

03028988

NRC HEADQUARTERS

MATERIAL LICENSE TERMINATION/RETIREMENT FORM

(To be completed only by Headquarters Section Leader or person authorized to sign licenses)

LICENSEE NAME Berthold Analytical, Inc. LICENSE NO. 28-23568-01E

ADDRESS 25 Charroix Ave DOCKET NO. 030-28988

Nashua, NH 03063 EXPIRATION DATE July 21, 1986

LICENSE IS EXPIRED 0

BEING TERMINATED \_\_\_\_\_

Basis for termination/retirement:

1. Superseded by License No. \_\_\_\_\_

Transfer documents to new license folder. Date Transferred \_\_\_\_\_

By \_\_\_\_\_

2. Other Request by licensee - letter dated March 27, 1989

Authorized Signature

DATE 10/29/91

BY J. Bruce [Signature]

ACTION BY IRM:  
Retire old license.

ACTION BY IMOB:  
Change status in computer.  
Status changed to 04 on 10-29-91  
by M. Moriarty

DISTRIBUTION:  
IRM - Retired Folder  
License Fee Management Branch, OC/DAF  
Region Licensing Section

9405260030 911024  
PDR ADOCK 03028988  
C PDR

100164

ML00

OCT 7 1991

EG&G Berthold  
EG&G Berthold Analytical  
Instruments, Inc.  
ATTN: Blane R. Goguen  
472 Amherst Street  
Nashua, New Hampshire 03063

Dear Mr. Goguen:

This refers to your recent conversation with Torre Taylor of this office and your letter dated September 3, 1991, regarding License No. 28-23568-01E.

Please be aware that because your license expired December 31, 1989, you will be unable to renew the license. Any future application will be processed as an application for a new license and must contain complete and up-to-date information concerning the products you wish to distribute without reference to previously submitted documents.

10 CFR 32.16(c)(3) requires that a product transfer report be submitted when notifying the Commission of the licensee's decision to discontinue activities authorized under the license. In reviewing your file, we were unable to find any product transfer reports since 1986. Therefore, unless you have information to the contrary, you should submit product transfer information from 1986 to the date of expiration.

If you have any questions, please feel free to contact me at (301) 492-0686.

Sincerely,

Original Signed By:

Susan L. Greene  
Commerical Section  
Medical, Academic, and Commercial  
Use Safety Branch  
Division of Industrial and  
Medical Nuclear Safety, NMSS

Enclosure:  
10 CFR Part 32  
DISTRIBUTION  
License File  
IMAB r/f

INMS Central File  
SGreene JEGlenn NMSS r/f  
amastra

-----  
OFC: IMAB : IMAB  
-----  
NAME: SGreene:sg : JBCarrico  
-----  
DATE: 10/17/91 : 10/11/91  
-----

OFFICIAL RECORD COPY

EG&G BERTHOLD

ML00  
SEND COPY TO  
REGION I



**EG&G berthold**

EG&G BERTHOLD ANALYTICAL INSTRUMENTS, INC.  
472 AMHERST STREET, NASHUA, NH 03063 • (603) 889-3309

*Received  
9/3/91*

Susan Greene  
U. S. Nuclear Regulatory Commission  
Mail Stop 683  
Washington, D. C. 20555

Dear Ms. Greene.

Torre Taylor suggested I write you concerning the matter of License # 28-23568-O1E for distribution of exempt quantities of radioactivity. At this time we are not pursuing a renewal application for this license. We will probably do so within the next 12 months however. At this time we are only distributing radioactivity to appropriately licensed institutions and require a copy of the institutions radiation license before we ship radioactivity. If there are any questions please contact me at 1-800-343-6345.

Sincerely,

Biane R. Goguen  
Radiation Safety Officer  
EG&G Berthold (formerly Berthold Analytical Instruments, Inc.)  
472 Amherst St.  
Nashua, NH 03063

03031877

VOID SHEET

TO: License Fee Management Branch  
FROM: Bruce Carrico  
SUBJECT: VOIDED APPLICATION

Control Number: 113255

Applicant: EG & G Beethold

Date Voided: 10/31/90

Reason for Void: Application with drawn per  
letter received 9/24/90

A. Bruce Carrico 10/31/90  
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: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Log completed   
Processed by: AK



**EG&G BERTHOLD**

EG&G BERTHOLD ANALYTICAL INSTRUMENTS, INC.

