



## BÄUMER OF AMERICA INC.

P.O. Box 235  
435 Route 202  
Towaco, NJ 07082  
Tel: (201) 263-1569  
Telefax: (201) 299-8587  
Telex: 269321 (Baum UR)

May 28, 1992

Sealed Source Safety Section  
Source Containment and Devices Branch  
Division of Industrial and Medical Nuclear Safety  
Nuclear Regulatory Commission  
1 Whiteflint North  
11555 Rockville Pike  
Rockville, MD 20852  
Mail Stop 6H3

Attn.: Mr. Douglas A. Broaddus, Mech. Eng.

Ref.: Your letter dated April 23, 1992

Dear Mr. Broaddus,

Reference is made to the a.m. letter regarding several questions raised about changes to registration certificate NR-122-D-101-S. Please find listed below our response to your request.

- 1) Please find enclosed drawings and documentation regarding the sources that are purchased from Amersham (the manufacturer of the source). The quality assurance procedure used is Ansi/150 classification #77C33232 and 77C43232 for these sources. I believe that this classification is previously registered with the N.R.C. The Amersham source is shielded and installed within our housing. A description and drawings of this shielding and housing are included. Betacontrol does not manufacture or service these sealed sources.  
"In accordance with the NRC mandated "receipt inspection program" Betacontrol GmbH will engage in the following practices as necessary.
  - 1) Each device (model MK 1.0) shipped to the end user by Betacontrol will be accompanied by an "as built drawing". This drawing will illustrate the actual construction of the device, label designations and source contained within along with other pertinent information.

9611220257 961101  
PDR RC \* PDR  
SSD

9611220257

## BÄUMER OF AMERICA INC.

Page

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- 2) Prior to installation the end user will inspect the device and verify the conformability of the device by signing a verification of compliance form which will also be shipped with the device by Betacontrol GmbH (similar copy attached). A completed copy of the verification of compliance form will be kept on file by Bäumer of America, Inc.
- 3) Prior to installation the end user will also be responsible for testing the operation of the device and inspecting the device for any damage which may have occurred during shipment.
- 4) Prior to installation the end user must report any device deviations to the related agency or firm as directed by N.R.C. guidelines.

A copy of the Verification of Compliance Form is enclosed for your reference.

- 2) Betacontrol advises each customer that no service or disposal of sealed sources is available in the U.S. If a problem should occur with a sealed source Betacontrol advises that the device should be returned to Betacontrol on Germany for service or disposal. Betacontrol in turn will send the failed or decayed source back to the manufacturer for repair or service. No such service or disposal will occur in the U.S.
- 3) Please find enclosed a drawing and a catalog page showing the dimensionally compatible models KAC.D1 and KAC.D3. Also enclosed please find drawing #700-103-220B19 that shows the dosage rates.

I am hopeful that this information satisfies your requirements but should you have any questions please do not hesitate to call me.

Reference is also made to our conversation of May 28, 1992 regarding various subjects.

- a) I would appreciate that if our certificate is approved I could receive a copy before June 12, 1992. As I have previously mentioned I will be visiting Betacontrol the week of June 14, 1992 and would like to take this document with me.

MAY 28 1992

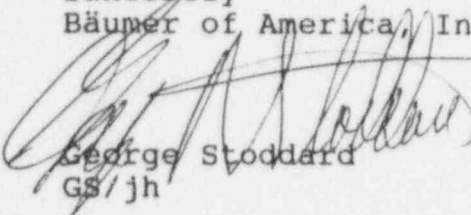
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- b) I am also requesting that a copy of the approved certificate will be forwarded as soon as possible to Mr. Eric Reber at N.R.C. 475 Allendale Rd, King of Prussia, PA 19406. Mr. Reber is awaiting the disposition of this certificate to facilitate the renewal of our license and your cooperation is greatly appreciated.
- c) Lastly, I am requesting that a copy of this document will be forwarded as soon as possible to Ms. Robyn Hayden at the Radiation Protection Office in North Carolina. Ms. Hayden is currently holding approval of a use permit for a customer of Betacontrol pending the approval of our certificate.

Your help and cooperation with all of the aforementioned items is greatly appreciated and as previously mentioned if you should have any questions please do not hesitate to call.

Sincerely  
Bäumer of America, Inc.



George Stoddard  
GS/jh

## BÄUMER OF AMERICA INC.

Page

## Verification of Compliance Form

Please complete this form and return to:

Betacontrol GmbH  
P.O.Box 12 25  
Am Weidekamp 10  
D 5905 Freudenberg  
Germany

- 1) Each device (model MK 1.0) has been shipped to you by Betacontrol with a copy of an "as built drawing". This drawing illustrates the actual construction of the device, label designations and source contained within along with other pertinent information. Please verify the compliance of the device to the specifications as called out on the drawing.
- 2) Prior to installation please test the operation of the device (shutter mechanism, etc.) and inspect device for any damage which may have occurred during shipment and report any device deviation to the related agency or firm as directed by the NRC guidelines.

Please sign this verification and return to a.m. address as soon as possible. Please include any comments so we will be able to address any situations should they occur.

The device conforms with the supplied "as built drawing":

YES \_\_\_\_\_

NO \_\_\_\_\_

Comments:

This device was received undamaged and mechanically operational:

YES \_\_\_\_\_

NO \_\_\_\_\_

Comments:

\_\_\_\_\_  
Signature of End User



MAY 28 1992

betacontrol

gmbh meß- und regeltechnik

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## Description to section 15

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for application by byproduct material license.

The radioactive Krypton 85 is incorporated in a sealed welded stainless steel capsule. This source is mounted on a steel carrier and is surrounded with walls of 5 mm steel or 10 mm brass except the radiation window. The source holder itself is fixed in an O-frame device. A damage of the source by shocks and bumps on the housing therefore is impossible and in case of fire only if the temperature exceeds 200 °C, a scattering of radioactive substance being however improbable because Kr 85 is a rare gas and would be rarefied with atmosphere.

The source is fitted on a carrier which is mounted on a rotary magnet. In currentless condition, a recuperator spring turns the magnet in "closed"-position. Only by switching on switch "measure" in the control cabinet, the magnet is supplied with current and the source is turned in "on"-position (see drawing 700-3652/3). Two luminous warning panels, each one mounted on the edge of the O-frame, signalize the respective position. A red field with the standard radiation symbol and inscription "attention, radiation" signalizes the "on"-position and a green one with inscription "radiation screened" signalizes the "off"-position. The panels are controlled by a limit switch operated from the rotary magnet. The switch is fitted in the way that the green field ("off"-position) can only be illuminated in the exact screened position.

The thickness gauge is installed in the production line for manufacturing pvc-film. With normal operation no exceptional mechanical, chemical or heat conditions occur. In case of accident, the suspicion of source leakage exists, if

- the source holder was heavily pushed and shows visible damage (e.g. by tumbling down parts of the building),
- the source holder was heated up exceeding 200 °C,
- a firm long object (e.g. screwdriver) has thrust through the radiation window and might have struck the source.

MAY 28 1992



gmbh meß- und regeltechnik

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Page 2 to Description to section 15  
Page 4  
Página 4

Datum  
Date  
Date  
Fecha

After such incidents, at the latest every 4 months, the cover foil of the radiation source has to be inspected with regard to damage. Damaged foils have to be replaced immediately.

In case of source leakage, the risk of radiation hazard can be rated as follows:

Being a rare gas, Krypton 85 is not incorporated (absorbed) by human beings. Decisive for radiation consumption therefore is the time a person is exposed to an outside radiation of the radiation cloud.

Supposed the measuring unit is installed in a normally ventilated room (air change once an hour) of 1000 m<sup>3</sup>, a complete output of 18,5 GBq Kr 85 would cause a short-time concentration of  $18,5 \cdot 10^{-9}$  kBq Kr 85 per cm<sup>3</sup>. A concentration of  $37 \cdot 10^{-9}$  kBq per cm (max. permissible concentration for 40 h a week reaction time) would cause a dose rate of 2,5 mrem/h. Under a.m. circumstances the dose rate in consequence of a coarse leakage would be smaller than 125 mrem. With a larger room the dose rate is proportionally smaller.

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Appendix to our application for amendment to material license  
29-23394-01

Type of device: gauging systems' source holder

Model: BC-MK 1.0 series

see drawings 700-103-160/3 Var. VI  
700-3241/3  
700-4252/4

Manufacturer: betacontrol gmbh  
P.O. box 12 25, Am Weidekamp 10  
D-5905 Freudenberg

**Description:**

The model BC-MK 1.0 source housing is made of steel 5 mm thick. The housing contains an electrically operated source shutter of 7 mm steel. The source holder is made of steel and is adapted to the unique dimension of each source to provide sufficient additional shielding. A mechanical spring returns the shutter to the fully closed position in the event of a failure of the shutter actuating mechanism or power failure or moving the mounting frame off line.

The housing contains the supporting electronics. The top cover of the housing is constructed of 6 mm brass. The cover contains a foil shutter window which is assembled to the base with Allen screws.

The housing can be mounted in one of three configurations (i.e., fixed head, O-frame or C-frame). The housing is mounted diametrically to the detectors and is attached to the supports with Allen screws.

