1 DEVICES WITH A SINGLE SOURCE CONTAINING UP TO 900 uCi CS-137 OR 200 uCi CO-60.

ADDED FIGURE D(ii) ETCHED STAINLESS STEEL LABEL " LEAK TEST REQUIRED"
LABEL TO BE INSTALLED WITH HARDENED STAINLESS STEEL DRIVE SCREWS DIRECTLY BELOW CAUTION LABEL WHEN A SINGLE SOURCE CAPSULE GREATER THAN 90 uCi IS USED.
REF. ATTACHMENT 1 FIGURE A(i).

ATTACHMENT 2 ADDED FIGURES D AND D(i) ISO DISTANCE CURVES FOR RLL-1 DEVICE WITH SINGLE 900 uCi CS-137 AND 200uCi CO-60 SOURCE CAPSULES.

ATTACHMENT 3 CHANGED TITLE TO CLARIFY THAT MANUAL IS FOR RLL-1 DEVICES WITH MULTIPLE SOURCES LESS THAN 100 MICROCURIES EACH.

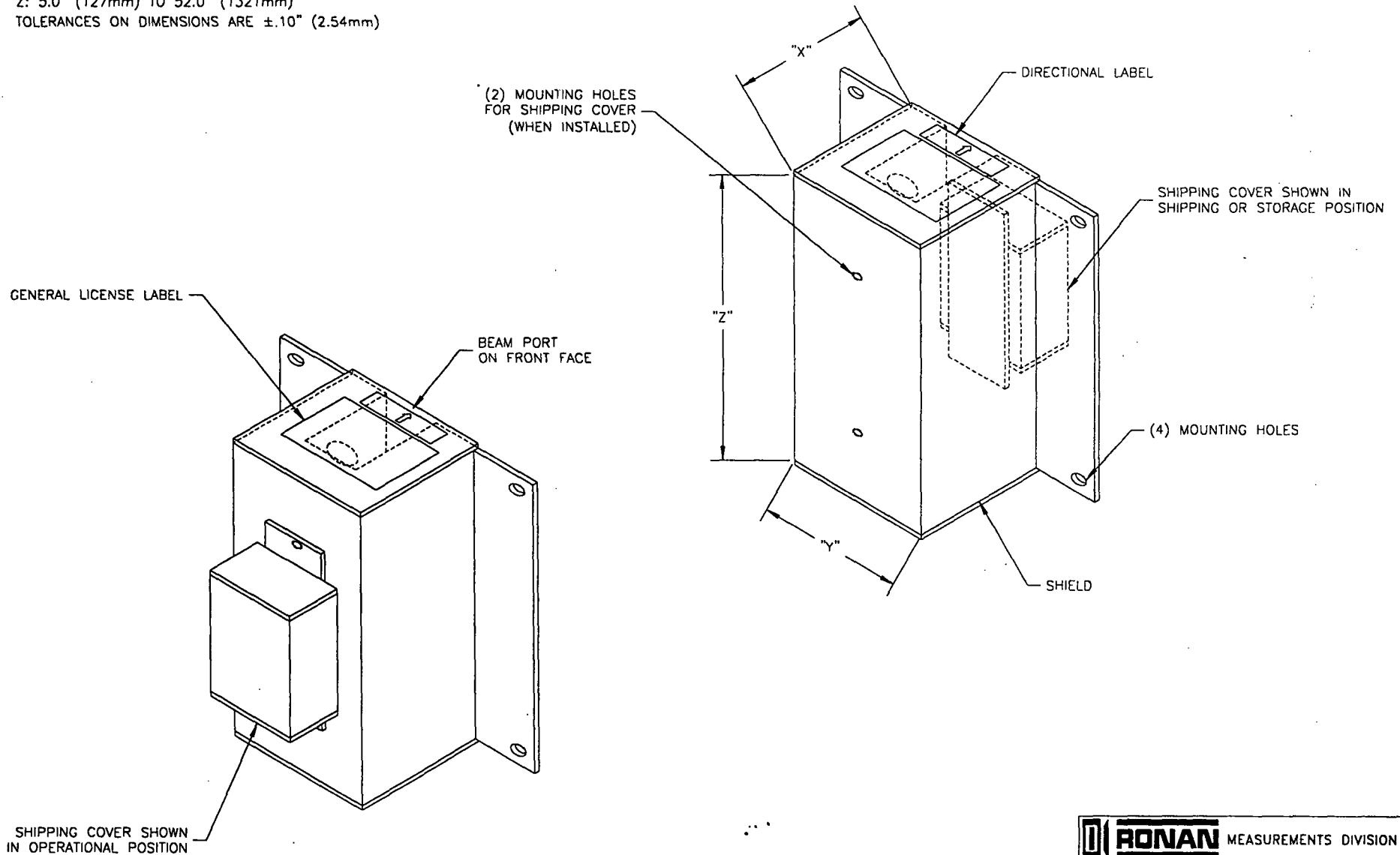
ADDED ATTACHMENT 5 GENERAL LICENSE MANUAL FOR RLL-1 DEVICES WITH A SINGLE SOURCE CONTAINING UP TO 900 MICROCURIES OF CS-137 OR 200 MICROCURIES OF CO-60



CRAIG A. CARIS
QUALITY MANAGER

DATE	SYM	REVISION RECORD	DR	CK
11/13/98	0	NEW RELEASE PER BC	RMC	
3/28/01	1	REVISED PER ECN 42352	AMP	*

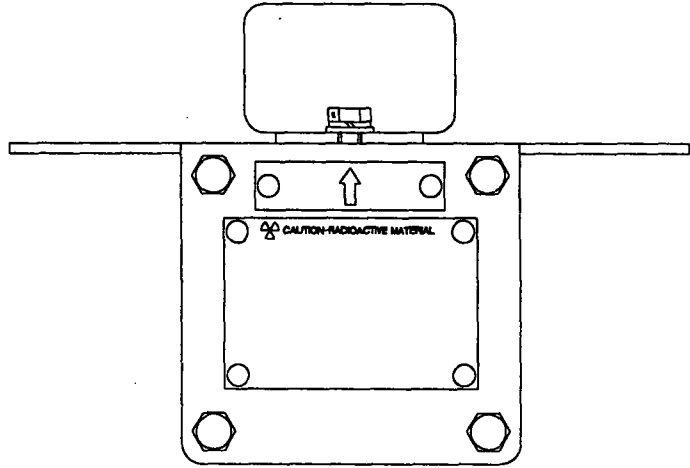
X: 1.5" (38mm) TO 5.0" (127mm)
 Y: 1.5" (38mm) TO 5.0" (127mm)
 Z: 5.0" (127mm) TO 52.0" (1321mm)
 TOLERANCES ON DIMENSIONS ARE $\pm .10$ " (2.54mm)



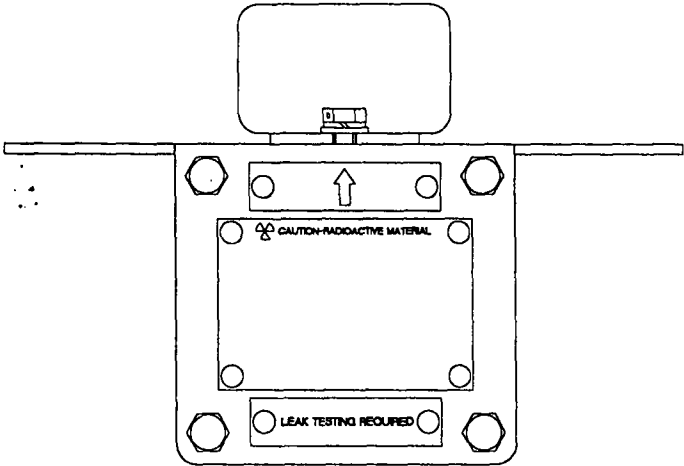
ATTACHMENT 1 FIGURE A

RONAN MEASUREMENTS DIVISION	
CUSTOMER:	SCALE: NTS
	DR. BY: RMC
	APPR. BY:
TITLE: OUTLINE: MODEL RLL-1 SOURCE HOLDER W/ SHIELD	
DATE: 11/13/98	DRAWING NUMBER: C-16071-K
	REV. 1

