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GENERAL ELECTRIC

LIGHTING BUSINESS GROUP

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GENERAL ELECTRIC COMPANY, NELA PARK, CLEVELAND, OHIO 44112
Phone (216) 266-3192

November 3, 1980

Mr. James A. Jones
Material Licensing Branch
Division of Fuel Cycle and Material Safety
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Sir:

This is in response to your request for additional information regarding our application to amend Byproduct Material License No. 34-00054-05, dated March 14, 1980. I will address each item raised in your letter of June 13, 1980.

1. The new facility for tritium lamp production will be at our Bellevue Lamp Plant, 420-450 Monroe Street, Bellevue, Ohio 44811. The tritium process will be located on the main manufacturing floor (outlined in green in attachment 1.) As described in previous applications, the process consists of an exhaust bench, on which empty glass envelopes (i.e., bulbs) are filled to specified pressures with a fill-gas. A small constituent of the fill gas is tritium, about 10 microcuries per lamp. Once filled the lamps are sealed and removed from the bench as finished products. The gas remaining in the fill lines is exhausted through a vacuum pump, which is in turn exhausted outdoors. The supply cylinder which contains tritium (about 500 millicuries per cylinder) is stored in a locked cabinet which is also exhausted outdoors. Photographs of the process equipment are shown in attachment 2. The ventilation system is outlined in red on attachment 1 and is also shown in the photos on attachment 2.

This process is exactly the same as that which we were licensed for at our E. 152nd Street facility in Cleveland, Ohio.

2. Our survey program will consist of the following:

- Initial air sampling of the tritium lamp production area prior to start-up to determine the baseline tritium concentration.

- Personnel and area air sampling during the first production runs to insure that control measures are working properly.

- Periodic personnel and area air sampling on an annual basis (lamps are only manufactured 15 days out of the year) to insure that control measures are being maintained.

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- Air samples are collected with personnel sampling pumps. Tritium is collected in water through impinger.

- Samples are analyzed by liquid scintillation counter. Analysis is currently being performed by Radiation Management Corporation, 3508 Market Street, Philadelphia, PA 19104.

3. Effluent releases of tritium to the environment can be estimated in the following manner. Average yearly tritium usage is about 380 millicuries ($H = 3.8 \times 10^5$ μCi). Assume that all of this tritium goes out the stack. Actually, only a fraction of the tritium used goes out the stack. The tritium lamp process will run about 15 days out of the year ($t = 15$ days $= 2.2 \times 10^4$ min). National Weather Service statistics show the average yearly wind velocity in the area to be about 10 MPH ($V = 10$ MPH $= 880$ ft/min.) Assume that the effluent leaving the stack is distributed over a circular area of only 20 feet in diameter ($A = 314$ ft^2). The average volume of air passing through this area during tritium lamp production is

$$Q = V \cdot A \cdot t = 5.8 \times 10^9 \text{ cu.ft.} = 1.7 \times 10^{14} \text{ ml}$$

The average effluent tritium concentration during production is thus $Cp = H/Q = 2.3 \times 10^{-9}$ μCi/ml. The tritium concentration averaged over the entire year would be $Cy = Cp\ (15/365) = 9.4 \times 10^{-11}$ μCi/ml. This is less than 0.05% of the limit allowed in 10CFR20, Appendix B, Table 2, Column 1. We believe that this concentration is consistent with the ALARA principle recommended by NRC.

The effluent can also be calculated disregarding any dilution by the wind. The rate of air flow passing thru the stack is R = 3200 CFM. Using the same quantities and production time as above, the effluent tritium concentration during production is $Cp = H/R \cdot t = 1.9 \times 10^{-7}$ μCi/ml. The tritium concentration averaged over the entire year would be $Cy = Cp\ (15/365) = 7.8 \times 10^{-9}$ μCi/ml. Again, well below the limits allowed by NRC regulations.

4. A close-out survey has been conducted at our 152nd Street facility. Three air samples were obtained in the area where the tritium process once resided. The results are shown below. Samples were obtained by absorption through water via impinger. Analysis, by liquid scintillation, was conducted by Radiation Management Corporation, 3508 Market Street, Philadelphia, PA. All samples indicated tritium levels to be well below the limit specified in 10CFR20, Appendix B, Table 2, Column 1.

Sample	Tritium Conc. (μCi/ml ±10%)
1. Middle of room, where old tritium process once stood.	1.43×10^{-9}
2. Northwest corner of room, near offices.	1.61×10^{-9}
3. Southeast corner of room, about 20 ft. from old tritium storage cabinet.	4.46×10^{-9}

Please notify me as soon as possible if you require any additional information for further processing this application.