A keylock is located on the front side to interrupt electric power supply to the rotary magnet in case of service or maintenance.

MAY 2 1993

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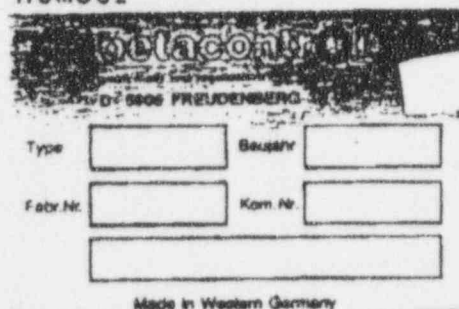
Appendix to our application for amendment to material license  
29-23394-01

### Labelling:

Two labels are visibly fitted.

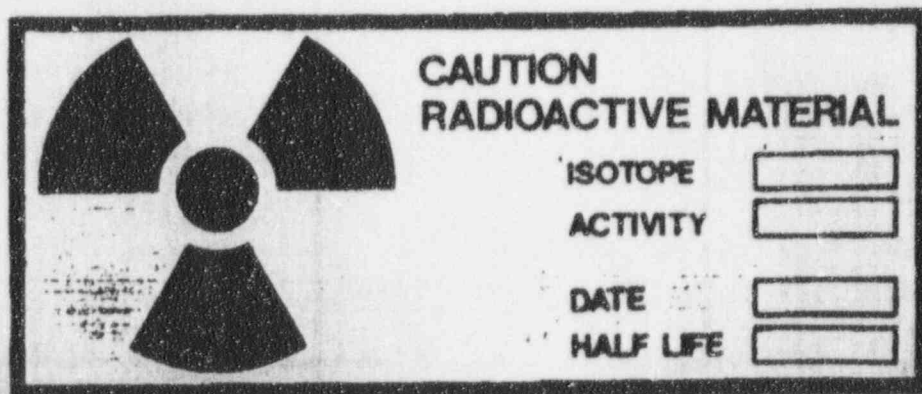
The first label is made of aluminium and states:

- manufacturer's name
- type of source housing and year of construction
- apparatus and job number



The second label is fitted on the 2 opposite sides of the source housing each. It is made of aluminium and states:

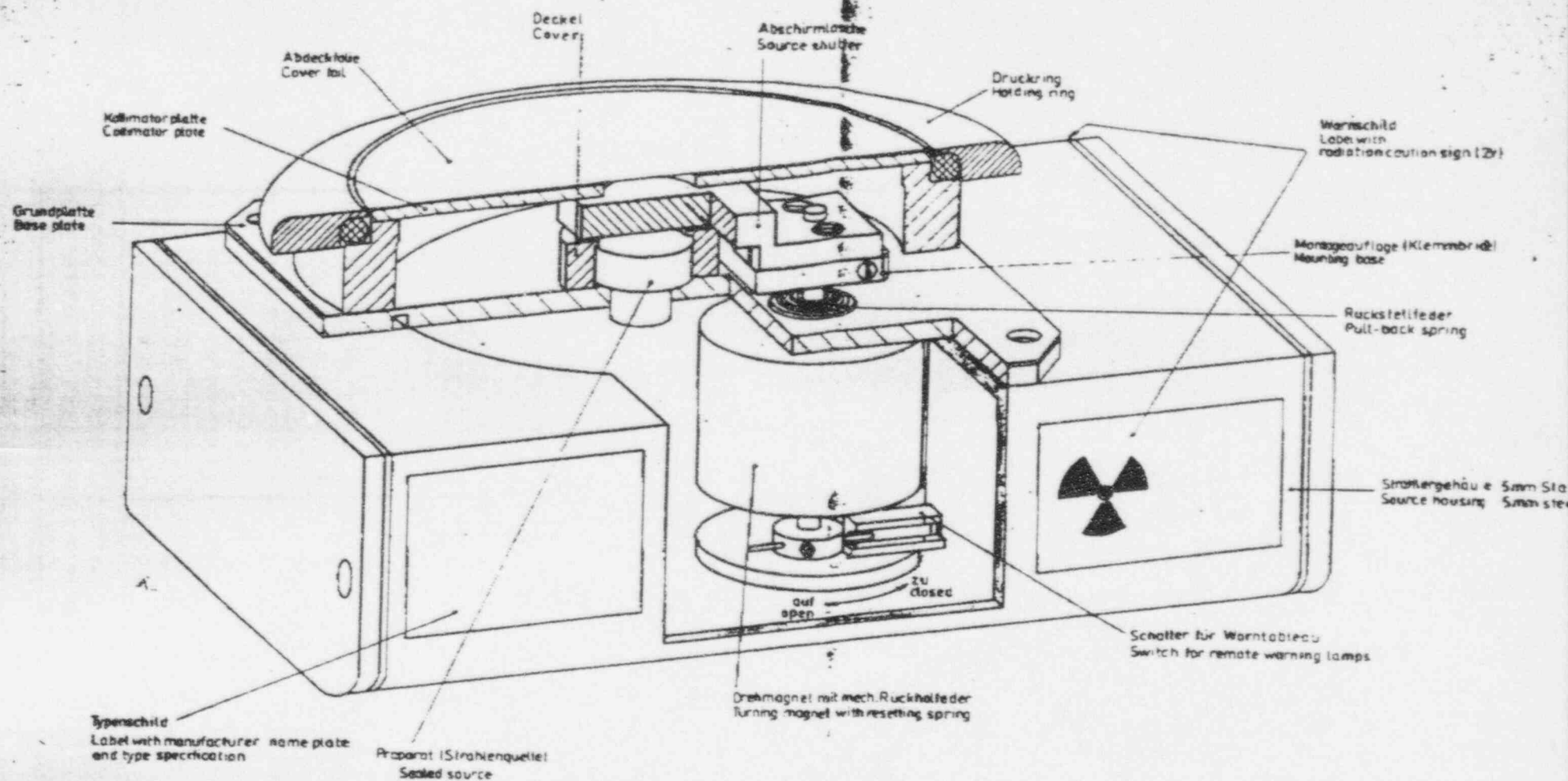
- radiation caution sign
- isotope name and atomic number
- activity
- date of delivery
- half life



The dose rate around the sensor is visible on the attached drawings

700-103-220 Bl. 9 for source window closed and  
700-103-219 Bl. 9 for source window open

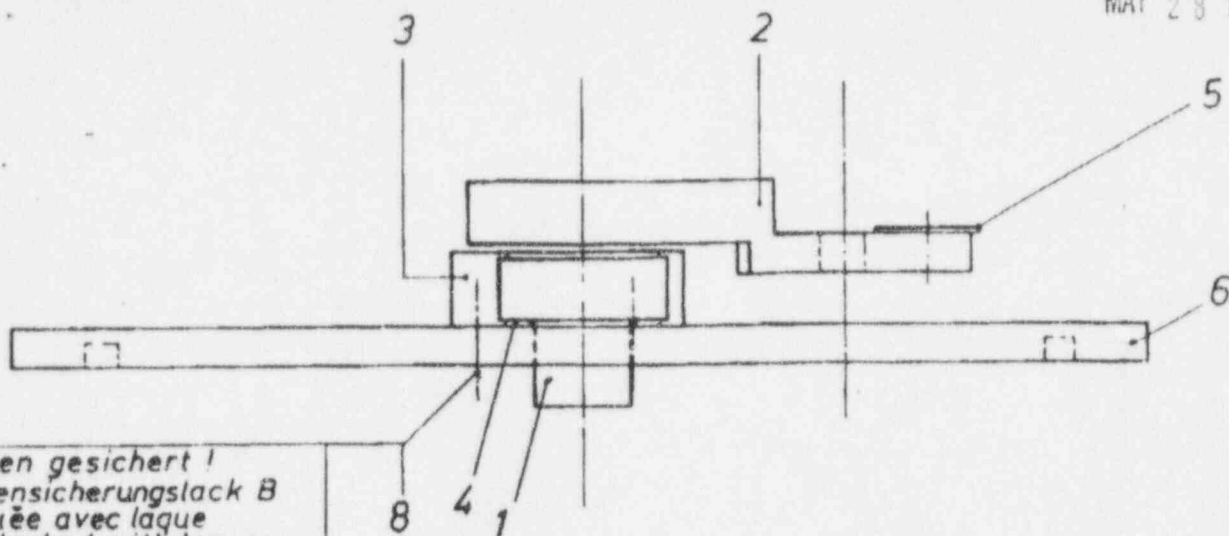
The classification is ANSI-33-354-564-R1



Ordnung		Name		Die Unterzeichnende ist befähigt, Lieferungen genehmigt und Lieferungen zu verschieben, Änderungen oder Nachbestellungen zu erteilen, Personen abzuschieben und zu bitten.	betacontrol gmbh D-5905 Freudenberg
Gezeichnet 71490		gezeichnet			
Gezeichnet		gezeichnet		MAY 28 1992	
Modell		7.1		700-3241/3	
Strahlereinheit Source housing bloc émetteur				Erstellt für Erstellt durch	