DATE	SYM	REVISION RECORD	DR	CK
3/16/01	0	NEW RELEASE	AVP	




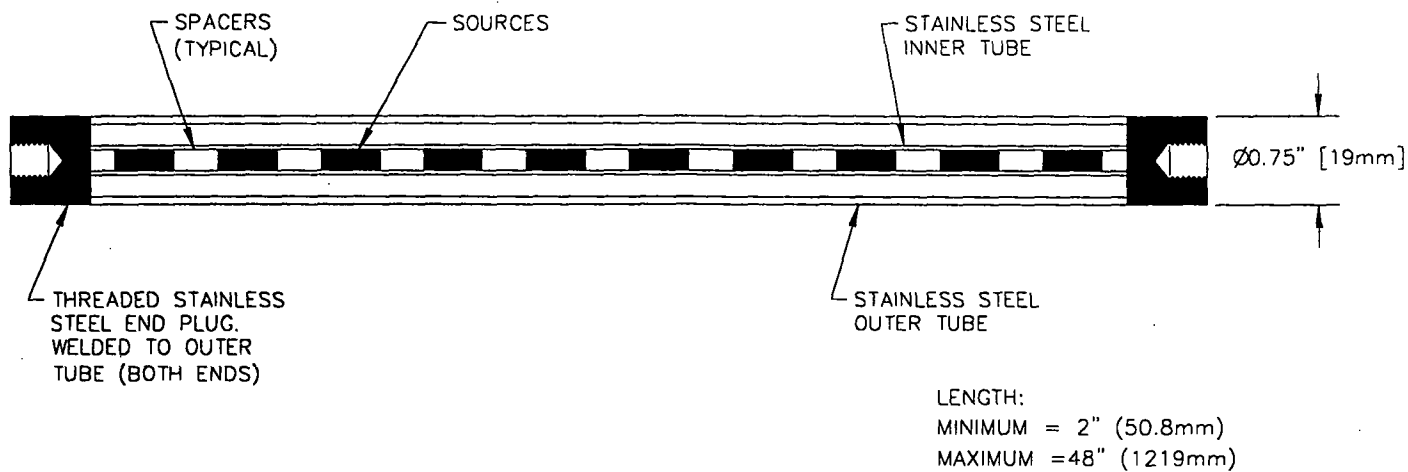
RLL1 WITH MULTIPLE SOURCES
LESS THAN 100 MICROCURIES EACH



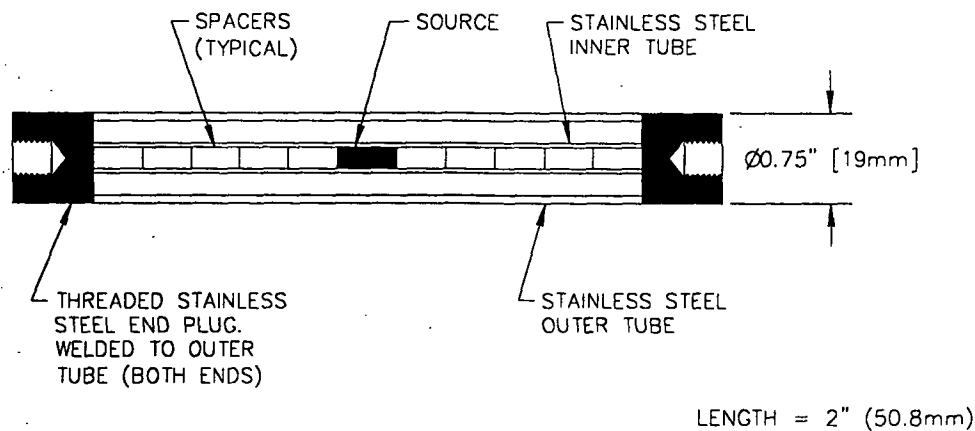
RLL1 WITH SINGLE SOURCE
GREATER THAN 100 MICROCURIES

ATTACHMENT 1 FIGURE A (1)

 RONAN MEASUREMENTS DIVISION		
CUSTOMER:	SCALE NTS	DR. BY AVP
		APPR. BY
TITLE INSTRUCTIONAL: RLL1 SOURCE HOLDER, LABELING REQUIREMENTS		
DATE 3/16/01	DRAWING NUMBER A-18757-K	REV. 0



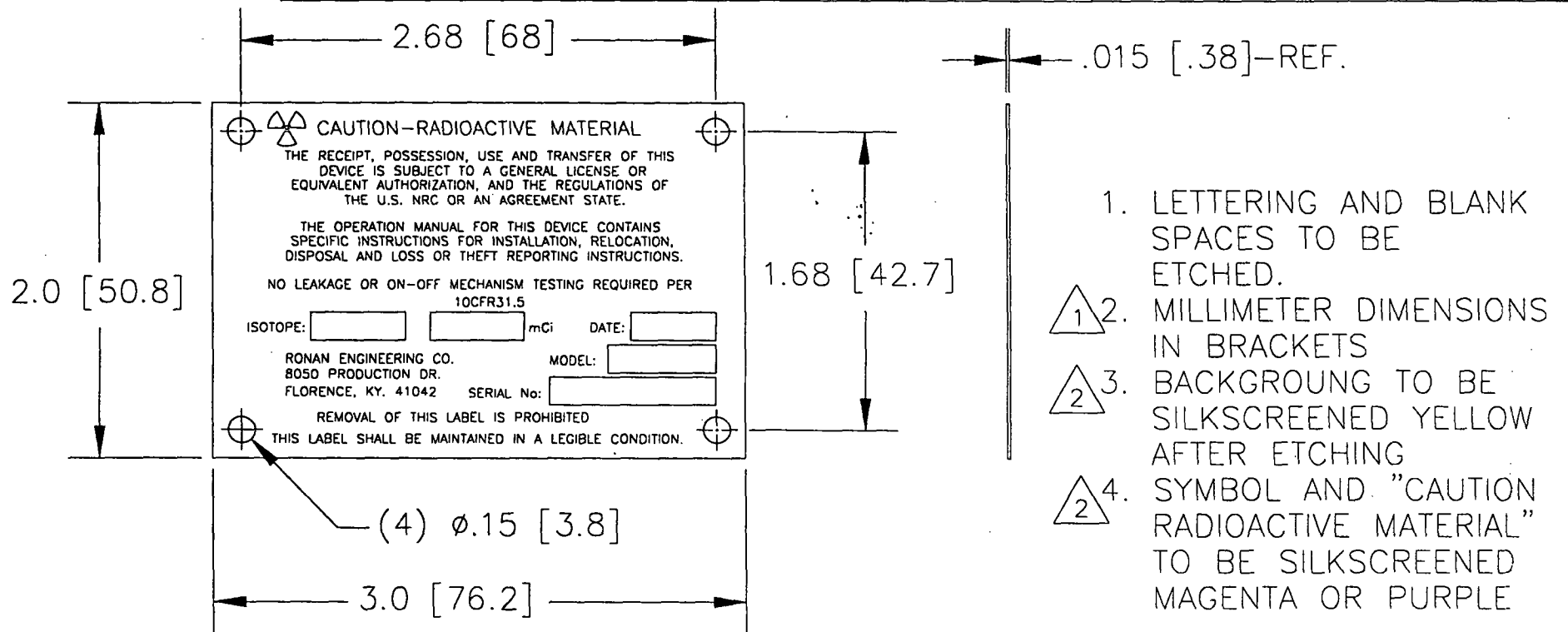
MODEL RLL-1 (A) SOURCEHOLDER



MODEL RLL-1 (A) SOURCEHOLDER

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REV.	DESCRIPTION	DATE	BY	ECN	APPR.	QAR.
0	NEW RELEASE	9/21/98	YSP	1744		
1	CHG'D TEXT ON LABEL, ADDED MM DIMS	1/7/99	RMC	1807		
2	ADDED NOTES 3 AND 4	1/14/99	CMC	1814		
3	MADE S/N SPACE LONGER, ADDED mCi, REMOVED QTY.	2/13/01	CMC	2336		
4	CHANGED TITLE DESCRIPTION	3/16/01	AVP	2352		