Sincerely,

J. P. Kelly

J. P. Kelly
Environmental Control Operation
Lighting Research & Technical
Services Operation

JPK/bc

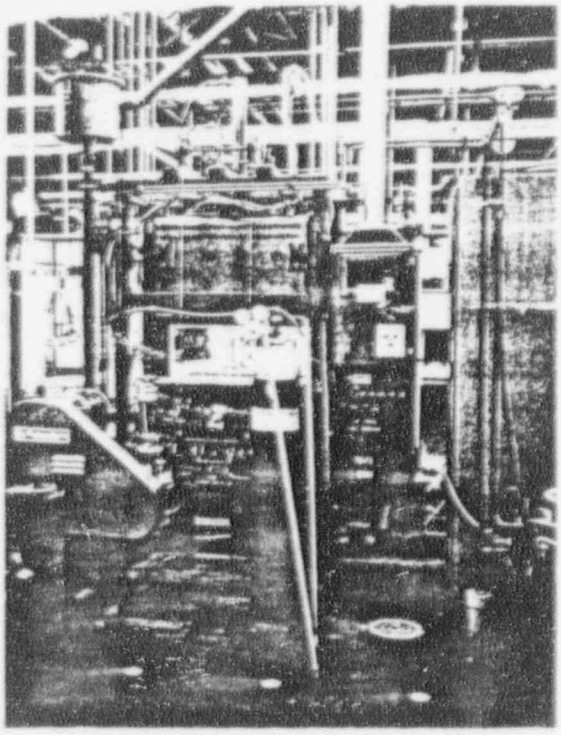
Attachment 1

Attachment 2

Ventilation ducts

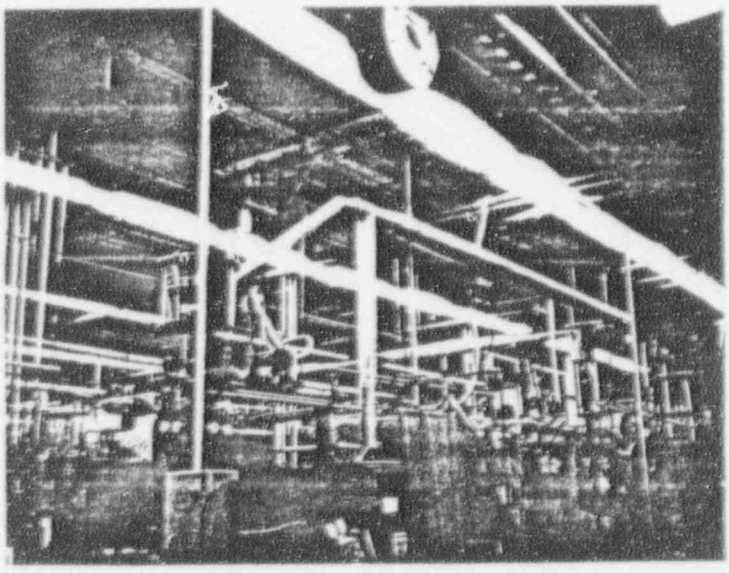
Exhaust bench

Exhaust pump



Tritium gas storage cabinet

Front View of Process Equipment



Full view of ventilation ductwork

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

(41)

AUG 21 1981

General Electric Company
ATTN: Mr. A. L. Kaplan
Manager
Environmental Control
Operation
Cleveland, Ohio 44112

License No. 34-00054-04
License No. 34-00054-05
License No. SMB-191

Gentlemen:

Thank you for your letter dated July 31, 1981, informing us of the steps you have taken to correct the noncompliance which we brought to your attention in our letter dated July 14, 1981. We will examine these matters during a future inspection.

Your cooperation with us is appreciated.

Sincerely,

R. J. Suess for

D. J. Sreniawski, Chief
Materials Radiation Protection
Section 2

cc w/ltr dtd 7/31/81:
DMB/Document Control Desk (RIDS)

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GENERAL ELECTRIC

LIGHTING
BUSINESS
GROUP

GENERAL ELECTRIC COMPANY, NELA PARK, CLEVELAND, OHIO 44112
Phone (216) 266-8618

July 31, 1981

Mr. D. J. Sreniawski, Chief
Materials Radiation Protection, Section 2
U.S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Ref: NRC License Numbers 34-00054-04, 34-00054-05, SMB-191

Dear Mr. Sreniawski:

Thank you for your letter dated July 14, 1981, concerning the routine safety inspection of our licensed activities by Mr. W. J. Slawinski of your office on June 23, 1981. Pertaining to the items of apparent non-compliance with NRC requirements in your letter, our response to these items are given in Attachment 1. The statements in this response are true and accurate to the best of my knowledge. Attachments 2 contains other related information requested by Mr. Slawinski during his inspection.

We appreciate your inspector's comments and suggestions related to our safety programs. These comments and suggestions are helpful to us in our efforts to maintain and, where necessary, improve these programs, to ensure the health and safety of plant personnel, and to ensure our compliance with NRC regulations and license conditions. We also welcome further discussion with your staff on the items in your letter and in our related reply if necessary, for further clarification of these items.

Very truly yours,

Arthur L Kaplan

A. L. Kaplan, Manager
Environmental Control Operation
LIGHTING RESEARCH AND TECHNICAL
SERVICES OPERATION

ALK:pd

Attachments

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AUG 13 1981

REPLIES TO ITEMS OF APPARENT NON-COMPLIANCE

The following contains information related to the items of apparent non-compliance identified in Appendix A to the inspection report dated July 14,1981.

"License No. SMB-191

1. 10 CFR 20.203(b) requires that each radiation area be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words: "Caution Radiation Area."

   Contrary to this requirement, on the day of the inspection the radiation area in your Chemical Products Plant was not posted as required. Specifically, a storage room containing scrap uranium and thorium in a drum, was not posted as required.

   This is a Severity Level V violation (Supplement IV)."

1.1 Corrective action taken and results achieved

The drum containing uranium and thorium waste materials was moved to another storage location which is properly posted as required by 10 CFR 20.203(b), thus bringing storage of these materials into compliance with these posting requirements.

1.2 Corrective action to be taken to avoid further non-compliance

Such materials as referred to above will be stored only in the specific area which has been designated for such storage and which has been properly posted pursuant to 10 CFR 20.203(b).

1.3 The date when full compliance will be achieved

The drum was relocated as described in 1.1 above on the day after the inspector identified the item.

"License No. SMB-191

2. 10 CFR 19.11(a) and (b) require that current copies of Part 19, Part 20, your license, license conditions, documents incorporated into the license, license amendments and operating procedures be posted, or that a notice describing these documents and where they may be examined, be posted. 10 CFR 19.11(c) requires that Form NRC-3, "Notice to Employees" be posted.

   Contrary to this requirement, on the day of the inspection, neither the documents nor the notices were posted in your Chemical Products Plant.

   This is a Severity Level VI violation (Supplement VII)."

2.1 Corrective action taken and results achieved

With reference to 10 CFR 19.11(a) and (b), a notice describing the regulations in 10 CFR 19 and 10 CFR 20, the license, license amendments and operating procedures has been prepared and sent to the Chemical Products Plant. One copy of this notice was posted in the area where the licensed material is used, and another copy in the area in which the material is stored.

