

July 12, 1995

Mr. John W. Lubinski, Mechanical Engineer
Sealed Source Safety Section
Source Containment and Devices Branch
Division of Industrial and Medical Nuclear Safety
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

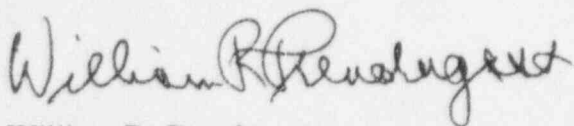
Dear Mr. Lubinski:

This letter concerns the Group 3 registrations listed in your letter of April 13, 1995. This group consists of products designed manufactured, and distributed by LFE prior to 1969. In 1969, these products and others were sold to International Chemical and Nuclear Corporation (now known as ICN Pharmaceuticals). The current address is:

3300-T Hyland Avenue
Costa Mesa, CA 92626
Tel. (714) 545-0100

With the sale of these products, all drawings, documentation, and records were transferred to ICN. Therefore, drawings, conditions of use, labels, radiation levels, prototype testing, and other information is not available at LFE. LFE will not accept the return of sources in this group. LFE has received no report of leaking sources pertaining to Group 3. Please see the individual registrations for further comments.

Very truly yours,



William R. Prendergast
Radiation Safety Officer
LFE Industrial Systems Corporation

WRP/ddl
Enclosure

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

NO.: NR-420-D-847-S

DATE:

PAGE 1 OF 3

DEVICE TYPE: Clathrate Gas Detector

MODEL: Clathrate Gas Detector

MANUFACTURER/DISTRIBUTOR:

LFE Industrial Systems Corporation
55 Green Street
Clinton, MA 01510

ISOTOPE:

Krypton-85

MAXIMUM ACTIVITY:

100 millicuries (3.7 GBq)

LEAK TEST FREQUENCY: 6 Months

PRINCIPAL USE: (E) ~~Beta Gauges~~

GAS DETECTION

CUSTOM DEVICE: _____ YES _____ X _____ NO

WAP

7-11-95

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

NO.: NR-420-D-847-S

DATE:

PAGE 2 OF 3

DEVICE TYPE: Clathrate Gas Detector

DESCRIPTION:

The Clathrate Gas Detector is designed to detect nitrogen dioxide in air. The sensing element is a krypton-85 quinol clathrate source. The quinol undergoes a chemical reaction with the gas being analyzed, with the ultimate release of krypton-85 gas. The gas is released by the quinol being oxidized to quinone and in turn the krypton is swept along into the counting chamber. The counting rate being proportional to the concentration of the oxidizing gas.

The Kr-85 clathrate cell consist of a piece of 0.25" (0.64 cm) teflon tube about 4" (10.16 cm) long. The Kr-85 clathrate is packed within the tube using fine wire mesh and teflon wool. The assembly is placed within a cylindrical lead shield and is placed within 7" (17.8 cm) high x 17" (43.2 cm) wide x 13" (33.0 cm) deep aluminum console.

The device contains a visual and audio alarm system. When concentrations in excess of the preset limit is detected the alarm circuit is activated.

DIAGRAM:

A diagram of the console is shown in attachment 1.

LABELING:

NO INFORMATION AVAILABLE

CONDITIONS OF NORMAL USE:

The device is designed to detect concentrations of nitrogen dioxide gas in air and will typically be used in controlled environments suitable for humans.

PROTOTYPE TESTING:

NO INFORMATION AVAILABLE

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

NO.: NR-420-D-847-S

DATE:

PAGE 3 OF 3

DEVICE TYPE: Clathrate Gas Detector

EXTERNAL RADIATION LEVELS:

There are no measurable radiation levels outside the console. Radiation levels at the surface of the lead shield are less than 0.3 mR/hr (3 μ Sv/hr). A fresh 100 mCi source removed from the lead shield produces radiation levels of 8 mR/hr (80 μ Sv/hr) gamma and 20 mR/hr (200 μ Sv/hr) beta on its surface.