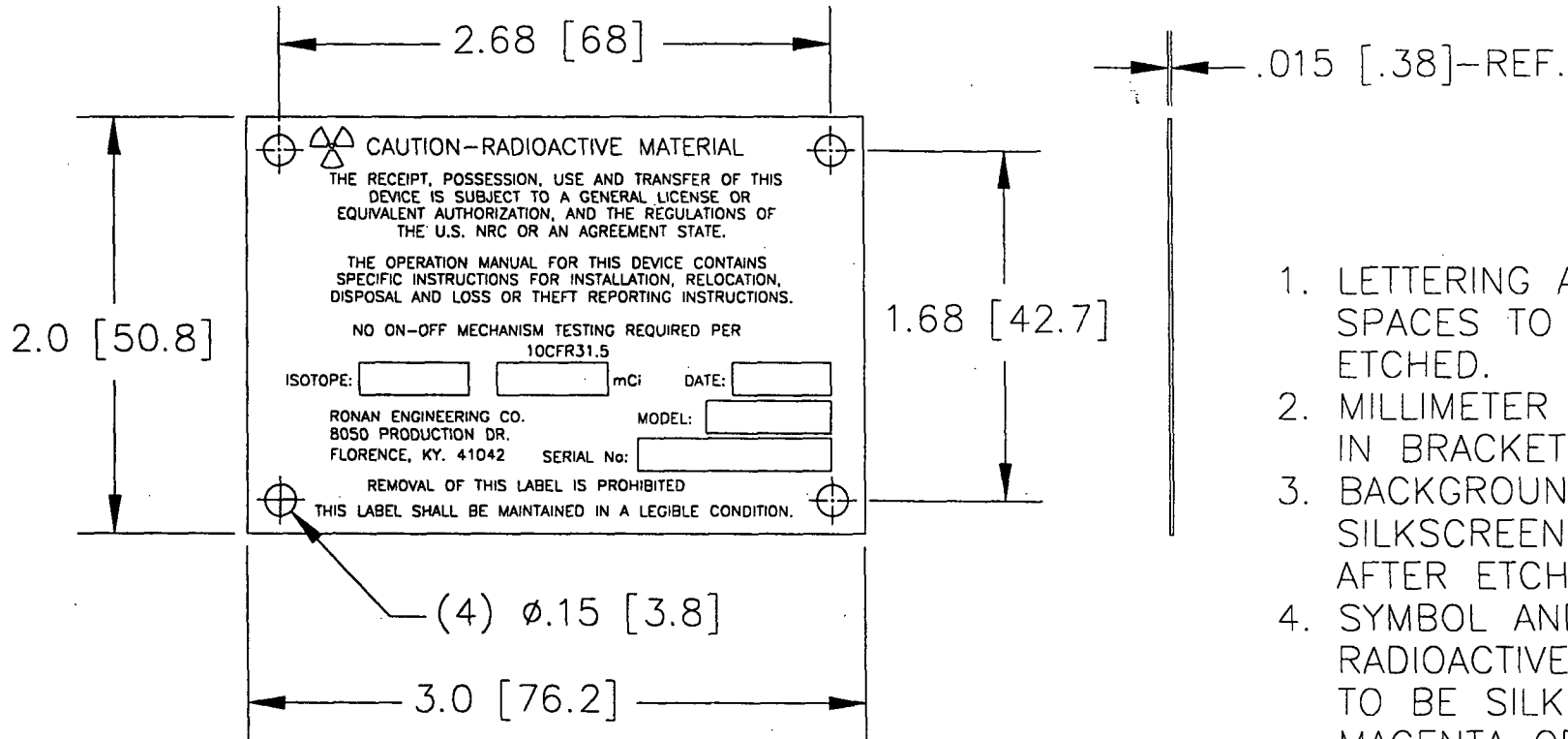


ATTACHMENT 1 FIGURE D

<p>TOLERANCES UNLESS OTHERWISE SPECIFIED DECIMALS: X ± .02 FRACTIONAL: ANGULAR: XX ± .01 ± 1/64 ± 30' XXX ± .005</p> <p>BREAK ALL SHARP CORNERS AND EDGES UNLESS OTHERWISE SPECIFIED. C'SINK ALL HOLES PRIOR TO TAPPING</p>	CUSTOMER		S.O. #	PART NUMBER:	
			REF. DRAWING OR P/N FOR ROUTER	LABL-15966	
MATERIAL: 28 GA 304 S/S	TITLE		DRAWN BY		
	DETAIL: LABEL, GENERAL LICENSE, RLL SRC HOLDERS W/ MULTIPLE SOURCES		YSP 9/21/98		
FINISH:	USED ON:		ENGINEERED BY		
	C-15952-K		YSP		
		SCALE	PURCHASE		DRAWING NUMBER
		1:1	IND. ENG: REVIEWED		
		QUALITY ASSURANCE REVIEWED		REV	
				4	

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REV.	DESCRIPTION	DATE	BY	ECN	APPR.	QAR.
0	NEW RELEASE	3/16/01	AVP	2352		



1. LETTERING AND BLANK SPACES TO BE ETCHED.
2. MILLIMETER DIMENSIONS IN BRACKETS
3. BACKGROUND TO BE SILKSCREENED YELLOW AFTER ETCHING
4. SYMBOL AND "CAUTION RADIOACTIVE MATERIAL" TO BE SILKSCREENED MAGENTA OR PURPLE

ATTACHMENT 1 FIGURE D (1)

TOLERANCES UNLESS OTHERWISE SPECIFIED
 DECIMALS: $X \pm .02$ FRACTIONAL: ANGULAR:
 $XX \pm .01$ $\pm 1/64$ $\pm 30'$
 $XXX \pm .005$

BREAK ALL SHARP CORNERS AND EDGES UNLESS OTHERWISE SPECIFIED.

C'SINK ALL HOLES PRIOR TO TAPPING

MATERIAL:

28 GA 304 S/S

FINISH:

CUSTOMER

TITLE

DETAIL: LABEL, GENERAL
 LICENSE, RLL SRC HOLDERS
 W/ SINGLE SOURCE

USED ON:

SCALE

1:1

S.O. #

REF. DRAWING OR P/N FOR ROUTER
 LABL-15966

PART NUMBER:

LABL-18756

DRAWN BY

AVP 3/16/01

ENGINEERED BY
 YSP

PURCHASE

IND. ENG. REVIEWED

QUALITY ASSURANCE REVIEWED



MEASUREMENTS DIVISION

DRAWING NUMBER

A-18756-K

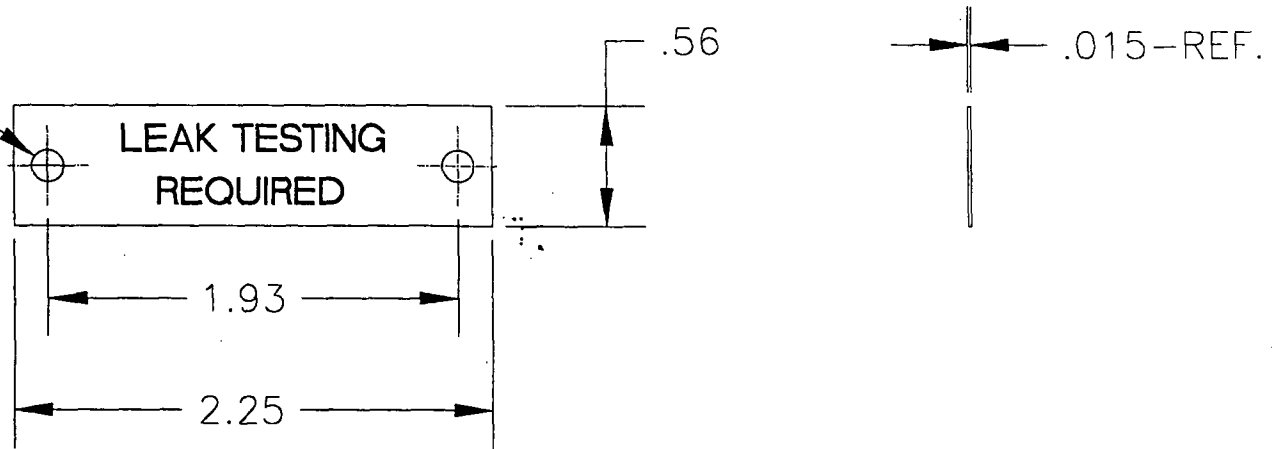
REV

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REV.	DESCRIPTION	DATE	BY	ECN	APPR.	QAR.
0	NEW RELEASE	3/20/01	AVP	2352		

(2) ϕ .15-THRU

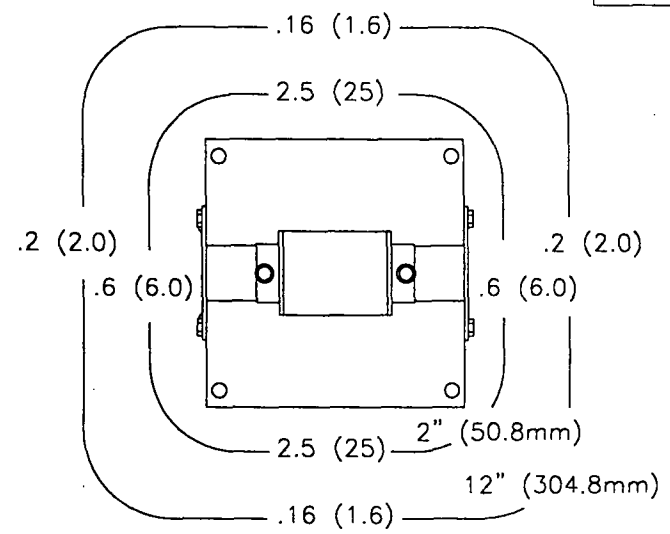
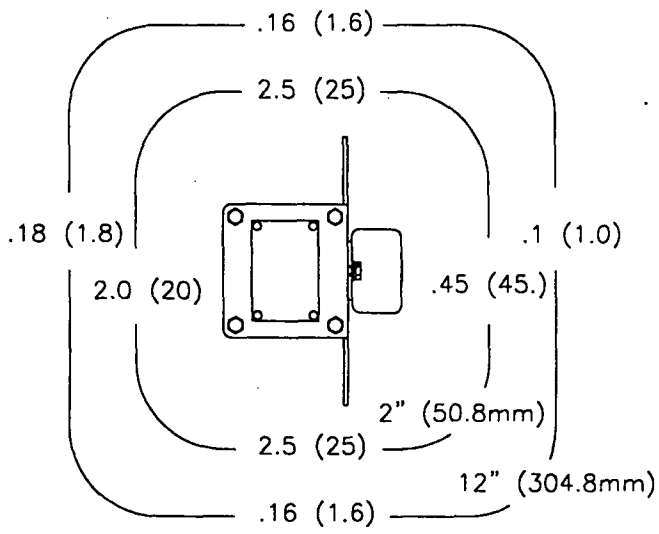


SILKSCREEN LETTERS RED
AFTER ETCHING

ATTACHMENT 1 FIGURE D (11)

TOLERANCES UNLESS OTHERWISE SPECIFIED DECIMALS: $X \pm .02$ FRACTIONAL: ANGULAR: $XX \pm .01 \pm 1/64 \pm 30'$ $XXX \pm .005$ BREAK ALL SHARP CORNERS AND EDGES UNLESS OTHERWISE SPECIFIED. C'SINK ALL HOLES PRIOR TO TAPPING	CUSTOMER		S.O. #	PART NUMBER:	
			REF. DRAWING OR P/N FOR ROUTER LABL-16452	LABL-18762	
MATERIAL: 28 GA 304 S/S	TITLE DETAIL: LABEL, LEAK TEST, RLL SOURCE HOLDERS		DRAWN BY AVP 3/20/01		
			ENGINEERED BY YSP		
		PURCHASE			
		IND. ENG. REVIEWED			
FINISH:	USED ON: D-18760-K	SCALE 1:1	QUALITY ASSURANCE REVIEWED		DRAWING NUMBER A-18762-K
					REV 0

DATE	SYM	REVISION RECORD	DR	CK
3/20/01	0	NEW RELEASE; ECN #2352	AVP	

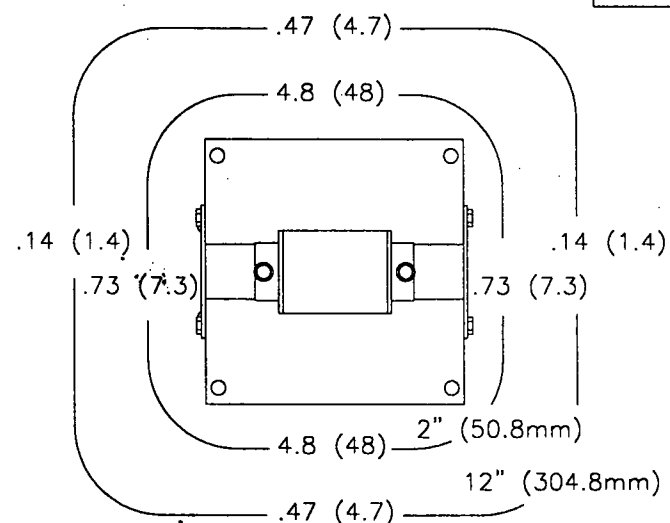
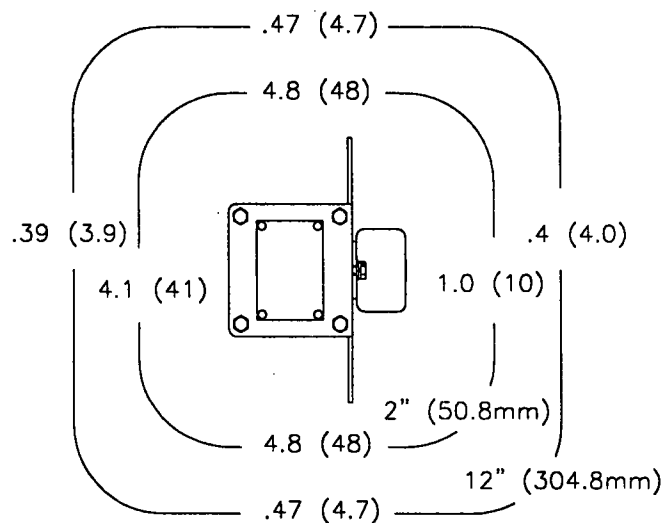


NOTES:

1. SURVEY METER—
MFR. VICTOREEN MODEL 491
S/N 2060 CAL. 11/00
2. SOURCE TYPE CS-137
3. SOURCE SIZE 900μCi
4. ALL READINGS IN mR/h(μSv/h)
5. SURVEYED BY C. CARIS
DATE 3/19/01
6. X = LESS THAN 0.1mR/h (1 μSv/h)
7. LESS THAN 0.1mR/h (1 μSv/h)
AT 36" (1 meter)

CUSTOMER:	SCALE NTS	DR. BY AVP APPR. BY
TITLE ISO DISTANCE CURVE: RLL1 WITH SINGLE SOURCE		
DATE 3/20/01	DRAWING NUMBER B-18763-K	REV. 0

DATE	SYM	REVISION RECORD	DR	CK
3/20/01	0	NEW RELEASE; ECN #2352	AVP	



NOTES:

1. SURVEY METER--
MFR. VICTOREEN MODEL 491
S/N 2060 CAL. 11/00
2. SOURCE TYPE CO-60
3. SOURCE SIZE 200μCi
4. ALL READINGS IN mR/h (μSv/h)
5. SURVEYED BY C. CARIS
DATE 3/19/01
6. X = LESS THAN 0.1mR/h (1 μSv/h)
7. LESS THAN 0.1mR/h (1 μSv/h)
AT 36" (1 meter)

RONAN MEASUREMENTS DIVISION		
CUSTOMER:	SCALE NTS	DR. BY <u>AVP</u> APPR. BY
TITLE ISO DISTANCE CURVE: RLL1 WITH SINGLE SOURCE		
DATE 3/20/01	DRAWING NUMBER B-18764-K	REV. 0

INSTALLATION, OPERATION AND
RADIATION SAFETY MANUAL

RONAN LOW LEVEL SERIES (RLL-1) DEVICES
WITH MULTIPLE SOURCES, EACH SOURCE =< 90uCi

GENERAL LICENSE - THE RONAN LOW LEVEL SERIES OF DEVICES ARE MANUFACTURED BY RONAN ENGINEERING, FLORENCE, KENTUCKY. THE DEVICES HAVE BEEN TESTED AND CERTIFIED AS A DOT 7A TYPE A PACKAGE AND ARE APPROVED FOR DISTRIBUTION TO GENERAL LICENSEES. REGULATIONS PERTAINING TO THESE DEVICES ARE FOUND IN TITLE 10 CFR PARA. 31.5, AND ARE ENCLOSED IN THIS MANUAL. IT IS THE OBLIGATION OF THE USER TO MAINTAIN A CURRENT COPY OF THE REGULATIONS OR AGREEMENT STATE REGULATIONS EQUIVALENT TO 10 CFR 31.5. A LISTING (CURRENT AT TIME OF PRINTING) OF NRC REGIONAL OFFICES AND AGREEMENT STATE OFFICE LOCATIONS ARE INCLUDED IN THIS MANUAL; UPDATED INFORMATION MAY BE OBTAINED FROM THE NRC WEB PAGE AT NRC.GOV.COM.

THE DEVICE, IF INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS AS PROVIDED IN ATTACHMENT 1, AND WITH CERTAIN MINIMAL PRECAUTIONS CAN BE SAFELY USED FOR THE SPECIFIC PURPOSES OF MEASURING DENSITY, LEVEL OR WEIGHT, BY PERSONS NOT TRAINED IN RADIATION PROTECTION. THE DEVICE IS INTENDED ONLY TO BE USED FOR THESE PURPOSES. THE GENERAL LICENSEE IS REQUIRED TO COMPLY WITH THE REGULATIONS OF 10 CFR PART 31, OR THE AGREEMENT STATE REGULATIONS EQUIVALENT TO PART 31, EVEN THOUGH NO APPLICATION FOR LICENSE OR SPECIAL DOCUMENTATION IS ISSUED.

RONAN ISSUES A REPORT OR REGISTRATION, TO THE NRC OR THE AGREEMENT STATE IN WHICH THE LICENSEE IS LOCATED, OF ALL TRANSFERS OF THESE DEVICES TO GENERAL LICENSEES WITH THEIR NAMES AND ADDRESSES.

NRC OR STATE INSPECTION

EACH LICENSEE, WHETHER A SPECIFIC OR A GENERAL LICENSEE, IS SUBJECT TO INSPECTION BY THE NRC OR AGREEMENT STATE. HE MUST AFFORD THE NRC OR AGREEMENT STATE, AT ALL REASONABLE TIMES, OPPORTUNITY TO INSPECT RADIOACTIVE MATERIAL UNDER HIS CONTROL.

RADIATION PROTECTION

THE RONAN LOW LEVEL SERIES OF SOURCE HOLDERS UTILIZE SOURCE MATERIAL WITH A MAXIMUM ACTIVITY OF 900 MICROCURIES OF CESIUM-137, OR 200 MICROCURIES OF COBALT-60 PER SOURCE HOLDER. WITH A MAXIMUM OF 90 MICROCURIES PER SOURCE CAPSULE. THE CONSTRUCTION OF EACH SOURCE IS CERTIFIED AS SPECIAL FORM, AS THE EXTERIOR OF EACH CAPSULE IS MADE FROM STAINLESS STEEL AND THE RADIATION MATERIAL IS TOTALLY ENCAPSULATED BY HELI-ARC WELDING. THESE SPECIAL FORM QUANTITIES ARE THEN DISTRIBUTED INSIDE THE RONAN LOW LEVEL DEVICE WHICH IS MADE FROM STAINLESS STEEL AND WELDED CLOSED AT BOTH ENDS PRIOR TO BEING INSERTED INTO ITS RADIATION SHIELD.

THE GENERAL LICENSEE IS NOT PERMITTED TO REPAIR, MODIFY OR OTHERWISE TAMPER WITH THE DEVICE OR ITS SHIELDING.

THE HIGH INTEGRITY, AND THE LOW SOURCE QUANTITY, PERMITS THE GENERAL LICENSEE TO COMMISSION THE DEVICE WITHOUT WIPE TESTING OR TESTING OF ANY KIND AS PER 10 CFR PART 31.5(c)(2)(ii).

UNDER ORDINARY AND ACCIDENTAL CONDITIONS, IT IS UNLIKELY THAT ANY PERSON WOULD RECEIVE AN EXTERNAL DOSE IN EXCESS OF THE DOSE TO THE APPROPRIATE ORGAN AS SPECIFIED IN COLUMN IV OF THE TABLE IN 10 CFR PART 32.24. ALSO IT CAN BE DEMONSTRATED THAT IF THE DEVICE IS USED AS INTENDED IN THE MANUFACTURERS (RONAN) INSTRUCTIONS, A CALENDER DOSE IN EXCESS OF TEN PERCENT (10%) OF THE LIMITS SPECIFIED IN 10 CFR PART 20.1201(a) IS UNLIKELY.

IN CASE OF SUSPECTED DAMAGE, RONAN ENGINEERING SHOULD BE CONSULTED FOR INSTRUCTIONS TO RETURN THE DEVICE FOR REPAIR OR DISPOSAL.

RADIATION DOSE ESTIMATE TO PERSONNEL USING THE RONAN LOW LEVEL SERIES OF DEVICES:

ISO DISTANCE CURVES ARE PROVIDED IN DRAWINGS B-16305 AND B-16308 FOR DENSITY/POINT LEVEL GAGES, B-16306 AND C-16309 FOR CONTINUOUS LEVEL GAGES AND C-16307 AND C-16310 FOR WEIGH GAGES. THE MAXIMUM EXPOSURE AT ONE FOOT FROM THE DEVICE IS LESS THAN 0.5 mR/h. MOST OF THESE DEVICES ONLY REQUIRE, AS A CONSERVATIVE ESTIMATE, LESS THAN ONE HOUR OF HANDLING TO INSTALL. BASED ON THESE LOW EMISSION LEVELS, AND THE SHORT DEVIATION TIME SPENT INSTALLING AND WORKING IN THE VICINITY OF THE DEVICE, IT CAN BE SAFELY ASSUMED THAT THE WORKING PERSONNEL WILL RECEIVE EXPOSURES CONSIDERABLY LESS THAN 10 PERCENT (10%) OF THE DOSE LIMITS IN COLUMN IV OF PART 32.24 FOR THE APPROPRIATE ORGANS, AND LESS THAN TEN PERCENT (10%) OF THE DOSE STANDARDS IN PART 20.1201(a).