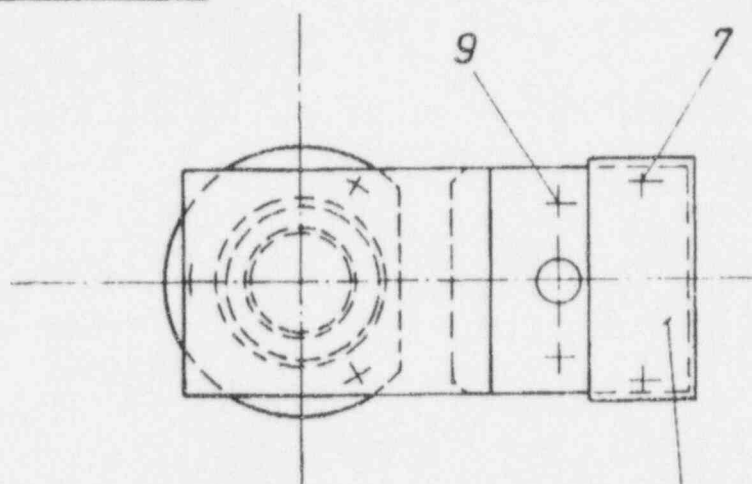
MAY 28 1992



Schrauben gesichert !  
Schraubensicherungslack B  
vis bloquée avec laque  
screws locked with laquer

Strahlenquelle Kr85; Type X.1114  
radiation source  
source de rayonnement

Montage nach Vorschrift !  
assemblage selon instructions  
fitting acc. to instructions



Identitätsnummer  
no d'identité  
ident no.

Maßstab 1:1

betacontrol gmbh  
D-5905 Freudenberg

blindage de source  
Strahlerabschirmung Kr85  
shielding of source

				Datum	Name
			Bearb	12.6.90	S.H.L.
			Gepr		
			Norm		



## BÄUMER OF AMERICA INC.

P.O. Box 235  
435 Route 202  
Towaco, NJ 07082  
Tel: (201) 263-1569  
Fax: (201) 299-8587  
Telex: 269321 (Baum UR)

February 11, 1992

Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

Attn.: Mr. Eric Reber

Dear Mr. Reber,

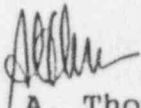
In accordance with the NRC mandated "receipt inspection program" Bäumer of America (distributor) and Betacontrol GmbH (manufacturer) will engage in the following practices as necessary.

- 1) Each device (model MK 1.0) shipped to the end user by Betacontrol will be accompanied by an "as built drawing". This drawing will illustrate the actual construction of the device, label designations and source contained within along with other pertinent information.
- 2) Prior to installation the end user will inspect the device and verify the conformability of the device by signing a verification of compliance form which will also be shipped with the device by Betacontrol GmbH (similar copy attached). A completed copy of the verification of compliance form will be kept on file by Bäumer of America, Inc.
- 3) Prior to installation the end user will also be responsible for testing the operation of the device and inspecting the device for any damage which may have occurred during shipment.

- 4) Prior to installation the end user must report any device deviations to the related agency or firm as directed by the NRC guidelines.

Please contact me at 201-263-1569 if additional information is required.

Very truly yours  
Bäumer of America, Inc.



A. Thoma  
AT/ jh

c.c. Mr. Steve Baggett D.C.



**BÄUMER OF AMERICA INC.**

P.O. Box 235  
435 Route 202  
Towaco, NJ 07082  
Tel: (201) 263-1569  
Fax: (201) 299-8587  
Telex: 269321 (Baum UR)

**Verification of Compliance Form**

Please complete this form and return to:

Bäumer of America, Inc.

P.O.Box 235

435 Route 202 N.

Towaco, NJ 07082

- 1) Each device (model MK 1.0) has been shipped to you by Betacontrol with a copy of an "as built drawing". This drawing illustrates the actual construction of the device, label designations and source contained within along with other pertinent information. Please verify the compliance of the device to the specifications as called out on the drawing.
- 2) Prior to installation please test the operation of the device (shutter mechanism, etc.) and inspect device for any damage which may have occurred during shipment and report any device deviation to the related agency or firm as directed by the NRC guidelines.

Please sign this verification and return to a.m. address as soon as possible. Please include any comments so we will be able to address any situations should they occur.

The device conforms with the supplied "as built drawing":  
YES \_\_\_\_\_ NO \_\_\_\_\_

Comments:

This device was received undamaged and mechanically operational:  
YES \_\_\_\_\_ NO \_\_\_\_\_

Comments:

\_\_\_\_\_  
Signature of End User

NRC FORM 567

(8-93)

U. S. NUCLEAR REGULATORY COMMISSION

KR

# REQUEST FOR A SEALED SOURCE OR DEVICE EVALUATION

**INSTRUCTIONS:** Send this request AND a copy of all related letters/applications and drawings to: The Sealed Source Safety Section, ATTN: Chief, OWFN Mail Stop 6 H3. Change the License Tracking System milestone to 19 and assign to reviewer code I-5.

**NOTE:** Retain a copy of this request with the application and background files.

REQUESTER <i>Beta Control Beta Control</i>		REGION/LOCATION: <input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> IV <input type="checkbox"/> V <input type="checkbox"/> HQ <input type="checkbox"/> LFDCB	
TELEPHONE NUMBER	DATE	TYPE OF ACTION REQUESTED (Check as appropriate)	
APPLICANT'S NAME		<input type="checkbox"/> SOURCE REVIEW <input checked="" type="checkbox"/> AMENDMENT OF REGISTRATION SHEET NUMBER(S)	
MAIL CONTROL NUMBER(S)		<input type="checkbox"/> DEVICE REVIEW	
LETTER/APPLICATION DATE <i>9/20/95</i>	LICENSE NUMBER(S)	<input type="checkbox"/> CUSTOM REVIEW <i>NR-122 D101-5</i>	

COMMENTS: <i>PO Box 235 435 Route 202 TOWAHO, NJ 07082</i>
---

## FOR SSSS USE ONLY

REVIEWER <i>M. Burgess</i>	MODEL NUMBERS <i>MR 1-0</i>	NUMBER ASSIGNED <i>95-95</i>
DATE RECEIVED <i>10/2/95</i>	DATE ASSIGNED <i>10/26/95</i>	DATE TO FEES <i>10/2/95</i>

## TYPE OF ACTION (Indicate the number of each type)

<input checked="" type="checkbox"/> COMMERCIAL DISTRIBUTION (FORMAL)		<input type="checkbox"/> USE BY A SINGLE APPLICANT (CUSTOM)	
SOURCE (9C)	DEVICE (9A)	SOURCE (9D)	DEVICE (9B)
<input type="checkbox"/> NEW <input type="checkbox"/> AMENDMENT	<input type="checkbox"/> NEW <input checked="" type="checkbox"/> AMENDMENT	<input type="checkbox"/> NEW <input type="checkbox"/> AMENDMENT	<input type="checkbox"/> NEW <input type="checkbox"/> AMENDMENT
<input type="checkbox"/> NO SAFETY EVALUATION REQUIRED <input type="checkbox"/> NO FEES REQUIRED		<input type="checkbox"/> LICENSING ACTION REQUIRED IF KNOWN	
<input type="checkbox"/> OTHER (Specify)		<input type="checkbox"/> YES <input type="checkbox"/> NO	

TOTAL NUMBER OF REVIEW HOURS	NOTES <i>- SL to GL check 3251. IF ch 122-D-101-B</i>
NUMBER OF DEFICIENCY LETTERS	
NUMBER OF DEFICIENCY CALLS	

## FOR BILLING PURPOSES ONLY

<input type="checkbox"/> NAME CHANGE	<input type="checkbox"/> ADDRESS CHANGE	<input type="checkbox"/> NEW REGISTRATION - ADD TO BILLING	<input type="checkbox"/> PRODUCT INACTIVE - REMOVE FROM BILLING
--------------------------------------	---	--	---

## FOR FEE USE ONLY

TYPE OF FEE <i>AMD</i>	FEE CATEGORY <input checked="" type="checkbox"/> 9A <input type="checkbox"/> 9B <input type="checkbox"/> 9C <input type="checkbox"/> 9D		
AMOUNT RECEIVED <i>\$1,200</i>	CHECK NUMBER <i>25061</i>	<input type="checkbox"/> MATANN UPDATED AS REQUIRED	
DATE OF CHECK <i>10/23/95</i>	LOG <i>Oct 95 1 SSPD</i>	<input type="checkbox"/> MATSYS UPDATED AS REQUIRED	
APPROVED BY <i>Sh</i>	DATE RETURN <i>10/26/95</i>	DATE <i>10/26/95</i>	
COMMENTS <i>Remitter of UK: Bureau of American, Inc.</i>			



NRC FORM 567

(8-93)

U. S. NUCLEAR REGULATORY COMMISSION

# REQUEST FOR A SEALED SOURCE OR DEVICE EVALUATION

INSTRUCTIONS: Send this request AND a copy of all related letters/applications and drawings to: The Sealed Source Safety Section, ATTN: Chief, OWFN Mail Stop 6 H3. Change the License Tracking System milestone to 19 and assign to reviewer code I-5.

NOTE: Retain a copy of this request with the application and background files.