LIMITATIONS AND/OR OTHER CONSIDERATIONS OF USE:

- The device may be used by persons specifically licensed by the NRC or an Agreement State.
- Handling, storage, use, transfer, and disposal: To be determined by the licensing authority.
- ~~The device shall be leak tested at intervals not to exceed 6 months using techniques capable of detecting 0.005 microcurie (185 Bq) of removable contamination.~~
- This registration sheet and the information contained within the references shall not be changed without the written consent of the NRC.

SAFETY ANALYSIS SUMMARY:

LFE distributed this device prior to 1969. However, in 1969 the product line was sold and all the information that LFE has concerning the device is contained in this certificate.

REFERENCES:

The following supporting documents for the Clathrate Gas Detector are hereby incorporated by reference and are made a part of this registry document.

- LFE's letters dated September 16, 1991, and August 6, 1991.

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

NO.: NR-420-D-847-S

DATE:

ATTACHMENT 1

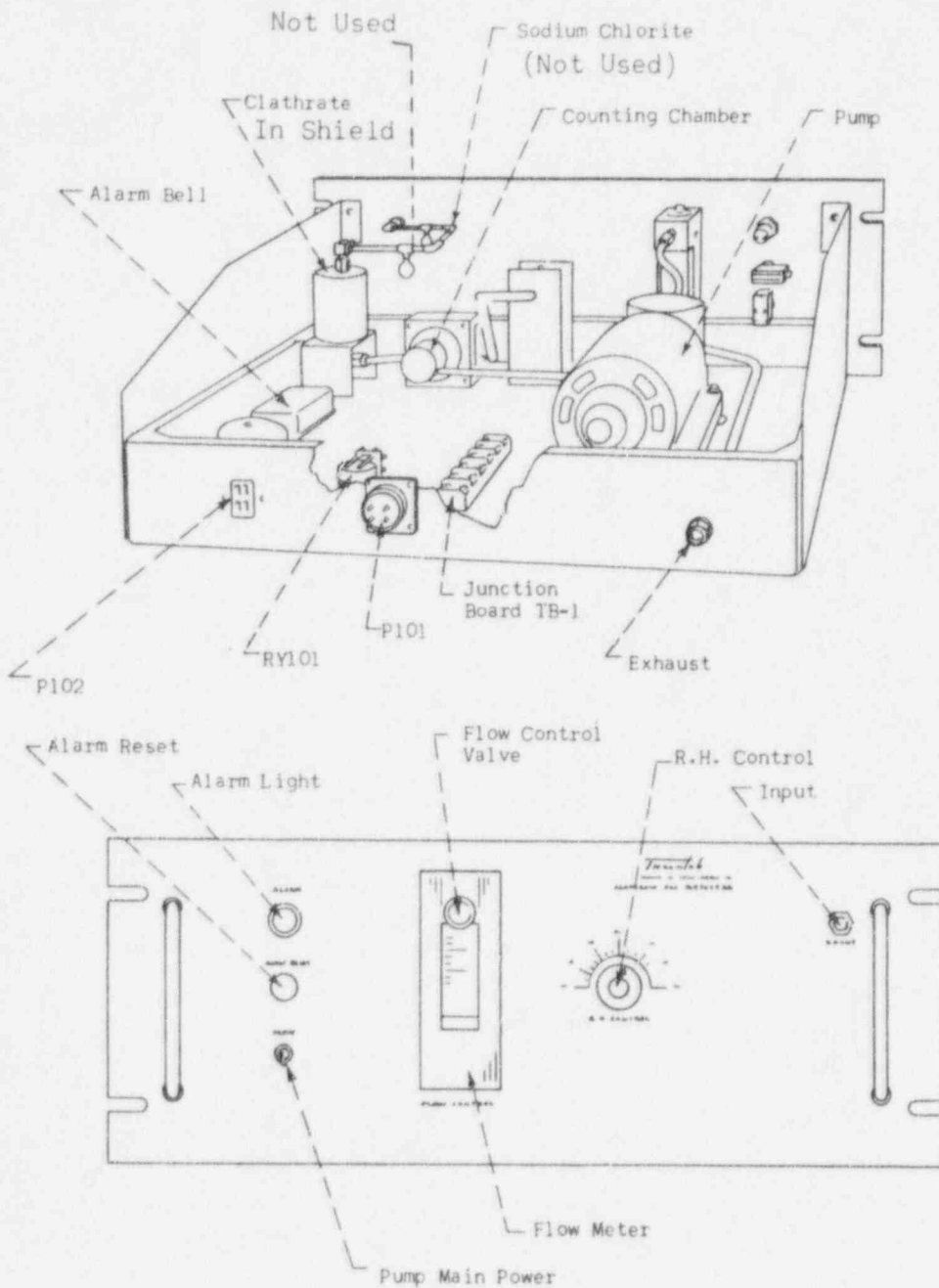


FIGURE 1
CLATHRATE GAS DETECTOR

April 13, 1995

William R. Prendergast
LFE Industrial Systems Corporation
55 Green Street
Clinton, MA 01510

Dear Mr. Prendergast:

This letter is in reference to your letter dated August 6, 1991, which requested that we transfer the registration certificates listed in column 1 of Enclosure 1 to inactive status. Columns 2 and 3 of Enclosure 1 include the new registration numbers that will be assigned to the certificates and the model numbers of the sources or devices that will be included on each new certificate. Please note that in several cases existing registration certificates have been combined into one inactive certificate.

In order to continue our evaluation your request, we need the additional information that is indicated in Enclosure 2. The table in Enclosure 2 provides a matrix which includes the new registration certificate numbers and a listing of the information necessary to complete our evaluation.

In addition to the information in Enclosure 2, please verify that the information included in the copies of draft registration certificates (Enclosure 3) is correct. Please mark any changes directly on the certificates and return them with your response. Please note that we did not include certain registration certificates (see column 9 of the table in Enclosure 2) due to not having enough information to generate a certificate.