LABELING:

THE STAINLESS STEEL "CAUTION - RADIOACTIVE MATERIAL" LABEL MUST NOT BE REMOVED PER 10 CFR 31.5.

TRANSFER:

THE GENERAL LICENSEE SHALL NOT TRANSFER OWNERSHIP OF THE DEVICE EXCEPT AS SPECIFIED IN 10 CFR 31.5.

DISPOSAL:

THE DEVICE MUST BE RETURNED TO RONAN ENGINEERING OR A SPECIAL LICENSED RADIOACTIVE MATERIAL BROKER, PURSUANT TO PARTS 30 AND 32 OF 10 CFR, FOR DISPOSAL. RONAN ENGINEERING WILL PROVIDE PACKAGING INSTRUCTIONS UPON REQUEST.

ATTACHMENTS:

- 1) INSTALLATION INSTRUCTIONS FOR THE RLL-1 DEVICE
- 2) COPY OF TITLE 10 CFR PARA. 31.5
- 3) NRC REGIONAL OFFICES AND AGREEMENT STATE OFFICES
- 4) ISO DISTANCE CURVES

REV. 3 3/14/01

INSTALLATION, OPERATION AND
RADIATION SAFETY MANUAL

RONAN LOW LEVEL SERIES (RLL-1) DEVICES
WITH A SINGLE SOURCE CONTAINING UP TO
900uCi CS-137 OR 200uCi CO-60

GENERAL LICENSE - THE RONAN LOW LEVEL SERIES OF DEVICES ARE MANUFACTURED BY RONAN ENGINEERING, FLORENCE, KENTUCKY. THE DEVICES HAVE BEEN TESTED AND CERTIFIED AS A DOT 7A TYPE A PACKAGE AND ARE APPROVED FOR DISTRIBUTION TO GENERAL LICENSEES. REGULATIONS PERTAINING TO THESE DEVICES ARE FOUND IN TITLE 10 CFR PARA. 31.5, AND ARE ENCLOSED IN THIS MANUAL. IT IS THE OBLIGATION OF THE USER TO MAINTAIN A CURRENT COPY OF THE REGULATIONS OR AGREEMENT STATE REGULATIONS EQUIVALENT TO 10 CFR 31.5. A LISTING (CURRENT AT TIME OF PRINTING) OF NRC REGIONAL OFFICES AND AGREEMENT STATE OFFICE LOCATIONS ARE INCLUDED IN THIS MANUAL; UPDATED INFORMATION MAY BE OBTAINED FROM THE NRC WEB PAGE AT NRC.GOV.COM.

THE DEVICE, IF INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS AS PROVIDED IN ATTACHMENT 1, AND WITH CERTAIN MINIMAL PRECAUTIONS CAN BE SAFELY USED FOR THE SPECIFIC PURPOSES OF MEASURING DENSITY, LEVEL OR WEIGHT, BY PERSONS NOT TRAINED IN RADIATION PROTECTION. THE DEVICE IS INTENDED ONLY TO BE USED FOR THESE PURPOSES. THE GENERAL LICENSEE IS REQUIRED TO COMPLY WITH THE REGULATIONS OF 10 CFR PART 31, OR THE AGREEMENT STATE REGULATIONS EQUIVALENT TO PART 31, EVEN THOUGH NO APPLICATION FOR LICENSE OR SPECIAL DOCUMENTATION IS ISSUED.

RONAN ISSUES A REPORT OR REGISTRATION, TO THE NRC OR THE AGREEMENT STATE IN WHICH THE LICENSEE IS LOCATED, OF ALL TRANSFERS OF THESE DEVICES TO GENERAL LICENSEES WITH THEIR NAMES AND ADDRESSES.

NRC OR STATE INSPECTION

EACH LICENSEE, WHETHER A SPECIFIC OR A GENERAL LICENSEE, IS SUBJECT TO INSPECTION BY THE NRC OR AGREEMENT STATE. HE MUST AFFORD THE NRC OR AGREEMENT STATE, AT ALL REASONABLE TIMES, OPPORTUNITY TO INSPECT RADIOACTIVE MATERIAL UNDER HIS CONTROL.

LEAK TESTING REQUIREMENTS

THE RLL-1 DEVICE UTILIZING A SINGLE SOURCE CAPSULE MUST BE LEAK TESTED (WIPE TEST) EVERY 36 MONTHS. THE GENERAL LICENSEE MAY PERFORM THE WIPE TEST ON THE DEVICE. THE WIPE TEST MUST THEN BE SENT TO RONAN OR ANOTHER LICENSED FACILITY FOR EVALUATION. THE RESULTS OF THE WIPE TEST MUST BE MAINTAINED BY THE GENERAL LICENSEE. INSTRUCTIONS FOR PERFORMING THE WIPE TEST ON THE RLL-1 DEVICE ARE CONTAINED IN ATTACHMENT 5.

RADIATION PROTECTION

THE RONAN LOW LEVEL SERIES OF SOURCE HOLDERS UTILIZE SOURCE MATERIAL WITH A MAXIMUM ACTIVITY OF 900 MICROCURIES OF CESIUM-137, OR 200 MICROCURIES OF COBALT-60 PER SOURCE HOLDER. THE CONSTRUCTION OF EACH SOURCE IS CERTIFIED AS SPECIAL FORM, AS THE EXTERIOR OF EACH CAPSULE IS MADE FROM STAINLESS STEEL AND THE RADIATION MATERIAL IS TOTALLY ENCAPSULATED BY HELI-ARC WELDING. THESE SPECIAL FORM SOURCE CAPSULES ARE INSERTED INTO THE RONAN LOW LEVEL DEVICE WHICH IS MADE FROM STAINLESS STEEL AND WELDED CLOSED AT BOTH ENDS PRIOR TO BEING INSERTED INTO ITS RADIATION SHIELD.

THE GENERAL LICENSEE IS NOT PERMITTED TO REPAIR, MODIFY OR OTHERWISE TAMPER WITH THE DEVICE OR ITS SHIELDING.

UNDER ORDINARY AND ACCIDENTAL CONDITIONS, IT IS UNLIKELY THAT ANY PERSON WOULD RECEIVE AN EXTERNAL DOSE IN EXCESS OF THE DOSE TO THE APPROPRIATE ORGAN AS SPECIFIED IN COLUMN IV OF THE TABLE IN 10 CFR PART 32.24. ALSO IT CAN BE DEMONSTRATED THAT IF THE DEVICE IS USED AS INTENDED IN THE MANUFACTURERS (RONAN) INSTRUCTIONS, A CALENDER DOSE IN EXCESS OF TEN PERCENT (10%) OF THE LIMITS SPECIFIED IN 10 CFR PART 20.1201(a) IS UNLIKELY.

IN CASE OF SUSPECTED DAMAGE, RONAN ENGINEERING SHOULD BE CONSULTED FOR INSTRUCTIONS TO RETURN THE DEVICE FOR REPAIR OR DISPOSAL.