472 AMHERST STREET, NASHUA, NH 03063 • (603) 889-3309

Bruce Carrico  
US Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Bruce,

In reference to our conversation of 9/17/90, I am requesting that you not process our application for license to distribute exempt quantities of radioactivity at this time and that our application fee be refunded. Details of the application are as follows:

Company name: EG and G Berthold  
Address: 472 Amherst St.  
Nashua, NH 03063

Contact: Blane Goguen or Micheal Cianci  
Phone: 1-800-343-6345

Attached is a copy of NRC form 313 for this application.  
If there are any questions please call.

Sincerely,

Blane R. Goguen  
Radiation Safety Officer  
EG and G Berthold

REC'D

SEP 24 1990

## 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.

**FEDERAL AGENCIES FILE APPLICATIONS WITH:**

U.S. NUCLEAR REGULATORY COMMISSION  
DIVISION OF FUEL CYCLE AND MATERIAL SAFETY, NMSS  
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, PENNELVANIA, RHODE ISLAND, OR VERMONT, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION I  
NUCLEAR MATERIAL SECTION B  
631 PARK AVENUE  
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  
MATERIAL RADIATION PROTECTION 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  
MATERIAL RADIATION PROTECTION 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 \_\_\_\_\_

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

EG&G BERTHOLD  
472 Amherst Street  
Nashua, NH 03063

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

EG&G BERTHOLD  
472 Amherst Street  
Nashua, NH 03063

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Blane R. Goguen or Michael S. Cianci

TELEPHONE NUMBER

800-343-6345

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 3 T AMOUNT ENCLOSED \$2,100.00

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 2, 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, §2 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



Michael S. Cianci

General Manager

8-3-90

14. VOLUNTARY ECONOMIC DATA

a. ANNUAL RECEIPTS

<\$250K	<input checked="" type="checkbox"/>	\$1M-3.5M
\$250K-500K	<input type="checkbox"/>	\$3.5M-7M
\$500K-750K	<input type="checkbox"/>	\$7M-10M
\$750K-1M	<input type="checkbox"/>	>\$10M

b. NUMBER OF EMPLOYEES (Total for entire facility excluding outside contractors)

11

c. NUMBER OF BEDS

Not Applicable

d. WOULD YOU BE WILLING TO FURNISH COST INFORMATION (Jailer and/or staff hours) ON THE ECONOMIC IMPACT OF CURRENT NRC REGULATIONS OR ANY FUTURE PROPOSED NRC REGULATIONS THAT MAY AFFECT YOU? (NRC regulations permit it to protect confidential commercial or financial--proprietary--information furnished to the agency in confidence)

YES

NO

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	COMMENTS	APPROVED BY
REC'D				
AMOUNT RECEIVED	CHECK NUMBER			DATE
SEP 24 1990				

APPLICATION FOR MATERIAL LICENSE

L&L 28571

030-31877

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03214

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 WASHINGTON, DC 20555

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 611 RYAN PLAZA DRIVE, SUITE 1000  
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1. THIS IS AN APPLICATION FOR (Check appropriate item):	2. NAME AND MAILING ADDRESS OF APPLICANT (Include Zip Code)
<input checked="" type="checkbox"/> A. NEW LICENSE <input type="checkbox"/> B. AMENDMENT TO LICENSE NUMBER _____ <input type="checkbox"/> C. RENEWAL OF LICENSE NUMBER _____	EG&G BERTHOLD 472 Amherst Street Nashua, NH 03063

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

EG&G BERTHOLD  
 472 Amherst Street  
 Nashua, NH 03063

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION	TELEPHONE NUMBER
Blane R. Goguen or Michael S. Cianci	800-343-6345

SUBMIT (FORMS 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

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9. FACILITIES AND EQUIPMENT.	10. RADIATION SAFETY PROGRAM.
11. WASTE MANAGEMENT.	12. LICENSEE FEES (See 10 CFR 170 and Section 170.31) FEE CATEGORY 3 I AMOUNT ENCLOSED \$2,100.00

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SIGNATURE - CERTIFYING OFFICER	TYPED/PRINTED NAME	TITLE	DATE
	Michael S. Cianci	General Manager	8-3-90

9. ANNUAL RECEIPTS		14. VOLUNTARY ECONOMIC DATA	
<\$250K	<input checked="" type="checkbox"/> X	\$1M-\$5M	d. WOULD YOU BE WILLING TO FURNISH COST INFORMATION (dollar and/or staff hours) ON THE ECONOMIC IMPACT OF CURRENT NRC REGULATIONS OR ANY FUTURE PROPOSED NRC REGULATIONS THAT MAY AFFECT YOU? (NRC regulations permit it to protect confidential commercial or financial--proprietary--information furnished to the agency in confidence). <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
\$250K-\$500K	<input type="checkbox"/>	\$5.5M-\$7M	
\$500K-\$750K	<input type="checkbox"/>	\$7M-\$10M	
\$750K-\$1M	<input type="checkbox"/>	>\$10M	
		b. NUMBER OF EMPLOYEES (Total for entire facility excluding outside contractors)	
		11	
		c. NUMBER OF BEDS	
		Not Applicable	