Please note that transfer of the registration certificates to inactive status means the sources or devices included on the certificates may no longer be commercially distributed.

Once we have completed our evaluation of these certificates, we will re-evaluate the sources and devices which you are actively distributing and will re-issue the registration certificate for the products.

If you have any questions, please call me at (301) 415-7868 or Mr. Steven Baggett at (301) 415-7273.

Sincerely,

Original Signed by

John W. Lubinski, Mechanical Engineer
Sealed Source Safety Section
Source Containment and
Devices Branch
Division of Industrial and
Medical Nuclear Safety
Office of Nuclear Material Safety
And Safeguards

Distribution:

SSSS Staff

SCDB r/f

SSD-91-86

NE01

DOCUMENT NAME: C:\FILES\SSDS\LFE\LFE.DEF

To receive a copy of this document, indicate in the box: "C" = Copy without attachment/enclosure "E" = Copy with attachment/enclosure "N" = No copy

OFFICE	SCDB JNL							
NAME	JLubinski/jl							
DATE	04/13/95							

OFFICIAL RECORD COPY

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ENCLOSURE 1

Old Reg. Number	New Reg. Number	Model Number(s)
NR-420-D-101-U	NR-420-D-801-S	Keleket-Barnes Rotary
NR-420-D-102-U	NR-420-D-802-S	Keleket-Barnes Shperay
NR-420-D-103-U	NR-420-D-803-S	Keleket-Barnes Ceiling Mounted Unit
NR-420-S-104-S	NR-420-S-804-S	Sealed Source
NR-420-D-106-U	NR-420-D-805-S	Keleket-Barnes Flexaray
NR-420-S-107-U	NR-420-S-806-S	RXA, RXB, RXC, RXL, RXM, RXN
NR-420-D-108-U	NR-420-D-807-B	SCL-1D
NR-420-D-109-B	NR-420-D-808-B certificates were combined	BGL-7C
NR-420-D-110-G		BGL-7
NR-420-D-111-B		BGL-1C
NR-420-D-112-B	NR-420-D-809-B	BGL-1
NR-420-D-113-B	NR-420-D-810-B certificates were combined	SO-7D, SO-7E
NR-420-D-114-B		SO-7A, SO-7B, SO-7C
NR-420-D-115-B	NR-420-D-811-B	SO-1A, SO-1B, SO-1C
NR-420-D-116-B	NR-420-D-812-B certificates were combined	SN-7D, SN-7E
NR-420-D-117-B		SN-7A, SN-7B, SN-7C
NR-420-D-118-B	NR-420-D-813-B	SN-1A, SN-1B, SN-1C, SN-1D, SN-1E, SN-1F
NR-420-D-119-B	NR-420-D-814-B	SC-7D, SC-7E
NR-420-D-120-B	NR-420-D-815-B	SC-7A, SC-7B, SC-7C
NR-420-D-121-B	NR-420-D-816-B	SC-1A, SC-1B, SC-1C, SC-1D, SC-1E, SC-1F
NR-420-D-122-B	NR-420-D-817-B	SNP-UB
NR-420-D-124-B	NR-420-D-818-B	SCL-1A and SCL-1B
NR-420-D-125-G	NR-420-D-819-G	SN-P7A4
NR-420-D-126-U	NR-420-D-820-S	HSB-76 and HSB-77
NR-420-D-127-G	NR-420-D-821-G	HSB-76A and HSB-77A