REQUESTER <i>Beta Control Beta Control</i>		REGION/LOCATION: <input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> IV <input type="checkbox"/> V <input type="checkbox"/> HQ <input type="checkbox"/> LFDCB	
TELEPHONE NUMBER	DATE	TYPE OF ACTION REQUESTED (Check as appropriate)	
APPLICANT'S NAME		<input type="checkbox"/> SOURCE REVIEW <input checked="" type="checkbox"/> AMENDMENT OF REGISTRATION SHEET NUMBER(S)	
MAIL CONTROL NUMBER(S)		<input type="checkbox"/> DEVICE REVIEW	
LETTER/APPLICATION DATE <i>9/20/95</i>	LICENSE NUMBER(S)	<input type="checkbox"/> CUSTOM REVIEW <i>NR-122 D101-5</i>	
COMMENTS: <i>PO Box 235 435 Route 202 TOWSON MD 07082</i>			
FOR SSSS USE ONLY			
REVIEWER <i>M Burgess</i>	MODEL NUMBERS <i>NK 1-0</i>	NUMBER ASSIGNED <i>95-95</i>	
DATE RECEIVED <i>10/2/95</i>	DATE ASSIGNED <i>10/26/95</i>	DATE TO FEES <i>10/2/95</i>	
TYPE OF ACTION (Indicate the number of each type)			
<input checked="" type="checkbox"/> COMMERCIAL DISTRIBUTION (FORMAL)		<input type="checkbox"/> USE BY A SINGLE APPLICANT (CUSTOM)	
SOURCE (9C)	DEVICE (9A)	SOURCE (9D)	DEVICE (9B)
<input type="checkbox"/> NEW <input type="checkbox"/> AMENDMENT	<input type="checkbox"/> NEW <input checked="" type="checkbox"/> AMENDMENT	<input type="checkbox"/> NEW <input type="checkbox"/> AMENDMENT	<input type="checkbox"/> NEW <input type="checkbox"/> AMENDMENT
<input type="checkbox"/> NO SAFETY EVALUATION REQUIRED <input type="checkbox"/> NO FEES REQUIRED		<input type="checkbox"/> LICENSING ACTION REQUIRED IF KNOWN <input type="checkbox"/> YES <input type="checkbox"/> NO	
<input type="checkbox"/> OTHER (Specify)			
TOTAL NUMBER OF REVIEW HOURS		NOTES <i>- SC to GC check 37-51. IF-4 122-D-101-1</i>	
NUMBER OF DEFICIENCY LETTERS			
NUMBER OF DEFICIENCY CALLS			
FOR BILLING PURPOSES ONLY			
<input type="checkbox"/> NAME CHANGE	<input type="checkbox"/> ADDRESS CHANGE	<input type="checkbox"/> NEW REGISTRATION - ADD TO BILLING	<input type="checkbox"/> PRODUCT INACTIVE - REMOVE FROM BILLING
FOR FEE USE ONLY			
TYPE OF FEE <i>AMD</i>	FEE CATEGORY <input checked="" type="checkbox"/> 9A <input type="checkbox"/> 9B <input type="checkbox"/> 9C <input type="checkbox"/> 9D		
AMOUNT RECEIVED <i>81,200</i>	CHECK NUMBER <i>25061</i>		<input type="checkbox"/> MATANN UPDATED AS REQUIRED
DATE OF CHECK <i>10/23/95</i>	LOG <i>Oct 95 1 SSND</i>		<input type="checkbox"/> MATSYS UPDATED AS REQUIRED
APPROVED BY <i>She</i>	DATE RETURN <i>10/26/95</i>	DATE <i>10/26/95</i>	
COMMENTS <i>Letter of the Board of Review, Inc.</i>			

NRC FORM 567 (8-93)

ORIGINATORS COPY

## LICENSE FEE REQUIREMENTS

LICENSE FEE AND DEBT COLLECTION BRANCH  
DIVISION OF ACCOUNTING AND FINANCE  
OFFICE OF THE CONTROLLER  
U.S. NUCLEAR REGULATORY COMMISSION  
WASHINGTON, DC 20555-0001

ATTN: Sandra Kimberley MS

TYPE OF ACTION

7-9E12

☐ NEW LICENSE☐ RENEWAL OF LICENSE☒ AMENDMENT TO LICENSE

REQUESTED DATE

9-20-95

LICENSE NUMBER

NR-122-D-101-S

CONTROL NUMBER

95-95

Betacontrol

ATTN: George R. Stoddard  
National Sales ManagerP.O. Box 235  
435 Route 202  
Zouma, NJ 07082

## I. APPLICATION FEE DUE

Your request for a licensing action is subject to the fee(s) in the category(ies) noted below in accordance with Section 170.31 of the enclosed Federal Register notice. Payment of the fee is required prior to the issuance of the license, renewal, or amendment.

FEE CATEGORY	APPLICATION	RENEWAL	AMENDMENT
9A	\$	\$	\$ 1,200
	\$	\$	\$
	\$	\$	\$
	\$	\$	\$
	\$	\$	\$
	\$	\$	\$
	\$	\$	\$
	\$	\$	\$
	\$	\$	\$
	\$	\$	\$

FEE(s) DUE \$ 1,200  
PAYMENT RECEIVED \$  
AMOUNT DUE \$ 1,200

☒ Your request was received without the prescribed application fee.☐ We received your Check No. \_\_\_\_\_ in the amount of \$ \_\_\_\_\_. Payment of the additional fee noted above is required.☐ Your request will increase the scope of your license program. Therefore, your request is subject to the application fee(s) noted above. Refer to Section 170.31 and Footnote 1(d)(2).☐ Your license expired prior to the receipt of your application for renewal. Therefore, your request is subject to the application fee(s) noted above. Refer to Section 170.31 and Footnote 1(a).

MAKE PAYMENT OF THE FEE(S) TO THE U.S. NUCLEAR REGULATORY COMMISSION AND MAIL THE PAYMENT TO THE ADDRESS LISTED AT THE TOP OF THIS FORM. IF WE DO NOT RECEIVE A REPLY FROM YOU WITHIN 30 CALENDAR DAYS FROM THE DATE LISTED BELOW, WE SHALL ASSUME THAT YOU DO NOT WISH TO PURSUE YOUR APPLICATION AND WILL VOID THIS ACTION.

## II. FEE NOT REQUIRED

☐ Enclosed is Check No. \_\_\_\_\_ which accompanied your request. The fee is not required because:☐ We received your Check No. \_\_\_\_\_ in payment of the fee.☐ The Licensing staff has informed us that your request is to be considered as a continuation of your request dated \_\_\_\_\_, Control No. \_\_\_\_\_.☐ Your request was combined, prior to review, with your \_\_\_\_\_ request, Control No. \_\_\_\_\_.

## III. CHECK RETURNED

☐ Enclosed is Check No. \_\_\_\_\_ which was returned to us by the bank for:☐ INSUFFICIENT FUNDS☐ ACCOUNT CLOSED☐ OTHER

MAIL THE REPLACEMENT CHECK TO THE ADDRESS LISTED AT THE TOP OF THIS FORM AND REFERENCE THE ABOVE CONTROL NUMBER.

## IV. LICENSE ISSUED WITHOUT THE REQUIRED FEE

☐ License No. \_\_\_\_\_, Amendment No. \_\_\_\_\_, issued on \_\_\_\_\_ was issued without the required fee being collected. The fee required is noted in Section I of this form.☐ The scope of your licensed program was increased. Therefore, your request is subject to the application fee(s) noted in Section I of this form. Refer to Section 170.31 and Footnote 1(d)(2).☐ Because of the urgency of your request, the license was issued without remittance of the prescribed fee noted in Section I of this form.

SIGNATURE -- LICENSE FEE ANALYST

S. Kimberley

LFDCB

22

10/10/95

LFDCB

49

10/12/95

DISTRIBUTION  
OC/DAF/RF  
LFDCB R/FPending Fee File  
Region II, N/ISS, HQ

DATE

10/12/95

*Rec'd 10/2*

September 20, 1995

Steve Baggett  
U.S. Nuclear Regulatory Commission  
Mail Stop T8F5  
Washington, DC 20555

RE: Amendment to Registration for Registry #NR-122-D-101-S

Dear Mr. Baggett:

We wish to amend our Registry of Radioactive Sealed Sources and Devices for the following Betacontrol Gauges for distribution as general licensed gauges:

Registry #: NR-122-D-101-S

Device Type: Transmission Gauge

Model: MK 1.0

Distributor:

Betacontrol  
P.O. Box 235  
435 Route 202  
Towaco, New Jersey 07082

Manufacturer:

Billing Address:  
Betacontrol  
P.O. Box 1225  
Freudenberg, Germany 57252

Delivery Address:  
Betacontrol  
Am Weidekamp 10  
Freudenberg, Germany 57258

Sealed Source Designation:

Amersham Buchler VZ-337 (Sr-90)  
Institute National de Radioelements 700-052.002/4 (Kr-85)  
Amersham Corporation KAC.D1 (Kr-85)  
Amersham Corporation KAC.D3 (Kr-85)  
Amersham Corporation AMC.17 (Am-241)  
Amersham Corporation PHC.C1 (Pm-147)

*961122004*

*9288*

<u>Isotope:</u>	<u>Maximum Activity:</u>
Strontium-90	50 millicuries (1.9 GBq)
Krypton-85	60 millicuries (2.2 GBq) (700-052.002/4)
Krypton-85	500 millicuries (18.5 GBq) (KAC.D1, KAC.D3)
Americium-241	300 millicuries (11.1 GBq)
Promethium-147	50 millicuries (1.9 GBq)

The following information is being submitted in addition to the previous registration information per the requirements in 10 CFR 32.51.