With reference to 10 CFR 19.11(c), two copies of Form NRC-3 were obtained and sent to the Chemical Products Plant. One copy was posted in the area where the licensed material is used and the other in the area where the material is stored.

2.2 Corrective action to be taken to avoid further non-compliance

The condition of posting in areas where the licensed material is used and/or stored will be checked periodically to assure that the posting continues to meet the requirements of 10 CFR 19.11(a), (b), and (c) are met.

2.3 The date when full compliance will be achieved

The notices described in 2.1 above were posted on July 27, 1981.

"License No. 34-00054-04

3. Condition 13 requires that sealed sources which emit alpha particles be tested for leakage and for contamination at intervals not to exceed three months. Records of the leak test results shall be kept in units of microcuries and maintained for inspection by the Commission.

Contrary to the above requirement, no records were available of leak test performed of a 4 curie americium 241 sealed source. This is a repeat violation.

This is a Severity Level VI violation (Supplement VII)."

3.1 Corrective action taken and results achieved

Subsequent to the inspection, the leak test records referred to above were located, demonstrating that required leak tests were performed and that no significant activity levels were found from any of these tests.

3.2 Corrective action to be taken to avoid further non-compliance

The leak test records were - and will continue to be - stored in a centralized file for all paperwork related to NRC license number 34-00054-04, in order to assure the availability of these records for inspection by the Commission.

3.3 The date when full compliance will be achieved

The leak test records were placed in the centralized license file on July 29, 1981.

"License No. 34-00054-05

4. 10 CFR 30.51(a) requires that you keep records showing the receipt, transfer, and disposal of licensed material.

Contrary to this requirement, as of the day of the inspection, June 23, 1981, you failed to maintain records of receipt, transfer and disposal of licensed material. Specifically, records of receipt, transfer and disposal for tritium possessed under License No. 34-00054-05, were not available at your Nela Park facility.

This is a Severity Level VI violation (Supplement VII)."

4.1 Corrective action taken and results achieved

The records related to receipt, transfer and disposal of licensed material were located subsequent to the inspection. They were placed in a centralized licensing file to facilitate their being located as required for reference or for future inspections.

4.2 Corrective action taken to avoid further non-compliance

As stated above, these records were placed in a centralized licensing file and they will continue to be stored there as new records are generated.

4.3 The date when full compliance will be achieved

These records were placed in the centralized license file on July 29, 1981.

OTHER RELATED INFORMATION REQUESTED DURING THE INSPECTION

The following is information concerning questions raised by Mr. W. J. Slawinski during his inspection of our site on June 23, 1981.

A. NRC License #34-00054-04

1. "With what frequency does the Isotopes Committee meet? What matters are discussed?"

   The Isotopes Committee meets only when there is a health/safety or business need to do so; for example, the Committee would meet to review planned new (or planned changes in) activities involving the use of licensed radioactive material within GE's Lighting Business Group. The Isotopes Committee has met on the average of once every 18 months over the past few years.

   Matters discussed by the Committee are related to health and safety aspects and to regulatory requirements, concerning proposed new (or proposed changes in) activities involving radioactive material.

2. "Has the leak-testing of the Am^{241} source (alpha emitter) been done on a quarterly basis? What are the results of these leak tests?"

   The Am^{241} source, whose storage is authorized by this license, has been leak tested on a quarterly basis.

   The results of these leak tests since the last NRC inspection three years ago are given below:

Date	Sample Number	Counts per Minute*	Activity** Microcuries	Date	Sample Number	Counts per Minute*	Activity** Microcuries
Jan. 1979	1	0.150	$1.7X10^{-7}$	July 1979	1	0.075	$8.3X10^{-8}$
	2	0.015	$2.8X10^{-8}$		2	0.050	$5.5X10^{-8}$
	3	0.025	$2.8X10^{-8}$		3	0.175	$1.9X10^{-7}$
	4	0	-		4	0.050	$5.5X10^{-8}$
	5	0.100	$1.1X10^{-7}$		5	0.075	$8.3X10^{-8}$
	6	0.175	$1.9X10^{-7}$		6	0.075	$8.3X10^{-8}$
April 1979	1	0.125	$1.4X10^{-7}$	Oct. 1979	1	0***	-
	2	0	-		2	0.050	$5.5X10^{-8}$
	3	0	-		3	0.015	$2.8X10^{-8}$
	4	0.075	$8.3X10^{-8}$		4	0.175	$1.9X10^{-7}$
	5	0.150	$1.7X10^{-7}$		5	0.075	$8.3X10^{-8}$
	6	0.025	$2.8X10^{-8}$		6	0.100	$1.1X10^{-7}$

* Counting time is 40 minutes per sample
** Counter efficiency is 40%
*** Minimum detectable level is 0.025 counts per minute (1 count per 40 minutes) above background.

A. 2 (continued)

Date	Sample Number	Counts per Minute*	Activity Microcuries	Date	Sample Number	Counts per Minute*	Activity Microcuries
Jan. 1981	1	0.050	$5.5X10^{-8}$	July 1981	1	0.050	$5.5X10^{-8}$
	2	0.200	$2.2X10^{-7}$		2	0.050	$5.5X10^{-8}$
	3	0.150	$1.7X10^{-7}$		3	0.125	$1.3X10^{-7}$
	4	0.250	$2.8X10^{-8}$		4	0.100	$1.1X10^{-7}$
	5	0.050	$5.5X10^{-7}$		5	0.125	$1.3X10^{-7}$
	6	0.100	$1.1X10^{-8}$		6	0.150	$1.7X10^{-7}$
	7	0.050	$5.5X10^{-8}$		7	0.075	$8.3X10^{-8}$
April 1981	1	0.750	$8.3X10^{-7}$				
	2	0.100	$1.1X10^{-7}$				
	3	0.050	$5.5X10^{-8}$				
	4	0.100	$1.1X10^{-7}$				
	5	1.375	$1.5X10^{-6}$				
	6	0.450	$5.0X10^{-7}$				
	7	0.150	$1.7X10^{-7}$				

As can be seen from the above data, leak test results are well below the 0.005 ($5X10^{-3}$) microcurie limit.