ENCLOSURE 1

Old Reg. Number	New Reg. Number	Model Number(s)
NR-420-D-128-G	NR-420-U-822-G	BGL-7A
NR-420-D-132-G	NR-420-D-823-G	SNF-18
NR-420-D-133-G	NR-420-D-824-G	SSL-3
NR-420-D-136-G	NR-420-D-825-G	SU-S7
NR-420-S-137-U	NR-420-S-826-S	R-30, R-31
NR-420-S-138-U	NR-420-S-827-S	CD-1
NR-420-D-139-U	NR-420-D-828-S	SC-11
NR-420-D-140-U	NR-420-D-829-S	DH-75
NR-420-S-141-U	NR-420-S-830-S	S-75
NR-420-D-142-U	NR-420-D-831-S	AX-4
NR-420-D-143-U	NR-420-D-832-S	BG-107
NR-420-D-144-U	NR-420-D-833-S	BG-105
NR-420-D-145-U	NR-420-D-834-S	BG-7
NR-420-D-146-U	NR-420-D-835-S	BG-5
NR-420-D-147-U	NR-420-D-836-S	BG-2/5
NR-420-S-148-U	NR-420-S-837-S	S-3
NR-420-S-149-U	NR-420-S-838-S	S-4
NR-420-S-150-U	NR-420-S-839-S	S-6
NR-420-D-151-B	same as old 117	
NR-420-D-152-U	NR-420-D-840-S	SC-9C
NR-420-S-153-U	NR-420-S-841-S	S-70
NR-420-S-154-U	NR-420-S-842-S	S-9
NR-420-S-155-U	NR-420-S-843-S	R-58, R-59
NR-420-S-156-U	NR-420-S-844-S	CS-15
NR-420-S-157-U	NR-420-S-845-S	CD-15
NR-420-S-158-U	same as old 156	
NR-420-D-159-U	NR-420-D-846-S	SC-11A
NR-420-D-160-U	NR-420-D-847-S	Clathrate Gas Detector

ENCLOSURE 1

Old Reg. Number	New Reg. Number	Model Number(s)
NR-420-S-162-U	NR-420-S-848-S	S-5A
NR-420-S-163-U	NR-420-S-849-S	CD-11
NR-420-D-164-B	NR-420-D-850-B	SNP-1B

ENCLOSURE 2

Group	New Reg. Number	1	2	3	4	5	6	7	8	9
1	NR-420-D-801-S	X								
1	NR-420-D-802-S	X								
1	NR-420-D-803-S	X								
4	NR-420-S-804-S								X	
1	NR-420-D-805-S	X								
3	NR-420-S-806-S		X			X				
4	NR-420-D-807-B		X		X		X	X		
4	NR-420-D-808-B		X		X			X		
2	NR-420-D-809-B								X	
4	NR-420-D-810-B		X	X	X		X	X		
2	NR-420-D-811-B								X	
4	NR-420-D-812-B		X	X	X		X	X		
4	NR-420-D-813-B		X		X		X	X		
2	NR-420-D-814-B								X	
4	NR-420-D-815-B		X	X	X		X	X		
4	NR-420-D-816-B		X		X		X	X		
4	NR-420-D-817-B		X	X	X		X	X		
4	NR-420-D-818-B		X		X		X	X		
4	NR-420-D-819-G		X	X	X		X	X		
4	NR-420-D-820-S		X		X			X		
2	NR-420-D-821-G								X	
2	NR-420-D-822-G								X	
2	NR-420-D-823-G								X	
4	NR-420-D-824-G		X	X	X	X				
4	NR-420-D-825-G		X	X	X	X	X			X
3	NR-420-S-826-S						X			
3	NR-420-S-827-S					X	X			
2	NR-420-D-828-S								X	