- 32.51(a): An amendment to our specific license will be submitted to the NRC Region 1 Office upon your approval of registry.
- 32.51(a)(2):
- 1) The information relating to the design, manufacturer, and prototype testing has not changed from previously submitted information, therefore, no additional information is being submitted.
  - 2) For quality control purposes gauge housings are received in the United States through Betacontrol or the nuclear gauge housings are drop shipped to the client facility where it will be installed. The client is informed not to open the package. Betacontrol personnel will open the packages containing the gauge housings when they install the device. Upon opening the package Betacontrol will ensure that the correct device, isotope and activity was received in the U.S. The device will be inspected for damage and malfunctions by Betacontrol personnel.
  - 3) In addition to the labels indicated in the previous registration, the information in Attachment I will be included on the source housing label. This label fulfills the requirements of 10 CFR 32.51(a)(3)(i)(ii) and (iii). Labels are made of stainless steel or aluminum and are permanently attached by rivets or screws to the source housing. We confirm that any previously purchased gauging devices will have this label attached, if the customer changes possession from a specific license to a general license.
  - 4) The proposed use of the gauging devices has not changed.

- 5) The installation and servicing of these source housings shall only be performed by individuals specifically licensed by the NRC or an Agreement State to perform these operations. This is indicated to the general licensee in the amendment to the Operation Manual which is supplied to the general licensee (see Attachment II).
- 6) The leak testing of these source housings shall be performed on a six (6) month frequency except for Krypton-85. The general licensee may perform the wiping of the device following the procedure indicated in the amendment to the Operation Manual (see Attachment II). The general licensee is not authorized to perform analysis of leak test samples.
- 7) Any additional operating and safety instructions other than those previously submitted are included in the amendment to the Operation Manual (see Attachment II).
- 8) Following the Operation Manual with amendments, the byproduct material contained in these source housing devices will not be released or be inadvertently removed from the device during ordinary conditions of handling, storage, and use of the device.

The following assessments indicate that no individual will receive in one (1) year a dose in excess of 10 percent of the annual limits specified in 10 CFR 20.1201(a) under ordinary conditions of handling, storage, and use of the source housing.

- a. Each source housing is mounted on a production line which does not allow access to the device during ordinary operation.
- b. When the source housing is switched off or in the "Measuring 0" mode, the source is turned into the shielded position, away from the radiation exit port or a shutter block shields the radiation exit port.
- c. The source is automatically shielded in the event of power failure.



- d. If any individual needs to perform maintenance in the vicinity of the source housing, the source housing would be in the shielded position. The following dose assessments are based on the dose rates at 100 cm from the source. The source housing can safely be moved along the glide, to provide distance between the worker and the source housing, so 100 cm is a practical distance. The worker time in the area near the source housing used for these calculations is one (1) hour per week. We believe this is an over estimate of time because these source housings are positioned on continuous process machines and are not accessible except when the process machine is not operating. Also, the general licensee's personnel will not be servicing these devices (source housings). Attachment III has the dose rate assessments with the source shielded (shutter closed) for your reference. The maximum exposure rate at 100 cm was used for these dose assessments.

**Krypton 85, 18.5 GBq (500 mCi)**

Skin Dose to the Whole Body

$$0.4 \text{ mR/hr} \times 52 \text{ hr/yr} = 20.8 \text{ mRem/yr}$$

Whole Body Dose

$$0.4 \text{ mR/hr} \times 52 \text{ hr/yr} = 20.8 \text{ mRem/yr}$$

**Krypton-85, 11.1 GBq (300 mCi)**

Skin Dose to the Whole Body

$$0.26 \text{ mR/hr} \times 52 \text{ hr/yr} = 13.52 \text{ mRem/yr}$$

Whole Body Dose

$$0.22 \text{ mR/hr} \times 52 \text{ hr/yr} = 11.44 \text{ mRem/yr}$$

**Krypton-85, 3.7 GBq (100 mCi)**

Skin Dose to the Whole Body

$$0.2 \text{ mR/hr} \times 52 \text{ hr/yr} = 10.4 \text{ mRem/yr}$$

Whole Body Dose

$$0.2 \text{ mR/hr} \times 52 \text{ hr/yr} = 10.4 \text{ mRem/yr}$$

**Americium-241, 11.1 GBq (300 mCi)**

At 100 cm, with the shutter closed, this device is at background radiation levels and therefore, below 10% of the limits in 10 CFR 20.1201(a).

**Strontium-90, 1.9 GBq (50 mCi)**

Skin Dose to the Whole Body

$$0.5 \text{ mR/hr} \times 52 \text{ hr/yr} = 26 \text{ mRem/yr}$$

Whole Body Dose

$$0.5 \text{ mR/hr} \times 52 \text{ hr/yr} = 26 \text{ mRem/yr}$$

**Promethium-147, 1.9 GBq (50 mCi)**

The maximum exposure rate at 50 cm from the source with the shutter closed is background, therefore no assessment is needed for this device.

The dose rates for the Sr-90 and Pm-147 are from the previously submitted registry information.

These calculations demonstrate it is unlikely that any person will receive in the one (1) year a dose in excess of 10 percent of the annual limits specified in the 10 CFR 20.1201(a) during ordinary conditions of handling, storage, and use of these gauges (source housings).

- 9) Under accident conditions (such as fire or explosion) associated with handling, storage, and use of these gauges it is unlikely that any person would receive an external radiation dose or dose commitment in excess of the dose to the appropriate organ as specified in Column IV of the table in 10 CFR 32.24 for the following reasons:
  - a. The gauges (source housings) are mounted on production lines for thickness detection where the potential of an explosion in the area of the gauge is very unlikely to happen, so no serious damage to the gauge should occur. This fact along with the steel or brass construction of the gauge housing should avoid the rupture of the welded stainless steel capsule.

- b. The radioactive material contained in these gauges are used mainly for emitting Beta and low energy gamma radiation, therefore, the potential of large external exposures to the body should not occur during an explosion or fire, because the exposure rate at 10 feet from the source with the shielding gone will be very low (well below any exposure rates that have the potential to deliver an exposure in excess of the levels indicated in Column IV of the table in 10 CFR 32.24).
- c. Kr-85 is not absorbed into the body and will not be retained in the lung, if inhaled, therefore, the total internal exposure and external exposure would be below the levels in Column IV of the table in 10 CFR 32.24.


The Pm-147 and Am-241 sources contain radioactive material incorporated in a ceramic enamel which is sealed in a welded stainless steel capsule. The Sr-90 source incorporates radioactive material contained in a sealed silver foil into a sealed welded stainless steel capsule. The make up of these sources will avoid the potential airborne contamination that may occur during a fire or explosion and therefore, internal contamination is highly unlikely.

- d. If power to the gauge is cut-off due to an accident (fire or explosion) the shutter mechanism automatically closes.
- e. The emergency procedures we have incorporated into the amendment to the Operation Manual should avoid any internal or external exposure to any person in the event of any accident condition.

10. Please reference Attachment II for the general license and amendment to the Operation Manual.

If you have any question concerning this application for registration, please contact me at (201) 263-4243. Thank you for your prompt attention to our request.

Sincerely,



George R. Stoddard  
National Sales Manager

/jjz

## ATTACHMENT I

### Label for General Licensed Gauges

For installation, operation, and servicing of the device, reference the operating and service manuals.

Leak Testing Frequency: 6 months (not required for Kr-85)

On-Off Mechanism and Indicator Test Frequency : 6 months

The receipt, possession, use and transfer of this device Model \_\_\_\_\_, Serial Number \_\_\_\_\_ are subject to a general license or the equivalent and the regulations of the U.S. NRC or of an Agreement State. This label shall be maintained on the device in a legible condition. Removal of this label is prohibited.

Caution - Radicactive Material

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(Name of Manufacturer, or Initial Transferor)

## ATTACHMENT II

### General License Document Amendment to Operations Manual

Dear Customer:

A general licensee has been granted to you for the use of this device (gauge). Under this general license you must follow the requirements of the Nuclear Regulatory Commission's 10 CFR 31.5 or Agreement State's regulations equivalent to 10 CFR 31.5. We are furnishing you with a copy of the general license in 10 CFR 31.5. If you are in one of the Agreement State's listed below, this device is regulated by the Agreement State under requirements substantially the same as those in 10 CFR 31.5. We recommend contacting your Agreement State Office to obtain a copy of these regulations.