3. "What is the correct source strength for the Am^{241} source on this license?"

   A visual check of the label on the source storage container verified that the correct source strength (at the time of purchase) is in fact 4 Curies.

4. "When was the last source inventory done? Are there any new sources added to the inventory since the last source inventory was taken in 1978?"

   Previous to this inspection, the last source inventory was done on September 5, 1978. Another inventory was taken on June 27, 1981, subsequent to this inspection. It was the same as that taken previously in 1978. There have been no sources added to or deleted from the inventory of stored sources since the previous inventory was taken in 1978.

B. NRC License #34-00054-05

1. "When was the use of tritium discontinued for each location? When did GE stop making glow lamps and spark gas tubes for which the tritium was used?"

1.1 Lighting Research and Technical Services Operation, Nela Park, East Cleveland, Ohio.

Work involving tritium was never undertaken at this location. At one time in the past several years, several tritium cylinders were stored temporarily at this location while in transit to another authorized location.

B. 1(continued)

1.2 Photo Lamp Department, 1133 East 152nd Street, East Cleveland, Ohio

The work involving the use of tritium was transferred to the Bellevue Lamp Plant (see #1.3 below) in November 1980. Our NRC license was amended at that time based upon GE's amendment application dated November 3, 1980, to add the Bellevue location to the license and to remove the East 152nd Street location from the license.

1.3 Photo Lamp Department, Bellevue Lamp Plant, 420-450 Monroe Street, Bellevue, Ohio.

Work involving the use of tritium was never begun at this location. The tritium containers on hand here were transferred to the Tungsten Products Plant (see #1.4 below) at the end of November 1980 and are still being stored there.

1.4 Refractory Metal Products Department, Tungsten Products Plant, 21800 Tungsten Road, Cleveland, Ohio.

Operations involving tritium were stopped at this location in June 1980. At the present time, there are nine 1-Curie ampoules of tritium stored in a vault at this location.

1.5 Glow lamp business

GE's glow lamp business was sold to Signalite Division, General Instruments Corporation, 1933 Heck Avenue, Neptune, New Jersey 07753. All of the tritium material, except that noted above in #1.4, was transferred to this organization in December 1976, after verifying their authorization to receive the tritium under NRC License No. 29-04459-01.

2. "If there was any tritium gas remaining, what was done with it?"

As stated above in #1.5, most of the tritium was transferred to Signalite Division, General Instruments Corporation in December 1976. The remainder is being stored at the Tungsten Road location of GE's Refractory Metals Department as described in #1.4 above.

3. "Relative to the instruments listed in Attachment 4(6/28/78) of the 6/30/78 letter application for license renewal, are these instruments still on hand? Where are they located? How are they used? What is the instrument calibration frequency?"

3.1 Instruments on hand

We still have all of the instruments on the referenced list, except for two:

(1) Tracerlab Laboratory Monitor, 503A #348 - discarded

(2) Nuclear Chicago High Voltage Supply and Sealer Unit for use with
- Gas flow proportional counter
- Gas sampling unit with thin-window geiger tube
- Wide variety of G-M tubes...

B. 3.1 (2) (continued)

The scaler has been replaced by a later Nuclear-Chicago model scaler, and the gas proportional counter has been replaced; the other original sensors are still on hand.

3.1 Location of instruments

These instruments are all located at the laboratory of Environmental Control Operation in Nela Park, East Cleveland, Ohio.

3.3 Purposes for which the instruments are used

The survey meters are used by our Environmental Control Operation personnel to perform radiation surveys. The scaler unit and associated sensors are used in the laboratory for evaluation of wipe test and air samples.

3.4 Instrument calibration frequency

Each instrument is operationally checked prior to use by means of standard check sources. These instruments are not in constant use and are not used for any other purpose than that related to overviews by the Environmental Control Operation.

So far, the operational checks made on these instruments have not indicated that factory calibration is necessary for any of them. Whenever the need for such calibration would be indicated, the instruments would be returned to the manufacturer for factory re-calibration.

4. "Where is the Promethium-147 being used? Have any operations been terminated? If so, where and when, how was the remaining material disposed of? What is the present inventory? Are there any shipping documents related to the import of the Promethium-147 material?"

4.1 Location where Promethium-147 is being used

Promethium-147 is currently being used only at the single authorized use location, namely the Department's Circleville Lamp Plant, East Ohio Street, Circleville, Ohio.

The Promethium material is received by GE at this location in sealed glass flow switches. These switches are then incorporated into a number of different GE products.

The following distribution centers have been authorized for receipt, storage and shipment of the GE products containing the sealed glow switches (see page 1 of Amendment 18 to license):

4.1 (continued)

Ravenna Distribution Center
150 Loomis Parkway
Ravenna, Ohio 44266

Boston Distribution Center
50 Industrial Place
Newton Upper Falls, Mass. 02164

Cincinnati Distribution Center
49 Central Avenue
Cincinnati, Ohio 45202

Cleveland Distribution Center
1705 Noble Road
Cleveland, Ohio 44112

Newark Distribution Center
133 Boyd Street
Newark, New Jersey 07101

Philadelphia Distribution Center
1000 Continental Road
King of Prussia, Penna. 19406

Pittsburgh Distribution Center
575 Epsilon Drive
Pittsburgh, Penna. 15320

Chicago Distribution Center
4201 South Pulaski Road
Chicago, Illinois 60632

Detroit Distribution Center
15135 Hamilton Avenue
Detroit, Michigan 48203

Milwaukee Distribution Center
8100 West Floist Avenue
Milwaukee, Wisconsin 53201

Kansas City Distribution Center
535 East 14th Street
North Kansas City, Missouri 64116

Minneapolis Distribution Center
8501 54th Avenue, North
Minneapolis, Minnesota 55440

St. Louis Distribution Center
1530 Fairview Avenue
St. Louis, Missouri 63132

Salt Lake City Distribution Center
1775 West 1500 South
Salt Lake City, Utal 84125

4.2 Operations

No operations involving Promethium-147 have ceased the Circleville Lamp Plant being the only authorized place of use for this material.