FOR NRC USE ONLY				APPROVED BY
TYPE OF FEE	FEE CODE	FEE CATEGORY	COMMENTS	
APP	Aug 35	3 I		
AMOUNT RECEIVED	CHECK NO.			DATE
\$2,100	7251			8/10/90

## PRIVACY ACT STATEMENT

Pursuant to 5 U.S.C. 552a(e)(3), enacted into law by section 3 of the Privacy Act of 1974 (Public Law 93-579), the following statement is furnished to individuals who supply information to the Nuclear Regulatory Commission on NRC Form 313. This information is maintained in a system of records designated as NRC-3 and described at 40 Federal Register 45334 (October 1, 1975).

1. **AUTHORITY:** Sections 81 and 161(b) of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2111 and 2201(b)).
2. **PRINCIPAL PURPOSE(S):** The information is evaluated by the NRC staff pursuant to the criteria set forth in 10 CFR Parts 30, 32, 33, 34, 35 and 40 to determine whether the application meets the requirements of the Atomic Energy Act of 1954, as amended, and the Commission's regulations, for the issuance of a radioactive material license or amendment thereof.
3. **ROUTINE USES:** The information may be (a) provided to State health departments for their information and use; and (b) provided to Federal, State, and local health officials and other persons in the event of incident or exposure, for their information, investigation, and protection of the public health and safety. The information may also be disclosed to appropriate Federal, State, and local agencies in the event that the information indicates a violation or potential violation of law and in the course of an administrative or judicial proceeding. In addition, this information may be transferred to an appropriate Federal, State, or local agency to the extent relevant and necessary for an NRC decision or to an appropriate Federal agency to the extent relevant and necessary for that agency's decision about you.
4. **WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION:** Disclosure of the requested information is voluntary. If the requested information is not furnished, however, the application for radioactive material license, or amendment thereof, will not be processed. A request that information be held from public inspection must be in accordance with the provision of 10 CFR 2.790. Withholding from public inspection shall not affect the right, if any, of persons properly and directly concerned need to inspect the document.
5. **SYSTEM MANAGER(S) AND ADDRESS:** U.S. Nuclear Regulatory Commission  
Director, Division of Fuel Cycle and Material Safety  
Office of Nuclear Material Safety and Safeguards  
Washington, D.C. 20555





# EG&G BERTHOLD

EG&G BERTHOLD ANALYTICAL INSTRUMENTS, INC.

472 AMHERST STREET, NASHUA, NH 03063 • (603) 889-3309

## NRC FORM 313

<u>SECTION 5</u>	SOURCE# C-14 / H-3	30 PLATES WITH EACH PLATE CONTAINING 2 C-14 PLATED SOURCES ON ONE SIDE AND 2 H-3 SOURCES ON THE OTHER SIDE. EACH C-14 SOURCE HAVING < 0.5 uCi AND EACH H-3 SOURCE HAVING < 11 uCi. TOTAL SOURCES = 120. SEE ATTACHED COPIES.
	SOURCE# C-14	3 PLATES EACH CONTAINING 81 INDIVIDUAL PLATED SOURCES. EACH SOURCE BEING < 1 uCi. TOTAL SOURCES = 241.
	*SOURCE# Sr-90	10 PLATED SOURCES EACH HAVING AN ACTIVITY OF < 7 uCi EACH. SEE ATTACHED COPY.
	*SOURCE# Am-241	10 SEALED SOURCES EACH BEING < 2 uCi.
	SOURCE# H-3	20 SEALED GLASS VIALS CONTAINING SCINTILLATOR FLUID AND HAVING AN ACTIVITY CONCENTRATION < 0.03 uCi/ml AND A TOTAL VOLUME < 1ml.

\* WE REALIZE THAT THESE ISOTOPES AND/OR QUANTITIES ARE NOT EXEMPT AS DESCRIBED IN SECTION 30.71 SCHEDULE B OF THE NRC RULES AND REGULATIONS. THEREFORE WE WILL REQUEST FROM ANY TRANSFEREE THAT A COPY OF THEIR LICENSE TO HANDLE RADIOACTIVE MATERIALS BE SENT FOR OUR REVIEW BEFORE WE SHIP THE ISOTOPES.