#### Agreement State Contact List

##### Alabama

Division of Radiation Control  
Department of Public Health  
434 Monroe Street  
Montgomery, AL 36130-1701

##### Arizona

Arizona Radiation Regulatory Agency  
4814 South 40th Street  
Phoenix, AZ 85040

##### Arkansas

Division of Radiation Control and  
Emergency Management  
Department of Health  
4815 West Markham Street, Slot 30  
Little Rock, AR 72205-3876

##### California

Environmental Health Division  
State Department of Health Services  
714/744 P Street  
Post Office Box 942732  
Sacramento, CA. 94234-7320

##### Colorado

Radiation Control Division 20/82  
Department of Health  
4300 Cherry Creek Drive South  
Denver, CO 80220

##### Florida

Office of Radiation Control  
Department of Health and Rehabilitative  
Services  
1317 Winewood Boulevard  
Tallahassee, FL 32399-0700



Georgia

Radioactive Materials Program  
Department of Natural Resources  
4244 International Parkway, Suite 114  
Atlanta, GA 30354

Illinois

Department of Nuclear Safety  
1035 Outer Park Drive  
Springfield, IL 62704

Iowa

Bureau of Environmental Health  
Iowa Department of Public Health  
Lucas State Office Building  
Des Moines, IA 50319

Kansas

X-ray & Radioactive Materials  
Control Section  
Department of Health & Environment  
Bureau of Environmental  
Health Service  
109 SW 9th Street  
Topeka, KS 66612

Kentucky

Radiation Control Branch  
Cabinet for Human Resources  
275 East Main Street  
Frankfort, KY 40621-1000

Louisiana

Radiation Protection Division  
Office of Air Quality and  
Radiation Protection  
7290 Bluebonnet Road  
Post Office Box 82135  
Baton Rouge, LA 70884-2135

Maryland

Radiological Health Program  
Office of Toxics, Environmental Science  
and Health (TESH)  
Department of the Environment  
2500 Broening Highway  
Baltimore, MD 21224

Mississippi

Division of Radiological Health  
State Department of Health  
3150 Lawson Street  
Post Office Box 1700  
Jackson, MS 39215-1700

Nebraska

Division of Radiological Health  
Department of Health  
301 Centennial Mall South  
Post Office Box 95007  
Lincoln, NE 68509

Nevada

Radiological Health Section  
Health Division  
Department of Human Resources  
505 East King Street  
Carson City, NV 89710

#### New Hampshire

Radiological Health Bureau  
Division of Public Health Services  
Health and Welfare Building  
6 Hazen Drive  
Concord, NJ 03301-6527

#### New Mexico

Bureau of Hazardous and  
Radioactive Materials  
Water and Waste Management Division  
Department of Environment  
Post Office Box 26110  
Santa Fe, NM 87502

#### New York

Bureau of Environmental  
Radiation Protection  
Department of Health  
2 University Place  
Albany, NY 12203

#### North Carolina

Division of Radiation Protection  
Department of Environment, Health  
and Natural Resources  
Post Office Box 27687  
Raleigh, NC 27611-7687

#### North Dakota

Division of Environmental Engineering  
Department of Health  
1200 Missouri Avenue, Room 304  
Post Office Box 5520  
Bismarck, ND 58502-5520

#### Oregon

Radiation Control Section  
State Health Division  
Department of Human Resources  
800 NE Oregon Street #21  
Portland, OR 97214-0450

#### Rhode Island

Division of Occupational and  
Radiological Health  
Department of Health  
203 Cannon Building  
3 Capital Hill  
Providence, RI 02908-5097

#### South Carolina

Bureau of Radiological Health  
Department of Health and  
Environmental Control  
2600 Bull Street  
Columbia, SC 29201

#### Tennessee

Division of Radiological Health  
L&C Annex, Third Floor  
401 Church Street  
Nashville, TN 37219-5404

#### Texas

Bureau of Radiation Control  
Department of Health  
1100 West 49th Street  
Austin, TX 78756-3189

Utah

Division of Radiation Control  
Department of Environmental Quality  
168 North 1950 West  
Post Office Box 144850  
Salt Lake City, UT 84114-4850

Washington

Division of Radiation Protection  
Department of Health, LE-13  
Airdustrial Center Building #5  
Post Office Box 47827  
Olympia, WA 98504-7827

The following is the general license as written in 10 CFR 31.5:

- (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 provision 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 specification contained in a specific license issued pursuant to Part 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 instructions 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 interval 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 containment. The licensee shall retain these records as follows:
  - (i) Each record of a test for leakage of 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.
  - (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 sealed source is transferred or disposed.
  - (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.
- (5) Upon the occurrence of 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 0.005 microcuries 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 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) When 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 provision of parts 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.

The following procedures and information is provided to you to ensure the safe use of this device.

### Installation and Servicing

Initial installation of the source housing must be completed by Betacontrol. After initial installation the source housing must only be removed, installed or serviced by individuals specifically authorized by the NRC or an Agreement State to perform these services. This general license does not authorize installation or servicing of this device.

### Labelling

The labels affixed to the device at the time of installation must be maintained in a legible and visible manner.

### Leak Testing

The device must be leak tested on a six (6) month frequency as indicated by the general license (except for Krypton-85 devices)

Leak test kits can be obtained through Betacontrol

The following procedures should be followed when wiping the gauge housing:

1. De-energize the device, so the shutter closes and shields the source. The green light will indicate that the shutter is in the closed (off) position.
2. Using the wiping material supplied with the kit, wipe the external surface of the source holder where contamination would be expected (shutter window, weld seams, edge of bolted plates).
3. Place the wiping material in the appropriate container (being careful not to touch the wiping area to other objects because this would spread contamination, if present).
4. Provide the supplier with the requested information about the source.
5. Send the leak test kit to the supplier for analysis.
6. If results indicate 0.005 uCi or more contamination take device out of service and immediately contact one of Betacontrol's service representatives. Also, a report to the NRC and/or Agreement State Office will need to be filed, if the removable contamination exceeds these levels.

### Testing of On-Off Mechanism

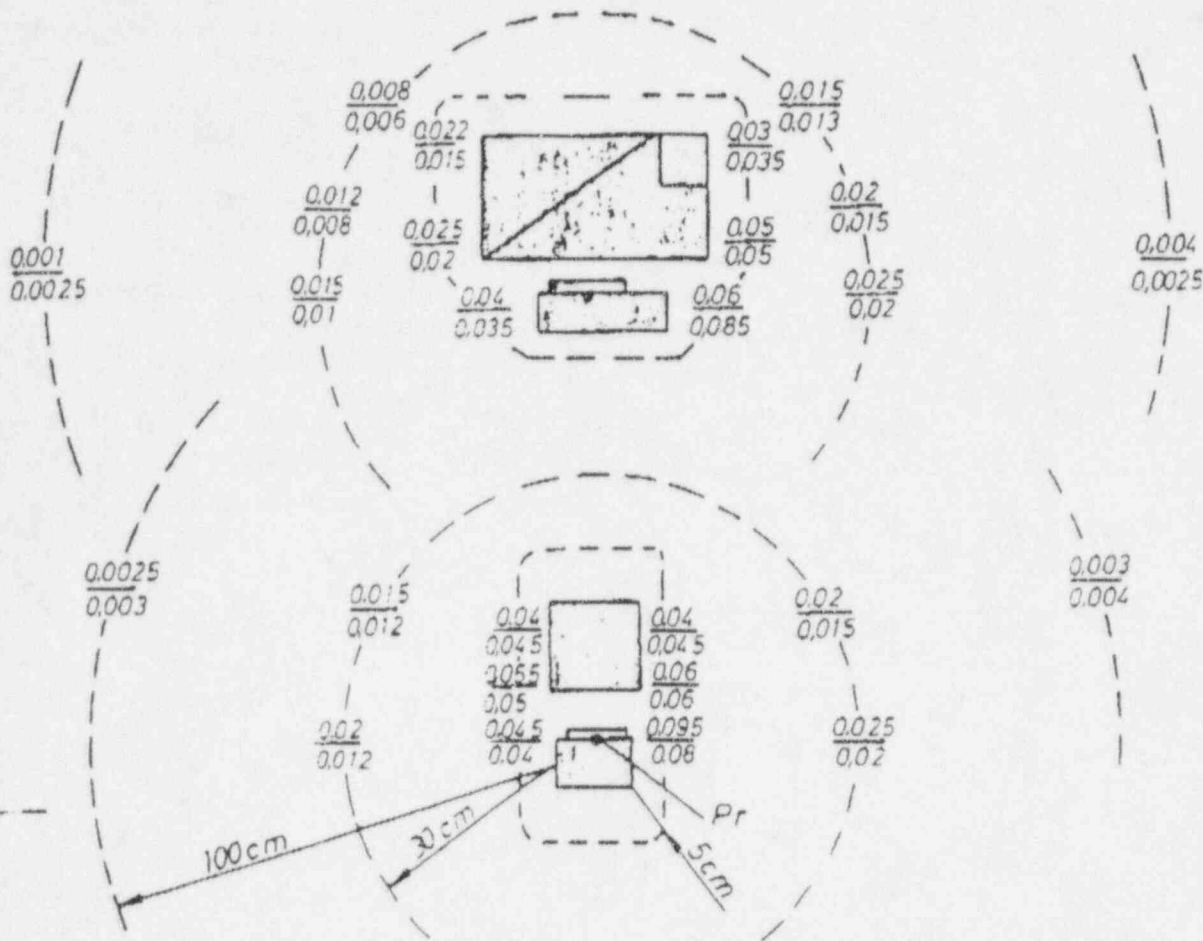
The shutter (on-off mechanism) along with the indicators (lights) must be tested at a six (6) month frequency. The results of these tests must be recorded. When the red light is lit, this indicates the device is in the ON or exposed position. When the green light is lit the device is in the OFF or shielded position. You should record the functioning of the shutter, the lights, the date performed and the individual performing the tests. If a malfunction with the shutter or lights occur, contact one of Betacontrol's service representatives. The changing of a burned out light bulb can be performed by your personnel.