4.3 Shipping papers related to Promethium-147 imports

The Promethium-147 is contained in sealed glass glow switches (electron tubes). These devices are imported by a broker from whom we purchase them. Therefore, we have no shipping papers related to the import of these devices.

4.4 Present inventory

At the present time we have about 200,000 devices on hand, for a total of about 10 millicuries @ 0.05 microcurie per device (present license limit is 50 millicuries @ 0.10 microcurie per device, per Amendment No. 19 dated January 5, 1981).

Our total use rate (not inventory) is about 1,000,000 devices per year.

5. "At places where tritium was being used, were periodic surveys being done?"

   Surveys were done at places where tritium was being used, on an annual basis, by means of survey meters and wipe tests.

   Also, surveys are still being done on an annual basis using a survey meter, at the place where the tritium material is being stored (in a vault at the Tungsten Road Wire Plant).

6. "Is there a Radiation Safety Officer at the location where the Promethium-147 material is being used? What type of surveys have been done and at what frequency?"

   There is a Radiation Safety Officer at the Circleville Lamp Plant where the Promethium-147 materials is being used.

   Surveys are done, using a Victoreen 493 survey meter with a 489-110 probe, on each incoming shipment sealed glass glow switches (5000 per box). This occurs about 20 times each year. Between 0 and 50 of these glass glow switches per box of 5000, or an average of about 10 per box of 5000 sealed glass glow switches arrive in a cracked condition. Nevertheless, no detectable quantities of Promethium-147 have ever been measured as a result of these surveys.

7. "Relative to the GE amendment application to NRC License 34-00054-05 dated November 3, 1980, is air sampling done on an annual basis? If so, when, where, and how? Supply air sampling results at each location."

   Operations involving tritium ceased at the Photo Lamp Department Facility, 152nd Street, East Cleveland, Ohio, late in November 1980. Air samples were conducted at that time as part of the close-out survey. Three air samples were obtained in the area where the tritium process once resided. The results are shown below. Samples were obtained by absorption through water via impinger. Analysis, by liquid scintillation, was conducted by Radiation Management Corporation, 3508 Market Street, Philadelphia, Pa. All samles indicated tritium levels to be well below the limit specified in 10CFR20, Appendix B, Table 2, Column 1.

Sample	Tritium Conc. (μCi/ml + 10%)
1. Middle of room, where old tritium process once stood.	1.43×10^{-9}
2. Northwest corner of room, near offices.	1.61×10^{-9}
3. Southeast corner of room, about 20 ft. from old tritium storage cabinet.	4.46×10^{-9}

   Operations involving tritium were never started at the Bellevue, Ohio plant. Therefore, air samples at this location were not necessary.

JUL 14 1981

General Electric Company
ATTN: Mr. A. L. Kaplan
Manager
Environmental Control
Operation
Cleveland, Ohio 44112

License No. 34-00054-04
License No. 34-00054-05
License No. SMB-191

Gentlemen:

This refers to the routine safety inspection conducted by Mr. W. J. Slawinski of this office on June 23, 1981, of activities at General Electric Company authorized by NRC Material Licenses No. 34-00054-04, No. 34-00054-05 and No. SMB-191 and to the discussion of our findings with you at the conclusion of the inspection.

The inspection was an examination of activities conducted under your license as they relate to radiation safety and to compliance with the Commission's rules and regulations and with the conditions of your license. The inspection consisted of a selective examination of procedures and representative records, observations, independent measurements, and interviews with personnel.

During this inspection, certain of your activities appeared to be in noncompliance with NRC requirements, as specified in enclosed Appendix A. A written response, submitted under oath or affirmation, is required.

The apparent item of noncompliance found during our September 8, 1978, inspection of License No. 34-00054-04 is a repeat violation as described in Appendix A, Item 3.

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

D. J. Sreniawski, Chief
Materials Radiation Protection
Section 2

Enclosure: Appendix A,
Notice of Violation

cc w/encl:
DMB/Document Control Desk (RIDS)

RIII RIII

Slawinski/so Sreniawski
7/9/81

Appendix A

NOTICE OF VIOLATION

General Electric Company

License No. SMB-191
License No. 34-00054-04
License No. 34-00054-05

As a result of the inspection conducted on June 23, 1981, and in accordance with the Interim Enforcement Policy, 45 FR 66754 (October 7, 1980), the following violations were identified:

License No. SMB-191

1. 10 CFR 20.203(b) requires that each radiation area be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words: "Caution Radiation Area."

   Contrary to this requirement, on the day of the inspection the radiation area in your Chemical Products Plant was not posted as required. Specifically, a storage room containing scrap uranium and thorium in a drum, was not posted as required.

   This is a Severity Level V violation (Supplement IV).

2. 10 CFR 19.11(a) and (b) require that current copies of Part 19, Part 20, your license, license conditions, documents incorporated into the license, license amendments and operating procedures be posted, or that a notice describing these documents and where they may be examined, be posted. 10 CFR 19.11(c) requires that Form NRC-3, "Notice to Employees" be posted.

   Contrary to this requirement, on the day of the inspection, neither the documents no the notices were posted in your Chemical Products Plant.

   This is a Severity Level VI violation (Supplement VII).

License No. 34-00054-04

3. Condition 13 requires that sealed sources which emit alpha particles be tested for leakage and for contamination at intervals not to exceed three months. Records of the leak test results shall be kept in units of microcuries and maintained for inspection by the Commission.