ENCLOSURE 2

Group	New Reg. Number	1	2	3	4	5	6	7	8	9
4	NR-420-D-829-S		X	X	X			X		
4	NR-420-S-830-S		X		X					
3	NR-420-D-831-S						X			
2	NR-420-D-832-S								X	
2	NR-420-D-833-S								X	
2	NR-420-D-834-S								X	
2	NR-420-D-835-S								X	
2	NR-420-D-836-S								X	
4	NR-420-S-837-S		X	X	X	X	X			X
4	NR-420-S-838-S		X	X	X	X	X			X
4	NR-420-S-839-S		X	X	X	X	X			X
4	NR-420-D-840-S		X		X		X	X		
4	NR-420-S-841-S		X	X	X	X	X			X
2	NR-420-S-842-S								X	
3	NR-420-S-843-S		X			X	X			
3	NR-420-S-844-S			X		X	X			
3	NR-420-S-845-S			X		X	X			
2	NR-420-D-846-S								X	
3	NR-420-D-847-S				X		X			
4	NR-420-S-848-S		X	X	X	X	X			X
3	NR-420-S-849-S			X		X				
4	NR-420-D-850-B		X		X		X	X		

ENCLOSURE 2

LEGEND:

Groups:

- 1 Keleket-Barnes Units.
- 2 Products which were never distributed.
- 3 Product lines which were sold in 1969.
- 4 Products for which you provided number of units distributed.

Information which is necessary to complete our evaluation:

Column

- 1 Source model designation and the name and address of the manufacturer of the device.
- 2 Drawings showing the complete construction of the product.
- 3 Conditions under which the product is designed to be used.
- 4 Information which is included on the labeling of the product and the construction of the labeling (e.g., steel labels with engraved information, engraved directly on the source)
- 5 The maximum radiation levels, during use, in the beam of the product, on its surface, and at 30 and 100 cm from the product.
- 6 Tests performed on prototypes of the products and the results of such tests.
- 7 The maximum radiation levels, during use, in the beam of the product and on its surface.
- 8 Verification that the registration certificate is complete and accurate. No additional information is necessary.
- 9 A draft of the registration is not included.

Additional Information:

- For all products in groups 1, 3, and 4, please provide a listing of the types of services you will provide for the products. Please include whether LFE will receive the product for disposal, provide source exchanges, or will service or repair devices.
- A letter dated June 20, 1986, has been referenced in documents pertaining to many of the registration certificates. However, our files do not include a copy of the letter. If LFE has a copy of the letter, please include it with your response to this letter.

ENCLOSURE 3

COPIES OF DRAFT REGISTRATION CERTIFICATES

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

NO.: NR-420-D-847-S

DATE:

PAGE 1 OF 3

DEVICE TYPE: Clathrate Gas Detector

MODEL: Clathrate Gas Detector

MANUFACTURER/DISTRIBUTOR:

LFE Industrial Systems Corporation
55 Green Street
Clinton, MA 01510

ISOTOPE:

Krypton-85

MAXIMUM ACTIVITY:

100 millicuries (3.7 GBq)

LEAK TEST FREQUENCY: 6 Months

PRINCIPAL USE: (E) Beta Gauges

CUSTOM DEVICE: _____ YES _____ X _____ NO

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

NO.: NR-420-D-847-S

DATE:

PAGE 2 OF 3

DEVICE TYPE: Clathrate Gas Detector

DESCRIPTION:

The Clathrate Gas Detector is designed to detect nitrogen dioxide in air. The sensing element is a krypton-85 quinol clathrate source. The quinol undergoes a chemical reaction with the gas being analyzed, with the ultimate release of krypton-85 gas. The gas is released by the quinol being oxidized to quinone and in turn the krypton is swept along into the counting chamber. The counting rate being proportional to the concentration of the oxidizing gas.