## SECTION 6

ALL SOURCES WILL BE USED TO CALIBRATE NUCLEAR MEASUREMENT EQUIPMENT.



#### SECTION 7

THE PERSON RESPONSIBLE FOR THE RADIATION SAFETY PROGRAM AND TRAINING WILL BE THE RADIATION SAFETY OFFICER WHO IS APPOINTED BY THE GENERAL MANAGER. THE CURRENT RADIATION SAFETY OFFICER IS:

BLANE R. GOGUEN  
4 SOUTHER LANE  
SALISBURY, MA 01952  
(508)465-2480

#### SECTION 8

##### RESTRICTED AREAS

TRAINING FOR INDIVIDUALS WORKING IN RESTRICTED AREAS IS PERFORMED BY THE RADIATION SAFETY OFFICER. (SEE SECTION 7)

#### SECTION 9

EG&G BERTHOLD HAS A LABORATORY/SERVICE AREA OF 1000 Sq. FT., A WAREHOUSE OF 3000 Sq. FT., AND AN OFFICE SPACE OF 2000 Sq. FT. ALL SOURCES ARE KEPT IN A LOCKED FLAME PROOF CABINET IN THE LAB/SERVICE AREA AFTER IMMEDIATE TRANSFER FROM THE WAREHOUSE UPON RECEIPT. EG&G USES AN LB 122 BETA, GAMMA PROBE FOR MONITORING PURPOSES. (SEE ATTACHED BROCHURE FOR DETAILS ON THIS DEVICE)

#### SECTION 10

A FOUR HOUR RADIATION SAFETY PROGRAM IS GIVEN TO ALL NEW EMPLOYEES WHO WILL BE HANDLING RADIOACTIVITY. THE COURSE CURRICULUM IS AS FOLLOWS:

- I - BASIC NUCLEAR PHYSICS & UNITS OF RADIATION MEASUREMENT (1 HR)
- II - RADIATION SAFETY TECHNIQUES (1 HR)
- III - USE OF RADIATION MONITORING EQUIPMENT. (2 HRS)

THE COURSE INFORMATION IS REVIEWED PERIODICALLY.

#### SECTION 11

NO RADIOACTIVE WASTE IS GENERATED BY OUR FACILITY AS ALL SOURCES ARE RECEIVED FOR DISTRIBUTION TO OUR CUSTOMER OR RETURNED TO THE MANUFACTURER.



CAUTION  
RADIOACTIVE MATERIAL

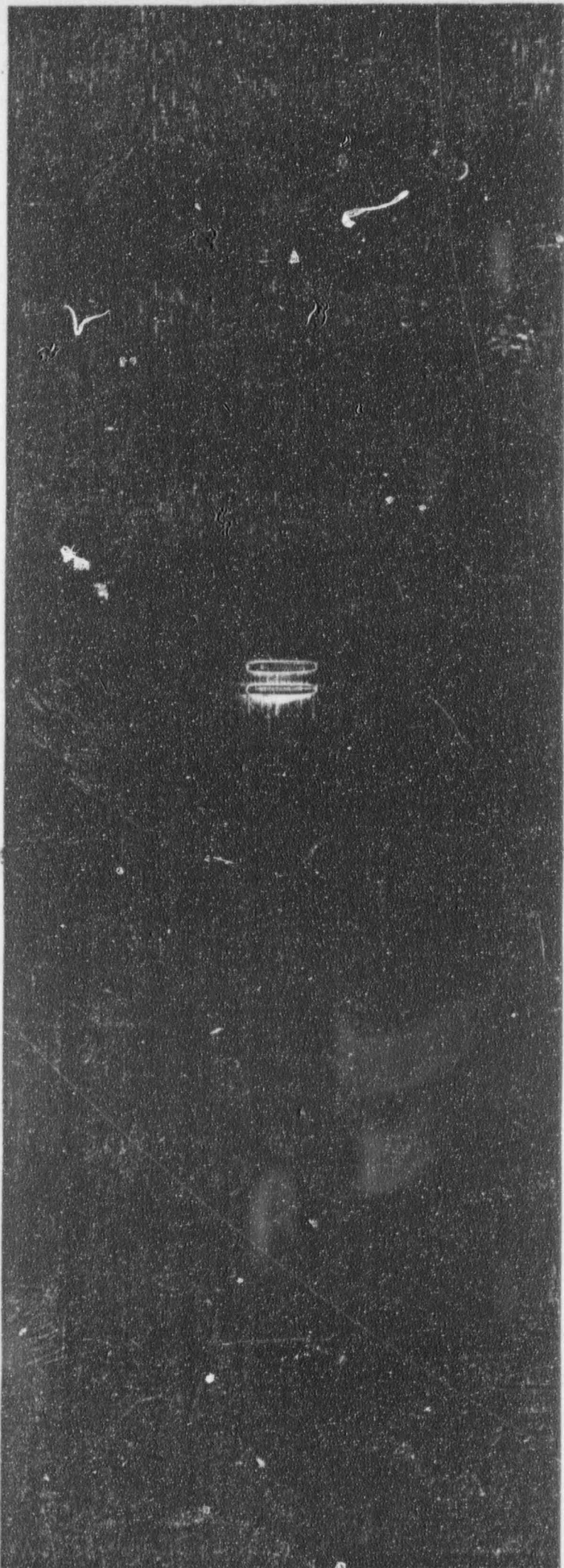
Isotope C-14  
Amount 20 14,43 KBq  
Date Nr 1005