RADIATION DOSE ESTIMATE TO PERSONNEL USING THE RONAN LOW LEVEL SERIES OF DEVICES:

ISO DISTANCE CURVES ARE PROVIDED IN DRAWINGS B-16305 AND B-16308 FOR DENSITY/POINT LEVEL GAGES, B-16306 AND C-16309 FOR CONTINUOUS LEVEL GAGES AND C-16307 AND C-16310 FOR WEIGH GAGES. THE MAXIMUM EXPOSURE AT ONE FOOT FROM THE DEVICE IS LESS THAN 0.5 mR/h. MOST OF THESE DEVICES ONLY REQUIRE, AS A CONSERVATIVE ESTIMATE, LESS THAN ONE HOUR OF HANDLING TO INSTALL. BASED ON THESE LOW EMISSION LEVELS, AND THE SHORT DEVIATION TIME SPENT INSTALLING AND WORKING IN THE VICINITY OF THE DEVICE, IT CAN BE SAFELY ASSUMED THAT THE WORKING PERSONNEL WILL RECEIVE EXPOSURES CONSIDERABLY LESS THAN 10 PERCENT (10%) OF THE DOSE LIMITS IN COLUMN IV OF PART 32.24 FOR THE APPROPRIATE ORGANS, AND LESS THAN TEN PERCENT (10%) OF THE DOSE STANDARDS IN PART 20.1201(a).

LABELING:

THE STAINLESS STEEL "CAUTION - RADIOACTIVE MATERIAL" LABEL MUST NOT BE REMOVED PER 10 CFR 31.5.

TRANSFER:

THE GENERAL LICENSEE SHALL NOT TRANSFER OWNERSHIP OF THE DEVICE EXCEPT AS SPECIFIED IN 10 CFR 31.5.

DISPOSAL:

THE DEVICE MUST BE RETURNED TO RONAN ENGINEERING OR A SPECIAL LICENSED RADIOACTIVE MATERIAL BROKER, PURSUANT TO PARTS 30 AND 32 OF 10 CFR, FOR DISPOSAL. RONAN ENGINEERING WILL PROVIDE PACKAGING INSTRUCTIONS UPON REQUEST.

ATTACHMENTS:

- 1) INSTALLATION INSTRUCTIONS FOR THE RLL-1 DEVICE
- 2) COPY OF TITLE 10 CFR PARA. 31.5
- 3) NRC REGIONAL OFFICES AND AGREEMENT STATE OFFICES
- 4) ISO DISTANCE CURVES
- 5) LEAK TEST (WIPE TEST) INSTRUCTIONS

WARNING:

PRIOR TO INSTALLATION OF SOURCE HOLDER, **MAKE SURE** THAT MOUNTING BRACKETS ARE ATTACHED TO CUSTOMERS VESSEL(PIPE).

STEP #1

1. REMOVE SOURCE HOLDER FROM SHIPPING CONTAINER. YOU'LL SEE ARROWS INDICATING RADIATION DIRECTION. RADIATION PORT IS COVERED WITH SHIPPING COVER.

STEP #2

1. REMOVE SHIPPING COVER (DO NOT DISCARD MOUNTING SCREWS). HOLD SOURCE HOLDER SO RADIATION PORT AIMS AWAY FROM YOUR BODY.

STEP #3

1. MOUNT SOURCE HOLDER TO THE BRACKETS.

STEP #4

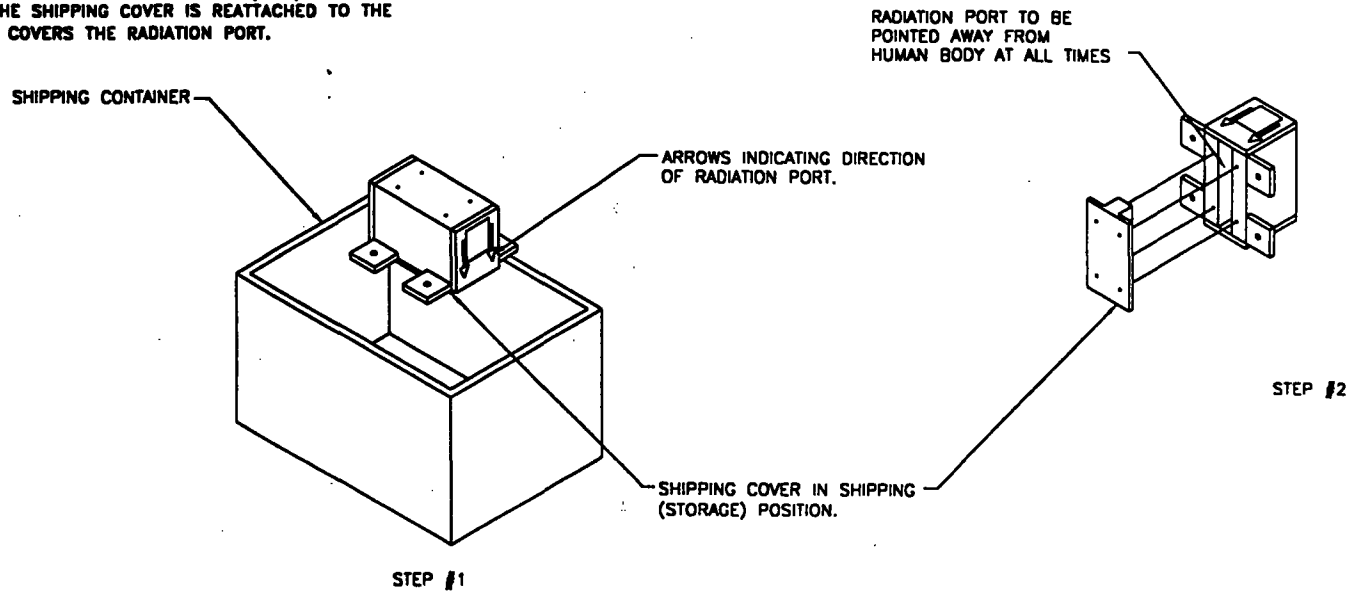
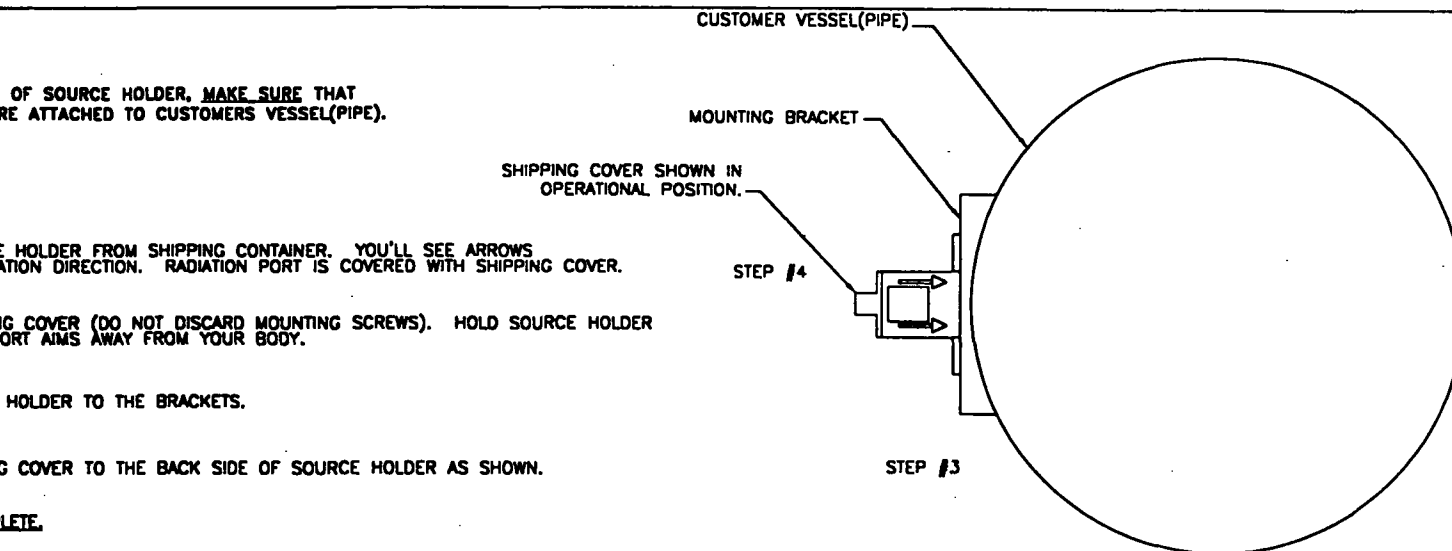
1. ATTACH SHIPPING COVER TO THE BACK SIDE OF SOURCE HOLDER AS SHOWN.