The Kr-85 clathrate cell consist of a piece of 0.25" (0.64 cm) teflon tube about 4" (10.16 cm) long. The Kr-85 clathrate is packed within the tube using fine wire mesh and teflon wool. The assembly is placed within a cylindrical lead shield and is placed within 7" (17.8 cm) high x 17" (43.2 cm) wide x 13" (33.0 cm) deep aluminum console.

The device contains a visual and audio alarm system. When concentrations in excess of the preset limit is detected the alarm circuit is activated.

DIAGRAM:

A diagram of the console is shown in attachment 1.

LABELING:

CONDITIONS OF NORMAL USE:

The device is designed to detect concentrations of nitrogen dioxide gas in air and will typically be used in controlled environments suitable for humans.

PROTOTYPE TESTING:

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

NO.: NR-420-D-847-S

DATE:

PAGE 3 OF 3

DEVICE TYPE: Clathrate Gas Detector

EXTERNAL RADIATION LEVELS:

There are no measurable radiation levels outside the console. Radiation levels at the surface of the lead shield are less than 0.3 mR/hr (3 μ Sv/hr). A fresh 100 mCi source removed from the lead shield produces radiation levels of 8 mR/hr (80 μ Sv/hr) gamma and 20 mR/hr (200 μ Sv/hr) beta on its surface.

LIMITATIONS AND/OR OTHER CONSIDERATIONS OF USE:

- The device may be used by persons specifically licensed by the NRC or an Agreement State.
- Handling, storage, use, transfer, and disposal: To be determined by the licensing authority.
- The device shall be leak tested at intervals not to exceed 6 months using techniques capable of detecting 0.005 microcurie (185 Bq) of removable contamination.
- This registration sheet and the information contained within the references shall not be changed without the written consent of the NRC.

SAFETY ANALYSIS SUMMARY:

LFE distributed this device prior to 1969. However, in 1969 the product line was sold and all the information that LFE has concerning the device is contained in this certificate.

REFERENCES:

The following supporting documents for the Clathrate Gas Detector are hereby incorporated by reference and are made a part of this registry document.

- LFE's letters dated September 16, 1991, and August 6, 1991.



See 91-26

LFE September 16, 1991

INDUSTRIAL
SYSTEMS
CORPORATION

A Mark IV Company

Mr. Steven Baggett
Mail Stop 6H3
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Baggett:

In my letter of August 6, 1991, I requested that a number of source and device registrations be changed to inactive status. I promised to send you an approximate population of inactive items.

I have found that many of the registrations applied to products not manufactured at LFE, product lines sold many years ago, to sources and devices not associated with radiation gauging, and sources and devices which were registered but never manufactured. For example, the Keleket-Barnes Teletherapy Units were not distributed from LFE, therefore, I have no population information. Also, Tracerlab manufactured many sources that were used as reference or calibration sources. This product line was sold in 1969 and, again, I have no population information. I will list each inactive registration with the information that I have available.

NR0420D101U	Keleket-Barnes. No information.
D102U	Keleket-Barnes. No information.
D103U	Keleket-Barnes. No information.
S104S	Approximately 14 distributed.
D106U	Keleket-Barnes. No information.
S107U	Tracerlab reference sources. Sold in 1969.
D108U	Approximately 33 distributed.
D109B	Approximately 58 distributed.
D110G	Approximately 4 distributed.
D111B	Approximately 47 distributed.
D112B	None distributed.
D113B	Approximately 4 distributed.
D114B	Approximately 8 distributed.
D115B	None distributed.
D116B	Approximately 6 distributed.
D117B	Approximately 130 distributed.
D118B	Approximately 19 distributed.
D119B	None distributed.