   Contrary to the above requirement, no records were available of leak test performed of a 4 curie americium 241 sealed source. This is a repeat violation

   This is a Severity Level VI violation (Supplement VII).

License No. 34-00054-05

4. 10 CFR 30.51(a) requires that you keep records showing the receipt, transfer, and disposal of licensed material.

   Contrary to this requirement, as of the day of the inspection, June 23, 1981, you failed to maintain records of receipt, transfer and disposal of licensed material. Specifically, records of receipt, transfer and disposal for tritium possessed under License No. 34-00054-05, were not available at your Nela Park facility.

   This is a Severity Level VI violation (Supplement VII).

Pursuant to the provisions of 10 CFR 2.201, you are required to submit to this office within thirty days of the date of this Notice a written statement or explanation in reply, including for each item of noncompliance: (1) corrective action taken and the results achieved; (2) corrective action to be taken to avoid further noncompliance; and (3) the date when full compliance will be achieved. Under the authority of Section 182 of the Atomic Energy Act of 1954, as amended, this response shall be submitted under oath or affirmation. Consideration may be given to extending your response time for good cause shown.

Dated

D. J. Sreniawski, Chief
Materials Radiation Protection
Section 2

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

INSPECTION REPORT NO. 81-01

General Electric Company
(Licensee name/address)
Nela Park
Cleveland, Ohio 44112
Telephone No: (216) 266-8618

Attached
( ) Appendix A
( ) Appendix B
( ) Appendix C
( ) Memo

License No. 34-00054-04 (34-00054-05) Last amendment & date: #14; 10/25/78 #19; 1/05/81
Docket No. 030-05604 (030-05605)
Category: E(A) & E & Priority: IV & IV, as of last amendment.
Inspection date(s): 6/23/81 Type of inspection: UNANNOUNCED REINSPECTION

SUMMARY OF FINDINGS AND ACTION

( ) No noncompliance, clear 591
(X) Noncompliance, Appendix A
( ) Action on previous n/c, App B
( ) Noncompliance, 591 issued
( ) Regional action ( ) Hq action
( ) Supplemental info, App C

RECOMMENDATIONS

See basis in Appendix C or attached memo.

( ) Change Category to:
( ) Change Priority to:
(X) Next inspection date: 6/84

PERSONS CONTACTED
(NAME AND TITLE)

* Arthur L. Kaplan, Manager - Environmental Control & Operation
Albert M. Zielinski, Chemist

* Indicates those attending management meetings

Inspector: Wayne Hammit (signature) 7/2/81 (date signed)
Approved: D J Kreiminski (signature) 7/8/81 (date signed)

8203110312
1491

MC 1005
4/77

INDUSTRIAL - ACADEMIC INSPECTION REPORT

Licensee: General Electric Co. Lic. No. 34-00054-04 (34-00054-05) Amendment No. 14 (19)

Date of Inspection: 6/23/81

1. INSPECTION HISTORY

a. Items of noncompliance or safety items noted during last inspection conducted on 9/8/78 Yes ✓ (-04) No (-05)

b.

Requirement	Corrected	Not Corrected
Lc# 15(A) leak tests of ∝ emitters	No	

c. If any items of noncompliance or safety items noted during the last inspection were not corrected, explain:

No records of leak TESTS performed on an Am-241 sealed source. Licensee stated that tests were performed but could not find the records.

2. ORGANIZATION

a. Organizational structure as described in application or letter Dated _____, Or See Below

b. List primary licensee contact: _____ Telephone No.: _____

c. Comment:

hired 5/23/81 { Arthur L. Kaplan - Mgr Environmental Control Operation
Kaplan will assume all responsibilities of I. Matelsky.

I. Matelsky retired 6/1/81. Now on consulting basis with G.E. Still considered as RSO.

* All info supplied by A.L. Kaplan.

Inspected only Nela Park facility.

3. SUMMARY OF LICENSED PROGRAM (Kind of program, number of people, rate of use or quantities on hand, places and frequency of use, type, quantity and use as authorized).

(-04) License Authorizes Broad R&D Program. However, All work has been discontinued and material is in storage pending termination of license. Inventory same as that listed in 9/8/78 insp report (-05) Authorizes use of H-3 & Pm-147. H-3 as a gas and Pm contained in sealed glow switches. Materials used for manufactur of miniature glow lamps and spark gap tubes. (over

Category and priority of this license is appropriate: Yes ✓ No _____

If "No" state new Category _____ Priority _____.

4. INTERNAL AUDITS OR INSPECTIONS

a. Required by L/C or application: Yes _____ No ✓ If "Yes":

1) By whom _____

2) Frequency _____ Announced: _____ Unannounced: _____

3) Scope _____

4) Records maintained: Yes _____ No _____

5) Records reviewed: Yes _____ No _____

6) Period Reviewed: _____

b. Comment (responsibility of auditor or committee, management control): _____

Management control responsibility lies with Radioisotope Committee.

I. Matelsky, chairman of Isotope Committee.

A. Kaplan will replace Matelsky in near future.

Item 3 continued -

Licensee discontinued manufacture of glow lamps and only a few spark gap tubes are being manufactured. Licensee in process of phasing out program and then plans to terminate license.

5. TRAINING RETRAINING AND INSTRUCTION TO WORKERS

a. Training program specified in L/C or application: Yes_____ No ✓

b. If training program is required, describe scope of program:_____

c. Retraining required: Yes_____ No ✓

If "Yes" is retrainging: Complete_____ Incomplete_____

1) Are tests and/or examinations required: Yes_____ No_____

2) If "Yes" are records available: Yes_____ No_____

3) Reviewed test results: Yes_____ No_____

4) Period reviewed:_____

5) Comment (per cent completed, test results, etc.):_____

d. Training provided, but not covered above:_____

e. Instructions to workers in accord with 10CFR 19.12: Yes ✓ No_____

All personnel working with H-3 are given instruction by Health physicist or Industrial Hygienist at each plant as to the safe handling and use of this material.