INSTALLATION COMPLETE.

TO REMOVE SOURCE HOLDER, REVERSE PROCEDURE.

WARNING:

IF SOURCE HOLDER IS REMOVED FROM THE VESSEL(PIPE) FOR ANY REASON, **MAKE SURE** THE SHIPPING COVER IS REATTACHED TO THE SOURCE HOLDER SO IT COVERS THE RADIATION PORT.



REV	DATE	DESCRIPTION	BY	CR
001	11/16/98	ISSUE FOR REV		

ROMAN MEASUREMENTS DIVISION			
REV	DATE	BY	CR
001	11/16/98	NTS	
INSTALLATION: RLL-1 SOURCE HOLDER			
DATE	REV	DESCRIPTION	BY
11/16/98	0	D-16070-K	

§31.5 Certain measuring, gauging or controlling devices.²

(a) A general license is hereby issued to commercial and industrial firms and research, educational and medical institutions, individuals in the conduct of their business, and Federal, State or local government agencies to acquire, receive, possess, use or transfer, in accordance with the provisions of paragraphs (b), (c) and (d) of this section, byproduct material contained in devices designed and manufactured for the purpose of detecting, measuring, gauging or controlling thickness, density, level, interface location, radiation, leakage, or qualitative or quantitative chemical composition, or for producing light or an ionized atmosphere.

(b) The general license in paragraph (a) of this section applies only to byproduct material contained in devices which have been manufactured or initially transferred and labeled in accordance with the specifications contained in a specific license issued pursuant to §32.51 of this chapter or in accordance with the specifications contained in a specific license issued by an Agreement State which authorizes distribution of the devices to persons generally licensed by the Agreement State.

(c) Any person who acquires, receives, possesses, uses or transfers byproduct material in a device pursuant to the general license in paragraph (a) of this section:

(1) Shall assure that all labels affixed to the device at the time of receipt and bearing a statement that removal of the label is prohibited are maintained thereon and shall comply with all in-

structions and precautions provided by such labels;

(2) Shall assure that the device is tested for leakage of radioactive material and proper operation of the on-off mechanism and indicator, if any, at no longer than six-month intervals or at such other intervals as are specified in the label; however:

(i) Devices containing only krypton need not be tested for leakage of radioactive material, and

(ii) Devices containing only tritium or not more than 100 microcuries of other beta and/or gamma emitting material or 10 microcuries of alpha emitting material and devices held in storage in the original shipping container prior to initial installation need not be tested for any purpose;

(3) Shall assure that the tests required by paragraph (c)(2) of this section and other testing, installation, servicing, and removal from installation involving the radioactive materials, its shielding or containment, are performed:

(i) In accordance with the instructions provided by the labels; or

(ii) By a person holding a specific license pursuant to parts 30 and 32 of this chapter or from an Agreement State to perform such activities;

(4) Shall maintain records showing compliance with the requirements of paragraphs (c)(2) and (c)(3) of this section. The records must show the results of tests. The records also must show the dates of performance of, and the names of persons performing, testing, installing, servicing, and removing from the installation radioactive material and its shielding or containment. The licensee shall retain these records as follows:

(i) Each record of a test for leakage or radioactive material required by paragraph (c)(2) of this section must be retained for three years after the next required leak test is performed or until the sealed source is transferred or disposed of.

(ii) Each record of a test of the on-off mechanism and indicator required by paragraph (c)(2) of this section must be retained for three years after the next required test of the on-off mechanism and indicator is performed or until the

²Persons possessing byproduct material in devices under the general license in §31.5 before Jan. 15, 1975, may continue to possess, use or transfer that material in accordance with the requirements of §31.5 in effect on Jan. 14, 1975.

sealed source is transferred or disposed of.

(iii) Each record that is required by paragraph (c)(3) of this section must be retained for three years from the date of the recorded event or until the device is transferred or disposed of.

(5) Upon the occurrence of a failure of or damage to, or any indication of a possible failure of or damage to, the shielding of the radioactive material or the on-off mechanism or indicator, or upon the detection of 0.905 microcurie or more removable radioactive material, shall immediately suspend operation of the device until it has been repaired by the manufacturer or other person holding a specific license pursuant to parts 30 and 32 of this chapter or from an Agreement State to repair such devices, or disposed of by transfer to a person authorized by a specific license to receive the byproduct material contained in the device and, within 30 days, furnish to the Administrator of the appropriate Nuclear Regulatory Commission, Regional Office listed in appendix D of part 20 of this chapter, a report containing a brief description of the event and the remedial action taken;

(6) Shall not abandon the device containing byproduct material;

(7) Shall not export the device containing byproduct material except in accordance with part 110 of this chapter;

(8) Except as provided in paragraph (c)(9) of this section, shall transfer or dispose of the device containing byproduct material only by transfer to persons holding a specific license pursuant to parts 30 and 32 of this chapter or from an Agreement State to receive the device and within 30 days after transfer of a device to a specific licensee shall furnish to the Director of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555 a report containing identification of the device by manufacturer's name and model number and the name and address of the person receiving the device. No report is required if the device is transferred to the specific licensee in order to obtain a replacement device;

(9) Shall transfer the device to another general licensee only:

(i) Where the device remains in use at a particular location. In such case the transferor shall give the transferee a copy of this section and any safety documents identified in the label of the device and within 30 days of the transfer, report to the Director of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, the manufacturer's name and model number of device transferred, the name and address of the transferee, and the name and/or position of an individual who may constitute a point of contact between the Commission and the transferee; or

(ii) Where the device is held in storage in the original shipping container at its intended location of use prior to initial use by a general licensee.

(10) Shall comply with the provisions of §§ 20.2201, and 20.2202 of this chapter for reporting radiation incidents, theft or loss of licensed material, but shall be exempt from the other requirements of parts 19, 20, and 21, of this chapter.

(d) The general license in paragraph (a) of this section does not authorize the manufacture or import of devices containing byproduct material.

[39 FR 43532, Dec. 16, 1974, as amended at 40 FR 8785, Mar. 3, 1975; 40 FR 14085, Mar. 28, 1975; 42 FR 25721, May 19, 1977; 42 FR 28896, June 6, 1977; 43 FR 6922, Feb. 17, 1978; 53 FR 19246, May 27, 1988; 56 FR 23471, May 21, 1991; 56 FR 61352, Dec. 3, 1991; 58 FR 67659, Dec. 22, 1993]

LISTING OF NRC REGIONAL OFFICES AND STATE PROGRAM DIRECTORY

REGION I

US NUCLEAR REGULATORY COMMISSION
475 ALLENDALE ROAD
KING OF PRUSSIA, PA. 19406-1415
610-337-5000

REGION II

US NUCLEAR REGULATORY COMMISSION
REGION II
ATLANTA FEDERAL CENTER (AFC) TOWER
61 FORSYTH STREET, NW, SUITE 23T85
ATLANTA, GA. 30303
404-562-4400

REGION III

US NUCLEAR REGULATORY COMMISSION
801 WARRENVILLE ROAD
LISLE, IL. 60532-4351
630-829-9500

REGION IV

US NUCLEAR REGULATORY COMMISSION
HARRIS TOWER
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TX. 76011-8064
817-860-8100