### Emergency Procedures

To ensure all employees at your facility are safe from any possible radiation hazard during an accident (fire, explosion, etc.) directly or indirectly involving this device the following procedures should be posted and followed:

If a malfunction, accident, or damage occur to a nuclear gauge take the following steps:

1. Cease work immediately.
2. If the gauge has been partially damaged or destroyed, keep people at least 20 feet away or rope off the area at 20 feet.
3. Notify the Radiation Safety Officer or supervisor, immediately after isolating the area.
4. Contact one of Betacontrol's service representatives for additional assistance.
5. In the case of a fire or explosion inform the fire department personnel of the presence of the nuclear gauge.
6. In the case of any accident or fire, do not use the gauge until any damage or damage to the gauge is assessed.
7. If required, notify the NRC and/or Agreement State.



Pr: Strahlenquelle  
radiation source  
source rayonnement

Meßspalt  
gap : 9,5 mm  
fente libre

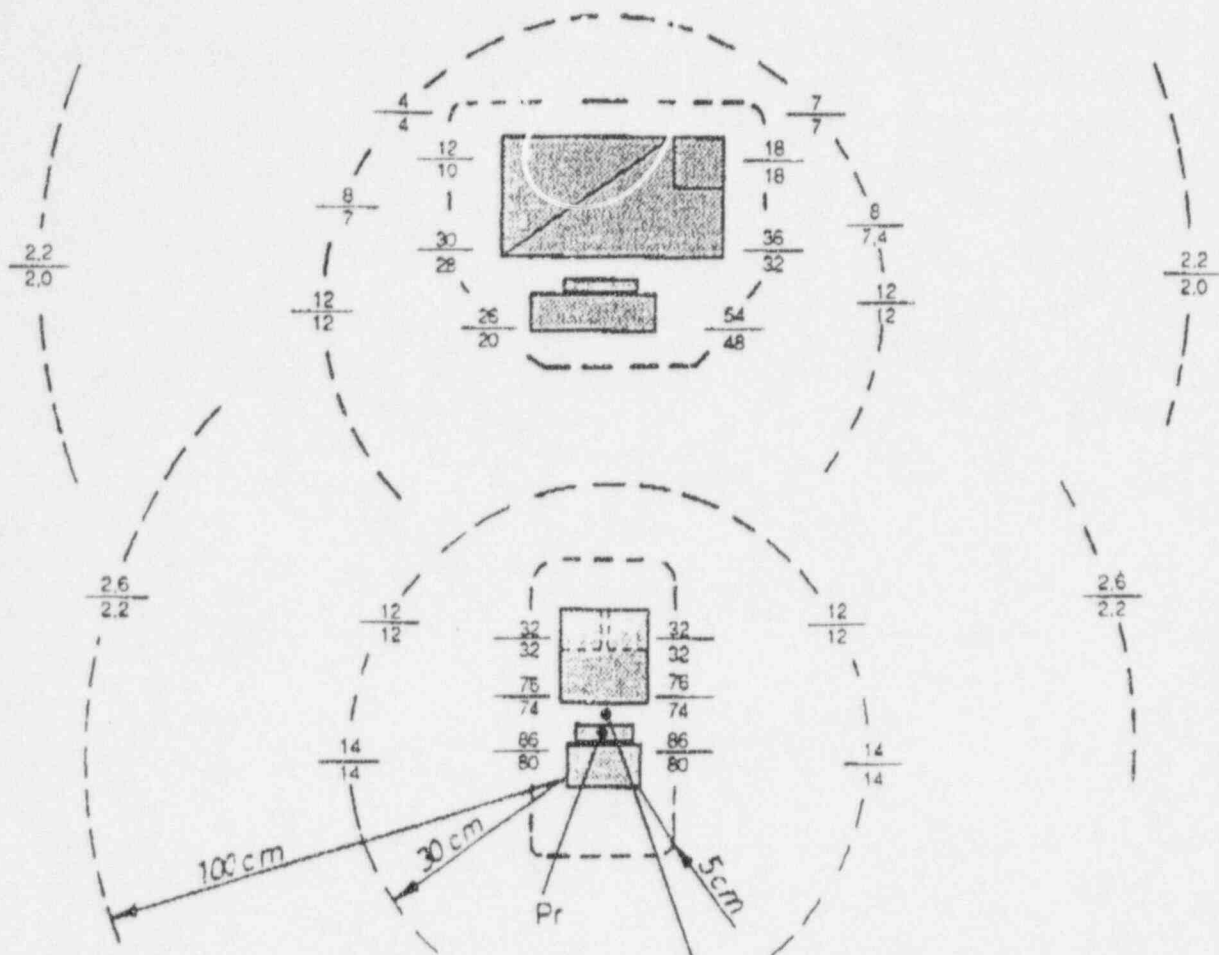
Strahler : Krypton 85, 18,5 GBq (500 mCi)  
source

Strahlerfenster geschlossen  
source window closed  
fenêtre du port source fermée

Meßgerät Babyline 3  
survey meter  
appareil de mesure

Dosisleistung mit Absorber  
dose rate (mSv/h) with absorber  
intensité du rayonnement avec absorbeur  
7 mg/cm<sup>2</sup>  
300 mg/cm<sup>2</sup>

Stückzahl	Benennung	Teil	Werkstoff	Rahmen Zahl Nr. Modell Nr.	DIN, Bemerkung
Gezeichnet	Datum	Name	Das Urheberrecht an dieser Zeichnung bleibt dem Verfasser vorbehalten. Jede Vervielfältigung oder Mitteilung an Dritte ist ohne schriftliche Genehmigung des Verfassers untersagt. <b>ALBRECHT BÄUMER</b> Freudenberg, Kreis Siegen		
Geprüft	17.02.89	A. Baum			
Maßstab			Strahlenbelastung Radiation dose rates 700-103-220 Bl 23		



Pr:  
Strahlenquelle  
radiation source  
source de rayonnement

Meßspalt  
gap  
fente de mesure : 9,5 mm

Strahler  
source : Krypton 85; 11,1 GBq (300 mCi)

Strahlerfenster  
source window : geschlossen  
fenêtre de la source : closed  
fermée

Meßgerät  
survey meter : Babyline 31  
appareil de mesure

Dosisleistung  
dose rate : (µSv/h) mit Absorber  
débit de dose : with absorber : 7 mg/cm<sup>2</sup>  
avec absorbeur : 300 mg/cm<sup>2</sup>

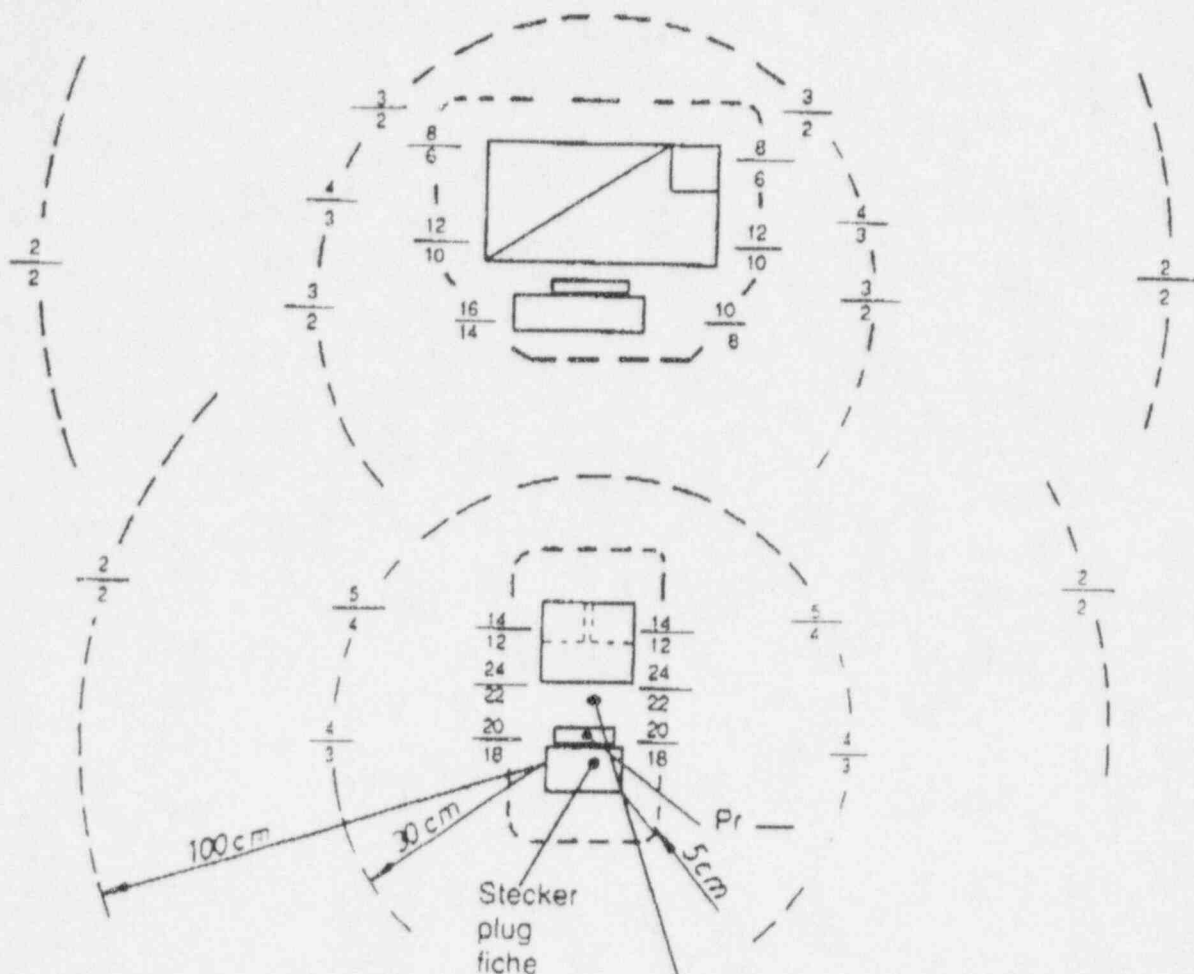
Typ / type: X 1114 Schlitzkollimator 10 \* 35 / X 1114 slotted collimator 10 \* 35 / X 1114 colimateur à fente 10 \* 35