6. RADIOLOGICAL PROTECTION PROCEDURES

a. Operating and emergency procedures

1) Required by L/C or application: Yes_____ No ✓

2) Provided, but not required by L/C or application: Yes_____ No ✓

3) Procedures reviewed: Yes_____ No_____

4) Appeared Adequate: Yes_____ No_____

5) Comments (personnel's understanding of procedures):_____

b. Changes in procedures since last inspection: Yes_____ No ✓

1) Were changes authorized: Yes_____ No_____

2) Comments:_____

7. INSTRUMENTATION

a. Type(s) of radiation survey instruments on hand as per L/C, application or equivalent: Yes ✓ No_____

1) If "No" list changes:_____

b. Capability of radiation survey instruments adequate for program:

Yes ✓ No _____

c. Calibration of instruments required: Yes ✓ No _____

d. If "Yes" instruments calibrated in accord with requirements:

Yes ✓ No _____

e. Comment: No specific frequency required. Instruments calibrated by Victoreen Instrument Company once every 1½ - 2 years.

8. MATERIALS

a. Radioactive material secured to prevent unauthorized removal from:

1) Restricted area: Yes ✓ No _____

2) Unrestricted area (20.207): Yes ✓ No _____

b. Method of control appears adequate: Yes _____ No _____

c. Comment: _____

9. FACILITIES

a. Facilities described in letter or application: Yes ✓ No _____

b. Facilities inspected: Yes _____ No ✓

c. Comment: No current usage of H-3 or Pm-147 at any Cleveland area plants

(05) Storage location described in application

(04) Facilites 2 Bellevue Ohio and Cleveland Ohio (Tungsten Rd) described in [redacted] Nov 3, 1980 letter & June 28, 1978 application respectively.

10. POSTING AND LABELING

a. Posting and labeling in accord with 10CFR 20.203: Yes ✓ No ____

b. Comment: ____

11. RECEIPT AND TRANSFER OF MATERIAL

a. Procedures for picking up and receiving packages (10CFR 20.205 (b)(c)):

Yes ✓ No ____ for (-05 license)

1) Incoming shipments monitored: Yes ✓ No ____

(-05) exempt quantities Received

2) Records of monitoring maintained (10CFR 20.401(b)): Yes ____ No ____

3) Records reviewed by NRC inspector: Yes ____ No ____

4) Period reviewed: ____

b. Procedures for opening packages (10CFR 20.205(d)): Yes ✓ No ____

c. Comment: ____

d. Records of receipt and transfer of material available (30.51(a); 40.61(a); 70.51(b)(1)): Yes _____ No ✓

1) If "Yes" review of records was made by inspector: Yes _____ No _____

2) Period Reviewed: _____

3) Comments: (-04) No receipt or transfers made since 1973. (-05) No Records of receipt and transfer were available for material possessed at the (over)

NC

e. Packages on hand meet labelling requirements (49CFR 173.399):

Yes _____ No _____ N/A

Comments: _____

f. Reports to commission required by L/C or regulation submitted:

Yes _____ No ✓

Comments: _____

12. PERSONNEL RADIATION PROTECTION - EXTERNAL

a. Film or TLD badge supplier ICN

b. Badge exchange frequency Monthly

c. Reports reviewed by Matelsky

e. Records reviewed for period 1/78 to 3/81 by NRC inspector

f. NRC forms or equivalent

1) NRC-4 (20.102(b)): Yes _____ No ✓ Complete: Yes _____ No _____

2) NRC-5 (20.401(a)): Yes ✓ No _____ Complete: Yes _____ No _____

Maximum whole body ~~quarterly~~ annual exposure: Minimal

Maximum extermity quarterly exposure: N/A

3) Comment: _____

g. Pocket dosimeters used: Yes _____ No ✓

1) Type used: _____

2) Frequency of recharging: _____

3) Frequency of reading: _____

4) Comment: _____

h. Direct radiation surveys of restricted and/or unrestricted areas being made: Yes ✓ No _____

1) Records of surveys being maintained: Yes _____ No ✓

2) Records of surveys reviewed: Yes _____ No _____

3) Period reviewed: _____

4) Comments: Licensee stated periodic surveys are performed in use areas during manufacture.

13. PERSONNEL RADIATION PROTECTION - INTERNAL

a. Potential for exposure of individuals to airborne radioactive materials exists: Yes _____ No ✓

1) If "Yes" does program for monitoring and control exist: Yes _____ No _____

2) Program for monitoring and control appears adequate: Yes _____ No _____

b. Comments: _____

c. Respiratory protection program required by L/C or application:

Yes_____ No ✓

1) If "Yes" were respiratory protection procedures reviewed:

Yes_____ No_____

2) Respiratory protection procedures appear adequate: Yes_____ No_____

3) Comments:_____

_____

_____

_____

d. Bioassay program required: Yes_____ No ✓

1) If "Yes" was bioassay program reviewed: Yes_____ No_____

2) Bioassay program appear adequate: Yes_____ No_____

3) Comments: _____

_____

_____

_____

e. Smears and air samples

1) Monitoring for airborne radioactivity is conducted (20.103):

Yes_____ No ✓

a. Records of monitoring reviewed: Yes_____ No_____

b. Period reviewed:_____

c. Records of monitoring appears adequate: Yes_____ No_____

2) Smear surveys being conducted (20.201, b): Yes_____ No ✓

a. Records of smear surveys reviewed: Yes_____ No_____

b. Period reviewed:_____

c. Records appeared adequate: Yes_____ No_____

3) Comments:_____

_____

_____

14. LEAK TESTS (- 04 license)

a. Leak tests required: Yes ✓ No _____

b. If "Yes" leak tests conducted: Yes ✓ No _____

(NC) c. Records of leak tests maintained: Yes _____ No ✓

d. Leak tests records reviewed: Yes _____ No _____

e. Period reviewed: _____

f. Records of leak tests appear adequate: Yes _____ No _____

g. Comments: No leak test records of tests performed on a 4 Ci Am-241 sealed source.
See inventory attached to this report.

