

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
SAFETY EVALUATION OF DEVICE  
(Corrected Copy)

<sup>802</sup>  
NO.: NR420D102U

DATE: September 18, 1968

PAGE 1 OF 2

DEVICE TYPE: Rotational Teletherapy Unit

MODEL: Keleket-Barnes Spheray (refer to NR-426-D-106-U)

MANUFACTURER/DISTRIBUTOR: LFE Corporation  
1601 Trapelo Road  
Waltham, MA 02154

MANUFACTURER/DISTRIBUTOR:

SEALED SOURCE MODEL DESIGNATION:

ISOTOPE: Cobalt-60

MAXIMUM ACTIVITY: 4000 curies

LEAK TEST FREQUENCY:

PRINCIPAL USE: Medical Teletherapy

CUSTOM DEVICE: ☐ YES ☒ NO

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
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NO.: NR420D102U

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PAGE 2 OF 2

DEVICE TYPE: Rotational Teletherapy Unit

DESCRIPTION:

The information given for the Flexaray unit is generally applicable to the Spheray unit with the following exceptions:

The Keleket-Barnes Spheray is a rotational unit with dual cobalt-60 source heads mounted on a large steel ring. The unit can be obtained with an optional provision to vary the angulation of the supporting ring. The brochure on this unit states that the source to the center of rotation distance is variable. It does not state what the limits of the parameter are. A source to center of rotation distance of 60 cm could be assumed, if it is similar to the Rotaray unit.

The heads do not swivel nor tilt. It is estimated that the steel ring can be varied through an angle of plus or minus 15° - 30° about the vertical.

REFERENCE:

For information on Flexaray unit see registration sheet NR420D106U.

ISSUING AGENCY:

U.S. Atomic Energy Commission

## INFORMATION RECORD

TYPE:

Note to LFE files for registration certificates made inactive September 1995.

ORGANIZATION:

LFE

DATE:

09/21/95

SUMMARY:

Existing AEC/NRC files (registration files, license files, NUDOCS, and archives) concerning these products were examined for information that supports registration of the products. Copies of all applicable information located is included in this file.

The manufacturer, LFE, was also asked for additional information concerning the products. However, many of the products have not been distributed for years, or the product lines were sold in the late 1960's, and LFE provided all additional information they have concerning the products.

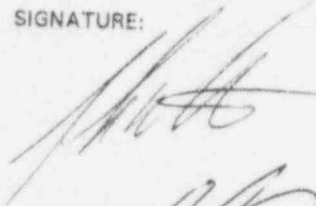
NRC has transferred the registration certificates to inactive, as requested by LFE, and continues to conclude the products are acceptable for licensing purposes based on AEC's original evaluation of the products and the operational history of the products.

PERSONS DOCUMENTING THE INFORMATION:

John W. Lubinski

Steven L. Baggett

SIGNATURE:



DATE:

09/21/95

09/21/95

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 certificates 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:

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SSD-91-86

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OFFICE	SCDB JNL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NAME	JLubinski/jl							
DATE	04/13/95							

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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-D-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-6A
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-802-S

DATE:

PAGE 1 OF 3

DEVICE TYPE: Rotational Teletherapy Unit

MODEL: Keleket-Barnes Spheray

MANUFACTURER/DISTRIBUTOR:

LFE Industrial Systems Corporation  
55 Green Street  
Clinton, MA 01510

ISOTOPE:

Cobalt-60

MAXIMUM ACTIVITY:

4000 curies (138 TBq)

LEAK TEST FREQUENCY: 6 Months

PRINCIPAL USE: (C) Medical Teletherapy

CUSTOM DEVICE: \_\_\_\_\_ YES \_\_\_\_\_ X \_\_\_\_\_ NO

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
SAFETY EVALUATION OF DEVICE

NO.: NR-420-D-802-S

DATE:

PAGE 2 OF 3

DEVICE TYPE: Rotational Teletherapy Unit

DESCRIPTION:

The information given for the Flexaray unit is generally applicable to the Spheray unit with the following exceptions:

The Keleket-Barnes Spheray is a rotational unit with dual cobalt-60 source heads mounted on a large steel ring. The unit can be obtained with an optional provision to vary the angulation of the supporting ring. The brochure on this unit states that the source to the center of rotation distance is variable. It does not state what the limits of the parameter are.

The heads do not swivel nor tilt. It is estimated that the steel ring can be varied through an angle of plus or minus 15° - 30° about the vertical.

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.

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
SAFETY EVALUATION OF DEVICE

NO.: NR-420-D-802-S

DATE:

PAGE 3 OF 3

DEVICE TYPE: Rotational Teletherapy Unit

SAFETY ANALYSIS SUMMARY:

LFE originally registered this device with the intent to commercially distribute it. NRC concluded that the device was acceptable for licensing purposes. However, the devices were never distributed from LFE and, therefore, LFE has no information on the number of devices distributed. LFE does not intend to distribute the device in the future.

REFERENCES:

The following supporting documents for the Model Keleket-Barnes Spheray 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.





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

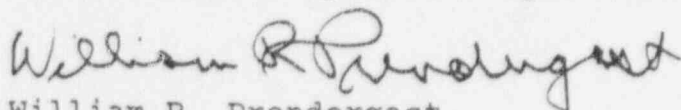
The following source and device registrations will remain active:

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



See 9/-26

LFE  
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.

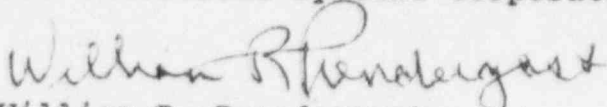
I have found that many of the registrations applied to products not manufactured at LFE, product lines sold many years ago, to sources and devices not associated with radiation gauging, and sources and devices which were registered but never manufactured. For example, the Keleket-Barnes Teletherapy Units 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.

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  
Radiation Safety Officer