CAUTION  
RADIOACTIVE MATERIAL

Isotope H-3  
Amount 20 344 KBq  
Date Nr 1005

3H  
Stamped  
in Metal



14C  
stamped  
in metal

90Sr

Test Source

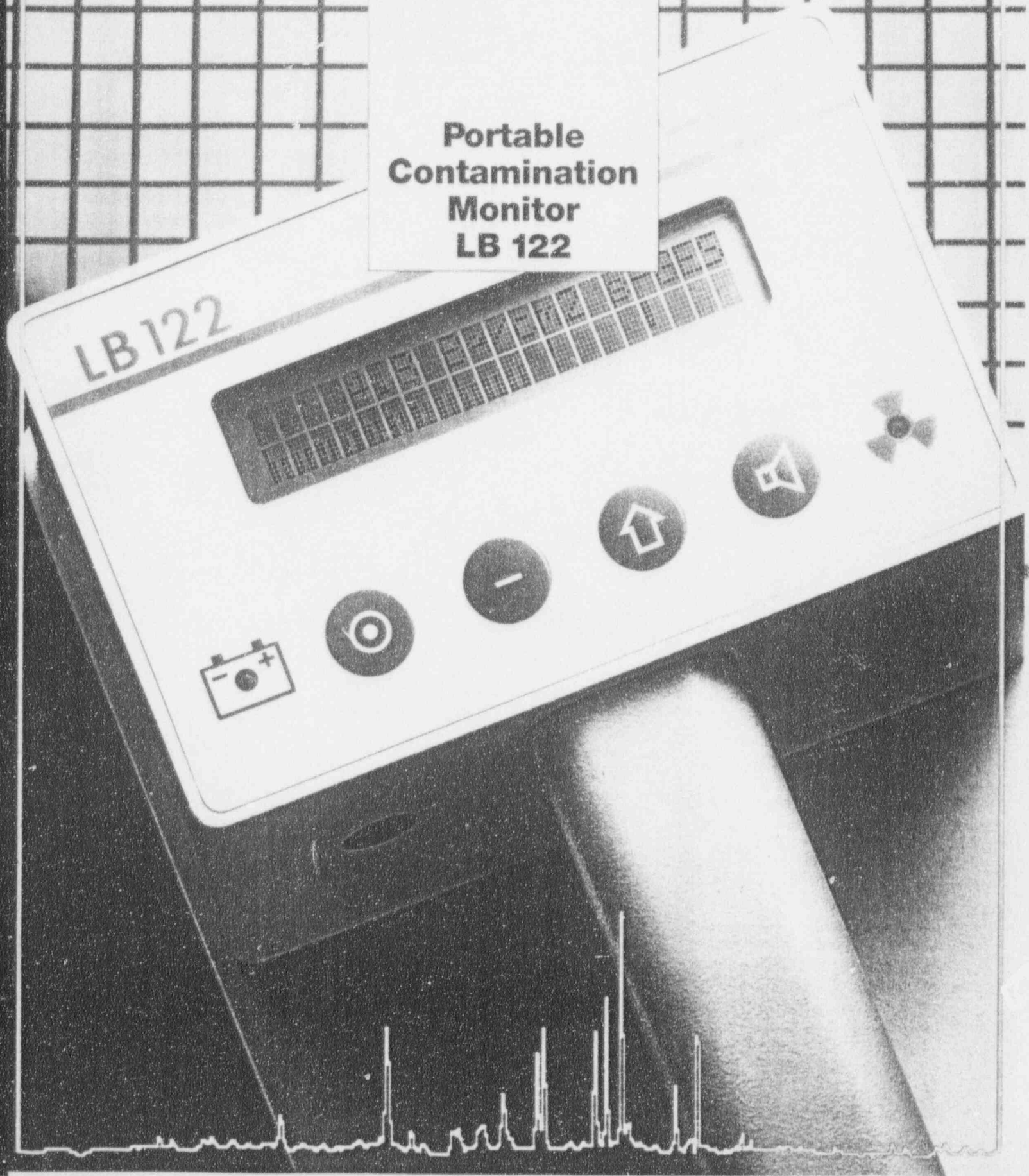


<sup>90</sup>Sr

Prüfstrahler zum	LB 122
Test source for	
<del>Am-241</del>	<del>ca. 74 Bq</del>
Sr-90	ca. 222 Bq
Kontrollwert	s <sup>-1</sup> ± 10 s <sup>-1</sup>
Control value	
BZ 200	115
MZ 200 α	—
MZ 200 β	—

**Berthold**

**Portable  
Contamination  
Monitor  
LB 122**



**Berthold**

**Portable  
Contamination  
Monitor  
LB 122**



# The Contamination Monitor LB 122 . . .

The Contamination Monitor LB 122 is a new generation in measuring instruments which feature the latest state of the art of microprocessor technology with all the advantages this method offers the user. The new instrument takes into account all the experiences accumulated in the aftermath of the Chernobyl event which led to a dramatic rise of activity measurements using traditional contamination monitors. For example, the Monitor LB 122 meets all requirements for use by fire brigades and emergency squads, such as a rugged casing, operation with gloves, and splashwater resistance.

The outer appearance of the Monitor LB 122 barely reveals the striking difference from its predecessor, the LB 1210, several thousand units of which were sold in the past. The LB 122 is also based on the basic concept of the one-hand instrument with a sealed-off large area counter tube built into the bottom. However, a closer examination of the external features, as well as the user friendliness, prove that the LB 122 is a thoroughly new instrument. The housing with the foil keypad and the ergonomic handle meet all requirements for use in rough environments. Most of all, however, it is the interior of the Monitor LB 122 which marks the most striking departure of this instrument – for the user's benefit – from traditional types.

## NEW

*Automatic continuous checking of counting gas filling with butane detectors, announcing "Gas Refill" on display.*

### Use of the Monitor made easy

Clearly displayed values, digital either in cps or Bq/cm<sup>2</sup> or Bq/l, analog in per cent of threshold. Functional keys, user guidance, instrument selftest.

Monitor on/off

Replace batteries

Measure background

Change display