15. RADIOACTIVE EFFLUENT CONTROL AND WASTE DISPOSAL

a. Byproduct material released to atmosphere and/or sewer (20.106 and 20.303):
Yes _____ No ✓

b. Records of releases or radioactive effluents maintained (20.401):
Yes _____ No _____

1) Period reviewed: _____

2) Records appear adequate: Yes _____ No _____

c. Solid waste disposal method: No disposals made

1) Records of disposal maintained (30.51): Yes _____ No _____

2) Surveys of waste prior to disposal made (20.201): Yes _____ No _____

3) Period reviewed: _____

4) Records of surveys appear adequate (20.401): Yes _____ No _____

d. Comments: _____

16. SHIPPING INCIDENTS

a. Have any shipping incidents occurred since (date) NONE

1) Was incident documented: Yes_____ No_____

2) If "Yes" documentation appears adequate: Yes_____ No_____

b. Comments (reports to DOT, etc.):_____

17. NOTIFICATIONS AND REPORTS

a. Licensee in compliance with 10CFR 19.13 (reports to individuals):

Yes N/A No_____

b. Licensee in compliance with 10CFR 20.405 (over exposures):

Yes N/A No_____

c. Licensee in compliance with 10CFR 20.403 (incidents):

Yes N/A No_____

d. Licensee in compliance with 10CFR 20.402 (theft or loss):

Yes N/A No_____

e. Comments:_____

18. POSTING OF NOTICES

a. Licensee in compliance with 10CFR 19.11(a) or (b): Yes ✓ No _____

b. Licensee in compliance with 10CFR 19.11(c): Yes ✓ No _____

c. Comments: _____

19. ENVIRONMENTAL MONITORING PROGRAM

a. Environmental Monitoring Program required: Yes _____ No ✓

b. If "Yes" records reviewed: Yes _____ No _____

c. Period reviewed: _____

d. Records appeared adequate: Yes _____ No _____

e. If Environmental Program is not required, briefly describe any existing program: _____

20. CONFIRMATORY MEASUREMENTS

a. Independent measurements made by inspector: Yes ✓ No _____

b. Comments (describe type, results, comparison with licensee results): _____

(05) No operations currently being performed at any Cleveland Area plants.

(-04) Surveyed in and around storage facility. All levels @ background.

Using Eberline E-520 SN 2196 calibrated 5/29/81

21. INDEPENDENT INSPECTION EFFORT

a. Comment on type of independent inspection effort conducted:

(-04) Inspected storage facility where all bPM is in storage.

22. CONTINUATION FROM PREVIOUS PARAGRAPHS - USE BACK OF PAGE IF NECESSARY

1350-639

GENERAL ELECTRIC

LIGHTING BUSINESS GROUP (42)

GENERAL ELECTRIC COMPANY, NELA PARK, CLEVELAND, OHIO 44112
Phone (216)

030-05605
34-00054-05

September 10, 1982

U. S. Nuclear Regulatory Commission
Region III
Material Licensing Section
799 Roosevelt Road
Glen Ellyn, IL 60137

RE: Amendment to Licenses 34-00054-04, -05, -06 and SMB-191;
Change of Radiation Safety Officer

Dear Sir or Madam:

Please accept this letter as an application for amendment of the licenses referred to above, all of which list Isaac Matelsky as the Radiation Safety Officer for the General Electric Lighting Business Group. Mr. Matelsky has retired. His position has been assumed by Mr. Art Kaplan, who will now be the RSO. A copy of Mr. Kaplan's qualifications and relevant experience is attached. Also enclosed is a check for $230.00 to cover the amendment fees.

Any additional information can be obtained by contacting the undersigned at (216)266-3349.

RECEIVED BY LFMB
Date 10/13/82
Log Oct. P66 Reg III
By Brown
Orig. To
Action Compl.

A. M. Zielinski
Environmental Control
Operation #1350
LIGHTING RESEARCH & TECHNICAL SERVICES OPERATION

AMZ:ras

cc: A. L. Kaplan #1350

Earl Wright
US NRC
Washington, DC 20555

Applicant
Check No. 358982
Amount, Fee Category $230 3A 4110
Type of Fee Amendment
Date Check Rec'd 10/13/82
Received By Brown

34-00054-04 3K #40
-06 3L #40
SMB-191 2D #40 90

CONTROL NO. 06903

SEP 27 1982

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General Electric Company
Lighting Business Group
Nela Park
Cleveland, Ohio 44112
March 10, 1982

Qualifications Resume for A. L. Kaplan, Radiation Safety Officer

1. Chairman, Radioisotope Committee, General Electric Company, Lighting Business Group, Cleveland, Ohio; 1981 - Present

2. Consultant-Health Physics, General Electric Company, Wilmington Manufacturing Department, Wilmington, NC; 1972-1981

3. Radiation Safety Officer, Technical Operations, Inc., Burlington, MA, 1964-1972

4. Experimental Physicist, Radiation Effects in Electronics, General Electric Company, Electronics Laboratory, Syracuse, NY 1960-1964

5. Education:

   - o BS, Physics 1954; MS Nuclear Engineering, 1955; Massachusetts Institute of Technology, Cambridge, MA.
   - o Graduate courses at North Carolina State University, Raleigh, NC., 1973-1976, involving operation of 5MW research reactor

6. Basic experience with large quantities of radioactive isotopes (including radiation safety responsibility) involved with handling of over 20,000 curies per month of Ir-192, Co60 and Cs137 in the manufacturing of radiographic sources; operational responsibility of a 10,000 curie Co60 source used in radiation effects studies and with various x-ray machines (including operational responsibility for a 75 KVP flash x-ray machine and a 250 KVP steady-state x-ray machine).