	Datum	Name	Das Urheberrecht an dieser Zeichnung gehört uns. Laut Gesetz ist Vervielfältigung oder Mitteilung an dritte Personen unzulässig und strafbar.	<b>betacontrol</b> gmbh meß- und regeltechnik, D-57258 Freudenberg
Gezeichnet	31.08.1992	Lersch		
Geprüft	31.08.1992	A. vom Bruch		

Strahlenbelastung  
Radiation dose rates  
Valeurs d'irradiation

700-103-220 Bl. 45





Pr:  
Strahlenquelle  
radiation source  
source de rayonnement

Meßspalt  
gap  
fente de mesure : 33 mm

Strahler : Krypton 85; 3,7 GBq (100 m Ci)  
source

Strahlerfenster : geschlossen  
source window : closed  
fenêtre de la source : fermetée

Meßgerät : Babyline 31  
survey meter  
appareil de mesure

Dosisleistung : mit Absorber  
dose rate ( $\mu$  Sv/h) : with absorber  
débit de dose : avec absorbeur :  $7 \text{ mg/cm}^2$   
 $300 \text{ mg/cm}^2$

Typ: X 1114

Stiebkollimator

Gezeichnet

Datum  
25.06.1992

Name  
Lerch

Geprüft

25.06.1992

H. Schiemm

Das Urheberrecht an dieser Zeichnung  
gehört uns. Laut Gesetz ist Vervielfäl-  
tigung oder Mitteilung an dritte Personen  
unzulässig und strafbar.

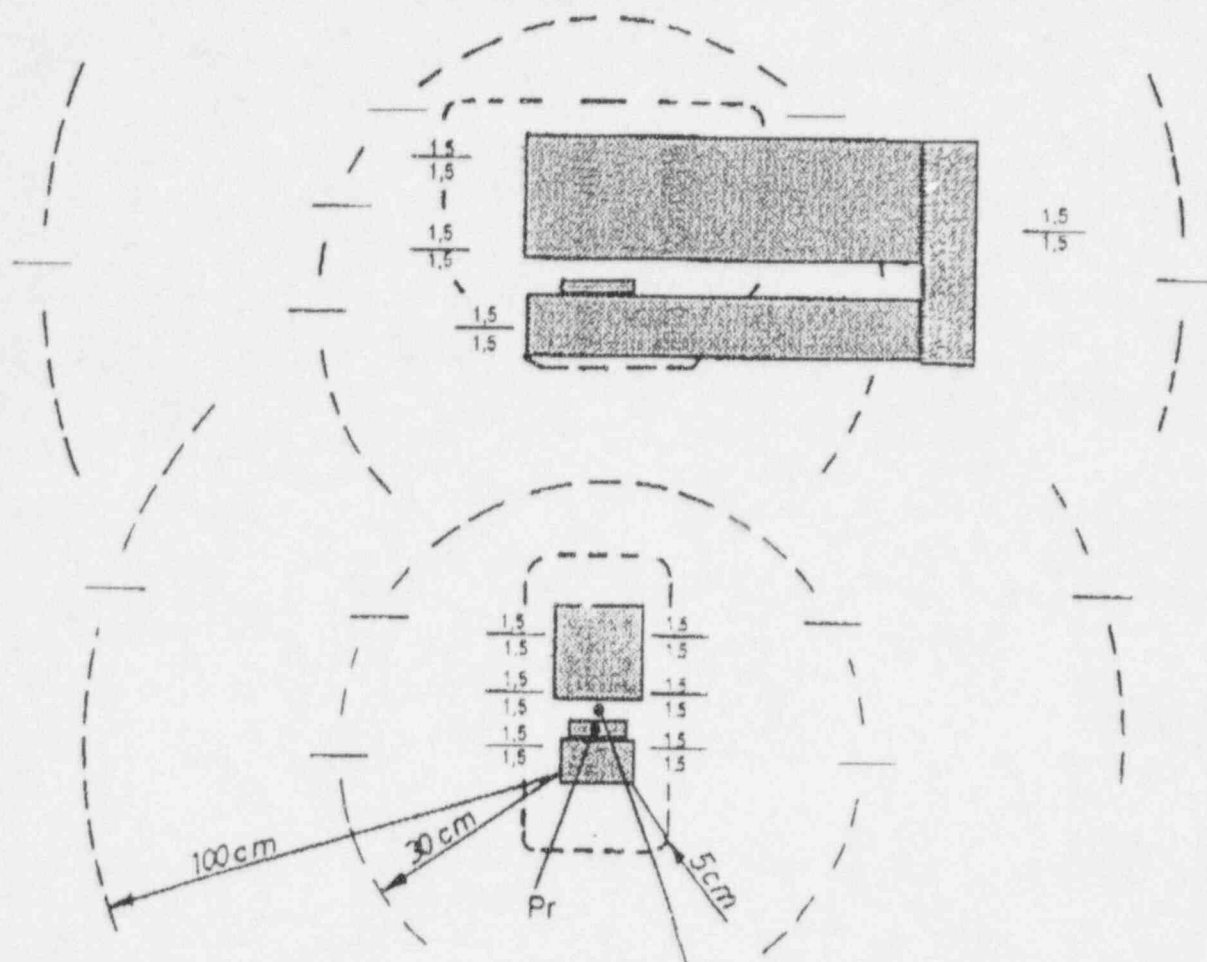
**betacontrol** gmbh

meß- und regeltechnik, 5905 Freudenberg

Maßstab

Strahlenbelastung  
Radiation dose rates  
Valeurs d'irradiation

700-103-220 Bl. 42



Pr:  
Strahlenquelle  
radiation source  
source de rayonnement

Meßspalt  
gap  
fente de mesure : = 70 mm

Strahler  
source : Americium 241; 11,1 GBq

Strahlerfenster  
source window : geschlossen  
fenêtre de la source : closed  
fermée

Meßgerät  
survey meter : Babyline 31  
appareil de mesure

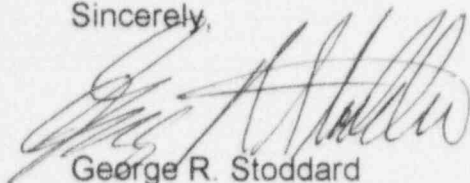
Dosisleistung  
dose rate : (µSv/h) mit Absorber  
débit de dose : with absorber : 7 mg/cm²  
avec absorbeur : 300 mg/cm²

Typ / type: X92 Loch Ø = 16 mm / X92 hole Ø = 16 mm / X92 trou Ø = 16 mm

	Datum	Name	Das Urheberrecht an dieser Zeichnung gehört uns. Laut Gesetz ist Vervielfältigung oder Mitteilung an dritte Personen unzulässig und strafbar.	<b>betacontrol</b> gmbh meß- und regeltechnik, D-57258 Freudenberg
Gezeichnet	22.03.1995	Lerch		
Geprüft	22.03.1995	D. Kray		
Strahlenbelastung Radiation dose rates Valeurs d'irradiation			700-103-220 Bl. 62	

This information has been provided to assist your facility in maintaining exposures "as low as is reasonably achievable" ALARA. If at anytime you have questions or concerns please contact one of our service representatives.

Sincerely,

A handwritten signature in dark ink, appearing to read "George R. Stoddard", written over a horizontal line.

George R. Stoddard  
National Sales Manager