# LB 122

# berthold





# ... A Thoroughly New Instrument

## The New Technology and its Benefits for the User

The microprocessor technology of the LB 122 and its improved software enable even the untrained user to obtain positive and reliable results. Below we will describe some of the benefits which conventional instruments do not offer, or only inadequately.

### Automatic Adjustment of the Indication to Changing Measuring Values

If you have ever held such an instrument in your hands, you will know that the display fluctuates due to the statistical variations of the count rate. To reduce these variations, conventional instruments required the manual switch-over of the "time constant", depending on whether the user wished to recognize a rapid change of the measuring value ("Search Mode") or to determine the measuring accurately ("Measurement Mode"). The LB 122 does not have a time constant in the usual sense any more. The microprocessor automatically analyzes the change of the measuring value and optimally adjusts the display delay. Without user interaction one can thus obtain the fastest possible display change together with very minor fluctuations of the indicated value.

### The Background is Stored and Automatically Subtracted

One problem with every activity measurement is the background determination, i.e. the display without the activity to be measured, and then to subtract it from the activity measured. The LB 122 is able, after the user has pressed the "-" function key, to recognize a measurement as background measurement, to store the result, and to take it into account for the following measurement. The user does not need to remember and calculate this value himself -- a decisive simplification for the untrained user.

### Display in Becquerel per Square Centimeter

Previously, only one instrument has been available with  $\text{Bq/cm}^2$  display: the LB 1210 D. Particularly after Chernobyl it has passed its crucial test. Chernobyl has explicitly shown how important it is that the user does not have to convert the raw data displayed as  $\text{s}^{-1}$  (counts per second) by calculation, but that the result can be read off directly in the required unit of measurement. However, the raw data are also displayed, if desired. By repeatedly pressing the button  $\uparrow$  the user may select: cps,  $\text{Bq/cm}^2$  for gross  $\beta$ -activity (averaged calibration factor),  $\text{Bq/cm}^2$  for one specific nuclide, e.g.  $^{131}\text{I}$ , which can be selected from the nuclide inventory in the monitor.