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D120B	Approximately 20 distributed.	
D121B	Approximately 4 distributed.	
D122B	Approximately 2 distributed.	
D124B	Approximately 221 distributed.	
D125G	Approximately 4 distributed.	
D126U	Approximately 26 distributed.	
D127G	None distributed.	
D128G	None distributed.	
D132G	None distributed.	
D133G	Approximately 17 distributed.	
D136G	Approximately 19 distributed.	
S137U	Tracerlab calibration source.	Sold in 1969.
S138U	Tracerlab radiography source.	Sold in 1969.
D139U	None distributed.	
D140U	Approximately 6 distributed.	
S141U	Approximately 6 distributed.	
D142U	Tracerlab calibrator.	Sold in 1969.
D143U	None distributed.	
D144U	None distributed.	
D145U	None distributed.	
D146U	None distributed.	
D147U	None distributed.	
S148U	Approximately 13 distributed.	
S149U	Approximately 29 distributed.	
S150U	Approximately 92 distributed.	
D151B	Same as NR0420D117B.	
D152U	Approximately 3 distributed.	
S153U	Approximately 96 distributed.	
S154U	None distributed.	
S155U	Tracerlab calibration source.	Sold in 1969.
S156U	Tracerlab source.	Sold in 1969.
S157U	Tracerlab source.	Sold in 1969.
S158U	Tracerlab source.	Sold in 1969.
D159U	None distributed.	
D160U	Tracerlab device.	Sold in 1969.
S162U	Approximately 108 distributed.	
S163U	Tracerlab source.	Sold in 1969.
D164B	Approximately 1 distributed.	

I trust that the information provided in this letter satisfies your requirements. If you have any questions or if I can provide any additional information, please contact me.

Very truly yours,
LFE Industrial Systems Corporation

William R. Prendergast

William R. Prendergast
Radiation Safety Officer



LFE
INDUSTRIAL
SYSTEMS
CORPORATION
A Mark IV Company

August 6, 1991

Mr. Steven Baggett
Mail Stop 6H3
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Baggett:

Please change to inactive status the following source and
device registrations:

NR0420D101U
NR0420D102U
NR0420D103U
NR0420S104S
NR0420D106U
NR0420S107U
NR0420D108B ←
NR0420D109B
NR0420D110G
NR0420D111B
NR0420D112B
NR0420D113B
NR0420D114B
NR0420D115B
NR0420D116B
NR0420D117B
NR0420D118B
NR0420D119B
NR0420D120B
NR0420D121B
NR0420D122B
NR0420D124B
NR0420D125G
NR0420D126U
NR0420D127G
NR0420D128G
NR0420D132G
NR0420D133G
NR0420D136G
NR0420S137U
NR0420S138U
NR0420D139U
NR0420D140U
NR0420S141U
NR0420D142U

LFE
A Mark IV Company

NR0420D143U
NR0420D144U
NR0420D145U
NR0420D146U
NR0420D147U
NR0420S148U
NR0420S149U
NR0420S150U
NR0420D151B
NR0420D152U
NR0420S153U
NR0420S154U
NR0420S155U
NR0420S156U
NR0420S157U
NR0420S158U
NR0420D159U
NR0420D160U
NR0420S162U
NR0420S163U
NR0420D164B

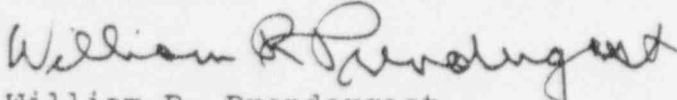
The following source and device registrations will remain active:

NR0420S105S
NR0420D123B
NR0420D129G
NR0420D130G
NR0420D131B
NR0420D134G
NR0420D135B
NR0420S161U

Licenses 20-01382-02 and 20-01382-16G will remain active. I will, within a few days, send you a report showing the approximate quantity of each inactive item shipped. None have been shipped since 1983. Please correct registration NR0420D134G. The correct Model is SU-S3 (not SU-E3).

Thank you for sending me copies of our registration and for your assistance in changing the status of registrations.

Very truly yours,
LFE Industrial Systems Corporation



William R. Prendergast
Radiation Safety Officer