### Built-in Calibration Factors for Various Nuclides

In an emergency a reference nuclide must be known -- from superior measurements -- not only to evaluate the measurement, but also to allow comparison with -- nuclide-specific -- limit values and to assess the danger for human beings. Such a reference nuclide may be selected by going through the inventory of radionuclides in the monitor -- arranged in the order of rising mass numbers -- and stopping at the required nuclide. The inventory is successively displayed by simply holding the button down. Calibration factors for up to 20 nuclides are stored in the monitor, and: the user cannot change them arbitrarily.

### Display of the Selected Reference Nuclide

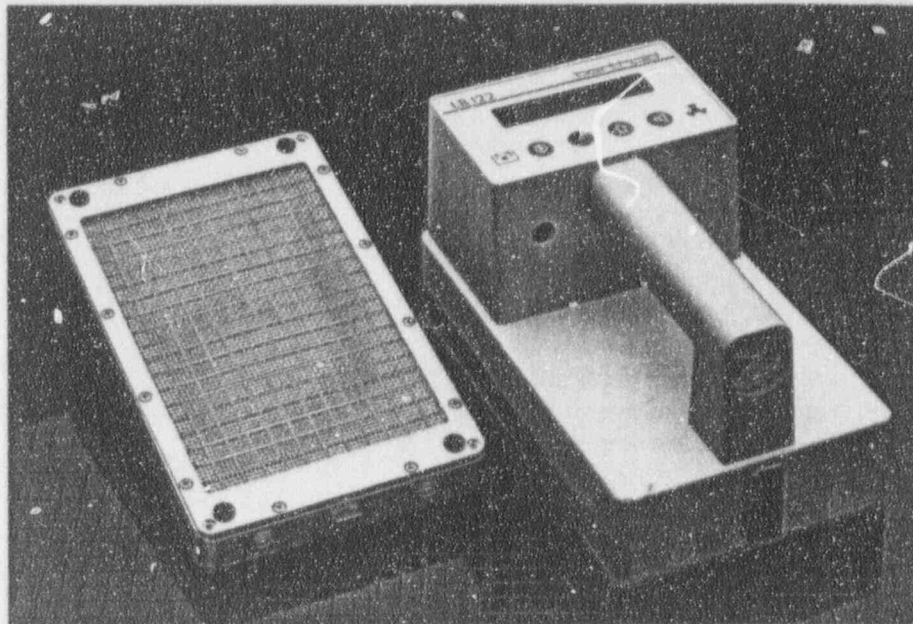
How does the user know which reference nuclide has been selected? This is rather simple: the identification of the reference nuclide appears in the display, for example  $^{137}\text{Cs}$ . Even untrained people can therefore report the reference nuclide when reading off the measured value. This allows later correction of the measured value, if necessary.

Single pulse  
acoustics  
on/off

Threshold  
reached



*Easy - to - change detectors  
Beta - Gamma- and  
Alpha - Beta-detectors  
are interchangeable.  
The monitor adjusts all  
settings automatically by  
software-codes.*



### "Single Pulse Counting" No Longer Required

As many pulses as possible have to be summed up in order to determine the activity accurately. Some of the older instruments featured the "Single Pulse Counting" mode. The user had to wait for the pre-selected time — e.g. 1000 seconds — and finally to divide the number of counts read off by the counting time. With the LB 122 the displayed measuring value becomes statistically increasingly more accurate. If the desired accuracy has been obtained, simply remove the monitor from the sample to be measured or from the place of measurement. The microprocessor recognizes the change in the measured value and adjusts the display accordingly.

### Graphics Display of the Measuring Value in % of the Threshold Value.

Of course, it is possible to enter a threshold value for each individual nuclide into the LB 122. But this is new: the measured value is displayed graphically — as bar diagram — in % of this threshold value.

The user thus knows immediately, even without knowing the absolute threshold value, how far the currently measured value deviates from this threshold value in either direction. An 80 db beeper sound when the threshold value is reached.

### Technical Data

**Detector Standard:** sealed-off xenon detector for beta/gamma-measurement, window area 120 mm x 190 mm, built into the bottom of the housing, window 5 mg/cm<sup>2</sup>

**Option:** exchangeable gas-fill detector (butane) for alpha/beta-measurement, window area 120 mm x 190 mm, 0.9 mg/cm<sup>2</sup>

A special construction of the covering grid plate ensures optimal protection of the counter tube window from mechanical damages, screening approx. 50 % of total window area.

### Housing Splashproof

**Operation** Foil keypad with 4 keys

**Display** LCD-Display with 2 x 20 characters and graphics function.

**Single Count Display** audible and visual, on/off key.

**Power Supply** 3 standard baby cells, approx. 40 hours continuous operation. Automatic „battery low" signal.

**Temperature Range** with xenon detector from -15°C to +50°C, with butane detector from approx. 0°C to +50°C

### Dimensions and Weight

140 mm x 234 mm x 126 mm;  
2175 g (with batteries).

**berthold**

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*Handwritten signature or initials*

**EG&G BERTHOLD**

EG&G BERTHOLD ANALYTICAL INSTRUMENTS, INC.  
472 MARKET STREET, WASHINGTON, NH 03093

U.S. NUCLEAR REGULATORY COMMISSION  
NUCLEAR MATERIAL SECTION 8  
475 ALLENGALE ROAD  
KING OF PRUSSIA, PA 19406



POSSESSION LIMIT INFORMATION

PAGE: 2

MATERIAL TYPE	:	_____	FORM CODE:	___	AGGREGATE CODE:	___
MODEL NUMBER	:	_____				
DESCRIPTION	:	_____				
TOTAL QUANTITY	:	_____	UNIT:	___		
OTHER	:	_____	# SOURCES:	___		
MATERIAL TYPE	:	_____	FORM CODE:	___	AGGREGATE CODE:	___
MODEL NUMBER	:	_____				
DESCRIPTION	:	_____				
TOTAL QUANTITY	:	_____	UNIT:	___		
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DESCRIPTION	:	_____				
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DESCRIPTION	:	_____				
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OTHER	:	_____	# SOURCES:	___		

NAME

AUTHORIZATION

_____	_____
_____	_____
_____	_____

ADDRESS WHERE MATERIAL IS USED OR POSSESSED

BUILDING: _____	_____
ROOM: _____	_____
STREET: _____	_____
CITY: _____	_____
STATE: _____	_____

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STATE: _____	_____

5

DECOMMISSIONING FINANCIAL ASSURANCE INFORMATION

PAGE: 4

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DOCKET: 03031877 LIC: \_\_\_\_\_ NAME: EG&G BERTHOLD

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PARTY ISSUING MECHANISM:	ASSUR TYPE :	_____ (C=CERT D=DFP)
NAME _____	MECH TYPE :	_____
ADDR1 _____	MECH AMOUNT:	_____
ADDR2 _____	APPROVED? :	DATE: _____
CITY _____	EXPIRES ? :	DATE: _____
STATE: _____	ZIP: _____	

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PARTY ISSUING MECHANISM:	ASSUR TYPE :	_____ (C=CERT D=DFP)
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ADDR1 _____	MECH AMOUNT:	_____
ADDR2 _____	APPROVED? :	DATE: _____
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STATE: _____	ZIP: _____	

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CITY _____	EXPIRES ? :	DATE: _____
STATE: _____	ZIP: _____	

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ADDR2 _____	APPROVED? :	DATE: _____
CITY _____	EXPIRES ? :	DATE: _____
STATE: _____	ZIP: _____	

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ADDR2 _____	APPROVED? :	DATE: _____
CITY _____	EXPIRES ? :	DATE: _____
STATE: _____	ZIP: _____	

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NAME _____	MECH TYPE :	_____
ADDR1 _____	MECH AMOUNT:	_____
ADDR2 _____	APPROVED? :	DATE: _____
CITY _____	EXPIRES ? :	DATE: _____
STATE: _____	ZIP: _____	

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24-23568-01E old  
030-28988

(FOR LFMS USE)  
INFORMATION FROM LTS

BETWEEN:

LICENSE FEE MANAGEMENT BRANCH, ARM  
AND  
REGIONAL LICENSING SECTIONS

PROGRAM CODE: 03214 03253  
STATUS CODE: 3  
FEE CATEGORY: -----  
EXP. DATE: 0  
FEE COMMENTS: -----

LICENSE FEE TRANSMITTAL

A. REGION \* HPS

1. APPLICATION ATTACHED  
APPLICANT/LICENSEE: EG&G BERTHOLD  
RECEIVED DATE: 900815  
DOCKET NO: 3031877  
CONTROL NO.: 113255  
LICENSE NO.:  
ACTION TYPE: NEW LICENSEE

2. FEE ATTACHED  
AMOUNT: 2100.00  
CHECK NO.: 1051

3. COMMENTS

SIGNED Implawenkamp  
DATE 08/30/90

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

1. FEE CATEGORY AND AMOUNT: 3I \$2,100

2. CORRECT FEE PAID. APPLICATION MAY BE PROCESSED FOR:  
AMENDMENT -----  
RENEWAL -----  
LICENSE ✓ -----

3. OTHER -----

SIGNED A.  
DATE 9/10/90

8/30